```
000001 A   VORTEX SET    1               PUT LAST FOR VORTEX                 01 00001
000001 A   V75    SET    1                                              V75 ********
           *THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1972 BY VARIAN DATA MACHINV2 01 00002
           *                                                                  01 00003
           *      V.D.M.  PART  NO.        92L0205-020C                       01 00004
           *                                                                  01 00005
           *                                          RELEASED    03/01/74    01 00006
           *                                                                  01 00007
           *               V$SNAP                                             01 00008
           *                                                                  01 00009
           *                                                                  01 00010
                  TITLE   V$SNAP                                              01 00011
           *                                                                  01 00012
           *      SNAP                                                        01 00013
           *                                                                  01 00014
           *      THIS IS THE SNAPSHOT ROUTINE.                               01 00015
           *                                                                  01 00016
           *               ENTER  VIA     CALL  SNAP                          01 00017
           *                              DATA START ADDRESS OF DUMP LOCATION 01 00018
           *                              DATA END ADDRESS OF DUMP LOCATION   01 00019
           *                              DATA TIDB DUMP FLAG             C   01 00020
           *                                   NEG IF TIDB DUMP REQUESTED C   01 00021
           *                                   POS IF NO TIDB DUMP        C   01 00022
           *                                                                  01 00023
           *               IF START ADDRESS CONTAINS A NEGATIVE VALUE NO DUMP 01 00024
           *                              IS MADE.                            01 00025
           *                                                                  01 00026
           *                                                                  01 00027
           *      SNAP WILL OUTPUT:                                           01 00028
           *                                                                  01 00029
           *                 SN** TASK NAME FOLLOWED BY FIRST ALLOCATABLE LOCATION 01 00030
           *                      THEN FOLLOWED BY DUMP REQUEST.              01 00031
           *             EXAMPLE:                                             01 00032
           *                                                                  01 00033
           *                 SN** TEST01 001000                               01 00034
           *                 001200 005000 017660 017662 000001               01 00035
           *                 TIDB LOC 55000 -CONTENTS=      (IF REQUESTED) C  01 00036
           *                   DUMP OF TIDB CONTENTS                      C   01 00037
           *                 SNAP DUMP                                    C   01 00038
           *                   DUMP OF SNAP AREA                          C   01 00039
           *                                                                  01 00040
           *               WHERE SNAP LOCATION = 001200                       01 00041
           *                     A REGISTER    = 005000                       01 00042
           *                     B REGISTER    = 017660                       01 00043
           *                     X REGISTER    = 017662                       01 00044
           *                     OVERFLOW      = 000001   (ON)                01 00045
           *                     TIDB LOCATION = 055000                   C   01 00046
           *                                                                  01 00047
           *                                                                  01 00048
           *                                                                  01 00049
                  NAME    SNAP                                                01 00050
000000 A   W      EQU     0               WAIT                                01 00051
000001 A   NW     EQU     1               NO WAIT                             01 00052
000300 A   LC     EQU     0300                                                01 00053
000300 A   V$CTL  EQU     LC                                                  01 00054
000420 A   MT     EQU     0420                                                01 00055
000422 A   TWO    EQU     MT+2                                                01 00056
000011 A   TBENTY EQU     9                                               V2  01 00057
000424 A   BS3    EQU     MT+4                                            V2  01 00058
000425 A   BS4    EQU     MT+5                                            V2  01 00059
000467 A   SEVEN  EQU     MT+39                                           V2  01 00060
000022 A   TBKN1  EQU     18              TASK NAME                           01 00061
000023 A   TBKN2  EQU     19                                                  01 00062
000024 A   TBKN3  EQU     20                                                  01 00063
000025 A   TBTLC  EQU     21                                                  01 00064
000421 A   BS0    EQU     MT+1                                            V75 ********
000002 A   TB75   EQU     2                                               V75 ********
000016 A   TB75B  EQU     14                                              V75 ********
000001 A   TB75Z  EQU     1                                               V75 ********
                  IFT     V75-1                                           V75 ********
                  GOTO    1                                               V75 ********
           *                      TEST BI MACRO                           V75********
           TESTF  MAC                                                     V75 ********
                  LDA     P(2),P(1)        PICK UP WORD CONTAINING        V75 ********
                  ANA     BS0+P(3)                                        V75 ********
                  EMAC                                                    V75 ********
           *                         SAVE AND RESTORE V75 REG             V75********
           SAVE75 MAC                                                     V75********
                  ST,3    P(1)                                            V75********
                  ST,4    P(2)                                            V75********
                  ST,5    P(3)                                            V75********
                  ST,6    P(4)                                            V75********
                  ST,7    P(5)                                            V75********
                  EMAC                                                    V75********
           LOAD75 MAC                                                     V75********
                  LD,3    P(1)                                            V75********
                  LD,4    P(2)                                            V75********
                  LD,5    P(3)                                            V75********
                  LD,6    P(4)                                            V75********
                  LD,7    P(5)                                            V75********
                  EMAC                                                    V75********
           1      CONT                                                    V75 ********
000000 000000 A   SNAP   ENTR                                                 01 00065
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000001 054564 A    94          STA     AP          SAVE A,B,X REGISTERS.                                  01 00066
000002 064564 A    95          STB     BP                                                                 01 00067
000003 074564 A    96          STX     XP                                                                 01 00068
000004 005001 A    97          TZA                                                                        01 00069
000005 005511 A    98          AOFA                SAVE OVERFLOW                                          01 00070
000006 054562 A    99          STA     OP                                                                 01 00071
                   100          IFT     VORTEX-2                                                      V2   01 00072
                   101          GOTO    ENDC01                                                        V2   01 00073
                   102          LDX     BS4                                                           V2   01 00074
                   103          TZA                 CLEAR FIRST 16 LOC OF SNBUF                   V2   01 00075
                   104 SCL      STAE    SNBUF,X                                                       V2   01 00076
                   105          DXR                                                                   V2   01 00077
                   106          JXNZ    SCL                                                           V2   01 00078
                   107          LDA     V$CTL       GET TIDB ADDR.                                    V2   01 00079
                   108          STA     P2          STORE ADDR. IN PASS CALL                          V2   01 00080
                   109          ANA     SEVEN                                                         V2   01 00081
                   110          STA     P1+1        SAVE LAST DIGIT OF TIDB ADDR.                     V2   01 00082
                   111          LDAI    SNBUF       NOW SNBUF AT XXXXX0 ADDR.                         V2   01 00083
                   112          ANAI    0177770                                                            01 00084
                   113          ADD     BS3         010                                               V2   01 00085
                   114          STA     SNAPA       SAVE FOR DUMP                                          01 00086
                   115 P1       DRAI    0           PASS RELATIVE TO LAST DIGIT OF                    V2   01 00087
                   116          STA     P2+1         TIDB FOR DUMP                                    V2   01 00088
                   117          SPAC                                                                  V2   01 00089
                   118          PASS    37,*-*,SNBUF                                                 V75*********
                   119 P2       EQU     *-2                                                           V2   01 00091
                   120          SPAC                                                                  V2   01 00092
                   121          LDXE    P2+1        GET ADDR WHERE TIDB WAS PASSED                    V2   01 00093
                   122          LDA     TBKN1,X     STORE TASK NAME FROM TIDB                         V2   01 00094
                   123          STA     SNM1                                                          V2   01 00095
                   124          LDA     TBKN2,X                                                       V2   01 00096
                   125          STA     SNM1+1                                                        V2   01 00097
                   126          LDA     TBKN3,X                                                       V2   01 00098
                   127          STA     SNM1+2                                                        V2   01 00099
                   128          IFT     V75-1                                                         V75  *********
                   129          GOTO    2                                                             V75  *********
                   130 *                        TEST IF A V75 MACHINE                                 V75  *********
                   131          LDA     TB75,X  V75 FLAG IN TIDB                                      V75  *********
                   132          ANAI    040000                                                        V75  *********
                   133          STAE    V75FLG  SET/RESET V75 FLAG                                    V75  *********
                   134 2        CONT                                                                  V75  *********
                   135          LDB     TBENTY,X    DISPLAY TBENTY AS START LOC.                      V2   01 00100
                   136 ENDC01   CONT                                                                  V2   01 00101
                   137          IFF     VORTEX-2                                                      V2   01 00102
                   138          GOTO    ENDC02                                                        V2   01 00103
000007 020300 A    139          LDB     V$CTL       CURRENT TASK TIDB                                      01 00104
000010 016022 A    140          LDA     TBKN1,B                                                            01 00105
000011 054437 A    141          STA     SNM1                                                               01 00106
000012 016023 A    142          LDA     TBKN2,B     STORE TASK NAME                                        01 00107
000013 054436 A    143          STA     SNM1+1                                                             01 00108
000014 016024 A    144          LDA     TBKN3,B                                                            01 00109
000015 054435 A    145          STA     SNM1+2                                                             01 00110
                   146          IFT     V75-1                                                         V75  *********
                   147          GOTO    3                                                             V75  *********
                   148          TESTF   B,TB75,TB75B,TB75Z                                            V75  *********
000016 016002 A
000017 150437 A
000020 006057 A    149          STAE    V75FLG                                                        V75  *********
000021 000577 R
                   150 3        CONT                                                                  V75  *********
000022 026011 A    151          LDB     TBENTY,B                                                      V2   01 00111
                   152 ENDC02   CONT                                                                  V2   01 00112
                   153          IFT     V75-1                                                         V75  *********
                   154          GOTO    4                                                             V75  *********
                   155 *                        SAVE V75 REGISTERS                                    V75  *********
000023 006017 A    156          LDAE    V75FLG                                                        V75  *********
000024 000577 R
000025 001010 A    157          JAZ     EEE         JMP IF NOT V75                                    V75  *********
000026 000041 R
                   158          SAVE75  R3P,R4P,R5P,R6P,R7P                                           V75  *********
000027 007130 A
000030 000572 R
000031 007140 A
000032 000573 R
000033 007150 A
000034 000574 R
000035 007160 A
000036 000575 R
000037 007170 A
000040 000576 R
       000041 R    159 EEE      EQU     *                                                             V75  *********
                   160 4        CONT                                                                  V75  *********
000041 006030 A    161          LDXI    SNM2        BUFFER ADDR                                            01 00113
000042 000455 R
000043 002000 A    162          CALL    CONV        CONVERT/STORE FIRST ALLOCATABLE LOC.                   01 00114
000044 000347 R
000045 005144 A    163          IXR                                                                        01 00115
000046 006027 A    164          LDBE    SNAP        X=SNM3+1.NOW GET SNAP LOCATION                         01 00116
000047 000000 R
000050 005320 A    165          DDR                                                                        01 00117
000051 005320 A    166          DDR                                                                        01 00118
000052 002000 A    167          CALL    CONV                                                               01 00119
000053 000347 R
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000054 024511 A  168          LDB     AP              X=SNM4.NOW GET A REGISTER CONTENT          01 00120
000055 002000 A  169          CALL    CONV                                                       01 00121
000056 000347 R
000057 024507 A  170          LDB     BP              X=SNM5.NOW GET B REGISTER CONTENT          01 00122
000060 002000 A  171          CALL    CONV                                                       01 00123
000061 000347 R
000062 024505 A  172          LDB     XP              X=SNM6.NOW GET X REGISTER CONTENT          01 00124
000063 002000 A  173          CALL    CONV                                                       01 00125
000064 000347 R
000065 024503 A  174          LDB     OP              X=SNM7.NOW GET OVERFLOW INDICATOR          01 00126
000066 002000 A  175          CALL    CONV                                                       01 00127
000067 000347 R
               176 SN01       WRITE   SNDCB,DO,0,0    OUTPUT MESSAGE. DO=LOGICAL UNIT,NO-WAIT    01 00128
000070 006505 A
000071 000000 E
000072 100000 A
000073 000414 A
000074 000442 R
000075 000000 A
000076 000000 A
               177            IFT     V75-1                                                      V75 ********
               178            GOTO    5                                                          V75 ********
               179 *                          PRINT   V75     REGISTERS                          V75********
000077 014477 A  180          LDA     V75FLG                                                     V75 ********
000100 001010 A  181          JAZ     SN12    JMP IF NOT A V75                                   V75 ********
000101 000132 R
000102 006030 A  182          LDXI    SNR3                                                       V75 ********
000103 000506 R
000104 024465 A  183          LDB     R3P                                                        V75 ********
000105 002000 A  184          CALL    CONV    R3                                                 V75 ********
000106 000347 R
000107 024463 A  185          LDB     R4P     R4                                                 V75 ********
000110 002000 A  186          CALL    CONV                                                       V75 ********
000111 000347 R
000112 024461 A  187          LDB     R5P     R5                                                 V75 ********
000113 002000 A  188          CALL    CONV                                                       V75 ********
000114 000347 R
000115 024457 A  189          LDB     R6P     R6                                                 V75 ********
000116 002000 A  190          CALL    CONV                                                       V75 ********
000117 000347 R
000120 024455 A  191          LDB     R7P     R7                                                 V75 ********
000121 002000 A  192          CALL    CONV                                                       V75 ********
000122 000347 R
               193            WRITE   SNDCBR,DO,W,1   PRINT REGISTERS R3-R7                      V75 ********
000123 006505 A
000124 000071 E
000125 100000 A
000126 010414 A
000127 000556 R
000130 000000 A
000131 000000 A
        000132 R  194 SN12     EQU     *                                                          V75 ********
               195 5          CONT                                                               V75 ********
000132 006027 A  196          LDBE    SNAP                                                       C   01 00129
000133 000000 R
000134 016002 A  197          LDA     2,B             TIDB DUMP FLAG                             C   01 00130
000135 001002 A  198          JAP     SN03            JUMP IF NOT SET                            C   01 00131
000136 000206 R
000137 020300 A  199          LDB     0300            CURRENT TIDB LOCATION                          01 00132
000140 006030 A  200          LDXI    TIDB+5                                                         01 00133
000141 000542 R
000142 002000 A  201          CALL    CONV            STORE IN HEADER                                01 00134
000143 000347 R
               202            WRITE   STIDB,DO,0,1    OUTPUT TIDB HEADER                             01 00135
000144 006505 A
000145 000124 E
000146 100000 A
000147 010414 A
000150 000532 R
000151 000000 A
000152 000000 A
000153 010300 A  203          LDA     0300                                                           01 00136
000154 005014 A  204          TAX                                                                    01 00137
000155 001004 A  205          JAN     SN03            IF IN DISPATCHER                               01 00138
000156 000206 R
000157 006140 A  206          SUBI    037                                                            01 00139
000160 000037 A
000161 001010 A  207          JAZ     SN03            IF IN REAL TIME CLOCK                          01 00140
000162 000206 R
               208            IFT     VORTEX-1        GO TO 1 IF VORTEX II                       E.2********
               209            GOTO    1                                                          E.2********
000163 005041 A  210          TXA                     TIDB LOCATION                              E.2********
000164 006150 A  211          ANAI    0177770         SET TO DUMP BOUNDARY                       E.2********
000165 177770 A
000166 054053 A  212          STA     SNAPA           SET START DUMP ADDR                        E.2********
               213 1          CONT                                                               E.2********
               214            IFT     V75-1                                                      V75********
               215            GOTO    SN133                                                      V75********
000167 014407 A  216          LDA     V75FLG                                                     V75********
000170 001010 A  217          JAZ     SN133                                                      V75********
000171 000177 R
000172 014047 A  218          LDA     SNAPA                                                      V75********
000173 006120 A  219          ADDI    36                                                         V75********
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000174 000044 A
000175 001000 A   220          JMP     SN144                                                    V75********
000176 000202 R
       000177 R   221 SN133    EQU     *                                                        V75********
000177 014042 A   222          LDA     SNAPA          SNBUF = XXXXX0 ADDR                       V2  01 00143
000200 006120 A   223          ADDI    28                                                       V2  01 00144
000201 000034 A
       000202 R   224 SN144    EQU     *                                                        V75********
000202 005012 A   225          TAB                                                              V2  01 00145
000203 014036 A   226          LDA     SNAPA          SNBUF ADDR. RELATIVE TO TIDB LAST DGT     V2  01 00146
000204 002000 A   227          CALL    SNAPA          OUTPUT CONTENTS                               01 00148
000205 000242 R
       000206 R   228 SN03     EQU     *                                                            01 00150
000206 006027 A   229          LDBE    SNAP                                                         01 00151
000207 000000 R
000210 005021 A   230          TBA                                                                  01 00152
000211 006120 A   231          ADDI    3                                                        C   01 00153
000212 000003 A
000213 054025 A   232          STA     SNEXIT+1       RETURN ADDR.                                  01 00154
000214 016000 A   233          LDA     0,B            START ADDR.                                   01 00155
000215 001004 A   234          JAN     SN04           NEGATIVE NO DUMP                              01 00156
000216 000231 R
                  235          WRITE   SNDMP,D0,0,1     OUTPUT DUMP HEADER                       E.2********
000217 006505 A
000220 000145 E
000221 100000 A
000222 010414 A
000223 000553 R
000224 000000 A
000225 000000 A
                  236          IFF     VORTEX-2                                                     01 00157
                  237          TZX                                                              V2  01 00158
000226 026001 A   238          LDB     1,B            B=END ADDR.                                   01 00159
000227 002000 A   239          CALL    SNAPA          DUMP                                          01 00160
000230 000242 R
       000231 R   240 SN04     EQU     *                                                            01 00161
000231 007401 A   241          SDF                                                                  01 00162
000232 014336 A   242          LDA     OP             GET OVERFLOW                                  01 00163
000233 001011 A   243          JIF     011,*+2        RESET OVERFLOW IF A=0                         01 00164
000234 000235 R
000235 014330 A   244          LDA     AP                                                           01 00165
000236 024330 A   245          LDB     BP             RESTORE A,B,X AND OVERFLOW                    01 00166
000237 034330 A   246          LDX     XP                                                           01 00167
000240 001000 A   247 SNEXIT   JMP     *              NOW RETURN                                    01 00168
000241 000240 R
000242 000000 A   248 SNAPA    ENTR                   SUBROUTINE TO DUMP MEMORY                     01 00169
000243 004343 A   249          LSRA    3                  A= STARTING ADDR                          01 00170
000244 001010 A   250          JAZ     *+4            JMP IF 0                                  V2  01 00171
000245 000250 R
000246 005311 A   251          DAR                         B= END ADDR                              01 00172
000247 004203 A   252          ASLA    3                                                            01 00173
000250 054121 A   253          STA     ADDR                                                         01 00174
                  254          IFT     VORTEX-2                                                     01 00175
                  255          GOTO    S1                                                           01 00176
                  256          ADD     D8                                                       V2  01 00177
                  257          STA     SADDR          SAVE DUMP ADDR.                           V2  01 00178
                  258          JXZ     SNP1                                                     V2  01 00179
                  259          TXA                                                              V2  01 00180
                  260          ANAI    0177770              START AT 0                          V2  01 00181
                  261          STA     SADDR                                                    V2  01 00182
                  262 SNP1     EQU     *                                                        V2  01 00183
                  263 S1       CONT                                                                 01 00184
000251 064121 A   264          STB     ADDR+1                                                       01 00185
000252 005101 A   265          INCR    1                                                            01 00186
000253 054113 A   266          STA     ZFLG+1         RESET SKIP LINE FLAG                          01 00187
       000254 R   267 DMPA     EQU     *                                                            01 00188
000254 014115 A   268          LDA     ADDR                                                         01 00189
000255 124112 A   269          ADD     D8             =8                                            01 00190
                  270          IFT     VORTEX-2                                                     01 00191
000256 005012 A   271          TAB                                                                  01 00192
000257 144113 A   272          SUB     ADDR+1         END OF DUMP?                                  01 00193
000260 001002 A   273          JAP*    SNAPA                                                        01 00194
000261 100242 R
                  274          IFF     VORTEX-2                                                     01 00195
                  275          LDB     SADDR          GET PRINT ADDR.                           V2  01 00196
000262 034060 A   276          LDX     ABUF                                                         01 00197
000263 002000 A   277          CALL    CONV           CONVERT ADDR                                  01 00198
000264 000347 R
000265 064100 A   278          STB     ZFLG           B=0. RESET LINE COMPARE WORD                  01 00199
000266 024103 A   279 DMPB     LDB     ADDR                                                         01 00200
000267 016010 A   280          LDA     8,2                                                          01 00201
000270 136000 A   281          ERA     0,2            COMPARE LINE WITH PREVIOUS WORD               01 00202
000271 114074 A   282          ORA     ZFLG                                                         01 00203
000272 054073 A   283          STA     ZFLG                                                         01 00204
000273 026010 A   284          LDB     8,2            GET DATA WORD                                 01 00205
000274 044075 A   285          INR     ADDR           INCREMENT ADDR.                               01 00206
                  286          IFF     VORTEX-2                                                     01 00207
                  287          INR     SADDR                                                    V2  01 00208
000275 002000 A   288          CALL    CONV           CONVERT DATA WORD                             01 00209
000276 000347 R
000277 006140 A   289          SUBI    BUF+36                                                       01 00210
000300 000441 R
000301 001004 A   290          JAN     DMPB           END OF LINE                                   01 00211
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000302 000266 R
000303 024062 A  291          LDB     ZFLG                                                    01 00212
000304 014062 A  292          LDA     ZFLG+1          CHECK SKIP LINE FLAGS                   01 00213
000305 001030 A  293          JIF     030,DMPA        SKIP IDENTICAL LINES                    01 00214
000306 000254 R
000307 001024 A  294          JIF     024,ZLIN        PRINT MARK FOR SKIPPED LINES            01 00215
000310 000323 R
                 295          WRITE   SNMDCB,DO,W,0   OUTPPUT LINE,WAIT                       01 00216
000311 006505 A
000312 000220 E
000313 100000 A
000314 000414 A
000315 000335 R
000316 000000 A
000317 000000 A
000320 005301 A  296          DECR    1               SET PREVIOUS LINE PRINTED FLAG          01 00217
000321 001000 A  297          JMP     DMPA-1                                                  01 00218
000322 000253 R
                 298 ZLIN     WRITE   SNADCB,DO,NW,0  OUTPUT * FOR SKIPPED LINES              01 00219
000323 006505 A
000324 000312 E
000325 100000 A
000326 100414 A
000327 000340 R
000330 000000 A
000331 000000 A
000332 005001 A  299          TZA                                                             01 00220
000333 001000 A  300          JMP     DMPA-1                                                  01 00221
000334 000253 R
                 301 SNMDCB   DCB     37,BUF-1,0      DCB FOR 1 LINE                          01 00222
000335 000045 A
000336 000374 R
000337 000000 A
                 302 SNADCB   DCB     1,SNASK,0       DCR FOR *                               01 00223
000340 000001 A
000341 000344 R
000342 000000 A
000343 000375 R  303 ABUF     DATA    BUF                                                     01 00224
000344 120252 A  304 SNASK    DATA    0120252         BLANK,*                                 01 00225
000345 005145 A  305 CNV1     INCR    045             A=X=BUFFER END +2                       01 00226
000346 001000 A  306          JMP     *               EXIT                                    01 00227
000347 000346 R
         000347 R 307 CONV     EQU     *-1             CONVERT OCTAL TO ASC AND STORE          01 00228
000350 014020 A  308          LDA     INDIR             B= OCTAL NUMBER                       01 00229
000351 004441 A  309          LLRL    1                 X= BUFFER ADDR.TO STORE ASC CHAR.     01 00230
000352 004245 A  310 CNV2     LRLA    5               SIGN BIT                                01 00231
000353 004443 A  311          LLRL    3               NEXT OCTAL DIGIT                        01 00232
000354 114010 A  312          ORA     *+9             =130260                                 01 00233
000355 055000 A  313          STA     0,X             STORE ASC CHARS.                        01 00234
000356 005001 A  314          TZA                                                             01 00235
000357 005144 A  315          IXR                     INCREMENT BUFFER ADDR                   01 00236
000360 004443 A  316          LLRL    3               NEXT OCTAL DIGIT.                       01 00237
000361 001020 A  317          JRZ     CNV1            ALL DONE.                               01 00238
000362 000343 R
000363 001000 A  318          JMP     CNV2            DO NEXT 2 DIGITS.                       01 00239
000364 000352 R
000365 130260 A  319          DATA    '00'                                                    01 00240
000366 000000 A  320 ZFLG     DATA    0,-1                                                    01 00241
000367 177777 A
                 321          IFF     VORTEX-2                                                01 00242
                 322 SADDR    DATA    0               PRINT ADDR.                     V2      01 00243
000370 000010 A  323 D8       DATA    8                                                       01 00244
000371 100000 A  324 INDIR    DATA    0100000                                                 01 00245
000372 000000 A  325 ADDR     DATA    0,0                                                     01 00246
000373 000000 A
000374 120240 A  326          DATA    '  '            PRINT CONTROL                           01 00247
000375 000000 A  327 BUF      DATA    0,0,0,'  ',0,0,0,'  ',0,0,0,'  ',0,0,0                  01 00248
000376 000000 A
000377 000000 A
000400 120240 A
000401 000000 A
000402 000000 A
000403 000000 A
000404 120240 A
000405 000000 A
000406 000000 A
000407 000000 A
000410 120240 A
000411 000000 A
000412 000000 A
000413 000000 A
000414 120240 A  328          DATA    '  ',0,0,0,'  ',0,0,0,'  ',0,0,0,'  ',0,0,0,'  ',0,0,0  01 00249
000415 000000 A
000416 000000 A
000417 000000 A
000420 120240 A
000421 000000 A
000422 000000 A
000423 000000 A
000424 120240 A
000425 000000 A
000426 000000 A
000427 000000 A
```

```
000430  120240  A
000431  000000  A
000432  000000  A
000433  000000  A
000434  120240  A
000435  000000  A
000436  000000  A
000437  000000  A
000440  000000  A  329          DATA    0                                          01 00250
000441  120240  A  330          DATA    0120240                                    01 00251
                   331 SNDCB    DCB     32,SNMSG,0                                 01 00252
000442  000040  A
000443  000443  R
000444  000000  A
        000445  R  332 SNMSG    EQU     *           SNAP MSG                       01 00253
000445  120240  A  333          DATA    '  '        PRINT CONTROL                  01 00254
000446  151716  A  334          DATA    'SN**  '                                   01 00255
000447  125252  A
000450  120240  A
000451  120240  A  335 SNM1     DATA    '        '  NAME                           01 00256
000452  120240  A
000453  120240  A
000454  120240  A
000455  120240  A  336 SNM2     DATA    '        '  FIRST ALLOCATABLE LOCATION     01 00257
000456  120240  A
000457  120240  A
000460  106612  A  337          DATA    0106612     CARRIAGE RETURN,LINE FEED      01 00258
000461  120240  A  338 SNM3     DATA    '  XXXXXX  '  SNAP LOC                    01 00259
000462  154330  A
000463  154330  A
000464  154330  A
000465  120240  A
000466  120240  A  339 SNM4     DATA    '        '  A REGISTER CONTENT             01 00260
000467  120240  A
000470  120240  A
000471  120240  A
000472  120240  A  340 SNM5     DATA    '        '  B REGISTER CONTENT             01 00261
000473  120240  A
000474  120240  A
000475  120240  A
000476  120240  A  341 SNM6     DATA    '        '  X REGISTER CONTENT             01 00262
000477  120240  A
000500  120240  A
000501  120240  A
000502  120240  A  342 SNM7     DATA    '        '  OVERFLOW                       01 00263
000503  120240  A
000504  120240  A
                   343          IFT     V75-1                                  V75 ********
                   344          GOTO    6                                      V75 ********
000505  120240  A  345 SNR      DATA    '  '                                   V75 ********
000506  120240  A  346 SNR3     DATA    '        '    R3                        V75 ********
000507  120240  A
000510  120240  A
000511  120240  A
000512  120240  A  347 SNR4     DATA    '        '    R4                        V75 ********
000513  120240  A
000514  120240  A
000515  120240  A
000516  120240  A  348 SNR5     DATA    '        '    R5                        V75 ********
000517  120240  A
000520  120240  A
000521  120240  A
000522  120240  A  349 SNR6     DATA    '        '    R6                        V75 ********
000523  120240  A
000524  120240  A
000525  120240  A
000526  120240  A  350 SNR7     DATA    '        '    R7                        V75 ********
000527  120240  A
000530  120240  A
000531  120240  A
                   351 6        CONT                                           V75 ********
                   352          IFF     VORTEX-2                                   01 00264
                   353 SNBUF    BSS     45                                     V2  01 00265
                   354 STIDB    DCB     14,TIDB,0                                  01 00266
000532  000016  A
000533  000535  R
000534  000000  A
000535  120324  A  355 TIDB     DATA    ' TIDB LOC       -CONTENTS='               01 00267
000536  144704  A
000537  141240  A
000540  146317  A
000541  141640  A
000542  120240  A
000543  120240  A
000544  120240  A
000545  120255  A
000546  141717  A
000547  147324  A
000550  142716  A
000551  152323  A
000552  136640  A
                   356 SNDMP    DCB     5,DMPMSG,0                             C   01 00268
000553  000005  A
```

```
000554 000561 R
000555 000000 R
                    357            IFF     V75-1                                                    V75 ********
                    358 SNDCBR     DCB     21,SNR,0                                                V75 ********
000556 000025 A
000557 000505 R
000560 000000 A
000561 120323 A     359 DMPMSG     DATA    ' SNAP DUMP'                                             C   01 00269
000562 147301 A
000563 150240 A
000564 142325 A
000565 146720 A
000566 000000 A     360 AP         DATA    0               A REGISTER CONTENT                           01 00270
000567 000000 A     361 BP         DATA    0               B REGISTER CONTENT                           01 00271
000570 000000 A     362 XP         DATA    0               X REGISTER CONTENT                           01 00272
000571 000000 A     363 OP         DATA    0               OVERFLOW INDICATOR                           01 00273
                    364            IFT     V75-1                                                    V75 ********
                    365            GOTO    7                                                        V75 ********
000572 000000 A     366 R3P        DATA    0                 R3                                     V75 ********
000573 000000 A     367 R4P        DATA    0         R4                                             V75 ********
000574 000000 A     368 R5P        DATA    0         R5                                             V75 ********
000575 000000 A     369 R6P        DATA    0         R6                                             V75 ********
000576 000000 A     370 R7P        DATA    0         R7                                             V75 ********
000577 000000 A     371 V75FLG     DATA    0         V75 FLAG. 1 MEANS V75 MACHINE                  V75 ********
                    372 7          CONT                                                             V75 ********
       000001 A     373 X          EQU     1                                                            01 00274
       000002 A     374 B          EQU     2                                                            01 00275
       000013 A     375 DI         EQU     11              DEBUG INPUT LOGICAL UNIT                     01 00276
       000014 A     376 DO         EQU     12              DEBUG OUTPUT LOGICAL UNIT                    01 00277
                    377            END                                                                  01 00278
ENTRY NAMES
000000 R SNAP
EXTERNAL NAMES
000324 E V$IOC
SYMBOLS
000343 R ABUF    000372 R ADDR    000566 R AP      000002 A B
000567 R BP      000421 A BS0     000424 A BS3     000425 A BS4
000375 R BUF     000345 R CNV1    000352 R CNV2    000347 R CONV
000370 R D8      000013 A DI      000254 R DMPA    000266 R DMPB
000561 R DMPMSG  000014 A DO      000041 R EEE     000371 R INDIR
000300 A LC      000420 A MT      000001 A NW      000571 R OP
000572 R R3P     000573 R R4P     000574 R R5P     000575 R R6P
000576 R R7P     000467 A SEVEN   000070 R SN01    000206 R SN03
000231 R SN04    000132 R SN12    000177 R SN133   000202 R SN144
000340 R SNADCB  000000 R SNAP    000242 R SNAPA   000344 R SNASK
000442 R SNDCB   000556 R SNDCBR  000553 R SNDMP   000240 R SNEXIT
000451 R SNM1    000455 R SNM2    000461 R SNM3    000466 R SNM4
000472 R SNM5    000476 R SNM6    000502 R SNM7    000335 R SNMDCB
000445 R SNMSG   000505 R SNR     000506 R SNR3    000512 R SNR4
000516 R SNR5    000522 R SNR6    000526 R SNR7    000532 R STIDB
000002 A TB75    000016 A TB75B   000001 A TB75Z   000011 A TBENTY
000022 A TBKN1   000023 A TBKN2   000024 A TBKN3   000025 A TBTLC
000535 R TIDB    000422 A TWO     000300 A V$CTL   000324 E V$IOC
000001 A V75     000577 R V75FLG  000001 A VORTEX  000000 R W
000001 A X       000570 R XP      000346 R ZFLG    000323 R ZLIN
  0 ERRORS ASSEMBLY COMPLETE


  303  ABUF      276
  325  ADDR      253   264   268   272   279   285
  360  AP         94   168   244
  374  B         140   142   144   148   151   197   233   238
  361  BP         95   170   245
   66  BS0        75
   59  BS3       113
   60  BS4       102
  327  BUF       289   301   303
  305  CNV1      317
  310  CNV2      318
  307  CONV      162   167   169   171   173   175   184   186   188
                 190   192   201   277   288
  323  D8        256   269
  267  DMPA      293   297   300
  279  DMPB      290
  359  DMPMSG    356
  376  DO        176   193   202   235   295   298
  159  EEE       157
  136  ENDC01    101
  152  ENDC02    108
  324  INDIR     309
   54  LC         55
   56  MT         57    59    60    61    66
   53  NW        290
  368  OP         99   174   248
    0  P          74    74    75
  115  P1        110
  119  P2        108   116   121
  366  R3P       158   183
  367  R4P       158   185
  368  R5P       158   187
  369  R6P       158   189
  370  R7P       158   191
```

263	S1	255								
322	SADDR	257	261	275	287					
104	SCL	106								
61	SEVEN	109								
228	SN03	198	205	207						
240	SN04	234								
194	SN12	181								
221	SN133	215	217							
224	SN144	220								
302	SNADCB	298								
93	SNAP	51	[illegible]							
356	[illegible]									
247	SNEXIT	252								
335	SNM1	123	125	127	141	143	145			
336	SNM2	161								
301	SNMDCB	295								
332	SNMSG	331								
262	SNP1	258								
345	SNR	358								
346	SNR3	182								
354	STIDB	202								
67	TB75	131	148							
68	TB75B	148								
69	TB75Z	148								
58	TBEMTY	135	151							
62	TBKN1	122	140							
63	TBKN2	124	142							
64	TBKN3	126	144							
355	TIDB	200	354							
55	V$CTL	107	139							
0	V$SNAP	12								
2	V75	70	128	146	153	177	214	343	357	364
371	V75FLG	133	149	156	180	216				
1	VORTEX	100	137	208	236	254	270	274	286	321
		352								
52	W	193	295							
373	X	104	122	124	126	131	135	313		
362	XP	96	172	246						
320	ZFLG	266	278	282	283	291	292			
298	ZLIN	294								

```
                    1  *THIS IS A COPYRIGHTED PROGRAM.COPYRIGHT 1974 BY VARIAN DATA MACHINE     01 00001
                    2  *                                                                       01 00002
                    3  *     V.D.M.  PART  NO.                                                 01 00003
                    4  *                                                                       01 00004
                    5  *                                                                    E.2********
                    6  *                                                                       01 00006
                    7  *                                                                       01 00007
                    8  *       THE FOLLOWING ARE SUPPLEMENTAL OPCODES                         01 00008
                    9  *       FOR USE WITH THE MICRO ASSEMBLER                               01 00009
                   10  *                                                                       01 00010
                   11  *                                                                       01 00011
0009               12  ADD      EQU      9                                                    01 00012
0008               13  ALUC     EQU      8                                                    01 00013
0006               14  ALUO     EQU      6                                                    01 00014
0007               15  ALUS     EQU      7                                                    01 00015
0009               16  ALUZ     EQU      9                                                    01 00016
000B               17  AND      EQU      X'B                                                  01 00017
0002               18  AONE     EQU      2                                                    01 00018
0001               19  AZERO    EQU      1                                                    01 00019
0000               20  A$GPR    EQU      0                                                    01 00020
0002               21  A$GPRL   EQU      2                                                    01 00021
0003               22  A$GPRR   EQU      3                                                    01 00022
0001               23  A$P      EQU      1                                                    01 00023
0000               24  A$SPEC   EQU      0                                                    01 00024
0007               25  BS$ALU   EQU      7                                                    01 00025
000F               26  BS$MIR   EQU      X'F                                                  01 00026
0003               27  BS$OVR   EQU      3                                                    01 00027
000B               28  BS$P     EQU      X'B                                                  01 00028
0000               29  B$GPR    EQU      0                                                    01 00029
0001               30  B$SPEC   EQU      1                                                    01 00030
0003               31  CRY1     EQU      3                                                    01 00031
000F               32  DECA     EQU      X'F                                                  01 00032
0009               33  DECB     EQU      9                                                    01 00033
0004               34  DECODE   EQU      4                                                    01 00034
0005               35  DECOD$   EQU      5                                                    01 00035
0006               36  EOR      EQU      6                                                    01 00036
0003               37  FT       EQU      3                                                    01 00037
0001               38  GPROUT   EQU      1                                                    01 00038
000D               39  GPRS     EQU      X'D                                                  01 00039
0001               40  IBR$I    EQU      1                                                    01 00040
0004               41  IF$ALU   EQU      4                                                    01 00041
000C               42  IF$MIR   EQU      X'C                                                  01 00042
0000               43  IF$OVR   EQU      0                                                    01 00043
0008               44  IF$P     EQU      8                                                    01 00044
0000               45  INCA     EQU      0                                                    01 00045
0001               46  INCB     EQU      1                                                    01 00046
0004               47  INCP     EQU      4                                                    01 00047
0005               48  INCSC    EQU      5                                                    01 00048
0002               49  IOR      EQU      2                                                    01 00049
0001               50  IOSR     EQU      1                                                    01 00050
0006               51  KOUT     EQU      6                                                    01 00051
0000               52  LFT      EQU      0                                                    01 00052
0003               53  LIT      EQU      3                                                    01 00053
0001               54  LOG      EQU      1                                                    01 00054
0001               55  MEMC     EQU      1                                                    01 00055
0002               56  MEMC$    EQU      2                                                    01 00056
0001               57  MIR      EQU      1                                                    01 00057
000B               58  MIRS     EQU      X'B                                                  01 00058
0002               59  MSK      EQU      2                                                    01 00059
000E               60  NORM     EQU      X'E                                                  01 00060
0000               61  NOTA     EQU      0                                                    01 00061
0005               62  NOTB     EQU      5                                                    01 00062
0005               63  OF$ALU   EQU      5                                                    01 00063
000D               64  OF$MIR   EQU      X'D                                                  01 00064
0001               65  OF$OVR   EQU      1                                                    01 00065
0009               66  OFSP     EQU      9                                                    01 00066
0007               67  OLZF     EQU      7                                                    01 00067
0005               68  OLSE     EQU      5                                                    01 00068
0003               69  ONES     EQU      3                                                    01 00069
0000               70  OPR      EQU      0                                                    01 00070
0003               71  OPROUT   EQU      3                                                    01 00071
0001               72  OR       EQU      1                                                    01 00072
0004               73  ORSE     EQU      4                                                    01 00073
0006               74  ORZF     EQU      6                                                    01 00074
0006               75  OS$ALU   EQU      6                                                    01 00075
000E               76  OS$MIR   EQU      X'E                                                  01 00076
0002               77  OS$OVR   EQU      2                                                    01 00077
000A               78  OS$P     EQU      X'A                                                  01 00078
0000               79  OVFL     EQU      0                                                    01 00079
0003               80  PJMP     EQU      3                                                    01 00080
0004               81  PJMP$    EQU      4                                                    01 00081
0001               82  POPPCL   EQU      1                                                    01 00082
0004               83  POPJMP   EQU      4                                                    01 00083
0001               84  POUT     EQU      1                                                    01 00084
0002               85  PUSH     EQU      2                                                    01 00085
000F               86  QUOS     EQU      X'F                                                  01 00086
0000               87  R0       EQU      0                                                    01 00087
0001               88  R1       EQU      1                                                    01 00088
0002               89  R2       EQU      2                                                    01 00089
0003               90  R3       EQU      3                                                    01 00090
0004               91  R4       EQU      4                                                    01 00091
0005               92  R5       EQU      5                                                    01 00092
0006               93  R6       EQU      6                                                    01 00093
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           0007  94  R7      EQU     7                                          01 0009
           0008  95  R8      EQU     8                                          01 00095
           0009  96  R9      EQU     9                                          01 00096
           000A  97  RA      EQU     X'A                                        01 00097
           000B  98  RB      EQU     X'B                                        01 00098
           000C  99  RC      EQU     X'C                                        01 00099
           000D 100  RD      EQU     X'D                                        01 00100
           000E 101  RE      EQU     X'E                                        01 00101
           000F 102  RF      EQU     X'F                                        01 00102
           0001 103  RGHT    EQU     1                                          01 00103
           0002 104  SCOUT   EQU     2                                          01 00104
           000C 105  SFTC    EQU     X'C                                        01 00105
           000C 106  SHFA    EQU     X'C                                        01 00106
           000A 107  SHFT    EQU     X'A                                        01 00107
           0001 108  SHFTOP  EQU     1                                          01 00108
           0000 109  SPEC    EQU     0                                          01 00109
           0004 110  SSW1    EQU     4                                          01 00110
           0003 111  SSW2    EQU     3                                          01 00111
           0002 112  SSW3    EQU     2                                          01 00112
           000D 113  STACK   EQU     X'D                                        01 00113
           0003 114  STAT    EQU     3                                          01 00114
           0006 115  SUB     EQU     6                                          01 00115
           0002 116  S$ALU   EQU     2                                          01 00116
           0006 117  S$OVFL  EQU     6                                          01 00117
           0001 118  S$SHFT  EQU     1                                          01 00118
           0002 119  TCB     EQU     2                                          01 00119
           0003 120  TESTT   EQU     3                                          01 00120
           0002 121  TESTF   EQU     2                                          01 00121
           0005 122  TFIR    EQU     5                                          01 00122
           000F 123  TRNA    EQU     X'F                                        01 00123
           000A 124  TRNB    EQU     X'A                                        01 00124
           0002 125  TT      EQU     2                                          01 00125
           0001 126  WAITMD  EQU     1                                          01 00126
           0003 127  ZERO    EQU     3                                          01 00127
                129  *                                                          01 00129
                130  *       FOLLOWING ARE ROM STANDARD STATE ADDRESSES         01 00130
                131  *                                                          01 00131
           013E 132  SS1M    EQU     X'13E       RESTART PIPELINE @ P           01 00132
           0092 133  SS2M    EQU     X'092       MAINTAIN PIPELINE              01 00133
           002D 134  SS3M    EQU     X'02D       DECODE NEXT INSTRUCTION (IN IBR) 01 00134
0000            136          ALOC    0                                          01 00136
                137  *                                                          01 00137
                138  * INITIALIZE ALL ENTRY POINTS                              01 00138
0000 0490000180000000 139    GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)           01 00139
0001 0490000180000000 140    GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)           01 00140
0002 0490000180000000 141    GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)           01 0014
0003 0490000180000000 142    GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)           01 0014
0004 0490000180000000 143    GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)           01 00143
0005 0490000180000000 144    GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)           01 00144
0006 0490000180000000 145      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00145
0007 0490000180000000 146      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00146
0008 0490000180000000 147      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00147
0009 0490000180000000 148      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00148
000A 0490000180000000 149      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00149
000B 0490000180000000 150      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00150
000C 0490000180000000 151      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00151
000D 0490000180000000 152      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00152
000E 0490000180000000 153      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00153
000F 0490000180000000 154      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00154
0010 0490000180000000 155      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00155
0011 0490000180000000 156      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00156
0012 0490000180000000 157      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00157
0013 0490000180000000 158      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00158
0014 0490000180000000 159      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00159
0015 0490000180000000 160      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00160
0016 0490000180000000 161      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00161
0017 0490000180000000 162      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00162
0018 0490000180000000 163      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00163
0019 0490000180000000 164      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00164
001A 0490000180000000 165      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00165
001B 0490000180000000 166      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00166
001C 0490000180000000 167      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00167
001D 0490000180000000 168      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00168
001E 0490000180000000 169      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00169
001F 0490000180000000 170      GEN     /P(SS2M),10(PJMP),1(0),6(0),5(0)         01 00170
                171  *                                                          01 00171
                172  * THIS FIRMWARE USED WITH VORTEX I                          01 00172
                173  *                                                          01 00173
                174  *       V73 WCS FLOATING POINT FIRMWARE                    01 00174
                175  *                                                          01 00175
           0200 176  P       EQU     X'200       PAGE ADDRESS (PAGE 1)          01 00176
                177  *                                                          01 00177
                178  * MUST BE ASSEMBLED WITH SUPPLEMENTAL OPCODE EQUATE DECK   01 00178
                179  *                                                          01 00179
           0020 180  FLTFRM EQU      X'20                                       01 00180
                181  * ENTRY FOR FLOATING POINT                                 01 00181
001C            182          ORG     X'1C                                       01 00182
001C 0A90000080000000 183    GEN     /N(FLPNT),6(SPEC),10(WAITMD)               01 00183
                184  *                                                          01 00184
003E            185          ORG     FLTFRM+X'1E                                01 00185
                186  FLPNT2 GEN      /N(FLPT2),10(OF$ALU),6(MEMC),12(A$GPR),24(R9), 2ND OF   01 00186
003E 0208040284060009 187     C14(INCA),16(CRY1),13(INCP)      OF OP2/ INCREMENT PC     01 0018
                188  FLPNT1 GEN      /N(FLPT3),10(OF$MIR),6(MEMC):11(B$GPR),23(R1),14(TRNB),  01 001
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                          282  *                                                              01 00282
00A1 0530008000F80001     283  ICOMP   GEN    /N(ICOMP4),GF2,FFF,MF1,AA1          SAMPLE IF AR1>0           01 00283
00A2 0518000000F10000     284  ICOMP2  GEN    /*,FFF,WR1,AA0                      DECR AR0 (FOR 2'S COMP)01 00284
00A3 0520008000090000     285  ICOMP3  GEN    /*,GF2,MF1,WR1,AA0                  1'S COMP AR0              01 00285
00A4 00000006E0070004     286          GEN    IMD,LB3,CF3,WR1,AA4                 INCREMENT SIGN FLAG -     01 00286
                          287  *                                                  POP/RETURN                01 00287
00A5 0538000000670111     288  ICOMP1  GEN    /N(ICOMP5),FF6,CF3,WR1,SH1,AA1,BB1  2'S COMP AR1.             01 00288
00A6 1528324000000000     289  ICOMP4  GEN    /T(ICOMP1,ICOMP2),TF3,GF9                                     01 00289
00A7 054000063B80001      290  ICOMP5  GMSK   /*,LB3,RF3,FFB,MK8000,AK1           STRIP SIGN BIT            01 00290
00A8 0518000020A90001     291          GEN    /N(ICOMP3),LB1,FFA,MF1,WR1,AA1                                01 00291
                          292  *                                                                            01 00292
                          293  *                                                                            01 00293
                          294  *       DOUBLE PRECISION FIXED POINT MULTIPLY (IMUL)                         01 00294
                          295  *                                                                            01 00295
                          296  *       CALLING SEQUENCE                                                     01 00296
                          297  *       AR6/AR7= 1ST OPERAND                                                 01 00297
                          298  *       AR9/ARA= 2ND OPERAND                                                 01 00298
                          299  *       AR3    = TEMPORARY STORAGE                                           01 00299
                          300  *       AR4    = SIGN FLAG                                                   01 00300
                          301  *                                                                            01 00301
                          302  *       RETURN                                                               01 00302
                          303  *       AR0/AR1= RESULT                                                      01 00303
                          304  *                                                                            01 00304
                          305  *                                                                            01 00305
                          306  *                                                                            01 00306
                          307  *                                                                            01 00307
00A9 15080006E0002AB2     308  IMUL1A  GMSK   /P(ICOMP+P),IMD,LB3,15(IMUL1B+P),AK2  NEGATE OP1              01 00308
00AA 0548008000A90071     309  IMUL1   GEN    /N(IMUL1A),GF2,FFA,MF1,WR1,BB7,AA1                            01 00309
                          310  IMUL1B  GEN    /T(IMULX,IMUL2),TF2,GF7,FFA,MF1,    CHECK IF MAX NEGATIVE     01 00310
00AB 159821C000A90006     311                 CWR1,BB0,AA6                                                  01 00311
                          312  IMUL4A  GEN    /T(IMULX,IMUL5),TF2,GF7,FFA,MF1,    CHECK IF MAX NEGATIVE     01 00312
00AC 259821C000A90009     313                 CWR1,BB0,AA9                                                  01 00313
00AD 0640008000A90060     314  IMUL    GEN    /N(IMUL0),GF2,FFA,MF1,WR1,BB6,AA0   SAMPLE OP1 SIGN           01 00314
00AE 0578008000A90090     315  IMUL3   GEN    /*,GF2,FFA,MF1,WR1,BB9,AA0          SAMPLE OP2 SIGN           01 00315
00AF 05A831C000000000     316          GEN    /T(IMUL6,IMUL4),TF3,GF7             TEST IF NEGATIVE          01 00316
00B0 0588008000A900A1     317  IMUL4   GEN    /*,GF2,FFA,MF1,WR1,BBA,AA1                                    01 00317
00B1 15080006E0002AC2     318          GMSK   /P(ICOMP+P),IMD,LB3,15(IMUL4A+P),AK2  NEGATE OP2              01 00318
00B2 0570000000A90017     319  IMUL2   GEN    /N(IMUL3),FFA,MF1,WR1,BB1,AA7                                 01 00319
00B3 0290048000000000     320  IMULX   GEN    /N(COMPOP),GF2,SF1                  SET OVERFLOW              01 00320
00B4 05A8000000A9001A     321  IMUL5   GEN    /*,FFA,MF1,WR1,BB1,AAA                                        01 00321
00B5 05B0000063ABFFF0     322  IMUL6   GMSK   /*,LB3,RF3,FFA,MKBFFF                                         01 00322
00B6 05B8000020A90000     323          GEN    /*,LB1,FFA,MF1,WR1,AA0              GET ROUNDOFF BIT IN AR001 00323
00B7 05C0000000A900A1     324          GEN    /*,FFA,MF1,WR1,BBA,AA1                                        01 00324
00B8 05C8000000A9006C     325          GEN    /*,FFA,MF1,WR1,BB6,AAC                                        01 00325
00B9 16480006E0002BA2     326          GMSK   /P(MUL+P),IMD,LB3,15(*+1+P),AK2     OP1(WORD1)*OP2(WORD2)     01 00326
00BA 05D8000000A90091     327          GEN    /*,FFA,MF1,WR1,BB9,AA1                                        01 00327
00BB 16480006E0002BC2     328          GMSK   /P(MUL+P),IMD,LB3,15(*+1+P),AK2     OP1(WORD1)*OP2(WORD1)     01 00328
00BC 05E8000000A9001D     329          GEN    /*,FFA,MF1,WR1,BB1,AAD              SAVE PARTIAL PRODUCT      01 00329
00BD 05F0000000A90003     330          GEN    /*,FFA,MF1,WR1,BB0,AA3                                        01 00330
00BE 05F8000000A90071     331          GEN    /*,FFA,MF1,WR1,BB7,AA1                                        01 00331
00BF 0600000000A9009C     332          GEN    /*,FFA,MF1,WR1,BB9,AAC                                        01 00332
00C0 060800063ABFFF0      333          GMSK   /*,LB3,RF3,FFA,MKBFFF                                         01 00333
00C1 0610000020A90000     334          GEN    /*,LB1,FFA,MF1,WR1,AA0              GET ROUNDOFF BIT IN AR001 00334
00C2 16480006E0002C32     335          GMSK   /P(MUL+P),IMD,LB3,15(*+1+P),AK2     OP1(WORD2)*OP2(WORD1)     01 00335
00C3 0620000000A90001     336          GEN    /*,FFA,MF1,WR1,BB0,AA1                                        01 00336
00C4 0628000000A9003C     337          GEN    /*,FFA,MF1,WR1,BB3,AAC                                        01 00337
00C5 0630000000390000     338          GEN    /*,FF3,MF1,WR1,AA0                  ZERO AR0                  01 00338
00C6 11100006E0002C72     339          GMSK   /P(FIXA+P),IMD,LB3,15(*+1+P),AK2    ADD PARTIAL PRODUCTS      01 00339
00C7 0298008000A90044     340          GEN    /N(IMUL7A),GF2,FFA,MF1,WR1,BB4,AA4                            01 00340
0053                      341          ORG    FLTFRM+X'33                                                   01 00341
0053 12A0224000000000     342  IMUL7A  GEN    /T(IMUL7,COMPOP),TF2,GF9            TEST SIGN FLAG FOR ZERO01 00342
0054 15080006E0002522     343  IMUL7   GMSK   /P(ICOMP+P),IMD,LB3,15(COMPOP+P),AK2  IF ZERO,NEGATE          01 00343
00C8                      344          ORG    FLTFRM+X'A8                                                   01 00344
00C8 755021C000000000     345  IMUL0   GEN    /T(IMUL1,IMUL3),TF2,GF7             TEST IF NEGATIVE          01 00345
                          346  *                                                                            01 00346
                          347  *       SINGLE PRECISION FIXED MULTIPLY (MUL)                                01 00347
                          348  *                                                                            01 00348
                          349  *                                                                            01 00349
                          350  *       CALLING SEQUENCE                                                     01 00350
                          351  *                                                                            01 00351
                          352  *       AR1     =MULTIPLIER                                                  01 00352
                          353  *       ARC     =MULTIPLICAND                                                01 00353
                          354  *                                                                            01 00354
                          355  *       RETURN                                                               01 00355
                          356  *                                                                            01 00356
                          357  *       AR0/AR1=PRODUCT                                                      01 00357
                          358  *                                                                            01 00358
00C9 0668000000A900CF     359  MUL     GEN    /N(MULA),FFA,MF1,WR1,BBC,AAF        MOVE MULTIPLICAND         01 00359
00CA 0670000013004001     360  MUL4    GEN    /N(MUL5),LA2,RF3,VF1,AA1                                      01 00360
00CB 06600080009000F1     361  MUL1    GEN    /N(MUL2),GF2,FF9,BBF,AA1                                      01 00361
00CC 7678224013004001     362  MUL2    GEN    /T(MUL3,MUL5),TF2,GF9,LA2,RF3,VF1,AA1                         01 00362
                          363  MULA    GMSK   /T(MUL1,MUL4),TF3,GFD,LB3,FF2,FFA,  SET SHIFT COUNTER         01 00363
00CD 565833406 2A000E0    364                 CMK010E                                                       01 00364
00CE 068000000039000E     365  MUL5    GEN    /N(MUL6),FF3,MF1,WR1,AAE            ZERO OUT ARE              01 00365
00CF 06700200009000F1     366  MUL3    GEN    /N(MUL5),GF8,FF9,BBF,AA1            SAMPLE OVERFLOW           01 00366
00D0 068800200000A800     367  MUL6    GEN    /*,MR1,SC1,WF1,XF1                                            01 00367
00D1 069000200591A800     368          GEN    /*,MR1,RF5,FF9,WR1,SC1,XF1,WF1                                01 00368
                          369  MUL8    GEN    /T(MUL9,*),TF2,GFC,MR1,LA3,RF5,FF9,                           01 00369
00D2 169823201D91A800     370                 CWR1,SC1,WF1,XF1                                              01 00370
00D3 06A000001801A800     371  MUL9    GEN    /*,LA3,WR1,SC1,WF1,XF1                                        01 00371
                          372          GEN    /T(MUL12,MUL13),TF2,GFA,LB1,FFA,    TEST PRODUCT SIGN         01 00372
00D4 36A8228020A90001     373                 CMF1,WR1,AA1                                                  01 00373
00D5 06B00000006700F0     374  MUL12   GEN    /N(MUL13),FF6,CF3,WF1,BBF                                     01 0037·
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                        *        RETURN                                                               01 00468
                        *        AR0/AR1= RESULT                                                      01 00469
                        *                                                                             01 00470
010A 0858008010910 0D1  IADD     GEN    /*,GF2,LA2,FF9,WR1,BBD,AA1        ADD LSWS/SAMPLE CARRY       01 00471
010B 0860000018010401            GEN    /*,LA3,WR1,SH4,AA1                SHIFT RESULT RIGHT 1/       01 00472
                        *                                                 STRIP SIGN                  01 00473
010C 02900280009300C0            GEN    /N(COMPOP),GFA,FF9,CF1,WR1,BBC,AA0  ADD MSWS/SAMPLE OVFL      01 00474
                        *                                                                             01 00475
                        *        DOUBLE PRECISION FIXED POINT SUBTRACT (ISUB)                         01 00476
                        *                                                                             01 00477
                        *        CALLING SEQUENCE                                                     01 00478
                        *        AR0/AR1= 1ST OPERAND                                                 01 00479
                        *        ARC/ARD= 2ND OPERAND                                                 01 00480
                        *                                                                             01 00481
                        *        RETURN                                                               01 00482
                        *        AR0/AR1= RESULT                                                      01 00483
                        *                                                                             01 00484
010D 08700080106700D1   ISUB     GEN    /*,GF2,LA2,FF6,CF3,WR1,BBD,AA1    SUB LSWS/SAMPLE CARRY       01 00485
010E 0878000018010401            GEN    /*,LA3,WR1,SH4,AA1                SHIFT RESULT RIGHT 1/       01 00486
                        *                                                 STRIP SIGN                  01 00487
010F 02900280006300C0            GEN    /N(COMPOP),GFA,FF6,CF1,WR1,BBC,AA0  SUB MSWS/SAMPLE OVFL      01 00488
                        *                                                                             01 00489
                        *               SAVE OP1 MSW IN CASE FLOAT ADD/SUB                            01 00490
                        FP0      GEN    /N(FP1),11(B$GPR),23(R0),14(TRNB),15(LOG),                    01 00491
0110 01E8000000A9000E                  C17(GPROUT),24(RE)                                             01 00492
0020                             ORG    FLTFRM                                                        01 00493
                        *                                                                             01 00494
                        *        SELECT FIXED POINT OPERATIONS                                        01 00495
                        *                                                                             01 00496
                        *                                                                             01 00497
                        *        FIXD THROUGH FIXS MUST BE IN CONTIGUOUS                              01 00498
                        *        BLOCK AND ORIGINATE AT A MODULO 4 ADDRESS                            01 00499
                        *                                                                             01 00500
                        *                                                                             01 00501
0020 0700000260AFDE70   FIXD     GMSK   /N(IDIV),IM1,LB3,FFA,MKFDE7        FIXED DIVIDE               01 00502
0021 0568000000C90004   FIXM     GEN    /N(IMUL),FFC,MF1,WR1,AA4           FIXED MULTIPLY             01 00503
0022 085000801001000D   FIXA     GEN    /N(IADD),GF2,LA2,WR1,SH0,AAD       FIXED ADD                  01 00504
0023 086800801001000D   FIXS     GEN    /N(ISUB),GF2,LA2,WR1,SH0,AAD       FIXED SUBTRACT             01 00505
                        *                                                                             01 00506
                        *        FMD MUST BE ON EVEN BOUNDARY -                                       01 00507
                        *        FOLLOWED BY FAS                                                      01 00508
                        *                                                                             01 00509
0024 0320000062ADFFF0   FMD      GMSK   /N(FMD1),LB3,RF3,FFA,MKDFFF        GENERATE EXPONENT BIAS     01 00510
0025 0130000000A900BC   FAS      GEN    /*,FFA,MF1,WR1,BBB,AAC             SAVE OP2 EXPONENT          01 00511
0026 013800800067003B            GEN    /*,GF2,FF6,CF3,WR1,BB8,AAB         SUBTRACT OP2-OP1           01 00512
                                 GMSK   /T(FAS0,FAS9),TF3,GF9,LB3,RF2,     TEST FOR ZERO/             01 00513
0027 8148324062A00050                  CFFA,MK0005                         SET SHIFT COUNTER          01 00514
                        FAS1     GEN    /T(FAS2,FAS3),TF2,GF7,FF3,MF1,     TEST IF RESULT NEGATIVE01  00515
0028 615021C000390003                  CWR1,AA3                            /RESET OP1EX .GT. OP2EX01  00516
                        FAS0     GEN    /T(*,FAS1),TF3,GFC,LA3,RF5,        RIGHT JUSTIFY              01 00517
0029 414833001D01020B                  CWR1,SH2,AAB                         EXPONENT DIFFERENCE       01 00518
002A 01580000006701BB   FAS2     GEN    /*,FF6,CF3,WR1,SH1,AAB,BBB         NEGATE EXPONENT            01 00519
002B 0160000000070003            GEN    /*,CF3,WR1,AA3                     SET OP1EX .GT. OP2EX       01 00520
002C 0168000063AFFE80   FAS3     GMSK   /*,LB3,RF3,FFA,MKFFE8                                         01 00521
002D 0170000020A90000            GEN    /*,LB1,FFA,MF1,WR1,AA0             GET MAX EXPONENT IN AR001  00522
002E 01780080006600B0            GEN    /*,GF2,FF6,CF3,BBB,AA0             EXP DIFF - MAX DIFF        01 00523
                                 GEN    /T(FAS5,FAS6),TF3,GF7,RF2,         IS EXPONENT DIFFERENCE     01 00524
002F 118831C002080000                  CMF1,AA0                            .GT. MAX (SET K TO MAX)01  00525
0030 0C50000000A90060   FAS9     GEN    /N(FAS10),FFA,MF1,WR1,BB6,AA0      MOVE OPERANDS TO --        01 00526
0031 019000000208000B   FAS5     GEN    /*,RF2,MF1,AAB                     ELSE SET TO DIFFERENCE     01 00527
0032 0198008005F80003   FAS6     GEN    /*,GF2,RF5,FFF,MF1,AA3             SELECT MANTISSA FOR        01 00528
                        *                                                  ALIGNMENT/STEP SHIFT K     01 00529
0033 41A8324000000000            GEN    /T(FAS7,FAS8),TF3,GF9              TEST SIGN FLAG             01 00530
                        *                                                                             01 00531
                        *        SHIFT MANTISSA ASSOCIATED WITH                                       01 00532
                        *        SMALLER EXPONENT                                                     01 00533
                        *                                                                             01 00534
                        FAS7B    GEN    /T(*,FAS7A),TF3,GFC,LA3,RF3,       SHIFT OP2 RIGHT TO         01 00535
0034 31A033001D01AA09                  CWR1,SC1,WF1,XF1,SH2,AA9             EQUATE EXPONENTS          01 00536
0035 01A000001300400A   FAS7     GEN    /N(FAS7B),LA2,RF3,VF1,AAA                                     01 00537
0036 01B80000000B800    FAS7A    GEN    /*,SC1,WF1,XF3                                                01 00538
0037 0180000020A9000A            GEN    /N(FAS9),LB1,FFA,MF1,WR1,AAA                                  01 00539
0038 01C8000013004007   FAS8     GEN    /*,LA2,RF3,VF1,AA7                                            01 00540
                                 GEN    /T(*,FAS8A),TF3,GFC,LA3,RF5,       SHIFT OP1 RIGHT TO         01 00541
0039 51C833001D01AA06                  CWR1,SC1,WF1,XF1,SH2,AA6             EQUATE EXPONENTS          01 00542
003A 01D8000000000B800  FAS8A    GEN    /*,SC1,WF1,XF3                                                01 00543
003B 01E0000020A90007            GEN    /*,LB1,FFA,MF1,WR1,AA7                                        01 00544
003C 0180000000A900C8            GEN    /N(FAS9),FFA,MF1,WR1,BBC,AA8       MOVE LARGER EXPONENT       01 00545
                        FP1      GEN    /F(REALY),2(X'1),F3B,FFA,MF1,       SELECT REAL/FIXED         01 00546
003D 220AC00000A9009C                  CWR1,BB9,AAC                                                   01 00547
                        *                                                  MOVE OP2 WORD1 TO          01 00548
                        *                                                  SUBROUTINE REGISTER        01 00549
                        *                                                                             01 00550
018A                             ORG    X'18A                                                         01 00551
                        *                                                                             01 00552
018A 0C48000000A90071   FAS10    GEN    /N(FAS11),FFA,MF1,WR1,BB7,AA1      SUBROUTINE REGISTERS       01 00553
0189                             ORG    X'189                                                         01 00554
0189 02E8000000A900AD   FAS11    GEN    /N(FAS12),FFA,MF1,WR1,BBA,AAD                                 01 00555
005D                             ORG    FLTFRM+X'3D                                                   01 00556
                        *               SELECT ADD/SUB (POP FROM STACK)                               01 00557
005D 0290000000A9009C   FAS12    GEN    /N(COMPOP),FFA,MF1,WR1,BB9,AAC                                01 00558
                        *                                                                             01 00559
005E 1110000600002602   FASA     GMSK   /P(FIXA+P),IMD,LB3,15(FASA0+P),AK2    ADD                     01 00560
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005F 1118000GE0002662  561  FASS   GMSK   /P(FIXS+P),IMD,LB3,15(FASC+P),AK2     SUBTRACT                          01 00561
                       562  *                                                                                       01 00562
                       563  *                                                                                       01 00563
                       564  *      IF RESULT NEGATIVE (OVERFLOW), SHIFT IT RIGHT ONE                                01 00564
                       565  *      AND ADD EXPONENT INCREMENT                                                       01 00565
                       566  *                                                                                       01 00566
                       567  FASA0  GEN     /T(FASA1,FASC),TF2,GF7,LB3,RF2,    TEST IF NEGATIVE/                 01 00567
0060 332821C062A00000  568                 CFFA,MK0000                        SET SHIFT COUNTER                 01 00568
0061 0310000020A90003  569  FASA2  GEN     /N(FASB),LB1,FFA,MF1,WR1,AA3                                         01 00569
0062 0318000000910038  570  FASB   GEN     /*,FF9,WR1,BB3,AA8                 INCREMENT EXPONENT                01 00570
0063 18F80006E8002662  571         GMSK   /P(SHIFT+P),IMD,LB3,15(FASC+P),AK2  SCALE MANTISSA                    01 00571
                       572  FMD1   GEN     /F(FDIV),2(X'1),FS9,LB1,FFA,MF1,   SELECT FDIV/FMUL                 01 00572
0064 430A400020A90000  573                 CWR1,AA3                                                             01 00573
0065 0308000063AFFBF0  574  FASA1  GMSK   /N(FASA2),LB3,RF3,FFA,MKFFBF                                          01 00574
0066 13F80006E0002672  575  FASC   GMSK   /P(FNML+P),IMD,LB3,15(*+1+P),AK2   NORMALIZE RESULT                    01 00575
                       576  *             TEST FOR ZERO RESULT                                                   01 00576
                       577         GEN    /N(FSC01),12(A$GPR),24(R0),11(B$GPR),23(R1),                         01 00577
0067 0388008000100010  578                 C14(OR),5(0),6(0),7(S$ALU)                                           01 00578
                       579  *                                                                                       01 00579
                       580  *                                                                                       01 00580
                       581  *      FDIV MUST BE ON EVEN WORD BOUNDARY -                                             01 00581
                       582  *      FOLLOWED BY FMUL                                                                 01 00582
                       583  *                                                                                       01 00583
                       584  *      OP1 HAS BEEN SHIFTED RIGHT ONE FOR FDIV AND FMUL                                 01 00584
                       585  *                                                                                       01 00585
0068 0350000006700B8   586  FDIV   GEN     /N(FDIV1),FF6,CF3,WR1,BBB,AA8      SUBTRACT OP1/OP2 EXPS             01 00586
0069 0360000000670038  587  FMUL   GEN     /N(FMUL1),FF6,CF3,WR1,BB3,AA8      SUBTRACT BIAS FROM OP1            01 00587
006A 0358000000910038  588  FDIV1  GEN     /*,FF9,WR1,BB3,AA8                 ADD EXPONENT BIAS                 01 00588
                       589  *             GO MULTIPLY OR DIVIDE                                                  01 00589
006B 110A4006E00026D2  590  FDIV2  GMSK   1(P/512),2(FIXD+1),FS9,IMD,LB3,15(FASCMD+P),AK2                       01 00590
006C 0358000000910088  591  FMUL1  GEN     /N(FDIV2),FF9,WR1,BB8,AA8                                            01 00591
                       592  *             FLOATING POINT MULTIPLY/DIVIDE REAR END PROCESS                        01 00592
                       593  *             NORMALIZE RESULT                                                       01 00593
006D 13F8006E0003392   594  FASCMD GMSK   /P(FNML+P),IMD,LB3,15(FASCM1+P),AK2                                    01 00594
                       595  *                                                                                       01 00595
                       596  *      FIXXT MUST BE ON EVEN ADDRESS FOLLOWED BY EXIT                                   01 00596
                       597  *                                                                                       01 00597
                       598  *             EXIT IF NO OVERFLOW                                                    01 00598
                       599  FIXXT  GMSK   /T(EXIT,FIX01),5(FT),7(OVFL),11(LIT),15(X'8000),                       01 00599
006E 937830006BA80000  600                 CFFA,13(OPROUT)                                                      01 00600
                  006F 601  NOCOMP EQU    *             NOCOMP IS REALLY EXIT                                    01 00601
006F 0A60000001F80005  602  EXIT   GEN     /N(FXIT2),RF1,FFF,MF1,AA5          RELOAD PC                         01 00602
                       603  *             TEST EXPONENT FOR NEGATIVE                                             01 00603
                       604  FSC02  GEN     /N(FSC03),12(A$GPR),24(R8),14(TRNA),15(LOG),                         01 00604
0070 0A2800800OF80008  605                 C5(0),6(0),7(S$ALU)                                                  01 00605
                       606  *             EXIT IF ZERO/SAVE EXPONENT                                             01 00606
                       607  FSC01  GEN     /T(EXIT,FSC02),5(TT),7(ALUZ),11(B$GPR),23(R8),                       01 00607
0071 837822400OA90089  608                 C14(TRNR),15(LOG),17(GPROUT),24(R9)                                  01 00608
                       609  *             SET TEST FOR ZERO EXPONENT                                             01 00609
                       610  FIX01  GEN     /N(FIX02),11(B$GPR),23(R4),14(TRNB),15(LOG),                         01 00610
0072 09B8008000A80040  611                 C5(0),6(0),7(S$ALU)                                                  01 00611
                       612  *             EITHER COMPLIMENT MSW OR EXIT                                          01 00612
0073 A37831C0000O0000  613  FSC11  GEN     /T(EXIT,FSC12),5(FT),7(ALUS)                                         01 00613
                       614  *             COMPLIMENT MSW                                                         01 00614
                  0074 615  DOCOMP EQU    *             COMPLIMENT MSW                                           01 00615
0074 0378000000090000  616  FSC12  GEN     /N(EXIT),12(A$GPR),24(R9),14(NOTA),15(LOG),17(GPROUT)                01 00616
                       617  *             SET MAXIMUM IN R9 (TEST FOR COMPLIMENT MSW)                            01 00617
                       618  FIX03  GEN     /T(EXIT,FIX04),5(FT),11(B$GPR),23(R9),14(TRNB),                      01 00618
0075 B37832400OA90010  619                 C15(LOG),17(GPROUT),24(R8),7(ALUZ)                                   01 00619
                       620  *             TWO'S COMPLIMENT RESULT                                                01 00620
0076 15080006E00026F2  621  FIX04  GMSK   /P(ICOMP+P),IMD,LB3,15(EXIT+P),AK2                                    01 00621
                       622  *                                                                                       01 00622
                       623  *                                                                                       01 00623
                       624  *                                                                                       01 00624
                       625  *      SEPERATE MANTISSA (FSM)                                                          01 00625
                       626  *                                                                                       01 00626
                       627  *      CALLING SEQUENCE                                                                 01 00627
                       628  *      AR0/AR1= REAL OPERAND                                                            01 00628
                       629  *                                                                                       01 00629
                       630  *      RETURN                                                                           01 00630
                       631  *      AR0/AR1= NORMALIZED MANTISSA                                                     01 00631
                       632  *      ARB    = EXPONENT                                                                01 00632
                       633  *                                                                                       01 00633
0077 0290000020A90001  634  FSM2   GEN     /N(COMPOP),LB1,FFA,MF1,WR1,AA1                                       01 00634
0078 03C8000063B807F0  635  FSM    GMSK   /*,LB3,RF3,FFB,MK807F              SAVE EXPONENT                     01 00635
0079 03D0000000000A000 636         GEN     /*,SC1,WF1                        (SHIFTED RIGHT ONE)               01 00636
007A 03D8000020A9000B  637         GEN     /*,LB1,FFA,MF1,WR1,AA2            IN ARB                            01 00637
007B 03E0000062A00070  638         GMSK   /*,LB3,RF2,FFA,MK0007             SET SHIFT COUNTER                 01 00638
007C 03E8000013004001  639         GEN     /*,LA2,RF3,VF1,AA1                                                    01 00639
                       640         GEN     /T(*,FSM1),TF3,GF6,LA2,RF5,WR1,   SHIFT MANTISSA LEFT               01 00640
007D 73E8330015019E00  641                 CSC1,XF3,SH6                                                         01 00641
007E 03B8000300000B800 642  FSM1   GEN     /N(FSM2),WF1,XF3,SC1                                                 01 00642
                       643  *                                                                                       01 00643
                       644  *                                                                                       01 00644
                       645  *      NORMALIZE FLOATING POINT (FNML)                                                  01 00645
                       646  *                                                                                       01 00646
                       647  *      CALLING SEQUENCE                                                                 01 00647
                       648  *      AR0/AR1=UNNORMALIZED MANTISSA                                                    01 00648
                       649  *      AR8    =RESULT EXPONENT                                                          01 00649
                       650  *      AR4    =TEMPORARY STORAGE                                                        01 00650
                       651  *                                                                                       01 00651
                       652  *      RETURN                                                                           01 00652
                       653  *      AR0/AR1=NORMALIZED FLOATING POINT NUMBER                                         01 00653
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```
                        *             (NEGATIVE NORMALIZING COUNT
                        *              IN SIGN AND EXPONENT FIELDS)
                        *     AR8     =SIGN FLAG (EXPONENT)
                        *
                  007F  FNML   EQU     *
007F 0400008000F80000   X0     GEN     /N(X),GF2,FFF,MF1,AA0              SAMPLE AR0
0080 42B8224062A00170   X      GMSK    /T(X1,X3),TF2,GF9,RF2,LB3,FFA,MK0017 LOAD SHFTK/.TEST
                        *                                                    IF AR0=0
0081 4290224000000000   X2     GEN     /T(COMPOP,X3),TF2,GF9              TESTIF AR1=0
0057                           ORG     FLTFRM+X'37
0057 0408008000F80001   X1     GEN     /N(X2),GF2,FFF,MF1,AA1             SAMPLE AR1
0058 0A58000001380000   X3     GEN     /N(NML1),RF1,FF3,MF1               ZERO PC
0082                           ORG     FLTFRM+X'62
0082 3418234000F80000   NML1B  GEN     /T(NML3,NML5),TF2,GFD,FFF,MF1      TEST IF AR0=NEGATIVE
0083 15080006E0002852   NML3   GMSK    /P(ICOMP+P),IMD,LB3,15(NML4+P),AK2 IF AR0 NEGATIVE,NEGATE
0084 0448000000590044   NML12A GEN     /N(NML13),FF5,MF1,WR1,BB4,AA4      COMPLEMENT COUNT
0085 0430000000090008   NML4   GEN     /*,MF1,WR1,AA8                     COMPLEMENT EXPONENT
0086 043800013F80001    NML5   GEN     /*,LA2,RF3,FFF,MF1,AA1             AR1 (SHIFTED) TO OPREG
0087 0450000000F90000          GEN     /N(NML5A),FFF,MF1,WR1,AA0          SAMPLE AR0
0088 0290000000110040   NML14  GEN     /N(COMPOP),FF1,WR1,AA0,BB4         -EXP .OR. MANTISSA/
                        NML13  GEN     /T(*,NML14),TF3,SF3,GFC,LA2,RF5,   SHIFT NORMALIZE COUNT
0089 44483F0015010404                  CWR1,SH4,AA4                       LEFT 7
008A 1888338004000000   NML5A  GEN     /T(NML6,NML8),TF3,GFE,RF4          INCREMENT SHIFT COUNT/
                        *                                                 TEST IF NORMALIZED
                        *                                                 GO TO POP RETURN
                        *             SET MAXIMUM IN R0
                        MYOVR1 GEN     /N(EXIT),11(B$GPR),23(R0),14(TRNB),15(LOG),
008B 0378048000A90001                  C17(GPROUT):24(R1),SF1,GF2
0111                           ORG     FLTFRM+X'F1
                        *
                        *
                        NML6   GEN     /N(NML5A),LA2,RF5,WR1,SC1,XF1,     NORMALIZING SHIFT
0111 045000015018A00                   CSH2,AA0
0112 0898050008F10004   NML8   GEN     /*,SF1,GF4,LA1,FFF,WR1,AA4         SAVE COUNTER/RESET OVFL
0113 08A0000020A90001          GEN     /*,LB1,FFA,MF1,WR1,AA1             OPREG TO AR1
0114 08A8000063AFEFF0          GMSK    /*,LB3,RF3,FFA;MKFEFF              GENERATE ROUNDOFF BIT
0115 08B0008020A90003          GEN     /*,GF2,LB1,FFA,MF1,WR1,AA3
0116 08B8008000930031          GEN     /*,GF2,FF9,CF1,WR1,BB3,AA1         ADD ROUNDOFF BIT
0117 48D8320000F10004          GEN     /T(NML10,NML8A),TF3,GF8,FFF,WR1,AA4   TEST CARRY/DECR K
0118 08C8028000970100   NML8A  GEN     /*,GFA,FF9,CF3,WR1,SH1             INCREMENT AR0
                               GMSK    /T(NML10,NML9),TF3,LB3,RF2,FFA,
0119 58D8300062A00080                  CMK0008                            SET SHIFT K = 9
011A 08E8050000F10004   NML9   GEN     /N(NML11),SF1,GF4,FFF,WR1,AA4      DECR NORMALIZE COUNT/
                        *                                                 RESET OVERFLOW
011B 08E0000062A00070   NML10  GMSK    /*,LB3,RF2,FFA,MK0007              SET SHIFT K=8
011C 08E8000018F90401          GEN     /*,LA3,FFF,MF1,WR1,SH4,AA1         SHIFT AR1 RIGHT
011D 18F80006E00031E2   NML11  GMSK    /P(SHIFT+P),IMD,LB3,15(*+1+P),AK2  SHIFT AR0/AR1 RIGHT
011E 0420000062A00060   NML12  GMSK    /N(NML12A),LB3,RF2,FFA,MK0006      SET SHIFT K = 7
                        *
                        *
                        *             LONG ARITHMETIC SHIFT RIGHT
                        *
                        *             CALLING SEQUENCE
                        *             SHIFT K= SHIFT COUNT
                        *             AR0/AR1= OPERAND
                        *
                        *             RETURN
                        *             AR0/AR1= OPERAND (SHIFTED)
                        *             ( AR0 SIGN NOT PROPAGATED )
                        *
011F 0900000013004001   SHIFT  GEN     /*,LA2,RF3,VF1,AA1                 AR1 TO OPREG
                               GEN     /T(SHFT1,*),TF2,GFC,LA3,RF5,WR1,   SHIFT AR0/AR1 RIGHT
0120 090823001D01AC00                  CSC1:WF1,XF1,SH4
0121 028800000000B800   SHFT1  GEN     /N(SHFT2),SC1,WF1,XF3
                        *
                        *
                        *
                        *             SET MAXIMUM IN R1/SET OVERFLOW
                        MYOVER GEN     /N(MYOVR1),11(B$SPEC),23(OPR),14(TRNB),15(LOG),
0122 0458000020A90000                  C17(GPROUT),24(R0)
                        *             ZERO A/B AND RESET OVERFLOW
                        ZERANS GEN     /N(ZERAN1),12(A$SPEC),22(AZERO),14(TRNA),15(LOG),
0123 09A0000000F90100                  C17(GPROUT),24(R0)
                        *             REALD THRU REALS MUST BE IN CONTIGUOUS BLOCK
                        *             AND ORIGINATE AT A MODULO 4 ADDRESS
                        *
                        *             TEST OP2 FOR ZERO- OVERFLOW
                        REALD  GMSK    /T(MYOVER,REALMD),5(TT),7(ALUZ),11(LIT),15(X'8000),
0124 4910224063A80000                  CFFA,13(OPROUT)
                        *             TEST OP2 FOR ZERO- ZERO ANSWER
0125 4918224000000000   REALM  GEN     /T(ZERANS,REALMD),5(TT),7(ALUZ)
                        *             CLEAR P- TO BE USED AS FLAG FOR COMPLIMENT RESULT
                        REALA  GEN     /N(FLP3A),12(A$SPEC),22(AONE),14(TRNA),15(LOG),
0126 095800001F80200                   C13(POUT)
                        *             COMPLIMENT MSW FOR SUBTRACT
0127 0930000000090009   REALS  GEN     /N(REALA),12(A$GPR),24(R9),14(NOTA),15(LOG),17(GPROUT)
                        *
                        *             TEST OP1 FOR ZERO-  ZERO ANSWER
                        REALMD GEN     /N(REALM1),12(A$GPR),24(R0),11(B$GPR),23(R1),14(OR),
0128 0948008000100010                  C5(0),6(0),7(S$ALU)
0129 3918224000000000   REALM1 GEN     /T(ZERANS,REALA),5(TT),7(ALUZ)
                        *             COMPLIMENT OP1 MSW AND INCREMENT COMPLIMENT FLAG
                        FLPNT4 GEN     /N(FLPNT5),12(A$GPR),24(R6),14(NOTA),15(LOG),
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012A 0960000004090006                  C17(GPROUT),13(INCP)                                          01 00747
                      *                TEST OP1 FOR NEGATIVE/ TRANSFER OP2 MSW TO ARC                01 00748
                      FLP3A   GEN      /T(FLPNT5,FLPNT4),5(FT),7(GPRS),11(B$GPR),23(R9),             01 00749
012B 5960334000A90090                  C14(TRNB),15(LOG),17(GPROUT),24(R0)                           01 00750
                      *                TEST OP2 FOR NEGATIVE AND SET OP1 MSW IN R0                   01 00751
                      FLPNT5 GEN       /T(FLPNT6,FLPNT7),5(TT),11(B$GPR),23(R6),14(TRNB),            01 00752
012C 7968234000A90060                  C15(LOG),17(GPROUT),24(R0),7(GPRS)                            01 00753
                      *                COMPLIMENT OP2 MSW AND INCREMENT COMPLIMENT RESULT            01 00754
                      FLPNT6 GEN       /N(FLPNT7),12(A$GPR),24(R9),14(NOTA),15(LOG),                 01 00755
012D 0970000004090009                  C17(GPROUT),13(INCP)                                          01 00756
                      *                SAMPLE COMPLIMENT RESULT COUNTER                              01 00757
                      *                PROCESS ADD/SUB OR CO REAL                                    01 00758
                      FLPNT7 GEN       /F(FLPN7A),FSA,2(X'1),12(A$P),14(TRNA),15(LOG),               01 00759
012E 098A808008F80000                  C5(0),6(0),7(S$ALU)                                           01 00760
                      FLPNT8 GMSK      /P(REAL+P),10(STACK),16(PUSH),15(DOCOMP+P),LB3,               01 00761
012F 19980006E0002742                  CTF0,SF0                                                      01 00762
                      *                FLPN7A MUST BE ON EVEN ADDRESS FOLLOWED BY FLPN7B             01 00763
0130 9978224000000000 FLPN7A GEN       /T(FLPNT8,FLPNT9),5(TT),7(ALUZ)                               01 00764
                      *                SET TO ADD OR SUBTRACT                                        01 00765
0131 39A8224000000000 FLPN7B GEN       /T(FLPNTC,FLPNTD),5(TT),7(ALUZ)                               01 00766
                      *                SET NO COMPLIMENT ON STACK                                    01 00767
                      FLPNT9 GMSK      /P(REAL+P),10(STACK),16(PUSH),15(NOCOMP+P),LB3,               01 00768
0132 19980006E00026F2                  CTF0,SF0                                                      01 00769
                      *                                                                              01 00770
                      *                                                                              01 00771
                      *                                                                              01 00772
0133 13C00006E0002472 REAL    GMSK     /P(FSM+P),IMD,LB3,15(REAL1+P),AK2        DECOMPOSE OP1        01 00773
                      ZERAN1 GEN       /N(EXIT),11(B$GPR),23(R0),14(TRNB),15(LOG),                   01 00774
0134 0378000000A90001                  C17(GPROUT),24(R1)                                            01 00775
                      *                SET SUBTRACT ROUTINE ON STACK                                 01 00776
                      FLPNTC GMSK      /P(REAL+P),10(STACK),16(PUSH),15(FASS+P),LB3,                 01 00777
0135 19980006E00025F2                  CTF0,SF0                                                      01 00778
                      *                SET ADD ROUTINE ON STACK                                      01 00779
                      FLPNTD GMSK      /P(REAL+P),10(STACK),16(PUSH),15(FASA+P),LB2,                 01 00780
0136 19980006E00025E2                  CTF0,SF0                                                      01 00781
                      *                                                                              01 00782
                      *                DO FIXED POINT REAR END                                       01 00783
                      *                SET MAXIMUM VALUE IN A/B                                      01 00784
                      FIX02   GEN      /N(FIX03),11(B$SPEC),23(OPR),14(TRNB),15(LOG),                01 00785
0137 03A8000020A90001                  C17(GPROUT),24(R1)                                            01 00786
                      *                SET MAXIMUM IN B                                              01 00787
                      FSC09   GEN      /N(FSC10),11(B$GPR),23(R0),14(TRNB),15(LOG),                  01 00788
0138 0A00000000A90001                  C17(GPROUT),24(R1)                                            01 00789
                      *                SELECT DIV/MULT OPERATION                                     01 00790
                      *                SAMPLE EXPONENT                                               01 00791
                      FASCM1 GEN       /N(FASCM2),12(A$GPR),24(R8),14(TRNA),15(LOG),                 01 00792
0139 09E0008000F80008                  C5(0),6(0),7(S$ALU)                                           01 00793
                      *                INCREMENT EXPONENENT                                          01 00794
                      FASCM4 GEN       /N(FASCM5),12(A$GPR),24(R8),11(B$SPEC),23(OPR),               01 00795
013A 09F8000020910008                  C14(ADD),17(GPROUT)                                           01 00796
                      *                COMPLIMENT EXPONENT                                           01 00797
                      FASCM3 GEN       /N(FASCM4),12(A$GPR),24(R8),14(NOTA),15(LOG),                 01 00798
013B 09D0000000090008                  C17(GPROUT)                                                   01 00799
                      *                SET MSW RESULT FOR TESTING                                    01 00800
                      FASCM2 GMSK      /T(FASCM3,FASCM4),5(TT),7(ALUS),11(LIT),15(X'FFBF),           01 00801
013C 59D821C063AFFBF0                  CFFA,13(OPROUT)                                               01 00802
                      *                PROCESS UNDERFLOW AND SET EXPONENT                            01 00803
                      FASCM6 GEN       /T(FASCM8,FASCM7),5(FT),7(ALUS),24(R8),17(GPROUT),            01 00804
013D 1A2031C010010108                  CLA2,SH1                                                      01 00805
                      *                ON OUR WAY OUT IF NOT NEGATIVE                                01 00806
                      FSC06   GEN      /T(FSC07,FSC10),5(TT),7(ALUS),11(B$GPR),23(R8),               01 00807
013E 0A0821C000A90030                  C14(TRNB),15(LOG),17(GPROUT),24(R0)                           01 00808
                      *                TEST FOR UNDERFLOW                                            01 00809
                      FASCM5 GEN       /N(FASCM6),5(0),6(0),7(S$ALU),14(ADD),11(B$GPR),              01 00810
013F 09E8008018900280                  C23(R8),LA3,SH2,24(R0)                                        01 00811
                      *                NEGATE MSW?                                                   01 00812
                      FSC10   GEN      /N(FSC11),12(A$GPR),24(RE),11(B$GPR),23(R9),14(EOR),          01 00813
0140 039800800068009E                  C15(LOG),5(0),6(0),7(S$ALU)                                   01 00814
                      *                IF NO OVERFLOW- ITS UNDERFLOW                                 01 00815
                      FSC07   GMSK     /T(FSC08,FASCM7),5(TT),7(OVFL),11(LIT),15(X'8000),            01 00816
0141 1A18200063A80000                  CFFA,13(OPROUT)                                               01 00817
                      *                UNDERFLOW- SET A,B TO ZERO                                    01 00818
                      FASCM7 GEN       /F(FASCMB),2(X'1),FSA,12(A$SPEC),23(AZERO),14(TRNA),          01 00819
0142 3A0A800000F90100                  C15(LOG),17(GPROUT),24(R0)                                    01 00820
                      *                WE OVERFLOWED- SET MAXIMUM IN A/B                             01 00821
                      FSC08   GEN      /N(FSC09),11(B$SPEC),23(OPR),14(TRNB),15(LOG),                01 00822
0143 09C0048020A90000                  C17(GPROUT),24(R0),SF1,GF2                                    01 00823
                      *                BUILD PRELIMINARY MSW                                         01 00824
                      FASCM8 GEN       /N(FASCM9),12(A$GPR),24(R0),11(B$GPR),23(R0),14(ADD),         01 00825
0144 02C8008000910080                  C17(GPROUT),5(0),6(0),7(S$ALU)                                01 00826
                      *                FASCMB MUST BE ON EVEN ADDRESS FOLLOWED BY FASCMA             01 00827
                      *                COMPLIMENT EXPONENT IF NEGATIVE                               01 00828
0145 5A4821C000000000 FSC03   GEN      /T(FSC04,FSC05),5(TT),7(ALUS)                                 01 00829
                      *                DELETE COMPLIMENT STACK ENTRY AND EXIT                        01 00830
0146 1A380006E0000014 FASCMB GEN       /P(FASCMA+P),10(STACK),23(POPDEL),LB3,5(0),6(0),AA4        E.2*******
                      *                ZERO B- SET OVERFLOW                                          01 00832
                      FASCMA GEN       /N(EXIT),11(B$GPR),23(R0),14(TRNB),15(LOG),                   01 00833
0147 0378048000A90001                  C17(GPROUT),24(R1),SF1,GF2                                    01 00834
0059                          ORG      FLTFRM+X'3)                                                   01 00835
                      *                TEST FOR OVERFLOW                                             01 00836
                      FASCM9 GMSK      /T(FASC10,COMPOP),5(TT),7(ALUS),11(LIT),15(X'8000),           01 00837
0059 12D021C060A80003                  CFFA,16(OPROUT)                                               01 00838
                      *                OVERFLOW- SET MAXIMUM VALUE IN A/B                            01 00839
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                          840  FASC10 GEN    /N(FASC1A),11(B$SPEC),23(OPR),14(TRNB),15(LOG),                01 00840
005A 0A4004S020A90000     841                C17(GPROUT),24(R0),SF1,GF2                                     01 00841
0148                      842          ORG   FLTFRM+X'128                                                   01 00842
                          843  *             SET MAXIMUM IN B                                               01 00843
                          844  FASC1A GEN    /N(COMPOP),11(B$GPR),23(R0),14(TRNB),15(LOG),                  01 00844
0148 0290000000A90001     845                C17(GPROUT),24(R1)                                             01 00845
                          846  *                                                                            01 00846
                          847  *  DO FLOAT ADD/SUB REAR END PROCESSING                                       01 00847
                          848  *                                                                            01 00848
                          849  *             COMPLIMENT EXPONENT                                            01 00849
                          850  FSC04  GEN    /N(FSC05),12(A$GPR),24(R8),14(NOTA),15(LOG),                   01 00850
0149 0A5000000090008      851                C17(GPROUT)                                                    01 00851
                          852  *             ADD MANTISSA TO SHIFTED EXPONENT (SAMPLE)                      01 00852
                          853  FSC05  GEN    /N(FSC06),24(R8),11(B$GPR),23(R0),14(ADD),17(GPROUT),          01 00853
014A 09F0008010910408     854                C5(0),6(0),7(S$ALU),LA2,SH4                                    01 00854
014B 0410008000F90000     855  NML1   GEN    /N(NML1B),GF2,FFF,MF1,WR1,AA0     SAMPLE SIGN OF AR0           01 00855
                          856  *             TEST FOR OVERFLOW                                              01 00856
                   014C   857  EXIT2  EQU    *                                                              01 00857
                          858  EXIT1  GEN    /T(INTR20,INTR),5(FT),7(OVFL),14(ZERO),15(LOG),                01 00858
014C 7A6830000039O003     859                C17(GPROUT),24(R3)                                             01 00859
                          860  *             RETURN TO PIPELINE                                             01 00860
                          861  INTR20 GEN    /P(SS2M),10(IF$P),7(PJMP$),1(0),5(0),6(MEMC$),                 01 00861
014D 0490090400F90205     862                C12(A$SPEC),22(AONE),14(TRNA),15(LOG),17(GPROUT),24(R5)        01 00862
                          863  *             TEST FOR FOREGROUND OR BACKGROUND- FETCH TASK                   01 00863
                          864  INTR   GMSK   /N(VORT12),10(OF$ALU),6(MEMC),11(LIT),15(X'FF3E),              01 00864
014E 0C080402E0AFF3E0     865                CFFA                                                           01 00865
014F 0A80000260A7EDB0     866  INTR10 GMSK   /N(INTR30),11(LIT),15(X'7EDB),SF0,IM4,FFA                      01 00866
0150 0A88000060A7EDB0     867  INTR30 GMSK   /N(INTR40),11(LIT),15(X'7EDB),FFA                              01 00867
                          868  INTR40 GEN    /P(SS3M),1(0),5(0),6(0),12(A$SPEC),22(AONE),                   01 00868
0151 0168000180F90205     869                C14(TRNA),15(LOG),17(GPROUT),24(R5),10(PJMP)                   01 00869
                          870  FLPNT  GEN    /N(FLPNT1),11(B$GPR),23(R0),14(TRNB),15(LOG),                  01 00870
0152 01F8000000A90006     871                C17(GPROUT),24(R6)        SAVE 1ST WORD OF OP1                 01 00871
                          873  *                                                                            D.101 00873
                          874  *             ENTRY FOR $DO WITH INCREMENT = 1                               D.101 00874
                          875  *                SET RF = 1, ENTER INTO DO LOOP                              D.101 00875
                          876  *                                                                            D.101 00876
0017                      877          ORG   X'17                                                           D.101 00877
                          878  $DOIN1 GEN    /N(VALUE),12(A$SPEC),22(AZERO),14(INCA),16(CRY1),              D.101 00878
0017 0BA8000080070I0F     879                C17(GPROUT),24(RF),10(WAITMD),6(SPEC)                          D.101 00879
001A                      880          ORG   X'1A                                                           01 00880
                          881  *             WAIT FOR MEMORY COMPLETE                                       01 00881
001A 0AE8000080000000     882          GEN   /N(FLOAD),6(SPEC),10(WAITMD)                                   01 00882
                          883  *             WAIT FOR MEMORY COMPLETE                                       01 00883
001B 0B1800008000000O     884          GEN   /N(FSTOR),6(SPEC),10(WAITMD)                                   01 00884
001D                      885          ORG   X'1D                                                           01 00885
001D 0B9000008400000O     886  $DO     GEN   /N(YDO1),10(WAITMD),6(SPEC),13(INCP)                           01 00886
                          887  * FOLLOWING IS BCS ENTRY POINT-                                             01 00887
001E 0B7000008000000O     888          GEN   /N(DOSE1),6(SPEC),10(WAITMD)                                   01 00888
                          889  *             WAIT FOR MEMORY COMPLETE                                       01 00889
001F 0B4000008000000O     890          GEN   /N(FMOVE),6(SPEC),10(WAITMD)                                   01 00890
                          891  *                                                                            01 00891
                          892  *                                                                            01 00892
                          894  *                                                                            01 00894
                          895  *                                                                            01 00895
                          896  * ROUTINE TO FETCH PARAMETERS FOR SUBROUTINE INTERFACE                       01 00896
                          897  *                                                                            01 00897
                          898  *       CALLING SEQUENCE*                                                    01 00898
                          899  *       BSS     1               SUBROUTINE ENTRY POIN                        01 00899
                          900  *       BCS     X'8A1E          WCS CALL                                     01 00900
                          901  *       DATA    NUMBER OF PARAMETER ADDRESSES                                01 00901
                          902  *       BSS     N               STORAGE FOR ADDRESSES                        01 00902
                          903  * NOTE* INDIRECTS ARE RESOLVED                                               01 00903
                          904  *                                                                            01 00904
                          905  * THE CALLING PROGRAM MUST CALL A SUBROUTINE AS FOLLOWS                      01 00905
                          906  *       CALL    SUB             SUBROUTINE CALL                              01 00906
                          907  *       DATA    A,B,C,...       PARAMETER ADDRESSES TO BE PASSED             01 00907
                          908  *                               (MAY BE INDIRECT)                            01 00908
                          909  *                                                                            01 00909
                          910  * FORTSE PASSES PARAMETER ADDRESSES FROM THE CALLING PROGRAM TO              01 00910
                          911  * THE SUBROUTINE AND SETS A PROPER RETURN ADDRESS                            01 00911
                          912  *                                                                            01 00912
                          913  *                                                                            01 00913
                          914  *                                                                            01 00914
0153                      915          ORG   X'153                                                          01 00915
                          916  *             SET MOVE AMOUNT IN SHIFT COUNT                                 01 00916
                          917  FORTSE GEN    /*,11(B$SPEC),23(MIR),12(A$SPEC),22(AZERO),14(SUB),             01 00917
0153 0AA0000022660110     918                C16(CRY1),13(SCOUT)                                            01 00918
                          919  * WAIT FOR MEMORY                                                           01 00919
0154 0AA8000080000000     920          GEN   /*,6(SPEC),10(WAITMD)                                           01 00920
                          921  * SET UP FROM PARAMETER ADDRESS                                              01 00921
                          922          GEN   /N(FORTS1),11(B$SPEC),23(MIR),14(DECB),17(GPROUT),             01 00922
0155 0AB0000020910219     923                C24(R9),12(A$SPEC),22(AONE)                                    E.2**********
                          924  * FETCH FROM PARAMETER (OR INDIRECT ADDRESS)                                 01 00924
                          925  FORTS1 GEN    /*,10(OF$ALU),12(A$GPR),24(R9),14(INCA),16(CRY1),               E.2**********
0156 0AB8040280070009     926                C17(GPROUT),6(MEMC)                                            01 00926
0157 0AC0040680000000     927  FORTS2 GEN    /N(FORTS9),6(MEMC),10(OF$MIR)                                  01 00927
                          928  * STORE PARAMETER (DUMMY IF INDIRECT)                                       01 00928
                          929  FORTS9 GEN    /N(FORTS8),11(B$SPEC),23(MIR),17(GPROUT),                      01 00929
0158 0C0000802OA90018     930                C24(R8),14(TRNB),15(LOG),5(0),6(0),7(S$ALU)                    01 00930
                          931  *             COMPLETE DATA STORAGE AND INCREMENT MOVE COUNT                  01 00931
                          932  FORTS5 GEN    /N(FORTS6),12(A$GPR),24(R8),14(TRNA),15(LOG),                  01 00932
0159 0AB8000080F80008     933                C6(SPEC),10(WAITMD)                                            01 00933
                          934  *             STORE VALUE                                                    01 00934
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                     935  FORTS3 GEN      /N(FORTS5),10(DS$P),6(MEMC),13(INCP),12(A$GPR),          01 00935
015A 0AC8040504F80008 936                 C24(R8),14(TRNA),15(LOG)                                 01 00936
                     937  *                 STORE RETURN IF COMPLETE/FETCH NEXT IF NOT               01 00937
                     938  FORTS6 GEN      /T(FORTS4,FORTS1),5(TT),7(SFTC),10(DS$ALU),6(TESTT),     01 00938
                     939                 C11(B$SPEC),23(DPR),14(TRNB),15(LOG),13(INCSC),          01 00939
015B 3AE02F0325A80009 940                 C12(A$GPR),24(R9)                                      E.2********
                     941  * RETURN TO NORMAL MICRO CONTROL                                          01 00941
                     942  FORTS4 GEN      /N(FORTS7),10(IF$P),12(A$GPR),24(R9),14(INCA),         E.2********
015C 0B780404040700009 943                 C16(CRY1),6(MEMC),13(INCP),17(GPROUT)                    01 00943
                     944  *                                                                        01 00944
                     945  *                                                                        01 00945
                     947  *                                                                        01 00947
                     948  *                                                                        01 00948
                     949  *                                                                        01 00949
                     950  * ROUTINE TO LOAD DOUBLE WORD FROM MEMORY TO REGISTER A (R0)              01 00950
                     951  * AND B (R1)                                                             01 00951
                     952  *                                                                        01 00952
                     953  *       CALLING SEQUENCE:                                                01 00953
                     954  *       BCS     '8A1A                                                    01 00954
                     955  *       ADDRESS OF DOUBLE WORD (MAY BE MULTI LEVEL INDIRECT)             01 00955
                     956  *                                                                        01 00956
                     957  *       RETURN                                                           01 00957
                     958  *       TWO WORDS IN A (R0) AND B (R1)                                   01 00958
                     959  *                                                                        01 00959
                     960  *                 FETCH CONTENTS OR FETCH NEXT INDIRECT LEVEL           01 00960
015D 0AF80406800000000 961  FLOAD  GEN      /N(FLOAD1),10(DF$MIR),6(MEMC)                          01 00961
                     962  *                 (NOTE- NEXT TWO WORDS MUST BE WITHIN FLOAD+/-32)        01 00962
                     963  *                 FETCH SECOND WORD                                      01 00963
                     964  *                 (MUST BE ON EVEN WORD)                                 01 00964
                     965  FLOAD2 GEN      /N(FLOAD3),10(DF$ALU),12(A$GPR),24(R0),14(INCA),       01 00965
015E 0B000402800600000 966                 C16(CRY1),6(MEMC)                                      01 00966
                     967  *                 SAVE ADDRESS AND LOOP IF INDIRECT                      01 00967
                     968  FLOAD1 GEN      /T(FLOAD,FLOAD2),5(TT),11(B$SPEC),23(MIR),14(TRNB),    01 00968
015F 7AE822C020A90010 969                 C15(LOG),7(MIRC),17(GPROUT),24(R0)                     01 00969
                     970  *                 SAVE FIRST WORD                                        01 00970
                     971  FLOAD3 GEN      /*,11(B$SPEC),23(MIR),14(TRNB),15(LOG),                 01 00971
0160 0B08000020A90010 972                 C17(GPROUT),24(R0)                                     01 00972
                     973  *                 WAIT TIL MEMORY DONE AND SAVE PC                       01 00973
0161 0B10000084000000 974         GEN     /*,6(SPEC),10(WAITMD),13(INCP)                          01 00974
                     975  *                 STORE 2ND WORD AND RESTART THE PIPELINE                01 00975
                     976         GEN       /N(SS2M),7(PJMP$),1(0),5(0),6(MEMC$),10(IF$P),         01 00976
0162 0490090420A90011 977                 C11(B$SPEC),23(MIR),14(TRNB),15(LOG),17(GPROUT),24(R1) 01 00977
                     978  *                                                                        01 00978
                     979  *                                                                        01 00979
                     980  *                                                                        01 00980
                     981  *                                                                        01 00981
                     982  *                                                                        01 00982
                     983  * ROUTINE TO STORE DOUBLE WORD                                           01 00983
                     984  *                                                                        01 00984
                     985  *       CALLING SEQUENCE:                                                01 00985
                     986  *       DOUBLE WORD IN A (R0) AND B (R1)                                 01 00986
                     987  *       BCS     '8A1B                                                    01 00987
                     988  *       ADDRESS TO STORE DOUBLE WORD (MAY BE MULTILEVEL INDIRECT)        01 00988
                     989  *                                                                        01 00989
                     990  *       RETURN                                                           01 00990
                     991  *       DOUBLE WORD STORED                                               01 00991
                     992  *                                                                        01 00992
                     993  *                 FETCH ADDRESS TO STORE (IF MULTILEVEL INDIRECT)        01 00993
0163 0B280406800000000 994  FSTOR  GEN      /N(FSTOR1),10(DF$MIR),6(MEMC)                          01 00994
                     995  *                 (NOTE- NEXT 2 WORDS MUST BE WITHIN FSTOR+/-32)         01 00995
                     996  *                 COMPLETE R0 (A) STORAGE                                01 00996
                     997  *                 (MUST BE ON EVEN ADDRESS)                              01 00997
                     998  FSTOR2 GEN      /N(FSTOR3),12(A$GPR),24(R0),14(TRNA),15(LOG),          01 00998
0164 0B30000080F80000C 999                 C6(SPEC),10(WAITMD)                                    01 00999
                    1000  *                 STORE A (R0) OR LOOP ON INDIRECT                       01 01000
                    1001  FSTOR1 GEN      /T(FSTOR,FSTOP2),5(TT),7(MIRS),10(DS$OVR),6(TESTF),    01 01001
0165 2B182AC100F800001002                  C12(A$GPR),24(R0),14(TRNA),15(LOG)                     01 01002
                    1003  *                 STORE B (R1)                                           01 01003
                    1004  FSTOR3 GEN      /*,10(DS$ALU),11(B$SPEC),23(MIR),14(INCB),16(CRY1),     01 01004
0166 0B380402016811001005                  C12(A$SPEC),22(AZERO),6(MEMC)                          01 01005
                    1006  *                 COMPLETE STORAGE AND RESTART PIPELINE                  01 01006
                    1007         GEN      /N(FSTOR4),10(IF$P),6(MEMC),13(INCP),12(A$GPR),        01 01007
0167 0B80040404F800011008                  C24(R1),14(TRNA),15(LOG)                               01 01008
                    1009  *                                                                        01 01009
                    1010  *                                                                        01 01010
                    1011  *                                                                        01 01011
                    1013  *                                                                        01 01013
                    1014  *                                                                        01 01014
                    1015  * ROUTINE TO PERFORM MEMORY TO MEMORY DOUBLE WORD MOVE                   01 01015
                    1016  *                                                                        01 01016
                    1017  *       CALLING SEQUENCE:                                                01 01017
                    1018  *       BCS     '8A1F                                                    01 01018
                    1019  *       ADDRESS OF SOURCE (MAY BE MULTILEVEL INDIRECT)                   01 01019
                    1020  *       ADDRESS OF TARGET (MAY BE MULTILEVEL INDIRECT)                   01 01020
                    1021  *                                                                        01 01021
                    1022  *       RETURN                                                           01 01022
                    1023  *       A (R0) AND B (R1) ARE DESTROYED, DOUBLE WORD IS STORED           01 01023
                    1024  *                                                                        01 01024
                    1025  *                 FETCH CONTENTS OR INDIRECT ADDRESS                     01 01025
0168 0B480406800000001026  FMOVE  GEN      /N(FMOVE1),10(DF$MIR),6(MEMC)                          01 01026
                    1027  *                 SAVE ADDRESS AND LOOP IF INDIRECT                      01 01027
                    1028  *                 (NOTE- THE NEXT 2 WORDS MUST BE WITHIN FMOVE+/-32)     01 01028
                    1029  FMOVE1 GEN      /T(FMOVE,FMOVE2),5(TT),7(MIRS),11(B$SPEC),23(MIR),     01 01029
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0169 5B4022C020A900101030                C14(TRNB),15(LOG),17(GPROUT),24(R0)                     01 01030
                     1031   *             FETCH SECOND WORD                                       01 01031
                     1032   *             (MUST BE ON EVEN ADDRESS)                               01 01032
                     1033   FMOVE2 GEN    /N(FMOVE3),10(DF$ALU),6(MEMC),12(A$GPR),24(R0),         01 01033
016A 0B58040280060000 1034               C14(INCA),16(CRY1)                                       01 01034
                     1035   *             SAVE MSW IN A (R0)                                      01 01035
                     1036   FMOVE3 GEN    /*,11(B$SPEC),23(MIR),14(TRNB),15(LOG),17(GPROUT),      01 01036
016B 0B60000020A90010 1037               C24(R0)                                                  01 01037
                     1038   *             FETCH STORAGE ADDRESS                                   01 01038
016C 0B68040484000000 1039        GEN     /*,10(DF$P),6(MEMC),13(INCP)                            01 01039
                     1040   *             SAVE MSW IN B (R1) AND GO STORE A (R0) AND B (R1)       01 01040
                     1041        GEN      /N(FSTOR),11(B$SPEC),23(MIR),14(TRNB),15(LOG),          01 01041
016D 0B18000020A90011 1042               C17(GPROUT),24(R1)                                       01 01042
                     1043   *                                                                     01 01043
                     1044   *                                                                     01 01044
                     1045   *                                                                     01 01045
                     1046   *                                                                     01 01046
                     1047   *                                                                     01 01047
                     1049   * FETCH INPUT PARAMETERS ADDRESS                                      01 01049
                     1050   DOSE1  GMSK   /N(FORTSE),6(MEMC),10(DF$ALU),12(A$P),11(LIT),          01 01050
016E 0A980402EB900010 1051               C15(0001),14(ADD),13(DPROUT)                             01 01051
                     1052   FORTS7 GEN    /P(SS3M),10(IF$P),12(A$GFR),24(R9),14(TRNA),          E.2*******
016F 0168090404F80009 1053               C15(LOG),7(PJMP$),1(0),5(0),6(MEMC$),13(INCP)            01 01053
                     1054   FSTOR4 GEN    /N(SS3M),7(PJMP$),1(0),5(0),6(MEMC$),10(IF$P),          01 01054
0170 0168090404F80001 1055               C13(INCP),12(A$GPR),24(R1),14(TRNA),15(LOG)              01 01055
                     1057   *                                                                     01 01057
                     1058   *             DO LOOP TERMINATOR ROUTINE FOR V74 FIRMWARE             01 01058
                     1059   *                     REPLACES $DO                                    01 01059
                     1060   *                                                                     01 01060
                     1061   *               CALLING SEQUENCE:                                     01 01061
                     1062   *                                                                     01 01062
                     1063   *             BCS $DOF                                                01 01063
                     1064   *             DATA  INCREMENT                                         01 01064
                     1065   *             DATA  VALUE                                             01 01065
                     1066   *             DATA  LIMIT                                             01 01066
                     1067   *             DATA  RETURN                                            01 01067
                     1068   *                                                                     01 01068
                     1069   *               VALUE = VALUE + INCREMEND                             01 01069
                     1070   *               IF VALUE GREATER THAN OR EQUAL TO LIMIT               01 01070
                     1071   *                  CONTROL IS RETURNED TO INSTRUCTION                 01 01071
                     1072   *                  AFTER "DATA RETURN", OTHERWISE CONTROL             01 01072
                     1073   *                  IS TRANSFERRED TO RETURN                           01 01073
                     1074   *                                                                     01 01074
                     1075   *             AS PART OF PIPELINE MIR = ADDRESS OF INCREMENT          01 01075
                     1076   *                 START GETTING INCREMENT                             01 01076
                     1077   *                                                                     01 01077
                     1078   *          TEST INDIRECT CHAIN-$DO IF MORE, OTHERWISE GET INCREMENT   01 01078
                     1079   *                                                                     01 01079
                     1080   DO3     GEN   /N(VALUX),10(DF$P),11(B$SPEC),23(MIR),14(TRNB),15(LOG), 01 01080
0171 0BA00404A0A9001F 1081               C17(GPROUT),24(RF),6(MEMC)                               01 01081
                     1082   *                                                                     01 01082
                     1083   *          SAVE INCREMENT IN RF, GET VALUE                            01 01083
                     1084   *                                                                     01 01084
                     1085   YDO1    GEN   /N(YDO2),10(DF$MIR),6(MEMC),11(B$SPEC),23(MIR),         01 01085
0172 0BF80406A0A9001C 1086               C14(TRNB),15(LOG),17(GPROUT),24(RC)                      01 01086
0173 1B8831C030000000 1087   $DO1    GEN   /T(DO3,YDO1),5(FT),7(ALUS),10(WAITMD),6(SPEC)           01 01087
                     1088   *                                                                     01 01088
                     1089   *          GET VALUE INTO MIR, VALUE ADDRESS IN ALU                   01 01089
                     1090   *                                                                     01 01090
0174 0BA8000030000000 1091   VALUX   GEN   /N(VALUE),10(WAITMD),6(SPEC)                            01 01091
                     1092   VALUE   GEN   /T(VALUX,VAL2),10(DF$MIR),6(MEMC),7(MIRS),5(TT),        01 01092
0175 3BA026C6A0A9001E 1093               C23(MIR),14(TRNB),15(LOG),17(GPROUT),24(RE),11(B$SPEC)   01 01093
                     1094   *                                                                     01 01094
                     1095   *          PUT NEW VALUE BACK                                         01 01095
                     1096   *                                                                     01 01096
                     1097   VAL2    GEN   /N(VAL3),10(DS$ALU),6(MEMC),12(A$GPR),24(RF),           01 01097
0176 0BB8040304A800EF 1098               C11(B$GPR),23(RE),14(TRNB),15(LOG),13(INCP)              01 01098
                     1099   VAL3    GEN   /N(LIMIT),12(A$GPR),24(RF),11(B$SPEC),23(MIR),          01 01099
0177 0BC00404A091001F 1100               C14(ADD),17(GPROUT),10(DF$P),6(MEMC)                     01 01100
                     1101   *                                                                     01 01101
                     1102   *          GET LIMIT                                                  01 01102
                     1103   *                                                                     01 01103
0178 0BC8000080000000 1104   LIMIT   GEN   /N(LIM1),6(SPEC),10(WAITMD)                             01 01104
0179 5BC026C680000000 1105   LIM1    GEN   /T(LIMIT,LIM2),5(TT),10(DF$MIR),7(MIRS),6(MEMC)         01 01105
                     1106   LIM2    GEN   /N(LIM3),10(DF$P),12(A$GPR),24(RF),14(DECA),            01 01106
017A 0BE0040484F1000F 1107               C17(GPROUT),6(MEMC),13(INCP)                             01 01107
                     1108   *                                                                     01 01108
                     1109   *          IF VALUE LT LIMIT RETURN                                   01 01109
                     1110   *                                                                     01 01110
017B 7BE831C080000000 1111   LIM4    GEN   /T(NEXT,RETURN),5(FT),7(ALUS),10(WAITMD),6(SPEC)        01 01111
                     1112   LIM3    GEN   /N(LIM4),12(A$GPR),24(RF),11(B$SPEC),23(MIR),14(SUB),   01 01112
017C 0BD8008020670001F 1113              C17(GPROUT),16(CRY1),5(0),6(0),7(S$ALU)                  01 01113
017D 0490090404000000 1114   NEXT    GEN   /N(SS2M),7(PJMP$),1(0),10(IF$P),6(MEMC$),13(INCP)       01 01114
                     1115   RETURN  GEN   /N(SS2M),7(PJMP$),1(0),10(IF$MIR),11(B$SPEC),23(MIR),   01 01115
017E 0490090621A80010 1116               C14(TRNB),15(LOG),13(POUT),6(MEMC$)                      01 01116
                     1117   YDO2    GEN   /N($DO1),12(A$GPR),24(RC),14(TRNA),15(LOG),             01 01117
017F 0B98008000F9000C 1118               C17(GPROUT),5(0),6(0),7(S$ALU)                           01 01118
0180 5AB821C000000000 1119   FORTS8 GEN    /T(FORTS2,FORTS3),5(TT),7(ALUS)                         01 01119
                     1120   *             FETCH MARK LOCATION IN CASE FOREGROUND                  01 01120
                     1121   VORT12 GMSK   /N(VORT13),10(DF$ALU),6(MEMC),11(LIT),15(X'FFEC),       01 01121
0181 0C100402E0AFFEC0 1122               CFFA                                                     01 01122
                     1123   *             SAVE TASK FOR TESTING                                   01 01123
                     1124   VORT13 GEN    /N(VORT14),11(B$SPEC),23(MIR),24(R4),17(GPROUT),        01 0112·
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.182 0C18000020A900141125                     C14(TRNB),15(LOG)                                                  01 01125
                     1126  *                   TEST FOR BACKGROUND                                               01 01126
                     1127  VORT14 GMSK         /N(VORT15),12(A$GPR),AK4,11(LIT),15(X'0001),                      01 01127
0183 0C2000806090001411128                     C14(ADD),5(0),6(0),7(S$ALU)                                       01 01128
                     1129  *                   SELECT FOREGROUND OR BACKGROUND                                   01 01129
                     1130  VORT15 GEN          /T(INT5,VORT16),5(TT),7(ALUS),12(A$P),14(DECA),                   01 01130
0184 3C2821C088F100041131                      C17(GPROUT),24(R4),6(SPEC),10(WAITMD)                             01 01131
                     1132  INT5   GMSK         /N(INTR10),12(A$P),11(LIT),15(X'1),14(ADD),                       01 01132
0185 0A78000069900010 1133                     C13(POUT)                                                         01 01133
                     1134  *                   FOREGROUND- SET MARK AND JUMP                                     01 01134
                     1135  VORT16 GEN          /N(VORT17),10(DS$MIR),6(MEMC),11(B$SPEC),23(MIR),                 01 01135
0186 0C38040721160110 1136                     C14(INCB),16(CRY1),12(A$SPEC),22(AZERO),13(POUT)                  01 01136
                     1137  *                   COMPLETE MARK                                                     01 01137
                     1138  VORT17 GEN          /N(VORT18),12(A$GPR),24(R4),14(DECA),                           E.2*******
0187 0C40000080F000041139                      C10(WAITMD),6(SPEC)                                             E.2*******
                     1140  *                   EXIT- RESTORE PIPELINE                                            01 01139
                     1141  VORT18 GEN          /P(SS2M),14(TRNA),15(LOG),17(GPROUT),24(R5),12(A$SPEC),           01 01140
0188 0490090400F902051142                      C22(ADNE),7(PJMP$),1(0),5(0),6(MEMC$),10(IF$P)                    01 01141
                     1144  *                                                                                     01 01143
                     1145  *                                                                                     01 01144
                     1146  *          MUST BE ASSEMBLED WITH SUPPLEMENTAL OPCODE EQUATE DECK                     01 01145
                     1147  *                                                                                     01 01146
                     1148  *                                                                                     01 01147
               00991149    DIV    EQU          X'99                                       DIVIDE SUBROUTINE      01 01148
               00521150    COMPOP EQU          X'52                                       COMMON STACK POP       01 01149
               00CD1151    MULA   EQU          X'CD                                       MULTIPLY SUBROUTINE    01 01150
               02001152    P      EQU          X'200                                        PAGE 1 ADDRESS       01 01151
0019                 1153         ORG          X'19                                                              01 01152
                     1154  STACKS GEN          /N(STACK1),12(A$P),14(DECA),          SAVE PROGRAM COUNTER        01 01153
0019 0CC8000038F100091155                      C15(000),17(GPROUT),24(R9),10(WAITMD),6(SPEC)                     01 01154
                     1156  *                                                                                     01 01155
018B                 1157         ORG          X'18B                                                             01 01156
                     1158  *                                                                                     01 01157
                     1159  INCROB GEN          /N(INCTOS),                                                       01 01158
                     1160                      C11(B$SPEC),23(MIR),14(TRNB),15(LOG),     TRANSFER MIR            01 01159
018B 0DB8000020A900101161                      C17(GPROUT),24(R0)                          TO GPR                01 01160
018C 0E100402800000081162  INCLR1 GEN          /N(INCR1A),10(DF$ALU),6(MEMC),24(R8)                              01 01161
                     1163  INCR1B GEN          /N(INCTOS),                                                       01 01162
                     1164                      C11(B$SPEC),23(MIR),14(TRNB),15(LOG),     TRANSFER MIR            01 01163
018D 0DB8000020A900111165                      C17(GPROUT),24(R1)                          TO GPR                01 01164
018E 0E080402800000081166  INCLRB GEN          /N(INCRBA),10(DF$ALU),6(MEMC),24(R8)                              01 01165
                     1167  INCRBB GEN          /N(INCTOS),                                                       01 01166
                     1168                      C11(B$SPEC),23(MIR),14(TRNB),15(LOG),     TRANSFER MIR            01 01167
018F 0DB8000020A9001B1169                      C17(GPROUT),24(RB)                          TO GPR                01 01168
                     1170  *                                                                                     01 01169
                     1171  *                                                                                     01 01170
                     1172  *                                                                                     01 01171
0190 1C700006E00039D21173  SADD   GMSK         /P(INCLRB+P),IMD,LB3,15(SADD3+P),AK2     INCR STACK PTR           01 01172
0191 1C700006E0003A121174  SSUB   GMSK         /P(INCLRB+P),IMD,LB3,15(SSUB3+P),AK2     INCR STACK PTR           01 01173
0192 1C600006E0003A321175  SMUL   GMSK         /P(INCLR1+P),IMD,LB3,15(SMUL3+P),AK2     INCR STACK PTR           01 01174
0193 1E000006E0003AE21176  SDIV   GMSK         /P(INCLR0+P),IMD,LB3,15(SDIV5+P),AK2                              01 01175
0194 1DB00006E0003B321177  PUSHS  GMSK         /P(DECTOS+P),IMD,LB3,15(PUSH1+P),AK2     DECR TOP OF STACK01 01176
0195 1DB00006E0003B221178  PUSHD  GMSK         /P(DECTOS+P),IMD,LB3,15(PUSHD1+P),AK2    DECR TOP OF STACK01 01177
0196 1E000006E0003AA21179  POP    GMSK         /P(INCLR0+P),IMD,LB3,15(SEXIT+P),AK2     INCR STACK PTR           01 01178
0197 1E000006E00039821180  POPD   GMSK         /P(INCLR0+P),IMD,LB3,15(POPDA+P),AK2     INCR STACK PTR           01 01179
0198 1C600006E0003AA21181  POPDA  GMSK         /P(INCLR1+P),IMD,LB3,15(SEXIT+P),AK2     INCR STACK PTR           01 01180
                     1182  STACK1 GEN          /T(STACK3,STACK2),5(TT),7(MIRS),       SAVE STACK CONTROL BLK01 01181
                     1183                      C11(B$SPEC),17(GPROUT),24(RD),         PTR IN 'P', TEST     E.2*******
0199 5CD832C020A9001D1184                      C23(MIR),14(TRNB),15(LOG)                INDIRECT ADDRESS         01 01183
019A 00C80406850000001185  STACK2 GEN          /N(STACKS),10(DF$MIR),6(MEMC),13(INCSC) INDIRECT,TRY NEXT01 01184
019B 0E2004068000000001186 STACK3 GEN          /N(STACK5),10(DF$MIR),6(MEMC)          GET TOP OF STACK PTR    01 01185
                     1187  STACK4 GEN          /F(SADD),FSO,2(X'7),11(B$SPEC),23(MIR), SAVE PTR IN R8            01 01186
019C 0CBA400020A900181188                      C14(TRNB),15(LOG),17(GPROUT),24(R8)    FIELD SELECT 5-7           01 01187
                     1189  *                                                                                     01 01188
                     1190  *                                                                                     01 01189
019D 0E2804048000000001191 SADD3  GEN          /N(SADDA),10(DF$P),6(MEMC)                       FETCH NEXT DATA  01 01190
                     1192  SADD4  GEN          /N(SADD5),11(B$SPEC),23(MIR),14(TRNB),   TRANSFER DATA TO          01 01191
019E 0CF8000020A9001A1193                      C15(LOG),17(GPROUT),24(RA)                RA                      01 01192
                     1194  SADD5  GEN          /N(SADD6),10(DS$P),6(MEMC),12(A$GPR),24(RB),                      01 01193
019F 0D00058500910 0AB1195                     C14(ADD),11(B$GPR),23(RA),17(GPROUT),5(0),7(S$OVFL)               01 01194
01A0 0150000080F8000B1196  SADD6  GEN          /N(SEXIT),10(WAITMD),12(A$GPR),24(RB),14(TRNA),15(LOG)            01 01195
                     1197  *                   STORE RESULT OF RA + RB                                           01 01196
                     1198  *                                                                                     01 01197
01A1 0E3004048000000001199 SSUB3  GEN          /N(SSUBA),10(DF$P),6(MEMC)                       FETCH NEXT DATA  01 01198
                     1200  SSUB4  GEN          /N(SADD5),11(B$SPEC),22(AZERO),11(B$SPEC),                        01 01199
01A2 0CF8000020270 11A1201                     C23(MIR),14(TLD),16(CRY1),17(GPROUT),24(RA)                       01 01200
                     1202  *                                                                                     01 01201
                     1203  *                                                                                     01 01202
                     1204  SMUL3  GEN          /N(SMUL4),10(DF$P),6(MEMC),11(B$GPR),23(R0),                      01 01203
01A3 0D20040480A9000B1205                      C14(TRNB),15(LOG),17(GPROUT),24(RB)                               01 01204
                     1206  SMUL4  GEN          /N(SMUL6),10(WAITMD),6(SPEC),14(ZERO),                            01 01205
01A4 0D28000080390000 1207                     C15(LOG),17(GPROUT),24(R0)                                        01 01206
                     1208  SMUL6  GEN          /N(SMUL7),11(B$SPEC),23(MIR),14(TRNB),    RF = MULTIPLICAND01 01207
01A5 0D30000020A9001F1209                      C15(LOG),17(GPROUT),24(RF)                                        01 01208
01A6 16680006E0003A721210  SMUL7  GMSK         /P(MULA+P),IMD,LB3,15(SMUL8+P),AK2     MULTIPLY SUBROUTINE01 01209
                     1211  SMUL8  GEN          /N(SMUL9),12(A$GPR),24(R8),14(TRNA),                              01 01210
01A7 0D40040300F800081212                      C15(LOG),10(DS$ALU),6(MEMC)                                       01 01211
01A8 0D48000080F800011213  SMUL9  GEN          /N(SMUL12),12(A$GPR),24(R1),14(TRNA),15(LOG),10(WAITMD)           01 01212
01A9 1DB00006E0003AB21214  SMUL12 GMSK         /P(DECTOS+P),IMD,LB3,15(SMUL13+P),AK2    DECR TOP OF STACK01 01213
                     1215  SEXIT  GMSK         /P(SS2M),10(IF$ALU),7(PJMP$),            PROG CNTR = R9+1  01 01214
                     1216                      C6(MEMC$),12(A$GPR),AK9,                   FETCH NEXT INSTR01 01215
01AA 04900902619FFFD91217                      C13(POUT),11(LIT),14(ADD),MKFFFD                                  01 01216
                     1218  SMUL13 GEN          /N(SMU13A),10(DS$P),6(MEMC),11(B$GPR),                            01 01217
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01AB 0D60040500A900A11219                  C23(RA),14(TRNB),15(LOG),17(GPROUT),24(R1)                              01 01218
01AC 0D68000080F800001220 SMU13A GEN       /N(SMU14),12(A$GPR),24(R0),14(TRNA),15(LOG),10(WAITMD)                  01 01219
                     1221 SMU14  GEN       /N(SEXIT),11(B$GPR),23(RB),14(TRNB),15(LOG),                            01 01220
01AD 0D50000000A900B01222                  C17(GPROUT),24(R0)                                                      01 01221
                     1223 *                                                                                        01 01222
                     1224 *                                                                                        01 01223
01AE 1C600006E0003AF21225 SDIV5  GMSK      /P(INCLR1+P),IMD,LB3,15(SDIV8+P),AK2      INCR STACK PTR                01 01224
01AF 0E380402800000081226 SDIV8  GEN       /N(SDIVY),10(OF$ALU),6(MEMC),24(R8)                                     01 01225
                     1227 SDIV9  GEN       /N(SDIV10),11(B$SPEC),23(MIR),14(TRNB),  RF =  DIVISOR                  01 01226
01B0 0D8800020A9001C1228                   C15(LOG),17(GPROUT),24(RC)                                              01 01227
01B1 14C80006E0003A721229 SDIV10 GMSK      /P(DIV+P),IMD,LB3,15(SMUL8+P),AK2                                       01 01228
                     1230 *                                                                                        01 01229
                     1231 *                                                                                        01 01230
                     1232 PUSHD1 GEN       /N(PUSH5),10(DS$ALU),6(MEMC),12(A$GPR),  STORE R1 ON TO                 01 01231
01B2 0DA8040300F800081233                  C24(R8),14(TRNA),15(LOG)                 TOP OF STACK                   01 01232
                     1234 *                                                                                        01 01233
                     1235 *                                                                                        01 01234
                     1236 PUSH1  GEN       /N(PUSH2),10(DS$ALU),6(MEMC),12(A$GPR), STORE R0 ONTO TOP01 01235
01B3 0DA0040300F800081237                  C24(R8),14(TRNA),15(LOG)                  OF STACK                      01 01236
01B4 0D500000800000001238 PUSH2  GEN       /N(SEXIT),10(WAITMD)                                                    01 01237
01B5 0CA0000080F800011239 PUSH5  GEN       /N(PUSHS),AA1,10(WAITMD),14(TRNA),15(LOG)                               01 01238
                     1240 *                                                                                        01 01239
                     1241 *                                                                                        01 01240
                     1242 DECTOS GEN       /N(MCTOS),12(A$GPR),                      CTOS=CTOS-1,  STORE 01 01241
01B6 0DC0000000F100081243                  C24(R8),14(DECA),17(GPROUT)                                             01 01242
                     1244 INCTOS GEN       /N(MCTOS),12(A$GPR),                      CTOS=CTOS+1,  STORE 01 01243
01B7 0DC00000000700081245                  C24(R8),14(INCA),16(CRY1),17(GPROUT)                                    01 01244
01B8 0DC804030100000D1246 MCTOS  GEN       /N(MCTOSX),10(DS$ALU),6(MEMC),24(RD),13(POUT)                  E.2*******
                     1247 MCTOSX GEN       /N(MCTOSA),10(OF$P),6(MEMC),13(INCP),  READ STACK LO LIMIT01 01246
01B9 0E40040484F800081248                  CBP0,AA8,14(TRNA),15(LOG)                HOLD ALU               01 01247
                     1249 MCTOS1 GEN       /N(MCTOS2),12(A$GPR),24(R8),11(B$SPEC),  CTOS-(LO LIMIT)-101 01248
01BA 0DD8008020660018125O                  C23(MIR),14(SUB),16(3),5(0),6(0),7(S$ALU)                     ALU01 01249
                     1251 MCTOS2 GEN       /T(MCTOSB,FAULT),10(OF$P),6(MEMC),  READ HI LIMIT,  GO TO    01 01250
01BB 62D835C4840000001252                  C13(INCP),5(FT),7(ALUS)                 "FAULT" IF CTOS<LO LIM01 01251
                     1253 MCTOS3 GEN       /N(MCTOS4),12(A$GPR),24(RC),11(B$SPEC),  CTOS-(HI LIMIT)   01 01252
01BC 0DE80080206001C1254                   C23(MIR),14(SUB),16(0000),5(0),6(0),7(S$ALU)                            01 01253
                     1255 MCTOS4 GEN       /T(COMPOP,FAULT),5(TT),7(ALUS),12(A$GPR),       TEST HI LIM 01 01254
01BD 629021C001F800081256                  C24(R8),14(TRNA),15(LOG),13(POUT)                                       01 01255
                     1257 *                                                                                        01 01256
                     1258 FAULTA GEN       /N(FAULT1),12(A$GPR),10(WAITMD),                                        01 01257
01BE 0DF8000080F800091259                  C24(R9),14(TRNA),15(LOG)                                                01 01258
01BF 09F00006E40000141260 FAULT1 GEN       /P(SS1M),IMD,LB3,AA4,BB1,RF4              BRANCH/DELETE                 01 01259
                     1261 *                                                                                        01 01260
01C0 0E180402800000081262 INCLR0 GEN       /N(INCR0A),10(OF$ALU),6(MEMC),24(R8)                                    01 01261
01C1 0C780000800000001263 INCRBA GEN       /N(INCRBB),10(WAITMD),6(SPEC)                                           01 01262
                     1264 INCR1A GEN       /N(INCR1B),10(WAITMD),6(SPEC),                                          01 01263
01C2 0C68000080A9001A1265                  C11(B$GPR),23(R1),14(TRNB),15(LOG),17(GPROUT),24(RA)                    01 01264
                     1266 INCR0A GEN       /N(INCR0B),10(WAITMD),6(SPEC),                                          01 01265
01C3 0C58000080A9000B1267                  C11(B$GPR),23(R0),14(TRNB),15(LOG),17(GPROUT),24(RB)                    01 01266
01C4 0CE00000800000001268 STACK5 GEN       /N(STACK4),10(WAITMD),6(SPEC)                                           01 01267
01C5 0CF00000800000001269 SADDA  GEN       /N(SADD4),10(WAITMD),6(SPEC)                                            01 01268
01C6 0D100000800000001270 SSUBA  GEN       /N(SSUB4),10(WAITMD),6(SPEC)                                            01 01269
01C7 0D800000800000001271 SDIVY  GEN       /N(SDIV9),10(WAITMD),6(SPEC)                                            01 01270
01C8 0DD00000800000001272 MCTOSA GEN       /N(MCTOS1),10(WAITMD),6(SPEC)                                           01 01271
005B                 1273        ORG       X'5B                                                                    01 01272
                     1274 MCTOSB GEN       /N(MCTOS3),10(WAITMD),6(SPEC),FFB,12(A$SPEC),  RC=R8-1                  01 01273
005B 0DE0000080B1028C1275                  C11(B$GPR),23(R8),22(AONE),17(GPROUT),24(RC)                            01 01274
                     1276 FAULT  GMSK      /N(FAULTA),10(DS$ALU),6(MEMC),12(A$GPR),        LOC OF BCS              01 01275
005C 0DF00403619FFFCD1277                  C16(RD),11(LIT),MKFFFC,14(ADD),13(POUT)                        E.2*******
                     1279 *                                                                                        01 01278
                     1280 *                                                                                        01 01279
                     1281 *      MOVE BYTE STRING                                                                  01 01280
                     1282 *                                                                                        01 01281
                     1283 *      CALL:       DATA   0105070                                                        01 01282
                     1284 *                                                                                        01 01283
                     1285 *      ON ENTRY:   B REG - BYTE POINTER TO SOURCE                                        01 01284
                     1286 *                  X REG - BYTE POINTER TO DESTINATION                                   01 01285
                     1287 *                  A REG - NUMBER OF BYTES TO BE MOVED                                   01 01286
                     1288 *                                                                                        01 01287
                     1289 *                                                                                        01 01288
                     1290 *      FOLLOWING IS BCS ENTRY POINT - BIT 5 = 0 FOR CBS, = 1 FOR MBS                     01 01289
0018                 1291        ORG       X'18                                                                    01 01290
0018 7F8A4000000000001292        GEN       /F(CBS),FS9,2(1)                                                        01 01291
01CD                 1293        ORG       X'1CD                                                                   01 01292
                     1294 *      DEC SOURCE ADDR.  PUT IT IN P.  SET BYTE FLAG FROM SOURCE PTR.                    01 01293
01CD 0E80000019F004011295 MBS1   GEN       /N(MBS4),12(A$GPRR),24(R1),22(4),14(DECA),13(POUT)                      01 01294
                     1296 *      MBS2-MBS3 IS A 2-WORD TABLE WHICH MUST START ON AN EVEN ADDRESS                   01 01295
                     1297 *      SELECT ROUTINE - L TO L, L TO R, R TO R OR R TO L BYTE MOVE                       01 01296
                     1298 MBS2   GEN       /T(MBS5,MBS20),5(TT),12(A$GPR),24(R2),14(DECA),                         01 01297
01CE 6E88224000F100021299            C17(GPROUT),7(ALUZ)                                                           01 01298
                     1300 MBS3   GEN       /T(MBS9,MBS14),5(FT),12(A$GPR),24(R2),14(DECA),                         01 01299
01CF 5EA8324000F100021301            C17(GPROUT),7(ALUZ)                                                           01 01300
                     1302 *      SET ALU FLAGS FROM BYTE NUMBER OF DEST PTR.  JUMP ON SOURCE BYTE 01 01301
                     1303 MBS4   GMSK      /F(MBS2),FS2,2(1),12(A$GPR),16(R2),11(LIT),15(X'FFFE),                  01 01302
01D0 7E08808060BFFFE21304            C14(AND),7(S$ALU)                                                             01 01303
                     1305 *                                                                                        01 01304
                     1306 *                                                                                        01 01305
                     1307 *      START L TO L BYTE MOVE - FETCH A WORD; FINISH PREVIOUS BYTE STORE01 01306
                     1308 MBS5   GEN       /N(MBS6),10(OF$P),6(MEMC),11(B$SPEC),23(MIR),14(TRNB),                  01 01307
01D1 0E900404A4A800101309            C15(LOG),13(INCP)                                                             01 01308
                     1310 *      DECREMENT BYTE COUNT                                                              01 01309
01D2 0E980080000F100001311 MBS6  GEN       /N(MBS7),12(A$GPR),24(R0),14(DECA),17(GPROUT),7(S$ALU)                  01 01310
                     1312 *      INCREMENT DEST PTR.  TEST FOR DONE - LOOP OR RETURN.                              01 0131
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                         1313  MBS7    GEN      /T(MBS8,MBS24),5(FT),7(ALUS),12(A$GPR),24(R2),14(INCA),   01 01312
01D3 7EA031C080070002 1314             C16(CRY1),17(GPROUT),6(SPEC),10(WAITMD)                            01 01313
                         1315  *       INITIATE L TO L BYTE STORE                                         01 01314
                         1316  MBS8    GEN      /N(MBS10),10(BS$ALU),6(MEMC),12(A$GPR),24(R2),22(4),      01 01315
01D4 0EB0040398F80402 1317             C14(TRNA),15(LOG)                                                  01 01316
                         1318  *                                                                          01 01317
                         1319  *                                                                          01 01318
                         1320  *       START R TO R STRING MOVE - FETCH A WORD                             01 01319
01D5 0EB80404840000001 1321  MBS9    GEN      /N(MBS11),10(DF$P),6(MEMC),13(INCP)                        01 01320
                         1322  *       FINISH L TO L BYTE STORE                                           01 01321
                         1323  MBS10   GEN      /N(MBS11),11(B$SPEC),23(MIR),14(TRNB),15(LOG),             01 01322
01D6 0EB80000A0A80010 1324             C6(SPEC),10(WAITMD)                                                01 01323
                         1325  *       DECREMENT BYTE COUNT                                               01 01324
01D7 0EC0008000F10000 1326  MBS11   GEN      /N(MBS12),12(A$GPR),24(R0),14(DECA),17(GPROUT),7(S$ALU)    01 01325
                         1327  *       INCREMENT DESTINATION PTR.  TEST FOR DONE - LOOP OR RETURN.         01 01326
                         1328  MBS12   GEN      /T(MBS13,MBS24),5(FT),7(ALUS),12(A$GPR),24(R2),            01 01327
01D8 7EC831C080070002 1329             C14(INCA),16(CRY1),17(GPROUT),6(SPEC),10(WAITMD)                   01 01328
                         1330  *       INITIATE R TO R BYTE STORE                                         01 01329
                         1331  MBS13   GEN      /N(MBS5),10(BS$ALU),6(MEMC),12(A$GPR),24(R2),22(4),        01 01330
01D9 0E88040398F80402 1332             C14(TRNA),15(LOG)                                                  01 01331
                         1333  *                                                                          01 01332
                         1334  *                                                                          01 01333
                         1335  *       START R TO L BYTE MOVE - FETCH A WORD                              01 01334
01DA 0F2004048400000 1336  MBS14   GEN      /N(MBS16),10(DF$P),6(MEMC),13(INCP)                        01 01335
                         1337  *       TRANSFER SOURCE WORD TO OPERAND REG FOR BYTE SHIFT                  01 01336
01DB 0F30000023A80010 1338  MBS18   GEN      /N(MBS19),11(B$SPEC),23(MIR),14(TRNB),15(LOG),13(OPROUT)   01 01337
                         1339  *                                                                          01 01338
                         1340  *                                                                          01 01339
                         1341  *       INITIATE WORD FETCH FOR L TO P MOVE.  FINISH PREVIOUS STORE.        01 01340
                         1342  MBS20   GEN      /N(MBS21),10(DF$P),6(MEMC),11(B$SPEC),23(DL2F),            01 01341
01DC 0F380404A4A80070 1343             C14(TRNB),15(LOG),13(INCP)                                         01 01342
                         1344  *       TRANSFER DATA WORD TO OPERAND REG FOR BYTE SHIFT                    01 01343
01DD 0EF8000023A80010 1345  MBS23   GEN      /N(MBS25),11(P$SPEC),23(MIR),14(TRNB),15(LOG),13(OPROUT)   01 01344
                         1346  *       RESTORE P FROM R9 AND RETURN                                       E.2********
                         1347  MBS24   GEN      /P(SS2M),10(JMP),7(A$GPR),24(R9),14(TRNA),15(LOG),         E.2********
01DE 0490000181F80009 1348             C13(POUT)                                                          E.2********
                         1349  *       INITIATE L TO R BYTE STORE                                         01 01348
                         1350  MBS25   GEN      /N(MBS15),10(BS$ALU),6(MEMC),12(A$GPR),24(R2),22(4),       01 01349
01DF 0F48040398F80402 1351             C14(TRNA),15(LOG)                                                  01 01350
                         1352  *                                                                          01 01351
                         1353  *       CBS4 IS A 4-WORD TABLE WHICH MUST START AT AN ADDR DIV BY X'10      01 01352
                         1354  *       START LOOP FETCH WORD FROM STRING1 IF FIRST-READ OR IF L BYTE       01 01353
                         1355  CBS4    GEN      /N(CBS5),10(DF$ALU),6(MEMC),12(A$GPR),24(R1),22(4),        01 01354
01E0 0FB0040298F80401 1356             C14(TRNA),15(LOG)                                                  01 01355
01E1 0FC0000000070001 1357             GEN      /N(CBS7),10(B$GPR),24(R1),14(INCA),16(CRY1),17(GPROUT)     01 01356
                         1358          GEN      /N(CBS5),10(DF$ALU),6(MEMC),12(A$GPR),24(R1),22(4),        01 01357
01E2 0FB0040298F80401 1359             C14(TRNA),15(LOG)                                                  01 01358
                         1360          GEN      /N(CBS5),10(DF$ALU),6(MEMC),12(A$GPR),24(R1),22(4),        01 01359
01E3 0FB0040298F80401 1361             C14(TRNA),15(LOG)                                                  01 01360
                         1362  *                                                                          01 01361
                         1363  *       DECREMENT BYTE COUNT                                               01 01362
01E4 0F28008000F10000 1364  MBS16   GEN      /N(MBS17),12(A$GPR),24(R0),14(DECA),17(GPROUT),7(S$ALU)    01 01363
                         1365  *       WAIT FOR FETCH, INCREMENT DEST PTR, TEST FOR DONE                   01 01364
                         1366  MBS17   GEN      /T(MBS18,MBS24),5(FT),7(ALUS),12(A$GPR),24(R2),            01 01365
01E5 7ED831C080070002 1367             C14(INCA),16(CRY1),17(GPROUT),6(SPEC),10(WAITMD)                   01 01366
                         1368  *       INITIATE R TO L BYTE STORE, FINISH PREVIOUS BYTE STORE              01 01367
                         1369  MBS19   GEN      /N(MBS20),10(BS$ALU),6(MEMC),12(A$GPR),24(R2),22(4),       01 01368
01E6 0EE0040398F80402 1370             C14(TRNA),15(LOG)                                                  01 01369
                         1371  *       DECREMENT BYTE COUNT                                               01 01370
01E7 0F40008000F10000 1372  MBS21   GEN      /N(MBS22),12(A$GPR),24(R0),14(DECA),17(GPROUT),7(S$ALU)    01 01371
                         1373  *       INCREMENT DEST PTR, WAIT FOR FETCH, TEST FOR DONE                   01 01372
                         1374  MBS22   GEN      /T(MBS23,MBS24),5(FT),7(ALUS),12(A$GPR),24(R2),            01 01373
01E8 7EE831C080070002 1375             C14(INCA),16(CRY1),17(GPROUT),6(SPEC),10(WAITMD)                   01 01374
                         1376  *       FINISH L TO R BYTE STORE                                           01 01375
                         1377  MBS15   GEN      /N(MBS16),11(B$SPEC),23(DLSE),14(TRNB),15(LOG),            01 01376
01E9 0F200000A0A80050 1378             C6(SPEC),10(WAITMD)                                                01 01377
                         1379  *                                                                          01 01378
                         1380  *                                                                          01 01379
                         1381  *       COMPARE BYTE STRING                                                01 01380
                         1382  *                                                                          01 01381
                         1383  *       CALL:    DATA  01050030                                            01 01382
                         1384  *                DATA UNEQUAL JUMP ADDRESS                                 01 01383
                         1385  *                                                                          01 01384
                         1386  *       ON ENTRY:  B REG - BYTE POINTER TO STRING 1                         01 01385
                         1387  *                  X REG - BYTE POINTER TO STRING 2                        01 01386
                         1388  *                  A REG - NUMBER OF BYTES TO BE COMPARED                  01 01387
                         1389  *                                                                          01 01388
                         1390  *       EXIT CONDITIONS:  IF THE TWO STRINGS ARE NOT EQUAL, THE SECOND      01 01389
                         1391  *                  WORD IS USED AS A DIRECT JUMP ADDRESS.  OTHERWISE,      01 01390
                         1392  *                  EXECUTION CONTINUES AFTER THE SECOND WORD.              01 01391
                         1393  *                  POINTERS POINT TO THE BYTE AFTER THE LAST BYTE READ.    01 01392
                         1394  *                  OVFLOW IS SET IF STRING 1 IS GREATER, ELSE RESET.       01 01393
                         1395  *                                                                          01 01394
                         1396  *       WAIT FOR PARAMETER FETCH, SET SHFT AS FIRST-READ FLAG               01 01395
                         1397  CBS0    GEN      /N(CBS1),6(SPEC),18(WAITMD),12(A$GPR),24(R0),              01 01396
01EA 0F5800008039400E 1398             C19(SSSHFT),14(ZERO),15(LOG),17(GPROUT)                            01 01397
                         1399  *       SAVE PARAMETER IN R1, INC P PAST PARAMETER, RESET OVFL              01 01398
                         1400  CBS1    GEN      /N(CBS2),11(B$SPEC),23(MIR),14(TRNB),15(LOG),             01 01399
01EB 0F9005002 4A9001F 1401            C17(GPROUT),4(RF),7(4),6(MEMC),13(INCP)                            01 01400
                         1402  *       UNEQUAL RETURN - SET P TO R9                                       01 01401
                         1403  CBS16   GEN      /T(CBS17,CBS19),5(FT),12(A$CPS),24(RF),14(TRNA),           01 01402
01EC 7F6831C001F8000F 1404             C15(LOG),13(PBUT),7(ALUS)                                          01 01403
                         1405  *       SET OVFL IF STRING1 IS GREATER                                     01 01404
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01ED 0F70048000000000 1406  CBS17  GEN     /N(CBS18),6(MEMC),7(2)                                          01 01405
                      1407  *      RETURN                                                                  01 01406
01EE 0490090400000000 1408  CBS18  GEN     /N(SS2M),7(PJMP$),1(0),10(IF$P),6(MEMC$)                        01 01407
                      1409  *      TEST FOR DONE (UNEQUAL) OR LOOP (EQUAL), CLEAR FIRST-READ FLAG          01 01408
                      1410  CBS19  GEN     /T(CBS16,CBS2),5(FT),7(ALUZ),12(A$GPR),24(RE),                  01 01409
01EF 9F60324000000400E 1411                C19(S$SHFT)                                                     01 01410
                      1412  *      CBS10 IS A 2-WORD TABLE WHICH MUST START ON AN ADDR DIV BY X'10          01 01411
                      1413  *      START WORD FETCH FROM STRING2 IF FIRST-READ OR IF L BYTE                 01 01412
                      1414  CBS10  GEN     /N(CBS11),10(DF$ALU),6(MEMC),12(A$GPRR),24(R2),22(4),           01 01413
01F0 0FC8040298F804021 1415                C14(TRNA),15(LOG)                                               01 01414
                      1416  *      STRING2 R BYTE - INCREMENT STRING2 PTR AND GO USE OLD WORD               01 01415
01F1 0FD8000000700021 1417  GEN     /N(CBS13),12(A$GPR),24(R2),14(INCA),16(CRY1),17(GPROUT)                 01 01416
                      1418  *      DECREMENT BYTE COUNT                                                    01 01417
01F2 0F98008000F10000 1419  CBS2   GEN     /N(CBS3),12(A$GPR),24(RC),14(DECA),17(GPROUT),7(S$ALU)          01 01418
                      1420  *      TEST FOR END OF STRINGS - LOOP OR RETURN                                01 01419
                      1421  CBS3   GEN     /S(CBS4,CBS18),FS2,2(3),5(FT),                                  01 01420
01F3 7F18B1C0180004011 1422                C12(A$GPRR),24(R1),22(4),7(ALUS)                                01 01421
                      1423  *      CBS8-CBS9 IS A 2-WORD TABLE WHICH MUST START ON AN EVEN ADDRESS         01 01422
                      1424  *      MOVE STRING1 L BYTE TO OPERAND REG                                      01 01423
                      1425  CBS8   GEN     /N(CBS9),12(A$GPRR),24(R2),22(4),11(B$SPEC),23(DLSE),           01 01424
01F4 0FA800003BA804521 1426                C14(TRNB),15(LOG),13(OPROUT)                                    01 01425
                      1427  *      PUT STRING1 BYTE IN RC, RT-ADJUSTED, ZERO-FILLED. SELECT STR2 RTN       01 01426
                      1428  CBS9   GEN     /S(CBS10,CBS10),FS2,2(1),5(FT),11(B$SPEC),23(ORZF),             01 01427
01F5 0F88B28020A9006C 1429                C14(TRNB),15(LOG),17(GPROUT),24(RC),7(SHFT)                     01 01428
                      1430  *      INCREMENT STRING1 PTR, WAIT FOR FETCH                                   01 01429
                      1431  CBS5   GEN     /N(CBS6),6(SPEC),10(WAITMD),12(A$GPR),24(R1),14(INCA),          01 01430
01F6 0FB8000080070001 1432                C16(CRY1),17(GPROUT)                                            01 01431
                      1433  *      SAVE STRING1 WORD IN RA AND OPR, SELECT SHIFT ROUTINE                   01 01432
                      1434  CBS6   GEN     /F(CBS8),FS2,2(1),11(B$SPEC),23(MIR),                           01 01433
01F7 2F8880002BA9001A 1435                C14(TRNB),15(LOG),17(GPROUT),24(RA),13(OPROUT)                  01 01434
                      1436  *      FOR STRING1 R BYTE USE PREVIOUSLY FETCHED WORD IN RA                    01 01435
                      1437  CBS7   GEN     /N(CBS9),12(A$GPRR),24(R2),22(4),11(B$GPR),23(RA),              01 01436
01F8 0FA800001BA804A2 1438                C14(TRNB),15(LOG),13(OPROUT)                                    01 01437
                      1439  *      STRING2 FIRST-READ OR L BYTE - INC STRING2 PTR, WAIT FOR FETCH           01 01438
                      1440  CBS11  GEN     /N(CBS12),6(SPEC),10(WAITMD),12(A$GPR),24(R2),14(INCA),         01 01439
01F9 0FD0000080070002 1441                C16(CRY1),17(GPROUT)                                            01 01440
                      1442  *      SAVE STRING2 WORD IN RB AND OPR, SELECT SHIFT ROUTINE                   01 01441
                      1443  CBS12  GEN     /F(CBS14),FS2,2(1),11(B$SPEC),23(MIR),14(TRNB),15(LOG),         01 01442
01FA 6F8880002BA9001B 1444                C17(GPROUT),24(RB),13(OPROUT)                                   01 01443
                      1445  *      FOR STRING2 R BYTE USE PREVIOUSLY FETCHED WORD IN RB                    01 01444
01FB 0FE8000003F8000B 1446  CBS13  GEN     /N(CBS15),12(A$GPR),24(RB),14(TRNA),15(LOG),13(OPROUT)          01 01445
                      1447  *      CBS14-CBS15 IS A 2-WORD TABLE WHICH MUST START ON AN EVEN ADDR          01 01446
                      1448  *      MOVE STRING2 L BYTE TO OPERAND REG                                      01 01447
01FC 0FE8000023A80050 1449  CBS14  GEN     /N(CBS15),11(B$SPEC),23(DLSE),14(TRNB),15(LOG),13(OPROUT)       01 01448
                      1450  *      SUBTRACT STRING1 BYTE - STRING2 BYTE  (RC - OPR REG, ZERO-FILLED)       01 01449
                      1451  CBS15  GEN     /N(CBS19),12(A$GPR),24(RC),11(B$SPEC),23(ORZF),14(SUB),         01 01450
01FD 0F78008020660060 1452                C16(CRY1),7(S$ALU)                                              01 01451
                      1453  *                                                                              01 01452
                      1454  *                                                                              01 01453
                      1455  *      CBS-MBS IS A TWO-WORD TABLE FOR FIELD-SELECT ADDRESSING                 01 01454
01FE 0F5000000031000E 1456  CBS    GEN     /N(CBS0),14(ONES),17(GPROUT),24(RE)                             01 01455
                      1457  *      SAVE P IN R9                                                    E.2*********
01FF 0E68000008F90009 1458  MBS    GEN     /N(MBS1),12(A$P),14(TRNA),15(LOG),17(GPROUT),24(R9)     E.2*********
                      1459         END                                                                     01 01458
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SYMBOLS

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001D $DO     0173 $DO1    0017 $DOIN1  0000 A$GPR   0002 A$GPRL
0003 A$GPRR  0001 A$P     0000 A$SPEC  0009 ADD     0008 ALLC
0006 ALUO    0007 ALUS    0009 ALUZ    000B AND     0002 ONE
0001 AZERO   0000 B$GPR   0001 B$SPEC  0007 BS$ALU  000F BS$MIR
0003 BS$OVR  000B BS$P    01FE CBS     012A CBS0    01EB CBS1
01F0 CBS10   01F9 CBS11   01FA CBS12   01FB CBS13   01FC CBS14
01FD CBS15   01EC CBS16   01EO CBS17   01EE CBS18   01EF CBS19
01F2 CBS2    01F3 CBS3    01E0 CBS4    01F6 CBS5    01F7 CBS6
01F8 CBS7    01F4 CBS8    01F5 CBS9    0032 COMPOP  0003 CRY1
000F DECA    0009 DECB    0005 DECODE$ 0004 DECODE  01B6 DECTOS
0099 DIV     0095 DIV0    008E DIV1    0096 DIV10   009B DIV12
009C DIV13   009D DIV14   009E DIV15   009F DIV16   0092 DIV17
0091 DIV18   00A0 DIV18A  0097 DIV19   008C DIV2    0090 DIV4
008F DIV5    0093 DIV7    0094 DIV7A   009A DIV9    0171 DO3
0074 DOCOMP  016L DOSE1   0006 EOR     006F EXIT    014C EXIT1
014C EXIT2   0025 FAS     0029 FAS0    0028 FAS1    018A FAS10
0189 FAS11   005D FAS12   002A FAS2    0020 FAS3    0031 FAS5
0032 FAS6    0035 FAS7    0036 FAS7A   0034 FAS7B   0038 FAS8
003A FAS8A   0030 FAS9    005E FASA    0060 FASA0   0065 FASA1
0061 FASA2   0062 FASB    0066 FASC    005A FASC10  0148 FASC1A
0139 FASCM1  013C FASCM2  013B FASCM3  013A FASCM4  013F FASCM5
013D FASCM6  0142 FASCM7  0144 FASCM8  0059 FASC 9  0147 FASCMA
0146 FASCMB  006D FASCMD  005F FASS    005C FAULT   01BF FAULT1
01BE FAULTA  0066 FDIV    006A FDIV1   006B FDIV2   0045 FIX
0072 FIX01   0137 FIX02   0075 FIX03   0076 FIX04  0022 FIXA
0020 FIXD    00EF FIXE    0021 FIXM    0023 FIXS    006E FIXXT
015D FLOAD   015F FLOAD1  015E FLOAD2  0160 FLOAD3  012B FLP3A
0130 FLPN7A  0131 FLPN7B  0152 FLPNT   003F FLPNT1  003E FLPNT2
012A FLPNT4  012C FLPNT5  012D FLPNT6  012E FLPNT7  012F FLPNT8
0132 FLPNT9  0135 FLPNTC  0136 FLPNTD  0041 FLPT2   0040 FLPT3
0020 FLTFRM  0024 FMD     0064 FMD1    0168 FMOVE   0169 FMOVE1
016A FMOVE2  0168 FMOVE3  0069 FMUL    006C FMUL1   007F FNML
0156 FORTS1  0157 FORTS2  015A FORTS3  015C FORTS4  0159 FORTS5
015B FORTS6  016F FORTS7  0180 FORTS8  0158 FORTS9  0153 FORTSE
0110 FP0     003D FP1     0071 FSC01   0070 FSC02   0145 FSC03
0149 FSC04   014A FSC05   013E FSC06   0141 FSC07   0143 FSC08
0138 FSC09   0140 FSC10   0073 FSC11   0074 FSC12   0078 FSM
007E FSM1    0077 FSM2    0163 FSTOR   0165 FSTOR1  0164 FSTOR2
```

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0166 FSTOR3  0170 FSTOR4  0003 FT      0001 GPROUT  000D GPRS
010A IADD    0001 IBR$I   00A1 ICOMP   00A5 ICOMP1  00A2 ICOMP2
00A3 ICOMP3  00A6 ICOMP4  00A7 ICOMP5  00E0 IDIV    00D7 IDIV0
00DF IDIV0A  00E8 IDIV0B  00ED IDIV0C  00D9 IDIV1   00DA IDIV2
00DB IDIV3   00DD IDIV4   00DE IDIV4A  00D8 IDIV5   00E1 IDIV5A
00E6 IDIV6   00E7 IDIV7   00EE IDIV7A  00F2 IDIV7B  00F4 IDIV7C
00EB IDIV7D  00F0 IDIV8   00F1 IDIV9   00F9 IDIVA   00F3 IDIVA1
00EA IDIVA2  00F5 IDIVA3  00F8 IDIVB   0100 IDIVB2  00FB IDIVB3
00FA IDIVC   0101 IDIVD   0056 IDIVE   0055 IDIVF   00FF IDIVG
00FE IDIVX   0004 IF$ALU  000C IF$MIR  0000 IF$OVR  0008 IF$P
00AD IMUL    00C8 IMUL0   00AA IMUL1   00A9 IMUL1A  00AB IMUL1B
00B2 IMUL2   00AE IMUL3   00B0 IMUL4   00AC IMUL4A  00B4 IMUL5
00B5 IMUL6   0054 IMUL7   0053 IMUL7A  0033 IMULX   0000 INCA
0001 INCB    01C0 INCLR0  018C INCLR1  018E INCLRB  0004 INCP
01C3 INCR0A  018B INCR0B  01C2 INCR1A  018D INCR1B  01C1 INCRBA
018F INCRBB  0005 INCSC   01B7 INCTOS  0085 INT5    014E INTR
014F INTR10  014D INTR20  0150 INTR30  0151 INTR40  0002 IOR
0001 IOSR    010D ISUB    0006 KOUT    0000 LFT     0179 LIM1
017A LIM2    017C LIM3    017B LIM4    0178 LIMIT   0003 LIT
0001 LOG     01FF MBS     01CD MBS1    01D6 MBS10   01D7 MBS11
01D8 MBS12   01D9 MBS13   01DA MBS14   01E9 MBS15   01E4 MBS16
01E5 MBS17   01DB MBS18   01E6 MBS19   01DE MBS2    01DC MBS20
01E7 MBS21   01E8 MBS22   01DD MBS23   01DC MBS24   01DF MBS25
01CF MBS3    01D0 MBS4    01D1 MBS5    01B2 MBS6    01D3 MBS7
01D4 MBS8    01D5 MBS9    01B8 MCTOS   01BA MCTOS1  01BB MCTOS2
01BC MCTOS3  01BD MCTOS4  01C8 MCTOSA  005B MCTOSB  01B9 MCTOSX
0001 MEMC    0002 MEMC$   0001 MIR     000B MIRS    0002 MSK
00C9 MUL     00CB MUL1    00D5 MUL12   00D6 MUL13   00CC MUL2
00CF MUL3    00CA MUL4    00CE MUL5    00D0 MUL6    00D2 MUL8
00D3 MUL9    00CD MULA    0122 MYOVER  008B MYOVR1  017D NEXT
014B NML1    011B NML10   011D NML11   011E NML12   0084 NML12A
0089 NML13   0088 NML14   0082 NML1B   0083 NML3    0085 NML4
0086 NML5    008A NML5A   0111 NML6    0112 NML8    0118 NML8A
011A NML9    006F NOCOMP  000E NORM    0000 NOTA    0005 NOTB
0005 OF$ALU  000D OF$MIR  0001 OF$OVR  0009 OF$P    0005 OLSE
0007 OLZF    0003 ONES    0000 OPR     0003 OPROUT  0001 OR
0004 ORSE    0006 ORZF    0006 OS$ALU  000E OS$MIR  0002 OS$OVR
000A OS$P    0000 OVFL    0200 P       0003 PJMP    0004 PJMP$
0196 POP     0197 POPD    0198 POPDA   0001 POPDEL  0004 POPJMP
0001 POUT    0002 PUSH    01B3 PUSH1   01B4 PUSH2   01B5 PUSH5
0195 PUSHD   01B2 PUSHD1  0194 PUSHS   000F QUOS    0000 R0
0001 R1      0002 R2      0003 R3      0004 R4      0005 R5
0006 R6      0007 R7      0008 R8      0009 R9      000A RA
000B RB      000C RC      000D RD      000E RE      0133 REAL
0047 REAL1   0048 REAL2   0049 REAL3   0126 REALA   0124 REALD
0125 REALM   0129 REALM1  0128 REALMD  0127 REALS   0044 REALY
017E RETURN  000F RF      0001 RGHT    0002 S$ALU   0006 S$OVFL
0001 S$SHFT  0190 SADD    019L SADD3   019F SADD4   019F SADD5
01A0 SADD6   01C5 SADDA   0002 SCOUT   0193 SDIV    01B1 SDIV10
01AE SDIV5   01AF SDIV8   01B0 SDIV9   01C7 SDIVY   01AA SEXIT
000C SFTC    000C SHFA    000A SHFT    0191 SHFT1   0051 SHFT2
0001 SHFTUP  011F SH1FT   01AC SMU13A  01AD SMU14   0192 SMUL
01A9 SMUL12  01AB SMUL13  01A3 SMUL3   01A4 SMUL4   01A5 SMUL6
01A6 SMUL7   01A7 SMUL8   01A8 SMUL9   0000 SPEC    013E SSIM
0092 SS2M    002D SS3M    0191 SSUB    01A1 SSUB3   01A2 SSUB4
01C6 SSUBA   0004 SSW1    0003 SSW2    0002 SSW3    000D STACK
0199 STACK1  019A STACK2  019B STACK3  019C STACK4  01C4 STACK5
0019 STACK8  0008 STAT    0006 SUB     0002 TCB     0002 TESTF
0003 TESTT   0005 TFIR    000F TRNA    000A TRNB    0002 TT
0176 VAL2    0177 VAL3    0175 VALUE   0174 VALUX   0181 VORT12
0182 VORT13  0183 VORT14  0184 VORT15  0186 VORT16  0187 VORT17
0188 VORT18  0001 WAITMD  0080 X       007F X0      0057 X1
0081 X2      0058 X3      0172 YDD1    017F YDD2    0134 ZERAN1
0123 ZERAN8  0003 ZERO
  0 ERRORS ASSEMBLY COMPLETE
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```
1087  $DD1      1117
   0  A          106
  20  A$GPR      186    205    577    604    616    739    742    746    755
                 792    795    798    813    825    850    925    932    935
                 940    942    965    998   1002   1007   1033   1052   1055
                1097   1099   1106   1112   1117   1127   1138   1194   1196
                1211   1213   1216   1220   1232   1236   1242   1244   1249
                1253   1255   1258   1276   1298   1300   1303   1311   1313
                1326   1328   1347   1357   1364   1366   1372   1374   1397
                1403   1410   1417   1419   1431   1440   1446   1451
  22  A$GPRR     1295   1316   1331   1350   1355   1358   1360   1369   1414
                1422   1425   1437
  23  A$P         195   1050   1130   1132   1154   1458
  24  A$SPEC      725    736    862    868    878    917    923   1095   1136
                1141   1200   1274
   0  AA0         223    255    260    284    285    314    315    323    334
                 338    397    401    407    420    425    431    437    440
                 443    448    451    474    488    522    523    525    526
                 659    672    673    686    855
   0  AA1         224    229    250    251    253    271    283    288    291
                 309    317    324    327    331    336    360    361    362
                 366    373    375    390    396    408    431    471    472
                 485    486    553    634    639    664    671    698    691
                 699    714   1239
   0  AA3         330    405    413    416    438    516    520    528    569
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                573   690
  0   AA4       230   286   340   414   455   503   669   675   687
                692   696   831  1260
  0   AA5       602
  0   AA6       220   311   415   429   436   542
  0   AA7       221   319   430   435   540   544
  0   AA8       222   545   570   586   587   588   591   670  1248
  0   AA9       226   313   393   536
  0   AAA       228   321   404   537   539
  0   AAB       512   518   519   527   637
  0   AAC       325   332   337   432   444   445   450   511   547
                558
  0   AAD       206   329   447   504   505   555
  0   AAE       246   249   365
  0   AAF       247   263   359
 12   ADD       796   810   825   853  1051  1100  1128  1195  1217
               1277
  0   AK1       290
  0   AK2       209   217   225   308   318   326   328   335   339
                343   395   412   433   439   446   449   453   458
                560   561   571   575   590   594   621   668   700
                773  1173  1174  1175  1176  1177  1178  1179  1180
               1181  1210  1214  1225  1229
  0   AK4      1127
  0   AK9      1216
 15   ALUS      613   801   804   807   829   837  1087  1111  1119
               1130  1252  1255  1313  1328  1366  1374  1404  1422
 16   ALUZ      607   619   731   734   744   764   766  1299  1301
               1410
 17   AND      1304
 18   AONE      736   862   868   923  1142  1275
 19   AZERO     725   878   917  1005  1136  1200
  0   B          97
 29   B$GPR     188   205   491   577   607   610   618   680   742
                749   752   774   788   807   810   813   825   833
                844   853   870  1098  1195  1204  1218  1221  1265
               1267  1275  1437
 30   B$SPEC    191   193   198   722   785   795   822   840   917
                922   929   939   968   971   977  1004  1029  1036
               1041  1080  1085  1093  1099  1112  1115  1124  1135
               1160  1164  1168  1183  1192  1200  1208  1227  1249
               1253  1308  1323  1338  1342  1345  1377  1400  1425
               1428  1434  1443  1449  1451
  0   BB0       220   226   311   313   330   336   393   415   429
                431   435
  0   BB1       221   228   252   288   319   321   329   436   447
               1060
  0   BB3       337   413   450   570   587   588   691
  0   BB4       340   455   669   673
  0   BB6       314   325   407   451   526
  0   BB7       309   331   408   448   553
  0   BB8       512
  0   BB9       223   315   327   332   420   432   440   443   445
                547   558
  0   BBA       206   224   317   324   392   444   555
  0   BBB       222   311   519   523   586   591
  0   BBC       263   359   474   488   545
  0   BBD       471   485
  0   BBE       257
  0   BBF       246   247   249   260   266   361   366   374
 25   BS$ALU   1316  1331  1350  1363
  0   C          98
1456   CBS     1292
1397   CBS0    1456
1400   CBS1    1397
1414   CBS10   1428  1428
1440   CBS11   1414
1443   CBS12   1440
1446   CBS13   1417
1449   CBS14   1443
1451   CBS15   1446  1449
1403   CBS16   1410
1406   CBS17   1403
1408   CBS18   1403  1406  1421
1410   CBS19   1451
1419   CBS2    1400  1410
1421   CBS3    1419
1355   CBS4    1421
1431   CBS5    1355  1358  1360
1434   CBS6    1431
1437   CBS7    1357
1425   CBS8    1434
1428   CBS9    1425  1437
   0   CD      1150
   0   CF1      272   474   488   691
   0   CF3      247   252   253   268   286   288   374   438   440
                485   512   519   520   523   586   587   693
 230   COMPOP   253   271   320   342   343   375   442   457   458
                474   488   558   634   662   673   837   844  1255
  31   CRY1     187   878   918   925   943   966  1004  1034  1113
               1136  1201  1245  1314  1329  1357  1367  1375  1417
               1432  1441  1452
   8   D        133
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32	DECA	1106	1130	1138	1154	1243	1295	1298	1300	1311
		1326	1364	1372	1419					
33	DECB	922								
1242	DECTOS	1177	1178	1214						
263	DIV	433	446	449	1229					
258	DIV0	263								
248	DIV1	258								
259	DIV10	256	259	265						
266	DIV12	262								
267	DIV13	262								
268	DIV14	267								
270	DIV15	267								
271	DIV16	268	270							
253	DIV17	268	270							
252	DIV18	250								
272	DIV18A	252								
261	DIV19	259								
246	DIV2	258								
251	DIV4	247	248							
250	DIV5	247	248							
254	DIV7	251	272							
256	DIV7A	254								
265	DIV9	256								
1080	DO3	1087								
615	DOCOMP	761								
1050	DOSE1	888								
0	E	100								
0	EDB	866								
36	EOR	813								
602	EXIT	599	607	613	616	618	621	680	774	833
857	EXIT2	602								
0	F	101	204	211	227	423	546	572	759	819
		1187	1292	1303	1434	1443				
517	FAS0	513								
515	FAS1	517								
553	FAS10	526								
555	FAS11	553								
558	FAS12	555								
519	FAS2	515								
521	FAS3	515								
527	FAS5	524								
528	FAS6	524								
537	FAS7	530								
538	FAS7A	535								
535	FAS7B	537								
540	FAS8	530								
543	FAS8A	541								
526	FAS9	513	539	545						
560	FASA	780								
567	FASA0	560								
574	FASA1	567								
569	FASA2	574								
570	FASB	569								
575	FASC	561	567	571						
840	FASC10	837								
844	FASC1A	840								
792	FASCM1	594								
801	FASCM2	792								
798	FASCM3	801								
795	FASCM4	798	801							
810	FASCM5	795								
804	FASCM6	810								
819	FASCM7	804	816							
825	FASCM8	804								
837	FASCM9	825								
833	FASCMA	831								
831	FASCMB	819								
594	FASCMD	590								
561	FASS	777								
1276	FAULT	1251	1255							
1260	FAULT1	1258								
1258	FAULTA	1276								
586	FDIV	572								
588	FDIV1	586								
590	FDIV2	591								
0	FF1	673								
0	FF2	247	248	252	253	268	272			
0	FF3	338	365	402	416	437	515	665		
0	FF5	669								
0	FF6	288	374	440	485	488	512	519	523	586
		667								
0	FF9	254	266	361	366	368	369	443	471	474
		570	588	591	691	693				
0	FFA	206	220	221	222	223	224	226	229	246
		261	263	271	291	309	310	312	314	315
		317	319	321	322	323	324	325	327	329
		330	331	332	333	334	336	337	340	359
		363	372	391	393	403	404	407	408	415
		420	428	430	431	432	434	436	444	445
		447	448	450	451	455	502	510	511	521
		522	526	539	544	545	553	555	559	569
		574	634	637	638	660	688	689	690	694
		698	701	866						

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   0   FFB       290   635  1274
   0   FFC       414   503
   0   FFF       283   284   396   397   413   421   528   602   659
                 664   667   671   672   687   692   696   699   855
 610   FIX01     599
 785   FIX02     610
 618   FIX03     785
 621   FIX04     618
 504   FIXA      339   560
 502   FIXD      208   590
 423   FIXE      209
 505   FIXS      453   561
 599   FIXXT     423
 961   FLOAD     882   968
 968   FLOAD1    961
 965   FLOAD2    968
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1270  SSUBA     1199
 113  STACK      761   768   777   780   831
1182  STACK1    1154
1183  STACK2    1182
1186  STACK3    1182
1187  STACK4    1268
1268  STACK5    1186
1154  STACK6    1185
 115  SUB        917  1112  1250  1254  1451
   0  T          191   247   248   256   258   259   262   267   268
                 270   289   310   312   316   342   345   362   363
                 369   372   391   394   398   410   419   424   426
                 428   434   441   457   513   515   517   524   530
                 535   541   567   599   607   613   618   640   660
                 662   667   674   676   692   694   715   731   734
                 744   749   752   764   766   801   804   807   816
                 829   837   858   938   968  1001  1083  1087  1092
                1105  1111  1119  1130  1182  1251  1255  1298  1300
                1313  1328  1366  1374  1403  1410
 119  TCB       1201
 121  TESTF     1001
 120  TESTT      938
   0  TF2        247   248   256   258   259   262   267   268   310
                 312   342   345   362   369   372   419   426   441
                 457   515   567   660   662   667   715
   0  TF3        270   289   316   363   391   394   398   410   424
                 428   434   513   517   524   530   535   541   640
                 674   676   692   694
 123  TRNA       195   304   728   736   792   862   869   932   936
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                998  1002  1008  1052  1055  1117  1141  1196  1211
               1213  1220  1233  1237  1239  1248  1256  1259  1317
               1332  1347  1351  1356  1359  1361  1370  1403  1415
               1446  1458
 124  TRNB       188   191   193   198   491   608   610   618   680
                722   750   752   774   785   788   808   822   833
                840   844   870   930   939   968   971   977  1030
               1036  1041  1080  1086  1093  1098  1116  1125  1160
               1164  1168  1184  1188  1192  1205  1208  1219  1221
               1227  1265  1267  1308  1323  1338  1343  1345  1377
               1400  1426  1429  1435  1438  1443  1449
 125  TT         191   607   731   734   744   752   764   766   801
                807   816   829   837   938   968  1001  1029  1092
               1105  1119  1130  1255  1298
1097  VAL2      1092
1099  VAL3      1097
1092  VALUE      878  1091
1091  VALUX     1080  1092
   0  VF1        258   360   362   537   540   639   714
1121  VORT12     864
1124  VORT13    1121
1127  VORT14    1124
1130  VORT15    1127
1135  VORT16    1130
1138  VORT17    1135
1141  VORT18    1138
 126  WAITMD     183   195   879   882   884   886   888   890   920
                933   974   989  1087  1091  1104  1111  1131  1139
               1155  1196  1206  1213  1220  1238  1239  1253  1263
               1264  1266  1268  1269  1270  1271  1272  1274  1314
               1324  1329  1367  1375  1378  1397  1431  1440
   0  WF1        263   272   367   368   370   371   393   415   536
                538   542   543   630   642   716   717
   0  WR1        206   220   221   222   223   224   226   229   246
                247   249   250   253   254   260   263   266   271
                272   284   285   286   288   291   309   314   315
                317   319   321   323   324   325   327   329   330
                331   332   334   336   337   338   340   359   365
                368   371   373   374   375   392   393   397   400
                404   405   407   408   413   414   415   416   420
                424   429   430   431   432   435   436   437   438
                440   443   444   445   447   448   450   451   455
                471   472   474   485   486   488   503   504   505
                511   512   519   520   522   526   539   544   545
                553   555   558   569   570   586   587   588   591
                634   637   640   669   670   672   673   685   687
                688   690   691   692   693   696   699   715   855
 660  X          17    26    28    32    39    42    58    60    64
                 76    78    86    97    98    99   100   101   102
                105   106   107   113   123   124   132   133   134
                176   180   182   185   204   211   227   245   341
                344   423   456   460   546   551   554   556   572
                599   659   663   666   682   731   759   801   816
                819   835   837   842   864   866   867   877   880
                885   915  1121  1127  1132  1149  1150  1151  1152
               1153  1157  1187  1273  1291  1293  1303
 664  X1        660
 662  X2        664
 665  X3        660   662
   0  XF1       367   368   370   371   400   425   536   542   685
               716
   0  XF2       254   260
   0  XF3       538   543   641   642   717
1085  YDD1      886  1087
1117  YDD2     1085
 774  ZERAN1    725
 725  ZERAN3    734   744
 127  ZERO      858  1206  1398
```

```
000001 A     1 VORTEX SET      1                                                         E.203 00001
             2 ************************************************************************    03 00002
             3 *                                                                         E.203 00003
             4 *        PATCH                                                               03 00004
             5          TITLE    PATCH                                                      03 00005
             6 *                                                                            03 00006
             7 *        THIS IS A FOREGROUND UTILITY PROGRAM                                03 00007
             8 *                                                                            03 00008
             9 *                 PATCH PERFORMS TWO BASIC FUNCTIONS:                        03 00009
            10 *                                                                            03 00010
            11 *                 1)  ON-LINE MODIFICATION OF THE VORTEX NUCLEUS IN          03 00011
            12 *                     MAIN MEMORY OR CREATION OF A "PATCH IMAGE" FILE        03 00012
            13 *                     TO BE USED FOR AUTOMATIC NUCLEUS PATCHING UPON         03 00013
            14 *                     VORTEX SYSTEM BOOT.                                    03 00014
            15 *                                                                            03 00015
            16 *                 2)  PERMANENT MODIFICATION TO A LIBRARY TASK'S LOAD        03 00016
            17 *                     MODULE FILE ON RMD.                                    03 00017
            18 *                                                                            03 00018
            19 ************************************************************************    03 00019
            21          EXT      V$LUT1                                                  E.203 00021
            22          EXT      V$STWD                                                     03 00022
000003 A    23 SO       EQU      3                                                          03 00023
000005 A    24 LO       EQU      5                                                          03 00024
000013 A    25 DI       EQU      11                                                         03 00025
000014 A    26 DO       EQU      12                                                         03 00026
000147 A    27 CL       EQU      103                                                        03 00027
000152 A    28 FL       EQU      106                                                        03 00028
000001 A    29 X        EQU      1                                                       E.203 00029
000002 A    30 B        EQU      2                                                       E.203 00030
            31 *************************************************************************   03 00031
            32 *                                                                            03 00032
            33 ****     LOW CORE DESCRIPTION                                           ***  03 00033
            34 *                                                                            03 00034
            35 *************************************************************************   03 00035
000300 A    37 LC       EQU      0300                                                       03 00037
000300 A    38 V$CTL    EQU      LC          CURRENT TASK TIDB LOCATION                     03 00038
000301 A    39 V$CPL    EQU      LC+1        CURRENT PRIORITY LEVEL                         03 00039
000302 A    40 V$CRS    EQU      LC+2        CURRENT REENTRANT STACK POINTER                03 00040
000303 A    41 V$TB     EQU      LC+3        POINTER TO HIGHEST PRIORITY TIDB               03 00041
000304 A    42 V$UTB    EQU      LC+4        POINTER TO UNUSED TASK TIDB                    03 00042
000305 A    43 V$PTVB   EQU      LC+5        POINTER TO NEXT ENTRY IN REENTRANT STACK       03 00043
000306 A    44 V$FLRS   EQU      LC+6        FIRST LOC. OF REENTRANT STACK                  03 00044
000307 A    45 V$LRSK   EQU      LC+7        LAST LOC. OF REENTRANT STACK+1                 03 00045
000310 A    46 V$CKPT   EQU      LC+8        CHECKPOINT FLAG 1=ON, 0=OFF                    03 00046
000311 A    47 V$OPCL   EQU      LC+9        LOC. OF TIDB FOR OPCOM TASK                    03 00047
000312 A    48 V$LSAL   EQU      LC+10       LOC. OF TIDB FOR SYSTEM SAL TASK               03 00048
000313 A    49 V$LER    EQU      LC+11       LOC. OF TIDB FOR SYSTEM ERROR TASK             03 00049
000314 A    50 V$TJCP   EQU      LC+12       LOC. OF TIDB FOR JOB CONTROL PROCESSOR TAS     03 00050
000315 A    51 V$BTB    EQU      LC+13       LOC. OF CURRENT ACTIVE BACKGROUND TSK TIDB     03 00051
000316 A    52 V$LUP    EQU      LC+14       LOC. OF 1ST UNPROTECTED WORD                   03 00052
000317 A    53 V$LLUP   EQU      LC+15       LOC. OF LAST UNPROTECTED WORD                  03 00053
000320 A    54 V$IM     EQU      LC+16       INTERRUPT MASK  (8 WORDS)                      03 00054
000330 A    55 V$MPM    EQU      LC+24       MEMORY PROTECT MASK  (4 WORDS)                 03 00055
000334 A    56 V$CAM    EQU      LC+28       CORE ALLOCATION MASK  (4 WORDS)                03 00056
            57 *        EQU      LC+32       UNUSED                                         03 00057
000341 A    58 V$CRDR   EQU      LC+33       CORE RESIDENT DIRECTORY LOCATION               03 00058
000342 A    59 V$TBGT   EQU      LC+34       TOP OF THREAD OF BG TSK WAITING TO BE ALLO     03 00059
000343 A    60 V$TMS    EQU      LC+35       TIME OF DAY IN 5 MILLISECOND INCREMENTS        03 00060
000344 A    61 V$TMN    EQU      LC+36       TIME OF DAY IN MINUTE INCREMENTS               03 00061
000345 A    62 V$LUNT   EQU      LC+37       ADDR. OF LOGICAL UNIT NAME TABLE               03 00062
000346 A    63 V$OPCF   EQU      LC+38       OPCOM LOCKOUT FLAG                             03 00063
000347 A    64 V$FGLB   EQU      LC+39       KEY AND LU NO. FOR FOREGROUND LIB              03 00064
000350 A    65 V$FREE   EQU      LC+40       FREE RUNNING COUNTER INCR. IN MICROSECONDS     03 00065
000351 A    66 V$CTMS   EQU      LC+41       CLOCK RESOLUTION IN 5 MILLISECOND INCR.        03 00066
000352 A    67 V$SCV    EQU      LC+42       CLOCK SELECTED COUNT VALUE (1 TO 4095)         03 00067
000353 A    68 V$CKB    EQU      LC+43       BASIC CLOCK INTERRUPT RATE IN MICROSECONDS     03 00068
000354 A    69 V$CRM    EQU      LC+44       CLOCK RESOLUTION INCR. FOR 1 MINUTE.           03 00069
000355 A    70 V$DSTB   EQU      LC+45       BASE ADDR. FOR DST BLOCK                       03 00070
000356 A    71 V$LIT    EQU      LC+46       LAST LOCATION OF BACKGROUND LITERAL TABLE      03 00071
            72 *        EQU      LC+47       UNUSED                                         03 00072
000360 A    73 V$CTAD   EQU      LC+48       BASE ADDR. FOR CONTROLLER ADDR. TABLE          03 00073
000361 A    74 V$SCTL   EQU      LC+49       CURRENT CONTROLLER IN SCAN                     03 00074
000362 A    75 V$NCTR   EQU      LC+50       NO. OF CONTROLLERS                             03 00075
000363 A    76 V$PIMN   EQU      LC+51       EXTERNAL DEVICE ADDRESS TABLE FOR PIMS         03 00076
            77 *                              (8 WORDS DEFINED IN PIM NO ORDER)             03 00077
            78 *        EQU      LC+59       UNUSED                                         03 00078
            79 *        EQU      LC+60       UNUSED                                         03 00079
000375 A    80 V$SLFG   EQU      LC+61       SAL TASK BUSY FLAG      1=BUSY, 0=NOT BUSY     03 00080
000376 A    81 V$ERFG   EQU      LC+62       ERROR TASK BUSY FLAG    1=BUSY, 0=NOT BUSY     03 00081
000377 A    82 V$JOP    EQU      LC+63       JCP OPERATING FLAG                             03 00082
            83 *VLUT1   EQU      LC+64       START LUN ADDR FOR JCP/OPCOM ASSIGNABLE E.203 00083
000401 A    84 V$LUT2   EQU      LC+65       START LUN ADDR FOR UNASSIGNABLE                03 00084
000402 A    85 V$LUT3   EQU      LC+66       START LUN ADDR FOR OPCOM ASSIGNABLE            03 00085
000403 A    86 V$1MIN   EQU      LC+67       32767 - (60000/(5*V$CTMS)) + 1                 03 00086
            87 *        EQU      LC+68       UNUSED                                         03 00087
            88 *        EQU      LC+69       UNUSED                                         03 00088
            89 *        EQU      LC+70       UNUSED                                         03 00089
            90 *        EQU      LC+71       UNUSED                                         03 00090
000410 A    91 V$IDA    EQU      LC+72       I/O ALGORITHM                                  03 00091
000411 A    92 V$CKIT   EQU      LC+73       CLOCK INT. IN PIM BEFORE LOCKOUT FLAG.         03 00092
000412 A    93 V$JCB    EQU      LC+74       ALL SYSTEM BACKGROUND PROGRAMS AND JCP USE     03 00093
            94 *                             THIS SYSTEM BUFFER TO READ DIRECTIVES AND      03 00094
            95 *                             SOURCE RECORDS IN.                             03 00095
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000413 A    96 V$OCB   EQU     LC+75          OPCOM WILL READ OPERATOR KEY-IN REQUESTS   03 00096
            97 *                              IN THIS BUFFER.  IF JCP IS SET NOT ACTIVE  03 00097
            98 *                              AND A 1 DIRECTIVE IS INPUTED, OPCOM        03 00098
            99 *                              WILL MOVE THE DIRECTIVE TO V$JCB BEFORE    03 00099
           100 *                              SCHEDULING JCP.                            03 00100
000414 A   101 V$BVN   EQU     LC+76          BOTTOM OF VORTEX NUCLEUS                   03 00101
000415 A   102 V$BFC   EQU     LC+77          TOP OF FG RES. AREA/BOTTOM OF FG BLK COMM. 03 00102
000416 A   103 V$TFC   EQU     LC+78          TOP OF FG BLK COMMON/TOP OF VORTEX CORE.   03 00103
           104 *       EQU     LC+79          UNUSED                                     03 00104
           105         EJEC                                                             03 00105
           106 ********************************************************************** 03 00106
           107 *                                                                      03 00107
           108 ****     MASK TABLE DESCRIPTION                                   *** 03 00108
           109 *                                                                      03 00109
           110 ********************************************************************** 03 00110
000420 A   112 MT      SET     0420                                                   03 00112
000420 A   113 ZERO    EQU     MT             ZERO WORD                               03 00113
000421 A   114 BS0     EQU     MT+1           BIT MASK CONTENTS 000001                03 00114
000422 A   115 BS1     EQU     MT+2                             000002                03 00115
000423 A   116 BS2     EQU     MT+3                             000004                03 00116
000424 A   117 BS3     EQU     MT+4                             000010                03 00117
000425 A   118 BS4     EQU     MT+5                             000020                03 00118
000426 A   119 BS5     EQU     MT+6                             000040                03 00119
000427 A   120 BS6     EQU     MT+7                             000100                03 00120
000430 A   121 BS7     EQU     MT+8                             000200                03 00121
000431 A   122 BS8     EQU     MT+9                             000400                03 00122
000432 A   123 BS9     EQU     MT+10                            001000                03 00123
000433 A   124 BS10    EQU     MT+11                            002000                03 00124
000434 A   125 BS11    EQU     MT+12                            004000                03 00125
000435 A   126 BS12    EQU     MT+13                            010000                03 00126
000436 A   127 BS13    EQU     MT+14                            020000                03 00127
000437 A   128 BS14    EQU     MT+15                            040000                03 00128
000440 A   129 BS15    EQU     MT+16                           0100000                03 00129
000441 A   130 BR0     EQU     MT+17          BIT MASK CONTENTS 0177776                03 00130
000442 A   131 BR1     EQU     MT+18                            0177775                03 00131
000443 A   132 BR2     EQU     MT+19                            0177773                03 00132
000444 A   133 BR3     EQU     MT+20                            0177767                03 00133
000445 A   134 BR4     EQU     MT+21                            0177757                03 00134
000446 A   135 BR5     EQU     MT+22                            0177737                03 00135
000447 A   136 BR6     EQU     MT+23                            0177677                03 00136
000450 A   137 BR7     EQU     MT+24                            0177577                03 00137
000451 A   138 BR8     EQU     MT+25                            0177377                03 00138
000452 A   139 BR9     EQU     MT+26                            0176777                03 00139
000453 A   140 BR10    EQU     MT+27                            0175777                03 00140
000454 A   141 BR11    EQU     MT+28                            0173777                03 00141
000455 A   142 BR12    EQU     MT+29                            0167777                03 00142
000456 A   143 BR13    EQU     MT+30                            0157777                03 00143
000457 A   144 BR14    EQU     MT+31                            0137777                03 00144
000460 A   145 BR15    EQU     MT+32                            0077777                03 00145
000461 A   146 NEG     EQU     MT+33          SET ALL BITS                            03 00146
000462 A   147 LHW     EQU     MT+34          LEFT HALF WORD MASK 0177400             03 00147
000463 A   148 RHW     EQU     MT+35          RIGHT HALF WORD MASK   0377              03 00148
000421 A   149 ONE     EQU     MT+1           CONTAINS NUMBER  1                      03 00149
000422 A   150 TWO     EQU     MT+2           CONTAINS NUMBER  2                      03 00150
000464 A   151 THREE   EQU     MT+36          CONTAINS NUMBER  3                      03 00151
000423 A   152 FOUR    EQU     MT+3           CONTAINS NUMBER  4                      03 00152
000465 A   153 FIVE    EQU     MT+37          CONTAINS NUMBER  5                      03 00153
000466 A   154 SIX     EQU     MT+38          CONTAINS NUMBER  6                      03 00154
000467 A   155 SEVEN   EQU     MT+39          CONTAINS NUMBER  7                      03 00155
000424 A   156 EIGHT   EQU     MT+4           CONTAINS NUMBER  8                      03 00156
000470 A   157 NINE    EQU     MT+40          CONTAINS NUMBER  9                      03 00157
000471 A   158 TEN     EQU     MT+41          CONTAINS NUMBER 10                      03 00158
000421 A   159 BM1     EQU     MT+1           BIT MASK WORD 00001                     03 00159
000464 A   160 BM3     EQU     MT+36          BIT MASK WORD  00003                    03 00160
000467 A   161 BM7     EQU     MT+39          BIT MASK WORD  00007                    03 00161
000472 A   162 BM17    EQU     MT+42          BIT MASK WORD  00017                    03 00162
000473 A   163 BM37    EQU     MT+43          BIT MASK WORD  00037                    03 00163
000474 A   164 BM77    EQU     MT+44          BIT MASK WORD  00077                    03 00164
000475 A   165 BM177   EQU     MT+45          BIT MASK WORD  00177                    03 00165
000463 A   166 BM377   EQU     MT+35          BIT MASK WORD  00377                    03 00166
000476 A   167 BM777   EQU     MT+46          BIT MASK WORD  00777                    03 00167
000477 A   168 BM1777  EQU     MT+47          BIT MASK WORD  01777                    03 00168
           169         EJEC                                                         03 00169
           170 ********************************************************************** 03 00170
           171 *                                                                      03 00171
           172 ****     BIT TEST BIT DESIGNATION                                 *** 03 00172
           173 *                                                                      03 00173
           174 ********************************************************************** 03 00174
000040 A   176 RA0     EQU     040            BT JUMPS WHEN A REGISTER IS 0           03 00175
000000 A   177 RA1     EQU     000            BT JUMPS WHEN A REGISTER IS 1           03 00176
000060 A   178 RB0     EQU     060            BT JUMPS WHEN B REGISTER IS 0           03 00177
000020 A   179 RB1     EQU     020            BT JUMPS WHEN B REGISTER IS 1           03 00178
           181 ********************************************************************** 03 00181
           182 *                                                                      03 00182
           183 **       THE BIT CHECKED                                            03 00183
           184 *                                                                      03 00184
           185 ********************************************************************** 03 00185
000000 A   187 B0      EQU     0                                                      03 00187
000001 A   188 B1      EQU     1                                                      03 00188
000002 A   189 B2      EQU     2                                                      03 00189
000003 A   190 B3      EQU     3                                                      03 00190
000004 A   191 B4      EQU     4                                                      03 00191
000005 A   192 B5      EQU     5                                                      03 00192
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                                                                                                                    03 00193
                                                                                                                    03 00194
                                                                                                                    03 00195
                                                                                                                    03 00196
000012 A   197 B10     EQU     10                                                                                   03 00197
000013 A   198 B11     EQU     11                                                                                   03 00198
000014 A   199 B12     EQU     12                                                                                   03 00199
000015 A   200 B13     EQU     13                                                                                   03 00200
000016 A   201 B14     EQU     14                                                                                   03 00201
000017 A   202 B15     EQU     15                                                                                   03 00202
           203         EJEC                                                                                         03 00203
           204 ********************************************************************************                   03 00204
           205 *                                                                                                    03 00205
           206 *       ROUTINE--NUC                                                                               03 00206
           207 *                                                                                                    03 00207
           208 *       PURPOSE--TO PROVIDE MAIN LINE CONTROL AND HANDLE THE FUNCTIONS                             03 00208
           209 *                OF THE .PTCH DIRECTIVE.                                                           03 00209
           210 *                                                                                                    03 00210
           211 ********************************************************************************                   03 00211
000000 R   213 VSPTCH  EQU     *                                                                                    03 00213
000000 R   214 NUC10   EQU     *                                                                                    03 00214
000000 006010 A 215            LDAI    IMBUF                                                                     E.203 00215
000001 005225 R
000002 054231 A 216            STA     XFCPTR          RESET CURRENT TRANSFER POINTER                            E.203 00216
000003 006010 A 217            LDAI    NUC15                                                                     E.203 00217
000004 000053 R
000005 054033 A 218            STA     NUC14B          SET DEFAULT ERROR RETURN                                  E.203 00218
               219            WPITE   PPDCB,DO,0,1    OUTPUT PROMPT                                               03 00219
000006 006505 A
000007 000000 E
000010 100000 A
000011 010414 A
000012 000673 R
000013 000000 A
000014 000000 A
000015 R   220 NUC12   EQU     *                                                                                    03 00220
               221            RLAD    DIDCB,DI,0,1    INPUT DIRECTIVE                                             03 00221
000015 006505 A
000016 000007 E
000017 100000 A
000020 010913 A
000021 000662 R
000022 000000 A
000023 000000 A
               222            STAT    NUC12,ERR,ERR,ERR,*                                                         03 00222
000024 006505 A
000025 000000 E
000026 000015 R
000027 000215 R
000030 000215 R
000031 000215 R
000032 000024 R
000033 R   223 NUC14   EQU     *                                                                                    03 00223
000033 006017 A 224            LDAE    INBUF                                                                       03 00224
000034 004765 R
000035 004350 A 225            LSRA    8                                                                           03 00225
000036 006130 A 226            ENAI    '.'                                                                         03 00226
000037 000256 A
000040 001016 A 227            JANZ    0               IF NOT SPECIAL DIRECTIVE                                  E.203 00227
000041 000000 A
000041         228 NUC14B  BES     0                                                                             E.203 00228
000042 006010 A 229            LDAI    MUDIR                                                                       03 00229
000043 000206 R
000044 002000 A 230            CALL    DIREC           IDENTIFY DIRECTIVE                                          03 00230
000045 003404 R
000046 001004 A 231            JAN     DIRER           IF NOT VALID DIRECTIVE                                      03 00231
000047 000222 R
000050 054001 A 232            STA     NUC14A          SET SERVICE ADDR                                            03 00232
000051 001000 A 233            JMP     *                                                                           03 00233
000052 000051 R
000052         234 NUC14A  BES     0                                                                               03 00234
000053 R   235 NUC15   EQU     *                                                                                    03 00235
000053 006010 A 236            LDAI    INBUF                                                                       03 00236
000054 004765 R
000055 005211 A 237            CPA                                                                                 03 00237
000056 006057 A 238            STAE    BUFPT           INITIALIZE BUFFER POINTER                                   03 00238
000057 004172 R
000060 002000 A 239            CALL    FETCH           FETCH ADDR                                                  03 00239
000061 003713 R
000062 000113 R 240            DATA    NUC35,NUC40     NULL FIELD/END OF RECORD                                  E.203 00240
000063 000117 R
000064 000227 R 241            DATA    PIERR           INVALID ITEM                                              E.203 00241
000065 R   242 NUC17   EQU     *                                                                                 E.203 00242
000065 034140 A 243            LDX     XFCPTR                                                                    E.203 00243
000066 055000 A 244            STA     0,1             PUT ADDR IN TRANSFER BLOCK                                E.203 00244
000067 R   245 NUC20   EQU     *                                                                                    03 00245
000067 002000 A 246            CALL    FETCH           FETCH CHANGE VALUE                                          03 00246
000070 003713 R
000071 000107 R 247            DATA    NUC30,NUC40     NULL FIELD/END OF RECORD                                  E.203 00247
000072 000117 R
000073 000227 R 248            DATA    PIERR           INVALID ITEM                                              E.203 00248
000074 034137 A 249            LDX     XFCPTR                                                                    E.203 00249
000075 055002 A 250            STA     2,1             PUT CHANGE VALUE IN ADDR BLOCK                            E.203 00250
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000076 005041 A   251           TXA                                                    E.203 00251
000077 120464 A   252           ADD     THREE                                          E.203 00252
000100 054133 A   253           STA     XFCPTR      UPDATE CURRENT TRANSFER POINTER    E.203 00253
000101 005012 A   254           TAB                                                    E.203 00254
000102 015000 A   255           LDA     0,1         CURRENT STORE                      E.203 00255
000103 005111 A   256           INR                                                    E.203 00256
000104 056000 A   257           STA     0,2         NEXT STORE                         E.203 00257
000105 001000 A   258           JMP     NUC20                                            03 00258
000106 000067 R
       000107 R   259 NUC30     EQU     *                                              E.203 00259
000107 024124 A   260           LDB     XFCPTR                                         E.203 00260
000110 046000 A   261           INR     0,2         UPDATE NEXT STORE ADDR BY ONE      E.203 00261
000111 001000 A   262           JMP     NUC20                                            03 00262
000112 000067 R
       000113 R   263 NUC35     EQU     *                                              E.203 00263
000113 024121 A   264           LDB     XFEPTR                                         E.203 00264
000114 016000 A   265           LDA     0,2         NEXT STORE ADDR                    E.203 00265
000115 001000 A   266           JMP     NUC17                                          E.203 00266
000116 000065 R
       000117 R   267 NUC40     EQU     *                                              E.203 00267
000117 014114 A   268           LDA     XFCPTR      CURRENT TRANSFER POINTER           E.203 00268
000120 054114 A   269           STA     XFEPTR      SET END OF TRANSFER POINTER        E.203 00269
000121 006140 A   270           SUBI    IMBUF       START OF TRANSFER BLOCK            E.203 00270
000122 005225 R
000123 001010 A   271           JAZ     NUC10       IF TRANSFER BLOCK EMPTY            E.203 00271
000124 000000 R
000125 005012 A   272           TAB                                                    E.203 00272
000126 005001 A   273           TZA                                                    E.203 00273
000127 170464 A   274           DIV     THREE       SET TRANSFER COUNT                 E.203 00274
000130 005021 A   275           TBA                 TRANSFER COUNT                     E.203 00275
000131 006020 A   276           LDBI    IMBUF       TRANSFER BLOCK                     E.203 00276
000132 005225 R
                  277           ALOC    V$STWD      PATCH MEMORY                       E.203 00277
000133 006505 A
000134 000000 E
000135 000600 A
000136 000000 E
000137 006010 A   278           LDAI    IMBUF       START OF TRANSFER BLOCK            E.203 00278
000140 005225 R
000141 054072 A   279           STA     XFCPTR      RESET TRANSFER BUFFER POINTER      E.203 00279
       000142 R   280 NUC45     EQU     *                                              E.203 00280
000142 024071 A   281           LDB     XFCPTR                                         E.203 00281
000143 026000 A   282           LDB     0,2         STORE ADDR                         E.203 00282
000144 006030 A   283           LDXI    NUMSG                                          E.203 00283
000145 004376 R
000146 002000 A   284           CALL    BI2DC       CONVERT TO ASCII                   E.203 00284
000147 004132 R
000150 006030 A   285           LDXI    NUMSG+4                                        E.203 00285
000151 004602 R
000152 024061 A   286           LDB     XFCPTR                                         E.203 00286
000153 026001 A   287           LDB     1,2         ORIGINAL CONTENTS                  E.203 00287
000154 002000 A   288           CALL    BI2DC       CONVERT TO ASCII                   E.203 00288
000155 004132 R
000156 006030 A   289           LDXI    NUMSG+8                                        E.203 00289
000157 004606 R
000160 024052 A   290           LDB     XFCPTR                                         E.203 00290
000161 026002 A   291           LDB     2,2         NEW CONTENTS                       E.203 00291
000162 002000 A   292           CALL    BI2DC       CONVERT TO ASCII                   E.203 00292
000163 004132 R
                  293           WRITE   DODCB,DO,0,1 OUTPUT HISTORY                    E.203 00293
000164 006505 A
000165 000016 E
000166 100000 A
000167 010414 A
000170 000663 R
000171 000000 A
000172 000000 A
000173 014040 A   294           LDA     XFCPTR                                         E.203 00294
000174 120464 A   295           ADD     THREE                                          E.203 00295
000175 054036 A   296           STA     XFCPTR      UPDATE CURRENT TRANSFER POINTER    E.203 00296
000176 144036 A   297           SUB     XFCPTR      END TRANSFER POINTER               E.203 00297
000177 001016 A   298           JANZ    NUC45       IF NOT END OF XFER BLOCK           E.203 00298
000200 000142 R
000201 001000 A   299           JMP     NUC10       GET NEXT DIRECTIVE                 E.203 00299
000202 000000 R
                  300 EXIT      EXIT                                                     03 00300
000203 006505 A
000204 000134 E
000205 000200 A
000206 000000 R   301 NUDIR     DATA    NUC10       PTCH SERVICE                       03 00301
000207 000342 R   302           DATA    DUMP        DUMP SERVICE                       03 00302
000210 000203 R   303           DATA    EXIT        EXIT SERVICE                       03 00303
000211 001050 R   304           DATA    HIST        HIST SERVICE                       03 00304
000212 000713 R   305           DATA    APND        APND SERVICE                       03 00305
000213 001360 R   306           DATA    LIBR        LIBR SERVICE                    E.203 00306
000214 001244 R   307           DATA    BASET       BASE SERVICE                    E.203 00307
                  308 * END OF TABLE                                                E.203 00308
000215 002000 A   309 ERR       CALL    RECOV,NUC10,NUC14,5                         E.203 00309
000216 000326 R
000217 000000 R
000220 000033 R
000221 000005 A
000222 002000 A   310 DIRER     CALL    RECOV,NUC10,NUC14,1                         E.203 00310
```

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000223 000326 R
000224 000000 R
000225 000033 R
000226 000001 A
000227 002000 A   311 PTERR  CALL    RECOV,NUC10,NUC14,2                                  E.203 00311
000230 000326 R
000231 000000 R
000232 000033 R
000233 000002 A
000234 005225 R   312 XFCPTR DATA    INBUF          CURRENT TRANSFER POINTER              E.203 00312
000235 005225 R   313 XFEPTR DATA    INBUF          END TRANSFER POINTER                  E.203 00313
                  314         EJEC                                                       E.203 00314
                  315 ********************************************************************  03 00315
                  316 *                                                                  E.203 00316
                  317 *       SUBROUTINE--RECOV  (ERROR RECOVERY)                        E.203 00317
                  318 *                                                                  E.203 00318
                  319 *       PURPOSE--TO OUTPUT THE SPECIFIED ERROR MESSAGE AND EFFECT  E.203 00319
                  320 *                THE SPECIFED RECOVERY                             E.203 00320
                  321 *                                                                  E.203 00321
                  322 *       CALLING SEQUENCE                                           E.203 00322
                  323 *       CALL    RECOV                                              E.203 00323
                  324 *       DATA    ADDR FOR REREAD                                    E.203 00324
                  325 *       DATA    ADDR FOR NEW RECORD FROM SD                        E.203 00325
                  326 *       DATA    ERROR CODE VALUE                                   E.203 00326
                  327 *                                                                  E.203 00327
                  328 *       EXITS TO APPROPRIATE ROUTINE FOR RECOVERY SPECIFIED        E.203 00328
                  329 *                                                                  E.203 00329
                  330 ********************************************************************  03 00330
000236 R          332 REC10   EQU     *                                                  E.203 00332
000236 034067 A   333         LDX     RECOV          PARAM AREA                          E.203 00333
000237 025002 A   334         LDB     2,X            ERROR CODE                          E.203 00334
000240 006026 A   335         LDAE    ERRLK,B        ERROR MESSAGE ADDR                  E.203 00335
000241 000331 R
000242 016000 A   336         LDA     0,B            MESSAGE LENGTH                      E.203 00336
000243 054424 A   337         STA     ERRCB                                              E.203 00337
000244 005122 A   338         IBR                    MESSAGE ADDR                        E.203 00338
000245 064423 A   339         STB     ERRCB+1                                            E.203 00339
                  340         WRITE   ERRCB,SD,0,1   POST ERROR                          E.203 00340
000246 006505 A
000247 000165 E
000250 100000 A
000251 010403 A
000252 000670 R
000253 000000 A
000254 000000 A
                  341 REC20   READ    DIDCB,SD,0,1   GET RECOVERY FROM SD                E.203 00341
000255 006505 A
000256 000247 E
000257 100000 A
000260 010003 A
000261 000662 R
000262 000000 A
000263 000000 A
                  342         STAT    REC20,ERR,ERR,ERR,*                                E.203 00342
000264 006505 A
000265 000025 E
000266 000255 R
000267 000215 R
000270 000215 R
000271 000215 R
000272 000264 R
000273 006017 A   343         LDAE    IN2UF          FIRST WORD                          E.203 00343
000274 004765 R
000275 004350 A   344         LSRA    8                                                  E.203 00344
000276 006140 A   345         SUBI    'C'                                                E.203 00345
000277 000303 A
000300 001016 A   346         JANZ    REC30          IF NOT A 'C'                        E.203 00346
000301 000322 R
000302 006017 A   347         LDAE    REC20+5        NUMBER OF WORDS READ                E.203 00347
000303 000262 R
000304 140420 A   348         SUB     TWO                                                E.203 00349
000305 001002 A   349         JAP     REC30          IF MORE THAN 1 CHAR INPUT           E.203 00349
000306 000322 R
                  350         SREC    DIDCB,DI,0,1   REPOSITION DI FOR REREAD            E.203 00350
000307 006505 A
000310 000256 E
000311 100000 A
000312 012013 A
000313 000662 R
000314 000000 A
000315 000000 A
000316 034007 A   351         LDX     RECOV                                              E.203 00351
000317 015000 A   352         LDA     0,X            REREAD RECOVERY ADDR                E.203 00352
000320 001000 A   353         JMP     REC40                                              E.203 00353
000321 000324 R
000322 034003 A   354 REC30   LDX     RECOV          PARAM AREA                          E.203 00354
000323 015001 A   355         LDA     1,X            NEW RECORD RECOVERY ADDR            E.203 00355
000324 054001 A   356 REC40   STA     RECOV                                              E.203 00356
000325 001000 A   357         JMP     *                                                  E.203 00357
000326 000000 A
000326            358 RECOV   BES     0              ****ENTRY****                       E.203 00358
000327 001000 A   359         JMP     REC10                                              E.203 00359
000330 000236 R
```

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                    360 *                                                                                E.203 00360
                    361 *       ERROR MESSAGE ADDR BLOCK                                                 E.203 00361
                    362 *                                                                                E.203 00362
000331 000000 A     363 ERBLK   DATA    0,DIMSG,PMMSG,CLMSG,DMPMSG,STMSG,LIMSG,DVMSG                     E.203 00363
000332 004616 R
000333 004630 R
000334 004642 R
000335 004657 R
000336 004671 R
000337 004703 R
000340 004715 R
000341 004730 R     364         DATA    REMSG                                                            E.203 00364
                    365         EJEC                                                                        03 00365
                    366 ********************************************************************************   03 00366
                    367 *                                                                                   03 00367
                    368 *       SUBROUTINE--DUMP  (CREATE BTPTCH IMAGE)                                     03 00368
                    369 *                                                                                   03 00369
                    370 *       PURPOSE--TO CREATE THE CONTENTS OF THE FL FILE PTCHIM FOR                   03 00370
                    371 *                USE BY BTPTCH IN PERFORMING AUTOMATIC PATCHES                      03 00371
                    372 *                                                                                   03 00372
                    373 *       DUMP READS THE PATCH DIRECTIVES FROM DI AND CREATES THREE                   03 00373
                    374 *       WORD ENTRIES FOR PTCHIM.  THE FIRST WORD IS THE ADDR AND                    03 00374
                    375 *       THE THIRD WORD IS THE CHANGE VALUE.  DWRD 2 IS NOT USED.                    03 00375
                    376 *                                                                                   03 00376
                    377 *       UP TO 40 THREE WORD ENTRIES ARE ENTERED PER RECORD.  THE                    03 00377
                    378 *       FINAL PAIR IS FOLLOWED BY A MINUS ONE.                                      03 00378
                    379 *                                                                                   03 00379
                    380 *       DUMP OPENS AND REWINDS PTCHIM BUT DOES NOT UPDATE ON A CLOSE.               03 00380
                    381 *                                                                                   03 00381
                    382 *                                                                                   03 00382
                    383 ********************************************************************************   03 00383
000342 R            385 DUMP    EQU     *                                                                   03 00385
000342 005001 A     386         TZA                                                                         03 00386
000343 006057 A     387         STAE    IMCNT           ZERO ENTRY COUNT                                 E.203 00387
000344 003473 R
000345 R            388 DMP01   EQU     *                                                                E.203 00388
                    389         OPEN    IMFCB,FL,0,0                                                        03 00389
000345 006505 A
000346 000310 E
000347 100000 A
000350 003152 A
000351 000701 R
000352 000000 A
000353 000000 A
                    390         STAT    DMP01,DERR,DERR,DERR,*                                           E.203 00390
000354 006505 A
000355 000265 E
000356 000345 R
000357 000636 R
000360 000636 R
000361 000636 R
000362 000354 R
000363 005311 A     391         DAR                                                                      E.203 00391
000364 005311 A     392         DAR                                                                      E.203 00392
000365 006057 A     393         STAE    PTADR                                                            E.203 00393
000366 003470 R
000367 006057 A     394         STAE    PTADR+2                                                          E.203 00394
000370 003472 R
000371 002000 A     395         CALL    IMAGE           SET START IMAGE INDICATOR                        E.203 00395
000372 003444 R
                    396 DMP05   WRITE   PRDCB,DO,0,1    OUTPUT PROMPT                                       03 00396
000373 006505 A
000374 000346 E
000375 100000 A
000376 010414 A
000377 000673 R
000400 000000 A
000401 000000 A
                    397 DMP10   READ    DIDCB,DI,0,1    INPUT DIRECTIVE                                     03 00397
000402 006505 A
000403 000374 E
000404 100000 A
000405 010013 A
000406 000662 R
000407 000000 A
000410 000000 A
                    398         STAT    DMP10,DME,DME,DME,*                                              E.203 00398
000411 006505 A
000412 000355 E
000413 000402 R
000414 000643 R
000415 000643 R
000416 000643 R
000417 000411 R
000420 R            399 DMP12   EQU     *                                                                   03 00399
000420 006017 A     400         LDAE    INBUF                                                               03 00400
000421 004765 R
000422 004350 A     401         LSRA    8                                                                   03 00401
000423 006130 A     402         ERAI    '.'                                                                 03 00402
000424 000250 A
000425 001016 A     403         JANZ    DMP15           IF NOT SPECIAL DIRECTIVE                            03 00403
000426 000440 R
000427 006010 A     404         LDAI    DMDIR                                                               03 00404
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000430 000567 R
000431 002000 A   405          CALL    DIREC           IDENTIFY DIRECTIVE                    03 00405
000432 003404 R
000433 001004 A   406          JAN     JMD             IF NOT VALID DIRECTIVE              E.203 00406
000434 000650 R
000435 054001 A   407          STA     DMP14           SET SERVICE ADDR                      03 00407
000436 001000 A   408          JMP     *                                                     03 00408
000437 000436 R
000437            409 DMP14    BES     0                                                     03 00409
       000440 R   410 DMP15    EQU     *                                                     03 00410
000440 006010 A   411          LDAI    INBUF                                                 03 00411
000441 004765 R
000442 005211 A   412          CPA                                                           03 00412
000443 006057 A   413          STAE    BUFPT           INITIALIZE BUFFER POINTER             03 00413
000444 004172 R
000445 002000 A   414          CALL    FETCH           FETCH CHANGE ADDR                     03 00414
000446 003713 R
000447 000454 R   415          DATA    DMP25,DMP05     NULL FIELD/END OF INPUTS              03 00415
000450 000373 R
000451 000655 R   416          DATA    DMERR           INVALID ITEM                        E.203 00416
000452 006057 A   417          STAE    PTADR           SET ADDR                            E.203 00417
000453 003470 R
       000454 R   418 DMP25    EQU     *                                                     03 00418
000454 002000 A   419          CALL    FETCH           FETCH CHANGE VALUE                    03 00419
000455 003713 R
000456 000516 R   420          DATA    DMP40,DMP05     NULL FIELD/END OF INPUTS              03 00420
000457 000373 R
000460 000655 R   421          DATA    DMERR           INVALID ITEM                        E.203 00421
000461 006057 A   422          STAE    PTADR+2         SET CHANGE VALUE                    E.203 00422
000462 003472 R
000463 002000 A   423          CALL    IMAGE           MAKE ENTRY IN IMAGE                   03 00423
000464 003444 R
000465 006017 A   424          LDAE    IMCNT           ENTRY COUNT                         E.203 00424
000466 003473 R
000467 006140 A   425          SUBI    120                                                 E.203 00425
000470 000170 A
000471 001004 A   426          JAN     DMP25           IF MORE ROOM IN RECORD                03 00426
000472 000454 R
                  427 DMP30    WRITE   IMFCB,FL,0,0    OUTPUT IMAGE RECORD                   03 00427
000473 006505 A
000474 000403 E
000475 100080 A
000476 000552 A
000477 000701 R
000500 000000 A
000501 000000 A
                  428          STAT    DMP30,DERR,DERR,DERR,*                                03 00428
000502 006505 A
000503 000412 E
000504 000473 R
000505 000636 R
000506 000636 R
000507 000636 R
000510 000502 R
000511 005001 A   429          TZA                                                           03 00429
000512 006057 A   430          STAE    IMCNT           SET COUNT TO ZERO                   E.203 00430
000513 003473 R
000514 001000 A   431          JMP     DMP25           CONTINUE, FETCH NEXT CHANGE VALUE     03 00431
000515 000454 R
       000516 R   432 DMP40    EQU     *                                                     03 00432
000516 006047 A   433          INRE    PTADR           SET FOR NEXT ADDR                   E.203 00433
000517 003470 R
000520 001000 A   434          JMP     DMP25           GET NEXT CHANGE VALUE                 03 00434
000521 000454 R
000522 005301 A   435 DMEOF    DECR    1                                                     03 00435
000523 006057 A   436          STAE    PTADR           SET END OF IMAGE INDICATOR          E.203 00436
000524 003470 R
000525 006057 A   437          STAE    PTADR+2                                             E.203 00437
000526 003472 R
000527 002000 A   438          CALL    IMAGE           SET END OF IMAGE INDICATOR            03 00438
000530 003444 R
                  439 DME10    WRITE   IMFCB,FL,0,0    OUTPUT FINAL IMAGE RECORD             03 00439
000531 006505 A
000532 000474 E
000533 100000 A
000534 000552 A
000535 000701 R
000536 000000 A
000537 000000 A
                  440          STAT    DME10,DERR,DERR,DERR,*                                03 00440
000540 006505 A
000541 000503 E
000542 000531 R
000543 000636 R
000544 000636 R
000545 000636 R
000546 000540 R
                  441          CLOSE   IMFCB,FL,0,0    CLOSE WITHOUT UPDATE                  03 00441
000547 006505 A
000550 000532 E
000551 100000 A
000552 003552 A
000553 000701 R
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000554 000000 A
000555 000000 A
                    442          WRITE   DCDCB,DO,0,1                                                  03 00442
000556 006505 A
000557 000550 E
000560 100000 A
000561 010414 A
000562 000676 R
000563 000000 A
000564 000000 A
000565 001000 A     443          JMP     *               RETURN AS DIRECTED                             03 00443
000566 000565 R
000566              444 DMP50    BES     0                                                              03 00444
000567 000576 R     445 DMDIR    DATA    DMPT            PTCH SERVICE                                   03 00445
000570 000602 R     446          DATA    DMDU            DUMP SERVICE                                   03 00446
000571 000606 R     447          DATA    DMEX            EXIT SERVICE                                   03 00447
000572 000612 R     448          DATA    DMHI            HIST SERVICE                                   03 00448
000573 000616 R     449          DATA    DMAP            APND SERVICE                                   03 00449
000574 000622 R     450          DATA    DML1            LIBR SERVICE                                E.203 00450
000575 000626 R     451          DATA    DMBA            BASE SERVICE                                E.203 00451
                    452 * END OF TABLE                                                                  E.203 00452
000576 006010 A     453 DMPT     LDAI    NUC10           PTCH ROUTINE                                   03 00453
000577 000000 R
000600 001000 A     454          JMP     DM60                                                           03 00454
000601 000632 R
000602 006010 A     455 DMDU     LDAI    DUMP            DUMP ROUTINE                                   03 00455
000603 000342 R
000604 001000 A     456          JMP     DM60                                                           03 00456
000605 000632 R
000606 006010 A     457 DMEX     LDAI    EXIT            EXIT ROUTINE                                   03 00457
000607 000203 R
000610 001000 A     458          JMP     DM60                                                           03 00458
000611 000632 R
000612 006010 A     459 DMHI     LDAI    HIST            HIST ROUTINE                                   03 00459
000613 001050 R
000614 001000 A     460          JMP     DM60                                                           03 00460
000615 000632 R
000616 006010 A     461 DMAP     LDAI    APND            APND ROUTINE                                   03 00461
000617 000713 R
000620 001000 A     462          JMP     DM60                                                           03 00462
000621 000632 R
000622 006010 A     463 DML1     LDAI    LIBR            LIBR ROUTINE                                E.203 00463
000623 001360 R
000624 001000 A     464          JMP     DM60                                                        E.203 00464
000625 000632 R
000626 006010 A     465 DMBA     LDAI    BASET           BASE ROUTINE                                E.203 00465
000627 001244 R
000630 001000 A     466          JMP     DM60                                                        E.203 00466
000631 000632 R
000632 006057 A     467 DM60     STAE    DMP50           SET EXIT ADDR                                  03 00467
000633 000566 R
000634 001000 A     468          JMP     DMEOF                                                          03 00468
000635 000522 R
       000636 R     469 DER      EQU     *                                                           E.203 00469
000636 002000 A     470 DERR     CALL    RECOV,NUC10,NUC14,4                                         E.203 00470
000637 000326 R
000640 000000 R
000641 000033 R
000642 000004 A
000643 002000 A     471 DME      CALL    RECOV,DMP05,DMP12,5                                         E.203 00471
000644 000326 R
000645 000373 R
000646 000420 R
000647 000005 A
000650 002000 A     472 DMD      CALL    RECOV,DMP05,DMP12,1                                         E.203 00472
000651 000326 R
000652 000373 R
000653 000420 R
000654 000001 A
000655 002000 A     473 DMERR    CALL    RECOV,DMP05,DMP12,2                                         E.203 00473
000656 000326 R
000657 000373 R
000660 000420 R
000661 000002 A
                    474 DIDCB    DCB     40,INBUF                                                       03 00474
000662 000050 A
000663 004765 R
000664 000000 A
                    475 DODCB    DCB     12,NUMSG                                                       03 00475
000665 000014 A
000666 004576 R
000667 000000 A
                    476 ERDCB    DCB     0,0                                                            03 00476
000670 000000 A
000671 000000 A
000672 000000 A
                    477 PRDCB    DCB     3,PRMSG                                                        03 00477
000673 000003 A
000674 004613 R
000675 000000 A
                    478 DCDCB    DCB     8,DCMSG                                                        03 00478
000676 000010 A
000677 004744 R
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000700 000000 A
                    479 IMFCB   FCB     120,IMBUF,1,'F','PT','CH','IM'                          03 00479
000701 000170 A
000702 005225 R
000703 000706 A
000704 000000 A
000705 000000 A
000706 000000 A
000707 000000 A
000710 150324 A
000711 141710 A
000712 144715 A
                    480         EJEC                                                            03 00480
                    481 ********************************************************************    03 00481
                    482 *                                                                       03 00482
                    483 *       SUBROUTINE--APND  (APPEND PATCH IMAGE TO FILE PTCHIM)           03 00483
                    484 *                                                                       03 00484
                    485 *       PURPOSE--TO APPEND A PATCH IMAGE TO THE EXISTING PATCH          03 00485
                    486 *                IMAGE IN THE FILE PTCHIM.                              03 00486
                    487 *                                                                       03 00487
                    488 *       APND SEARCHES PTCHIM FOR THE PATCH IMAGE TERMINATOR (MINUS 1)   03 00488
                    489 *       AND WHEN FOUND SETS POINTER TO THAT ENTRY AND ENTERS ROUTINE    03 00489
                    490 *       DUMP.                                                           03 00490
                    491 *                                                                       03 00491
                    492 *       APND DOES NOT PERFORM ANY PATCHING                              03 00492
                    493 *                                                                       03 00493
                    494 *       IF THE PATCH FILE DOES NOT BEGIN WITH A STORE ADDR OF           E.203 00494
                    495 *       -2 THEN THE FILE IS ASSUMED TO BE EMPTY AND A NEW DUMP          E.203 00495
                    496 *       OPERATION IS ASSUMED                                            E.203 00496
                    497 *                                                                       03 00497
                    498 ********************************************************************    03 00498
000713 R            500 APND    EQU     *                                                       03 00500
                    501 APN02   OPEN    IMFCB,FL,0,0  OPEN AND REWIND PTCHIM                    03 00501
000713 006505 A
000714 000557 E
000715 100000 A
000716 003152 A
000717 000701 R
000720 000000 A
000721 000000 A
                    502         STAT    APN02,DER,DER,DER,*                                     03 00502
000722 006505 A
000723 000541 E
000724 000713 R
000725 000636 R
000726 000636 R
000727 000636 R
000730 000722 R
                    503 APN03   READ    IMFCB,FL,0,0  INPUT IMAGE RECORD                        E.203 00503
000731 006505 A
000732 000714 E
000733 100000 A
000734 000152 A
000735 000701 R
000736 000000 A
000737 000000 A
                    504         STAT    APN03,DERR,DERR,DERR,*                                  E.203 00504
000740 006505 A
000741 000723 E
000742 000731 R
000743 000636 R
000744 000636 R
000745 000636 R
000746 000740 R
000747 006017 A     505         LDAE    IMBUF         FIRST STORE ADDR                          E.203 00505
000750 005225 R
000751 120422 A     506         ADD     TWO                                                     E.203 00506
000752 001016 A     507         JANZ    DUMP          IF NOT =-2, THEN FILE IS EMPTY            E.203 00507
000753 000342 R
000754 006030 A     508         LDXI    IMBUF                                                   E.203 00508
000755 005225 R
000756 005001 A     509         TZA                                                             E.203 00509
000757 006057 A     510         STAE    IMCNT         CLEAR ENTRY COUND                         E.203 00510
000760 003473 R
000761 001000 A     511         JMP     APN20         FOUND START, SEARCH FOR END OF IMAGE      E.203 00511
000762 001006 R
000763 005001 A     512 APN05   TZA                                                             03 00512
000764 006057 A     513         STAE    IMCNT         CLEAR ENTRY COUNT                         E.203 00513
000765 003473 R
                    514 APN10   READ    IMFCB,FL,0,0  INPUT IMAGE RECORD                        03 00514
000766 006505 A
000767 000732 E
000770 100000 A
000771 000152 A
000772 000701 R
000773 000000 A
000774 000000 A
                    515         STAT    APN10,DERR,DERR,DERR,*                                  03 00515
000775 006505 A
000776 000741 E
000777 000766 R
001000 000636 R
001001 000636 R
```

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001002 000636 R
001003 000775 R
001004 006030 A   516          LDXI    IMBUF                                          03 00516
001005 005225 R
001006 015000 A   517 APN20    LDA     0,1     PATCH ADDRESS                          03 00517
001007 005111 A   518          IAR                                                  E.203 00518
001010 001010 A   519          JAZ     APN30   IF END OF PATCH IMAGE                E.203 00519
001011 001030 R
001012 006017 A   520          LDAE    IMCNT                                        E.203 00520
001013 003473 R
001014 120464 A   521          ADD     THREE                                        E.203 00521
001015 006057 A   522          STAE    IMCNT   UPDATE ENTRY COUNT                   E.203 00522
001016 003473 R
001017 006140 A   523          SUBI    123                                            03 00523
001020 000173 A
001021 001010 A   524          JAZ     APN05   IF END OF RECORD                       03 00524
001022 000763 R
001023 005144 A   525          IXR                                                    03 00525
001024 005144 A   526          IXR                                                    03 00526
001025 005144 A   527          IXR                                                    03 00527
001026 001000 A   528          JMP     APN20   CHECK NEXT ENTRY                       03 00528
001027 001006 R
       001030 R   529 APN30    EQU     *                                              03 00529
                  530          SREC    IMFCB,FL,0,1  POSITION BACK TO RECORD INPUT     03 00530
001030 006505 A
001031 000767 E
001032 100000 A
001033 012152 A
001034 000701 R
001035 000000 A
001036 000000 A
                  531          STAT    APN30,DERR,DERR,DERR,*                         03 00531
001037 006505 A
001040 000776 E
001041 001030 R
001042 000636 R
001043 000636 R
001044 000636 R
001045 001037 R
001046 001000 A   532          JMP     DMP05                                          03 00532
001047 000373 R
                  533          EJEC                                                   03 00533
                  534 ***********************************************************    03 00534
                  535 *                                                              03 00535
                  536 *       SUBROUTINE--HIST  (LIST PATCH HISTORY)                 03 00536
                  537 *                                                              03 00537
                  538 *       PURPOSE--TO LIST THE PATCH HISTORY FROM FILE PTCHIM    03 00538
                  539 *                                                              03 00539
                  540 *       HIST READS RECORDS FROM FILE PTCHIM AND OUTPUTS TO LO  03 00540
                  541 *       THREE ITEM RECORDS IN THE SAME MANNER AS PTCH.         03 00541
                  542 *       IF THE PATCH FILE DOES NOT BEGIN WITH A STORE ADDR OF  E.203 00542
                  543 *       -2 THEN THE FILE IS ASSUMED EMPTY AND NO HISTORY IS GIVEN E.203 00543
                  544 *                                                              03 00544
                  545 *       HIST DOES NOT PERFORM ANY PATCHING                     03 00545
                  546 *                                                              03 00546
                  547 ***********************************************************    03 00547
       001050 R   549 HIST     EQU     *                                              03 00549
                  550 HI10     OPEN    IMFCB,FL,0,0  OPEN AND REWIND IMAGE FILE       03 00550
001050 006505 A
001051 001031 E
001052 100000 A
001053 003152 A
001054 000701 R
001055 000000 A
001056 000000 A
                  551          STAT    HI10,HER,HER,HER,*                           E.203 00551
001057 006505 A
001060 001040 E
001061 001050 R
001062 001231 R
001063 001231 R
001064 001231 R
001065 001057 R
                  552 HI12     READ    IMFCB,FL,0,0                                 E.203 00552
001066 006505 A
001067 001051 E
001070 100000 A
001071 000152 A
001072 000701 R
001073 000000 A
001074 000000 A
                  553          STAT    HI12,HER,HER,HER,*                           E.203 00553
001075 006505 A
001076 001060 E
001077 001066 R
001100 001231 R
001101 001231 R
001102 001231 R
001103 001075 R
001104 006017 A   554          LDAE    IMBUF         FIRST STORE ADDR               E.203 00554
001105 005225 R
001106 120422 A   555          ADD     TWO                                          E.203 00555
001107 001016 A   556          JANZ    HI50          IF NOT =-2, ASSUME FILE IS EMPTY E.203 00556
```

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001110 001220 R
001111 010464 A  557          LDA     THREE
001112 006057 A  558          STAE    IMCNT          SET FOR SECOND ENTRY IN IMAGE
001113 003473 R
001114 001000 A  559          JMP     HI25
001115 001137 R
                 560 HI15     READ    IMFCB,FL,0,0   INPUT IMAGE RECORD
001116 006505 A
001117 001067 E
001120 100000 A
001121 000152 A
001122 000701 R
001123 000000 A
001124 000000 A
                 561          STAT    HI15,HER,HER,HER,*
001125 006505 A
001126 001076 E
001127 001116 R
001130 001231 R
001131 001231 R
001132 001231 R
001133 001125 R
001134 005001 A  562          TZA
001135 006057 A  563          STAE    IMCNT          ZERO IMAGE POINTER
001136 003473 R
       001137 R  564 HI25     EQU     *
001137 006010 A  565          LDAI    IMBUF
001140 005225 R
001141 006127 A  566          ADDE    IMCNT          CURRENT BUFFER POINTER
001142 003473 R
001143 005012 A  567          TAB
001144 016000 A  568          LDA     0,2            PATCH ADDR
001145 005111 A  569          IAR
001146 001010 A  570          JAZ     HI50           IF END OF HISTORY
001147 001220 R
001150 005311 A  571          DAR
001151 054064 A  572          STA     HIBLK
001152 016001 A  573          LDA     1,2            ORIG CONTENTS
001153 054063 A  574          STA     HIBLK+1
001154 016002 A  575          LDA     2,2            NEW CONTENTS
001155 054062 A  576          STA     HIBLK+2
001156 024057 A  577          LDB     HIBLK          ADDR
001157 006030 A  578          LDXI    NUMSG
001160 004576 R
001161 002000 A  579          CALL    BI2DC          CONVERT TO ASCII
001162 004132 R
001163 006030 A  580          LDXI    NUMSG+4
001164 004602 R
001165 024051 A  581          LDB     HIBLK+1        ORIG CONTENTS
001166 002000 A  582          CALL    BI2DC          CONVERT TO ASCII
001167 004132 R
001170 006030 A  583          LDXI    NUMSG+8
001171 004606 R
001172 024045 A  584          LDB     HIBLK+2        NEW CONTENTS
001173 002000 A  585          CALL    BI2DC          CONVERT TO ASCII
001174 004132 R
                 586          WRITE   DODCB,LO,0,1   OUTPUT MESSAGE
001175 006503 A
001176 001117 E
001177 100000 A
001200 010403 A
001201 000663 R
001202 000000 A
001203 000000 A
001204 006017 A  587          LDAE    IMCNT
001205 003473 R
001206 006140 A  588          SUBI    117
001207 000165 A
001210 001010 A  589          JAZ     HI15           IF END IMAGE RECORD
001211 001116 R
001212 006120 A  590          ADDI    120
001213 000170 A
001214 006057 A  591          STAE    IMCNT
001215 003473 R
001216 001000 A  592          JMP     HI25           CONTINUE HISTORY
001217 001137 R
                 593 HI50     WRITE   HIDCB,DO,0,1
001220 006503 A
001221 001176 E
001222 100000 A
001223 010414 A
001224 001241 R
001225 000003 A
001226 000000 A
001227 001000 A  594          JMP     NUC10
001230 000000 R
001231 002000 A  595 HER      CALL    RECOV,NUC10,NUC10,4
001232 000326 R
001233 000000 R
001234 000000 R
001235 000004 A
001236 000000 A  596 HIBLK    DATA    0,0,0
001237 000000 A
```

```
001240 000000 A
                597 HIDCB   DCB     9,HIMSG                                          03 00597
001241 000011 A
001242 004754 R
001243 000000 A
                598         EJEC                                                  E.203 00598
                599 ************************************************************    03 00599
                600 *                                                             E.203 00600
                601 *       SUBROUTINE--BASET  (SET BASE ADDRESS)                 E.203 00601
                602 *                                                             E.203 00602
                603 *       PURPOSE--TO SET OR DISPLAY THE CURRENT BASE ADDR      E.203 00603
                604 *                                                             E.203 00604
                605 *       TO SET THE BASE ADDRESS THE DESIRED VALUE (OCTAL) IS ENTERED  E.203 00605
                606 *       AFTER THE PT** PROMPT IS GIVEN BY THE BASE DIRECTIVE. E.203 00606
                607 *       TO DISPLAY THE CURRENT BASE ADDRESS AN = SIGN IS ENTERED  E.203 00607
                608 *       AS THE RESPONSE TO THE PT** PROMPT                    E.203 00608
                609 *                                                             E.203 00609
                610 *       WHENEVER AN ASTERISK IS USED IN A PATCH DIRECTIVE THE  E.203 00610
                611 *       ASTERISK WILL RETURN THE CURRENT BASE VALUE.          E.203 00611
                612 *                                                             E.203 00612
                613 ************************************************************    03 00613
001244 R        615 BASET   EQU     *                                             E.203 00615
001244 006505 A 616 BAS05   WRITE   PRDCB,DO,0,1  OUTPUT PROMPT                   E.203 00616
001245 001221 E
001246 100000 A
001247 010414 A
001250 000673 R
001251 000000 A
001252 000000 A
                617 BAS10   READ    DIDCB,DI,0,1  INPUT DIRECTIVE                 E.203 00617
001253 006505 A
001254 001245 E
001255 100000 A
001256 010013 A
001257 000662 R
001260 000000 A
001261 000000 A
                618         STAT    BAS10,BAER,BAER,BAER,*                        E.203 00618
001262 006505 A
001263 001126 E
001264 001253 R
001265 001352 R
001266 001352 R
001267 001352 R
001270 001262 R
001271 006017 A 619 BAS15   LDAE    INBUF                                         E.203 00619
001272 004765 R
001273 004350 A 620         LSRA    8                                             E.203 00620
001274 006130 A 621         ERAI    '='                                           E.203 00621
001275 000275 A
001276 001010 A 622         JAZ     BAS30           IF DISPLAY REQUEST            E.203 00622
001277 001321 R
001300 006010 A 623         LDAI    INBUF                                         E.203 00623
001301 004765 R
001302 005211 A 624         CPA                     SET FOR LEFT BYTE             E.203 00624
001303 006057 A 625         STAE    BUFPT                                         E.203 00625
001304 004172 R
001305 002000 A 626         CALL    FETCH           FETCH BASE VALUE              E.203 00626
001306 003713 R
001307 001315 R 627         DATA    BAS25,BAS25     NULL FIELD/END OF RECORD      E.203 00627
001310 001315 R
001311 001352 R 628         DATA    BAER            INVALID ITEM                  E.203 00628
001312 054044 A 629         STA     BASE            SET BASE VALUE                E.203 00629
001313 001000 A 630         JMP     NUC10                                         E.203 00630
001314 000000 R
001315 005001 A 631 BAS25   TZA                                                   E.203 00631
001316 054040 A 632         STA     BASE            CLEAR BASE VALUE              E.203 00632
001317 001000 A 633         JMP     NUC10                                         E.203 00633
001320 000000 R
001321 024035 A 634 BAS30   LDB     BASE                                          E.203 00634
001322 006030 A 635         LDXI    BSMSG+4                                       E.203 00635
001323 001347 R
001324 005244 A 636         CPX                                                   E.203 00636
001325 002000 A 637         CALL    RI2DC           CONVERT TO ASCII              E.203 00637
001326 004132 R
                638         WRITE   BSDCB,DO,0,1  OUTPUT MESSAGE                  E.203 00638
001327 006505 A
001330 001254 E
001331 100000 A
001332 010414 A
001333 001340 R
001334 000000 A
001335 000000 A
001336 001000 A 639         JMP     NUC10                                         E.203 00639
001337 000000 R
                640 BSDCB   DCB     7,BSMSG                                       E.203 00640
001340 000007 A
001341 001343 R
001342 000000 A
001343 120302 A 641 BSMSG   DATA    ' BASE = XXXXXX'                              E.203 00641
001344 140723 A
001345 142640 A
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001346 136640 A
001347 154330 A
001350 154330 A
001351 154330 A
001352 002000 A   642 BAER    CALL    RECOV,BAS05,BAS15,2                                    E.203 00642
001353 000326 R
001354 001244 R
001355 001271 R
001356 000002 A
001357 000000 A   643 BASE    DATA    0               CURRENT BASE VALUE                     E.203 00643
                  644           EJEC                                                       E.203 00644
                  645 ********************************************************************   03 00645
                  646 *                                                                      E.203 00646
                  647 *       SUBROUTINE--LIBR  (PATCH LIBRARY MODULE)                       E.203 00647
                  648 *       PURPOSE--TO PERFORM PATCHES TO A LIBRARY ROUTINE.  THE PATCHES E.203 00648
                  649 *                ARE MADE TO THE LOAD MODULE FILE IN THE LIBRARY DISC  E.203 00649
                  650 *                PARTITION.                                            E.203 00650
                  651 *              WARNING--THE NUCLEUS PATCH AREA (V$PSTR) CANNOT BE      E.203 00651
                  652 *              USED AS AN OUTSIDE PATCH AREA.                          E.203 00652
                  653 *                                                                      E.203 00653
                  654 ********************************************************************   03 00654
001360 R          656 LIBR    EQU     *                                                      E.203 00656
                  657         WRITE   LIDCB,DO,0,1  REQUEST LUN, PROTECT KEY, FILENAME       E.203 00657
001360 006505 A
001361 001330 E
001362 100000 A
001363 010414 A
001364 002552 R
001365 000000 A
001366 000000 A
                  658 LIB10   READ    DIDCB,DI,0,1  INPUT RESPONSE                           E.203 00658
001367 006505 A
001370 001361 E
001371 100000 A
001372 010013 A
001373 000662 R
001374 000000 A
001375 000000 A
001376 R          659 LIB11   EQU     *                                                      E.203 00659
001376 006017 A   660         LDAE    INBUF                                                  E.203 00660
001377 004765 R
001400 004350 A   661         LSRA    8                                                      E.203 00661
001401 006130 A   662         ERAI    '.'                                                    E.203 00662
001402 000256 A
001403 001010 A   663         JAZ     NUC14B+1      IF SPECIAL PATCH CONTROL DIR             E.203 00663
001404 000042 R
001405 006010 A   664         LDAI    INBUF                                                  E.203 00664
001406 004765 R
001407 005211 A   665         CPA                                                            E.203 00665
001410 006057 A   666         STAE    LIB12+2       INITIALIZE BUFFER POINTER                E.203 00666
001411 001445 R
001412 006017 A   667         LDAE    INBUF                                                  E.203 00667
001413 004765 R
001414 004350 A   668         LSRA    8                                                      E.203 00668
001415 006140 A   669         SUBI    0260          ASCII ZERO                               E.203 00669
001416 000260 A
001417 001004 A   670         JAN     LIB13         IF LUN IS NOT NUMERIC                    E.203 00670
001420 001424 R
001421 140471 A   671         SUB     TEN                                                    E.203 00671
001422 001004 A   672         JAN     LIB12         IF LUN IS NUMERIC                        E.203 00672
001423 001443 R
001424 030345 A   673 LIB13   LDX     V$LUNT        LOGICAL UNIT NAME TABLE POINTER          E.203 00673
001425 015000 A   674 LIB14   LDA     0,X           LOGICAL UNIT NAME                        E.203 00674
001426 006137 A   675         ERAE    INBUF         INPUT LOGICAL NAME                       E.203 00675
001427 004765 R
001430 001010 A   676         JAZ     LIB15         IF A MATCH IS FOUND                      E.203 00676
001431 001436 R
001432 005144 A   677         IXR                                                            E.203 00677
001433 005144 A   678         IXR                                                            E.203 00678
001434 001000 A   679         JMP     LIB14         CONTINUE WITH NEXT ENTRY                 E.203 00679
001435 001425 R
001436 015001 A   680 LIB15   LDA     1,X           LOGICAL UNIT NUMBER                      E.203 00680
001437 006020 A   681         LDB1    INBUF+1       SET BUFPT FOR NEXT BYTE                  E.203 00681
001440 004766 R
001441 001000 A   682         JMP     LIB16                                                  E.203 00682
001442 001451 R
                  683         EXT     CA2B                                                   E.203 00683
001443 006505 A   684 LIB12   JSR     CA2B,X        FETCH LOGICAL UNIT NUMBER                E.203 00684
001444 000000 E
001445 000000 A   685         DATA    0             ASCII STRING ADDR                        E.203 00685
001446 002541 R   686         DATA    TRBLK         TERMINATION CHAR BLOCK                   E.203 00686
001447 001001 A   687         JOF     LIBER         JUMP IF ILLEGAL CHAR FOUND               E.203 00687
001450 002105 R
001451 R          688 LIB16   EQU     *                                                      E.203 00688
001451 006067 A   689         STBE    BUFPT         SAVE BUFFER POINTER                      E.203 00689
001452 004172 R
001453 005012 A   690         TAB                   SAVE LUN                                 E.203 00690
001454 014656 A   691         LDA     LID20+3                                                E.203 00691
001455 150462 A   692         ANA     LHW                                                    E.203 00692
001456 005031 A   693         MERGE   031                                                    E.203 00693
001457 054653 A   694         STA     LID20+3       SET LUN IN READ/WRITE REQUEST            E.203 00694
                  695         IFF     VORTEX-1      ASSM IF NOT V2                           E.203 00695
001460 006057 A   696         STAE    RE10+3        SET LUN IN /RELO READ/WRITE              E.203 00696
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001461 003162 R
001462 150463 A  697          ANA     RHW                                                    E.203 00697
001463 006130 A  698          ERAI    03000                                                  E.203 00698
001464 003000 A
001465 054115 A  699          STA     LIB21+3                                                E.203 00699
001466 006017 A  700          LDAE    DBLNK                                                  E.203 00700
001467 002544 R
001470 006057 A  701          STAE    ITBUF           CLEAR ITEM BUFFER                      E.203 00701
001471 004565 R
001472 002000 A  702          CALL    SCAN            FETCH PROTECTION CODE                  E.203 00702
001473 003722 R
001474 006140 A  703          SUBI    ','                                                    E.203 00703
001475 000254 A
001476 001016 A  704          JANZ    LIBER           IF TERMINATOR NOT A COMMA, THEN ERROR  E.203 00704
001477 002105 R
001500 017000 I  705          LDA     LIFCB+2                                                E.203 00705
001501 150462 A  706          ANA     LHW                                                    E.203 00706
001502 005012 A  707          TAB                                                            E.203 00707
001503 006017 A  708          LDAE    ITBUF                                                  E.203 00708
001504 004565 R
001505 004350 A  709          LSRA    8               PUT PROTECT REV IN RIGHT BYTE          E.203 00709
001506 005031 A  710          MERGE   031                                                    E.203 00710
001507 057000 I  711          STA     LIFCB+2         SET PROTECT KEY                        E.203 00711
                 712          IFF     VORTEX-1        ASSM IF NOT V2                         E.203 00712
001510 006057 A  713          STAE    REFCB+2         SET PROTECT KEY IN RELO RCB            E.203 00713
001511 003204 R
001512 017000 I  714          LDA     DBLNK                                                  E.203 00714
001513 006020 A  715          LDBI    ITBUF                                                  E.203 00715
001514 004565 R
001515 056000 A  716          STA     0,B             CLEAR                                  E.203 00716
001516 056001 A  717          STA     1,B             INPUT BUFFER                           E.203 00717
001517 056002 A  718          STA     2,B             FOR FILE NAME                          E.203 00718
                 719          EXT     MOVE                                                   E.203 00719
001520 006505 A  720          JSR     MOVE,X          BLNK OVEPLAY NAME                      E.203 00720
001521 000000 E
001522 000003 A  721          DATA    3,ITBUF,LIOVLY                                         E.203 00721
001523 004565 R
001524 002520 R
001525 002000 A  722          CALL    SCAN            FETCH FILE NAME                        E.203 00722
001526 003722 R
001527 006017 A  723          LDAE    COUNT           NUMBER OF CHARACTERS                   E.203 00723
001530 004167 R
001531 001010 A  724          JAZ     LIBER           ERROR IF NO FILE NAME SPECIFIED        E.203 00724
001532 002103 R
001533 006505 A  725          JSR     MOVE,X          MOVE FILE NAME TO FCB                  E.203 00725
001534 001521 E
001535 000003 A  726          DATA    3,ITBUF,LIFCB+7                                        E.203 00726
001536 004565 R
001537 002536 R
                 727          IFT     VORTEX-1        SKIP IF V2                             E.203 00727
                 728          GOTO    1                                                      E.203 00728
001540 006505 A  729          JSR     MOVE,X          MOVE FILE NAME TO RELO FCB             E.203 00729
001541 001534 E
001542 000003 A  730          DATA    3,ITBUF,REFCB+7                                        E.203 00730
001543 004565 R
001544 003211 R
                 731 1        CONT                                                           E.203 00731
001545 006017 A  732          LDAE    PTSTS           STATUS WORD                            E.203 00732
001546 002543 R
001547 150441 A  733          ANA     BR0             SET PROCESSING ROOT SEGMENT BIT        E.203 00733
001550 006057 A  734          STAE    PTSTS                                                  E.203 00734
001551 002543 R
001552 014771 A  735          LDA     DBLNK                                                  E.203 00735
001553 006020 A  736          LDBI    ITBUF                                                  E.203 00736
001554 004565 R
001555 056000 A  737          STA     0,B             BLANK ITBUF                            E.203 00737
001556 056001 A  738          STA     1,B             FOR                                    E.203 00738
001557 056002 A  739          STA     2,B             OVERLAY NAME                           E.203 00739
001560 002000 A  740          CALL    SCAN            FETCH OVER LAY NAME                    E.203 00740
001561 003722 R
001562 006017 A  741          LDAE    COUNT           NUMBER OF CHARS                        E.203 00741
001563 004167 R
001564 001010 A  742          JAZ     LIB21           IF ZERO, NO OVERLAY REQUESTED          E.203 00742
001565 001600 R
001566 006505 A  743          JSR     MOVE,X          MOVE OVERLAY NAME                      E.203 00743
001567 001541 E
001570 000003 A  744          DATA    3,ITBUF,LIOVLY                                         E.203 00744
001571 004565 R
001572 002520 R
001573 006017 A  745          LDAE    PTSTS           STATUS WORD                            E.203 00745
001574 002543 R
001575 130421 A  746          ERA     BS0             SET PROCESSING OVERLAY BIT             E.203 00746
001576 006057 A  747          STAE    PTSTS                                                  E.203 00747
001577 002543 R
                 748 LIB21    OPEN    LIFCB,0,0,0     OPEN LIBRARY FILE                      E.203 00748
001600 006505 A
001601 001370 E
001602 100000 A
001603 003000 A
001604 002527 R
001605 000000 A
001606 000000 A
                 749          STAT    LIB21,LIER,LIER,LIER,*                                 E.203 00749
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001607 006505 A
001610 001263 E
001611 001600 R
001612 002112 R
001613 002112 R
001614 002112 R
001615 001607 R
                        750          IFT     VORTEX-1        SKIP IF VORTEX 2                                E.203 00750
                        751          GOTO    1                                                               E.203 00751
001616 006505 A         752          JSR     MOVE,X          MOVE LIFCB INFO TO RELO FCB                     E.203 00752
001617 001567 E
001620 000010 A         753          DATA    8,LIFCB+2,REFCB+2                                               E.203 00753
001621 002531 R
001622 003204 R
                        754 1        CONT                                                                    E.203 00754
001623 005101 A         755          INCR    01                                                              E.203 00755
001624 005002 A         756          TZB                                                                     E.203 00756
001625 002000 A         757          CALL    LIBIO           READ IN THE PSUEDO TIDB                         E.203 00757
001626 002310 R
001627 006505 A         758          JSR     MOVE,X          MOVE FIRST 5 WORDS OF P TIDB                    E.203 00758
001630 001617 E
001631 000005 A         759          DATA    5,LIBUF,PTIDB                                                   E.203 00759
001632 002571 R
001633 002513 R
001634 014661 A         760          LDA     PTIDB+3         LOAD MODULE SIZE                                E.203 00760
001635 054445 A         761          STA     SEGSZ             SEGMENT SIZE                                  E.203 00761
001636 005101 A         762          INCR    01                                                              E.203 00762
001637 054447 A         763          STA     LIB99                                                           E.203 00763
001640 010464 A         764          LDA     THREE                                                           E.203 00764
001641 054444 A         765          STA     LIB98                                                           E.203 00765
001642 014700 A         766          LDA     PTSTS           STATUS WORD                                     E.203 00766
001643 006440 A         767          BT      RA0+B0,LIB22A     SKIP IF NOT PROCESSING OVERLAY                E.203 00767
001644 001675 R
001645 014645 A         768          LDA     PTIDB           MODULE STATUS WORD                              E.203 00768
001646 006442 A         769          BT      RA0+B2,OVLER    ERROR IF NO OVERLAYS                            E.203 00769
001647 002124 R
001650 006411 A         770          BT      RA1+B9,LIB23    IF FOREGROUND TASK                              E.203 00770
001651 001654 R
001652 010464 A         771          LDA     THREE           OVERLAY DIRECTORY POSITION, BG                  E.203 00771
001653 001006 A         772          DATA    01006           SKIP NEXT INST                                  E.203 00772
001654 010422 A         773 LIB23    LDA     TWO             OVERLAY DIRECTORY POSITION, FG                  E.203 00773
001655 002000 A         774          CALL    OVSRCH          SEARCH FD OVERLAY                               E.203 00774
001656 002350 R
001657 001010 A         775          JAZ     OVLER           IF NOT FOUND                                    E.203 00775
001660 002124 R
001661 054007 A         776          STA     LIB24+3         SET FROM ADDR                                   E.203 00776
001662 024647 A         777          LDB     LIFCB+3                                                         E.203 00777
001663 064423 A         778          STB     LIB99             SAVE OVERLAY SECTOR NUMBER                    E.203 00778
001664 120420 A         779          ADD     FOUR                                                            E.203 00779
001665 054420 A         780          STA     LIB98             SAVE SEGMENT SIZE POINTER                     E.203 00780
001666 006505 A         781 LIB24    JSR     MOVE,X          MOVE OVERLAY DIRECTORY INFO                     E.203 00781
001667 001630 E
001670 000007 A         782          DATA    7,0,LIOVLY                                                      E.203 00782
001671 000000 A
001672 002520 R
001673 014630 A         783          LDA     LIOVLY+4                                                        E.203 00783
001674 054406 A         784          STA     SEGSZ             SET SEGMENT SIZE TO OVERLAY SIZE              E.203 00784
001675 001675 R         785 LIB22A   EQU     *                                                               E.203 00785
001675 002000 A         786          CALL    ADCAL           CALCULATE ADDR PARAM                            E.203 00786
001676 002441 R
001677 014607 A         787          LDA     PM1                                                             E.203 00787
001700 144607 A         788          SUB     PM2                                                             E.203 00788
001701 124607 A         789          ADD     PM3                                                             E.203 00789
001702 124607 A         790          ADD     PM4             FORM ORGN ADDR                                  E.203 00790
001703 006057 A         791          STAE    ORGN                                                            E.203 00791
001704 003721 R
001705 014375 A         792          LDA     SEGSZ                                                           E.203 00792
001706 024634 A         793          LDB     PTSTS                                                           E.203 00793
001707 006420 A         794          BT      RB1+B0,LIB22B   SKIP IF PROCESSING OVERLAY                     E.203 00794
001710 001713 R
001711 006127 A         795          ADDE    ORGN                                                            E.203 00795
001712 003721 R
001713 005012 A         796 LIB22B   TAB                                                                     E.203 00796
001714 005001 A         797          IZA                                                                     E.203 00797
001715 006170 A         798          DIVI    120                                                             E.203 00798
001716 000170 A
001717 005121 A         799          INCR    021             B+1 TO A                                        E.203 00799
001720 005111 A         800          IAR                                                                     E.203 00800
001721 024621 A         801          LDB     PTSTS                                                           E.203 00801
001722 006460 A         802          BT      RB0+B0,LIB22C   SKIP IF NOT PROCESSING OVERLAY                  E.203 00802
001723 001725 R
001724 124576 A         803          ADD     LIOVLY+3        OVERLAY STARTING SECTOR                         E.203 00803
001725 054357 A         804 LIB22C   STA     LIB97           MAX SECTOR NUMBER FOR SEGMENT                   E.203 00804
                        805 LIB22    WRITE   PRDCB,DO,0,1    OUTPUT PROMPT                                   E.203 00805
001726 006505 A
001727 001601 E
001730 100000 A
001731 010414 A
001732 000673 R
001733 000000 A
001734 000000 A
                        806 LIB25    READ    DIDCB,DI,0,1    INPUT DIRECTIVE                                 E.203 00806
001735 006505 A
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001736 001727 E
001737 100000 A
001740 010013 A
001741 000662 R
001742 000000 A
001743 000000 A
                807          STAT    LIB25,LER,LER,LER,*                                  E.203 00807
001744 006505 A
001745 001610 E
001746 001735 R
001747 002117 R
001750 002117 R
001751 002117 R
001752 001744 R
001753 006017 A  808 LIB26   LDAE    INBUF                                                E.203 00808
001754 004765 R
001755 004350 A  809         LSRA    8                                                    E.203 00809
001756 006130 A  810         ERAI    '.'                                                  E.203 00810
001757 000256 A
001760 001010 A  811         JAZ     LIB50       IF A CONTROL DIRECTIVE                   E.203 00811
001761 002044 R
001762 006010 A  812         LDAI    INBUF                                                E.203 00812
001763 004765 R
001764 005211 A  813         CPA                                                          E.203 00813
001765 006057 A  814         STAE    BUFPT       INITIALIZE BUFFER POINTER                E.203 00814
001766 004172 R
001767 002000 A  815         CALL    FETCH       FETCH CHANGE ADDR                        E.203 00815
001770 003713 R
001771 001775 R  816         DATA    LIB30,LIB22 NULL FIELD/END OF RECORD                 E.203 00816
001772 001726 R
001773 002117 R  817         DATA    LER         INVALID ITEM                             E.203 00817
001774 054550 A  818         STA     LIBLK                                                E.203 00818
               001775 R  819 LIB30   EQU     *                                            E.203 00819
001775 002000 A  820         CALL    FETCH       FETCH CHANGE VALUE                       E.203 00820
001776 003713 R
001777 002041 R  821         DATA    LIB32,LIB22 NULL FIELD/END OF RECORD                 E.203 00821
002000 001726 R
002001 002117 R  822         DATA    LER         INVALID ITEM                             E.203 00822
               002002 R  823 LIB31   EQU     *                                            E.203 00823
002002 054544 A  824         STA     LIBLK+2                                              E.203 00824
002003 002000 A  825         CALL    ENTER       MAKE CHANGE IN MODULE                    E.203 00825
002004 002136 R
002005 024537 A  826         LDB     LIBLK       CHANGE ADDR                              E.203 00826
002006 006030 A  827         LDXI    NUMSG                                                E.203 00827
002007 004576 R
002010 002000 A  828         CALL    BI2DC       CONVERT TO ASCII                         E.203 00828
002011 004132 R
002012 006030 A  829         LDXI    NUMSG+4                                              E.203 00829
002013 004602 R
002014 024531 A  830         LDB     LIBLK+1     CURRENT VALUE                            E.203 00830
002015 002000 A  831         CALL    BI2DC       CONVERT TO ASCII                         E.203 00831
002016 004132 R
002017 006030 A  832         LDXI    NUMSG+8                                              E.203 00832
002020 004606 R
002021 024525 A  833         LDB     LIBLK+2     NEW VALUE                                E.203 00833
002022 002000 A  834         CALL    BI2DC       CONVERT TO ASCII                         E.203 00834
002023 004132 R
002024 006027 A  835         LDBE    RETYP       RELO/ABS TYPE FLAG                       E.203 00835
002025 004277 R
002026 006016 A  836         LDAE    LIB90,B     RELO/ABS MESSAGE CHAR                    E.203 00836
002027 002131 R
002030 006057 A  837         STAE    NUMSG+12    STORE IN HISTORY MESSAGE                 E.203 00837
002031 004612 R
                838          WRITE   LBDCB,DO,0,1 OUTPUT HISTORY                          E.203 00838
002032 006505 A
002033 001736 E
002034 100000 A
002035 010414 A
002036 002133 R
002037 000000 A
002040 000000 A
002041 044503 A  839 LIB32   INR     LIBLK       INCREMENT STORE ADDR                     E.203 00839
002042 001000 A  840         JMP     LIB30                                                E.203 00840
002043 001770 R
002044 014465 A  841 LIB50   LDA     LIFCB+3     CURRENT SECTOR NUMBER                    E.203 00841
002045 020431 A  842         LDB     BS0                                                  E.203 00842
002046 002000 A  843         CALL    LIBIO       OUTPUT FINAL SECTOR                      E.203 00843
002047 002310 R
002050 014472 A  844         LDA     PTSTS                                                E.203 00844
002051 006440 A  845         BT      BA0+B0,LIB55  SKIP IF NOT PROCESSING OVERLAY         E.203 00845
002052 002055 R
002053 014450 A  846         LDA     LIOVLY+4    OVERLAY SIZE                             E.203 00846
002054 001006 A  847         DATA    01006       SKIP NEXT INST                           E.203 00847
002055 014440 A  848 LIB55   LDA     PTIDB+3     SEGMENT SIZE                             E.203 00848
002056 144224 A  849         SUB     SEGSZ       NEW SEGMENT SIZE                         E.203 00849
002057 001002 A  850         JAP     NJC14B+1    IF SIZE DID NOT INCREASE                 E.203 00850
002060 000042 R
002061 014225 A  851         LDA     LIB99         SEGMENT SIZE SECTOR                    E.203 00851
002062 005002 A  852         IZB                                                          E.203 00852
002063 002000 A  853         CALL    LIBIO         READ IN SECTOR                         E.203 00853
002064 002310 R
002065 034220 A  854         LDX     LIB98         SEGMENT SIZE POINTER                   E.203 00854
002066 014214 A  855         LDA     SEGSZ         SEGMENT SIZE                           E.203 00855
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002067 005111 A   856          IAR                    SET FOR NEXT ADDR                    E.203 00856
002070 006055 A   857          STAE    LIBUF,X          SET NEW SEGMENT SIZE               E.203 00857
002071 002571 R
                  858          IFF     VORTEX-1         SKIP IF VORTEX 1                   E.203 00858
                  859          GOTO    1                                                   E.203 00859
                  860          LDB     PTSTS                                               E.203 00860
                  861          BT      RB1+B0,LIB60     SKIP IF PROCESSING OVERLAY         E.203 00861
                  862          STAE    LIBUF+3,X      SET TOTAL LOAD MODULE SIZE           E.203 00862
                  863 LIB60    EQU     *                                                   E.203 00863
                  864 1        CONT                                                        E.203 00864
002072 014214 A   865          LDA     LIB99                                               E.203 00865
002073 020431 A   866          LDB     BS8                                                 E.203 00866
002074 002000 A   867          CALL    LIBIO            OUTPUT SECTOR                      E.203 00867
002075 002310 R
002076 001000 A   868          JMP     NUC14B+1                                            E.203 00868
002077 000042 R
002100 002000 A   869 LIBER    CALL    RECOV,LIB22,LIB26,6                                 E.203 00869
002101 000326 R
002102 001726 R
002103 001753 R
002104 000006 A
002105 002000 A   870 LIBER    CALL    RECOV,LIBR,LIB11,1                                  E.203 00870
002106 000326 R
002107 001360 R
002110 001376 R
002111 000001 A
002112 002000 A   871 LIER     CALL    RECOV,LIBR,LIB11,4                                  E.203 00871
002113 000326 R
002114 001360 R
002115 001376 R
002116 000004 A
002117 002000 A   872 LER      CALL    RECOV,LIB22,LIB26,5                                 E.203 00872
002120 000326 R
002121 001726 R
002122 001753 R
002123 000005 A
002124 002000 A   873 DVLER    CALL    RECOV,LIBR,LIB11,7                                  E.203 00873
002125 000326 R
002126 001360 R
002127 001376 R
002130 000007 A
002131 120240 A   874 LIB90    DATA    '  ','R '                                           E.203 00874
002132 151240 A
                  875 LBDCB    DCB     13,NUMSG                                            E.203 00875
002133 000015 A
002134 004576 R
002135 000000 A
                  876          EJEC                                                        03 00876
                  877 ********************************************************************03 00877
                  878 *                                                                   E.203 00878
                  879 *      SUBROUTINE--ENTER  (ENTER PATCH)                             E.203 00879
                  880 *                                                                   E.203 00880
                  881 *      PURPOSE--TO CHANGE THE SPECIFIED WORD IN THE LIBRARY LOAD    E.203 00881
                  882 *               MODULE.  IF THE CURRENT SECTOR IN MEMORY IS THE     E.203 00882
                  883 *               TARGET SECTOR A REREAD IS NOT PERFORMED.  THE CURRENTE.203 00883
                  884 *               SECTOR IS OUTPUT WHEN A NEW SECTOR IS REQUESTED     E.203 00884
                  885 *               OR LIBR PROCESSING IS TERMINATED.                   E.203 00885
                  886 *                                                                   E.203 00886
                  887 *      FOR VORTEX 1 FOREGROUND PROGRAMS THE RELOCATION BIT          E.203 00887
                  888 *      FILE IS ALSO UPDATED.                                        E.203 00888
                  889 *                                                                   E.203 00889
                  890 *      CALLING SEQUENCE                                             E.203 00890
                  891 *          CALL    ENTER                                            E.203 00891
                  892 *                  LIBLK CONTAINS TRIPLET (ADDR,ORIGINAL,NEW)       E.203 00892
                  893 *                                                                   E.203 00893
                  894 *      RETURNS TO CALLER                                            E.203 00894
                  895 *                  WITH CURRENT LIBRARY SECTOR IN BUFFER AND UPDATED E.203 00895
                  896 *                  ENTRY MADE                                       E.203 00896
                  897 *                                                                   E.203 00897
                  898 ********************************************************************02 00898
002136 000000 A   900 ENTER    ENTR                                                        E.203 00900
002137 014403 A   901          LDA     PTSTS            STATUS WORD                        E.203 00901
002140 006440 A   902          BT      PAR+B0,ENT01     SKIP IF NOT PROCESSING OVERLAY     E.203 00902
002141 002144 R
002142 014361 A   903          LDA     LIBVLY+4         OVERLAY SIZE                       E.203 00903
002143 001006 A   904          DATA    01006            SKIP NEXT INST                     E.203 00904
002144 014351 A   905 ENT01    LDA     PTIDB+3          ROOT SEGMENT SIZE                  E.203 00905
002145 144377 A   906          SUB     LIBLK            CHANGE ADDR                        E.203 00906
002146 001004 A   907          JAN     ENT30              IF PATCHING OUTSIDE SEGMENT SIZE E.203 00907
002147 002272 R
002150 R          908 ENT01A   EQU     *                                                   E.203 00908
002150 014374 A   909          LDA     LIBLK            CHANGE ADDR                        E.203 00909
002151 024371 A   910          LDB     PTSTS            STATUS WORD                        E.203 00910
002152 006420 A   911          BT      PB1,B0,*+4       SKIP IF PROCESSING OVERLAY         E.203 00911
002153 002156 R
002154 006127 A   912          ADDE    ORGN             ADD IN ORGN ADDR                   E.203 00912
002155 003721 R
002156 005012 A   913          TAB                                                         E.203 00913
002157 005001 A   914          TZA                                                         E.203 00914
002160 006170 A   915          DIVI    120              WORDS PER SECTOR                   E.203 00915
002161 000170 A
002162 054365 A   916          STA     ENTWD            SAVE WORD LOCATION                 E.203 00916
002163 014357 A   917          LDA     PTSTS            STATUS WORD                        E.203 00917
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002164 006440 A  918          BT      RA0+B0,ENT02  SKIP IF NOT PROCESSING OVERLAY          E.203 00918
002165 002175 R
                 919          IFT     VORTEX-1      SKIP IF  VORTEX 2                       E.203 00919
                 920          GOTO    1                                                     E.203 00920
002166 014337 A  921          LDA     LIOVLY+6      OVERLAY RELO FILE ADDR                  E.203 00921
002167 057000 I  922          STA     REFCB+3       SET IN RELO IO CALL                     E.203 00922
                 923 1        CONT                                                          E.203 00923
002170 005021 A  924          TBA                   SECTOR DISPLACEMENT                     E.203 00924
002171 124331 A  925          ADD     LIOVLY+3      OVERLAY STARTING SECTOR                 E.203 00925
002172 005012 A  926          TAB                                                           E.203 00926
002173 001000 A  927          JMP     ENT05                                                 E.203 00927
002174 002201 R
       002175 R  928 ENT02    EQU     *                                                     E.203 00928
                 929          IFT     VORTEX-1      SKIP IF VORTEX 2                        E.203 00929
                 930          GOTO    1                                                     E.203 00930
002175 014321 A  931          LDA     PTIDB+4       RELO FILE ADDR                          E.203 00931
002176 057000 I  932          STA     REFCB+3                                               E.203 00932
                 933 1        CONT                                                          E.203 00933
002177 005122 A  934          IBR                                                           E.203 00934
002200 005123 A  935          INCR    023           UPDATE PAST P TIDB AND OVLY DIR         E.203 00935
       002201 R  936 ENT05    EQU     *                                                     E.203 00936
002201 005021 A  937          TBA                                                           E.203 00937
002202 006147 A  938          SUBE    LIB97           MAX SECTOR NUMBER FOR SEGMENT         E.203 00938
002203 002305 R
002204 001010 A  939          JAZ     ENT06                                                 E.203 00939
002205 002214 R
002206 001004 A  940          JAN     ENT06         OK IF INSIDE SEGMENT SECTORS            E.203 00940
002207 002214 R
002210 014073 A  941          LDA     LIB96                                                 E.203 00941
002211 054071 A  942          STA     SEGSZ         RESTORE SEGMENT SIZE TO ORIGINAL VALUE  E.203 00942
002212 001000 A  943          JMP     LIOER         REPORT ERROR                            E.203 00943
002213 002100 R
       002214 R  944 ENT06    EQU     *                                                     E.203 00944
002214 005021 A  945          TBA                                                           E.203 00945
002215 144314 A  946          SUB     LIFCB+3       PREVIOUS SECTOR NUMBER                  E.203 00946
002216 001010 A  947          JAZ     ENT10         IF NEW SECTOR=PREVIOUS SECTOR           E.203 00947
002217 002231 R
002220 064330 A  948          STB     ENTSC         SAVE NEW SECTOR                         E.203 00948
002221 014310 A  949          LDA     LIFCB+3       PREVIOUS SECTOR                         E.203 00949
002222 020431 A  950          LDB     BS8           WRITE OPERATION                         E.203 00950
002223 002000 A  951          CALL    LIBIO         WRITE OUT PREVIOUS SECTOR               E.203 00951
002224 002310 R
002225 014323 A  952          LDA     ENTSC                                                 E.203 00952
002226 005002 A  953          TZB                   READ OPERATION                          E.203 00953
002227 002000 A  954          CALL    LIBIO         READ IN NEW SECTOR                      E.203 00954
002230 002310 R
       002231 R  955 ENT10    EQU     *                                                     E.203 00955
002231 034316 A  956          LDX     ENTWD         WORD LOCATION                           E.203 00956
002232 006015 A  957          LDAE    LIBUF,X       CURRENT VALUE                           E.203 00957
002233 002571 R
002234 054311 A  958          STA     LIBLK+1                                               E.203 00958
002235 014311 A  959          LDA     LIBLK+2       NEW VALUE                               E.203 00959
002236 006027 A  960          LDBE    RETYP         ADDRESS TYPE INDICATOR                  E.203 00960
002237 004277 R
002240 001020 A  961          JBZ     ENT15         IF NOT SPECIFYING AN ADDR               E.203 00961
002241 002250 R
002242 006127 A  962          ADDE    ORGN          IF ADDR, THEN ADD IN LOAD ORIGIN        E.203 00962
002243 003721 R
002244 006147 A  963          SUBE    PM3           ADJUST ADDRESS                          E.203 00963
002245 002511 R
002246 006127 A  964          ADDE    PM2           VALUE                                   E.203 00964
002247 002510 R
       002250 R  965 ENT15    EQU     *                                                     E.203 00965
002250 006055 A  966          STAE    LIBUF,X                                               E.203 00966
002251 002571 R
                 967          IFT     VORTEX-1      SKIP IF VORTEX 2                        E.203 00967
                 968          GOTO    4                                                     E.203 00968
002252 014240 A  969          LDA     PTIDB         MODULE STATUS WORD                      E.203 00969
002253 006411 A  970          BT      RA1+B9,ENT20    JUMP IF A FOREGROUND TASK             E.203 00970
002254 002257 R
002255 001000 A  971          RETU*   ENTER                                                 E.203 00971
002256 102136 R
       002257 R  972 ENT20    EQU     *                                                     E.203 00972
002257 014265 A  973          LDA     LIBLK         CHANGE ADDR                             E.203 00973
002260 006127 A  974          ADDE    ORGN          ADD IN ORGN ADDR                        E.203 00974
002261 003721 R
002262 124155 A  975          ADD     OVSAD         ADD IN OVERLAY START ADDR               E.203 00975
002263 005012 A  976          TAB                   SET CHANGE ADDR FOR CALL                E.203 00976
002264 006017 A  977          LDAE    RETYP         RELO TYPE FLAG (0=NON ADDR, 1=ADDR)     E.203 00977
002265 004277 R
002266 002000 A  978          CALL    RELO          SET/RESET RELO BIT                      E.203 00978
002267 002761 R
                 979 1        CONT                                                          E.203 00979
002270 001000 A  980          RETU*   ENTER                                                 E.203 00980
002271 102136 R
002272 014010 A  981 ENT30    LDA     SEGSZ           NEW SEGMENT SIZE                      E.203 00981
002273 054010 A  982          STA     LIB96         SAVE ORGINAL SEG SIZE FOR ERROR RECOVERYE.203 00982
002274 144250 A  983          SUB     LIBLK           CHANGE ADDR                           E.203 00983
002275 001002 A  984          JAP     ENT01A          IF NOT BEYOND NEW SIZE                E.203 00984
002276 002150 R
002277 014245 A  985          LDA     LIBLK                                                 E.203 00985
002300 054002 A  986          STA     SEGSZ           SET NEW SEGMENT SIZE                  E.203 00986
002301 001000 A  987          JMP     ENT01A                                                E.203 00987
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002302 002150 R
                    988 *                                                                                  03 00988
                    989 *  DATA BLOCK                                                                      03 00989
                    990 *                                                                                  03 00990
002303 000000 A     991 SEGSZ   DATA    0          SEGMENT SIZE                                         E.203 00991
002304 000000 A     992 LIB96   DATA    0        PREVIOUS SEGMENT SIZE                                  E.203 00992
002305 000000 A     993 LIB97   DATA    0          MAX SECTOR NUMBER FOR SEGMENT                        E.203 00993
002306 000000 A     994 LIB98   DATA    0          POINTER TO SEGMENT SIZE                              E.203 00994
002307 000000 A     995 LIB99   DATA    0          SEGMENT SIZE SECTOR                                  E.203 00995
                    996         EJEC                                                                   03 00996
                    997 ********************************************************************************  03 00997
                    998 *                                                                                E.203 00998
                    999 *       SUBROUTINE--LIBIO  (PERFORM I/O)                                         E.203 00999
                   1000 *                                                                                E.203 01000
                   1001 *       PURPOSE--TO PERFORM I/O OPERATIONS ON THE SPECIFIED                       E.203 01001
                   1002 *                LUN AND FILE GIVEN THE OPERATION CODE AND RECORD                 E.203 01002
                   1003 *                NUMBER                                                          E.203 01003
                   1004 *                                                                                E.203 01004
                   1005 *       CALLING SEQUENCE                                                         E.203 01005
                   1006 *       LDA     RECORD NUMBER                                                    E.203 01006
                   1007 *       LDB     I/O OPERATION CODE  (BITS 11-8)                                  E.203 01007
                   1008 *       CALL    LIBIO                                                            E.203 01008
                   1009 *                                                                                E.203 01009
                   1010 *       RETURNS TO CALLER UPON COMPLETION OR TO ERROR ROUTINE IF AN              E.203 01010
                   1011 *       I/O ERROR OCCURS.                                                        E.203 01011
                   1012 *                                                                                E.203 01012
                   1013 ********************************************************************************  03 01013
002310 000000 A    1015 LIBIO  ENTR                                                                      E.203 01015
002311 005014 A    1016        TAX                                                                       E.203 01016
002312 140421 A    1017        SUB     ONE             BEGINNING OF FILE                                 E.203 01017
002313 001004 A    1018        JAN     LIOER           ERROR IS AHEAD OF FILE                            E.203 01018
002314 002100 R
002315 005041 A    1019        TXA                                                                       E.203 01019
002316 144214 A    1020        SUB     LIFCB+4         ENDING FILE ADDR                                  E.203 01020
002317 001002 A    1021        JAP     LIOER           ERROR IF BEYOND FILE                              E.203 01021
002320 002100 R
002321 005041 A    1022        TXA                                                                       E.203 01022
002322 054207 A    1023        STA     LIFCB+3         SET RECORD NUMBER                                 E.203 01023
002323 014007 A    1024        LDA     LIB20+3                                                           E.203 01024
002324 006150 A    1025        ANAI    0170377         CLEAR OPCODE                                      E.203 01025
002325 170377 A
002326 005031 A    1026        MERGE   031                                                               E.203 01026
002327 054003 A    1027        STA     LIB20+3         SET NEW OPCODE                                    E.203 01027
       002330 R    1028 LIB20  EQU     *                                                                 E.203 01028
                   1029 LIO20  READ    LIFCB,0,0,0     PERFORM I/O OPERATION                             E.203 01029
002330 006505 A
002331 002033 E
002332 100000 A
002333 000000 A
002334 002527 R
002335 000000 A
002336 000000 A
                   1030        STAT    LIO20,LIER,LIER,LIER,*                                            E.203 01030
002337 006505 A
002340 001743 E
002341 002330 R
002342 002112 R
002343 002112 R
002344 002112 R
002345 002337 R
002346 001000 A    1031        RETU*   LIBIO                                                             E.203 01031
002347 102310 R
                   1032        EJEC                                                                      E.203 01032
                   1033 ********************************************************************************  03 01033
                   1034 *                                                                                E.203 01034
                   1035 *       SUBROUTINE--OVSRCH  (SEARCH OVERLAY DIRECTORY)                           E.203 01035
                   1036 *                                                                                E.203 01036
                   1037 *       PURPOSE--TO SEARCH AN OVERLAY DIRECTORY FOR A SPECIFIED                  E.203 01037
                   1038 *                OVERLAY                                                         E.203 01038
                   1039 *                                                                                E.203 01039
                   1040 *       CALLING SEQUENCE                                                         E.203 01040
                   1041 *       LDA     OVERLAY DIRECTORY SECTOR NUMBER                                  E.203 01041
                   1042 *       CALL    OVSRCH                                                           E.203 01042
                   1043 *                                                                                E.203 01043
                   1044 *       RETURNS TO CALLER WITH                                                   E.203 01044
                   1045 *       (A) = 0 IF NAME NOT FOUND                                                E.203 01045
                   1046 *       (A) = POINTER TO DIRECTORY ENTRY IF OVERLAY FOUND                        E.203 01046
                   1047 *                                                                                E.203 01047
                   1048 ********************************************************************************  03 01048
002350 000000 A    1050 OVSRCH ENTR                                                                      E.203 01050
002351 005002 A    1051        TZB                                                                       E.203 01051
002352 002000 A    1052        CALL    LIBIO           READ IN OVERLAY DIRECTORY SECTOR                  E.203 01052
002353 002310 R
002354 005001 A    1053        TZA                                                                       E.203 01053
002355 024135 A    1054        LDB     PTIDB           MODULE STATUS WORD                                E.203 01054
002356 006431 A    1055        BT      RB1+B9,OVS10-1  IF FOREGROUND TASK                                E.203 01055
002357 002362 R
002360 006120 A    1056        ADDI    72              DISPLACE PAST LITERAL POOL                        E.203 01056
002361 000110 A
002362 120467 A    1057        ADD     SEVEN           DISPLACE PAST ROOT SEGMENT ENTRY                  E.203 01057
002363 005014 A    1058 OVS10  TAX                                                                       E.203 01058
002364 006015 A    1059        LDAE    LIBUF-6,X                                                         E.203 01059
002365 002563 R
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002366 054051 A 1060          STA     OVSAD           SAVE OVERLAY LOAD ADDR                          E.203 01060
002367 006015 A 1061 OVS20    LDAE    LIBUF,X         OVERLAY NAME                                    E.203 01061
002370 002571 R
002371 001010 A 1062          JAZ     OVS40           IFEND OF OVERLAY DIRECTORY                      E.203 01062
002372 002435 R
002373 134124 A 1063          ERA     LIOVLY          TARGET NAME                                     E.203 01063
002374 001016 A 1064          JANZ    OVS30           IF NOT A MATCH                                  E.203 01064
002375 002415 R
002376 006015 A 1065          LDAE    LIBUF+1,X                                                       E.203 01065
002377 002572 R
002400 134120 A 1066          ERA     LIOVLY+1                                                        E.203 01066
002401 001016 A 1067          JANZ    OVS30           IF NOT A MATCH                                  E.203 01067
002402 002415 R
002403 006015 A 1068          LDAE    LIBUF+2,X                                                       E.203 01068
002404 002573 R
002405 134114 A 1069          ERA     LIOVLY+2                                                        E.203 01069
002406 001016 A 1070          JANZ    OVS30           IF NOT A MATCH                                  E.203 01070
002407 002415 R
002410 005041 A 1071          TXA                                                                     E.203 01071
002411 006120 A 1072          ADDI    LIBUF                                                           E.203 01072
002412 002571 R
002413 001000 A 1073          RETU*   OVSRCH          MATCH FOUND                                     E.203 01073
002414 102350 R
002415 005041 A 1074 OVS30    TXA                                                                     E.203 01074
002416 120467 A 1075          ADD     SEVEN           POINT TO NEXT ENTRY                             E.203 01075
002417 005014 A 1076          TAX                                                                     E.203 01076
002420 006140 A 1077          SUBI    120             CHECK IF END OF SECTOR                          E.203 01077
002421 000170 A
002422 001004 A 1078          JAN     OVS20                                                           E.203 01078
002423 002367 R
002424 054006 A 1079          STA     OVS35+1         SAVE DISPLACEMENT                               E.203 01079
002425 014104 A 1080          LDA     LIFCB+3                                                         E.203 01080
002426 005111 A 1081          IAR                     SET FOR NEXT RECORD READ                        E.203 01081
002427 005002 A 1082          TZB                                                                     E.203 01082
002430 002000 A 1083          CALL    LIBIO           READ IN NEXT DIRECTORY SECTOR                   E.203 01083
002431 002310 R
002432 005001 A 1084 OVS35    TZA                                                                     E.203 01084
002433 001000 A 1085          JMP     OVS20           CONTINUE DIRECORY SEARCH                        E.203 01085
002434 002367 R
002435 005004 A 1086 OVS40    TZX                                                                     E.203 01086
002436 001000 A 1087          RETU*   OVSRCH          RETURN WITH OVERLAY NOT FOUND                   E.203 01087
002437 102350 R
002440 000000 A 1088 OVSAD    DATA    0               OVERLAY LOAD ADDR                               E.203 01088
               1089           EJEC                                                                    E.203 01089
               1090 ***************************************************************************      03 01090
               1091 *                                                                                 E.203 01091
               1092 *       SUBROUTINE--ADCAL  (CALCULATE ADDR PARAMS)                                E.203 01092
               1093 *                                                                                 E.203 01093
               1094 *       PURPOSE--TO CALCULATE THE PARAMETERS USED TO LOCATE THE                   E.203 01094
               1095 *                SPECIFIED ADDR ON THE DISC SECTOR. FACTORS INVOLVED              E.203 01095
               1096 *                INCLUDE: FG/BG, OVERLAY/NO OVERLAY, ROOT/OVERLAY                 E.203 01096
               1097 *                                                                                 E.203 01097
               1098 *       CALLING SEQUENCE                                                          E.203 01098
               1099 *       CALL    ADCAL                                                             E.203 01099
               1100 *                                                                                 E.203 01100
               1101 *       RETURNS TO CALLER WITH:                                                   E.203 01101
               1102 *                PM1=TASK LOAD ADDR  (=0 IF V1 FG OR V1/V2 OVLY)                    03 01102
               1103 *                PM2=01000 FOR ROOT SEG, =0 FOR OVERLAY SEG                       E.203 01103
               1104 *                PM3=0300 FOR BACKGROUND, =0 FOR FOREGROUND                       E.203 01104
               1105 *                PM4=0 FOR ROOT SEG, OVLY START - OVLY LOAD FOR OVLY              E.203 01105
               1106 *                                                                                 E.203 01106
               1107 ***************************************************************************      03 01107
002441 000000 A 1109 ADCAL    ENTR                                                                    E.203 01109
002442 005001 A 1110          TZA                                                                     E.203 01110
002443 054043 A 1111          STA     PM1             CLEAR                                           E.203 01111
002444 054043 A 1112          STA     PM2             ALL                                             E.203 01112
002445 054043 A 1113          STA     PM3             ADDRESS                                         E.203 01113
002446 054043 A 1114          STA     PM4             PARAMETERS                                      E.203 01114
002447 006057 A 1115          STAE    OVSAD                                                           E.203 01115
002450 002440 R
               1116 * FORM PM1 PARAMETER                                                              E.203 01116
002451 006020 A 1117          LDBI    PTIDB                                                           E.203 01117
002452 002513 R
002453 014067 A 1118          LDA     PTSTS           STATUS WORD                                     E.203 01118
               1119           IFF     VORTEX-1        SKIP NEXT INST IF V2                            E.203 01119
002454 006411 A 1120          BT      RA1+B9,ADC20      SKIP IF FOREGROUND MODULE                     E.203 01120
002455 002476 R
002456 010432 A 1121          LDA     BS9             TASK LOAD ADDR                                  E.203 01121
002457 054027 A 1122          STA     PM1                                                             E.203 01122
               1123 * FORM PM2 PARAMETER                                                              E.203 01123
               1124           IFT     VORTEX-1        SKIP IF VORTEX 2                                E.203 01124
               1125           GOTO    1                                                               E.203 01125
002460 016000 A 1126          LDA     0,B                                                             E.203 01126
002461 006411 A 1127          BT      RA1+B9,ADC20      SKIP IF A FOREGROUND MODULE                   E.203 01127
002462 002476 R
               1128 1         CONT                                                                    E.203 01128
002463 010432 A 1129          LDA     BS9             01000                                           E.203 01129
002464 054023 A 1130          STA     PM2                                                             E.203 01130
               1131 * FORM PM3 PARAMETER                                                              E.203 01131
002465 016000 A 1132 ADC10    LDA     0,B             PSUEDO TIDB STATUS                              E.203 01132
002466 006411 A 1133          BT      RA1+B9,ADC20    IF FOREGROUND TASK, SKIP                        E.203 01133
002467 002476 R
002470 014052 A 1134          LDA     PTSTS           STATUS WORD                                     E.203 01134
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002471 006400 A 1135          BT      RA1+B0,ADC20  SKIP IF PROCESSING AN OVERLAY          E.203 01135
002472 002476 R
002473 006010 A 1136          LDAI    0300          LITERAL POOL SIZE                       E.203 01136
002474 000300 A
002475 054013 A 1137          STA     PM3                                                   E.203 01137
               1138 * FORM PM4 ;PARAMETER                                                   E.203 01138
002476 014044 A 1139 ADC20    LDA     PTSTS         STATUS WORD                             E.203 01139
002477 006440 A 1140          BT      RA0+B0,ADC30  SKIP IF NOT PROCESSING AN OVERLAY       E.203 01140
002500 002505 R
002501 014023 A 1141          LDA     LIOVLY+5      OVERLAY START LOCATION                  E.203 01141
002502 006147 A 1142          SURE    OVSAD         SUBTRACT OVERLAY LOAD ADDR              E.203 01142
002503 002440 R
002504 054005 A 1143          STA     PM4                                                   E.203 01143
002505 001000 A 1144 ADC30    RETU*   ADCAL                                                 E.203 01144
002506 102441 R
               1145 *                                                                       E.203 01145
               1146 * ADDR CALC PARAM BLK                                                   E.203 01146
               1147 *                                                                       E.203 01147
002507 000000 A 1148 PM1      DATA    0                                                     E.203 01148
002510 000000 A 1149 PM2      DATA    0                                                     E.203 01149
002511 000000 A 1150 PM3      DATA    0                                                     E.203 01150
002512 000000 A 1151 PM4      DATA    0                                                     E.203 01151
               1152 *                                                                       E.203 01152
               1153 *        LIBR DATA BLOCK                                               E.203 01153
               1154 *                                                                       E.203 01154
002513         1155 PTIDB    BSS     5             FIRST 5 WORDS OF PSUEDO TIDB            E.203 01155
002520         1156 LIOVLY   BSS     7             OVERLAY DIRECTORY IN FO                 E.203 01156
               1157 LIFCB    FCB     120,LIBUF,0,0,'XX','XX','XX'                          E.203 01157
002527 000170 A
002530 002571 R
002531 000000 A
002532 000000 A
002533 000000 A
002534 000000 A
002535 000000 A
002536 154330 A
002537 154330 A
002540 154330 A
002541 000254 A 1158 TRBLK    DATA    0254,0        TERMINATION CHARACTER BLOCK             E.203 01158
002542 000000 A
002543 000000 A 1159 PTSTS    DATA    0             PATCH STATUS                            E.203 01159
002544 120240 A 1160 DBLNK    DATA    '  '          TWO ASCII BLANKS                        E.203 01160
002545 000000 A 1161 LIBLK    DATA    0             CHANGE ADDR                             E.203 01161
002546 000000 A 1162          DATA    0             ORIGINAL CONTENTS                       E.203 01162
002547 000000 A 1163          DATA    0             NEW CONTENTS                            E.203 01163
002550 000000 A 1164 ENTWD    DATA    0             WORD POINTER                            E.203 01164
002551 000000 A 1165 ENTSC    DATA    0             SECTOR NUMBER                           E.203 01165
               1166 LIDCB    DCB     12,LIREQ                                              E.203 01166
002552 000014 A
002553 002555 R
002554 000000 A
002555 120314 A 1167 LIREQ    DATA    ' LUN,KEY,FILENAME,OVLAY '                            E.203 01167
002556 152716 A
002557 126316 A
002560 142731 A
002561 126306 A
002562 144714 A
002563 142716 A
002564 140715 A
002565 142654 A
002566 147726 A
002567 146301 A
002570 154640 A
002571         1168 LIBUF    BSS     120           LIBRARY SECTOR IMAGE                    E.203 01168
               1169          EJEC                                                          E.203 01169
               1170          IFT     VORTEX-1      SKIP IF VORTEX 2                        E.203 01170
               1171          GOTO    :                                                     E.203 01171
               1172 ********************************************************************** E.203 01172
               1173 *                                                                      E.203 01173
               1174 *        SUBROUTINE--RELO  (UPDATE RELOCATION FILE)                    E.203 01174
               1175 *                                                                      E.203 01175
               1176 *        PURPOSE--TO SET OR RESET THE RELOCATION BIT CORRESPONDING      E.203 01176
               1177 *                 TO THE CHANGE ADDR.                                  E.203 01177
               1178 *                                                                      E.203 01178
               1179 *        IF A RELOCATION BIT EXITS FOR A CHANGE ADDR THAT BIT IS       E.203 01179
               1180 *        SET OR RESET ACCORDINGLY.                                     E.203 01180
               1181 *        IF A RELOCATION BIT DOES NOT EXIST FOR A CHANGE ADDR THE      E.203 01181
               1182 *        RELOCATION FILE IS UPDATED TO INCLUDE THE RELOCATION BIT.     E.203 01182
               1183 *        NEW RELOCATION INFORMATION IS ADDED TO THE END OF THE         E.203 01183
               1184 *        RELOCATION FILE IF THERE IS ROOM                              E.203 01184
               1185 *        SHOULD A CHANGE IN RELOCATION INFORMATION CAUSE A RELOCATION  E.203 01185
               1186 *        FILE OVERFLOW, A PT08 DIAGNOSTIC IS OUTPUT AND THE ROUTINE    E.203 01186
               1187 *        RETURNS TO THE CALLER.                                        E.203 01187
               1188 *                                                                      E.203 01188
               1189 *        THIS ROUTINE IS USED ONLY BY VORTEX FOREGROUND LIBRARY FILES  E.203 01189
               1190 *                                                                      E.203 01190
               1191 *        CALLING SEQUENCE                                              E.203 01191
               1192 *        LDA     TYPE INDICATOR  (0 FOR RESET, 1 FOR SET)              E.203 01192
               1193 *        LDB     CHANGE ADDR  (INCLUDING ORGN)                         E.203 01193
               1194 *        CALL    RELO                                                  E.203 01194
               1195 *                                                                      E.203 01195
               1196 *        RETURNS TO CALLER UPON COMPLETION OR AN ERROR                 E.203 01196
               1197 *                                                                      E.203 01197
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                    1198 ************************************************************                03 01198
002761 000000 A     1200 RELO    ENTR                                                      E.203 01200
002762 054214 A     1201         STA     REL90          TYPE INDICATUR                     E.203 01201
002763 064214 A     1202         STB     REL91          CHANGE ADDR                        E.203 01202
002764 005001 A     1203 REL05   TZA                    SET FOR READ OPERATION             E.203 01203
002765 002000 A     1204         CALL    REID           READ IN RELO SECTOR                E.203 01204
002766 003150 R
002767 005005 A     1205         ZERO    05             CLEAR X AND A                      E.203 01205
002770 006140 A     1206 REL10   SUBI    120                                               E.203 01206
002771 000170 A
002772 001002 A     1207         JAP     REL50          IF END OF SECTOR                   E.203 01207
002773 003053 R
002774 006015 A     1208         LDAE    REBUF,X        RELO FILE ENTRY                    E.203 01208
002775 003214 R
002776 001002 A     1209         JAP     REL55          IF NOT A RELO ADDR                 E.203 01209
002777 003056 R
003000 005012 A     1210         TAB                                                       E.203 01210
003001 150460 A     1211         ANA     BR15                                              E.203 01211
003002 001010 A     1212         JAZ     REL65          IF END OF RTELO FILE FOUN          E.203 01212
003003 003106 R
003004 005223 A     1213         COMP    023                                               E.203 01213
003005 054173 A     1214         STA     REL92                                             E.203 01214
003006 144171 A     1215 REL15   SUB     REL91          CHANGE ADDR                        E.203 01215
003007 001010 A     1216         JAZ     *+4            IF WITHIN RANGE                    E.203 01216
003010 003013 R
003011 001002 A     1217         JAP     REL60          IF RELO ADDR IS GT CHANGE ADDR     E.203 01217
003012 003065 R
003013 005021 A     1218         TBA                                                       E.203 01218
003014 006120 A     1219         ADDI    14             SET RELO ADDR+14                   E.203 01219
003015 000016 A
003016 144161 A     1220         SUB     REL91          CHANGE ADDR                        E.203 01220
003017 001004 A     1221         JAN     REL70          IF CHANGE ADDR IS GT RELO ADDR+14  E.203 01221
003020 003136 R
003021 005144 A     1222 REL20   IXR                                                       E.203 01222
003022 014155 A     1223         LDA     REL91          CHANGE ADDR                        E.203 01223
003023 144155 A     1224         SUB     REL92          RELO ADDR                          E.203 01224
003024 054003 A     1225         STA     REL21+1                                           E.203 01225
003025 006010 A     1226         LDAI    14                                                E.203 01226
003026 000016 A
003027 006140 A     1227 REL21   SUBI    0              SET UP RELO BIT POINTER            E.203 01227
003030 000000 A
003031 005012 A     1228         TAB                                                       E.203 01228
003032 006015 A     1229         LDAE    REBUF,X        RELO BITS                          E.203 01229
003033 003214 R
003034 156441 A     1230         ANA     0441,B         CLEAR BIT FOR CHANGE ADDR          E.203 01230
003035 064004 A     1231         STB     REL35+1        SAVE RELO BIT POINTER              E.203 01231
003036 024140 A     1232         LDB     REL90          TYPE INDICATUR                     E.203 01232
003037 001020 A     1233         JBZ     REL40          IF RESET OPERATION                 E.203 01233
003040 003044 R
003041 006020 A     1234 REL35   LDBI    0              RELO BIT POINTER                   E.203 01234
003042 000000 A
003043 136421 A     1235         ERA     0421,B         SET BIT FOR CHANGE ADDR            E.203 01235
003044 006055 A     1236 REL40   STAE    REBUF,X        PUT RELO BITS BACK INTO RELO FILE  E.203 01236
003045 003214 R
003046 010431 A     1237         LDA     BS8            WRITE OPERATION                    E.203 01237
003047 002000 A     1238         CALL    REID           PERFORM WRITE                      E.203 01238
003050 003150 R
003051 001000 A     1239         RETUM   RELO           RETURN                             E.203 01239
003052 102761 R
003053 044131 A     1240 REL50   INR     REFCB+3        SET TO NEXT RELO SECTOR            E.203 01240
003054 001000 A     1241         JMP     REL05                                             E.203 01241
003055 002764 R
003056 014122 A     1242 REL55   LDA     REL92          CURRENT RELO ADDR                  E.203 01242
003057 006120 A     1243         ADDI    15                                                E.203 01243
003060 000017 A
003061 054117 A     1244         STA     REL92          SET CURRENT RELO ADDR FOR NEXT 15 WDS  E.203 01244
003062 005012 A     1245         TAB                                                       E.203 01245
003063 001000 A     1246         JMP     REL15                                             E.203 01246
003064 003006 R
003065 005041 A     1247 REL60   TXA                                                       E.203 01247
003066 006140 A     1248         SUBI    120                                               E.203 01248
003067 000170 A
003070 001002 A     1249         JAP     REL75          IF AT END OF SECTOR                E.203 01249
003071 003141 R
003072 005144 A     1250         IXR                                                       E.203 01250
003073 006015 A     1251         LDAE    REBUF,X                                           E.203 01251
003074 003214 R
003075 001002 A     1252         JAP     REL60          LOOP IF NOT RELO ADDR              E.203 01252
003076 003065 R
003077 005012 A     1253         TAB                                                       E.203 01253
003100 150460 A     1254         ANA     BR15                                              E.203 01254
003101 001010 A     1255         JAZ     REL65          IF END OF RELO FILE INDICATOR      E.203 01255
003102 003106 R
003103 005223 A     1256         COMPL   023            CONVERT RELO ADDR                  E.203 01256
003104 001000 A     1257         JMP     REL15-1        CHECK THIS RELO ADDR               E.203 01257
003105 003005 R
003106 005041 A     1258 REL65   TXA                                                       E.203 01258
003107 006140 A     1259         SUBI    117                                               E.203 01259
003110 000165 A
003111 001002 A     1260         JAP     REL68          IF NO ROOM FOR RELO BITS           E.203 01260
003112 003131 R
003113 014064 A     1261         LDA     REL91          CHANGE ADDR                        E.203 01261
003114 005012 A     1262         TAB                                                       E.203 01262
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003115 005211 A 1263          CPA                                                    E.203 01263
003116 006055 A 1264          STAE    REBUF,X       SET NEW RELO ADDR                E.203 01264
003117 003214 R
003120 064060 A 1265          STB     REL92         UPDATE NEW RELO ADDR CELL        E.203 01265
003121 005001 A 1266          TZA                                                    E.203 01266
003122 006055 A 1267          STAE    REBUF+1,X     SET ZERO WORD FOR RELO BITS      E.203 01267
003123 003215 R
003124 130440 A 1268          ERA     BS15                                           E.203 01268
003125 006055 A 1269          STAE    REBUF+2,X     SET NEW END OF RELO FILE INDICATOR E.203 01269
003126 003216 R
003127 001000 A 1270          JMP     REL20         GO SET/RESET RELO BIT            E.203 01270
003130 003021 R
003131 002000 A 1271 REL68    CALL    RECOV,LIBR,LIB11,8     POST 'NO ROOM ' ERROR   E.203 01271
003132 000326 R
003133 001360 R
003134 001376 R
003135 000010 A
               1272 *                                                                E.203 01272
003136 005145 A 1273 REL70    INCR    045           SET FOR NEXT ENTRY               E.203 01273
003137 001000 A 1274          JMP     REL10                                          E.203 01274
003140 002770 R
003141 044043 A 1275 REL75    INR     REFCB+3       SET FOR NEXT RELO SECTOR         E.203 01275
003142 005001 A 1276          TZA                                                    E.203 01276
003143 002000 A 1277          CALL    REID          READIN NEXT RELO SECTOR          E.203 01277
003144 003150 R
003145 005004 A 1278          TZX                                                    E.203 01278
003146 001000 A 1279          JMP     REL60         CONTINUE SEARCH FOR END          E.203 01279
003147 003065 R
               1280           EJEC                                                  E.203 01280
               1281 ********************************************************************** 03 01281
               1282 *                                                               E.203 01282
               1283 *      SUBROUTINE--REID  (RELO I/O ROUTINE)                     E.203 01283
               1284 *                                                               E.203 01284
               1285 *      PURPOSE--TO PERFORM I/O OPERATIONS ON THE SPECIFIED LUN   E.203 01285
               1286 *               AND FILE GIVEN THE OPERATION CODE               E.203 01286
               1287 *                                                               E.203 01287
               1288 *      CALLING SEQUENCE                                         E.203 01288
               1289 *      LDA     I/O OPERATION CODE (BITS 11-8)                   E.203 01289
               1290 *      CALL    REID                                             E.203 01290
               1291 *                                                               E.203 01291
               1292 ********************************************************************** 03 01292
003150 000000 A 1294 REID     ENTR                                                   E.2 3 01294
003151 005012 A 1295          TAB             I/O CODE                               E.203 01295
003152 014007 A 1296          LDA     RE10+3                                         E.203 01296
003153 006150 A 1297          ANAI    0170377       CLEAR OPCODE                     E.203 01297
003154 170377 A
003155 005031 A 1298          MERGE   031                                            E.203 01298
003156 054002 A 1299          STA     RE10+3        SET NEW OPCODE                   E.203 01299
               1300 RE10     READ    REFCB,0,0,0   PERFORM I/O OPERATION            E.203 01300
003157 006505 A
003160 002331 E
003161 100000 A
003162 000000 A
003163 003202 R
003164 000000 A
003165 000000 A
               1301           STAT    RE10,REL68,REL68,REL68,*                      E.203 01301
003166 006505 A
003167 002340 E
003170 003157 R
003171 003131 R
003172 003131 R
003173 003131 R
003174 003166 R
003175 001000 A 1302          RETU*   REID                                           E.203 01302
003176 103150 R
               1303 *                                                                E.203 01303
               1304 * RELO DATA BLOCK                                                E.203 01304
               1305 *                                                                E.203 01305
003177 000000 A 1306 REL90    DATA    0             TYPE INDICATOR (0=RESET, 1=SET)  E.203 01306
003200 000000 A 1307 REL91    DATA    0             CHANGE ADDR                      E.203 01307
003201 000000 A 1308 REL92    DATA    0             CURRENT RELO ADDR                E.203 01308
               1309 REFCB    FCB     120,REBUF,0,0,'XX','XX','XX'                   E.203 01309
003202 000170 A
003203 003214 R
003204 000000 A
003205 000000 A
003206 000000 A
003207 000000 A
003210 000000 A
003211 154330 A
003212 154330 A
003213 154330 A
003214         1310 REBUF    BSS     120           RELO FILE BUFFER                 E.203 01310
               1311 1        CONT                                                   E.203 01311
               1312          EJEC                                                     03 01312
               1313 ********************************************************************** 03 01313
               1314 *                                                                03 01314
               1315 *      SUBROUTINE--DIREC  (IDENTIFY DIRECTIVE)                  03 01315
               1316 *                                                                03 01316
               1317 *      PURPOSE--TO IDENTIFY THE PATCH DIRECTIVE AND FETCH THE   03 01317
               1318 *               SERVICE ROUTINE ADDR                             03 01318
               1319 *                                                                03 01319
```

```
                    1320 *       CALLING SEQUENCE                                                                03 01320
                    1321 *       LDA     XX              WHERE XX POINTS TO THE SERVICE ROUTINE                  03 01321
                    1322 *       CALL    DIREC           ADDR BLOCK                                              03 01322
                    1323 *                                                                                       03 01323
                    1324 *       RETURNS TO CALLER WITH:                                                         03 01324
                    1325 *       A REG CONTAINING SERVICE ROUTINE ADDR, -1 IF DIR NOT FOUND                      03 01325
                    1326 *                                                                                       03 01326
                    1327 ********************************************************************************       03 01327
003404 000000 A     1329 DIREC   ENTR                                                                            03 01329
003405 054025 A     1330         STA     DITMP                                                                   03 01330
003406 005002 A     1331         TZB                                                                             03 01331
003407 006016 A     1332 DI10    LDAE    DIR,2                                                                   03 01332
003410 003434 R
003411 001010 A     1333         JAZ     DI50            IF END OF DIRECTIVE LIST                                03 01333
003412 003430 R
003413 006137 A     1334         ERAE    INBUF                                                                   03 01334
003414 004765 R
003415 001016 A     1335         JANZ    DI20            IF NO MATCH                                             03 01335
003416 003425 R
003417 005021 A     1336         TBA                     TABLE INDEX                                             03 01336
003420 124012 A     1337         ADD     DITMP           START OF SERVICE ROUTINE TABLE                          03 01337
003421 005012 A     1338         TAB                                                                             03 01338
003422 016000 A     1339         LDA     0,2             SERVICE ROUTINE ADDR                                    03 01339
003423 001000 A     1340         RETU*   DIREC                                                                   03 01340
003424 103404 R
003425 005122 A     1341 DI20    IBR                                                                             03 01341
003426 001000 A     1342         JMP     DI10            CONTINUE SEARCH                                         03 01342
003427 003407 R
003430 005311 A     1343 DI50    DAR                     SET DIR NOT FOUND                                       03 01343
003431 001000 A     1344         RETU*   DIREC                                                                   03 01344
003432 103404 R
003433 000000 A     1345 DITMP   DATA    0                                                                       03 01345
003434 127320 A     1346 DIR     DATA    '.P'            PTCH DIR                                                03 01346
003435 127304 A     1347         DATA    '.D'            DUMP DIR                                                03 01347
003436 127305 A     1348         DATA    '.E'            EXIT DIR                                                03 01348
003437 127310 A     1349         DATA    '.H'            HIST DIR                                                03 01349
003440 127301 A     1350         DATA    '.A'            APND DIRECTIVE                                          03 01350
003441 127314 A     1351         DATA    '.L'            LIBR DIRECTIVE                                E.2       03 01351
003442 127302 A     1352         DATA    '.B'            BASE DIRECTIVE                                E.2       03 01352
003443 000000 A     1353         DATA    0               END OF TABLE                                            03 01353
                    1354         EJEC                                                                            03 01354
                    1355 ********************************************************************************       03 01355
                    1356 *                                                                                       03 01356
                    1357 *       SUBROUTINE--IMAGE  (MAKE ENTRY TO PATCH IMAGE)                                  03 01357
                    1358 *                                                                                       03 01358
                    1359 *       CALLING SEQUENCE                                                                03 01359
                    1360 *       CALL    IMAGE                                                                   03 01360
                    1361 *               IMCNT CONTAINS CURRENT POINTER INTO IMBUF                                03 01361
                    1362 *               PTADR BLOCK CONTAINS 3 WORD ENTRY                                       03 01362
                    1363 *                                                                                       03 01363
                    1364 *       RETURNS TO CALLER WITH:                                                         03 01364
                    1365 *               PTADR INCREMENTED                                                       03 01365
                    1366 *       IMCNT   UPDATED BY 3                                                            03 01366
                    1367 *                                                                                       03 01367
                    1368 ********************************************************************************       03 01368
003444 000000 A     1370 IMAGE   ENTR                                                                            03 01370
003445 034025 A     1371         LDX     IMCNT           BUFFER POINTER                                          03 01371
003446 006020 A     1372         LDBI    PTADR           ENTRY BLOCK ADDR                                        03 01372
003447 003470 R
003450 016000 A     1373         LDA     0,2                                                                     03 01373
003451 006055 A     1374         STAE    IMBUF,1                                                                 03 01374
003452 005225 R
003453 016001 A     1375         LDA     1,2                                                                     03 01375
003454 005144 A     1376         IXR                                                                             03 01376
003455 006055 A     1377         STAE    IMBUF,1                                                                 03 01377
003456 005225 R
003457 016002 A     1378         LDA     2,2                                                                     03 01378
003460 005144 A     1379         IXR                                                                             03 01379
003461 006055 A     1380         STAE    IMBUF,1                                                                 03 01380
003462 005225 R
003463 005144 A     1381         IXR                                                                             03 01381
003464 074006 A     1382         STX     IMCNT           SET FOR NEXT ENTRY                                      03 01382
003465 044002 A     1383         INR     PTADR           SET FOR NEXT ADDR                                       03 01383
003466 001000 A     1384         RETU*   IMAGE                                                                   03 01384
003467 103444 R
003470 000000 A     1385 PTADR   DATA    0,0,0           PATCH IMAGE ENTRY BLOCK                                 03 01385
003471 000000 A
003472 000000 A
003473 000000 A     1386 IMCNT   DATA    0               IMAGE ENTRY POINTER                                     03 01386
                    1387         EJEC                                                                            03 01387
                    1388 ********************************************************************************       03 01388
                    1389 *                                                                                       03 01389
                    1390 *       SUBROUTINE--FETCH  (FETCH AN ITEM)                                              03 01390
                    1391 *                                                                                       03 01391
                    1392 *       PURPOSE--TO FETCH AN ITEM FROM A BUFFER                                         03 01392
                    1393 *                                                                                       03 01393
                    1394 *       CALLING SEQUENCE                                                                03 01394
                    1395 *       CALL    FETCH                                                                   03 01395
                    1396 *               DATA  NULL FIELD SERVICE ADDRESS                                        03 01396
                    1397 *               DATA  END OF RECORD SERVICE ADDRESS                                     03 01397
                    1398 *               DATA  INVALID ITEM SERVICE ADDR                               E.2       03 01398
                    1399 *               LOCATION BUFPT CONTAINS THE BUFFER POINTER                               03 01399
                    1400 *               COMPL--LEFT BYTE,  POS--RIGHT BYTE                                      03 01400
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                    1401 *                                                                  03 01401
                    1402 *       RETURNS TO CALLER WITH:                                    03 01402
                    1403 *               IF NULL FIELD, TO NULL FIELD SERVICE ADDR           03 01403
                    1404 *               IF END OF RECORD, TO END OF RECORD SERVICE ADDR     03 01404
                    1405 *               IF INVALID ITEM, TO INVALID ITEM SERVICE ADDR   E.203 01405
                    1406 *               IF VALID VLAUE, A+VLAUE                            03 01406
                    1407 *               BUFPT POINTING TO NEXT AVAILABLE BYTE              03 01407
                    1408 *                                                                  03 01408
                    1409 ***************************************************************** 03 01409
    003474  R       1411 FET05   EQU     *                                                  03 01411
003474  005001  A   1412         TZA                                                        03 01412
003475  054601  A   1413         STA     RETYP                                          E.203 01413
003476  054221  A   1414         STA     VALUE           CLEAR VALUE                        03 01414
003477  054216  A   1415         STA     PVTRM           CLEAR PREVIOUS TERMINATOR INDICATOR03 01415
003500  054466  A   1416 FET10   STA     COUNT           CLEAR CHAR COUNT                   03 01416
003501  002000  A   1417         CALL    SCAN            SCAN UNTIL TERMINATOR              03 01417
003502  003722  R
003503  005012  A   1418         TAB                                                        03 01418
003504  006140  A   1419         SUBI    ' '                                                03 01419
003505  000240  A
003506  001010  A   1420         JAZ     FET70           IF BLANK TERM, CHECK IF NULL RECORD 03 01420
003507  003667  R
003510  006140  A   1421         SUBI    ',''-' '                                           03 01421
003511  000014  A
003512  001010  A   1422         JAZ     FET20           IF COMMA TERM                      03 01422
003513  003526  R
003514  006140  A   1423         SUBI    '+''-',''                                          03 01423
003515  177777  A
003516  001010  A   1424         JAZ     FET50           IF ADDITION EXPRESSION             03 01424
003517  003653  R
003520  006140  A   1425         SUBI    '-''-''+'                                          03 01425
003521  000002  A
003522  001010  A   1426         JAZ     FET51           IF SUBTRACTION EXPRESSION          03 01426
003523  003661  R
003524  001000  A   1427         JMP     FETER           IF INVALID ITEM                E.203 01427
003525  003701  R
    003526  P   1428 FET20   EQU     *                                                  03 01428
003526  005111  A   1429         IAR                                                        03 01429
003527  054167  A   1430         STA     TERM            SET END OF EXPRESSION              03 01430
003530  014436  A   1431         LDA     COUNT                                              03 01431
003531  001016  A   1432         JANZ    FET25           IF NOT A NULL FIELD                03 01432
003532  003540  R
003533  024157  A   1433         LDB     FETCH           NULL FIELD SERVICE ADDR            03 01433
003534  016000  A   1434         LDA     0,2                                                03 01434
003535  054155  A   1435         STA     FETCH                                              03 01435
003536  001000  A   1436         RETU*   FETCH                                              03 01436
003537  103713  R
003540  006030  A   1437 FET25   LDXI    ITBUF                                              03 01437
003541  004565  R
003542  006140  A   1438         SUBI    7                                                  03 01438
003543  000007  A
003544  001002  A   1439         JAP     FETER           IF MORE THAN SIX CHAR          E.203 01439
003545  003701  R
003546  005244  A   1440         CPX                     SET FOR LEFT BYTE                  03 01440
003547  002000  A   1441         CALL    FBYTE           FETCH BYTE                         03 01441
003550  004045  R
003551  006140  A   1442         SUBI    '0'                                                03 01442
003552  000260  A
003553  001004  A   1443         JAN     FET40           IF NOT NUMERIC                     03 01443
003554  003613  R
003555  006140  A   1444         SUBI    10                                             E.203 01444
003556  000012  A
003557  001002  A   1445         JAP     FET40           IF NOT NUMERIC                 E.203 01445
003560  003613  R
003561  002000  A   1446         CALL    BC2BI           CONVERT TO BINARY                  03 01446
003562  003773  R
003563  003701  R   1447         DATA    FETER           IF INVALID ITEM                E.203 01447
    003564  R   1448 FET30   EQU     *                                                  03 01448
003564  024131  A   1449         LDB     PVTRM           PREVIOUS TERMINATOR INDICATOR      03 01449
003565  001020  A   1450         JBZ     FET35           IF NO ARITH OPERATION              03 01450
003566  003575  R
003567  005322  A   1451         DBR                                                        03 01451
003570  001020  A   1452         JBZ     FET32           IF ADDITION                        03 01452
003571  003574  R
003572  005211  A   1453         CPA                                                        03 01453
003573  005111  A   1454         IAR                     SET TO MINUS VALUE FOR SUB         03 01454
    003574  R   1455 FET32   EQU     *                                                  03 01455
003574  124123  A   1456         ADD     VALUE                                              03 01456
    003575  R   1457 FET35   EQU     *                                                  03 01457
003575  054122  A   1458         STA     VALUE           UPDATE VALUE                       03 01458
003576  014371  A   1459         LDA     ARITH           CURRENT TERMINATOR INDICATOR       03 01459
003577  054116  A   1460         STA     PVTRM           SET TO PREVIOUS TERMINATOR         03 01460
003600  014116  A   1461         LDA     TERM                                               03 01461
003601  001010  A   1462         JAZ     FET10           IF NOT END OF EXPRESSION           03 01462
003602  003500  R
003603  005001  A   1463         TZA                                                        03 01463
003604  054363  A   1464         STA     ARITH           CLEAR ARITH OPERATION FLAG         03 01464
003605  014112  A   1465         LDA     VALUE                                              03 01465
003606  044104  A   1466         INR     FETCH           UPDATE RETURN                      03 01466
003607  044103  A   1467         INR     FETCH           UPDATE RETURN                      03 01467
003610  044102  A   1468         INR     FETCH           UPDATE RETURN                  E.203 01468
003611  001000  A   1469         RETU*   FETCH                                              03 01469
003612  103713  R
```

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003613 006010 A 1470 FET40  LDAI    6                                                  03 01470
003614 000006 A
003615 144351 A 1471        SUB     COUNT                                              03 01471
003616 054352 A 1472        STA     FETCT                                              03 01472
003617 001010 A 1473        JAZ     FET45       IF 6 CHARS                             03 01473
003620 003635 R
003621 006030 A 1474        LDXI    ITBUF+2                                            03 01474
003622 004567 R
       003623 R 1475 FET42  EQU     *                                                  03 01475
003623 006010 A 1476        LDAI    ' '                                                03 01476
003624 000240 A
003625 005002 A 1477        TZB                 SET REVERSE STORE                      03 01477
003626 002000 A 1478        CALL    SBYTE                                              03 01478
003627 004065 R
003630 014340 A 1479        LDA     FETCT                                              03 01479
003631 005311 A 1480        DAR                                                        03 01480
003632 054336 A 1481        STA     FETCT       DECREMENT BLANK FILL COUNT             03 01481
003633 001016 A 1482        JANZ    FET42       CONTINUE BLANK FILLING                 03 01482
003634 003623 R
       003635 R 1483 FET45  EQU     *                                                  03 01483
003635 002000 A 1484        CALL    INST        SEARCH INST TABLE FOR NAME             03 01484
003636 004173 R
003637 005111 A 1485        IAR                                                        03 01485
003640 001010 A 1486        JAZ     FET47       IF NAME NOT FOUND IN INST TABLE        03 01486
003641 003645 R
003642 005311 A 1487        DAR                                                        03 01487
003643 001000 A 1488        JMP     FET30                                              03 01488
003644 003564 R
003645 002000 A 1489 FET47  CALL    CLSRCH      SEARCH CL FOR NAME                     03 01489
003646 004300 R
003647 001004 A 1490        JAN     FETR1       IF NOT FOUND                           E.203 01490
003650 003704 R
003651 001000 A 1491        JMP     FET30                                              03 01491
003652 003564 R
       003653 R 1492 FET50  EQU     *                                                  03 01492
003653 054043 A 1493        STA     TERM        CLEAR END OF EXPRESSION                03 01493
003654 005111 A 1494        IAR                                                        03 01494
003655 054312 A 1495        STA     ARITH       SET ADDITION                           03 01495
003656 014310 A 1496        LDA     COUNT                                              E.203 01496
003657 001000 A 1497        JMP     FET25                                              03 01497
003660 003540 R
       003661 R 1498 FET51  EQU     *                                                  03 01498
003661 054035 A 1499        STA     TERM        CLEAR END OF EXPRESSION                03 01499
003662 005311 A 1500        DAR                                                        03 01500
003663 054304 A 1501        STA     ARITH       SET SUBTRACTION                        03 01501
003664 014302 A 1502        LDA     COUNT                                              E.203 01502
003665 001000 A 1503        JMP     FET25                                              03 01503
003666 003540 R
       003667 R 1504 FET70  EQU     *                                                  03 01504
003667 005111 A 1505        IAR                                                        03 01505
003670 054026 A 1506        STA     TERM        SET END OF EXPRESSION                  03 01506
003671 014275 A 1507        LDA     COUNT                                              03 01507
003672 001016 A 1508        JANZ    FET25       IF NOT NULL FIELD                      03 01508
003673 003540 R
003674 024016 A 1509        LDB     FETCH                                              03 01509
003675 016001 A 1510        LDA     1,2         RECORD TERMINATION SERVICE ADDR        03 01510
003676 054014 A 1511        STA     FETCH                                              03 01511
003677 001000 A 1512        RETU*   FETCH                                              03 01512
003700 103713 R
003701 010422 A 1513 FETER  LDA     TWO                                                E.203 01513
003702 001000 A 1514        JMP     FETR10                                             E.203 01514
003703 003705 R
003704 010464 A 1515 FETR1  LDA     THREE                                              E.203 01515
003705 024005 A 1516 FETR10 LDB     FETCH       PARAM AREA                             E.203 01516
003706 026002 A 1517        LDB     2,B         ERROR SERVICE ADDR                     E.203 01517
003707 056004 A 1518        STA     4,B         SET ERROR CODE                         E.203 01518
003710 064002 A 1519        STB     FETCH       SET ERROR SERVICE ADDR IN RETURN       E.203 01519
003711 001000 A 1520        RETU*   FETCH       RETRUN                                 E.203 01520
003712 103713 R
003713 000000 A 1521 FETCH  ENTR                                                       03 01521
003714 001000 A 1522        JMP     FET05                                              03 01522
003715 003474 R
003716 000000 A 1523 PVTRM  DATA    0           PREVIOUS TERMINATOR INDICATOR          03 01523
003717 000000 A 1524 TERM   DATA    0           END OF EXPRESSION FOUND                03 01524
003720 000000 A 1525 VALUE  DATA    0                                                  03 01525
003721 000000 A 1526 ORGN   DATA    0                                                  E.203 01526
               1527         EJEC                                                       03 01527
               1528 ********************************************************************** 03 01528
               1529 *                                                                  03 01529
               1530 *       SUBROUTINE--SCAN  (SCAN UNTIL TERMINATOR)                  03 01530
               1531 *                                                                  03 01531
               1532 *       PURPOSE--TO MOVE AN ITEM FROM AN INPUT BUFFER TO THE ITEM  03 01532
               1533 *                BUFFER UNTIL A LEGAL TERMINATOR IS FOUND          03 01533
               1534 *                                                                  03 01534
               1535 *                TERMINATORS: BLANK, COMMA, PLUS, OR MINUS         03 01535
               1536 *                                                                  03 01536
               1537 *       CALLING SEQUENCE                                           03 01537
               1538 *       CALL    SCAN                                               03 01538
               1539 *               LOCATION BUFPT POINTS TO FIRST BYTE                03 01539
               1540 *               LOCATION ITBUF IS START OF STORAGE                 03 01540
               1541 *                                                                  03 01541
               1542 *       RETURNS TO CALLER WITH:                                    03 01542
               1543 *               A=TERMINATOR                                       03 01543
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```
                    1544 *              COUNT=NUMBER OF DIGITS                                          03 01544
                    1545 *              BUFPT POINTING TO NEXT BYTE                                     03 01545
                    1546 *                                                                              03 01546
                    1547 ********************************************************************************03 01547
003722 000000 A     1549 SCAN   ENTR                                                                    03 01549
003723 005001 A     1550        TZA                                                                 E.203 01550
003724 054242 A     1551        STA     COUNT           CLEAR CHARACTER COUNT                       E.203 01551
003725 006030 A     1552        LDXI    ITBUF                                                           03 01552
003726 004565 R
003727 005244 A     1553        CPX                                                                     03 01553
003730 074041 A     1554        STX     SCBPT           SET UP STORE BYTE POINTER                       03 01554
003731 034240 A     1555 SCN10  LDX     BUFPT                                                           03 01555
003732 002000 A     1556        CALL    FBYTE           FETCH ONE BYTE                                  03 01556
003733 004045 R
003734 074235 A     1557        STX     BUFPT                                                           03 01557
003735 005012 A     1558        TAB                                                                     03 01558
003736 006140 A     1559        SUBI    ' '                                                             03 01559
003737 000240 A
003740 001010 A     1560        JAZ     SCN20           IF BLANK                                        03 01560
003741 003767 R
003742 006140 A     1561        SUBI    ',-' '                                                          03 01561
003743 000014 A
003744 001010 A     1562        JAZ     SCN20           IF COMMA                                        03 01562
003745 003767 R
003746 006140 A     1563        SUBI    '+'-',                                                          03 01563
003747 177777 A
003750 001010 A     1564        JAZ     SCN20           IF PLUS                                         03 01564
003751 003767 R
003752 006140 A     1565        SUBI    '-'-'+'                                                         03 01565
003753 000002 A
003754 001010 A     1566        JAZ     SCN20           IF MINUS                                        03 01566
003755 003767 R
003756 044210 A     1567        INR     COUNT           UPDATE BYTE COUNT                               03 01567
003757 034012 A     1568        LDX     SCBPT           BYTE POINTER                                    03 01568
003760 005021 A     1569        TBA                     BYTE                                            03 01569
003761 005102 A     1570        INCR    02              SET FOR FORWARD STORE                           03 01570
003762 002000 A     1571        CALL    SBYTE           STORE BYTE                                      03 01571
003763 004065 R
003764 074005 A     1572        STX     SCBPT           UPDATE BYTE POINTER                             03 01572
003765 001000 A     1573        JMP     SCN10                                                           03 01573
003766 003731 R
003767 005021 A     1574 SCN20  TBA                                                                     03 01574
003770 001000 A     1575        RETU*   SCAN                                                            03 01575
003771 103722 R
003772 000000 A     1576 SCBPT  DATA    0                                                               03 01576
                    1577        EJEC                                                                    03 01577
                    1578 ********************************************************************************03 01578
                    1579 *                                                                              03 01579
                    1580 *      SUBROUTINE--OC2BI   (CONVERT OCTAL TO BINARY)                           03 01580
                    1581 *                                                                              03 01581
                    1582 *      PURPOSE--TO CONVERT 1-6 ASCII DIGITS TO A BINARY VALUE                  03 01582
                    1583 *                                                                              03 01583
                    1584 *      CALLING SEQUENCE                                                        03 01584
                    1585 *      CALL    OC2BI                                                           03 01585
                    1586 *      DATA    INVALID VALUE SERVICE ADDR                                  E.203 01586
                    1587 *              COUNT=NUMBER OF DIGITS                                          03 01587
                    1588 *              ITBUF=CONTAINS ASCII STRING                                     03 01588
                    1589 *                                                                              03 01589
                    1590 *      RETURNS TO CALLER WITH:                                                 03 01590
                    1591 *              A=BINARY VALUE                                                  03 01591
                    1592 *              OR TO INVALID SERVICE IF A NON OCTAL DIGIT FOUND            E.203 01592
                    1593 *                                                                              03 01593
                    1594 ********************************************************************************03 01594
003773 000000 A     1596 OC2BI  ENTR                                                                    03 01596
003774 005001 A     1597        TZA                                                                     03 01597
003775 054165 A     1598        STA     OCVAL           CLEAR ACCUM                                     03 01598
003776 006030 A     1599        LDXI    ITBUF                                                           03 01599
003777 004565 R
004000 005244 A     1600        CPX                                                                     03 01600
004001 002000 A     1601 OCB10  CALL    FBYTE           FETCH BYTE                                      03 01601
004002 004045 R
004003 006140 A     1602        SUBI    0260                                                            03 01602
004004 000260 A
004005 001004 A     1603        JAN     OCBER           IF NOT NUMERIC                          E.2     03 01603
004006 004036 R
004007 006140 A     1604        SUBI    8                                                               03 01604
004010 000010 A
004011 001002 A     1605        JAP     OCBER           IF NOT OCTAL DIGIT                          E.203 01605
004012 004036 R
004013 006120 A     1606        ADDI    8                                                               03 01606
004014 000010 A
004015 054144 A     1607        STA     OCTMP                                                           03 01607
004016 014144 A     1608        LDA     OCVAL           ACCUM                                           03 01608
004017 004243 A     1609        LRLA    3                                                               03 01609
004020 124141 A     1610        ADD     OCTMP                                                           03 01610
004021 054141 A     1611        STA     OCVAL           UPDATE ACCUM                                    03 01611
004022 006017 A     1612        LDAE    COUNT                                                           03 01612
004023 004167 R
004024 005311 A     1613        DAR                                                                     03 01613
004025 006057 A     1614        STAE    COUNT                                                           03 01614
004026 004167 R
004027 001016 A     1615        JANZ    OCB10           IF MORE DIGITS                                  03 01615
004030 004001 R
```

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004031 014131 A 1616          LDA     DCVAL           ACCUM                                   03 01616
004032 006047 A 1617          INRE    DC2BI           UPDATE RETURN                          E.203 01617
004033 003773 R
004034 001000 A 1618          RETU*   DC2BI                                                   03 01618
004035 103773 R
004036 006027 A 1619 DCBER    LDBE    DC2BI                                                  E.203 01619
004037 003773 R
004040 016000 A 1620          LDA     0,2             INVALID ITEM SERVICE ADDR              E.203 01620
004041 006057 A 1621          STAE    DC2BI           SET UP IN RETURN                       E.203 01621
004042 003773 R
004043 001000 A 1622          RETU*   DC2BI           RETURN                                 E.203 01622
004044 103773 R
               1623           EJEC                                                            03 01623
               1624 ***********************************************************************  03 01624
               1625 *                                                                        03 01625
               1626 *       SUBROUTINE--FBYTE  (FETCH BYTE)                                  03 01626
               1627 *                                                                        03 01627
               1628 *       PURPOSE--FETCH ONE BYTE, RIGHT JUSTIFIED                         03 01628
               1629 *                                                                        03 01629
               1630 *       CALLING SEQUENCE                                                 03 01630
               1631 *       CALL    FBYTE                                                    03 01631
               1632 *                 X=BUFFER POINTER                                       03 01632
               1633 *                   POS=RIGHTBYTE,   NEG(COMP)=LEFT BYTE                 03 01633
               1634 *                                                                        03 01634
               1635 *       RETURNS TO CALLER WITH:                                          03 01635
               1636 *                 X=UPDATED BUFFER POINTER                               03 01636
               1637 *                 A=BYTE (RIGHT JUSTIFIED)                               03 01637
               1638 *                                                                        03 01638
               1639 ***********************************************************************  03 01639
004045 000000 A 1641 FBYTE    ENTR                                                           03 01641
004046 005041 A 1642          TXA                     BYTE POINTER                           03 01642
004047 001002 A 1643          JAP     FB10            IF RIGHT BYTE                          03 01643
004050 004056 R
004051 005244 A 1644          CPX                     FETCH                                  03 01644
004052 015000 A 1645          LDA     0,1             LEFT                                   03 01645
004053 004350 A 1646          LSRA    8               BYTE                                   03 01646
004054 001000 A 1647          RETU*   FBYTE                                                  03 01647
004055 104045 R
004056 015000 A 1648 FB10     LDA     0,1             FETCH                                  03 01648
004057 006150 A 1649          ANAI    0377            RIGHT BYTE                             03 01649
004060 000377 A
004061 005144 A 1650          IXR                     SET X FOR                              03 01650
004062 005244 A 1651          CPX                     NEXT BYTE                              03 01651
004063 001000 A 1652          RETU*   FBYTE                                                  03 01652
004064 104045 R
               1653           EJEC                                                            03 01653
               1654 ***********************************************************************  03 01654
               1655 *                                                                        03 01655
               1656 *       SUBROUTINE--SBYTE  (STORE ONE BYTE)                              03 01656
               1657 *                                                                        03 01657
               1658 *       PURPOSE--STORE ONE BYTE.                                         03 01658
               1659 *                                                                        03 01659
               1660 *       CALLING SEQUENCE                                                 03 01660
               1661 *       CALL    SBYTE                                                    03 01661
               1662 *                 X=BUFFER POINTER                                       03 01662
               1663 *                   POS=RIGHT BYTE, NEG(COMPL)=LEFT BYTE                 03 01663
               1664 *                 B=DIRECTION OF NEXT BYTE                               03 01664
               1665 *                   =0 FOR REVERSE, =1 FOR FORWARD                       03 01665
               1666 *       RETURNS TO CALLER WITH:                                          03 01666
               1667 *                 X=UPDATED BUFFER POINTER                               03 01667
               1668 *                                                                        03 01668
               1669 ***********************************************************************  03 01669
004065 000000 A 1671 SBYTE    ENTR                                                           03 01671
004066 054041 A 1672          STA     SBTMA           SAVE BYTE                              03 01672
004067 064041 A 1673          STB     SBTMB           SAVE DIRECTION                         03 01673
004070 005041 A 1674          TXA                     BYTE POINTER                           03 01674
004071 001002 A 1675          JAP     SB20            IF RIGHT BYTE                          03 01675
004072 004111 R
004073 005244 A 1676          CPX                                                            03 01676
004074 014033 A 1677          LDA     SBTMA                                                  03 01677
004075 025000 A 1678          LDB     0,1             INSERT                                 03 01678
004076 004050 A 1679          LRLB    8               BYTE IN                                03 01679
004077 004450 A 1680          LLRL    8               LEFT BYTE                              03 01680
004100 055000 A 1681          STA     0,1                                                    03 01681
004101 014027 A 1682          LDA     SBTMB           DIRECTION                              03 01682
004102 001010 A 1683          JAZ     SB10            IF REVERSE                             03 01683
004103 004106 R
004104 001000 A 1684          RETU*   SBYTE                                                  03 01684
004105 104065 R
004106 005344 A 1685 SB10     DXR                     SET FOR PREVIOUS RIGHT BYTE            03 01685
004107 001000 A 1686          RETU*   SBYTE                                                  03 01686
004110 104065 R
004111 014016 A 1687 SB20     LDA     SBTMA                                                  03 01687
004112 025000 A 1688          LDB     0,1             INSERT                                 03 01688
004113 004550 A 1689          LLSR    8               BYTE IN                                03 01689
004114 004050 A 1690          LRLB    8               RIGHT BYTE                             03 01690
004115 065000 A 1691          STB     0,1                                                    03 01691
004116 014012 A 1692          LDA     SBTMB           DIRECTION                              03 01692
004117 001010 A 1693          JAZ     SB30            IF REVERSE                             03 01693
004120 004125 R
004121 005144 A 1694          IXR                                                            03 01694
004122 005244 A 1695          CPX                     SET FOR NEXT LEFT BYTE                 03 01695
004123 001000 A 1696          RETU*   SBYTE                                                  03 01696
```

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004124 104065 R
004125 005244 A 1697 SB30   CPX                     SET FOR LEFT BYTE                          03 01697
004126 001000 A 1698        RETU*   SBYTE                                                      03 01698
004127 104065 R
004130 000000 A 1699 SBTMA  DATA    0               BYTE                                       03 01699
004131 000000 A 1700 SBTMB  DATA    0               DIRECTION                                  03 01700
                1701        EJEC                                                               03 01701
                1702 ********************************************************************     03 01702
                1703 *                                                                         03 01703
                1704 *      SUBROUTINE--BI2OC  (CONVERT BINARY TO OCTAL ASCII)                 03 01704
                1705 *                                                                         03 01705
                1706 *      PURPOSE--TO CONVERT A BINARY VALUE TO 6 ASCII DIGITS               03 01706
                1707 *                                                                         03 01707
                1708 *      CALLING SEQUENCE                                                   03 01708
                1709 *      CALL    BI2OC                                                      03 01709
                1710 *              X=STORE ADDR (BYTE POINTER)                                03 01710
                1711 *              B=BINARY VALUE                                             03 01711
                1712 *                                                                         03 01712
                1713 *      RETURNS TO CALLER                                                  03 01713
                1714 *                                                                         03 01714
                1715 ********************************************************************     03 01715
004132 000000 A 1717 BI2OC  ENTR                                                               03 01717
004133 006010 A 1718        LDAI    6                                                          03 01718
004134 000006 A
004135 054021 A 1719        STA     BICNT                                                      03 01719
004136 005001 A 1720        TZA                                                                03 01720
004137 004441 A 1721        LLRL    1               BIT 15 TO A                                03 01721
004140 124020 A 1722 BI10   ADD     N260                                                       03 01722
004141 064016 A 1723        STB     BITMB           SAVE REMAINDER                             03 01723
004142 005102 A 1724        INCR    2                                                          03 01724
004143 002000 A 1725        CALL    SBYTE           STORE BYTE                                 03 01725
004144 004065 R
004145 014011 A 1726        LDA     BICNT           LOOP COUNT                                 03 01726
004146 005311 A 1727        DAR                                                                03 01727
004147 001010 A 1728        JAZ*    BI2OC           IF DONE                                    03 01728
004150 104132 R
004151 054005 A 1729        STA     BICNT                                                      03 01729
004152 024003 A 1730        LDB     BITMB                                                      03 01730
004153 005001 A 1731        TZA                     CLEAR ACCUM                                03 01731
004154 004443 A 1732        LLRL    3               NEXT BYTE                                  03 01732
004155 001000 A 1733        JMP     BI10                                                       03 01733
004156 004140 R
004157 000000 A 1734 BICNT  DATA    0               LOOP COUNT                                 03 01734
004160 000000 A 1735 BITMB  DATA    0                                                          03 01735
004161 000260 A 1736 N260   DATA    0260                                                       03 01736
004162 000000 A 1737 OCTMP  DATA    0                                                          03 01737
004163 000000 A 1738 OCVAL  DATA    0                                                          03 01738
004164 000000 A 1739 STWBK  DATA    0               STORE ADDR                                 03 01739
004165 000000 A 1740        DATA    0               ORIG CONTENTS                              03 01740
004166 000000 A 1741        DATA    0               NEW CONTENTS                               03 01741
004167 000000 A 1742 COUNT  DATA    0                                                          03 01742
004170 000000 A 1743 ARITH  DATA    0                                                          03 01743
004171 000000 A 1744 FETCT  DATA    0                                                          03 01744
004172 000000 A 1745 BUFPT  DATA    0               BYTE POINTER                               03 01745
                1746        EJEC                                                               03 01746
                1747 ********************************************************************     03 01747
                1748 *                                                                         03 01748
                1749 *      SUBROUTINE--INST  (IDENTIFY INSTRUCTION MNEMONIC)                  03 01749
                1750 *                                                                         03 01750
                1751 *      PURPOSE--TO RETURN AN INSTRUCTION VALUE GIVEN THE                  03 01751
                1752 *              INSTRUCTION                                                03 01752
                1753 *                                                                         03 01753
                1754 *      THE FIRST CHARACTER OF THE INST IS USED TO INDEX INTO              03 01754
                1755 *      THE POINTER TABLE (INTBL). THE TABLE ENTRY IS USED AS              03 01755
                1756 *      A POINTER TO THE SCAN START. THE NEXT NON-ZERO ENTRY               03 01756
                1757 *      IN INTBL IS USED TO CALCULATE THE SCAN COUNT. A ZERO               03 01757
                1758 *      OR IF THE SCAN COUNT IS REACHED WITHOUT A MATCH A VALUE            03 01758
                1759 *      OF MINUS ONE IS RETURNED                                           03 01759
                1760 *                                                                         03 01760
                1761 *      CALLING SEQUENCE                                                   03 01761
                1762 *      CALL    INST                                                       03 01762
                1763 *              ITEM CONTAINS 4 CHAR INST  (LEFT JUSTIFIED)                03 01763
                1764 *                                                                         03 01764
                1765 *      RETURNS TO CALLER WITH                                             03 01765
                1766 *      A REG = -1 IF INST NOT FOUND                                       03 01766
                1767 *              INST VALUE IF FOUND                                        03 01767
                1768 *                                                                         03 01768
                1769 ********************************************************************     03 01769
004173 000000 A 1771 INST   ENTR                                                               03 01771
004174 005001 A 1772        TZA                                                        E.2     03 01772
004175 054101 A 1773        STA     RETYP           SET RELO TYPE TO RESET             E.2     03 01773
004176 006017 A 1774        LDAE    ITBUF           TARGET INST                                03 01774
004177 004565 R
004200 004350 A 1775        LSRA    8               ISOLATED LEFT BYTE                         03 01775
004201 005012 A 1776        TAB                     SAVE BYTE                          E.2     03 01776
004202 006140 A 1777        SUBI    '*'                                                E.2     03 01777
004203 000252 A
004204 001016 A 1778        JANZ    IN05            IF NOT AN ASTERISK                 E.2     03 01778
004205 004214 R
004206 005101 A 1779        INCR    01                                                 E.2     03 01779
004207 054067 A 1780        STA     RETYP           SET RELO TYPE TO SET               E.2     03 01780
004210 006017 A 1781        LDAE    BASE            CURRENT BASE VALUE                 E.2     03 01781
004211 001357 R
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004212 001000 A 1782          RETU*   INST        RETURN                                  E.203 01782
004213 104173 R
004214 005021 A 1783 IN05     TBA                 RESTORE BYTE                            E.203 01783
004215 006140 A 1784          SUBI    0301                                                    03 01784
004216 000301 A
004217 005014 A 1785          TAX                                                             03 01785
004220 006025 A 1786          LDBE    INTBL,1     INTBL ENTRY                                 03 01786
004221 005415 R
004222 001020 A 1787          JBZ     IN50        IF NO ENTRY                                 03 01787
004223 004272 R
004224 064050 A 1788          STB     INSCN                                                   03 01788
004225 005144 A 1789 IN10     IXR                                                             03 01789
004226 006015 A 1790          LDAE    INTBL,1     NEXT ENTRY                                  03 01790
004227 005415 R
004230 001004 A 1791          JAN     IN30        IF END OF TABLE                             03 01791
004231 004263 R
004232 001010 A 1792          JAZ     IN10        IF NULL ENTRY                               03 01792
004233 004225 R
004234 144040 A 1793 IN12     SUB     INSCN                                                   03 01793
004235 054040 A 1794          STA     INCNT       SET SCAN COUNT                              03 01794
004236 024036 A 1795          LDB     INSCN                                                   03 01795
004237 006030 A 1796          LDXI    ITBUF       TARGET WORD                                 03 01796
004240 004565 R
004241 016000 A 1797 IN15     LDA     0,2                                                     03 01797
004242 135000 A 1798          ERA     0,1                                                     03 01798
004243 001013 A 1799          JANZ    IN25        IF NOT A MATCH                              03 01799
004244 004251 R
004245 016001 A 1800          LDA     1,2                                                     03 01800
004246 135001 A 1801          ERA     1,1                                                     03 01801
004247 001010 A 1802          JAZ     IN40        IF A MATCH FOUND                            03 01802
004250 004267 R
004251 014024 A 1803 IN25     LDA     INCNT       SCAN COUNT                                  03 01803
004252 005311 A 1804          DAR                                                             03 01804
004253 054022 A 1805          STA     INCNT                                                   03 01805
004254 001010 A 1806          JAZ     IN50        IF NO MATCH TO BE FOUND                     03 01806
004255 004272 R
004256 005122 A 1807          IBR                                                             03 01807
004257 005122 A 1808          IBR                                                             03 01808
004260 005122 A 1809          IBR                 POINT TO NEXT ENTRY                         03 01809
004261 001000 A 1810          JMP     IN15        CONTINUE SCAN                               03 01810
004262 004241 R
004263 006010 A 1811 IN30     LDAI    INEND                                                   03 01811
004264 006526 R
004265 001000 A 1812          JMP     IN12        SET TO END OF TABLE ADDR                    03 01812
004266 004234 R
004267 016002 A 1813 IN40     LDA     2,2         INST VALUE                                  03 01813
004270 001000 A 1814          RETU*   INST        RETURN                                      03 01814
004271 104173 R
004272 005301 A 1815 IN50     DECR    01          SIGNAL INST NOT FOUND                       03 01815
004273 001000 A 1816          RETU*   INST        RETURN                                      03 01816
004274 104173 R
004275 000000 A 1817 INSCN    DATA    0           START SCAN ADDR                             03 01817
004276 000000 A 1818 INCNT    DATA    0           SCAN COUNT                                  03 01818
004277 000000 A 1819 RETYP    DATA    0           RELO TYPE                             E.203 01819
               1820           EJEC                                                            03 01820
               1821 ********************************************************************    03 01821
               1822 *                                                                         03 01822
               1823 *      SUBROUTINE--CLSRCH  (SEARCH CL DIRECTORY FOR NAME)                 03 01823
               1824 *                                                                         03 01824
               1825 *      PURPOSE--TO SEARCH THE CL DIRECTORY FOR THE NAME IN ITBUF          03 01825
               1826 *               AND RETURN ADDR IF FOUND                                  03 01826
               1827 *                                                                         03 01827
               1828 *      CALLING SEQUENCE                                                   03 01828
               1829 *      CALL    CLSRCH                                                     03 01829
               1830 *              ITBUF CONTAINS NAME IN ASCII                               03 01830
               1831 *                                                                         03 01831
               1832 *      RETURNS TO CALLER WITH:                                            03 01832
               1833 *              A LT 0 IF NOT FOUND                                        03 01833
               1834 *              A GE 0 FOR NAME'S ADDR                                     03 01834
               1835 *                                                                         03 01835
               1836 ********************************************************************    03 01836
004300 000000 A 1838 CLSRCH   ENTR                                                           03 01838
004301 006030 A 1839          LDXI    CLFCB+7     POINTER TO FILE NAME IN FCB                 03 01839
004302 004456 R
004303 006020 A 1840          LDBI    ITBUF       POINTER TO DESIRED FILE NAME                03 01840
004304 004565 R
004305 016000 A 1841          LDA     0,2         MOVE                                        03 01841
004306 055000 A 1842          STA     0,1         FILE                                        03 01842
004307 016001 A 1843          LDA     1,2         NAME                                        03 01843
004310 055001 A 1844          STA     1,1         TO                                          03 01844
004311 016002 A 1845          LDA     2,2         THE                                         03 01845
004312 055002 A 1846          STA     2,1         FCB                                         03 01846
       004313 R 1847 CLS02    EQU     *                                                       03 01847
004313 006010 A 1848          LDAI    6           MAX BYTE COUNT                              03 01848
004314 000006 A
004315 006147 A 1849          SUBE    COUNT       NUMBER OF BYTES INPUT                       03 01849
004316 004167 R
004317 006057 A 1850          STAE    COUNT       SET TO RIGHT JUSTIFY SHIFT COUNT            03 01850
004320 004167 R
004321 001010 A 1851          JAZ     CLS05       IF SIX BYTES                                03 01851
004322 004350 R
               1852 *         RIGHT JUSTIFY NAME                                             03 01852
       004323 R 1853 CLS03    EQU     *                                                       03 01853
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004323 014242 A 1854          LDA     ITBUF+1         WORD 1                                  03 01854
004324 024242 A 1855          LDB     ITBUF+2         WORD 2                                  03 01855
004325 004550 A 1856          LLSR    8                                                       03 01856
004326 064240 A 1857          STB     ITBUF+2                                                 03 01857
004327 004250 A 1858          LRLA    8               RESTORE   A                             03 01858
004330 005012 A 1859          TAB                                                             03 01859
004331 014233 A 1860          LDA     ITBUF           WORD 0                                  03 01860
004332 004550 A 1861          LLSR    3                                                       03 01861
004333 064232 A 1862          STB     ITBUF+1                                                 03 01862
004334 006150 A 1863          ANAI    0377                                                    03 01863
004335 000377 A
004336 006110 A 1864          ORAI    0120000         BLANK LEFT BYTE                         03 01864
004337 120000 A
004340 054224 A 1865          STA     ITBUF                                                   03 01865
004341 006017 A 1866          LDAE    COUNT                                                   03 01866
004342 004167 R
004343 005311 A 1867          DAR                                                             03 01867
004344 006057 A 1868          STAE    COUNT           DECREMENT BYTE COUNT FOR JUSTIFYING     03 01868
004345 004167 R
004346 001016 A 1869          JANZ    CLS03           IF TO CONTINE JUSTIFY                   03 01869
004347 004323 R
               004350 R 1870 CLS05    EQU     *                                               03 01870
004350 002000 A 1871          CALL    SIXBT           CONVERT NAME TO LOADER CODE             03 01871
004351 004472 R
               004352 R 1872 CLS07    EQU     *                                               03 01872
                        1873          OPEN    CLFCB,CL,0,0                                    03 01873
004352 006505 A
004353 003160 E
004354 100000 A
004355 003147 A
004356 004457 R
004357 000000 A
004360 000000 A
                        1874          STAT    CLS07,CLER,CLEF,CLER,*                          03 01874
004361 006505 A
004362 003167 E
004363 004352 R
004364 004447 R
004365 004447 R
004366 004447 R
004367 004361 R
                        1875 CLS10    READ    CLFCB,CL,0,0                                    03 01875
004370 006505 A
004371 004353 E
004372 100000 A
004373 000147 A
004374 004457 R
004375 000000 A
004376 000000 A
                        1876          STAT    CLS10,CLER,CLEF,CLER,*                          03 01876
004377 006505 A
004400 004362 E
004401 004370 R
004402 004447 R
004403 004447 R
004404 004447 R
004405 004377 R
004406 006010 A 1877          LDAI    12                                                      03 01877
004407 000014 A
004410 054060 A 1878          STA     CLCNT           ENTRY COUNT                             03 01878
004411 006030 A 1879          LDXI    CLBUF+11        START OF DIRECTORY NAMES                03 01879
004412 005050 R
004413 006020 A 1880 CL15     LDBI    ITBUF                                                   03 01880
004414 004565 R
004415 016000 A 1881          LDA     0,2             FIRST WORD                              03 01881
004416 135000 A 1882          ERA     0,1                                                     03 01882
004417 001016 A 1883          JANZ    CL20            NO MATCH                                03 01883
004420 004434 R
004421 016001 A 1884          LDA     1,2             SECOND WORD                             03 01884
004422 135001 A 1885          ERA     1,1                                                     03 01885
004423 001016 A 1886          JANZ    CL20            NO MATCH                                03 01886
004424 004434 R
004425 016002 A 1887          LDA     2,2             THIRD WORD                              03 01887
004426 135002 A 1888          ERA     2,1                                                     03 01888
004427 001016 A 1889          JANZ    CL20            NO MATCH                                03 01889
004430 004434 R
004431 015003 A 1890          LDA     3,1             FOUND, GET ADDR                         03 01890
004432 001000 A 1891          RETU*   CLSRCH                                                  03 01891
004433 104000 R
004434 014034 A 1892 CL20     LDA     CLCNT           DIRECTORY ENTRY COUNT                   03 01892
004435 005311 A 1893          DAR                                                             03 01893
004436 001010 A 1894          JAZ     CLER            ERROR IF END OF ENTRIES AND NAME NOT FOUND 03 01894
004437 004447 R
004440 054030 A 1895          STA     CLCNT                                                   03 01895
004441 005041 A 1896          TXA                                                             03 01896
004442 006120 A 1897          ADDI    4                                                       03 01897
004443 000004 A
004444 005014 A 1898          TAX             UPDATE DIRECTORY POINTER                        03 01898
004445 001000 A 1899          JMP     CL15                                                    03 01899
004446 004413 R
               004447 R 1900 CLER     EQU     *                                       E.203 01900
               004447 R 1901 CLEF     EQU     *                                       E.203 01901
004447 006505 A 1902          JSR     MOVE,X          MOVE NAME TO ERROR MESSAGE      E.203 01902
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004450 001667 E
004451 000003 A 1903          DATA    3,CLFCB+7,CLMSG+10                                  E.203 01903
004452 004466 R
004453 004654 R
004454 005301 A 1904          DECR    01              SET NAME NOT FOUND INDICATOR        E.203 01904
004455 001000 A 1905          RETU*   CLSRCH          RETURN                              E.203 01905
004456 104300 R
               1906 CLFCB     FCB     120,CLBUF,1,'C','CL','  ','  '                        03 01906
004457 000170 A
004460 005035 R
004461 000703 A
004462 000000 A
004463 000000 A
004464 000000 A
004465 000000 A
004466 141714 A
004467 120240 A
004470 120240 A
004471 000000 A 1907 CLCNT    DATA    0                                                     03 01907
                1908          EJEC                                                          03 01908
                1909 ********************************************************************* 03 01909
                1910 *                                                                     03 01910
                1911 *        SUBROUTINE--SIXBT    'CREATE 6 BIT LOADER CODE)             03 01911
                1912 *                                                                     03 01912
                1913 *        PURPOSE--TO CONVERT A 3 WORD ASCII NAME INTO A 3 WORD        03 01913
                1914 *                 LOADER CODE ENTRY                                   03 01914
                1915 *                                                                     03 01915
                1916 *        CALLING SEQUENCE                                            03 01916
                1917 *        CALL    SIXBT                                               03 01917
                1918 *                ITBUF CONTAINS ASCII STRING                         03 01918
                1919 *                                                                     03 01919
                1920 *        RETURNS TO CALLER WITH:                                     03 01920
                1921 *                ITBUF CONTAINING LOADER CODE ENTRY                  03 01921
                1922 *                                                                     03 01922
                1923 ********************************************************************* 03 01923
004472 000000 A 1925 SIXBT    ENTR                                                        03 01925
004473 006030 A 1926          LDXI    ITBUF                                               03 01926
004474 004565 R
004475 005244 A 1927          CPX                                                         03 01927
004476 002000 A 1928          CALL    FBYTE           FETCH CHAR 1                        03 01928
004477 004045 R
004500 144072 A 1929          SUB     N240            6 BIT                               03 01929
004501 005002 A 1930          TZB                                                         03 01930
004502 004542 A 1931          LLSR    2               4 MS BITS                           03 01931
004503 006120 A 1932          ADDI    010760                                              03 01932
004504 010760 A
004505 054066 A 1933          STA     SIBUF           WORD 1                              03 01933
004506 064062 A 1934          STB     SITMB                                               03 01934
004507 002000 A 1935          CALL    FBYTE           FETCH CHAR 2                        03 01935
004510 004045 R
004511 024057 A 1936          LDB     SITMB                                               03 01936
004512 144060 A 1937          SUB     N240            6 BIT                               03 01937
004513 004050 A 1938          LRLB    8               POSITION CHAR 1 LS 2 BITS           03 01938
004514 005032 A 1939          MERGE   032             A AND B TO B                        03 01939
004515 004046 A 1940          LRLB    6                                                   03 01940
004516 064052 A 1941          STB     SITMB                                               03 01941
004517 002000 A 1942          CALL    FBYTE           FETCH CHAR 3                        03 01942
004520 004045 R
004521 024047 A 1943          LDB     SITMB                                               03 01943
004522 144050 A 1944          SUB     N240            6 BIT                               03 01944
004523 005032 A 1945          MERGE   032             A AND B TO B                        03 01945
004524 004042 A 1946          LRLB    2                                                   03 01946
004525 064043 A 1947          STB     SITMB                                               03 01947
004526 002000 A 1948          CALL    FBYTE           FETCH CHAR 4                        03 01948
004527 004045 R
004530 074041 A 1949          STX     SITMX                                               03 01949
004531 034037 A 1950          LDX     SITMB                                               03 01950
004532 144040 A 1951          SUB     N240            6 BIT                               03 01951
004533 005002 A 1952          TZB                                                         03 01952
004534 004544 A 1953          LLSR    4                                                   03 01953
004535 005051 A 1954          MERGE   051             A AND X TO A                        03 01954
004536 054036 A 1955          STA     SIBUF+1         WORD 2                              03 01955
004537 004146 A 1956          LSRB    6                                                   03 01956
004540 064030 A 1957          STB     SITMB                                               03 01957
004541 034030 A 1958          LDX     SITMX           BYTE POINTER                        03 01958
004542 002000 A 1959          CALL    FBYTE           FETCH CHAR 5                        03 01959
004543 004045 R
004544 024024 A 1960          LDB     SITMB                                               03 01960
004545 144025 A 1961          SUB     N240            6 BIT                               03 01961
004546 005032 A 1962          MERGE   032             A AND B TO B                        03 01962
004547 004046 A 1963          LRLB    6                                                   03 01963
004550 064020 A 1964          STB     SITMB                                               03 01964
004551 002000 A 1965          CALL    FBYTE           FETCH CHAR 6                        03 01965
004552 004045 R
004553 024015 A 1966          LDB     SITMB                                               03 01966
004554 144016 A 1967          SUB     N240            6 BIT                               03 01967
004555 005031 A 1968          MERGE   031             A AND B TO A                        03 01968
004556 054010 A 1969          STA     ITBUF+2         MORE                                03 01969
004557 014015 A 1970          LDA     SIBUF+1         LOADER CODE                         03 01970
004560 054005 A 1971          STA     ITBUF+1         ENTRY                               03 01971
004561 014012 A 1972          LDA     SIBUF           TO                                  03 01972
004562 054002 A 1973          STA     ITBUF           ITBUF                               03 01973
004563 001000 A 1974          RETU*   SIXBT                                               03 01974
```

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004564 104472 R
004565                 1975 ITBUF  BSS     4                                    03 01975
004571 000000 A        1976 SITMB  DATA    0                                    03 01976
004572 000000 A        1977 SITMX  DATA    0                                    03 01977
004573 000240 A        1978 N240   DATA    0240                                 03 01978
004574 000000 A        1979 SIBUF  DATA    0,0                                  03 01979
004575 000000 A
                       1980        EJEC                                         03 01980
                       1981 *                                                   03 01981
                       1982 *      MESSAGE BLOCK                                03 01982
                       1983 *                                                   03 01983
004576 120330 A        1984 NUMSG  DATA    ' XXXXXX (BBBBBB) AAAAAA   '         E.203 01984
004577 154330 A
004600 154330 A
004601 154240 A
004602 124302 A
004603 141302 A
004604 141302 A
004605 141251 A
004606 120301 A
004607 140701 A
004610 140701 A
004611 140640 A
004612 120240 A
004613 120320 A        1985 PRMSG  DATA    ' PT** '                             03 01985
004614 152252 A
004615 125240 A
004616 000011 A        1986 DIMSG  DATA    9,' PT01, ILLEGAL DIR'               E.203 01986
004617 120320 A
004620 152260 A
004621 130654 A
004622 120311 A
004623 146314 A
004624 142707 A
004625 140714 A
004626 120304 A
004627 144722 A
004630 000011 A        1987 PMMSG  DATA    9,' PT02, PARAM ERROR'               E.203 01987
004631 120320 A
004632 152260 A
004633 131254 A
004634 120320 A
004635 140722 A
004636 140715 A
004637 120305 A
004640 151322 A
004641 147722 A
004642 000014 A        1988 CLMSG  DATA    12,' PT03, CL DIR ER--XXXXXX'        E.203 01988
004643 120320 A
004644 152260 A
004645 131654 A
004646 120303 A
004647 146240 A
004650 142311 A
004651 151240 A
004652 142722 A
004653 126655 A
004654 154330 A
004655 154330 A
004656 154330 A
004657 000011 A        1989 DMPMSG DATA    9,' PT04, IMAGE ERROR'               E.203 01989
004660 120320 A
004661 152260 A
004662 132254 A
004663 120311 A
004664 146701 A
004665 143705 A
004666 120303 A
004667 151322 A
004670 147722 A
004671 000011 A        1990 STMSG  DATA    9,' PT05, STAT ERROR '               E.203 01990
004672 120320 A
004673 152260 A
004674 132654 A
004675 120323 A
004676 152301 A
004677 152240 A
004700 142722 A
004701 151317 A
004702 151240 A
004703 000011 A        1991 LIMSG  DATA    9,' PT06, ADDR EXTENT'               E.203 01991
004704 120320 A
004705 152260 A
004706 133254 A
004707 120301 A
004710 142304 A
004711 151240 A
004712 142730 A
004713 152305 A
004714 147324 A
004715 000012 A        1992 OVMSG  DATA    10,' PT07, OVERLAY ERROR'            E.203 01992
004716 120320 A
004717 152260 A
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004720  133654  A
004721  120317  A
004722  153305  A
004723  151314  A
004724  140731  A
004725  120305  A
004726  151322  A
004727  147722  A
004730  000013  A 1993 REMSG  DATA    11,' PT08, RELO DIR ERROR '                                  E.203 01993
004731  120320  A
004732  152260  A
004733  134854  A
004734  120322  A
004735  142714  A
004736  147640  A
004737  142311  A
004740  151240  A
004741  142722  A
004742  151317  A
004743  151240  A
004744  120304  A 1994 DCMSG  DATA    ' DUMP COMPLETED'                                              03 01994
004745  152715  A
004746  150240  A
004747  141717  A
004750  146720  A
004751  146303  A
004752  152305  A
004753  142240  A
004754  120310  A 1995 HIMSG  DATA    ' HISTORY COMPLETE '                                           03 01995
004755  144723  A
004756  152317  A
004757  151331  A
004760  120303  A
004761  147715  A
004762  150314  A
004763  142724  A
004764  142640  A
004765          1996 INBUF   BSS     40              DI INPUT                                       03 01996
005035          1997 CLBUF   BSS     120                                                            03 01997
005225          1998 IMBUF   BSS     120             PATCH IMAGE BUFFER                             03 01998
                1999         EJEC                                                                   03 01999
                2000 *                                                                              03 02000
                2001 *       INSTRUCTION TABLE POINTERS.  USED TO SELECT START SCAN MARK            03 02001
                2002 *                                                                              03 02002
005415  005450  R 2003 INTBL  DATA    INA             A                                              03 02003
005416  005533  R 2004         DATA    INB             B                                              03 02004
005417  005552  R 2005         DATA    INC             C                                              03 02005
005420  005577  R 2006         DATA    IND             D                                              03 02006
005421  005632  R 2007         DATA    INE             E                                              03 02007
005422  000000  A 2008         DATA    0               F                                              03 02008
005423  000000  A 2009         DATA    0               G                                              03 02009
005424  005654  R 2010         DATA    INH             H                                              03 02010
005425  005657  R 2011         DATA    INI             I                                              03 02011
005426  005731  R 2012         DATA    INJ             J                                              03 02012
005427  000000  A 2013         DATA    0               K                                              03 02013
005430  006071  R 2014         DATA    INL             L                                              03 02014
005431  006176  R 2015         DATA    INM             M                                              03 02015
005432  006220  R 2016         DATA    INN             N                                              03 02016
005433  006223  R 2017         DATA    IND             O                                              03 02017
005434  000000  A 2018         DATA    0               P                                              03 02018
005435  000000  A 2019         DATA    0               Q                                              03 02019
005436  006256  R 2020         DATA    INR             R                                              03 02020
005437  006261  R 2021         DATA    INS             S                                              03 02021
005440  006377  R 2022         DATA    INT             T                                              03 02022
005441  000000  A 2023         DATA    0               U                                              03 02023
005442  000000  A 2024         DATA    0               V                                              03 02024
005443  000000  A 2025         DATA    0               W                                              03 02025
005444  006435  R 2026         DATA    INX             X                                              03 02026
005445  000000  A 2027         DATA    0               Y                                              03 02027
005446  006523  R 2028         DATA    INZ             Z                                              03 02028
005447  177777  A 2029         DATA    -1              END OF POINTER TABLE                           03 02029
                2030 *                                                                              03 02030
                2031 *       INSTRUCTION TABLE                                                      03 02031
                2032 *                                                                              03 02032
005450  140704  A 2033 INA     DATA    'ADD ',0120000                                                 03 02033
005451  142240  A
005452  120000  A
005453  140704  A 2034         DATA    'ADDX',0125000                                                 03 02034
005454  142330  A
005455  125000  A
005456  140704  A 2035         DATA    'ADDB',0126000                                                 03 02035
005457  142302  A
005460  126000  A
005461  140704  A 2036         DATA    'ADDE',06127                                                   03 02036
005462  142305  A
005463  006127  A
005464  140704  A 2037         DATA    'ADDI',06120                                                   03 02037
005465  142311  A
005466  006120  A
005467  140716  A 2038         DATA    'ANA ',0150000                                                 03 02038
005470  140640  A
005471  150000  A
005472  140716  A 2039         DATA    'ANAX',0155000                                                 03 02039
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005473 140730 A
005474 155000 A
005475 140716 A 2040        DATA    'ANAB',0156000                    03 02040
005476 140702 A
005477 156000 A
005500 140716 A 2041        DATA    'ANAE',06157                      03 02041
005501 140705 A
005502 006157 A
005503 140716 A 2042        DATA    'ANAI',06150                      03 02042
005504 140711 A
005505 006150 A
005506 140717 A 2043        DATA    'ADFA',05511                      03 02043
005507 143301 A
005510 005511 A
005511 140717 A 2044        DATA    'ADFB',05522                      03 02044
005512 143302 A
005513 005522 A
005514 140717 A 2045        DATA    'ADFX',05544                      03 02045
005515 143330 A
005516 005544 A
005517 140723 A 2046        DATA    'ASLA',04200                      03 02046
005520 146301 A
005521 004200 A
005522 140723 A 2047        DATA    'ASLB',04000                      03 02047
005523 146302 A
005524 004000 A
005525 140723 A 2048        DATA    'ASRA',04300                      03 02048
005526 151301 A
005527 004300 A
005530 140723 A 2049        DATA    'ASRB',04100                      03 02049
005531 151302 A
005532 004100 A
005533 141324 A 2050 INB    DATA    'BT  ',06400                      03 02050
005534 120240 A
005535 006400 A
005536 141324 A 2051        DATA    'BTA0',06440                      03 02051
005537 140660 A
005540 006440 A
005541 141324 A 2052        DATA    'BTA1',06400                      03 02052
005542 140661 A
005543 006400 A
005544 141324 A 2053        DATA    'BTB0',06460                      03 02053
005545 141260 A
005546 006460 A
005547 141324 A 2054        DATA    'BTB1',06420                      03 02054
005550 141261 A
005551 006420 A
005552 141711 A 2055 INC    DATA    'CIA ',0102500                    03 02055
005553 140640 A
005554 102500 A
005555 141711 A 2056        DATA    'CIAB',0102700                    03 02056
005556 140702 A
005557 102700 A
005560 141711 A 2057        DATA    'CIB ',0102600                    03 02057
005561 141240 A
005562 102600 A
005563 141717 A 2058        DATA    'CMP',05200                       03 02058
005564 146720 A
005565 005200 A
005566 141720 A 2059        DATA    'CPA ',05211                      03 02059
005567 140640 A
005570 005211 A
005571 141720 A 2060        DATA    'CPB ',05222                      03 02060
005572 141240 A
005573 005222 A
005574 141720 A 2061        DATA    'CPX ',05244                      03 02061
005575 154240 A
005576 005244 A
005577 142301 A 2062 IND    DATA    'DAR ',05311                      03 02062
005600 151240 A
005601 005311 A
005602 142302 A 2063        DATA    'DBR ',05322                      03 02063
005603 151240 A
005604 005322 A
005605 142305 A 2064        DATA    'DECR',05300                      03 02064
005606 141722 A
005607 005300 A
005610 142311 A 2065        DATA    'DIV ',0170000                    03 02065
005611 153240 A
005612 170000 A
005613 142311 A 2066        DATA    'DIVX',0175000                    03 02066
005614 153330 A
005615 175000 A
005616 142311 A 2067        DATA    'DIVB',0176000                    03 02067
005617 153302 A
005620 176000 A
005621 142311 A 2068        DATA    'DIVE',06177                      03 02068
005622 153305 A
005623 006177 A
005624 142311 A 2069        DATA    'DIVI',06170                      03 02069
005625 153311 A
005626 006170 A
005627 142330 A 2070        DATA    'DXR ',05344                      03 02070
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005630 151240 A
005631 005344 A
005632 142722 A 2071 INE     DATA    'ERA ',0130000                          03 02071
005633 140640 A
005634 130000 A
005635 142722 A 2072         DATA    'ERAX',0133000                          03 02072
005636 140730 A
005637 133000 A
005640 142722 A 2073         DATA    'ERAB',0136000                          03 02073
005641 140702 A
005642 136000 A
005643 142722 A 2074         DATA    'ERAE',06137                            03 02074
005644 140705 A
005645 006137 A
005646 142722 A 2075         DATA    'ERAI',06130                            03 02075
005647 140711 A
005650 006130 A
005651 142736 A 2076         DATA    'EXC ',0100000                          03 02076
005652 141640 A
005653 100000 A
005654 144314 A 2077 INH     DATA    'HLT ',00                               03 02077
005655 152240 A
005656 000000 A
005657 144701 A 2078 INI     DATA    'IAR ',05111                            03 02078
005660 151240 A
005661 005111 A
005662 144702 A 2079         DATA    'IRR ',05122                            03 02079
005663 151240 A
005664 005122 A
005665 144712 A 2080         DATA    'IJMP',06700                            03 02080
005666 146720 A
005667 006700 A
005670 144715 A 2081         DATA    'IME ',0102000                          03 02081
005671 142640 A
005672 102000 A
005673 144716 A 2082         DATA    'INA ',0102100                          03 02082
005674 140640 A
005675 102100 A
005676 144716 A 2083         DATA    'INAB',0102000                          03 02083
005677 140702 A
005700 102300 A
005701 144716 A 2084         DATA    'INB ',0102200                          03 02084
005702 141240 A
005703 102200 A
005704 144716 A 2085         DATA    'INCR',05100                            03 02085
005705 141722 A
005706 005100 A
005707 144716 A 2086         DATA    'IND ',040000                           03 02086
005710 151240 A
005711 040000 A
005712 144716 A 2087         DATA    'INRX',045000                           03 02087
005713 151330 A
005714 045000 A
005715 144716 A 2088         DATA    'INRB',043000                           03 02088
005716 151302 A
005717 043000 A
005720 144716 A 2089         DATA    'INPE',06047                            03 02089
005721 151305 A
005722 006047 A
005723 144716 A 2090         DATA    'IAPI',06040                            03 02090
005724 151311 A
005725 006040 A
005726 144730 A 2091         DATA    'IXP ',05144                            03 02091
005727 151241 A
005730 005144 A
005731 145301 A 2092 INJ     DATA    'JAN ',01004                            03 02092
005732 147240 A
005733 001004 A
005734 145301 A 2093         DATA    'JANM',02004                            03 02093
005735 147315 A
005736 002004 A
005737 145301 A 2094         DATA    'JANZ',01016                            03 02094
005740 147332 A
005741 001016 A
005742 145301 A 2095         DATA    'JAP ',01002                            03 02095
005743 150240 A
005744 001002 A
005745 145301 A 2096         DATA    'JAPM',02002                            03 02096
005746 150315 A
005747 002002 A
005750 145301 A 2097         DATA    'JAZ ',01010                            03 02097
005751 155240 A
005752 001010 A
005753 145301 A 2098         DATA    'JAZM',02010                            03 02098
005754 155315 A
005755 002010 A
005756 145302 A 2099         DATA    'JBNZ',01026                            03 02099
005757 147332 A
005760 001026 A
005761 145302 A 2100         DATA    'JBZ ',01020                            03 02100
005762 155240 A
005763 001020 A
005764 145302 A 2101         DATA    'JBZM',02020                            03 02101
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005765 155315 A
005766 002020 A
005767 145311 A 2102        DATA    'JIF ',01000                    03 02102
005770 143240 A
005771 001000 A
005772 145311 A 2103        DATA    'JIFM',02000                    03 02103
005773 143315 A
005774 002000 A
005775 145315 A 2104        DATA    'JMP ',01000                    03 02104
005776 150240 A
005777 001000 A
006000 145313 A 2105        DATA    'JMPM',02000                    03 02105
006001 150315 A
006002 002000 A
006003 145317 A 2106        DATA    'JOF ',01001                    03 02106
006004 143240 A
006005 001001 A
006006 145317 A 2107        DATA    'JOFN',01007                    03 02107
006007 143316 A
006010 001007 A
006011 145317 A 2108        DATA    'JOFM',02001                    03 02108
006012 143315 A
006013 002001 A
006014 145323 A 2109        DATA    'JSR ',06500                    03 02109
006015 151240 A
006016 006500 A
006017 145323 A 2110        DATA    'JSRX',06505                    03 02110
006020 151330 A
006021 006505 A
006022 145323 A 2111        DATA    'JSRB',06506                    03 02111
006023 151302 A
006024 006506 A
006025 145323 A 2112        DATA    'JS1M',02100                    03 02112
006026 130715 A
006027 002100 A
006030 145323 A 2113        DATA    'JS2M',02200                    03 02113
006031 131315 A
006032 002200 A
006033 145323 A 2114        DATA    'JS3M',02400                    03 02114
006034 131715 A
006035 002400 A
006036 145323 A 2115        DATA    'JS1N',01106                    03 02115
006037 130716 A
006040 001106 A
006041 145323 A 2116        DATA    'JS2N',01206                    03 02116
006042 131316 A
006043 001206 A
006044 145323 A 2117        DATA    'JS3N',01406                    03 02117
006045 131716 A
006046 001406 A
006047 145323 A 2118        DATA    'JSS1',01100                    03 02118
006050 151661 A
006051 001100 A
006052 145323 A 2119        DATA    'JSS2',01200                    03 02119
006053 151662 A
006054 001200 A
006055 145323 A 2120        DATA    'JSS3',01400                    03 02120
006056 151663 A
006057 001400 A
006060 145330 A 2121        DATA    'JXNZ',01046                    03 02121
006061 147332 A
006062 001046 A
006063 145330 A 2122        DATA    'JXZ ',01040                    03 02122
006064 155240 A
006065 001040 A
006066 145332 A 2123        DATA    'JXZM',02040                    03 02123
006067 155315 A
006070 002040 A
006071 146301 A 2124 INL    DATA    'LASL',04100                    03 02124
006072 151714 A
006073 004100 A
006074 146301 A 2125        DATA    'LASR',04500                    03 02125
006075 151722 A
006076 004500 A
006077 146302 A 2126        DATA    'LDA ',010000                    3 02126
006100 140540 A
006101 010000 A
006102 146301 A 2127        DATA    'LDAX',015000                   03 02127
006103 140730 A
006104 015000 A
006105 146302 A 2128        DATA    'LDAB',016000                   03 02128
006106 140702 A
006107 016000 A
006110 146305 A 2129        DATA    'LDAE',06017                    03 02129
006111 140705 A
006112 006017 A
006113 146304 A 2130        DATA    'LDAI',06010                     3 02130
006114 140711 A
006115 006010 A
006116 146301 A 2131        DATA    'LDB ',020000                    3 02131
006117 141240 A
006120 020000 A
006121 146304 A 2132        DATA    'LDBX',025000                   03 02132
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006122 141330 A
006123 025000 A
006124 146304 A 2133        DATA    'LDBB',026000                          03 02133
006125 141302 A
006126 026000 A
006127 146304 A 2134        DATA    'LDBE',06027                           03 02134
006130 141303 A
006131 006027 A
006132 146304 A 2135        DATA    'LDBI',06020                           03 02135
006133 141311 A
006134 006020 A
006135 146304 A 2136        DATA    'LDX ',030000                          03 02136
006136 154240 A
006137 030000 A
006140 146304 A 2137        DATA    'LDXX',035000                          03 02137
006141 154335 A
006142 035000 A
006143 146304 A 2138        DATA    'LDXB',036000                          03 02138
006144 154302 A
006145 036000 A
006146 146304 A 2139        DATA    'LDXE',06037                           03 02139
006147 154305 A
006150 006037 A
006151 146304 A 2140        DATA    'LDXI',06030                           03 02140
006152 154311 A
006153 006030 A
006154 146314 A 2141        DATA    'LLRL',04440                           03 02141
006155 151314 A
006156 004440 A
006157 146314 A 2142        DATA    'LLSR',04540                           03 02142
006160 151725 A
006161 004540 A
006162 146302 A 2143        DATA    'LRLA',04240                           03 02143
006163 146301 A
006164 004240 A
006165 146302 A 2144        DATA    'LRLB',04040                           03 02144
006166 146302 A
006167 004040 A
006170 146323 A 2145        DATA    'LSRA',04340                           03 02145
006171 151301 A
006172 004340 A
006173 146323 A 2146        DATA    'LSRB',04140                           03 02145
006174 151302 A
006175 004140 A
006176 146703 A 2147 INM    DATA    'MERG',05000                           03 02147
006177 151307 A
006200 005000 A
006201 146725 A 2148        DATA    'MUL ',0160000                         03 02148
006202 146240 A
006203 160000 A
006204 146725 A 2149        DATA    'MULX',0165000                         03 02149
006205 146330 A
006206 165000 A
006207 146725 A 2150        DATA    'MULB',0166000                         03 02150
006210 146302 A
006211 166000 A
006212 146725 A 2151        DATA    'MULE',06167                           03 02151
006213 146305 A
006214 006167 A
006215 146725 A 2152        DATA    'MULI',06160                           03 02152
006216 146311 A
006217 006160 A
006220 147317 A 2153 INN    DATA    'NDF ',05000                           03 02153
006221 150240 A
006222 005000 A
006223 147701 A 2154 IND    DATA    'DAD ',0103300                         03 02154
006224 141240 A
006225 103300 A
006226 147701 A 2155        DATA    'DAR ',0103100                         03 02155
006227 151240 A
006230 103100 A
006231 147706 A 2156        DATA    'DBR ',0103200                         03 02156
006232 151240 A
006233 103200 A
006234 147715 A 2157        DATA    'DME ',0103000                         03 02157
006235 142640 A
006236 103000 A
006237 147722 A 2158        DATA    'DRA ',0110000                         03 02158
006240 140640 A
006241 110000 A
006242 147722 A 2159        DATA    'DRAX',0115000                         03 02159
006243 140730 A
006244 115000 A
006245 147722 A 2160        DATA    'DRAB',0116000                         03 02160
006246 140702 A
006247 116000 A
006250 147722 A 2161        DATA    'DRAE',06117                           03 02161
006251 140705 A
006252 006117 A
006253 147722 A 2162        DATA    'DRAI',06110                           03 02162
006254 140711 A
006255 006110 A
006256 151317 A 2163 INR    DATA    'RDF ',07400                           03 02163
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006257 143240 A
006260 007400 A
006261 151705 A 2164 INS     DATA    'SEN ',0101000                          03 02164
006262 147240 A
006263 101000 A
006264 151717 A 2165         DATA    'SOF ',07401                            03 02165
006265 143240 A
006266 007401 A
006267 151717 A 2166         DATA    'SOFA',05711                            03 02166
006270 143301 A
006271 005711 A
006272 151717 A 2167         DATA    'SOFB',05722                            03 02167
006273 143302 A
006274 005722 A
006275 151717 A 2168         DATA    'SOFX',05744                            03 02168
006276 143330 A
006277 005744 A
006300 151722 A 2169         DATA    'SRE ',06600                            03 02169
006301 142640 A
006302 006600 A
006303 151724 A 2170         DATA    'STA ',050000                           03 02170
006304 140640 A
006305 050000 A
006306 151724 A 2171         DATA    'STAX',055000                           03 02171
006307 140730 A
006310 055000 A
006311 151724 A 2172         DATA    'STAB',056000                           03 02172
006312 140702 A
006313 056000 A
006314 151724 A 2173         DATA    'STAE',06057                            03 02173
006315 140705 A
006316 006057 A
006317 151724 A 2174         DATA    'STAI',06050                            03 02174
006320 140711 A
006321 006050 A
006322 151721 A 2175         DATA    'STB ',060000                           03 02175
006323 141240 A
006324 060000 A
006325 151721 A 2176         DATA    'STBX',065000                           03 02176
006326 141330 A
006327 065000 A
006330 151724 A 2177         DATA    'STBB',066000                           03 02177
006331 141302 A
006332 066000 A
006333 151724 A 2178         DATA    'STBE',06067                            03 02178
006334 141305 A
006335 006067 A
006336 151724 A 2179         DATA    'STBI',06060                            03 02179
006337 141311 A
006340 006060 A
006341 151721 A 2180         DATA    'STM ',070000                           03 02180
006342 154240 A
006343 070000 A
006344 151724 A 2181         DATA    'STXX',075000                           03 02181
006345 154330 A
006346 075000 A
006347 151724 A 2182         DATA    'STXB',076000                           03 02182
006350 154302 A
006351 076000 A
006352 151724 A 2183         DATA    'STXE',06077                            03 02183
006353 154305 A
006354 006077 A
006355 151724 A 2184         DATA    'STXI',06070                            03 02184
006356 154311 A
006357 006070 A
006360 151725 A 2185         DATA    'SUB ',0140000                          03 02185
006361 141240 A
006362 140000 A
006363 151723 A 2186         DATA    'SUBX',0145000                          03 02186
006364 141330 A
006365 145000 A
006366 151723 A 2187         DATA    'SUBB',0146000                          03 02187
006367 141302 A
006370 146000 A
006371 151723 A 2188         DATA    'SUBE',06147                            03 02188
006372 141305 A
006373 006147 A
006374 151723 A 2189         DATA    'SUBI',06140                            03 02189
006375 141311 A
006376 006140 A
006377 152301 A 2190 INT     DATA    'TAB ',05012                            03 02190
006400 141240 A
006401 005012 A
006402 152301 A 2191         DATA    'TAX ',05014                            03 02191
006403 154240 A
006404 005014 A
006405 152302 A 2192         DATA    'TBX ',05021                            03 02192
006406 140640 A
006407 005021 A
006410 152302 A 2193         DATA    'TBX ',05024                            03 02193
006411 154240 A
006412 005024 A
006413 152323 A 2194         DATA    'TSA ',07402                            03 02194
```

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006414 140640 A
006415 007402 A
006416 152330 A 2195        DATA    'TXA ',05041                          03 02195
006417 140640 A
006420 005041 A
006421 152330 A 2196        DATA    'TXB ',05042                          03 02196
006422 141240 A
006423 005042 A
006424 152332 A 2197        DATA    'TZA ',05001                          03 02197
006425 140640 A
006426 005001 A
006427 152332 A 2198        DATA    'TZB ',05002                          03 02198
006430 141240 A
006431 005002 A
006432 152332 A 2199        DATA    'TZX ',05004                          03 02199
006433 154240 A
006434 005004 A
006435 154301 A 2200 INX    DATA    'XAN ',03004                          03 02200
006436 147240 A
006437 003004 A
006440 154301 A 2201        DATA    'XANZ',03016                          03 02201
006441 147332 A
006442 003016 A
006443 154301 A 2202        DATA    'XAP ',03002                          03 02202
006444 150240 A
006445 003002 A
006446 154301 A 2203        DATA    'XAZ ',03010                          03 02203
006447 155240 A
006450 003010 A
006451 154302 A 2204        DATA    'XBNZ',03026                          03 02204
006452 147332 A
006453 003026 A
006454 154302 A 2205        DATA    'XBZ ',03020                          03 02205
006455 155240 A
006456 003020 A
006457 154303 A 2206        DATA    'XCC ',03000                          03 02206
006460 141640 A
006461 003000 A
006462 154311 A 2207        DATA    'XIF ',03000                          03 02207
006463 143240 A
006464 003000 A
006465 154317 A 2208        DATA    'XOF ',03001                          03 02208
006466 143240 A
006467 003001 A
006470 154317 A 2209        DATA    'XOFN',03007                          03 02209
006471 143316 A
006472 003007 A
006473 154323 A 2210        DATA    'XS1 ',03100                          03 02210
006474 130640 A
006475 003100 A
006476 154323 A 2211        DATA    'XS2 ',03200                          03 02211
006477 131240 A
006500 003200 A
006501 154323 A 2212        DATA    'XS3 ',03400                          03 02212
006502 131640 A
006503 003400 A
006504 154323 A 2213        DATA    'XS1N',03106                          03 02213
006505 130716 A
006506 003106 A
006507 154323 A 2214        DATA    'XS2N',03206                          03 02214
006510 131316 A
006511 003206 A
006512 154323 A 2215        DATA    'XS3N',03406                          03 02215
006513 131716 A
006514 003406 A
006515 154330 A 2216        DATA    'XXNZ',03046                          03 02216
006516 147332 A
006517 003046 A
006520 154330 A 2217        DATA    'XXZ ',03040                          03 02217
006521 155240 A
006522 003040 A
006523 155305 A 2218 INZ    DATA    'ZERO',05000                          03 02218
006524 151317 A
006525 005000 A
006526 000000 A 2219 INEND  DATA    0           END OF TABLE             03 02219
006527          2220        BSS     50          PATCH'S PATCH AREA     F  03 02220
        000000 R 2221       END     VSPTCH                                03 02221
ENTRY NAMES
EXTERNAL NAMES
001444 E CA23    004450 E MOVE    000204 E V$EXEC 004371 E V$IOC
004400 E V$IPST  000000 E V$LUT1  000136 E V$STWD
SYMBOLS
002465 R ADC10   002476 R ADC20   002505 R ADC30   002441 R ADCAL
000713 R APN02   000731 R APN03   000760 R APN05   000766 R APN10
001006 R APN20   001030 R APN30   000713 R APND    004170 R ARITH
000002 A B       000000 A B0      000001 A B1      000012 A B10
000013 A B11     000014 A B12     000015 A B13     000016 A B14
000017 A B15     000002 A B2      000003 A B3      000004 A B4
000005 A B5      000006 A B6      000007 A B7      000010 A B8
000011 A B9      001352 R BAER    001244 R BAS05   001253 R BAS10
001271 R BAS15   001315 R BAS25   001321 R BAS30   001357 R BASE
001244 R BASET   004140 R BI10    004132 R BI20C   004157 R BICNT
004160 R BITMB   000421 A BM1     000472 A BM17    000475 A BM177
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000477 A  BM1777  000464 A  BM3     000473 A  BM37    000463 A  BM377
000467 A  BM7     000474 A  BM77    000476 A  BM777   000441 A  BR0
000442 A  BR1     000453 A  BR10    000454 A  BR11    000455 A  BR12
000456 A  BR13    000457 A  BR14    000460 A  BR15    000443 A  BR2
000444 A  BR3     000445 A  BR4     000446 A  BR5     000447 A  BR6
000450 A  BR7     000451 A  BR8     000452 A  BR9     000421 A  BS0
000422 A  BS1     000433 A  BS10    000434 A  BS11    000435 A  BS12
000436 A  BS13    000437 A  BS14    000440 A  BS15    000423 A  BS2
000424 A  BS3     000425 A  BS4     000426 A  BS5     000427 A  BS6
000430 A  BS7     000431 A  BS8     000432 A  BS9     001340 R  BSDCB
001343 R  BSMSG   004172 R  BUFPT   001444 E  CA2B    000147 A  CL
004413 R  CL15    004434 R  CL20    005035 R  CLBUF   004471 R  CLCNT
004447 R  CLEF    004447 R  CLER    004457 R  CLFCB   004642 R  CLMSG
004313 R  CLS02   004323 R  CLS03   004350 R  CLS05   004352 R  CLS07
004370 R  CLS10   004300 R  CLSRCH  004167 R  COUNT   002544 R  DBLNK
000676 R  DCDCB   004740 R  DCMSG   000606 R  DER     000636 R  DERR
000010 A  DI      003407 R  DI10    003425 R  DI20    003430 R  DI50
000662 R  DIDCB   004616 R  DIMSG   003434 R  DIP     003404 R  DIREC
000222 R  DIRER   003433 R  DITMP   000632 R  DM60    000616 R  DMAP
000626 R  DMBA    000650 R  DMD     000567 R  DMDIR   000602 R  DMDU
000643 R  DME     000531 R  DME10   000522 R  DMEOF   000655 R  DMERR
000606 R  DMEX    000612 R  DMHI    000622 R  DML1    000345 R  DMP01
000373 R  DMP05   000402 R  DMP10   000420 R  DMP12   000437 R  DMP14
000440 R  DMP15   000454 R  DMP25   000473 R  DMP30   000516 R  DMP40
000566 R  DMP50   004657 R  DMPMSG  000576 R  DMPT    000014 A  DQ
000663 R  DQDCB   000342 R  DUMP    000424 A  EIGHT   002144 R  ENT01
002150 R  ENT01A  002175 R  ENT02   002201 R  ENT05   002214 R  ENT06
002231 R  ENT10   002250 R  ENT15   002257 R  ENT20   002272 R  ENT30
002136 R  ENTER   002551 R  ENTSC   002550 R  ENTWD   000331 R  ERBLK
000670 R  ERDCB   000215 R  ERR     000203 R  EXIT    004056 R  FB10
004045 R  FBYTE   003474 R  FET05   003500 R  FET10   003526 R  FET20
003540 R  FET25   003564 R  FET30   003574 R  FET32   003575 R  FET35
003613 R  FET40   003623 R  FET42   003635 R  FET45   003643 R  FET47
003653 R  FET50   003661 R  FET51   003607 R  FET70   003713 R  FETCH
004171 R  FETLT   003701 R  FETER   003704 R  FETR1   003703 R  FETR10
000465 A  FIVE    000152 A  FL      000423 A  FOUR    001201 R  HER
001050 R  HI10    001066 R  HI12    001116 R  HI15    001137 R  HI25
001220 R  HI50    001236 R  HIBLK   001241 R  HIDCB   004754 R  HIMSG
001050 R  HIST    003444 R  IMAGE   005225 R  IMBUF   003473 R  IMCNT
000701 R  IMFCB   004214 R  IN05    004213 R  IN10    004234 R  IN12
004241 R  IN15    004251 R  IN25    004263 R  IN30    004267 R  IN40
004272 R  IN50    005450 R  INA     005533 R  INB     004765 R  INBUF
005552 R  INC     004276 R  INCNT   005577 R  IND     005622 R  INE
005526 R  INEND   005654 R  INH     005667 R  INI     005721 R  INJ
006271 R  INL     006176 R  INM     006220 R  INN     006203 R  INO
006256 R  INR     006261 R  INS     004275 R  INSCN   004173 R  INST
006377 R  INT     005415 R  INTBL   006405 R  INX     006522 R  INZ
004565 R  ITBUF   002133 R  LBDCB   000300 A  LC      002117 R  LFR
000462 A  LHW     001367 R  LIB10   001376 R  LIB11   001403 R  LIB12
001424 R  LIB13   001425 R  LIB14   001436 R  LIB15   001451 R  LIB16
002230 R  LIB20   001600 R  LIB21   001726 R  LIB22   001675 R  LIB22A
001713 R  LIB22B  001725 R  LIB22C  001654 R  LIB23   001606 R  LIB24
001735 R  LIB25   001753 R  LIB26   001775 R  LIB30   002002 R  LIB31
002041 R  LIB32   002044 R  LIB50   002055 R  LIB55   002131 R  LIB90
002304 R  LIB96   002305 R  LIB97   002306 R  LIB98   002307 R  LIB99
002105 R  LIBER   002310 R  LIBIO   002515 R  LIBLK   001360 R  LIDB
002571 R  LIBUF   002552 R  LIDCB   002113 R  LIER    002307 R  LIFC3
004703 R  LIMSG   002330 R  LIO20   002107 R  LIOER   002520 R  LIOVLY
002555 R  LIREQ   000005 A  LO      004450 R  MOVE    000409 R  MT
004573 R  N240    004161 R  N260    000401 R  NEG     002426 R  NINE
000000 R  NUC10   000015 R  NUC12   000023 R  NUC14   000052 R  NUC14A
002041 R  NUC14B  000053 R  NUC15   000065 R  NUC17   000067 R  NUC20
000107 R  NUC30   000113 R  NUC35   000117 R  NUC40   000140 R  NUC45
000206 R  NUDIR   004576 R  NUMSG   003778 R  OC22I   004001 R  OCB
004036 R  OCBER   004160 R  OCTMP   004163 R  OCVAL   000421 A  ONE
003721 R  ORGN    002124 R  OVLER   004710 R  OVMSG   002363 R  OVS10
002367 R  OVS20   002415 R  OVS30   002432 R  OVS35   002435 R  OVS40
002440 R  OVSCB   002350 R  OVSKIP  002507 R  PM1     002510 R  PM2
002511 R  PM3     002512 R  PM4     004605 R  PMMSG   000673 R  PRDCB
004613 R  PRMSG   003470 R  PTADR   000227 R  PTERR   002510 R  PTIOB
002543 R  PTSTS   003716 R  PVTIM   000000 A  RA0     000002 A  RA1
000060 A  RB0     000020 A  RB1     003157 R  RE10    003214 R  REBUF
000236 R  REC10   000255 R  REC20   000322 R  REC30   000001 R  REC40
000326 R  RECOV   003200 R  REFCB   003150 R  REIC    002764 R  REL05
002770 R  REL10   003006 R  REL15   003021 R  REL20   003037 R  REL21
003041 R  REL35   003044 R  REL40   003050 R  REL50   003055 R  REL55
003065 R  REL60   003100 R  REL65   003121 R  REL68   003106 R  REL70
003141 R  REL75   003127 R  REL80   003070 R  REL91   003201 R  REL92
002761 R  RELO    004730 R  REMSG   004217 R  RETYP   000433 R  RHW
004106 R  SB10    004111 R  SB20    004135 R  SB30    004150 R  SBTMA
004131 R  SBTMB   004065 R  SBYTE   003777 R  SCAM    003777 R  SCBPT
003731 R  SCN10   003767 R  SCNI0   002303 R  SEGSZ   000467 R  SEVEN
004574 R  SIBUF   004571 R  SITMB   004570 R  SITMX   000466 R  SIX
002472 R  SIXBIT  000003 A  SO      004071 R  STMSG   004154 R  STWIN
000471 A  TEN     003717 R  TERM    000466 A  THREE   002541 R  TRBLK
000422 A  TWO     000403 R  V$1MIN  000417 A  V$BFC   000315 A  V$BTB
000414 A  V$BVN   000334 A  V$CAM   000353 R  V$CKI   000411 A  V$CKIT
000310 A  V$CMPT  000301 A  V$CPL   000341 R  V$CRDR  000334 A  V$CRM
000302 A  V$CRS   000360 A  V$CTAD  000320 R  V$CTL   000351 A  V$CTMS
000355 A  V$DNTB  000376 A  V$EPFG  000204 E  V$EXFC  000347 A  V$FGLB
000306 A  V$FLRS  000350 A  V$FPFE  000330 A  V$IM    000410 A  V$IOA
004371 E  V$IOC   004400 E  V$IOST  000412 A  V$JCB   000377 A  V$JOB
000313 A  V$LER   000356 A  V$LTT   000317 A  V$LLUP  000307 A  V$LRSK
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000312 A V$LSAL 000345 A V$LUNT 000316 A V$LUP  000000 E V$LUT1
000401 A V$LUT2 000402 A V$LUT3 000330 A V$MPM  000362 A V$NCTR
000413 A V$OCB  000346 A V$OPCF 000311 A V$OPCL 000363 A V$PIMN
000000 R V$PTCH 000305 A V$PTVB 000361 A V$SCTL 000352 A V$SCV
000375 A V$SLFG 000136 E V$STHD 000303 A V$TB   000342 A V$T&GT
000416 A V$TFC  000314 A V$TJCP 000364 A V$TMN  000343 A V$TMS
000304 A V$UTB  003720 R VALUE  000001 A VORTEX 000001 A X
000234 R XFCPTR 000235 R XFEPTR 000420 A ZERO
  0 ERRORS ASSEMBLY COMPLETE
 1139  ADC20   1120  1127  1133  1135
 1144  ADC30   1140
 1109  ADCAL    786  1144
  501  APN02    502
  503  APN03    504
  512  APN05    524
  514  APN10    515
  517  APN20    511   528
  529  APN30    519   531
  500  APND     305   461
    0  ARITH   1459
   30  B        335   336   716   717   718   737   738   739   836
           1126  1132  1230  1235
  187  B0       767   794   902   845,  861   902   911   918  1135
           1140
  189  B2       769
  196  B9       770   970  1035  1120  1127  1133
  642  BAER     618   618   618   628
  616  BAS05    642
  617  BAS10    618
  619  BAS15    642
  631  BAS25    627   627
  634  BAS30    622
  643  BASE     629   632   634
  615  BASET    307   465
    0  BI2DC    284   288   292   579   582   585   637   828   831
           834
  130  BR0      733
  145  BR15    1211  1234
  114  BS0      746
  129  BS15    1268
  122  BS8      842   866   950  1237
  123  BS9     1121  1129
  640  BSDCB    638
  641  BSMSG    635   640
    0  BUFPT    238   413   625   689   814
    0  CA2B     683   684
    0  CLMSG    363
    0  COUNT    723   741  1416  1431
 1160  DBLNK    700   714   735
  478  DCDCB    442
    0  DCMSG    478
  469  DER      502   502   502
  470  DERR     390   390   390   428   428   428   440   440   440
           504   504   504   515   515   515   531   531   531
   25  DI       221   350   397   617   658   806
 1332  DI10    1342
 1341  DI20    1335
 1343  DI50    1333
  474  DIDCB    221   341   350   397   617   658   806
    0  DIMSG    363
 1346  DIR     1332
 1329  DIREC    230   405  1340  1344
  310  DIRER    231
 1345  DITMP   1330  1337
  467  DM60     454   456   458   460   462   464   466
  461  DMAP     449
  465  DMBA     451
  472  DMD      406
  466  DMDIR    404
  455  DMDU     446
  471  DME      398   398   398
  439  DME10    440
  435  DMEOF    468
  473  DMERR    416   421
  457  DMEX     447
  459  DMHI     448
  463  DML1     450
  388  DMP01    390
  396  DMP05    415   420   471   472   473   532
  397  DMP10    398
  399  DMP12    471   472   473
  409  DMP14    407
  410  DMP15    403
  418  DMP25    415   426   431   434
  427  DMP30    428
  432  DMP40    420
  444  DMP50    467
    0  DMPMSG   363
  453  DMPT     445
   26  DO       219   293   396   442   593   616   638   657   805
           838
  475  DODCB    293   586
  385  DUMP     302   455   507
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 905   ENT01     902
 908   ENT01A    984    987
 928   ENT02     918
 936   ENT05     927
 944   ENT06     939    940
 955   ENT10     947
 965   ENT15     961
 972   ENT20     970
 981   ENT30     907
 900   ENTER     825    971    980
1165   ENTSC     948    952
1164   ENTWD     916    956
 363   ERBLK     335
 476   ERDCB     307    339    340
 289   ERR       822    822    292    342    342    342
 300   EXIT      303    487
   0   FBYTE    1441
1428   FET20    1422
1437   FET25    1430
1455   FET32    1452
1457   FET35    1450
   0   FET40    1443   1445
   0   FET50    1424
   0   FET51    1426
   0   FET70    1420
   0   FETCH     239    246    414    419    626    815    820   1433   1435
              1436
   0   FETER    1427   1439   1447
  28   FL        389    427    439    441    501    503    514    530    550
               552    560
 152   FOUR      779
 595   HER       551    551    551    553    553    553    561    561    561
 550   HI10      551
 552   HI12      553
 560   HI15      561    589
 564   HI25      559    592
 593   HI50      556    570
 596   HIBLK     572    574    576    577    581    584
 592   HIDCB     593
   0   HIMSG     597
 549   HIST      304    459
1370   IMAGE     395    423    438   1384
   0   IMBUF     215    270    276    278    312    313    479    505    508
               516    554    565   1374   1377   1380
1706   IMCNT     387    424    430    510    513    520    552    558    563
               566    587    591   1371   1382
 479   IMFCB     389    427    439    441    501    503    514    530    550
               552    560
   0   INBUF     224    236    343    400    411    474    619    623    660
               664    667    675    681    808    812   1334
   0   ITBUF     701    708    715    721    726    730    736    744   1437
 875   LBDCB     838
  37   LC         38     39     40     41     42     43     44     45     46
               47     48     49     50     51     52     53     54     55
               56     58     59     60     61     62     63     64     65
               66     67     68     69     70     71     73     74     75
               76     80     81     82     84     85     86     91     92
               93     96    101    102    103
 872   LER       807    807    812    817    822
 147   LHW       698    706
 659   LIB11     870    871    873   1271
 684   LIB12     660    672
 673   LIB13     670
 674   LIB14     670
 680   LIB15     673
 688   LIB16     682
1028   LIB20    1024   1047
 748   LIB21     709    742    749
 805   LIB22     810    821    869    872
 785   LIB22A    767
 796   LIB22B    794
 804   LIB22C    808
 773   LIB23     770
 791   LIB24     776
 806   LIB25     807
 808   LIB26     809    870
 819   LIB30     816    910
 839   LIB32     821
 841   LIB50     811
 849   LIB55     845
 863   LIB60     851
 874   LIB99     805
 992   LIB96     941    982
 903   LIB97     801    938
 904   LIB98     765    780    854
 905   LIB99     763    778    851    865
 870   LIBUF     687    704    714
1015   LIBYD     757    843    853    867    951    954   1031   1052   1083
1161   LIBLK     818    824    826    830    833    839    906    909    958
               930    978    988    985
 656   LIBR      306    463    870    871    873   1271
1168   LIBUF     759    857    862    957    966   1059   1061   1065   1068
              1072   1157
```

```
1166   LIDCB     657
 871   LIER      749   749   749  1030  1030  1030
1157   LIFCB     705   711   726   748   753   777   841   946   949
                1020  1023  1029  1080
   0   LIMSG     363
1029   LIO20     691   694  1030
 869   LIOER     943  1018  1021
1156   LIOVLY    721   744   782   783   803   846   903   921   925
                1063  1066  1069  1141
1167   LIREQ    1166
  24   LO        586
   0   MOVE      719   720   725   729   743   752   758   781
 112   MT        113   114   115   116   117   118   119   120   121
                122   123   124   125   126   127   128   129   130
                131   132   133   134   135   136   137   138   139
                140   141   142   143   144   145   146   147   148
                149   150   151   152   153   154   155   156   157
                158   159   160   161   162   163   164   165   166
                167   168
 214   NUC10     271   299   301   309   310   311   453   470   594
                595   595   630   633   639
 220   NUC12     222
 223   NUC14     309   310   311   470
 234   NUC14A    232
 228   NUC14B    218   663   850   868
 235   NUC15     217
 242   NUC17     266
 245   NUC20     258   262
 259   NUC30     247
 263   NUC35     240
 267   NUC40     240   247
 280   NUC45     298
 301   NUDIR     229
   0   NUMSG     283   285   289   475   578   580   583   827   829
                832   837   875
   0   OC2BI    1446
 149   ONE      1017
   0   ORGN      791   795   912   968   974
 873   OVLER     769   775
   0   OVMSG     363
1058   OVS10    1055
1061   OVS20    1078  1085
1074   OVS30    1064  1067  1070
1084   OVS35    1079
1086   OVS40    1062
1088   OVSAD     975  1060  1115  1142
1050   OVSRCH    774  1073  1087
   0   PATCH       5
1148   PM1       787  1111  1122
1149   PM2       788   964  1112  1130
1150   PM3       789   963  1113  1137
1151   PM4       790  1114  1143
   0   PMMSG     363
 477   PRDCB     219   396   616   805
   0   PRMSG     477
1385   PTADR     393   394   417   422   433   436   437  1372  1383
 311   PTERR     241   248
1155   PTIDB     759   760   768   848   905   931   969  1054  1117
1159   PTSTS     732   734   745   747   766   793   801   844   860
                901   910   917  1118  1134  1139
   0   PVTRM    1415  1449  1460
 176   RA0       767   769   845   902   918  1140
 177   RA1       770   970  1120  1127  1133  1135
 178   RB0       802
 179   RB1       794   861   911  1055
1300   RE10      696  1296  1299  1301
1310   RERUF    1208  1229  1236  1251  1264  1267  1269  1309
 332   REC10     359
 341   REC20     342   347
 354   REC30     346   349
 356   REC40     353
 358   RECOV     309   310   311   333   351   354   356   470   471
                472   473   595   642   869   870   871   872   873
               1271
1309   REFCR     713   730   753   922   932  1240  1275  1300
1294   REID     1204  1238  1277  1302
1203   REL05    1241
1206   REL10    1274
1215   REL15    1246  1257
1222   REL20    1270
1227   REL21    1225
1234   REL35    1231
1236   REL40    1233
1240   REL50    1207
1242   REL55    1209
1247   REL60    1217  1252  1279
1258   REL65    1212  1255
1271   REL68    1260  1301  1301  1301
1273   REL70    1221
1275   REL75    1249
1306   REL90    1201  1232
1307   REL91    1202  1215  1220  1223  1261
1308   REL92    1214  1224  1242  1244  1265
```

```
1200   RELO      978  1239
   0   REMSG     364
   0   RETYP     835   960   977  1413
 148   RHW       697
   0   SCAN      702   722   740  1417
 991   SEGSZ     761   784   792   849   855   942   981   986
 155   SEVEN    1057  1075
  23   SO        340   341
   0   STMSG     363
 158   TEN       671
   0   TERM     1430  1461
 151   THREE     252   274   295   521   557   764   771
1156   TRBLK     686
 150   TWO       348   506   555   773
  62   V$LUNT    673
   0   V$LUTI     21
   0   V$STWD     22   277
   0   VALUE    1414  1456  1458
   1   VORTEX    695   712   727   750   858   919   929   967  1119
              1124  1170
  29   X         334   352   358   671   680   684   720   725   729
             743   752   758   781   857   862   957   966  1059
            1061  1065  1068  1208  1229  1236  1251  1264  1267
            1269
 312   XFCPTR    216   243   249   253   260   268   279   281   286
             290   294   296
 313   XFEPTR    264   269   297
```

```
                    1 *                                                                                 01 00001
                    2 *       BTPTCH                                                                    01 00002
                    3         TITLE   BTPTCH                                                            01 00003
                    4 *                                                                                 01 00004
                    5 *       THIS IS A FOREGROUND LIBRARY ROUTINE WHICH IS SHCEDULED BY                01 00005
                    6 *       V$SCPT WHEN SSW1 IS SET.  THIS ROUTINE READS PATCH IMAGES                 01 00006
                    7 *       CREATED BY THE DUMP ROUTINE IN PATCH FROM THE FL FILE 'PTCHIM'.           01 00007
                    8 *       AND PERFORMS THE NUCLEUS PATCHES.                                         01 00008
                    9 *                                                                                 01 00009
                   10 *       EACH RECORD OF 'PTCHIM' CONTAINS UP TO 40 THREE WORD PATCH                01 00010
                   11 *       BLOCKS FOR SUBMISSION TO V$STWD FOR ACTUAL PATCHING                       01 00011
                   12 *                                                                                 01 00012
                   13 *       THE PATCH IMAGE MUST BE TERMINATED BY AN ADDR OF MINUS 1                  01 00013
                   14 *                                                                                 01 00014
                   15 *       BTPTCH EXITS UPON COMPLETION OF PATCHING                                  01 00015
                   16 *                                                                                 01 00016
                   17 *       FILE PTCHIM IS OPENED AND REWOUND                                         01 00017
                   18 *                                                                                 01 00018
000001 A           19 DC      EQU     1                                                                 01 00019
000152 A           20 FL      EQU     106                                                               01 00020
                   21         EXT     V$STWD                                                            01 00021
000000 R           22 BTPTCH  EQU     *                                                                 01 00022
                   23 BT10    OPEN    IMFCB,FL,0,0  OPEN AND REWIND IMAGE FILE                          01 00023
000000 006505 A
000001 000000 E
000002 100000 A
000003 000152 A
000004 000241 R
000005 000000 A
000006 000000 A
                   24         STAT    BT10,ERR,ERR,ERR,*                                                01 00024
000007 006505 A
000010 000000 E
000011 000000 R
000012 000214 R
000013 000214 R
000014 000214 R
000015 000007 R
                   25 BT12    READ    IMFCB,FL,0,0  INPUT IMAGE RECORD                                  E.201 00025
000016 006505 A
000017 000001 E
000020 100000 A
000021 000152 A
000022 000241 R
000023 000000 A
000024 000000 A
                   26         STAT    BT12,RER,RER,RER,*                                                E.201 00026
000025 006505 A
000026 000010 E
000027 000016 R
000030 000226 R
000031 000226 R
000032 000226 R
000033 000025 R
000034 014271 A    27         LDA     IMBUF         FIRST STORE ADDR                                    E.201 00027
000035 006120 A    28         ADDI    2                                                                 E.201 00028
000036 000002 A
000037 001016 A    29         JANZ    EXIT          IF NOT =-2, THEN FILE IS EMPTY                      E.201 00029
000040 000211 R
000041 006010 A    30         LDAI    3                                                                 E.201 00030
000042 000003 A
000043 054174 A    31         STA     IMCNT         SET FOR SECOND IMAGE ITEM                           E.201 00031
000044 001000 A    32         JMP     BT25                                                              E.201 00032
000045 000066 R
                   33 BT15    READ    IMFCB,FL,0,0  INPUT IMAGE RECORD                                  01 00033
000046 006505 A
000047 000017 E
000050 100000 A
000051 000152 A
000052 000241 R
000053 000000 A
000054 000000 A
                   34         STAT    BT15,RER,RER,RER,*                                                01 00034
000055 006505 A
000056 000026 E
000057 000043 R
000060 000226 R
000061 000226 R
000062 000226 R
000063 000055 R
000064 005001 A    35         TZA                                                                       01 00035
000065 054152 A    36         STA     IMCNT         SET FOR FIRST ENTRY                                 01 00036
000066 R           37 BT25    EQU     *                                                                 01 00037
000066 024151 A    38         LDB     IMCNT                                                             E.201 00038
000067 006016 A    39         LDAE    IMBUF,2                                                           E.201 00039
000070 000326 R
000071 001004 A    40         JAN     BT30          IF END OF IMAGE                                     E.201 00040
000072 000105 R
000073 014144 A    41         LDA     IMCNT                                                             E.201 00041
000074 006140 A    42         SUBI    117                                                               E.201 00042
000075 000165 A
000076 001010 A    43         JAZ     BT35          IF END OF RECORD                                    E.201 00043
000077 000117 R
```

```
000100 006120 A    44          ADDI    120                                          E.201 00044
000101 000170 A
000102 054135 A    45          STA     IMCNT                                        E.201 00045
000103 001000 A    46          JMP     BT25        CONTINUE SCAN                    E.201 00046
000104 000066 R
000105 006010 A    47 BT30     LDAI    BT50                                         E.201 00047
000106 000134 R
000107 054023 A    48          STA     BT45        SET JUMP FOR END OF IMAGE        E.201 00048
000110 024127 A    49          LDB     IMCNT       IMBUF POINTER                    E.201 00049
000111 005001 A    50          TZA                                                  E.201 00050
000112 006170 A    51          DIVI    3           CALCULATE IMAGE COUNT            E.201 00051
000113 000003 A
000114 005021 A    52          TBA                 SET FOR V$STWD COUNT             E.201 00052
000115 001000 A    53          JMP     BT36                                         E.201 00053
000116 000124 R
000117 006010 A    54 BT35     LDAI    BT55                                         E.201 00054
000120 000150 R
000121 054011 A    55          STA     BT45        SET JUMP FOR CONTINUE PATCH      E.201 00055
000122 006010 A    56          LDAI    40          SET IMAGE COUNT FOR FULL RECORD  E.201 00056
000123 000050 A
000124 006020 A    57 BT36     LDBI    IMBUF                                        E.201 00057
000125 000326 R
           58          ALOC    V$STWD      PERFORM PATCH                            E.201 00058
000126 006505 A
000127 000000 E
000130 000600 A
000131 000000 E
000132 001000 A    59          JMP     0                                            E.201 00059
000133 000000 A
000133             60 BT45     BES     0           JUMP AS DIRECTED FROM ABOVE      E.201 00060
       000134 R    61 BT50     EQU     *                                            01 00061
           62          WRITE   PCDCB,DC,0,1                                         01 00062
000134 006505 A
000135 000047 E
000136 100000 A
000137 010401 A
000140 000261 R
000141 000000 A
000142 000000 A
000143 006010 A    63          LDAI    EXIT                                         01 00063
000144 000211 R
000145 054042 A    64          STA     BT70        SET FOR EXIT UPON COMPLETION     01 00064
000146 001000 A    65          JMP     BT60                                         01 00065
000147 000153 R
000150 006010 A    66 BT55     LDAI    BT15                                         01 00066
000151 000046 R
000152 054035 A    67          STA     BT70        SET FOR CONTINUE ON COMPLETION   01 00067
           68 BT60     SREC    INFCB,FL,0,1  REPOSITION TO LAST READ                01 00068
000153 006505 A
000154 000130 E
000155 100000 A
000156 012152 A
000157 000241 R
000160 000000 A
000161 000000 A
           69          STAT    BT60,RER,RER,RER,*                                   01 00069
000162 006505 A
000163 000056 E
000164 000153 R
000165 000226 R
000166 000226 R
000167 000226 R
000170 000162 R
           70 BT65     WRITE   IMFCB,FL,0,0  OUTPUT HISTORY IMAGE                   01 00070
000171 006505 A
000172 000154 E
000173 100000 A
000174 000552 A
000175 000241 R
000176 000000 A
000177 000000 A
           71          STAT    BT65,RER,RER,RER,*                                   01 00071
000200 006505 A
000201 000163 E
000202 000171 R
000203 000226 R
000204 000226 R
000205 000226 R
000206 000200 R
000207 001000 A    72          JMP     *           RETURN AS DIRECTED               01 00072
000210 000207 R
000210             73 BT70     BES     0                                            01 00073
           74 EXIT     EXIT                                                         01 00074
000211 006505 A
000212 000127 E
000213 000209 A
           75 ERR      WRITE   ERDCB,DC,0,1                                         01 00075
000214 006505 A
000215 000172 E
000216 100000 A
000217 010401 A
000220 000253 R
000221 000000 A
```

```
000222 000000 A
                    76          EXIT                                                    01 00076
000223 006505 A
000224 000212 E
000225 000200 A
                    77 RER      WRITE   DRDCB,DC,0,1                                   01 00077
000226 006505 A
000227 000215 E
000230 100000 A
000231 010401 A
000232 000256 R
000233 000000 A
000234 000000 A
                    78          EXIT                                                    01 00078
000235 006505 A
000236 000224 E
000237 000200 A
000240 000000 A     79 IMCNT    DATA    0               PATCH IMAGE POINTER             01 00079
                    80 IMFCB    FCB     120,IMBUF,1,'F','PT','CH','IM'                  01 00080
000241 000170 A
000242 000326 R
000243 000706 A
000244 000000 A
000245 000000 A
000246 000000 A
000247 000000 A
000250 150324 A
000251 141710 A
000252 144715 A
                    81 ERDCB    DCB     11,ERMSG                                        01 00081
000253 000013 A
000254 000264 R
000255 000000 A
                    82 DRDCB    DCB     13,DRMSG                                        01 00082
000256 000013 A
000257 000277 R
000260 000000 A
                    83 PCDCB    DCB     10,PCMSG                                        01 00083
000261 000012 A
000262 000314 R
000263 000000 A
000264 120306 A     84 ERMSG    DATA    ' FILE PTCHIM NOT FOUND'                        01 00084
000265 144714 A
000266 142640 A
000267 150324 A
000270 141710 A
000271 144715 A
000272 120316 A
000273 147724 A
000274 120306 A
000275 147725 A
000276 147304 A
000277 120322 A     85 DRMSG    DATA    ' READ ERROR IN FILE PTCHIM'                    01 00085
000300 142701 A
000301 142240 A
000302 142722 A
000303 151317 A
000304 151240 A
000305 144716 A
000306 120306 A
000307 144714 A
000310 142640 A
000311 150324 A
000312 141710 A
000313 144715 A
000314 120320 A     86 PCMSG    DATA    ' PATCHING COMPLETED'                           01 00086
000315 140724 A
000316 141710 A
000317 144716 A
000320 143640 A
000321 141717 A
000322 146720 A
000323 146305 A
000324 152305 A
000325 142240 A
000326              87 IMBUF    BSS     120                                             01 00087
       000000 R     88          END     BTPTCH                                          01 00088
ENTRY NAMES
EXTERNAL NAMES
000236 E V$EXEC  000227 E V$IOC   000201 E V$IOST  000131 E V$STND
SYMBOLS
000000 R BT10    000016 R BT12    000046 R BT15    000066 R BT25
000105 R BT30    000117 R BT35    000124 R BT36    000133 R BT45
000134 R BT50    000150 R BT55    000153 R BT60    000171 R BT65
000210 R BT70    000000 R BTPTCH  000256 R DRDCB   000277 R DRMSG
000253 R ERDCB   000264 R ERMSG   000214 R ERR     000211 R EXIT
000152 A FL      000326 R IMBUF   000240 R IMCNT   000241 R IMFCB
000001 A OC      000261 R PCDCB   000314 R PCMSG   000246 R RER
000236 E V$EXEC  000227 E V$IOC   000201 E V$IOST  000131 E V$STND
   0 ERRORS ASSEMBLY COMPLETE

    23  BT10       24
```

```
 25   BT12       26
 33   BT15       34     66
 37   BT25       32     46
 47   BT30       40
 54   BT35       43
 57   BT36       53
 60   BT45       48     55
 61   BT50       47
 66   BT55       34
 68   BT60       65     69
 70   BT65       71
 73   BT70       64     67
 22   BTPTCH      3     88
 82   DRDCB      77
 85   DRMSG      82
 81   ERDCB      75
 84   ERMSG      81
 75   ERR        24     24     24
 74   EXIT       29     63
 28   FL         23     25     33     68     70
 87   IMBUF      27     39     57     80
 79   IMCNT      31     36     38     41     45     49
 83   IMFCB      23     25     33     68     70
 19   DC         62     75     77
 83   PCDCB      62
 86   PCMSG      83
 77   RER        26     26     26     34     34     34     69     69     69     .
                 71     71     71
  0   V$STWD     21     58
```

```
000001 A     1 VORTEX SET      1                                                    01 00001
000300 A     2 LC     EQU      0300                                                 01 00002
000046 A     3 MPDVAD EQU      046                                                  01 00003
000334 A     4 V$ST0  EQU      LC+28                                                01 00004
000335 A     5 V$ST1  EQU      LC+29                                                01 00005
000336 A     6 V$ST2  EQU      LC+30                                                01 00006
000337 A     7 V$ST3  EQU      LC+31                                                01 00007
               8 *                                                                  01 00008
               9 *       V$STWD                                                     01 00009
              10         TITLE    V$STWD                                          01 00010
              11 *                                                                  01 00011
              12 *       THIS IS A NUCLEUS ROUTINE WHICH IS USED TO FETCH AND     01 00012
              13 *       CHANGE A LOCATION IN THE VORTEX NUCLEUS                  01 00013
              14 *                                                                  01 00014
              15 *       CALLING SEQUENCE                                         01 00015
              16 *                                                                  01 00016
              17 *       LDA      WORD COUNT                                    E.201 00017
              18 *       LDB      POINTER TO CONTROL BLOCK                      01 00018
              19 *       ALOC     V$STWD                                        01 00019
              20 *                                                              01 00020
              21 *                CONTROL BLOCK FORMAT :                        01 00021
              22 *                STORE ADDR                                    01 00022
              23 *                ORIGINAL VALUE  (SET BY ROUTINE)              01 00023
              24 *                NEW VALUE                                     01 00024
              25 *                                                              01 00025
              26 *       RETURNS VIA DEALOC                                     01 00026
              27 *                                                              01 00027
              28         NAME     V$STWD                                        01 00028
000000 R      29 V$STWD  EQU      *                                             01 00029
000000 000000 A     30           DATA     0              NO TEMPS NEEDED        01 00030
000747 A      31 DISCLK  EQU      0747                                        E.201 00031
000444 A      32 DISPIM  EQU      0444                                        E.201 00032
000001 100747 A     33           EXC      DISCLK                              E.201 00033
000002 100444 A     34           EXC      DISPIM                              E.201 00034
000003 R      35 STW10   EQU      *                                           E.201 00035
              36         IFF      VORTEX-2                                       01 00036
              37         OME      MPDVAD,V$ST3   USER FETCH AND STORE            01 00037
000003 016000 A     38           LDA      0,2            STORE ADDR             01 00038
000004 005014 A     39           TAX                                             01 00039
              40         IFF      VORTEX-2                                       01 00040
              41         OME      MPDVAD,V$ST1   EXEC FETCH, USER STORE          01 00041
000005 015000 A     42           LDA      0,1            ORIGINAL CONTENTS       01 00042
000006 056001 A     43           STA      1,2            STORE IN CONTROL BLOCK  01 00043
              44         IFF      VORTEX-2                                       01 00044
              45         OME      MPDVAD,V$ST2   USER FETCH, EXEC STORE          01 00045
000007 016002 A     46           LDA      2,2            NEW VALUE               01 00046
000010 055000 A     47           STA      0,1            STORE IT                01 00047
              48         IFF      VORTEX-2                                    E.201 00048
              49         OME      MPDVAD,V$ST0   EXEC FETCH AND STORE        E.201 00049
000302 A      50 V$CRS   EQU      0302                                        E.201 00050
000011 030302 A     51           LDX      V$CRS          REENTRANT STACK POINTER E.201 00051
000012 015000 A     52           LDA      0,1            (A) = WORD COUNT        E.201 00052
000013 005311 A     53           DAR                                             E.201 00053
000014 055000 A     54           STA      0,1            UPDATE WORD COUNT       E.201 00054
000015 005122 A     55           IDR                                             E.201 00055
000016 005122 A     56           IDR                                             E.201 00056
000017 005122 A     57           IDR                                             E.201 00057
000020 001016 A     58           JANZ     STW10          CONTINUE STORAGE IF NOT COUNT END E.201 00058
000021 000003 R
000147 A      59 ENACLK  EQU      0147                                        E.201 00059
000244 A      60 ENAPIM  EQU      0244                                        E.201 00060
000022 100147 A     61           EXC      ENACLK                              E.201 00061
000023 100244 A     62           EXC      ENAPIM                              E.201 00062
               63         DEALOC                                                 01 00063
000024 006505 A
000025 000000 E
000026 000700 A
               64         NAME     V$SCPT                                        01 00064
000027 001106 A     65 V$SCPT  JSIN     SCP10          DO NOT SCHEDULE BTPTCH IS SSW1 NOT SET 01 00065
000030 000040 R
               66         SCHED    23,0,106,'F','BT','PT','CH'                   01 00066
000031 006505 A
000032 000025 E
000033 000127 A
000034 143152 A
000035 141324 A
000036 150324 A
000037 141710 A
               67 SCP10   EXIT                                                   01 00067
000040 006505 A
000041 000032 E
000042 000200 A
000000 R       68         END      V$STWD                                        01 00068
ENTRY NAMES
000027 R V$SCPT 000000 R V$STWD
EXTERNAL NAMES
000041 E V$EXEC
SYMBOLS
000747 A DISCLK 000444 A DISPIM 000147 A ENACLK 000244 A ENAPIM
000300 A LC     000046 A MPDVAD 000040 R SCP10  000003 R STW10
000302 A V$CRS  000041 E V$EXEC 000027 R V$SCPT 000334 A V$ST0
000335 A V$ST1  000336 A V$ST2  000337 A V$ST3  000000 R V$STWD
000001 A VORTEX
```

0 ERRORS ASSEMBLY COMPLETE

31	DISCLK	33			
32	DISPIM	34			
59	ENACLK	61			
60	ENAPIM	62			
2	LC	4	5	6	7
3	MPDVAD	37	41	45	49
67	SCP10	65			
35	STW10	58			
50	V$CRS	51			
65	V$SCPT	64			
4	V$ST0	49			
5	V$ST1	41			
6	V$ST2	45			
7	V$ST3	37			
29	V$STWD	10	28	68	
1	VORTEX	36	40	44	48

```
           *   THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1972 BY VARIAN DATA MACHINE
           *
           *     V.D.M.   PART  NO.          92L0605-162A
           *
           *                                                 RELEASED     03/01/74
           *
           *
           *
           *
           *
           *        SPOOLER CONTROLLER TABLE 0, INCLUDIND SPOOLER INITIALIZER.
           *
           *
           *
           *
                    EXT      V$SPST
                    EXT      V$EXEC
                    EXT      V$IOC
                    EXT      V$FNR
                    EXT      V$ERR
                    EXT      V$IOST
                    EXT      V$SPMB
                    EXT      V$SPMT
                    EXT      V$LEVT
                    EXT      V$SPMC
                    EXT      TBSP0A
                    EXT      V$SPIR
                    NAME     V$SPIN
                    NLIS
                    LIST
                    EJEC
           *    .   CONTROLLER TABLE POSITIONS
           *
           *
000003 A   CTDST    EQU      3                   DST ADR
000004 A   CTRQBK   EQU      4                   RPB ADR
000005 A   CTRTRY   EQU      5                   RETRY CONSTANT
000005 A   CTRCNT   EQU      5                   RETRY COUNT
000006 A   CTDVAD   EQU      6                   DEVICE ADR
000010 A   CTSTAT   EQU      8                   DRIVER STATUS
000011 A   CTBICB   EQU      9                   BIC ADR
000012 A   CTFCB    EQU      10                  FCB ADR
000013 A   CTWDS    EQU      11                  WORDS XMITTED
           *
           *           SPOOLER CTBL ADDITIONS
           *
000016 A   CTRCT    EQU      14                  RECORD COUNT
000017 A   CTBUF    EQU      15                  4-7 = # OF BUFFERS, 0-3 = STREAM #
000020 A   CTSCT    EQU      16                  START OF SCT TABLE
000057 A   CTDCT    EQU      47                  START OF DCT TABLE
000071 A   CTBFST   EQU      071                 ADDRESS OF SECOND BUFFER
000072 A   CTBF1    EQU      072                 ADDRESS OF FIRST BUFFER
000073 A   CTBFND   EQU      073                 ADDRESS OF LAST BUFFER
                    EJEC
           *        CONTROLLER TIDB POSITIONS
           *
000001 A   TBST     EQU      1                   TASK STATUS
000003 A   TBEVNT   EQU      3                   INTERRUPT EVENT
000010 A   TBRSTS   EQU      8                   CTRL ADR
                    EJEC
           *
           *        FILE CONTROL BLOCK POSITIONS
           *
           *
000000 A   FCRECL   EQU      0                   RECORD LENGTH
000001 A   FCBUFF   EQU      1                   BUFF ADR
000002 A   FCACM    EQU      2                   ACCESS METHOD
000003 A   FCCADR   EQU      3                   CURR ADR
000004 A   FCCEOF   EQU      4                   CURR EOF
000005 A   FCIFE    EQU      5                   INIT FILE EXTENT
000006 A   FCEFE    EQU      6                   END FILE EXTENT
000007 A   FCNAM1   EQU      7                   FILE NAME
000010 A   FCNAM2   EQU      8                   "
000011 A   FCNAM3   EQU      9                   "
           *        REQUEST BLOCK POSITIONS
           *
000000 A   RPSTPR   EQU      0                   REQUEST STATUS
000001 A   RPOPWD   EQU      1                   MODE / OP-CODE
                    EJEC
000001 A   X        EQU      1
000002 A   B        EQU      2
000001 A   A        EQU      1
           ******************************************************************
           *
           *
                    EJEC
           CT       MAC
           SRMD     EQU      107
           STR0     EQU      130
           SS       FORM     1,1,1,1,1,11
                    DATA     *+015
                    SS       0,0,1,1,1,0
                    DATA     -1
```

```
                    400          JSR     V$IOC,X
                    401          DATA    0100000         IO COMPLETE BIT
                    402          DATA    0100000+SRMD    IMMEDIATE RETURN TO LUN SRMD
                    403          DATA    *+5,0,0
                    404          JMP     V$SPIR
                    405          DATA    0,0
                    406 S        FORM    8,8
                    407          S       0,'S'
                    408          DATA    1,0,0,0
                    409 XX       SET     'LO'
                    410          DATA    'SP','OO',XX+P(1)
                    411          DATA    1,1,0
                    412          DATA    077777
                    413          DATA    *+015
                    414          SS      0,1,0,0,1,0
                    415          DATA    -1
                    416          JSR     V$IOC,X
                    417          DATA    0100000
                    418          DATA    0100000+STR0+P(1)
                    419          DATA    *+5
                    420          DATA    0,0
                    421          JMP     V$SPIR
                    422          DATA    0,0,0
                    423          ENAC
                    424 *                BIT DEFINITIONS
                    425 *
000001 A            426 BIT0     EQU     0000001
000002 A            427 BIT1     EQU     0000002
000004 A            428 BIT2     EQU     0000004
000010 A            429 BIT3     EQU     0000010
000020 A            430 BIT4     EQU     0000020
000040 A            431 BIT5     EQU     0000040
000100 A            432 BIT6     EQU     0000100
000200 A            433 BIT7     EQU     0000200
000400 A            434 BIT8     EQU     0000400
001000 A            435 BIT9     EQU     0001000
002000 A            436 BIT10    EQU     0002000
004000 A            437 BIT11    EQU     0004000
010000 A            438 BIT12    EQU     0010000
020000 A            439 BIT13    EQU     0020000
040000 A            440 BIT14    EQU     0040000
100000 A            441 BIT15    EQU     0100000
                    442 *
                    443 *
                    444 *        REGISTER  CONVENTIONS
000001 A            445 X        EQU     1               X REGISTER FOR FORMAT 1 INSTRUCTIONS
000002 A            446 B        EQU     2               B REGISTER FOR FORMAT 1 INSTRUCTIONS
000002 A            447 BUF      EQU     B               BUFFER POINTER=B
000001 A            448 CT       EQU     X               CONTROL TABLE POINTER=X
000001 A            449 BA       EQU     1               FOP REG XFER INST. - DESTINATION A REG
000002 A            450 BB       EQU     2                                    DESTINATION B REG
000004 A            451 BX       EQU     4                                    DESTINATION X REG
000010 A            452 SA       EQU     010                                  SOURCE A REG
000020 A            453 SB       EQU     020                                  SOURCE B REG
000040 A            454 SX       EQU     040                                  SOURCE X REG
                    455 *
                    456 *
                    457 *        SCT DEFINITIONS
                    458 *
                    459 *
000000 A            460 SCTCB    EQU     0               BUFFER CHAIN BOTTOM
000001 A            461 SCTSS    EQU     1               STREAM STATUS
000002 A            462 SCTLK    EQU     2               SCT LINK
000003 A            463 SCTRB    EQU     3               I/O REQUEST BLOCK
000005 A            464 SCTRC    EQU     5               REQ BLK COMPLETION STATUS
000006 A            465 SCTRD    EQU     6               REQ BLK OPCODE/MODE
000010 A            466 SCTCNT   EQU     010             REQ BLK WORD CNT
000014 A            467 SCTDL    EQU     014             FCP DATA LENGTH
000014 A            468 SCTFCB   EQU     014             START OF FCB
000015 A            469 SCTCT    EQU     015             BUFFER CHAIN TOP
000017 A            470 SCTSN    EQU     017             SEQUENCE NO
000026 A            471 SCTCR    EQU     026             CHAIN READ
000027 A            472 SCTIN    EQU     027             XMT IN PTR
000030 A            473 SCTOUT   EQU     030             XMT OUT PTR
000031 A            474 SCTBN    EQU     031             BUFFER SEQUENCE NO
000031 A            475 LSCT     EQU     031             LENGTH
                    476 *
                    477 *        SCTSS DEFINITIONS
                    478 *
100000 A            479 SCTSA    EQU     0100000         SCT ACTIVE
040000 A            480 SCTSU    EQU     040 0000        SCT UP
020000 A            481 SSID     EQU     020000          ID B/I=1
010000 A            482 SCTRS    EQU     010000          READ SWITCH
004000 A            483 SCTWS    EQU     004000          WRITE SWITCH
                    484 *
                    485 *
                    486 *        SCT DEFINITIONS
                    487 *
                    488 *
000031 A            489 DCTCB    EQU     LSCT+0          BUFFER CHAIN BOTTOM
000032 A            490 DCTSS    EQU     LSCT+1          STREAM STATUS
000033 A            491 DCTLK    EQU     LSCT+2          DCT LINK
000034 A            492 DCTRB    EQU     LSCT+3          REQUEST BLOCK
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000036 A   493 DCTRC   EQU      LSCT+5          REQ BLK COMPLETION STATUS                    00 00493
000037 A   494 DCTRO   EQU      LSCT+6          REQ BLK OPCODE/MODE                          00 00494
000041 A   495 DCTCNT  EQU      LSCT+010        WORD CNT                                     00 00495
000045 A   496 DCTDL   EQU      LSCT+014        DATA LENGTH                                  00 00496
000045 A   497 DCTDCB  EQU      LSCT+014        DCB START                                    00 00497
000046 A   498 DCTCT   EQU      LSCT+015        BUFFER CHAIN TOP                             00 00498
000047 A   499 DCTFC   EQU      LSCT+016        FUNCTION CODE                                00 00499
           500 *                                                                           00 00500
           501 *       DCTSS DEFINITIONS                                                   00 00501
           502 *                                                                           00 00502
100000 A   503 DCTDA   EQU      0100000         DCT ACTIVE                                   00 00503
040000 A   504 DCTDU   EQU      0040000         DCT UP                                       00 00504
004000 A   505 DCTWS   EQU      0004000         WRITE SWITCH                                 00 00505
           506 *                                                                           00 00506
           507 *                                                                           00 00507
           508 *                                                                           00 00508
           509 *       BUFFER DEFINITIONS                                                  00 00509
           510 *                                                                           00 00510
000000 A   511 SBLK    EQU      0                                                          00 00511
000003 A   512 SBRL    EQU      3                                                          00 00512
000003 A   513 SBBN    EQU      3                                                          00 00513
000004 A   514 SBCTL   EQU      4                                                          00 00514
000005 A   515 SBTIME  EQU      5                                                          00 00515
000006 A   516 SBDATA  EQU      6                                                          00 00516
000110 A   517 LSB     EQU      0110                                                       00 00517
           518 *                                                                           00 00518
           519 *                                                                           00 00519
           520 *       BUFFER CONTROL DEFINITIONS                                          00 00520
           521 *             AND REQUEST BLOCK DEFINITIONS                                 00 00521
           522 *                                                                           00 00522
           523 *                                                                           00 00523
100000 A   524 SBW     EQU      0100000         WRITE REQUEST                                00 00524
070000 A   525 BMODE   EQU      0070000         REQ BLK MODE                                 00 00525
007400 A   526 BOPCD   EQU      0007400         REQ BLK OPCODE                               00 00526
100000 A   527 SCTCC   EQU      0100000         REQ BLK COMPLETION CODE                      00 00527
100000 A   528 DCTCC   EQU      0100000         REQ BLK COMPLETION CODE                      00 00528
           529 *                                                                           00 00529
           530 *                                                                           00 00530
           531 *                                                                           00 00531
177777 A   532 ONES    EQU      0177777                                                    00 00532
000010 A   533 NSCT    EQU      8               8 STREAMS DEFINED                            00 00533
           534 *                                                                           00 00534
           535 *       DISPATCH TABLE DEFINITIONS                                          00 00535
           536 *                                                                           00 00536
000002 A   537 DTIOB   EQU      2                                                          00 00537
000001 A   538 DTSCT   EQU      1                                                          00 00538
000000 A   539 DTDCT   EQU      0                                                          00 00539
           540 *                                                                           00 00540
           541         EJEC                                                              00 00541
           542 ********************************************************************      00 00542
           543 *                                                          *              00 00543
           544 * THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1973 VARIAN DATA MACHINES      00 00544
           545 *                                                                           00 00545
           546 *                                                                           00 00546
           547 *                                                                           00 00547
           548 *                                                                           00 00548
           549 *                                                                           00 00549
           550 *             CTSP0A                                                        00 00550
           551 *                                                                           00 00551
           552 *                                                                           00 00552
           553         TITLE   CTSP0A                                                    00 00553
           554         NAME    CTSP0A                                                    00 00554
           555 *                                                                           00 00555
           556 *                                                                           00 00556
           557 *       CONTROLLER TABLE FOR FIRST SPOOLER UNIT                             00 00557
           558 *                                                                           00 00558
           559 *       FOR VORTEX SYSTEMS                                                  00 00559
           560 *                                                                           00 00560
    000000 R   561 CTSP0A  EQU      *                                                      00 00561
    000112 A   562 RECSIZ  EQU      74                                                   E.2* !******
    000000 A   563 STREAM  EQU      0                                                      00 00563
000000 000000 E 564         DATA     !BSP0A          CTIDB                               00 00564
000001 000541 R 565         DATA     CTEND           CTADNC                              00 00565
000002 000056 A 566         DATA     056             CTOPM                               00 00566
000003 000000 A 567         DATA     0               CTDST                               00 00567
000004 000000 A 568         DATA     0               CTRQBK                              00 00568
000005 000000 A 569         DATA     0               CTRTRY = 0                          00 00569
000006 123456 A 570         DATA     0123456         CTDVAD                              00 00570
000007 000000 A 571         DATA     0               CTIOA                               00 00571
000010 000000 A 572         DATA     0               CTSTAT                              00 00572
000011 000000 A 573         DATA     0               CTBICB                              00 00573
000012 000000 A 574         DATA     0               CTFCB                               00 00574
000013 000000 A 575         DATA     0               CTWDS                               00 00575
000014 000000 A 576         DATA     0,0                                                 00 00576
000015 000000 A
           577 *                                                                           00 00577
           578 *       SPECIAL SPOOLER PARAMETERS                                          00 00578
           579 *                                                                           00 00579
000016 000377 A 580         DATA     0377            CTRCT                               00 00580
000017 000000 A 581         DATA     STREAM          CTBUF                               00 00581
           582         CT       STREAM          SCT + DCT TABLES                       00 00582
000020 000035 R
000021 034000 A
```

```
000022 177777 A
000023 006505 A
000024 000000 E
000025 100000 A
000026 100153 A
000027 000034 R
000030 000000 A
000031 000000 A
000032 001000 A
000033 000000 E
000034 000000 A
000035 000000 A
000036 001723 A
000037 000001 A
000040 000000 A
000041 000000 A
000042 000000 A
000043 151720 A
000044 147717 A
000045 146260 A
000046 000001 A
000047 000001 A
000050 000000 A
000051 077777 A
000052 000057 R
000053 044000 A
000054 177777 A
000055 006505 A
000056 000024 E
000057 100000 A
000060 100264 A
000061 000066 R
000062 000000 A
000063 000000 A
000064 001000 A
000065 000033 E
000066 000001 A
000067 000000 A
000070 000003 A
```

```
                    583          EJEC                                                    00 00583
                    584 *                                                                00 00584
                    585 *        START OF BUFFER AREA                                    00 00585
                    586 *                                                                00 00586
000071 000203 R     587 CTBFSX   DATA    *+RECSIZ        POINTS TO NEXT BUFFER           00 00587
000072 000071 R     588          DATA    CTBFSX          ADR OF FIRST BUFFER             00 00588
000073 000427 R     589          DATA    CTBFSX+RECSIZ+RECSIZ+RECSIZ  ADR OF LAST BUF   00 00589
                    591 *                                                                00 00591
                    592 *                                                                00 00592
                    593 *          PART 1 OF CTBL 0 - INITIALIZER PART 1 - LATER USED AS BUFFER  00 00593
                    594 *                                                                00 00594
                    595 *                                                                00 00595
                    596 *                INITIALIZER-USED ONLY FOR FIRST CALL            00 00596
                    597 *                                                                00 00597
000074 000000 A     598 V$SPIM   DATA    0                                               00 00598
000075 030303 A     599          LDX     V$TB            HIGHEST PRIORITY TASK           00 00599
000076 015022 A     600 INSRCH   LDA     TBKN1,X         SEARCH FOR "LISTER"             00 00600
000077 144237 A     601          SUB     LIST1           1ST WORD                        00 00601
000100 001015 A     602          JANZ    NOTLST                                          00 00602
000101 000112 R                                                                          00 00603
000102 015023 A     603          LDA     TBKN2,X                                         00 00604
000103 144234 A     604          SUB     LIST2           HERE IF NOT THIS TIDB           00 00605
000104 001016 A     605          JANZ    NOTLST                                          00 00606
000105 000112 R                                                                          00 00607
000106 015024 A     606          LDA     TBKN3,X                                         00 00608
000107 144231 A     607          SUB     LIST3           2ND WORD                        00 00609
000110 001010 A     608          JAZ     TSKFND                                          00 00610
000111 000122 R                                                                          00 00611
000112 035000 A     609 NOTLST   LDX     TBTPD,X         GET START OF NEXT TIDB          00 00612
000113 001046 R     610          JXNZ    INSRCH          IF NOT 0, KEEP LOOPING          00 00613
000114 000076 R                                                                          00 00614
000115 100444 A     611          EXC     DISPIM          TYPE "SP 00" THEN GO TO HARD HALT  00 00615
000116 100747 A     612          SVC     $IOCLK                                          00 00616
000117 000000 A     613 INHLT    HLT                                                     00 00617
000120 001000 A     614          JMP     INHLT                                           00 00618
000121 000117 R                                                                          00 00619
                    615 *                                                                00 00620
                    616 *           LISTER FOUND - LET SPOOLER TALK TO IT                00 00621
                    617 *                                                                00 00622
000122 005041 A     618 TSKFND   TXA                     POINTS TO START OF LISTER TIDB  00 00623
000123 120464 A     619          ADD     THREE                                           00 00624
000124 006057 A     620          STAE    V$LEVT          SAVE ADDRESS OF LISTER EVENT WORD  00 00625
000125 000003 E                                                                          00 00626
                    621 *                                                                00 00627
                    622 *           FIND SPOOLER CTBL'S AND LINK THEM UP                 00 00628
                    623 *                                                                00 00629
000126 010362 A     624          LDA     V$NCTR                                          00 00630
000127 054206 A     625          STA     NMCTR           SAVE # OF CONTROLLERS           00 00631
000130 030360 A     626          LDX     V$CTAD          GET FIRST CONTROLLER TABLE ADDRESS  00 00632
000131 025000 A     627 INCT1    LDB     0,X                                             00 00633
000132 016006 A     628          CMPB    CP.DVAD,B       IS DEVNUM THAT FOR SPOOLER      00 00634
000133 144206 A     629          SUB     DEVNUM          IS IT SPOOLER CTBL              00 00635
000134 001010 A     630          JAZ     INCT1F          HERE IF MATCH WITH "V2SP4 "     00 00636
000135 000204 R                                                                          00 00637
```

```
000136 014177 A   631          LDA     NMCTR                                                    00 00631
000137 005311 A   632          DAR                    DECREMENT # OF TABLES LEFT                00 00632
000140 054175 A   633          STA     NMCTR                                                    00 00633
000141 005144 A   634          IXR                    POINT X TO NEXT ENTRY                     00 00634
000142 001000 A   635          JMP     INCT1                                                    00 00635
000143 000131 R
                  636          EJEC                                                             00 00636
                  637 *                                                                         00 00637
                  638 *          PART 2 OF INITIALIZER                                          00 00638
                  639 *                                                                         00 00639
000203            641 CTBF2    ORG     CTBFSX+RECSIZ  BUFFER 2                                  00 00641
000203 000315 R   642          DATA    *+RECSIZ                                                 00 00642
                  643 *                                                                         00 00643
                  644 *          CONTROLLER TABLE 1 FOUND                                       00 00644
                  645 *                                                                         00 00645
000204 074130 A   646 INCT1F   STX     INTEMP         SAVE                                      00 00646
000205 016072 A   647          LDA     CTBF1,B        ADDRESS OF FIRST BUFFER                   00 00647
000206 006057 A   648          STAE    V$SPMT         MARK IT AS BEG OF STRING                  00 00648
000207 000000 E
000210 001000 A   649          JMP     INCTN                                                    00 00649
000211 000216 R
000212 074122 A   650 INCTNF   STX     INTEMP                                                   00 00650
000213 016072 A   651          LDA     CTBF1,B                                                  00 00651
000214 006057 A   652          STAE*   V$SPMB         CONTINUE STRING                           00 00652
000215 100000 E
000216 016073 A   653 INCTN    LDA     CTBFND,B                                                 00 00653
000217 006057 A   654          STAE    V$SPMB         MARK CURRENT END OF STRING                00 00654
000220 000215 E
000221 005021 A   655          TBA                                                              00 00655
000222 006120 A   656          ADDI    CTSCT          A = START OF SCT TABLE                    00 00656
000223 000020 A
000224 036017 A   657          LDX     CTBUF,B                                                  00 00657
000225 006055 A   658          STAE    V$SPST,X       PUT IN SPSCT TABLE                        00 00658
000226 000000 E
000227 005021 A   659          TBA                                                              00 00659
000230 006120 A   660          ADDI    CTSCT+SCTFCB   GET START OF FCB                          00 00660
000231 000034 A
000232 054004 A   661          STA     INOPEN+4                                                 00 00661
                  662 INOPEN   OPEN    INOPEN,SRMD,0    OPEN FILE                               00 00662
000233 006505 A
000234 000404 A
000235 100000 A
000236 003153 A
000237 000233 R
000240 000000 A
000241 000000 A
                  663          STAT    INOPEN,INCON,INCON,INCON,INCON                           00 00663
000242 006505 A
000243 000373 A
000244 000233 R
000245 000327 R
000246 000327 R
000247 000327 R
000250 000327 R
000251 016021 A   664          LDA     CTSCT+SCTSS,B                                            00 00664
000252 110437 A   665          ORA     BS14                                                     00 00665
000253 056021 A   666          STA     CTSCT+SCTSS,B INDICATE OPEN OK                           00 00666
000254 001000 A   667          JMP     INCON                                                    00 00667
000255 000327 R
                  668          EJEC                                                             00 00668
                  669 *                                                                         00 00669
                  670 *          PART 3 OF INITIALIZER                                          00 00670
                  671 *                                                                         00 00671
000315            673 CTBF3    ORG     CTBF2+RECSIZ   BUFFER 3                                  00 00673
000315 000427 R   674          DATA    *+RECSIZ                                                 00 00674
000316 034016 A   675 INERR    LDX     INTEMP                                                   00 00675
000317 025000 A   676          LDB     0,X            GET POINTER TO NEXT CTBL                  00 00676
000320 014015 A   677          LDA     NMCTR          ALL CTBLS USED                            00 00677
000321 001010 A   678          JAZ     INFINL         ALL CTBLS FOUND                           00 00678
000322 000343 R
000323 016006 A   679          LDA     CTDVAD,B                                                 00 00679
000324 144015 A   680          SUB     DEVNUM         IS IT SPOOLER CTBL                        00 00680
000325 001010 A   681          JAZ     INCTNF         YES-SET UP                                00 00681
000326 000212 R
000327 044003 A   682 INCON    INR     INTEMP                                                   00 00682
000330 014003 A   683          LDA     NMCTR                                                    00 00683
000331 005311 A   684          DAR                                                              00 00684
000332 054003 A   685          STA     NMCTR                                                    00 00685
000333 001000 A   686          JMP     INERR                                                    00 00686
000334 000316 R
000335 000000 A   687 INTEMP   DATA    0                                                        00 00687
000336 000000 A   688 NMCTR    DATA    0                                                        00 00688
000337 153244 A   689 LISTN1   DATA    'V$SPLP'                                                 00 00689
000340 151720 A
000341 146320 A
       000340 R   690 LISTN2   EQU     LISTN1+1                                                 00 00690
       000341 R   691 LISTN3   EQU     LISTN1+2                                                 00 00691
000342 123456 A   692 DEVNUM   DATA    0123456                                                  00 00692
                  693 *                                                                         00 00693
                  694 *          COUNT NUMBER OF BUFFERS AND SET V$SPMC                         00 00694
                  695 *                                                                         00 00695
000343 005001 A   696 INFINL   TZA                    CLEAR BUFFER COUNT                        00 00696
000344 006027 A   697          LDBE    V$SPMT         GET FIRST BUFFER ADDRESS                  00 00697
```

```
000345 000207 E
000346 005111 A   698 INFIN1 IOR                  INCREMENT BUFFER COUNT                    00 00698
000347 001020 R   699        JBZ      INFIN2      END OF STRING                             00 00699
000350 000354 R
000351 026000 A   700        LDB      0,B         NO- GET NEXT BUFFER                       00 00700
000352 001000 A   701        JMP      INFIN1                                                00 00701
000353 000346 R
000354 140464 A   702 INFIN2 SUB      THREE       CHANGE COUNT TO INDEX NUMBER              00 00702
000355 004341 A   703        LGRA     1                                                     00 00703
000356 003014 A   704        TAX                  PUT INTO INDEX                            00 00704
000357 036015 A   705        LDXE     MOVAL,X     GET PROPER VALUE                          00 00705
000360 000365 R
000361 006057 A   706        STAE     V$SPMC      SAVE                                      00 00706
000362 000000 E
000363 001000 A   707        JMP*     V$SPIN      EXIT                                      00 00707
000364 100074 R
                  708 *                                                                     00 00708
                  709 *          MEMORY BUFFER THRESHOLD COUNTER TABLE                      00 00709
                  710 *                                                                     00 00710
000365 177776 A   711 MOVAL  DATA     -2             4 BUFFERS                             00 00711
000366 177774 A   712        DATA     -4             6 BUFFERS                             00 00712
000367 177772 A   713        DATA     -6             8 BUFFERS                             00 00713
000370 177770 A   714        DATA     -8            10 BUFFERS                             00 00714
000371 177766 A   715        DATA     -10           12 BUFFERS                             00 00715
000372 177764 A   716        DATA     -12           14 BUFFERS                             00 00716
000373 177762 A   717        DATA     -14           16 BUFFERS                             00 00717
000374 177760 A   718        DATA     -16           18 BUFFERS                             00 00718
000375 177756 A   719        DATA     -18           20 BUFFERS                             00 00719
000376 177754 A   720        DATA     -20           22 BUFFERS                             00 00720
000377 177752 A   721        DATA     -22           24 BUFFERS                             00 00721
000400 177750 A   722        DATA     -24           26 BUFFERS                             00 00722
000401 177746 A   723        DATA     -26           28 BUFFERS                             00 00723
000402 177744 A   724        DATA     -28           30 BUFFERS                             00 00724
                  725                                                                     00 00725
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EXTERNAL NAMES
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000050 A VSJNAM 000377 A VSJOP  000054 A VSLCNT 000313 A VSLER
000125 E VSLEVT 000356 A VSLIT  000317 A VSLLUP 000307 A VSLRSK
000312 A VSLSAL 000345 A VSLUNT 000316 A VSLUP  000400 A VSLUT1
000401 A VSLUT2 000402 A VSLUT3 000330 A VSMPM  000362 A VSNCTR
000413 A VSOCB  000346 A VSOPCF 000311 A VSOPCL 000363 A VSPIMN
000074 A VSPLCT 000305 A VSPTVB 000361 A VSSCTL 000352 A VSSCV
000375 A VSSLFG 000074 R VSSPIN 000065 E VSSPIR 000220 E VSSPMB
000362 E VSSPMC 000345 E VSSPMT 000226 E VSSPST 000303 A VSTB
000342 A VSTBGT 000416 A VSTFC  000314 A VSTJCP 000344 A VSTMN
000343 A VSTMS  000304 A VSUTB  000001 A X      146260 P XX
000420 A ZERO
  0 ERRORS ASSEMBLY COMPLETE
```

```
322  APIM      324   325
386  B         447
318  CLOCK     320   321
144  LC        145   146   147   148   149   150   151   152   153
               154   155   156   157   158   159   160   161   162
               163   165   166   167   168   169   170   171   172
               173   174   175   176   177   178   180   181   182
               183   187   188   189   190   191   192   193   198
               199   200   203   208   209   210
119  LCJP      120   121   122   129   130   131   132   133   136
475  LSCT      489   490   491   492   493   494   495   496   497
               498   499
219  MT        220   221   222   223   224   225   226   227   228
               229   230   231   232   233   234   235   236   237
               238   239   240   241   242   243   244   245   246
               247   248   249   250   251   252   253   254   255
               256   257   258   259   260   261   262   263   264
               265   266   267   268   269   270   271   272   273
               274   275
  0  P         410   418
394  SRMD      402
395  STR0      418
  0  TBSP0A     26
  0  VSERR      20
  0  VSEXEC     17
  0  VSFNR      19
  0  VSIOC      18   400   416
  0  VSIOST     21
  0  VSLEVT     24
  0  VSSPIN     28
  0  VSSPIR     27   404   421
  0  VSSPMB     22
  0  VSSPMC     25
  0  VSSPMT     23
  0  VSSPST     16
385  X         400   416   448
409  XX        410
```

```
                                                
```

```
000033 000000 E
000034 000000 A
000035 000000 A
000036 001723 A
000037 000001 A
000040 000000 A
000041 000000 A
000042 000000 A
000043 151720 A
000044 147717 A
000045 146261 A
000046 000001 A
000047 000001 A
000050 000000 A
000051 077777 A
000052 000067 R
000053 044000 A
000054 177777 A
000055 006505 A
000056 000024 E
000057 100000 A
000060 100265 A
000061 000066 R
000062 000000 A
000063 000000 A
000064 001000 A
000065 000033 E
000066 000000 A
000067 000000 A
000070 000000 A
```

```
                    83          EJEC                                                    00  00083
                    84  *                                                               00  00084
                    85  *       START OF BUFFER AREA                                    00  00085
                    86  *                                                               00  00086
000071 000203 R     87  CTBFSX  DATA    *+RECSIZ        POINTS TO NEXT BUFFER           00  00087
000072 000071 R     88          DATA    CTBFSX          ADR OF FIRST BUFFER             00  00088
000073 000203 R     89          DATA    CTBFSX+RECSIZ   START OF LAST BUFFER            00  00089
000203              90          ORG     CTBFSX+RECSIZ   BUFFER 2                        00  00090
000203 000000 A     91          DATA    0                                               00  00091
000204              92          BSS     RECSIZ-1                                        00  00092
        000315 R    93  CTEND   EQU     *                                               00  00093
                    94          END                                                     00  00094
```

```
ENTRY NAMES
000000 R CTSP1A
EXTERNAL NAMES
000000 E TBSP1A 000056 E V$IOC  000065 E V$SPIR
SYMBOLS
000071 R CTBFSX 000315 R CTEND  000000 R CTSP1A 000112 A RECSIZ
000153 A SRMD   000264 A STR0   000001 A STREAM 000000 E TBSP1A
000056 E V$IOC  000065 E V$SPIR 000001 A X      146260 A XX
  0 ERRORS ASSEMBLY COMPLETE
```

```
 87  CTBFSX    88    89    90
 93  CTEND     65
 63  CTSP1A    15    16
  0  P         42    50
 21  RECSIZ    87    89    90    92
 26  SRMD      34
 27  STR0      50
 20  STREAM    81    82
  0  TBSP1A    19    64
  0  V$IOC     17    32    48
  0  V$SPIR    18    36    53
 23  X         32    48
 41  XX        42
```

```
                                1 *   THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1972 BY VARIAN DATA MACHINE 00 00001
                                2 *                                                                       00 00002
                                3 *     V.D.M.  PART  NO.       92L0605-164A                              00 00003
                                4 *                                                                       00 00004
                                5 *                                                RELEASED    03/01/74   00 00005
                                6 *                                                                       00 00006
                                7 *                                                                       00 00007
                                8 *                                                                       00 00008
                                9 *                                                                       00 00009
                               10 *       SPOOLER CONTROLLER TABLE 2                                      00 00010
                               11 *                                                                       00 00011
                               12 *                                                                       00 00012
                               13 *                                                                       00 00013
                               14 *                                                                       00 00014
                               15         TITLE   CTSP2A                                                  00 00015
                               16         NAME    CTSP2A                                                  00 00016
                               17         EXT     V$IOC                                                   00 00017
                               18         EXT     V$SPIR                                                  00 00018
                               19         EXT     TBSP2A                                                  00 00019
000002 A                       20 STREAM  EQU     2                                                       00 00020
000112 A                       21 RECSIZ  EQU     74                                                 E.2 ********
                               22         EJEC                                                            00 00022
000001 A                       23 X       EQU     1                                                       00 00023
                               25 CT      MAC                                                             00 00025
                               26 SRMD    EQU     107                                                     00 00026
                               27 STR0    EQU     100                                                     00 00027
                               28 SS      FORM    1,1,1,1,1,11                                            00 00028
                               29         DATA    *-015                                                   00 00029
                               30         SS      0,0,1,1,1,0                                             00 00030
                               31         DATA    -1                                                      00 00031
                               32         JSR     V$IOC,X                                                 00 00032
                               33         DATA    0100000         IO COMPLETE BIT                         00 00033
                               34         DATA    0100000+SRMD    IMMEDIATE RETURN TO LUN SRMD            00 00034
                               35         DATA    *+3,0,0                                                 00 00035
                               36         JMP     V$SPIR                                                  00 00036
                               37         DATA    0,0                                                     00 00037
                               38 S       FORM    2,8                                                     00 00038
                               39         S       3,'S'                                                   00 00039
                               40         DATA    1,0,0,0                                                 00 00040
                               41 XX      SET     'L0'                                                    00 00041
                               42         DATA    'SP','00',XX+P(1)                                       00 00042
                               43         DATA    1,1,0                                                   00 00043
                               44         DATA    077777                                                  00 00044
                               45         DATA    *+015                                                   00 00045
                               46         SS      0,1,0,0,1,0                                             00 00046
                               47         DATA    -1                                                      00 00047
                               48         JSR     V$IOC,X                                                 00 00048
                               49         DATA    0100000                                                 00 00049
                               50         DATA    0100000+STR0+P(1)                                       00 00050
                               51         DATA    *+5                                                     00 00051
                               52         DATA    0,0                                                     00 00052
                               53         JMP     V$SPIR                                                  00 00053
                               54         DATA    0,0,0                                                   00 00054
                               55         EJEC                                                            00 00055
                               56         SLIC                                                            00 00056
                               57 *                                                                       00 00057
                               58 *                                                                       00 00058
                               59 *         CONTROLLER TABLE FOR SPOOLER UNIT 2                           00 00059
                               60 *                                                                       00 00060
                               61 *       FOR VORTEX SYSTEMS                                              00 00061
                               62 *                                                                       00 00062
000000 R                       63 CTSP2A  EQU     *                                                       00 00063
000000 000000 E                64         DATA    TBSP2A          CTIDB                                   00 00064
000001 000541 R                65         DATA    CTEND           CTAENC                                  00 00065
000002 000056 A                66         DATA    56              CTDPW                                   00 00066
000003 000000 A                67         DATA    0               CTDSI                                   00 00067
000004 000000 A                68         DATA    0               CTLOCK                                  00 00068
000005 000000 A                69         DATA    0               CTRTRY  = 0                             00 00069
000006 123456 G                70         DATA    123456          CTDVCD                                  00 00070
000007 000003 A                71         DATA    3               CTIDA                                   00 00071
000010 000006 A                72         DATA    6               CTA.AT                                  00 00072
000011 000000 A                73         DATA    0               CTBELP                                  00 00073
000012 000000 A                74         DATA    0               CTFCLY                                  00 00074
000013 000000 A                75         DATA    0               CTSVL                                   00 00075
000014 000000 A                76         DATA    0,0             CTSTS                                   00 00076
000015 000000 A
                               77 *                                                                       00 00077
                               78 *       SPECIAL SPOOLER PARAMETERS                                      00 00078
                               79 *                                                                       00 00079
000016 177777 G                80         DATA    -1              CTRCT                                   00 00080
000017 000002 A                81         DATA    STREAM          CTSTF                                   00 00081
                               82         CT      STREAM          SCT + DCT TABLES                        00 00082

000020 000035 R
000021 034000 A
000022 177777 A
000023 006505 A
000024 000000 A
000025 100000 A
000026 100153 A
000027 000034 R
000030 000000 A
000031 000000 A
000032 001000 A
```

```
000033 000000 E
000034 000000 A
000035 000000 A
000036 001723 A
000037 000001 A
000040 000000 A
000041 000000 A
000042 000000 A
000043 151720 A
000044 147717 A
000045 146262 A
000046 000001 A
000047 000001 A
000050 000000 A
000051 077777 A
000052 000067 R
000053 044000 A
000054 177777 A
000055 006505 A
000056 000024 E
000057 100000 A
000060 100266 A
000061 000066 R
000062 000000 A
000063 000000 A
000064 001000 A
000065 000033 E
000066 000000 A
000067 000000 A
000070 000000 A
```

```
                    83          EJEC                                                    00  00083
                    84  *                                                               00  00084
                    85  *       START OF BUFFER AREA                                    00  00085
                    86  *                                                               00  00086
000071 000203 R     87  CTBFSX  DATA    *+RECSIZ        POINTS TO NEXT BUFFER           00  00087
000072 000071 R     88          DATA    CTBFSX          ADR OF FIRST BUFFER             00  00088
000073 000427 R     89          DATA    CTBF4             ADR OF LAST BUFFER            00  00089
000203              90  CTBF2   ORG     CTBFSX+RECSIZ   BUFFER 2                       00  00090
000203 000315 R     91          DATA    CTBF3             ADR OF THIRD BUFFER           00  00091
000315              92          ORG     CTBF2+RECSIZ    BUFFER 3                        00  00092
000315 000427 R     93  CTBF3   DATA    CTBF4             ADR OF FOURTH BUFFER          00  00093
000427              94          ORG     CTBF3+RECSIZ    BUFFER 4                        00  00094
000427 000000 A     95  CTBF4   DATA    0                                               00  00095
000430              96          BSS     RECSIZ-1                                        00  00096
        000541 R    97  CTEND   EQU     *                                               00  00097
                    98          END                                                     00  00098
```

```
ENTRY NAMES
000000 R CTSP2A
EXTERNAL NAMES
000000 E TBSP2A 000056 E V$IOC  000065 E V$SPIR
SYMBOLS
000203 R CTBF2  000315 R CTBF3  000427 R CTBF4  000071 R CTBFSX
000541 R CTEND  000000 R CTSP2A 000112 A RECSIZ 000153 A SRMD
000264 A STRO   000002 A STREAM 000000 E TBSP2A 000056 E V$IOC
000065 E V$SPIR 000001 A X      146260 R XX
  0 ERRORS ASSEMBLY COMPLETE
```

```
 90  CTBF2      92
 93  CTBF3      91     94
 95  CTBF4      89     93
 87  CTBFSX     88     90
 97  CTEND      65
 63  CTSP2A     15     16
  0  P          42     50
 21  RECSIZ     87     90     92     94     96
 26  SRMD       34
 27  STRO       50
 20  STREAM     81     82
  0  TBSP2A     19     64
  0  V$IOC      17     32     48
  0  V$SPIR     18     36     53
 83  X          32     48
 41  XX         42
```

```
                    1 *   THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1972 BY VARIAN DATA MACHINE 00 00001
                    2 *                                                                        00 00002
                    3 *     V.D.M.   PART  NO.        92L0605-165A                             00 00003
                    4 *                                                                        00 00004
                    5 *                                                RELEASED    03/01/74    00 00005
                    6 *                                                                        00 00006
                    7 *                                                                        00 00007
                    8 *                                                                        00 00008
                    9 *                                                                        00 00009
                   10 *        SPOOLER CONTROLLER TABLE 3                                      00 00010
                   11 *                                                                        00 00011
                   12 *                                                                        00 00012
                   13 *                                                                        00 00013
                   14 *                                                                        00 00014
                   15          TITLE   CTSP3A                                                 00 00015
                   16          NAME    CTSP3A                                                 00 00016
                   17          EXT     V$IOC                                                  00 00017
                   18          EXT     V$SPIR                                                 00 00018
                   19          EXT     TBSP3A                                                 00 00019
000003 A           20 STREAM   EQU     3                                                      00 00020
000112 A           21 RECSIZ   EQU     74                                                  E.2********
                   22          EJEC                                                           00 00022
000001 A           23 X        EQU     1                                                      00 00023
                   25 CT       MAC                                                            00 00025
                   26 SRMD     EQU     107                                                    00 00026
                   27 STR0     EQU     130                                                    00 00027
                   28 SS       FORM    1,1,1,1,1,11                                           00 00028
                   29          DATA    *+0,5                                                  00 00029
                   30          SS      0,0,1,1,1,0                                            00 00030
                   31          DATA    -1                                                     00 00031
                   32          JSR     V$IOC,X                                                00 00032
                   33          DATA    0100000         IO COMPLETE BIT                        00 00033
                   34          DATA    0100000+SRMD    IMMEDIATE RETURN TO LUN SRMD           00 00034
                   35          DATA    *+3,0,0                                                00 00035
                   36          JMP     V$SPIR                                                 00 00036
                   37          DATA    0,0                                                    00 00037
                   38 S        FORM    9,2                                                    00 00038
                   39          S       3,'S'                                                  00 00039
                   40          DATA    1,0,0,0                                                00 00040
                   41 XX       SET     'L0'                                                   00 00041
                   42          DATA    'SP','00',XX+P(1)                                      00 00042
                   43          DATA    1,1,0                                                  00 00043
                   44          DATA    077777                                                 00 00044
                   45          DATA    *+015                                                  00 00045
                   46          SS      2,1,0,0,1,0                                            00 00046
                   47          DATA    -1                                                     00 00047
                   48          JSR     V$IOC,X                                                00 00048
                   49          DATA    0100000                                                00 00049
                   50          DATA    0100000+STR0+P(1)                                      00 00050
                   51          DATA    *+5                                                    00 00051
                   52          DATA    0,0                                                    00 00052
                   53          JMP     V$SPIR                                                 00 00053
                   54          DATA    0,0,0                                                  00 00054
                   55          CMAC                                                           00 00055
                   56          EJEC                                                           00 00056
                   57 *                                                                       00 00057
                   58 *                                                                       00 00058
                   59 *           CONTROLLER TABLE FOR SPOOLER UNIT 3                         00 00059
                   60 *                                                                       00 00060
                   61 *        FOR VORTEX SYSTEMS                                             00 00061
                   62 *                                                                       00 00062
000000 R           63 CTSP3A   EQU     *                                                      00 00063
000000 000000 F    64          DATA    TBSP3A          CTIDB                                  00 00064
000001 000315 R    65          DATA    CTSMD           CTAIMC                                 00 00065
000002 000056 A    66          DATA    56              CTCPN                                  00 00066
000003 000000 A    67          DATA    0               CTDST                                  00 00067
000004 000000 A    68          DATA    0               CTRCBK                                 00 00068
000005 000000 A    69          DATA    0               CTPIRT  = 0                            00 00069
000006 123456 A    70          DATA    123456          CTDVAD                                 00 00070
000007 000000 A    71          DATA    0               CTIDA                                  00 00071
000010 000000 A    72          DATA    0               CTPIAT                                 00 00072
000011 000000 A    73          DATA    0               CTPJCB                                 00 00073
000012 000000 A    74          DATA    0               CTLOP                                  00 00074
000013 000000 A    75          DATA    0               CTUDS                                  00 00075
000014 000000 A    76          DATA    0,0             -                                      00 00076
000015 000000 A
                   77 *                                                                       00 00077
                   78 *        SPECIAL SPOOLER PARAMETERS                                     00 00078
                   79 *                                                                       00 00079
000016 177777 A    80          DATA    -1              CTRCT                                  00 00080
000017 000003 A    81          DATA    STREAM          CTRUT                                  00 00081
                   82          CT      STREAM          SCT + DCT TABLES                       00 00082

000020 000035 R
000021 034000 A
000022 177777 A
000023 006505 A
000024 000000 E
000025 100000 A
000026 100153 A
000027 000034 R
000030 000000 A
000031 000000 A
000032 001000 A
```

```
000033 000000 E
000034 000000 A
000035 000000 A
000036 001723 A
000037 000001 A
000040 000000 A
000041 000000 A
000042 000000 A
000043 151720 A
000044 147717 A
000045 146263 A
000046 000001 A
000047 000001 A
000050 000000 A
000051 077777 A
000052 000067 R
000053 044000 A
000054 177777 A
000055 006505 A
000056 000024 E
000057 100000 A
000060 100267 A
000061 000066 R
000062 000000 A
000063 000000 A
000064 001000 A
000065 000033 E
000066 000000 A
000067 000000 A
000070 000000 A
                    83          EJEC                                                    00 00083
                    84 *                                                                00 00084
                    85 *        START OF BUFFER AREA                                    00 00085
                    86 *                                                                00 00086
000071 000203 R     87 CTBFSX   DATA    *+RECSIZ        POINTS TO NEXT BUFFER           00 00087
000072 000071 R     88          DATA    CTBFSX          ADR OF FIRST BUFFER             00 00088
000073 000203 R     89          DATA    CTBFSX+RECSIZ   START OF LAST BUFFER            00 00089
000203              90          ORG     CTBFSX+RECSIZ   BUFFER 2                        00 00090
000203 000000 A     91          DATA    0                                               00 00091
000204              92          BSS     RECSIZ-1                                        00 00092
        000315 R    93 CTEND    EQU     *                                               00 00093
                    94          END                                                     00 00094
ENTRY NAMES
000000 R CTSP3A
EXTERNAL NAMES
000000 E TBSP3A 000056 E V$IOC  000065 E V$SPIR
SYMBOLS
000071 R CTBFSX 000315 R CTEND  000000 R CTSP3A 000112 A RECSIZ
000153 A SRMD   000264 A STRO   000003 A STREAM 000000 E TBSP3A
000056 E V$IOC  000065 E V$SPIR 000001 A X      146260 A XX
  0 ERRORS ASSEMBLY COMPLETE

    87  CTBFSX      88      89      90
    93  CTEND       65
    63  CTSP3A      15      16
     0  P           42      50
    21  RECSIZ      87      89      90      92
    26  SRMD        34
    27  STRO        50
    20  STREAM      81      82
     0  TBSP3A      19      64
     0  V$IOC       17      32      48
     0  V$SPIR      18      36      53
    23  X           32      48
    41  XX          42
```

```
                     1 *   THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1972 BY VARIAN DATA MACHINE 00 00001
                     2 *                                                                        00 00002
                     3 *     V.D.M.   PART  NO.        92106O5-16bA                             00 00003
                     4 *                                                                        00 00004
                     5 *                                                RELEASED    03/01/74    00 00005
                     6 *                                                                        00 00006
                     7 *                                                                        00 00007
                     8 *                                                                        00 00008
                     9 *                                                                        00 00009
                    10 *        SPOOLER CONTROLLER TABLE 4                                      00 00010
                    11 *                                                                        00 00011
                    12 *                                                                        00 00012
                    13 *                                                                        00 00013
                    14 *                                                                        00 00014
                    15          TITLE   CTSP4A                                                  00 00015
                    16          NAME    CTSP4A                                                  00 00016
                    17          EXT     V$IOC                                                   00 00017
                    18          EXT     V$SPIR                                                  00 00018
                    19          EXT     IBSP4A                                                  00 00019
000004 A            20 STREAM   EQU     4                                                       00 00020
000112 A            21 RECSIZ   EQU     74                                                  E.2 ******
                    22          EJEC                                                            00 00022
000001 A            23 X        EQU     1                                                       00 00023
                    25 CT       MAC                                                             00 00025
                    26 SRMD     EQU     107                                                     00 00026
                    27 STRO     EQU     180                                                     00 00027
                    28 SS       SDCM    1,1,1,1,1,11                                            00 00028
                    29          BCTO    *+015                                                   00 00029
                    30          SS      0,0,1,1,1,0                                             00 00030
                    31          DATA    -1                                                      00 00031
                    32          JMP     V$IOC,X                                                 00 00032
                    33          DATA    0:100000        IO COMPLETE BIT                         00 00033
                    34          DATO    1:100000+SRMD   IMMEDIATE RETURN TO LUN SRMD           00 00034
                    35          DATA    *-5,0,0                                                 00 00035
                    36          JMP     V$SPIR                                                  00 00036
                    37          DATA    0,0                                                     00 00037
                    38 S        CORM    S,0                                                     00 00038
                    39          S       S,'S'                                                   00 00039
                    40          DATA    1,0,0,0                                                 00 00040
                    41 XX       TEXT     L0'                                                    00 00041
                    42          DATA    'SP','00',XX+P(1)                                       00 00042
                    43          DATA    1,1,0                                                   00 00043
                    44          DATA    0:77777                                                 00 00044
                    45          DATA    *+015                                                   00 00045
                    46          SS      0,1,0,0,1,0                                             00 00046
                    47          DATA    -1                                                      00 00047
                    48          JMP     V$IOC,X                                                 00 00048
                    49          DATO    0:100000                                                00 00049
                    50          DATA    1:100300+STRO+P(1)                                      00 00050
                    51          DATA    *+0                                                     00 00051
                    52          DATA    0,0                                                     00 00052
                    53          JMP     V$SPIR                                                  00 00053
                    54          DATA    0,0,0                                                   00 00054
                    55                                                                          00 00055
                    56                                                                          00 00056
                    57 *                                                                        00 00057
                    58 *                                                                        00 00058
                    59 *          CONTROLLER TABLE FOR SPOOLER UNIT 4                           00 00059
                    60 *                                                                        00 00060
                    61 *        FOR VORTEX SYSTEMS                                              00 00061
                    62 *                                                                        00 00062
000000 R            63 CTSP4A   EQU     *
000000 000000 E     64          DATA    IBSP4A          CTIDR                                   00 00064
000001 000541 R     65          DATA    CTCND           CTADNC                                  00 00065
000002 000056 A     66          DATA    CTA             CTLPM                                   00 00066
000003 000000 A     67          DATA    0               CTEST                                   00 00067
000004 000000 A     68          DATA    0               CTWDK                                   00 00068
000005 000000 A     69          DATA    0               CTRTRY = 0                              00 00069
000006 123456 A     70          DATA    0123456         CTDVCD                                  00 00070
000007 000000 A     71          DATA    0               CTIOA                                   00 00071
000010 000000 A     72          DATA    0               CTSTAT                                  00 00072
000011 000000 A     73          DATA    0               CTFLGS                                  00 00073
000012 000000 A     74          DATA    0               CTTCB                                   00 00074
000013 000000 A     75          DATA    0               CTWDC                                   00 00075
000014 000000 A     76          DATA    0,0                                                     00 00076
000015 000000 A
                    77 *                                                                        00 00077
                    78 *        SPECIAL SPOOLER PARAMETERS                                      00 00078
                    79 *                                                                        00 00079
000016 177777 A     80          DATA    -1              CTRCI                                   00 00080
000017 000004 A     81          DATA    STREAM          CTBUF                                   00 00081
                    82          CT      STREAM          SCT + DCT TABLES                        00 00082

000020 000035 R
000021 034000 A
000022 177777 A
000023 006505 A
000024 000000 E
000025 100000 A
000026 100153 A
000027 000034 A
000030 000000 A
000031 000000 A
000032 001000 A
```

```
000033 000000 E
000034 000000 A
000035 000000 A
000036 001723 A
000037 000001 A
000040 000000 A
000041 000000 A
000042 000000 A
000043 151720 A
000044 147717 A
000045 146264 A
000046 000001 A
000047 000001 A
000050 000000 A
000051 077777 A
000052 000067 R
000053 044000 A
000054 177777 A
000055 006505 A
000056 000024 E
000057 100000 A
000060 100270 A
000061 000066 R
000062 000000 A
000063 000000 A
000064 001000 A
000065 000033 E
000066 000000 A
000067 00000C A
000070 000000 A
```

```
                    83          EJEC                                                    00  00083
                    84  *                                                               00  00084
                    85  *       START OF BUFFER AREA                                    00  00085
                    86  *                                                               00  00086
000071 000203 R     87  CTBFSX  DATA    *+RECSIZ        POINTS TO NEXT BUFFER           00  00087
000072 000071 R     88          DATA    CTBFSX          ADR OF FIRST BUFFER             00  00088
000073 000427 R     89          DATA    CTBF4             ADR OF LAST BUFFER            00  00089
000203              90  CTBF2   ORG     CTBFSX+RECSIZ   BUFFER 2                       00  00090
000203 000315 R     91          DATA    CTBF3             ADR OF THIRD BUFFER           00  00091
000315              92          ORG     CTBF2+RECSIZ    BUFFER 3                        00  00092
000315 000427 R     93  CTBF3   DATA    CTBF4             ADR OF FOURTH BUFFER          00  00093
000427              94          ORG     CTBF3+RECSIZ    BUFFER 4                        00  00094
000427 000000 A     95  CTBF4   DATA    0                                               00  00095
000430              96          BSS     RECSIZ-1                                        00  00096
        000541 R    97  CTEND   EQU     *                                               00  00097
                    98          END                                                     00  00098
ENTRY NAMES
000000 R CTSP4A
EXTERNAL NAMES
000000 E TBSP4A 000056 E V$IOC  000065 E V$SPIR
SYMBOLS
000203 R CTBF2  000315 R CTBF3  000427 R CTBF4  000071 R CTBFSX
000541 R CTEND  000000 R CTSP4A 000112 A RECSIZ 000153 A SRMD
000264 A STRO   000004 A STREAM 000000 E TBSP4A 000056 E V$IOC
000065 E V$SPIR 000001 A X      146260 A XX
  0 ERRORS ASSEMBLY COMPLETE
```

```
 90  CTBF2     92
 93  CTBF3     91    94
 95  CTBF4     89    93
 87  CTBFSX    88    90
 97  CTEND     65
 63  CTSP4A    15    16
  0  P         42    50
 21  RECSIZ    87    90    92    94    96
 26  SRMD      34
 27  STRO      50
 20  STREAM    81    82
  0  TBSP4A    19    64
  0  V$IOC     17    32    48
  0  V$SPIR    18    36    53
 23  X         32    48
 41  XX        42
```

```
                                1 *  THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1972 BY VARIAN DATA MACHINE 00 00001
                                2 *                                                                    00 00002
                                3 *    V.D.M.  PART  NO.       92L0605-167A                            00 00003
                                4 *                                                                    00 00004
                                5 *                                                RELEASED    03/01/74 00 00005
                                6 *                                                                    00 00006
                                7 *                                                                    00 00007
                                8 *                                                                    00 00008
                                9 *                                                                    00 00009
                               10 *       SPOOLER CONTROLLER TABLE 5                                   00 00010
                               11 *                                                                    00 00011
                               12 *                                                                    00 00012
                               13 *                                                                    00 00013
                               14 *                                                                    00 00014
                               15         TITLE   CTSP5A                                               00 00015
                               16         NAME    CTSP5A                                               00 00016
                               17         EXT     V$IOC                                                00 00017
                               18         EXT     V$SPIR                                               00 00018
                               19         EXT     TBSP5A                                               00 00019
000005 A                       20 STREAM  EQU     5                                                    00 00020
000112 A                       21 RECSIZ  EQU     74                                                E.2********
                               22         EJEC                                                         00 00022
000001 A                       23 X       EQU     1                                                    00 00023
                               25 CT      MACR                                                         00 00025
                               26 SRMD    EQU     107                                                  00 00026
                               27 STR0    EQU     186                                                  00 00027
                               28 SS      FORM    1,1,1,1,1,11                                         00 00028
                               29         DATA    *+015                                                00 00029
                               30         SS      0,1,1,1,1,0                                          00 00030
                               31         DATA    -1                                                   00 00031
                               32         JSR     V^IOC,X                                              00 00032
                               33         DATA    0100000         IO COMPLETE BIT                      00 00033
                               34         DATA    0100000+SRMD    IMMEDIATE RETURN TO LUN SRMD         00 00034
                               35         DATA    *+3,0,0                                              00 00035
                               36         JMP     V$SPIR                                               00 00036
                               37         DATA    0,0                                                  00 00037
                               38 $       FORM    8,8                                                  00 00038
                               39         DATA    0,"$"                                                00 00039
                               40         DATA    1,0,0,0                                              00 00040
                               41 XX      SET     "L0"                                                 00 00041
                               42         DATA    "CP","00",XX+P(1)                                    00 00042
                               43         DATA    1,1,0                                                00 00043
                               44         DATA    077777                                               00 00044
                               45         DATA    *+015                                                00 00045
                               46         SS      0,1,0,0,1,0                                          00 00046
                               47         DATA    -1                                                   00 00047
                               48         JSR     V$IOC,X                                              00 00048
                               49         DATA    0100000                                              00 00049
                               50         DATA    0100000+STR0+P(1)                                    00 00050
                               51         DATA    *+5                                                  00 00051
                               52         DATA    1,0                                                  00 00052
                               53         JMP     V$SPIR                                               00 00053
                               54         DATA    0,0                                                  00 00054
                               55         EJEC                                                         00 00055
                               56         PAGE                                                         00 00056
                               57 *                                                                    00 00057
                               58 *                                                                    00 00058
                               59 *          CONTROLLER TABLE FOR SPOOLER UNIT 5                       00 00059
                               60 *                                                                    00 00060
                               61 *       FOR VORTEX SYSTEMS                                           00 00061
                               62 *                                                                    00 00062
000000 R                       63 CTSP5A  EQU     *                                                    00 00063
000000 000000 R                64         DATA    TBSP5A          CTIOB                                00 00064
000001 000315 R                65         DATA    .-SRMD          CTADNC                               00 00065
000002 000056 A                66         DATA    056             CTDPM                                00 00066
000003 000000 A                67         DATA    0               CTBSY                                00 00067
000004 000000 A                68         DATA    0               CTBSRK                               00 00068
000005 000000 A                69         DATA    0               CTDIRY  = 0                          00 00069
000006 123456 A                70         DATA    123456          CTDEV#                               00 00070
000007 000000 A                71         DATA    0               CTIOC                                00 00071
000010 000000 A                72         DATA    0               CTPIOT                               00 00072
000011 000000 A                73         DATA    0               CTPIOB                               00 00073
000012 000000 A                74         DATA    0               CTFCB                                00 00074
000013 000000 A                75         DATA    0               CTWCT                                00 00075
000014 000000 A                76         DATA    0               CTSTA                                00 00076
000015 000000 A
                               77 *                                                                    00 00077
                               78 *       SPECIAL SPOOLER PARAMETERS                                   00 00078
                               79 *                                                                    00 00079
000016 177777 A                80         DATA    -1              CTRCT                                00 00080
000017 000005 A                81         DATA    STREAM          CTPUF                                00 00081
                               82         CT      STREAM          SCT + DCT TABLES                     00 00082
000020 000035 R
000021 034000 A
000022 177777 A
000023 006503 A
000024 000000 A
000025 100000 A
000026 100153 A
000027 000034 R
000030 000000 A
000031 000000 A
000032 001000 A
```

```
000033 000000 E
000034 000000 A
000035 000000 A
000036 001723 A
000037 000001 A
000040 000000 A
000041 000000 A
000042 000000 A
000043 151720 A
000044 147717 A
000045 146265 A
000046 000001 A
000047 000001 A
000050 000000 A
000051 077777 A
000052 000067 R
000053 044000 A
000054 177777 A
000055 006505 A
000056 000024 E
000057 100000 A
000060 100271 A
000061 000066 R
000062 000000 A
000063 000000 A
000064 001000 A
000065 000033 E
000066 000000 A
000067 000000 A
000070 000000 A
```

```
                    83          EJEC                                                    00 00083
                    84 *                                                                00 00084
                    85 *        START OF BUFFER AREA                                    00 00085
                    86 *                                                                00 00086
000071 000203 R     87 CTBFSX   DATA    *-RECSIZ        POINTS TO NEXT BUFFER           00 00087
000072 000071 R     88          DATA    CTBFSX          ADR OF FIRST BUFFER             00 00088
000073 000203 R     89          DATA    CTBFSX+RECSIZ   START OF LAST BUFFER            00 00089
000203              90          ORG     CTBFSX+RECSIZ   BUFFER 2                        00 00090
000203 000000 A     91          DATA    0                                               00 00091
000204              92          BSS     RECSIZ-1                                        00 00092
        000315 R    93 CTEND    EQU     *                                               00 00093
                    94          END                                                     00 00094
ENTRY NAMES
000000 R CTSP5A
EXTERNAL NAMES
000000 E TBSP5A 000056 E V$IOC  000065 E V$SPIR
SYMBOLS
000071 R CTBFSX 000315 R CTEND  000000 R CTSP5A 000112 A RECSIZ
000153 A SRMD   000264 A STRO   000005 A STREAM 000000 E TBSP5A
000056 E V$IOC  000065 E V$SPIR 000001 A X      146260 A XX
  0 ERRORS ASSEMBLY COMPLETE

  87  CTBFSX     88     89     90
  93  CTEND      65
  63  CTSP5A     15     16
   0  P          42     50
  21  RECSIZ     87     89     90     92
  26  SRMD       34
  27  STRO       50
  20  STREAM     81     82
   0  TBSP5A     19     64
   0  V$IOC      17     32     48
   0  V$SPIR     18     36     53
  23  X          32     48
  41  XX         42
```

```
                     1 *  THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1972 BY VARIAN DATA MACHINE 00 00001
                     2 *                                                                       00 00002
                     3 *    V.D.M.  PART  NO.       92L0605-168A                               00 00003
                     4 *                                                                       00 00004
                     5 *                                          RELEASED    03/01/74         00 00005
                     6 *                                                                       00 00006
                     7 *                                                                       00 00007
                     8 *                                                                       00 00008
                     9 *                                                                       00 00009
                    10 *       SPOOLER CONTROLLER TABLE 6                                     00 00010
                    11 *                                                                      00 00011
                    12 *                                                                      00 00012
                    13 *                                                                      00 00013
                    14 *                                                                      00 00014
                    15          TITLE   CTSP6A                                                00 00015
                    16          NAME    CTSP6A                                                00 00016
                    17          EXT     V$IOC                                                 00 00017
                    18          EXT     V$$PIR                                                00 00018
                    19          EXT     T$SP6A                                                00 00019
000006 A            20 STREAM   EQU     6                                                     00 00020
000112 A            21 RECSIZ   EQU     74                                          E.2******** 00 00021
                    22          EJMC                                                          00 00022
000001 A            23 X        EQU     1                                                     00 00023
                    24 CT       EQU     10                                                    00 00024
                    25 SRMD     EQU     107                                                   00 00025
                    26 STR0     EQU     130                                                   00 00026
                    27 SS       SSRM    *,1,1,1,1,11                                          00 00027
                    28          DATA    $+015                                                 00 00028
                    29          SS      0,0,1,1,1,0                                           00 00029
                    30          DATA    -1                                                    00 00030
                    31          JSP     V$IOC,X                                               00 00031
                    32          DATA    0100000         IO COMPLETE BIT                       00 00032
                    33          DATA    :100000+SRMD    IMMEDIATE RETURN TO LUN SRMD          00 00033
                    34          DATA    *+5,0,0                                               00 00034
                    35          JMP     V$$PIR                                                00 00035
                    36          DATA    0,0                                                   00 00036
                    37 S        FORM    6.3                                                   00 00037
                    38          S       3,'S'                                                 00 00038
                    39          DATA    1,0,0,0                                               00 00039
                    40 XX       SET     'L0'                                                  00 00040
                    41          DATA    'SP','00',XX+P(1)                                     00 00041
                    42          DATA    1,1,0                                                 00 00042
                    43          DATA    077777                                                00 00043
                    44          DATA    *+015                                                 00 00044
                    45          SS      0,1,0,0,1,0                                           00 00045
                    46          DATA    -1                                                    00 00046
                    47          JSP     V$IOC,X                                               00 00047
                    48          DATA    0100000                                               00 00048
                    49          DATA    0100000+STR0+P(1)                                     00 00049
                    50          DATA    *+5                                                   00 00050
                    51          DATA    0,0                                                   00 00051
                    52          JMP     V$$PIR                                                00 00052
                    53          DATA    0,0,0                                                 00 00053
                    54          EJMC                                                          00 00054
                    55          EJMC                                                          00 00055
                    56 *                                                                      00 00056
                    57 *                                                                      00 00057
                    58 *          CONTROLLER TABLE FOR SPOOLER UNIT 6                         00 00058
                    59 *                                                                      00 00059
                    60 *       FOR VORTEX SYSTEMS                                             00 00060
                    61 *                                                                      00 00061
000000 R            62 CTSP6A   EQU     *                                                     00 00062
000000 000000 E     63          DATA    T$SP6A          CTIOB                                 00 00063
000001 000541 R     64          DATA    CTCND           CTADNC                                00 00064
000002 000056 A     65          DATA    056             CTUPM                                 00 00065
000003 000000 A     66          DATA    0               CTHST                                 00 00066
000004 000000 A     67          DATA    0               CTPCBK                                00 00067
000005 000000 A     68          DATA    0               CTSTNY = 0                            00 00068
000006 123456 A     69          DATA    0123456         CTDVAD                                00 00069
000007 000000 A     70          DATA    0               CTIRQ                                 00 00070
000010 000000 A     71          DATA    0               CTSTQ1                                00 00071
000011 000000 A     72          DATA    0               CTSTQ2                                00 00072
000012 000000 A     73          DATA    0               CTPCB                                 00 00073
000013 000000 A     74          DATA    0               CTIDL                                 00 00074
000014 000000 A     75          DATA    0,0                                                   00 00075
000015 000000 R     76
                    77 *                                                                      00 00076
                    78 *       SPECIAL SPOOLER PARAMETERS                                     00 00077
                    79 *                                                                      00 00078
000016 177777 A     80          DATA    -1              CTSLT                                 00 00079
000017 000006 A     81          DATA    STREAM          CTKLS                                 00 00080
                    82          CT      STREAM          SCT = DCT TABLES                      00 00081

000020 000035 R
000021 034000 A
000022 177777 A
000023 006505 A
000024 000000 E
000025 100000 A
000026 100153 R
000027 000034 R
000030 000000 A
000031 000000 A
000032 001000 A
```

```
000033 000000 E
000034 000000 A
000035 000000 A
000036 001723 A
000037 000001 A
000040 000000 A
000041 000000 A
000042 000000 A
000043 151720 A
000044 147717 A
000045 146266 A
000046 000001 A
000047 000001 A
000050 000000 A
000051 077777 A
000052 000067 R
000053 044000 A
000054 177777 A
000055 006505 A
000056 000024 E
000057 100000 A
000060 100272 A
000061 000066 R
000062 000000 A
000063 000000 A
000064 001000 A
000065 000033 E
000066 000000 A
000067 000000 A
000070 000000 A
```

```
                    83          EJEC                                                    00  00083
                    84  *                                                               00  00084
                    85  *       START OF BUFFER AREA                                    00  00085
                    86  *                                                               00  00086
000071 000203 R     87  CTBFSX  DATA    *+RECSIZ        POINTS TO NEXT BUFFER           00  00087
000072 000071 R     88          DATA    CTBFSX          ADR OF FIRST BUFFER             00  00088
000073 000427 R     89          DATA    CTBF4             ADR OF LAST BUFFER            00  00089
000203              90  CTBF2   ORG     CTBFSX+RECSIZ   BUFFER 2                       00  00090
000203 000315 R     91          DATA    CTBF3             ADR OF THIRD BUFFER           00  00091
000315              92          ORG     CTBF2+RECSIZ    BUFFER 3                        00  00092
000315 000427 R     93  CTBF3   DATA    CTBF4             ADR OF FOURTH BUFFER          00  00093
000427              94          ORG     CTBF3+RECSIZ    BUFFER 4                        00  00094
000427 000000 A     95  CTBF4   DATA    0                                               00  00095
000430              96          BSS     RECSIZ-1                                        00  00096
       000541 R     97  CTEND   EQU     *                                               00  00097
                    98          END                                                     00  00098
ENTRY NAMES
000000 R CTSP6A
EXTERNAL NAMES
000000 E TBSP6A 000056 E V$IOC  000065 E V$SPIR
SYMBOLS
000203 R CTBF2  000315 R CTBF3  000427 R CTBF4  000071 R CTBFSX
000541 R CTEND  000000 R CTSP6A 000112 A RECSIZ 000153 A SRMD
000264 A STRO   000006 A STREAM 000000 E TBSP6A 000056 E V$IOC
000065 E V$SPIR 000001 A X      146260 A XX
  0 ERRORS ASSEMBLY COMPLETE
```

```
 90  CTBF2      92
 93  CTBF3      91     94
 95  CTBF4      89     93
 87  CTBFSX     88     90
 97  CTEND      65
 63  CTSP6A     15     16
  0  P          42     50
 21  RECSIZ     87     90     92     94     96
 26  SRMD       34
 27  STRO       50
 20  STREAM     81     82
  0  TBSP6A     19     64
  0  V$IOC      17     32     48
  0  V$SPIR     18     36     53
 23  X          32     48
 41  XX         42
```

```
                                1 *  THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1972 BY VARIAN DATA MACHINE 00 00001
                                2 *                                                                      00 00002
                                3 *    V.D.M.  PART  NO.       92L0605-169A                              00 00003
                                4 *                                                                      00 00004
                                5 *                                                RELEASED   03/01/74   00 00005
                                6 *                                                                      00 00006
                                7 *                                                                      00 00007
                                8 *                                                                      00 00008
                                9 *                                                                      00 00009
                               10 *       SPOOLER CONTROLLER TABLE 7                                     00 00010
                               11 *                                                                      00 00011
                               12 *                                                                      00 00012
                               13 *                                                                      00 00013
                               14 *                                                                      00 00014
                               15         TITLE   CTSP7A                                                00 00015
                               16         NAME    CTSP7A                                                00 00016
                               17         EXT     V$IOC                                                 00 00017
                               18         EXT     V$SPIR                                                00 00018
                               19         EXT     TBSP7A                                                00 00019
000007 A                       20 STREAM  EQU     7                                                     00 00020
000112 A                       21 RECSIZ  EQU     74                                                 E.2*C******
                               22         EJEC                                                          00 00022
000001 A                       23 X       EQU     1                                                     00 00023
                               25 CT      MAC                                                           00 00025
                               26 SRMD    EQU     107                                                   00 00026
                               27 STR0    EQU     180                                                   00 00027
                               28 SS      FORM    1,1,1,1,1,11                                          00 00028
                               29         DATA    *+015                                                 00 00029
                               30         SS      0,0,1,1,1,0                                           00 00030
                               31         DATA    -1                                                    00 00031
                               32         JSR     V$IOC,X                                               00 00032
                               33         DATA    0100000         IO COMPLETE BIT                       00 00033
                               34         DATA    0100000+SRMD    IMMEDIATE RETURN TO LUN SRMD          00 00034
                               35         DATA    *+5,0,0                                               00 00035
                               36         JMP     V$SPIR                                                00 00036
                               37         DATA    0,0                                                   00 00037
                               38 S       FORM    8,8                                                   00 00038
                               39         $       3,'S'                                                 00 00039
                               40         DATA    1,0,0,0                                               00 00040
                               41 XX      SET     'L0'                                                  00 00041
                               42         DATA    'CC','DD',XX+P(1)                                     00 00042
                               43         DATA    1,1,0                                                 00 00043
                               44         DATA    077777                                                00 00044
                               45         DATA    *+015                                                 00 00045
                               46         SS      0,1,0,0,1,0                                           00 00046
                               47         DATA    -1                                                    00 00047
                               48         JSR     V$IOC,X                                               00 00048
                               49         DATA    0100000                                               00 00049
                               50         DATA    0100300+STR0+P(1)                                     00 00050
                               51         DATA    *+5                                                   00 00051
                               52         DATA    0,0                                                   00 00052
                               53         JMP     V$SPIR                                                00 00053
                               54         DATA    0,0,0                                                 00 00054
                               55         ENMC                                                          00 00055
                               56         EJEC                                                          00 00056
                               57 *                                                                     00 00057
                               58 *                                                                     00 00058
                               59 *          CONTROLLER TABLE FOR SPOOLER UNIT 7                        00 00059
                               60 *                                                                     00 00060
                               61 *       FOR VORTEX SYSTEMS                                            00 00061
                               62 *                                                                     00 00062
000000 R                       63 CTSP7A  EQU     *                                                     00 00063
000000 000000 E                64         DATA    TBSP7A          CTIOB                                 00 00064
000001 000315 R                65         DATA    CTLND           CTADHC                                00 00065
000002 000056 A                66         DATA    056             CTDFM                                 00 00066
000003 000000 A                67         DATA    0               CTDST                                 00 00067
000004 000000 A                68         DATA    0               CTRCBK                                00 00068
000005 000000 A                69         DATA    0               CTCTRY = 0                            00 00069
000006 123456 A                70         DATA    0123456         CTDVSD                                00 00070
000007 000000 A                71         DATA    0               CTIOA                                 00 00071
000010 000000 A                72         DATA    0               CTSTAT                                00 00072
000011 000000 A                73         DATA    0               CTBUF                                 00 00073
000012 000000 A                74         DATA    0               CTCNT                                 00 00074
000013 000000 A                75         DATA    0               CTUDS                                 00 00075
000014 000000 A                76         DATA    0,0                                                   00 00076
000015 000000 A
                               77 *                                                                     00 00077
                               78 *       SPECIAL SPOOLER PARAMETERS                                    00 00078
                               79 *                                                                     00 00079
000016 177777 A                80         DATA    -1              CTRCT                                 00 00080
000017 000007 A                81         DATA    STREAM          CTBUF                                 00 00081
                               82         CT      STREAM          SCT * DCT TABLES                      00 00082
000020 000035 R
000021 034000 A
000022 177777 A
000023 006505 A
000024 000000 E
000025 100000 A
000026 100153 A
000027 000034 R
000030 000000 A
000031 000000 A
000032 001000 A
```

```
000033 000000 E
000034 000000 A
000035 000000 A
000036 001723 A
000037 000001 A
000040 000000 A
000041 000000 A
000042 000000 A
000043 151720 A
000044 147717 A
000045 146267 A
000046 000001 A
000047 000001 A
000050 000000 A
000051 077777 A
000052 000067 R
000053 044000 A
000054 177777 A
000055 006505 A
000056 000024 E
000057 100000 A
000060 100273 A
000061 000066 R
000062 000000 A
000063 000000 A
000064 001000 A
000065 000033 E
000066 000000 A
000067 000000 A
000070 000000 A
                    83          EJEC                                                                  00  00083
                    84  *                                                                             00  00084
                    85  *       START OF BUFFER AREA                                                  00  00085
                    86  *                                                                             00  00086
000071 000203 R     87  CTBFSX  DATA    *+RECSIZ       POINTS TO NEXT BUFFER                          00  00087
000072 000071 R     88          DATA    CTBFSX         ADR OF FIRST BUFFER                            00  00088
000073 000203 R     89          DATA    CTBFSX+RECSIZ  START OF LAST BUFFER                           00  00089
000203              90          ORG     CTBFSX+RECSIZ  BUFFER 2                                       00  00090
000203 000000 A     91          DATA    0                                                             00  00091
000204              92          BSS     RECSIZ-1                                                      00  00092
        000315 R    93  CTEND   EQU     *                                                             00  00093
                    94          END                                                                   00  00094
ENTRY NAMES
000000 R CTSP7A
EXTERNAL NAMES
000000 E TBSP7A 000056 E V$IOC  000065 E V$SPIR
SYMBOLS
000071 R CTBFSX 000315 R CTEND  000000 R CTSP7A 000112 A RECSIZ
000153 A SRMD   000264 A STR0   000007 A STREAM 000000 E TBSP7A
000056 E V$IOC  000065 E V$SPIR 000001 A X      146260 A XX
  0 ERRORS ASSEMBLY COMPLETE

   87  CTBFSX    88    89    90
   93  CTEND     65
   63  CTSP7A    15    16
    0  P         42    50
   21  RECSIZ    87    89    90    92
   26  SRMD      34
   27  STR0      50
   20  STREAM    81    82
    0  TBSP7A    19    64
    0  V$IOC     17    32    48
    0  V$SPIR    18    36    53
   23  X         32    48
   41  XX        42
```

```
000001 A     1 VORTEX SET     1                PUT LAST FOR VORTEX                    V2  04 00001
             2 * THIS IS A COPYRIGHTED PROGRAM.COPYRIGHT 1972 BY VARIAN DATA MACHINES   04 00002
             3 *                                                                        04 00003
             4 *     V.D.M.  PART  NO.        92L0605-94D                               04 00004
             5 *                                                                        04 00005
             6 *                                          RELEASED    03/01/74          04 00006
             7 *                                                                        04 00007
             8 *              V$TYA                                                     04 00008
             9 *                                                                        04 00009
            10 *                                                                        04 00010
            11         TITLE   V$TYA                                                   04 00011
            12 ************************************************************************04 00012
            13 ***     TIDB SETUP                                                  ***  04 00013
            14 *                                                                        04 00014
            15 ************************************************************************04 00015
000000 A    17 TBTRD   EQU     0              TASK THREAD                                04 00017
000001 A    18 TBST    EQU     1              TASK STATUS                                04 00018
000002 A    19 TBPL    EQU     2              STATUS CONT. (BITS15-6),PRIORITY LEVEL(5-0 04 00019
000003 A    20 TBEVNT  EQU     3              INTERRUPT EVENT                            04 00020
000004 A    21 TBRSA   EQU     4              A          REENTRANT AND SUSPEND STACK     04 00021
000005 A    22 TBRSB   EQU     5              B          REENTRANT AND SUSPEND STACK     04 00022
000006 A    23 TBRSX   EQU     6              X          REENTRANT AND SUSPEND STACK     04 00023
000007 A    24 TBRSP   EQU     7              DF/P       REENTRANT AND SUSPEND STACK     04 00024
000010 A    25 TBRSTS  EQU     8              TEMP. STG. REENTRANT AND SUSPEND STACK     04 00025
000011 A    26 TBENTY  EQU     9              TASK ENTRY LOCATION                        04 00026
000012 A    27 TBTMS   EQU     10             TIME COUNTER - CLOCK RESOLUTION IN 5MS INC 04 00027
000013 A    28 TBTMIN  EQU     11             TIME COUNTER - CLOCK MINUTE INCREMENTS     04 00028
000014 A    29 TBISA   EQU     12             A          INTERRUPT STACK                 04 00029
000015 A    30 TBISB   EQU     13             B          INTERRUPT STACK                 04 00030
000016 A    31 TBISX   EQU     14             X          INTERRUPT STACK                 04 00031
000017 A    32 TBISP   EQU     15             DF/P       INTERRUPT STACK                 04 00032
000020 A    33 TBISRS  EQU     16             REENT. STACK  INTERRUPT STACK              04 00033
000021 A    34 TBIO    EQU     17             BLK ALLOC(15-10),I/O THR(9-5),I/O ACT(4-0) 04 00034
000022 A    35 TBKN1   EQU     18             TASK NAME                                  04 00035
000023 A    36 TBKN2   EQU     19             TASK NAME                                  04 00036
000024 A    37 TBKN3   EQU     20             TASK NAME                                  04 00037
000025 A    38 TBTLC   EQU     21             1ST LOC. OF TASK ALLOCATABLE               04 00038
000026 A    39 TBCPTH  EQU     22             BACKGROUND TASK QUEUE                      04 00039
000027 A    40 TBATSK  EQU     23             TIDB LOC. OF ACTIVATING TASK               04 00040
000030 A    41 TBRSE   EQU     24             TASK ERROR CODE                            04 00041
            42         IFT     VORTEX-2                                          V2    04 00042
            43         GOTO    ENDC01                                            V2    04 00043
            44 TBSIZ   EQU     25              TASK SIZE, BITS 15-10                     V2 04 00044
            45 TDNULL  EQU     26              NUCLEUS MODULE INDICATOR, BITS 15-08      V2 04 00045
            46 TBKEY   EQU     26              TASK'S MAP KEY, BITS 03-00                V2 04 00046
            47 TBMIMG  EQU     27              TASK'S MAP IMAGE                          V2 04 00047
            48 TBIST   EQU     28              INTERRUPT STATUS                          V2 04 00048
            49 ENDC01  CONT                                                       V2    04 00049
            50         EJEC                                                             04 00050
            51 ************************************************************************04 00051
            52 *                                                                        04 00052
            53 ***     TASK STATUS DESCRIPTION  (BIT SET WORD 1)                   ***  04 00053
            54 *                                                                        04 00054
            55 ************************************************************************04 00055
000017 A    57 TBS15   EQU     15             INTERRUPT SUSPEND                          04 00056
000016 A    59 TBS14   EQU     14             TASK SUSPEND                               04 00057
000015 A    60 TBS13   EQU     13             TASK ABORT                                 04 00058
000014 P    61 TBS12   EQU     12             TASK EXIT                                  04 00059
000013 P    63 TBS11   EQU     11             TIDB CORE RESIDENT                         04 00060
000012 A    64 TBS10   EQU     10             CORE RESIDENT TASK                         04 00061
000011 A    65 TBS9    EQU     9              FOREGROUND TASK                            04 00062
000010 A    67 TBS8    EQU     8              TASK PROTECTED                             04 00063
000007 A    68 TBS7    EQU     7              TASK SCHEDULED BY TIME DELAY               04 00064
000006 A    69 TBS6    EQU     6              TIME DELAY ACTIVE                          04 00065
000005 A    71 TBS5    EQU     5              TASK WAITING TO BE LOADED                  04 00066
000004 A    72 TBS4    EQU     4              TASK ERROR                                 04 00067
000003 A    73 TBS3    EQU     3              TASK INTERRUPT EXPECTED                    04 00068
000002 A    75 TBS2    EQU     2              OVERLAY TASK                               04 00069
000001 A    76 TBS1    EQU     1              UPON TERMINATION ACTIVATE TASK SCHED TASK  04 00070
000000 A    77 TBS0    EQU     0              TASK SEARCH-ALLOCATED-LOADED               04 00071
            78         EJEC                                                             04 00072
            79 ************************************************************************04 00073
            80 *                                                                        04 00074
            81 ***     TASK STATUS DESCRIPTION  (BIT SET WORD 2)                   ***  04 00075
            82 *                                                                        04 00076
            83 ************************************************************************04 00077
            85 *        BIT 15   -   TASK OPENED                                        04 00078
            87 *        BIT 14   -   UNUSED                                             04 00079
            88 *        BIT 13   -   OVERLAY LOAD                                       04 00080
            89 *        BIT 12   -   TASK WAITING FOR BACKGROUND TASK I/O TO COMPLETE   04 00081
            90 *                     TASK LOCKED OUT UNTIL ITS I/O COMPLETE OR BIT 1.   04 00082
            91 *                     IS SET  (ALLOCATABLE SPACE AVAILABLE)              04 00083
            93 *        BIT 11   -   DEFINES THAT ALLOCATABLE SPACE IS AVAILABLE, TRY   04 00084
            94 *                     ALLOCATING TASK AGAIN.  OVERRIDES BIT 12 SET OR    04 00085
            95 *                     BIT 3 IN STATUS WORD.                              04 00086
            96 *        BIT 10   -   BACKGROUND TASK BEING WRITTEN ON CHECKPOINT FILE.  04 00087
            97 *        BIT  9   -   TASK WAITING FOR A TIDB TO COME AVAILABLE FOR      04 00088
            98 *                     SCHEDULING.                                        04 00089
           100 *        BIT  8 TO 6  - UNUSED                                           04 00090
           101         EJEC                                                             04 00091
           102 ************************************************************************04 00092
           103 *                                                                        04 00093
           104 ***     JOB PROCESSOR LOW CORE EQUATES                              **   04 00094
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                  105 *                                                                              04 00105
                  106 ****************************************************************************  04 00106
000050 A          108 LCJP     EQU      050                                                          04 00108
000050 A          109 V$JNAM   EQU      LCJP            JCP NAME                                     04 00109
000054 A          110 V$LCNT   EQU      LCJP+4          LINE COUNT                                   04 00110
000055 A          111 V$JCFG   EQU      LCJP+5          JCP FLAGS                                    04 00111
                  112 *                                 BIT 2-0    = LOAD AND GO FLAGS               04 00112
                  113 *                                 BIT  3     = DUMP FLAG  1=DUMP, 0=NO DUMP    04 00113
                  114 *                                 BIT  4     = DUMP FLAG IF LOAD AND GO        04 00114
                  115 *                                 BIT 9-5    = UNUSED                          04 00115
                  116 *                                 BIT 15-10 = BG EXTRA CORE BLOCKS TO ALLOC    04 00116
000056 A          118 V$BIC1   EQU      LCJP+6          BIC INTERRUPT ADDRESS TABLE  (10 WORDS)      04 00118
000070 A          119 V$DATE   EQU      LCJP+16         JCP DATE RECORD                              04 00119
000074 A          120 V$PLCT   EQU      LCJP+20         PERMINATE LINE COUNT                         04 00120
000075 A          121 V$BGLB   EQU      LCJP+21         JCP LIB KEY AND LU NO. (BACKGROUND LIB)      04 00121
000076 A          122 V$CRDM   EQU      LCJP+22         CARD KEYPUNCH TYPE, 0=026, 1=029             04 00122
                  123 *                                 BIT 0 = SYSTEM NOMINAL KEYPUNCH MODE.        04 00123
                  124 *                                 BIT 9 = CURRENT JOB KEYPUNCH MODE.           04 00124
000077 A          125 V$JCTM   EQU      LCJP+23         TEMP. STORAGE FOR /MEM BLOCK                 04 00125
                  126          EJEC                                                                  04 00126
                  127 ****************************************************************************  04 00127
                  128 *                                                                              04 00128
                  129 ****      LOW CORE DESCRIPTION                                             *** 04 00129
                  130 *                                                                              04 00130
                  131 ****************************************************************************  04 00131
000300 A          133 LC       EQU      0300                                                         04 00133
000300 A          134 V$CTL    EQU      LC              CURRENT TASK TIDB LOCATION                   04 00134
000301 A          135 V$CPL    EQU      LC+1            CURRENT PRIORITY LEVEL                       04 00135
000302 A          136 V$CRS    EQU      LC+2            CURRENT REENTRANT STACK POINTER              04 00136
000303 A          137 V$TB     EQU      LC+3            POINTER TO HIGHEST PRIORITY TIDB             04 00137
000304 A          138 V$UTB    EQU      LC+4            POINTER TO UNUSED TASK TIDB                  04 00138
000305 A          139 V$PTVB   EQU      LC+5            POINTER TO NEXT ENTRY IN REENTRANT STACK     04 00139
000306 A          140 V$FLRS   EQU      LC+6            FIRST LOC. OF REENTRANT STACK                04 00140
000307 A          141 V$LRSK   EQU      LC+7            LAST LOC. OF REENTRANT STACK+1               04 00141
000310 A          142 V$CKPT   EQU      LC+8            CHECKPOINT FLAG 1=ON, 0=OFF                  04 00142
000311 A          143 V$OPCL   EQU      LC+9            LOC. OF TIDB FOR OPCOM TASK                  04 00143
000312 A          144 V$LSAL   EQU      LC+10           LOC. OF TIDB FOR SYSTEM SAL TASK             04 00144
000313 A          145 V$LER    EQU      LC+11           LOC. OF TIDB FOR SYSTEM ERROR TASK           04 00145
000314 A          146 V$TJCP   EQU      LC+12           LOC. OF TIDB FOR JOB CONTROL PROCESSOR TAS   04 00146
000315 A          147 V$BTB    EQU      LC+13           LOC. OF CURRENT ACTIVE BACKGROUND TSK TIDB   04 00147
                  148          IFT      VORTEX-2                                                  V2 04 00148
                  149          GOTO     LCD1            ASSEMBLE FOR VORTEX II                    V2 04 00149
                  150 V$NPAG   EQU      LC+14           NUMBER OF AVAILABLE PAGES IN V$PAGE       V2 04 00150
                  151 V$LPP    EQU      LC+15           POINTER OF LAST WORD TESTED IN V$PAGE     V2 04 00151
                  152 LCD1     CONT                                                               V2 04 00152
                  153          IFF      VORTEX-2                                                  V2 04 00153
                  154          GOTO     LCD2            ASSEMBLE IF NOT VORTEX II                 V2 04 00154
000316 A          155 V$LUP    EQU      LC+14           LOC. OF 1ST UNPROTECTED WORD                 04 00155
000317 A          156 V$LLUP   EQU      LC+15           LOC. OF LAST UNPROTECTED WORD                04 00156
                  157 LCD2     CONT                                                               V2 04 00157
000320 A          158 V$IM     EQU      LC+16           INTERRUPT MASK  (8 WORDS)                    04 00158
                  159          IFF      VORTEX-2                                                  V2 04 00159
                  160          GOTO     LCD3                                                      V2 04 00160
000330 A          161 V$MPM    EQU      LC+24           MEMORY PROTECT MASK  (4 WORDS)               04 00161
000334 A          162 V$CAM    EQU      LC+28           CORE ALLOCATION MASK  (4 WORDS)              04 00162
                  163 *        EQU      LC+32           UNUSED                                       04 00163
                  164 LCD3     CONT                                                               V2 04 00164
                  165          IFT      VORTEX-2                                                  V2 04 00165
                  166          GOTO     LCD4            ASSEMBLE IF VORTEX II                     V2 04 00166
                  167 V$MAP    EQU      LC+24           MAP KEY AVAILABILITY MASK                 V2 04 00167
                  168 V$BTBM   EQU      LC+25           BOTTOM OF NUCLEUS TABLE MODULF            V2 04 00168
                  169 V$GFCB   EQU      LC+26           GLOBAL FCB MODULE                         V2 04 00169
                  170 V$MIMG   EQU      LC+27           MAP 0 IMAGE ADDRESS                       V2 04 00170
                  171 V$ST0    EQU      LC+28           FUNC 1 CONTROL WORD TO SWITCH EXECUTIVEV2    04 00171
                  172 V$ST1    EQU      LC+29            MODE STATES: V$ST0- STATE 0              V2 04 00172
                  173 V$ST2    EQU      LC+30                         V$ST1- STATE 1              V2 04 00173
                  174 V$ST3    EQU      LC+31                         ETC                         V2 04 00174
                  175 V$KEY    EQU      LC+32           EXECUTING TASK'S MAP KEY                  V2 04 00175
                  176 LCD4     CONT                                                               V2 04 00176
000341 A          177 V$CRDR   EQU      LC+33           CORE RESIDENT DIRECTORY LOCATION             04 00177
000342 A          178 V$TBGT   EQU      LC+34           TOP OF THREAD OF BG TSK WAITING TO BE ALLO   04 00178
000343 A          179 V$TMS    EQU      LC+35           TIME OF DAY IN 5 MILLISECOND INCREMENTS      04 00179
000344 A          180 V$TMN    EQU      LC+36           TIME OF DAY IN MINUTE INCREMENTS             04 00180
000345 A          181 V$LUNT   EQU      LC+37           ADDR. OF LOGICAL UNIT NAME TABLE             04 00181
000346 A          182 V$OPCF   EQU      LC+38           OPCOM LOCKOUT FLAG                           04 00182
000347 A          183 V$FGLB   EQU      LC+39           KEY AND LU NO. FOR FOREGROUND LIB            04 00183
000350 A          184 V$FREE   EQU      LC+40           FREE RUNNING COUNTER INCR. IN MICROSECONDS   04 00184
000351 A          185 V$CTMS   EQU      LC+41           CLOCK RESOLUTION IN 5 MILLISECOND INCR.      04 00185
000352 A          186 V$SCV    EQU      LC+42           CLOCK SELECTED COUNT VALUE (1 TO 4095)       04 00186
000353 A          187 V$CKB    EQU      LC+43           BASIC CLOCK INTERRUPT RATE IN MICROSECONDS   04 00187
000354 A          188 V$CRM    EQU      LC+44           CLOCK RESOLUTION INCR. FOR 1 MINUTE.         04 00188
000355 A          189 V$DSTB   EQU      LC+45           BASE ADDR. FOR DST BLOCK                     04 00189
000356 A          190 V$LIT    EQU      LC+46           LAST LOCATION OF BACKGROUND LITERAL TABLE    04 00190
                  191          IFF      VORTEX-2        ASSEMBLE IF VORTEX II                     V2 04 00191
                  192 V$PGT    EQU      LC+47           V$PAGE ADDRESS                            V2 04 00192
                  193          IFT      VORTEX-2        ASSEMBLE IF NOT VORTEX II                 V2 04 00193
                  194 *        EQU      LC+47           UNUSED                                       04 00194
000360 A          195 V$CTAD   EQU      LC+48           BASE ADDR. FOR CONTROLLER ADDR. TABLE        04 00195
000361 A          196 V$SCTL   EQU      LC+49           CURRENT CONTROLLER IN SCAN                   04 00196
000362 A          197 V$NCTR   EQU      LC+50           NO. OF CONTROLLERS                           04 00197
000363 A          198 V$PIMN   EQU      LC+51           EXTERNAL DEVICE ADDRESS TABLE FOR PIMS       04 00198
                  199 *                                   (8 WORDS DEFINED IN PIM NO ORDER)          04 00199
                  200          IFF      VORTEX-2                                                  V2 04 00200
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                201          GOTO   LCD5        ASSEMBLE IF NOT VORTEX II                V2  04 00201
                202 *        EQU    LC+59       UNUSED                                       04 00202
                203 *        EQU    LC+60       UNUSED                                       04 00203
                204 LCD5     CONT                                                        V2  04 00204
                205          IFT    VORTEX-2                                             V2  04 00205
                206          GOTO   LCD6        ASSEMBLE IF VORTEX II                    V2  04 00206
                207 *        EQU    LC+59       JMP V$IOST    PAGE 0 ENTRY FOR I/O       V2  04 00207
                208 *        EQU    LC+60                     STAT CALLS.                V2  04 00208
                209 LCD6     CONT                                                        V2  04 00209
000375 A        210 V$SLFG   EQU    LC+61       SAL TASK BUSY FLAG      1=BUSY, 0=NOT BUSY   04 00210
000376 A        211 V$ERFG   EQU    LC+62       ERROR TASK BUSY FLAG    1=BUSY, 0=NOT BUSY   04 00211
000377 A        212 V$JOP    EQU    LC+63       JCP OPERATING FLAG                           04 00212
000400 A        213 V$LUT1   EQU    LC+64       START LUN ADDR FOR JCP/OPCOM ASSIGNABLE      04 00213
000401 A        214 V$LUT2   EQU    LC+65       START LUN ADDR FOR UNASSIGNABLE              04 00214
000402 A        215 V$LUT3   EQU    LC+66       START LUN ADDR FOR OPCOM ASSIGNABLE          04 00215
000403 A        216 V$1MIN   EQU    LC+67       32767 - (60000/(5*V$CFMS)) + 1               04 00216
                217          IFF    VORTEX-2                                             V2  04 00217
                218          GOTO   LCD7        ASSEMBLE IF NOT VORTEX II                V2  04 00218
                219 *        EQU    LC+68       UNUSED                                       04 00219
                220 *        EQU    LC+69       UNUSED                                       04 00220
                221 *        EQU    LC+70       UNUSED                                       04 00221
                222 *        EQU    LC+71       UNUSED                                       04 00222
                223 LCD7     CONT                                                        V2  04 00223
                224          IFT    VORTEX-2                                             V2  04 00224
                225          GOTO   LCD8                                                 V2  04 00225
                226 *        EQU    LC+68       JMP V$IOC     PAGE 0 ENTRY FOR IOC       V2  04 00226
                227 *        EQU    LC+69                      CALLS.                    V2  04 00227
                228 *        EQU    LC+70       JMP V$EXEC    PAGE 0 ENTRY FOR RTE       V2  04 00228
                229 *        EQU    LC+71                      CALLS.                    V2  04 00229
                230 LCD8     CONT                                                        V2  04 00230
000410 A        231 V$IOA    EQU    LC+72       I/O ALGORITHM                                04 00231
000411 A        232 V$CKIT   EQU    LC+73       CLOCK INT. IN PIM BEFORE LOCKOUT FLAG.       04 00232
000412 A        233 V$JCB    EQU    LC+74       ALL SYSTEM BACKGROUND PROGRAMS AND JCP USE   04 00233
                234 *                           THIS SYSTEM BUFFER TO READ DIRECTIVES AND    04 00234
                235 *                           SOURCE RECORDS IN.                           04 00235
000413 A        236 V$OCB    EQU    LC+75       OPCOM WILL READ OPERATOR KEY-IN REQUESTS     04 00236
                237 *                           IN THIS BUFFER.  IF JCP IS SET NOT ACTIVE    04 00237
                238 *                           AND A 1 DIRECTIVE IS INPUTTED, OPCOM         04 00238
                239 *                           WILL MOVE THE DIRECTIVE TO V$JCB BEFORE      04 00239
                240 *                           SCHEDULING JCP.                              04 00240
000414 A        241 V$BVN    EQU    LC+76       BOTTOM OF VORTEX NUCLEUS                     04 00241
000415 A        242 V$BFC    EQU    LC+77       TOP OF FG RES. AREA/BUTTOM OF FG BLK COMM.   04 00242
000416 A        243 V$TFC    EQU    LC+78       TOP OF FG BLK COMMON/TOP OF VORTEX CORE.     04 00243
                244 *        EQU    LC+79       UNUSED                                       04 00244
                245          EJEC                                                            04 00245
                246 ************************************************************************ 04 00246
                247 *                                                                        04 00247
                248 ****       MASK TABLE DESCRIPTION                                    *** 04 00248
                249 *                                                                        04 00249
                250 ************************************************************************ 04 00250
000420 A        252 MT       SET    0420                                                     04 00252
000420 A        253 ZERO     EQU    MT          ZERO WORD                                    04 00253
000421 A        254 BS0      EQU    MT+1        BIT MASK CONTENTS 000001                     04 00254
000422 A        255 BS1      EQU    MT+2                          000002                     04 00255
000423 A        256 BS2      EQU    MT+3                          000004                     04 00256
000424 A        257 BS3      EQU    MT+4                          000010                     04 00257
000425 A        258 BS4      EQU    MT+5                          000020                     04 00258
000426 A        259 BS5      EQU    MT+6                          000040                     04 00259
000427 A        260 BS6      EQU    MT+7                          000100                     04 00260
000430 A        261 BS7      EQU    MT+8                          000200                     04 00261
000431 A        262 BS8      EQU    MT+9                          000400                     04 00262
000432 A        263 BS9      EQU    MT+10                         001000                     04 00263
000433 A        264 BS10     EQU    MT+11                         002000                     04 00264
000434 A        265 BS11     EQU    MT+12                         004000                     04 00265
000435 A        266 BS12     EQU    MT+13                         010000                     04 00266
000436 A        267 BS13     EQU    MT+14                         020000                     04 00267
000437 A        268 BS14     EQU    MT+15                         040000                     04 00268
000440 A        269 BS15     EQU    MT+16                        0100000                     04 00269
000441 A        270 BR0      EQU    MT+17       BIT MASK CONTENTS 0177776                    04 00270
000442 A        271 BR1      EQU    MT+18                         0177775                    04 00271
000443 A        272 BR2      EQU    MT+19                         0177773                    04 00272
000444 A        273 BR3      EQU    MT+20                         0177767                    04 00273
000445 A        274 BR4      EQU    MT+21                         0177757                    04 00274
000446 A        275 BR5      EQU    MT+22                         0177737                    04 00275
000447 A        276 BR6      EQU    MT+23                         0177677                    04 00276
000450 A        277 BR7      EQU    MT+24                         0177577                    04 00277
000451 A        278 BR8      EQU    MT+25                         0177377                    04 00278
000452 A        279 BR9      EQU    MT+26                         0176777                    04 00279
000453 A        280 BR10     EQU    MT+27                         0175777                    04 00280
000454 A        281 BR11     EQU    MT+28                         0173777                    04 00281
000455 A        282 BR12     EQU    MT+29                         0167777                    04 00282
000456 A        283 BR13     EQU    MT+30                         0157777                    04 00283
000457 A        284 BR14     EQU    MT+31                         0137777                    04 00284
000460 A        285 BR15     EQU    MT+32                         0077777                    04 00285
000461 A        286 NEG      EQU    MT+33       SET ALL BITS                                 04 00286
000462 A        287 LHW      EQU    MT+34       LEFT HALF WORD MASK 0177400                  04 00287
000463 A        288 RHW      EQU    MT+35       RIGHT HALF WORD MASK    0377                 04 00288
000421 A        289 ONE      EQU    MT+1        CONTAINS NUMBER  1                           04 00289
000422 A        290 TWO      EQU    MT+2        CONTAINS NUMBER  2                           04 00290
000464 A        291 THREE    EQU    MT+36       CONTAINS NUMBER  3                           04 00291
000423 A        292 FOUR     EQU    MT+3        CONTAINS NUMBER  4                           04 00292
000465 A        293 FIVE     EQU    MT+37       CONTAINS NUMBER  5                           04 00293
000466 A        294 SIX      EQU    MT+38       CONTAINS NUMBER  6                           04 00294
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000467 A  295 SEVEN   EQU     MT+39          CONTAINS NUMBER  7                          04 00295
000424 A  296 EIGHT   EQU     MT+4           CONTAINS NUMBER  8                          04 00296
000470 A  297 NINE    EQU     MT+40          CONTAINS NUMBER  9                          04 00297
000471 A  298 TEN     EQU     MT+41          CONTAINS NUMBER 10                          04 00298
000421 A  299 BM1     EQU     MT+1           BIT MASK WORD 00001                         04 00299
000464 A  300 BM3     EQU     MT+36          BIT MASK WORD  00003                        04 00300
000467 A  301 BM7     EQU     MT+39          BIT MASK WORD  00007                        04 00301
000472 A  302 BM17    EQU     MT+42          BIT MASK WORD  00017                        04 00302
000473 A  303 BM37    EQU     MT+43          BIT MASK WORD  00037                        04 00303
000474 A  304 BM77    EQU     MT+44          BIT MASK WORD  00077                        04 00304
000475 A  305 BM177   EQU     MT+45          BIT MASK WORD  00177                        04 00305
000463 A  306 BM377   EQU     MT+35          BIT MASK WORD  00377                        04 00306
000476 A  307 BM777   EQU     MT+46          BIT MASK WORD  00777                        04 00307
000477 A  308 BM1777  EQU     MT+47          BIT MASK WORD  01777                        04 00308
          309         EJEC                                                             04 00309
          310 ********************************************************************     04 00310
          311 *                                                                        04 00311
          312 ****     BIT TEST BIT DESIGNATION                                  ***   04 00312
          313 *                                                                        04 00313
          314 ********************************************************************     04 00314
000040 A  316 RA0     EQU     040            BT JUMPS WHEN A REGISTER IS 0               04 00316
000000 A  317 RA1     EQU     000            BT JUMPS WHEN A REGISTER IS 1               04 00317
000060 A  318 RB0     EQU     060            BT JUMPS WHEN B REGISTER IS 0               04 00318
000020 A  319 RB1     EQU     020            BT JUMPS WHEN B REGISTER IS 1               04 00319
          321 ********************************************************************     04 00321
          322 *                                                                        04 00322
          323 **       THE BIT CHECKED                                               04 00323
          324 *                                                                        04 00324
          325 ********************************************************************     04 00325
000000 A  327 B0      EQU     0                                                        04 00327
000001 A  328 B1      EQU     1                                                        04 00328
000002 A  329 B2      EQU     2                                                        04 00329
000003 A  330 B3      EQU     3                                                        04 00330
000004 A  331 B4      EQU     4                                                        04 00331
000005 A  332 B5      EQU     5                                                        04 00332
000006 A  333 B6      EQU     6                                                        04 00333
000007 A  334 B7      EQU     7                                                        04 00334
000010 A  335 B8      EQU     8                                                        04 00335
000011 A  336 B9      EQU     9                                                        04 00336
000012 A  337 B10     EQU     10                                                       04 00337
000013 A  338 B11     EQU     11                                                       04 00338
000014 A  339 B12     EQU     12                                                       04 00339
000015 A  340 B13     EQU     13                                                       04 00340
000016 A  341 B14     EQU     14                                                       04 00341
000017 A  342 B15     EQU     15                                                       04 00342
          343         EJEC                                                             04 00343
          344 ********************************************************************     04 00344
          345 *                                                                        04 00345
          346 ****     DEVICE AND FUNCTION CODES                                 ***   04 00346
          347 *                                                                        04 00347
          348 ********************************************************************     04 00348
          350 ****     REAL TIME CLOCK                                           ***   04 00350
000047 A  351 CLOCK   EQU     047            DEVICE NUMBER 047                           04 00351
          352 *                                                                        04 00352
000747 A  353 DISCLK  EQU     0700+CLOCK     DISABLE CLOCK                               04 00353
000147 A  354 ENACLK  EQU     0100+CLOCK     ENABLE CLOCK                                04 00354
          355         IFF     VORTEX-2                                         V2      04 00355
          356 MPDVAD  EQU     046            RAM ADDRESS                       V2      04 00356
          358 *                                                                        04 00358
          359 ****     PIM                                                       ***   04 00359
000044 A  360 APIM    EQU     044            ALL PIMS DEVICE NUMBER                      04 00360
000040 A  361 PIM1    EQU     040                                                        04 00361
000041 A  362 PIM2    EQU     041                                                        04 00362
000042 A  363 PIM3    EQU     042                                                        04 00363
000043 A  364 PIM4    EQU     043                                                        04 00364
000040 A  365 PIM5    EQU     040                                                        04 00365
000040 A  366 PIM6    EQU     040                                                        04 00366
000040 A  367 PIM7    EQU     040                                                        04 00367
000040 A  368 PIM8    EQU     040                                                        04 00368
          369 *                                                                        04 00369
000444 A  370 DISPIM  EQU     0400+APIM                                                  04 00370
000244 A  371 ENAPIM  EQU     0200+APIM                                                  04 00371
          373 ****     MEMORY PROTECT                                            ***   04 00373
000045 A  374 MP      EQU     045            DEVICE ADDRESS 045                          04 00374
000745 A  375 DISMP   EQU     0700+MP        DISABLE MEMORY PROTECT                      04 00375
000645 A  376 ENAMP   EQU     0600+MP        ENABLE MEMORY PROTECT                       04 00376
000045 A  377 MPMR0   EQU     0000+MP        SELECT MASK REGISTER 0                      04 00377
000145 A  378 MPMR1   EQU     0100+MP        SELECT MASK REGISTER 1                      04 00378
000245 A  379 MPMR2   EQU     0200+MP        SELECT MASK REGISTER 2                      04 00379
000345 A  380 MPMR3   EQU     0300+MP        SELECT MASK REGISTER 3                      04 00380
          381         EJEC                                                             04 00381
          382 *  CONTROLLER TABLE , CTBL                                               04 00382
          383 *                                                                        04 00383
          384 *    CTBL FOR EACH CONTROLLER.                                           04 00384
000000 A  385 CTACT   EQU     1              CONTROLLER ACTIVE IND.,1=ACTIVE ,BIT 15     04 00385
000000 A  386 CTIDB   EQU     0              CONTROLLER/DRIVER IDB ADDR.,BITS 14-0       04 00386
000001 A  387 CTABNC  EQU     1              ADDR. OF NEXT CONTROLLER IN CHAIN           04 00387
000002 A  388 CTOPM   EQU     2              OP-CODE MASK                                04 00388
000003 A  389 CTDST   EQU     3              ADDR.OF CURRENT DST                         04 00389
000004 A  390 CTRQBK  EQU     4              FIRST REQUEST BLOCK                         04 00390
000005 A  391 CTRTRY  EQU     5              ERROR RETRY CONSTANT,BITS 15-0              04 00391
000005 A  392 CTRCNT  EQU     5              V$ERR RETRY COUNTER ,BITS 7-0               04 00392
000006 A  393 CTDVAT  EQU     6              DEVICE ADDR.                                04 00393
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000007 A    CTIOA   EQU      7             I/O ALGORITHM VALUE
000010 A    CTSTAT  EQU      8             DRIVER STATUS
000011 A    CTBICB  EQU      9             ADDR. FOR BIC FLAG TABLE,BITS 15-0
000012 A    CTFCB   EQU      10            FCB OR DCB ADDR.
000013 A    CTWDS   EQU      11            NO.OF WORDS TRANSFERED.
000014 A    CTFRCT  EQU      12            BITS 15-8,FREQUENCY CONSTANT
000014 A    CTFREQ  EQU      12            BITS 7-0,FREQUENCY COUNT
000015 A    CTSTSZ  EQU      13            NO.OF WORDS PER SECTOR FOR RMD ONLY
000016 A    CTTRSZ  EQU      14            NO.OF SECTORS PER TRACK FOR RMD ONLY
000017 A    CTPST0  EQU      15            PST BASE ADDR,RMD,UNIT 0
000020 A    CTPST1  EQU      16            PST BASE ADDR,RMD,UNIT 1
000021 A    CTPST2  EQU      17            PST BASE ADDR,RMD,UNIT 2
000022 A    CTPST3  EQU      18            PST BASE ADDR,RMD,UNIT 3
            *
                    EJEC
            * DEVICE SPECIFICATION TABLE, DST
            *   DST FOR EACH DEVICE,AND EACH RMD PARTITION
            *
000000 A    DSDVDN  EQU      0             DEVICE DOWN INDICATOR,1=DOWN  BIT 15
000000 A    DSDASS  EQU      0             DEVICE ASSGNMT INDICATOR,BITS 14-13
            *                                 00 ASSIGNABLE BY JCP AND OPCOM
            *                                 01 ASSIGNABLE BY OPCOM ONLY
            *                                 10 UNASSIGNABLE
            *                                 00 UNUSED
000000 A    DSUNAM  EQU      0             DEV NAME,CH.3 B12-10,CH.4 B9-4
            *                               ADD 0260 TO GET ASCII CHARACTER
000000 A    DSNORQ  EQU      0             DEVICE REQUEST COUNTER, BITS 3-0.
000001 A    DSNAME  EQU      1             DEVICE NAME.2 ASCII CHAR.
000002 A    DSREWD  EQU      2             DEVICE REWIND INDICATOR,1=REWIND,BIT 15
000002 A    DSUNTN  EQU      2             DEVICE UNIT NO. ,BITS 14-13
000002 A    DSLCKO  EQU      2             PARTITION LOCKOUT FLAG BIT 12
000002 A    DSOPCM  EQU      2             OPCOM DEVICE INDICATOR,BIT 11
000002 A    DSPSTI  EQU      2             INDEX TO PST,BITS 10-6.
000002 A    DSCTAD  EQU      2             INDEX TO COTAD,CONTRLLR ADDR TABLE,B5-0.
            *
            *
                    EJEC
            * CONTROLLER ADDRESS TABLE,COTAD
            *    1 ENTRY FOR EACH CTBL.
            *
000000 A    COTAD1  EQU      0             BASE ADDRESS FOR CONTROLLER TABLE
            *
                    EJEC
            *  BIC FLAG TABLE
            *   1 ENTRY FOR EACH BIC ,EACH CONTROLLER TABLE,CTBL, WHICH
            *      UTILIZES A BIC CONTAINS AN ADDRESS,CTBICB, POINTING
            *      TO ITS BIC ENTRY.
            *
000000 A    BICNUM  EQU      0             BIC NUMBER FOR THIS ENTRY.
            *                                POSITIVE VALUE MEANS BIC IS AVAILABLE
            *                                NEGATIVE VALUE,COMPLEMENTED BIC NO.,
            *                                  MEANS BIC IS CURRENTLY IN USE.
            *
            *
                    EJEC
            *  REQUEST BLOCK , RQBLK
            *    1 FOR EACH IOC REQUEST. RQBLKS ARE QUEUED ACCORDING TO TASK
            *      PRIORITY TO CTBL.
            *
            *
000000 A    RSTPR   EQU      0             BIT 15 = I/O COMPLETED INDICATOR.
            *                              BITS14-5,DRIVER STATUS
            *                              BITS 4-0, REQUESTING TASK PRIORITY.
000001 A    ROPWD   EQU      1             BIT 15 = WAIT OPTION
            *                              BITS14-12, MODE,USED BY DRIVERS
            *                              BITS 11-8,OP-CODE
            *                              BITS 7-0, LOGICAL UNIT NO.
000002 A    RFCB    EQU      2             FCB OR DCB ADDR.
000003 A    RTIDB   EQU      3             REQUESTING TASK TIDB ADDR.
000004 A    RADNR   EQU      4             ADDR.OF NEXT RQBLK IN QUEUE.,0= NONE.
            *
                    EJEC
            *
            *     PARTITION SPECIFICATION TABLE, PST
            *
            *        A PST EXISTS FOR EACH ROTATING MEMORY DEVICE. EACH PARTITION
            *        ON THE RMD HAS A FIVE WORD ENTRY IN THE PST. THE PARTITION'S
            *        PST ENTRY NUMBER IS SPECIFIED IN THE DEVICE SPECIFICATION
            *        TABLE,DST,THUS LINKING THE PST WITH A LOGICAL UNIT NUMBER.
            *        THE EFFECTIVE ADDR FOR AN ENTRY IS FOUND AS FOLLOWS:
            *
            *             PST ADDR. FOR ENTRY = (ENTRY NO. * 4 ) + 1 + PST BASE ADDR
            *
            *
000000 A    PSBEG   EQU      0             PARTITION BEGINNING ADDR.
000001 A    PSPROT  EQU      1             BIT 15, PROTECT FLAG
            *                              BITS 14-8, UNUSED
            *                              BITS 7-0, PROTECT KEY
000002 A    PSBADT  EQU      2             ADDR.OF BAD TRACK TABLE
000003 A    PSNSEC  EQU      3             ADDR.OF NEXT AVAILABLE SECTOR IN PARTITN
000004 A    PSEND   EQU      4             PARTITION END ADDR + 1. ALSO BEGINNING
            *                                ADDR FOR NEXT PARTITION.
            *
```

```
             *
                     EJEC
             *
             *    DATA CONTROL BLOCK, DCB
             *
             *       A DCB IS REFERENCED BY EACH I/O REQUEST BLOCK,RQBLK, SPECIFY-
             *        ING A NON-ROTATING MEMORY DEVICE. DCB CONTAINS ADDITION INFOR-
             *        MATION NECESSARY TO COMPLETE THE I/O OPERATION.
             *       DCB IS A FIXED LENGTH TABLE OF 3 WORDS EACH. THE FCB IS THE DCB
             *       EQUIVALENT FOR RMD.
             *
             *
000000 A       DRECL   EQU       0                RECORD LENGTH
000001 A       DBUFF   EQU       1                USER BUFFER AREA
000002 A       DCNT    EQU       2                NO. OF COUNTS,USE FOR FUNC REQUESTS.
             *
             *
             *
                     EJEC
             *
             *
             *    FILE CONTROL BLOCK, FCB
             *       A FCB IS REFERENCED BY EACH I/O REQUEST BLOCK,RQBLK, SPECIFY-
             *        ING A ROTATING MEMORY DEVICE. FCB CONTAINS ADDITION INFORMA-
             *        TION NECESSARY TO COMPLETE THE I/O INFORMATION ON RMD.
             *       FCB IS A FIXED LENGTH TABLE OF 10 WORDS.
             *
             *
000000 A       FRECL   EQU       0                RECORD LENGTH
000001 A       FBUFF   EQU       1                BUFFER AREA
000002 A       FACM    EQU       2                ACCESS METHOD ,BITS 15-8
             *                                      0 = DIRECT ACCESS BY LOGICAL RECORD.
             *                                      1 = SEQ ACCESS BY LOGICAL RECORD
             *                                      2 = DIRECT ACCESS USIN ACTUAL ADDR.
             *                                      4 = SEQ ACCESS USING ACTUAL ADDR
             *                                    PROTECT KEY,   BITS 7-0
000003 A       FCADR   EQU       3                CURRENT RECORD NO.,OR CURRENT SECTOR ADDR
000004 A       FCEOF   EQU       4                CURRENT END OF FILE POSITION
000005 A       FIFE    EQU       5                BEGIN FILE EXTENT
000006 A       FEFE    EQU       6                END FILE EXTENT.
000007 A       FNAM1   EQU       7                FILE NAME. CHAR N  , CHAR N+1
000010 A       FNAM2   EQU       8                           CHAR N+2, CHAR N+3
000011 A       FNAM3   EQU       9                           CHAR N+4, CHAR N+5
                     EJEC
             *       V$TY, TELETYPE DRIVER
             *
             *       TTY DRIVER CTRL ADDITION
                     IFF       VORTEX-2                                              V2
               CTJOFL  EQU       CTFREQ           JCP/OPCOM INPUT FLAG               V2
             *
000015 A       CTBUFF  EQU       CTFREQ+1         INPUT RQT USER BUFFER POINTER
000016 A       CTOPBF  EQU       CTFREQ+2         OPCOM BUFFER POINTER
000017 A       CTJCPB  EQU       CTFREQ+3         JCP BUFFER POINTER
000020 A       CTWPIM  EQU       CTFREQ+4         PIM MODULE NUMBER BITS 0-7
000021 A       CTWLMK  EQU       CTFREQ+5         PIM LINE NUMBER;BITS 0-7
000022 A       CTODST  EQU       CTFREQ+6         OPCOM DEVICE DST
000023 A       CTEMP   EQU       CTFREQ+7         NO. OF CHARACTERS TO OUTPUT
000024 A       CTREAD  EQU       CTFREQ+8         CR/LF BUFFER FOR READ RQT
000025 A       CTMODE  EQU       CTFREQ+9         MODE PARAMETER FROM RQBLK MINUS 4  D.1
                     IFF       VORTEX-2                                              V2
               CTFLG   EQU       CTFREQ+10        PRINT CONTROL CHAR (S) FLAG        E
000002 A       B       EQU       2
000001 A       X       EQU       1
000020 A       BTB1    EQU       020              TEST B REG FOR 1
000000 A       BTA1    EQU       0                TEST A REG FOR 1
000040 A       BTA0    EQU       040              TEST A REG FOR 0
000012 A       POP     EQU       10               OPCOM PRIORITY
000306 A       KOP     EQU       0306             OPCOM PROTECT KEY
000152 A       LOP     EQU       106              OPCOM CORE RESIDENT LIB LUN
000000 A       NW      EQU       0                NO WAIT FOR SCHEDULE REQUEST
                     EJEC
             *
             *
             *       THE MAJOR SUBCOMPONENTS FOR THIS DRIVER ARE:
             *
             *               V$TY, TELETYPE INITIATOR PROCESSOR
             *               TYIT00, TELETYPE INTERRUPT PROCESSOR
             *               TYUN00; UNSOLICITED REQUEST PROCESSOR
             *
             *
             *
             *
                     NAME      V$TYA
                     EXT       V$FNR
                     EXT       V$ERR
                     EXT       H$SFLG                                                D.1
000000 R       V$TYA   EQU       *
000000 020300 A        LDB       V$CTL            GET CONTROLLER TIDB.
000001 036010 A        LDX       TBRSTS,B         SET TO CTBL.
                     IFT       VORTEX-2                                              V2
                     GOTO      ENDC02                                                V2
                     TZA                                                             V2
                     STA       CTFLG,X            INITIALIZE PRT CONTROL CHAR. FLAG  V2
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                        580              STA     CTJOFL,X        INITIALIZE JCP/OPCOM INPUT FLAG                  V2  04 00580
                        581 ENDC02       CONT                                                                     V2  04 00581
000002 015000 A         582              LDA     CTACT,X         CHECK IF CONTROLLER ACTIVE.                          04 00582
000003 001004 A         583              JAN     TY02            YES.                                                 04 00583
000004 000021 R
000005 110440 A         584              ORA     BS15            NO. CHECK FOR UNSOLICITED KEY-IN.                    04 00584
000006 055000 A         585              STA     CTACT,X         NOW SET ACTIVE                                       04 00585
000007 016003 A         586              LDA     TBEVNT,B        CHECK TYPE OF INTERRUPT                              04 00586
000010 130422 A         587              ERA     TWO                                                                  04 00587
000011 001010 A         588              JAZ     TYU21A          UNSOLICITED OUTPUT                                   04 00588
000012 001226 R
000013 005001 A         589              TZA                                                                          04 00589
000014 056003 A         590              STA     TBEVNT,B        CLEAR EVENT WORD                                     04 00590
000015 005301 A         591              DECR    01                                                                   04 00591
000016 055010 A         592              STA     CTSTAT,X        SET CTSTAT NEGATIVE FOR NO REQUEST                   04 00592
000017 001000 A         593              JMP     TYUN00          GOTO UNSOLICITED REQUEST PROCESSOR.                  04 00593
000020 001037 R
000021 025003 A         594 TY02         LDB     CTDST,X         GET DST ADDR                                         04 00594
000022 016000 A         595              LDA     DSDVDN,B        CHECK IF DEVICE DOWN                                 04 00595
000023 025004 A         596              LDB     CTRQBK,X        GET RQBLK ADDR.                                      04 00596
000024 001004 A         597              JAN     TY20            YES                                                  04 00597
000025 000156 R
000026 016001 A         598              LDA     RQPWD,B                                                      D.104   00598
000027 004354 A         599              LSRA    12              UNPACK MODE PARAMETER                        D.104   00599
000030 150467 A         600              ANA     BM7                                                          D.104   00600
000031 140423 A         601              SUB     FOUR            IF MODE IS 4, SET TO ZERO, ELSE NON-ZERO.            04 00601
000032 055025 A         602              STA     CTMODE,X        SAVE FOR LATER REFERENCE                     D.104   00602
000033 016001 A         603              LDA     RQPWD,B                                                              00603
000034 004350 A         604              LSRA    8               UNPACK OP-CODE.                                      04 00604
000035 150472 A         605              ANA     BM17                                                                 04 00605
000036 055010 A         606              STA     CTSTAT,X        SAVE FOR LATER REFERENCE                             04 00606
000037 007401 A         607              SSM     1               DO NOT OUTPUT CR/LF                                  04 00607
000040 001010 A         608              JAZ     TY40            READ CODE                                            04 00608
000041 000347 R
000042 005311 A         609              DAR                                                                          04 00609
000043 001010 A         610              JAZ     TY30            WRITE CODE                                           04 00610
000044 000165 R
000045 005311 A         611              DAR                                                                          04 00611
000046 001010 A         612              JAZ     TY10            WEOF CODE                                            04 00612
000047 000136 R
000050 140464 A         613              SUB     THREE                                                                04 00613
000051 001010 A         614              JAZ     TY04            FUNC CODE                                            04 00614
000052 000055 R
000053 001000 A         615              JMP     TY1EXT          OTHERWISE IGNORE REQUEST,GOTO V$FNR                  04 00615
000054 000630 R
000055 025012 A         616 TY04         LDB     CTFCB,X         DCB ADDR                                     D.104   00616
000056 010464 A         617              LDA     THREE                                                                00617
                        618              IFF     VORTEX-2                                                     D.104   00618
                        619              DME     MPDVAD,V$ST3    USER'S MAP                                   D.104   00619
000057 146002 A         620              SUB     2,2             FUNCTION VALUE                                       00620
                        621              IFF     VORTEX-2                                                     D.104   00621
                        622              DME     MPDVAD,V$ST0    MAP 0                                        D.104   00622
000060 001002 A         623              JMP     TY04A                                                        E.1     ******
000061 000063 R
000062 010464 A         624              LDA     THREE                                                        E.1     ******
       000063 R         625 TY04A        EQU     *                                                            E.1     ******
000063 130460 A         626              ERA     BR15                                                         E.1     ******
000064 055013 A         627              STA     CTWDS,X         STORE IN WORD COUNT                                  00624
000065 006010 A         628              LDAI    TYLF            GET LINE FEED BUFFER ADDR.                           00625
000066 001342 R
000067 055015 A         629              STA     CTBUFF,X                                                             04 00626
000070 006027 A         630              LDLE    .YCS                                                                 04 00627
000071 001344 R
                        631              IFF     .VORTEX-2                                                    V2  04 00628
                        632              INR     CTFLG,X         SET FLAG TO INDICATE CONTROL CHARACTER       V2  04 00629
000072 007400 A         633 TY05         SOF                                                                          00630
000073 100443 A         634              EXO     BISPIM                                                               00631
000074 100747 A         635              EXO     BSRCLK                                                               00632
000075 002000 A         636              JMP     TYPIM           SET OUTPUT INTERRUPT LINE ON.                        04 00633
000076 001300 R
000077 005021 A         637              TDA                     A= OUTPUT CHARACTER                                  04 00634
       000100 R         638 TY06         EQU     *                                                                    04 00635
000100 100441 A         639              EXO     BISPIM                                                               04 00636
000101 100747 A         640              EXO     BSRCLK                                                               04 00637
000102 002000 A         641              JMP     TYPIM                                                                04 00638
000103 001530 R
000104 001001 A         642              JDM     TY01-2          GOTO UNSOLICITED ROT PROCESSOR                       04 00639
000105 001043 R
000106 020300 A         643 TY07         LDB     V$CTL                                                                04 00640
000107 005001 A         644              TZA                                                                          04 00641
000110 056003 A         645              STA     TBEVNT,B        CLEAR INTERRUPT EVENT WORD.                          04 00642
000111 015010 A         646              LDA     CTSTAT,X                                                     D.104   00643
000112 001016 A         647              JANZ    TY08            NOT READ                                     D.104   00644
000113 000117 R
000114 015025 A         648              LDA     CTMODE,X        CHECK MODE                                   D.104   00645
000115 001010 A         649              JAZ     MODE4           MODE = 4(TRANSPARENT)                        D.104   00646
000116 000126 R
                        650 TY08         DELAY   3000,0,2        DELAY TYPE 2,15 SEC                                  00647
000117 006505 A
000120 000406 A
000121 001102 A
000122 005670 A
000123 000000 A
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000124 001000 A  651          JMP     TYIT00          GOTO INTERRUPT ROUTINE                                  D.104 00648
000125 000400 R
000126 015024 A  652 MODE4    LDA     CTREAD,X        CHECK CR/LF BUFFER FOR READ RQST                        D.104 00649
000127 001016 A  653          JANZ    TY08            DO DELAY, TYPE 2 IF CR/LF OUTPUT                        D.104 00650
000130 000117 R
                 654          SUSPND  1               WAIT FOR READ INTERRUPT                                 D.104 00651
000131 006505 A
000132 000406 A
000133 000301 A
000134 001000 A  655          JMP     TYIT00                                                                  D.104 00652
000135 000400 R
       000136 R  656 TY10     EQU     *                                                                         04 00653
000136 006017 A  657          LDAE    TYBEL           PROCESS WEOF                                              04 00654
000137 001345 R
000140 100444 A  658          EXC     DISPIM                                                                    04 00655
000141 100747 A  659          EXC     DISCLK                                                                    04 00656
000142 002000 A  660          JMPM    TYOUT            OUTPUT BELL                                              04 00657
000143 001530 R
000144 100244 A  661          EXC     ENAPIM                                                                    04 00658
000145 100147 A  662          EXC     ENACLK                                                                    04 00659
000146 001001 A  663          JOF     TYU1            INPUT.GOTO UNSOLICITED RQT PROCESSOR.                     04 00660
000147 001045 R
000150 015010 A  664          LDA     CTSTAT,X                                                                  04 00661
000151 005211 A  665          CPA                                                                               04 00662
000152 001010 A  666          JAZ     TYU21A          SCAN IF UNSOLICITED RQT                                   04 00663
000153 001226 R
000154 001000 A  667          JMP     TYIEXT          PROCESS AS I/O COMPLETE                                   04 00664
000155 000630 R
000156 006010 A  668 TY20     LDAI    01640           ENTER FOR DEVICE DOWN.B= RQBLK ADDR                       04 00665
000157 001640 A
000160 116000 A  669          ORA     RSTPR,B                                                                   04 00666
000161 056000 A  670          STA     RSTPR,B         SET DEVICE DOWN ERROR CODE.                               04 00667
000162 005301 A  671          DECR    01              SET A =NEG FOR PARAMETER ERROR                            04 00668
000163 001000 A  672          JMP     TY50+3          GOTO I/O ERROR ROUTINE                                    04 00669
000164 000373 R
       000165 R  673 TY28     EQU     *               PROCESS PRINT CONTROL CHAR.OUTPUT COL.  3                 04 00670
000165 055013 A  674          STA     CTWDS,X         CLEAR COUNT                                               04 00671
000166 005001 A  675          TZA                                                                     D.1       04 00672
000167 006057 A  676          STAE    TYPLSF          CLEAR PLUS INDICATOR FLAG                       D.1       04 00673
000170 001356 R
000171 015025 A  677          LDA     CTMODE,X        CHECK MODE                                        D.104   00674
000172 001010 A  678          JAZ     TY30            MODE = 4, NO FORMS CONTROL                        D.104   00675
000173 000241 R
000174 026002 A  679          LDB     RFCB,B          DCB ADDR.                                                 04 00676
                 680          IFF     VORTEX-2                                                          V2      04 00677
                 681          OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                              V2      04 00678
000175 026001 A  682          LDB     DBUFF,B         BUFFER ADDR.                                              04 00679
000176 016000 A  683          LDA     0,B             GET PRINT CONTROL CHAR.                                   04 00680
                 684          IFF     VORTEX-2                                                          V2      04 00681
                 685          OME     MPDVAD,V$ST0    RESTORE MAP 0                                     V2      04 00682
000177 004350 A  686          LSRA    8                                                                         04 00683
000200 006057 A  687          STAE    TYTEMP          SAVE CONTROL CHARACTER                            D.1     04 00684
000201 001357 R
000202 006147 A  688          CUPE    TYPLS           IS THIS ASCII PLUS SIGN                           D.1     04 00685
000203 001355 R
000204 001016 A  689          JANZ    TY28A           NO. GET OUT                                       D.1     04 00686
000205 000213 R
000206 005101 A  690          INCR    01                                                                  D.104 00687
000207 006057 A  691          STAE    TYPLSF          YES. SET FLAG                                     D.1     04 00688
000210 001356 R
000211 001000 A  692          JMP     TYI17-3                                                           D.1     04 00689
000212 000736 R
       000213 R  693 TY28A    EQU     *                                                                 D.1     04 00690
000213 006017 A  694          LDAE    TYTEMP          RESTORE CONTROL CHAR.                             D.1     04 00691
000214 001357 R
000215 006137 A  695          ERAE    TYBLK           ASC BLANK=PRINT ONLY                                      04 00692
000216 001346 R
000217 001010 A  696          JAZ     TYI17-3         NO LF                                                     04 00693
000220 000736 R
000221 150421 A  697          ANA     ONE                                                                       04 00694
000222 005111 A  698          IAR                     SET 1 OR 2 CHARS.                                         04 00695
000223 055013 A  699          STA     CTWDS,X                                                                   04 00696
000224 010440 A  700          LDA     BS15            =100000                                                   04 00697
000225 145013 A  701          SUB     CTWDS,X                                                                   04 00698
000226 055013 A  702          STA     CTWDS,X                                                                   04 00699
000227 055023 A  703          STA     CTEMP,X                                                                   04 00700
000230 005001 A  704          TZA                                                                               04 00701
000231 055012 A  705          STA     CTFCB,X         CLEAR FOR PRINT CONTROL PROCESSING FLAG                   04 00702
000232 006010 A  706 TY29     LDAI    TYLF            LF CHARS.                                                 04 00703
000233 001342 R
000234 055015 A  707          STA     CTBUFF,X                IN COLUMN 3.                                      04 00704
000235 006027 A  708          LDBE    TYLF                                                              D.104   00705
000236 001342 R
                 709          IFF     VORTEX-2                                                          V2      04 00706
                 710          INR     CTFLG,X          SET CTFLG TO INDICATE PRINT CONTROL CH           V2      04 00707
000237 001000 A  711          JMP     TY05            OUTPUT BLANKS AND LF                                      04 00708
000240 000072 R
000241 026002 A  712 TY30     LDB     RFCB,B          PROCESS PRINT REQUEST                                     04 00709
000242 065012 A  713          STB     CTFCB,X         SET DCB ADDR. FOR TYU22 REGION                            04 00710
                 714          IFF     VORTEX-2                                                          V2      04 00711
                 715          OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                              V2      04 00712
000243 016001 A  716          LDA     DBUFF,B         B= DCB ADDR.                                              04 00713
                 717          IFF     VORTEX-2                                                          V2      04 00714
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                        718          DME     MPDVAD,V$ST0  RESTORE MAP 0                                    V2  04 00715
000244 055015 A         719          STA     CTBUFF,X                                                           04 00716
000245 015025 A         720          LDA     CTMODE,X      CHECK MODE                                         D.1 04 00717
000246 001010 A         721          JAZ     TY31          MODE = 4, NO TRUNCATION                            D.1 04 00718
000247 000261 R
                        722          IFF     VORTEX-2                                                         V2  04 00719
                        723          DME     MPDVAD,V$ST3  SWITCH TO USER'S MAP                             V2  04 00720
000250 016000 A         724          LDA     DRECL,B                                                            04 00721
                        725          IFF     VORTEX-2                                                         V2  04 00722
                        726          DME     MPDVAD,V$ST0  RESTORE MAP 0                                    V2  04 00723
000251 006140 A         727          SUBI    32            TRUNCATE IF GREATER THAN 36 WORDS                    04 00724
000252 000045 A
000253 001004 A         728          JAN     TY31                                                               04 00725
000254 000261 R
000255 006010 A         729          LDAI    36                                                                 04 00726
000256 000044 A
                        730          IFT     VORTEX-2                                                         V2  04 00727
                        731          GOTO    ENDC03                                                           V2  04 00728
                        732          JMP     TY31A                                                            V2  04 00729
                        733 TY31     DME     MPDVAD,V$ST3  SWITCH TO USER'S MAP                             V2  04 00730
                        734          LDA     DRECL,B         RECORD LENGTH                                    V2  04 00731
                        735          DME     MPDVAD,V$ST0  RESTORE MAP 0                                    V2  04 00732
                        736 ENDC03   CONT                                                                     V2  04 00733
                        737          IFF     VORTEX-2                                                         V2  04 00734
                        738          GOTO    ENDC09                                                           V2  04 00735
000257 001000 A         739          JMP     *+3                                                                04 00736
000260 000262 R
000261 016000 A         740 TY31     LDA     DRECL,B                                                            04 00737
                        741          IFF     VORTEX-2                                                         V2  04 00738
                        742 ENDC09   CONT                                                                     V2  04 00739
                        743          IFF     VORTEX-2                                                         V2  04 00740
                        744 TY31A    BSS     0                                                                V2  04 00741
000262 005012 A         745          TAB                                                                        04 00742
000263 125015 A         746          ADD     CTBUFF,X                                                           04 00743
000264 004041 A         747          LRLB    1             * 2                                                  04 00744
000265 065023 A         748          STB     CTEMP,X       MAX COUNT OF CHARACTERS                              04 00745
000266 005012 A         749          TAB                                                                        04 00746
000267 015025 A         750          LDA     CTMODE,X      CHECK MODE                                         D.1 04 00747
000270 001010 A         751          JAZ     TY34          MODE = 4,NO TRAILING BLANK TRUNCATION              D.1 04 00748
000271 000320 R
000272 005322 A         752 TY32     DBR                   B= BUFFER END ADDR                                   04 00749
                        753          IFF     VORTEX-2                                                         V2  04 00750
                        754          DME     MPDVAD,V$ST3  SWITCH TO USER'S MAP                             V2  04 00751
000273 016000 A         755          LDA     0,B           GET LAST BUFFER WORD                                 04 00752
                        756          IFF     VORTEX-2                                                         V2  04 00753
                        757          DME     MPDVAD,V$ST0  RESTORE MAP 0                                    V2  04 00754
000274 150463 A         758          ANA     BR15                                                               04 00755
000275 006137 A         759          ERAE    TYBLK         CHECK FOR BLANK CHARS. FROM END OF BUFFER            04 00756
000276 001346 R
000277 001016 A         760          JANZ    TY34          CHAR N+1                                             04 00757
000300 000320 R
000301 045013 A         761          INR     CTWDS,X       INCREMENT CHARACTER COUNT                            04 00758
                        762          IFF     VORTEX-2                                                         V2  04 00759
                        763          DME     MPDVAD,V$ST3  SWITCH TO USER'S MAP                             V2  04 00760
000302 016000 A         764          LDA     0,B                                                                04 00761
                        765          IFF     VORTEX-2                                                         V2  04 00762
                        766          DME     MPDVAD,V$ST0  RESTORE MAP 0                                    V2  04 00763
000303 004350 A         767          LRRA    2                                                                  04 00764
000304 006137 A         768          ERAE    TYPLK         CHECK FOR BLANK IN CHARACTER N.                    D.1 04 00765
000305 001346 R
000306 001016 A         769          JANZ    TY34          NON BLANK                                            04 00766
000307 000320 R
000310 015013 A         770          LDA     CTWDS,X       NOW CHECK IF ALL BLANKS                              04 00767
000311 005111 A         771          TAR                     IN BUFFER                                          04 00768
000312 145023 A         772          SUB     CTEMP,X                                                            04 00769
000313 001010 A         773          JAZ     TY34                                                               04 00770
000314 000320 R
000315 045013 A         774          INR     CTWDS,X       INCREMENT FOR ANOTHER BLANK                          04 00771
000316 001000 A         775          JMP     TY32          NOW CHECK FOR BLANK IN PRECEDING LOC.                04 00772
000317 000272 R
000320 010440 A         776 TY34     LDA     BR15          FIRST NONE BLANK CHARACTER FOUND                     04 00773
000321 145023 A         777          SUB     CTEMP,X       MAX COUNT OF CHAR                                    04 00774
000322 125013 A         778          ADD     CTWDS,X       NO.OF TRAILING BLANKS                                04 00775
000323 150460 A         779          ANA     BR15                                                               04 00776
000324 055013 A         780          STA     CTWDS,X       CLEAR SIGN BIT FOR OVERFLOW                          04 00777
000325 055023 A         781          STA     CTEMP,X       SAVE,IF RESLT NECESSARY                              04 00778
000326 025015 A         782          LDB     CTBUFF,X      BUFFER ADDR                                          04 00779
000327 015025 A         783          LDA     CTMODE,X      CHECK MODE                                         D.1 04 00780
000330 001015 A         784          JANZ    NMDE4         MODE NEQ 4                                         D.1 04 00781
000331 000341 R
000332 005021 A         785          TPA                                                                      D.1 04 00782
000333 005211 A         786          CPA     1             SET CHAR. N+1 INDICATOR                            D.1 04 00783
000334 055015 A         787          STA     CTBUFF,X                                                         D.1 04 00784
                        788          IFF     VORTEX-2                                                         E.1 ********
                        789          DME     MPDVAD,V$ST3  USER MAP                                           E.1 ********
000335 026000 A         790          LDB     0,B                                                              E.1 ********
                        791          IFF     VORTEX-2                                                         E.1 ********
                        792          DME     MPDVAD,V$ST0  EXEC MAP                                           E.1 ********
000336 004150 A         793          LRRB    2                                                                D.1 04 00786
000337 001000 A         794          JMP     TYP3          MODE IS 4, OUTPUT 1ST CHR IN BUFFER                D.1 04 00787
000340 000072 P
000341 005222 A         795 NMDE4    TCB                   SET CHAR N+1 INDICATOR                             D.1 04 00788
000342 065015 A         796          STB     CTBUFF,X                                                           04 00789
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000343 006027 A  797          LDBE    TYBLK          BLANK FOR COL. 1                          D.104 00790
000344 001346 R
000345 001000 A  798          JMP     TY05           OUTPUT CHARACTER                            04 00791
000346 000072 R
000347 026002 A  799 TY40     LDB     RFCB,B         PROCESS INPUT REQUEST                       04 00792
                 800          IFF     VORTEX-2                                                 V2 04 00793
                 801          DME     MPDVAD,V$ST3   SWITCH TO USER'S MAP                     V2 04 00794
000350 016001 A  802          LDA     DBUFF,B                                                    04 00795
                 803          IFF     VORTEX-2                                                 V2 04 00796
                 804          DME     MPDVAD,V$ST0   RESTORE MAP 0                            V2 04 00797
000351 055015 A  805          STA     CTBUFF,X                                                   04 00798
                 806          IFF     VORTEX-2                                                 V2 04 00799
                 807 TY41     EQU     *                                                        V2 04 00800
000352 006017 A  808          LDAE    TYCRLF                                                    D.104 00801
000353 001354 R
000354 055024 A  809          STA     CTREAD,X                                                   04 00802
000355 005001 A  810 TY42     TZA                                                                04 00803
000356 055013 A  811          STA     CTWDS,X                                                    04 00804
000357 006027 A  812          LDBE    TYBEL                                                     D.104 00805
000360 001345 R
000361 001001 A  813          JDF     TY06-1         INITIAL INPUT PROCESSINGNO CR/LF            04 00806
000362 000077 R
000363 006017 A  814          LDAE    TYCRLF         OUTPUT CR/LF                              D.104 00807
000364 001354 R
000365 055024 A  815          STA     CTREAD,X                                                  D.104 00808
000366 001000 A  816          JMP     TY05           OUTPUT CHAR.                                04 00809
000367 000072 R
                 817 *        ENTER WHEN TTY OUTPUT NOT READY                                   04 00810
000370 006506 A  818 TY50     JSR     TYI18,B        SET OUTPUT INTERRUPT OFF                   04 00811
000371 000753 R
000372 005001 A  819          TZA                                                                04 00812
000373 030300 A  820          LDX     V$CTL          TIDB                                        04 00813
000374 025011 A  821          LDB     TBENTY,X       RESET START ADDR.                           04 00814
000375 065007 A  822          STB     TBRSP,X                                                    04 00815
000376 001000 A  823          JMP     VSERR                                                      04 00816
000377 000000 E
                 824 *        TYIT00, TELETYPE INTERRUPT PROCESSOR                              04 00817
                 825 *                                                                          04 00818
                 826 *                                                                          04 00819
      000400 R   827 TYIT00   EQU     *                                                          04 00820
000400 020300 A  828          LDB     V$CTL          CONTROLLER TIDB                             04 00821
000401 036010 A  829          LDX     TBRSTS,B       GET CTBL ADDR.                              04 00822
000402 016001 A  830          LDA     TBST,B         NOW CLEAR TIME DELAY FLAG                   04 00823
000403 150447 A  831          ANA     BR6                                                        04 00824
000404 056001 A  832          STA     TBST,B                                                     04 00825
000405 016003 A  833          LDA     TBEVNT,B                                                   04 00826
000406 001016 A  834          JANZ    TYI02          INTERRUPT OCCURRED                          04 00827
000407 000466 R
000410 015016 A  835          LDA     CTOPBF,X                                                   04 00828
000411 115017 A  836          ORA     CTJCPB,X                                                   04 00829
000412 001010 A  837          JAZ     TYI00          NOT OPCOM OR JCP. CHECK I/O QUEUE         D.104 00830
000413 000420 R
000414 006017 A  838          LDAE    TYBEL                                                     D.104 00831
000415 001345 R
000416 001000 A  839          JMP     TY06                                                       04 00832
000417 000100 R
000420 100444 A  840 TYI00    EXC     DISPIM                                                    D.104 00833
000421 100747 A  841          EXC     DISCLK                                                     04 00834
000422 074015 A  842          STX     TYI01A+1       CTBL ADDR.                                  04 00835
000423 025004 A  843          LDB     CTRQBK,X       RQBLK ADDR                                  04 00836
000424 036004 A  844 TYI01    LDX     RADNR,B        B=HIGH PRIORITY RQBLK,X=LOW PRIORITY        04 00837
000425 001040 A  845          JXZ     TYI01B         NO OTHER REQUEST                            04 00838
000426 000451 R
000427 015000 A  846          LDA     RSTPR,X CHECK  PRIORITY OF NEXT RSQT IN QUEUE              04 00839
000430 146000 A  847          SUB     RSTPR,B        B=1,X=2                                     04 00840
000431 001004 A  848          JAN     TYI01B         ALL DONE                                    04 00841
000432 000451 R
000433 015004 A  849          LDA     RADNR,X        NOW SWITCH ORDER IN QUEUE.GET =3            04 00842
000434 056004 A  850          STA     RADNR,B        LINK =3 TO NEW =2                           04 00843
000435 065004 A  851          STB     RADNR,X        LINK NEW =2 TO NEW =1                       04 00844
000436 005041 A  852          TXA                    A=NEW=1 ADDR.                               04 00845
000437 006030 A  853 TYI01A   LDXI    *              HIGHEST RQBLK ADDR OR CTBL                  04 00846
000440 000437 R
000441 055004 A  854          STA     RADNR,X        NOW HIGH PRIORITY REQUEST                   04 00847
000442 035004 A  855          LDX     CTRQBK,X                                                   04 00848
000443 035003 A  856          LDX     RTIDB,X                                                    04 00849
000444 045021 A  857          INR     TBIO,X         INCREMENT ACTIVE COU T                      04 00850
000445 036003 A  858          LDX     RTIDB,B                                                    04 00851
000446 015021 A  859          LDA     TBIO,X         DECREMENT ACTIVE COUNT                      04 00852
000447 005311 A  860          DAR                                                                04 00853
000450 055021 A  861          STA     TBIO,X                                                     04 00854
      000451 R   862 TYI01B   EQU     *                                                          04 00855
000451 020300 A  863          LDB     V$CTL          TIDB                                        04 00856
000452 036010 A  864          LDX     TBRSTS,B       CTBL                                        04 00857
000453 025004 A  865          LDB     4,X            RQBLK ADDR                                E.2*******
000454 016002 A  866          LDA     2,B            FCB ADDR                                  E.2*******
000455 055012 A  867          STA     10,X           CTFCB                                     E.2*******
                 868          IFT     VORTEX-2                                                 V2 04 00858
                 869          GOTO    ENDC1B                                                   V2 04 00859
                 870          LDX     CTRQBK,X       REQUEST BLOCK ADDRESS                     V2 04 00860
                 871          LDB     RTIDB,X        REQUESTER'S TIDB ADDRESS                  V2 04 00861
                 872          LDA     TBKEY,B        USER'S MAP KEY                            V2 04 00862
                 873          ANA     BM17                                                     V2 04 00863
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                        874          LDB     V$CTL       DRIVER TIDB ADDRESS                                  V2  04 00864
                        875          STA     TBIST,B                                                          V2  04 00865
                        876          LDX     TBRSTS,B    CTBL ADDRESS                                         V2  04 00866
                        877 ENDC1B   CONT                                                                     V2  04 00867
000456 006017 A         878          LDAE    TYCR        OUTPUT CR AND PROCESS HIGHEST PRIORITY             D.1  04 00868
000457 001344 R
000460 002000 A         879          JMPM    TYOUT        REQUEST.                                                04 00869
000461 001530 R
000462 100244 A         880          EXC     ENAPIM                                                           04 00870
000463 100147 A         881          EXC     ENACLK                                                           04 00871
                        882          .FT     VORTEX-2                                                    V2   04 00872
                        883          GOTO    ENDC1C                                                      V2   04 00873
                        884          LDX     V$CTL       CONTROLER TIDB ADDRESS                          V2   04 00874
                        885          LDP     TBENTY,X    DRIVER ENTRY ADDRESS                            V2   04 00875
                        886          STA     TBRSP,X                                                          04 00876
                        887          JMP     V$DP1       GO TO DISPATCHER                                V2   04 00877
                        888          EXT     V$DP1                                                       V2   04 00878
                        889 ENDC1C   CONT                                                                V2   04 00879
                        890          IFT     VORTEX-2                                                    V2   04 00880
000464 001000 A         891          JMP     V$TYA                                                            04 00881
000465 000000 R
000466 130421 A         892 TYI02    ERA     ONE                                                              04 00882
000467 001016 A         893          JANZ    TYI20       INPUT =1, OUTPUT =2                                  04 00883
000470 000650 R
000471 056003 A         894          STA     TBEVNT,B                                                         04 00884
000472 015010 A         895          LDA     CTSTAT,X    INPUT.                                               04 00885
000473 001016 A         896          JANZ    TYUN00      NOT READ. GOTO UNSOLICITED PROCESSOR                 04 00886
000474 001037 R
000475 100444 A         897          EXC     DISPIM                                                           04 00887
000476 100747 A         898          EXC     DISCLK                                                           04 00888
000477 002000 A         899          JMPM    TYOUT       READ. INPUT CHAR                                     04 00889
000500 001530 R
000501 100244 A         900          EXC     ENAPIM                                                           04 00890
000502 100147 A         901          EXC     ENACLK                                                           04 00891
000503 005012 A         902          TAB                                                                      04 00892
000504 015013 A         903          LDA     CTWDS,X     CHK INITIAL CHAR                                     04 00893
000505 001016 A         904          JANZ    TYI06       NOT 1ST CHAR.                                        04 00894
000506 000546 R
000507 005021 A         905          TBA                                                                      04 00895
000510 134637 A         906          ERA     TYSCOL      CHECK IF SEMI-COLON                                  04 00896
000511 001010 A         907          JAZ     TYI03       SEMI-COLON,SPCOM                                     04 00897
000512 000525 R
000513 005021 A         908          TBA                                                             D.1  04 00898
000514 134632 A         909          ERA     HASPCR      SPECIAL CHARACTER FOR HASP.                 D.1  04 00899
000515 001010 A         910          JAZ     TYI05       YES                                         D.1  04 00900
000516 000547 R
000517 005021 A         911          TBA                                                                  04 00901
000520 134624 A         912          ERA     TYBEL       BELL CHAR.                                       04 00902
000521 001010 A         913          JAZ     TYI04       EOF                                              04 00903
000522 000530 R
000523 001000 A         914          JMP     TYI06                                                        04 00904
000524 000546 R
000525 005021 A         915 TYI03    TBA                 YES                                              04 00905
000526 001000 A         916          JMP     TYU1                                                         04 00906
000527 001045 R
000530 025004 A         917 TYI04    LDB     CTRQBK,X    ENTER FOR EOF                                    04 00907
000531 016000 A         918          LDA     R$STAT,B                                                     04 00908
000532 150473 A         919          AND     RB37                                                         04 00909
000533 006110 A         920          SBA     8000        SET STATUS TO EOF                                04 00910
000534 000300 A
000535 056000 A         921          STA     R$TYPR,B                                                     04 00911
000536 005001 A         922          TZA                                                                  04 00912
000537 001000 A         923          JMP     TYI14+2     COMPLETED PROCESSING                             04 00913
000540 000620 R
000541 005021 A         924 TYI05    TBA                                                             D.1  04 00914
000542 006500 A         925          SSB     TYI10,B     SET OUTPUT INTERRUPT OFF                    D.1  04 00915
000543 000753 R
000544 001000 A         926          JMP     TYUP                                                    D.1  04 00916
000545 001057 R
                        927 TYI06    EQU     *                                                            04 00917
000546 015016 A         928          LDA     CTDFBF,X    CHECK IF DPCEM INPUT                             04 00918
000547 001016 A         929          JANZ    TYU5        YES                                              04 00919
000550 001125 R
000551 015017 A         930          LDA     CTJCPB,X                                                     04 00920
000552 001016 A         931          JANZ    TYU5        JCP                                              04 00921
000553 001125 R
000554 005021 A         932          TBA                 NO.                                              04 00922
000555 134566 A         933          ERA     TYCR                                                         04 00923
000556 001010 A         934          JAZ     TYI10       CARRIAGE RETURN CHAR.                            04 00924
000557 001065 R
000560 015013 A         935          LDA     CTBUFF,X                                                     04 00925
000561 100444 A         936          EXC     DISPIM                                                       04 00926
000562 100747 A         937          EXC     DISCLK                                                       04 00927
000563 002000 A         938          JMPM    TYCONT      CHECK FOR BACKSLASH OR BACKARROW                 04 00928
000564 001437 R
000565 001007 A         939          JDFM    TYI10       JUMP IF NOT BACKSLASH OR BACKARROW               04 00929
000566 000575 R
000567 001026 A         940          JBNZ    TYI13       BACKARROW                                        04 00930
000570 000602 R
000571 025004 A         941          LDB     CTRQBK,X    BACKSLASH,SET B=RQBLK                            04 00931
000572 007400 A         942          RDF                 OUTPUT CR/LF                                     04 00932
000573 001000 A         943          JMP     TY40        NOW SET CTWDS,CTB4FF                             04 00933
000574 000347 R
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                000575 R   944 TYI10   EQU     *                                                                  04 00934
000575 025015 A            945         LDB     CTBUFF,X                                                           04 00935
000576 100444 A            946         EXC     DISPIM                                                             04 00936
000577 100747 A            947         EXC     DISCLK                                                             04 00937
000600 002000 A            948         JMPM    TYSTOR          STORE 1 CHAR IN BUFFER                             04 00938
000601 001411 R
000602 065015 A            949 TYI13   STB     CTBUFF,X        SAVE NEXT BUFFER ADDR.                             04 00939
000603 025012 A            950         LDB     CTFCB,X         GET DCB ADDR                                       04 00940
                           951         IFF     VORTEX-2                                                        V2 04 00941
                           952         OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                            V2 04 00942
000604 016000 A            953         LDA     DRECL,B         NO. OF WORDS                                       04 00943
                           954         IFF     VORTEX-2                                                        V2 04 00944
                           955         OME     MPDVAD,V$ST0    RESTORE MAP 0                                   V2 04 00945
000605 004241 A            956         LRLA    1               NO. OF CHARACTERS                                  04 00946
000606 145013 A            957         SUB     CTWDS,X         NO. INPUT                                          04 00947
000607 001010 A            958         JAZ     TYI32           STOP.                                              04 00948
000610 001026 R
000611 015013 A            959         LDA     CTWDS,X                                                            04 00949
000612 006140 A            960         SUBI    80              CHECK FOR 80 CHARACTERS                            04 00950
000613 000120 A
000614 001016 A            961         JANZ    TY07            NO,NOT LAST CHAR.                                  04 00951
000615 000106 R
000616 006010 A            962 TYI14   LDAI    40              YES,BUFFER FULL                                    04 00952
000617 000050 A
000620 055013 A            963         STA     CTWDS,X         SET TO 40 WORDS                                    04 00953
000621 014520 A            964         LDA     TYLF                                                               04 00954
000622 100444 A            965         EXC     DISPIM                                                             04 00955
000623 100747 A            966         EXC     DISCLK                                                             04 00956
000624 002000 A            967         JMPM    TYOUT           OUTPUT LINE FEED CHARACTER.                        04 00957
000625 001530 R
000626 001001 A            968         JOF     TYI12           CHAR NOT OUTPUT                                    04 00958
000627 000637 R
                000630 R   969 TYIEXT  EQU     *               I/O COMPLETE PROCESSING                            04 00959
000630 030300 A            970         LDX     V$CTL                                                              04 00960
000631 005001 A            971         TZA                                                                        04 00961
000632 055003 A            972         STA     TBEVNT,X        CLEAR EVENT WORD                                   04 00962
000633 015011 A            973         LDA     TBENTY,X                                                           04 00963
000634 055007 A            974         STA     TBRSP,X         RESET TO START ADDR.                               04 00964
000635 001000 A            975         JMP     V$FNR                                                              04 00965
000636 000000 E
                           976 TYI12   DELAY   1,0,0           DELAY 5 MILLSEC                                    04 00966
000637 006505 A
000640 000406 A
000641 001100 A
000642 000001 A
000643 000000 A
000644 030300 A            977         LDX     V$CTL           RESET CTBL                                         04 00967
000645 035010 A            978         LDX     TBRSTS,X                                                           04 00968
000646 001000 A            979         JMP     TYI14+3                                                            04 00969
000647 000621 R
                           980 *                                                                                  04 00970
                           981 *                                                                                  04 00971
                000650 R   982 TYI20   EQU     *                                                                  04 00972
000650 005001 A            983         TZA                                                                        04 00973
000651 056003 A            984         STA     TBEVNT,B                                                           04 00974
000652 015010 A            985         LDA     CTSTAT,X        PROCESS NEXT OUTPUT CHARACTER                      04 00975
000653 001010 A            986         JAZ     TYI24           READ  REQUEST                                      04 00976
000654 000770 R
000655 007400 A            987         ROF                     WRITE,FUNC                                         04 00977
000656 045013 A            988         INR     CTWDS,X         INCREMENT CHARACTER COUNT                          04 00978
000657 001001 A            989         JOF     TYI15A          LAST CHAR.                                      D.1 04 00979
000660 000674 R
000661 015015 A            990         LDA     CTBUFF,X                                                           04 00980
000662 005012 A            991         TAB                                                                        04 00981
000663 001002 A            992         JAP     TYI22           CHARACTER N                                        04 00982
000664 000762 R
000665 005222 A            993         CPB                     CHARACTER N+1                                      04 00983
                           994         IFT     VORTEX-2                                                        V2 04 00984
                           995         GOTO    ENDC04                                                          V2 04 00985
                           996         LDA     CTFLG,X         PRINT CONTROL CHARACTER INDICATOR                  V2 04 00986
                           997         JANZ    TYI15           SKIP IF CONTROL CHARACTER FLAG SET                 V2 04 00987
                           998         OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                               V2 04 00988
                           999         LDA     0,B              GET WORD FROM USER'S BUFFER                       V2 04 00989
                          1000         OME     MPDVAD,V$ST0    RESTORE MAP 0                                      V2 04 00990
                          1001         JMP     TYI15+1                                                            V2 04 00991
                          1002 TYI15   LDA     0,B                                                                V2 04 00992
                          1003 ENDC04  CONT                                                                       V2 04 00993
                          1004         IFT     VORTEX-2                                                           V2 04 00994
000666 016000 A           1005         LDA     0,B                                                                   04 00995
000667 150463 A           1006         ANA     CHW                                                                   04 00996
000670 005122 A           1007         IBR                     INCREMENT BUFFER ADDR.                                04 00997
000671 065015 A           1008         STB     CTBUFF,X                                                              04 00998
000672 001000 A           1009         JMP     TY06            OUTPUT CHAR.N+1                                       04 00999
000673 000100 R
000674 014461 A           1010 TYI15A  LDA     TYPLSF          PLUS FLAG.SET IF CR/LF NOT WANTED                 D.1 04 01000
000675 001010 A           1011         JAZ     TYI16                                                             D.1 04 01001
000676 000701 R
000677 001000 A           1012         JMP     TYIEXT          GET OUT                                           D.1 04 01002
000700 000630 R
                000701 R  1013 TYI16   EQU     *                                                                 D.1 04 01003
000701 015025 A           1014         LDA     CTMODE,X        MODE> 4?                                          E.2 ********
000702 001016 A           1015         JANZ    TYI16B          IF NOT, JUMP AROUND                               E.2 ********
000703 000710 R
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000704 006020 A 1016          LDBI    TYIEXT      LOAD JUMP ADDRESS                                  E.2********
000705 000630 R
000706 001000 A 1017          JMP     TYI18                                                          E.2********
000707 000753 R
       000710 R 1018 TYI16B   EQU     *                                                              E.2********
                1019          IFT     VORTEX-2                                                         D.04 01004
                1020          GOTO    ENDC05                                                           D.04 01005
                1021          LDA     CTFLG,X      PRINT CONTROL USE FLAG                              D.04 01006
                1022          JAZ     TYI17        NOT PRINT CONTROL                                   D.04 01007
                1023          TZA                                                                    D.104 01008
                1024          STA     CTFLG,X                                                          D.04 01009
                1025 ENDC05   CONT                                                                   D.104 01010
000710 015015 A 1026 TYI16A   LDA     CTBUFF,X     OUTPUT CR/LF                                        D.104 01011
000711 001002 A 1027          JAP     *+3                                                              04 01015
000712 000714 R
000713 005211 A 1028          CPA                                                                      04 01017
000714 134025 A 1029          ERA     TYI17+1                                                          04 01018
000715 001019 A 1030          JAZ     TYI18-2      CR/LF ALREADY OUT                                   04 01019
000716 000751 R
000717 015015 A 1031          LDA     CTBUFF,X     CHECK FOR COMPLETION OF PRINT CONTROL.              04 01020
000720 001002 A 1032          JAP     *+3                                                              04 01021
000721 000723 R
000722 005211 A 1033          CPA                                                                      04 01022
000723 006140 A 1034          SUBI    TYLF                                                             04 01023
000724 001342 R
000725 001004 A 1035          JAN     TYI17        NOT PRINT CONTROL                                   04 01024
000726 000741 R
000727 140422 A 1036          SUB     TWO                                                              04 01025
000730 001002 A 1037          JAP     TYI17        NOT PRINT CONTROL                                   04 01026
000731 000741 R
000732 015010 A 1038          LDA     CTSTAT,X                                                         04 01027
000733 140463 A 1039          SUB     FIVE         CHECK IF FUNCTION REQUEST                           04 01028
000734 001019 A 1040          JAZ     TYI17        YES                                                 04 01029
000735 000741 R
000736 025004 A 1041          LDB     CTRQBK,X     NOW OUTPUT MESSAGE                                  04 01030
000737 001000 A 1042          JMP     TY30                                                             04 01031
000740 000241 R
000741 006010 A 1043 TYI17    LDAI    TYCR                                                             04 01032
000742 001344 R
000743 055015 A 1044          STA     CTBUFF,X                                                         04 01033
000744 010460 A 1045          LDA     BR15                                                             04 01034
000745 055013 A 1046          STA     CTWDS,X      OUTPUT 1 CHAR.,CR                                   04 01035
000746 014375 A 1047          LDA     TYCR                                                             04 01036
                1048          IFF     VORTEX-2                                                   V2    04 01037
                1049          INR     CTFLG,X      SET PRINT CONTROL CHAR. FLAG                  V2    04 01038
000747 001000 A 1050          JMP     TY06                                                             04 01039
000750 000100 R
000751 006020 A 1051          LDBI    TYI14        SET BRANCH ADDR.                                    04 01040
000752 000616 R
000753 007401 A 1052 TYI18    SOF                                                                      04 01041
000754 100444 A 1053          EXC     DISPIM                                                           04 01042
000755 100747 A 1054          EXC     ***CLK                                                           04 01043
000756 002000 A 1055          JMPM    TYPIM        SET OUTPUT INTERRUPTS OFF                           04 01044
000757 001360 R
000760 006700 A 1056          IJMP    1,B          JMP TO ADDR. IN B                                   04 01045
000761 000000 A
                1057          IFT     VORTEX-2                                                   V2    04 01046
                1058          GOTO    ENDC06                                                     V2    04 01047
                1059 TYI22    LDA     CTFLG,X      PRINT CONTROL CHARACTER INDICATOR             V2    04 01048
                1060          JANZ    TYI23        SKIP IF CONTROL CHARACTER FLAG SET            V2    04 01049
                1061          OMS     MPDVAD,V$ST3 SWITCH TO USER'S MAP                          V2    04 01050
                1062          LDA     3,B                                                        V2    04 01051
                1063          OMS     MPDVAD,V$ST0 RESTORE MAP 0                                 V2    04 01052
                1064          JMP     TYI23+1                                                    V2    04 01053
                1065 TYI23    LDA     3,B                                                        V2    04 01054
                1066 ENDC06   CONT                                                               V2    04 01055
                1067          IFT     VORTEX-2                                                   V2    04 01056
000762 016000 A 1068 TYI22    LDA     0,B                                                              04 01057
000763 004350 A 1069          LSRA    3                                                                04 01058
000764 005222 A 1070          CPB                                                                      04 01059
000765 065015 A 1071          STB     CTBUFF,X     STORE BUFFER ADDR.                                  04 01060
000766 001000 A 1072          JMP     TY06         OUTPUT CHAR. N                                      04 01061
000767 000100 R
                1073 *                                                                                 04 01062
000770 015024 A 1074 TYI24    LDA     CTRCAD,X                                                         04 01063
000771 001010 A 1075          JAZ     TYI26        CR AND LF OUTPUT                                    04 01064
000772 001001 R
000773 004050 A 1076          LLSR    8                                                                04 01065
000774 055024 A 1077          STA     CTRCAD,X     NEXT CHARACTER                                      04 01066
000775 005021 A 1078          TBA                                                                      04 01067
000776 004250 A 1079          ERLA    8                                                                04 01068
000777 001000 A 1080          JMP     TY06         OUTPUT NEXT CHARACTER.                              04 01069
001000 000100 R
       001001 R 1081 TYI26    EQU     *            ALL CONTROL CHARS. OUT FOR READ REQUEST             04 01070
001001 006020 A 1082          LDBI    TY07                                                             04 01071
001002 000106 R
001003 001000 A 1083          JMP     TYI18                                                            04 01072
001004 000753 R
                1084 *                                                                                 04 01073
       001005 R 1085 TYI30    EQU     *                                                                04 01074
001005 015013 A 1086          LDA     CTWDS,X      NUMBER OF CHARACTERS                                04 01075
001006 054027 A 1087          STA     TYI34                                                            04 01076
001007 025012 A 1088          LDB     CTRCB,X      DCB ADDRESS                                         04 01077
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                    1089          IFF     VORTEX-2                                                    V2 04 01078
                    1090          DME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                        V2 04 01079
001010 016000 A     1091          LDA     DRECL,B         NUMBER OF WORDS FROM READ REQ                  04 01080
                    1092          IFF     VORTEX-2                                                    V2 04 01081
                    1093          DME     MPDVAD,V$ST0    RESTORE MAP 0                               V2 04 01082
001011 004201 A     1094          ASLA    1               NUMBER OF CHARACTERS                           04 01083
001012 145013 A     1095          SUB     CTWDS,X         SUBTRACT NUMBER OF CHAR TRANSFERRED            04 01084
001013 001010 A     1096          JAZ     TYI33           READ COUNT SATISFIED                           04 01085
001014 001032 R
001015 025015 A     1097          LDB     CTBUFF,X        BUFFER ADDRESS                                 04 01086
001016 014327 A     1098          LDA     TYBLK           ASCII BLANK                                    04 01087
001017 100444 A     1099          EXC     DISPIM                                                         04 01088
001020 100747 A     1100          EXC     DISCLK                                                         04 01089
001021 002000 A     1101          JMPM    TYSTOR          STORE CHARACTER                                04 01090
001022 001411 R
001023 065015 A     1102          STB     CTBUFF,X        UPDATE BUFFER ADDRESS                          04 01091
001024 001000 A     1103          JMP     TYI30+2         CONTINUE TO STORE BLANKS                    B,2 04 01092
001025 001007 R
001026 015013 A     1104 TYI32    LDA     CTWDS,X         GET CHARACTER COUNT                            04 01093
001027 004341 A     1105          LSRA    1               DIVIDE BY 2 FOR WORD COUNT                     04 01094
001030 001000 A     1106          JMP     TYI14+2         STORE IN CTWDS                                 04 01095
001031 000620 R
001032 014003 A     1107 TYI33    LDA     TYI34           ORIGINAL CHAR COUNT                            04 01096
001033 005111 A     1108          IAR                     INC CHAR COUNT IN CASE IT WAS ODD           B,2 04 01097
001034 001000 A     1109          JMP     TYI32+1                                                        04 01098
001035 001027 R
001036 000000 A     1110 TYI34    DATA    0               TEMP STORE FOR CHAR COUNT                      04 01099
                    1111          EJEC                                                                   04 01100
                    1112 *                                                                               04 01101
       001037 R     1113 TYUN00   EQU     *               ENTER FOR UNSOLICITED REQUEST                  04 01102
001037 100444 A     1114          EXC     DISPIM                                                         04 01103
001040 100747 A     1115          EXC     DISCLK                                                         04 01104
001041 002000 A     1116          JMPM    TYOUT           GET INPUT CHARACTER                            04 01105
001042 001530 R
001043 100244 A     1117          EXC     ENAPIM                                                         04 01106
001044 100147 A     1118          EXC     ENACLK                                                         04 01107
       001045 R     1119 TYU1     EQU     *                                                              04 01108
001045 006506 A     1120          JSR     TYI18,B         SET OUTPUT INTERRUPT OFF                       04 01109
001046 000752 R
001047 025022 A     1121          LDB     CTODST,X        GETOPCOM DST ADDR                              04 01110
001050 001020 A     1122          JBZ     TYU21           IGNORE NOT OPCOM                               04 01111
001051 001215 R
001052 026002 A     1123          LDB     DSOPCM,B                                                       04 01112
001053 006433 A     1124          BT      BTB1+11,TYU2    CHECK IF OPCOM DEVICE.                         04 01113
001054 001057 R
001055 001000 A     1125          JMP     TYU21           NO. IGNORE INPUT                               04 01114
001056 001215 R
001057 005012 A     1126 TYU2     TAB                     A= INPUT CHAR.                                 04 01115
001060 015016 A     1127          LDA     CTOPBF,X                                                       04 01116
001061 001016 A     1128          JANZ    TYU5            OPCOM FLAG ON.                                 04 01117
001062 001125 R
001063 015017 A     1129 TYU4     LDA     CTJCPB,X        NOW CHECK JCP FLAG                             04 01118
001064 001016 A     1130          JANZ    TYU5            JCP INPUT                                      04 01119
001065 001125 R
001066 005021 A     1131          TBA                                                                    04 01120
001067 134260 A     1132          ERA     TYSCOL                                                         04 01121
001070 001010 A     1133          JAZ     TYU30           SEMI-COLON CHAR.                               04 01122
001071 001312 R
001072 005021 A     1134          TBA                                                                    04 01123
001073 134255 A     1135          ERA     TYSLSH                                                         04 01124
001074 001010 A     1136          JAZ     TYU40           SLASH CHAR.                                    04 01125
001075 001330 R
001076 005021 A     1137          TBA                                                                 D.104 01126
001077 006137 A     1138          ERAE    HASFCR          CHECK FOR CONTROL-A CHAR.                   D.104 01127
001100 001347 R
001101 001010 A     1139          JAZ     TYU4A           YES, SCHEDULE HASP/RJE HOPC TASK.           D.104 01128
001102 001105 R
001103 001000 A     1140          JMP     TYU21           OTHERWISE IGNORE INPUT                         04 01129
001104 001215 R
001105 006017 A     1141 TYU4A    LDAE    H$SFLG          CHECK IF HASP/RJE SYSTEM IS ACTIVE          D.104 01130
001106 000000 E
001107 001002 A     1142          JAP     TYU21           NOT ACTIVE, IGNORE IT.                      D.104 01131
001110 001215 R
                    1143 *                                YES, SCHEDULE HASP/RJE HOPC TASK.           D.104 01132
001111 020300 A     1144          LDB     VSCTL           TIOB ADDRESS                                D.104 01133
001112 016010 A     1145          LDA     TBRSTS,B        SAVE CTABL ADDR IN A-REG.                   D.104 01134
                    1146          SCHED   9,0,106,'F','HO','PC','  '                                  D.104 01135
001113 006505 A
001114 000406 A
001115 000111 A
001116 143152 A
001117 144317 A
001120 150303 A
001121 120240 A
001122 056010 A     1147          STA     TBRSTS,B        RESTORE CTABL ADDR IN TBRSTS                D.104 01136
001123 001000 A     1148          JMP     TYU20                                                       D.104 01137
001124 001213 R
       001125 R     1149 TYU5     EQU     *               YES,B=CHAR.,A=BUFFER ADDR.                     04 01138
001125 100444 A     1150          EXC     DISPIM                                                         04 01139
001126 100747 A     1151          EXC     DISCLK                                                         04 01140
001127 002000 A     1152          JMPM    TYCONT                                                         04 01141
001130 001437 R
001131 001007 A     1153          JOFN    TYU9            NOT BACKSLASH,BACKARROW,OR CR                  04 01142
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001132 001164 R
001133 001020 A 1154          JBZ     TYU6        BACKSLASH                                  04 01143
001134 001155 R
001135 005322 A 1155          DBR                                                            04 01144
001136 001020 A 1156          JBZ     TYU26       CR                                         04 01145
001137 001265 R
001140 005122 A 1157          IBR                 B=UPDATED BUFFER ADDR.                     04 01146
001141 015013 A 1158          LDA     CTWDS,X                                                04 01147
001142 001010 A 1159          JAZ     TYU6        FIRST CHAR.,TREAT AS BACKSLASH.            04 01148
001143 001155 R
001144 015017 A 1160          LDA     CTJCPB,X    BACKARROW                                  04 01149
001145 001016 A 1161          JANZ    *+5                                                    04 01150
001146 001152 R
001147 065016 A 1162          STB     CTOPBF,X                                               04 01151
001150 001000 A 1163          JMP     TYU7                                                   04 01152
001151 000106 R
001152 065017 A 1164          STB     CTJCPB,X                                               04 01153
001153 001000 A 1165          JMP     TYU7                                                   04 01154
001154 000106 R
001155 005001 A 1166 TYU6     TZA                 BACKSLASH                                  04 01155
001156 055013 A 1167          STA     CTWDS,X                                                04 01156
001157 055017 A 1168          STA     CTJCPB,X    CLEAR JCP,OPCOM POINTERS                   04 01157
001160 055016 A 1169          STA     CTOPBF,X                                               04 01158
001161 050346 A 1170          STA     VSOPCF      NOW CLEAR OPCOM LOCKOUT FLAG.              04 01159
               1171          IFF     VORTEX-2                                           V2  04 01160
               1172          STA     CTJOFL,X    CLEAR JCP/OPCOM INPUT FLAG             V2  04 01161
001162 001000 A 1173          JMP     TYU21                                                  04 01162
001163 001215 R
               1174 *                                                                       04 01163
       001164 R 1175 TYU9     EQU     *           ENTER IF NOT BACKSLASH,BACKARROW,CR        04 01164
001164 100444 A 1176          EXC     DISPIM                                                 04 01165
001165 100747 A 1177          EXC     DISCLK                                                 04 01166
001166 002000 A 1178          JMPM    SYSTOR                                                 04 01167
001167 001411 R
001170 015016 A 1179          LDA     CTOPBF,X                                               04 01168
001171 001010 A 1180          JAZ     TYU10       MUST BE JCP                                04 01169
001172 001176 R
001173 065016 A 1181          STB     CTOPBF,X    STORE BUFFER ADDR.                         04 01170
001174 001000 A 1182          JMP     TYU7                                                   04 01171
001175 000106 R
001176 065017 A 1183 TYU10    STB     CTJCPB,X    STORE BUFFER ADDR.                         04 01172
001177 001000 A 1184          JMP     TYU7                                                   04 01173
001200 000106 R
001201 055017 A 1185          STA     CTJCPB,X                                               04 01174
               1186          IFF     VORTEX-2                                           V2  04 01175
               1187          STA     CTJOFL,X    INITIALIZE JCP/OPCOM INPUT FLAG        V2  04 01176
001202 020314 A 1188 TYU19    LDX     V$TJCP      GET JCP TIDB                               04 01177
001203 010075 A 1189          LDA     V$RCLB      KEY AND LU NO.                             04 01178
001204 001020 A 1190          JBZ     TYU6        JMP IF NO JCP OR OPCOM                     04 01179
001205 001155 R
001206 056010 A 1191          STA     TIRSTS,B                                               04 01180
001207 016001 A 1192          LDA     TRST,B                                                 04 01181
001210 150457 A 1193          ANA     =K1A        SET JCP ACTIVE                             04 01182
001211 150441 A 1194          ANA     =P0         CLEAR TASK LOADED STATUS FLAG              04 01183
001212 056001 A 1195          STA     TRST,B                                                 04 01184
001213 020300 A 1196 TYU20    LDB     V$CTL                                                  04 01185
001214 036010 A 1197          LDX     TXRSTS,B    CTRL                                       04 01186
001215 015010 A 1198 TYU21    LDA     CTSTAT,X                                               04 01187
001216 007400 A 1199          ROR     1           OUTPUT CR/LF                               04 01188
               1200          IFF     VORTEX-2                                           V2  04 01189
               1201          JAZ     TYU1                                               V2  04 01190
               1202          BIT     VORTEX-2                                           V2  04 01191
001217 001010 A 1203          JAZ     TYU9+3                                                 04 01192
001220 000352 R
001221 001002 A 1204          JAP     TYU22       CHECK WRITE                                04 01193
001222 001243 R
001223 014116 A 1205          LDA     =CLF        OUTPUT LF,UNSOLICITED REQUEST              04 01194
001224 001000 A 1206          JMP     TYU10+2                                                04 01195
001225 000140 R
001226 005001 A 1207 TYU21A   TZA                                                            04 01196
001227 020300 A 1208          LDB     V$CTL                                                  04 01197
001230 056003 A 1209          STA     IOCNT,B                                                04 01198
001231 016011 A 1210          LDA     IBENTY,B                                               04 01199
001232 056007 A 1211          STA     IOBUF,B     SET P ADDR. TO ENTRY LOCATION              04 01200
001233 016001 A 1212          LDA     IOST,B                                                 04 01201
001234 110437 A 1213          ORA     =B10                                                   04 01202
001235 056001 A 1214          STA     IOST,B      SET INACTIVE                               04 01203
001236 015000 A 1215          LDA     CTACT,X     UNSOLICITED WITH NO INTERRUPTION           04 01204
001237 150460 A 1216          ANA     =B15          OF REQUEST IN PROGRESS.                  04 01205
001240 056000 A 1217          STA     CTACT,X                                                04 01206
               1218          EXT     VCPNRM                                                 04 01207
001241 001000 A 1219          JMP     VSCPNRM                                                04 01208
001242 000000 E
               1220 *                                                                       04 01209
001243 005011 A 1221 TYU22    DAT                                                            04 01210
001244 001015 A 1222          JANZ    TYU24       CHECK WEOF OR FUNC                         04 01211
001245 001260 R
001246 015023 A 1223          LDX     CTCMP,X     WRITE. GET PREVIOUSLY CALC CHAR. COUNT     04 01212
001247 055013 A 1224          STA     CTWDS,X                                                04 01213
001250 025012 A 1225          LDB     IOCB,X      GET IOCB ADDR.                             04 01214
001251 001020 A 1226          JBZ     TYP9        CTFCB=0 MEANS TO OUTPUT PRINT CONTROL CHAR 04 01215
001252 000234 R
               1227          IFF     VORTEX-2                                           V2  04 01216
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                    1228          ONE     MPDVAD,V*ST3  SWITCH TO USER'S MAP                          V2  04 01217
001[illegible] 016001 A 1229      LDA     DBUFF,B       RESET OUTPUT TO START OF MESSAGE.                 04 01218
                    1230          IFF     VORTEX-2                                                    V2  04 01219
[illegible]         1231          ONE     MPDVAD,V*ST0  RESTORE MAP 0                               V2  04 01220
001254 055015 A     1232          STA     CTBUFF,X                                                        04 01221
001255 024064 A     1233          LDB     TYLF          GET LINE FEED                                     04 01222
001256 001000 A     1234          JMP     TY03          OUTPUT CHARACTER.                                 04 01223
001257 000072 R
                    1235 *                                                                                04 01224
001260 005311 A     1236 TYU24    DAR                                                                     04 01225
001261 001010 A     1237          JAZ     TY10          WEOF                                              04 01226
001262 000136 R
001263 001000 A     1238          JMP     TY04          FUNC                                              04 01227
001264 000055 R
                    1239 *                                                                                04 01228
       001265 R     1240 TYU26    EQU     *                                                               04 01229
001265 015013 A     1241          LDA     CTWDS,X                                                         04 01230
001266 006440 A     1242          BT      BTA0,TYU27                                                      04 01231
001267 001301 R
001270 014055 A     1243          LDA     TYBLK         CR PROCESSED.                                     04 01232
001271 025016 A     1244          LDB     CTOPBF,X      SET BLANKS FOR ODD CHAR.                          04 01233
001272 001026 A     1245          JBN2    *+3                                                             04 01234
001273 001275 R
001274 025017 A     1246          LDB     CTJCPB,X                                                        04 01235
001275 100444 A     1247          EXC     DISPIM                                                          04 01236
001276 100747 A     1248          EXC     DISCLK                                                          04 01237
001277 002000 A     1249          JMPM    TYSTOR                                                          04 01238
001300 001411 R
001301 015016 A     1250 TYU27    LDA     CTOPBF,X                                                        04 01239
                    1251          IFF     VORTEX-2                                                    V2  04 01240
                    1252          JAZ     TYU19-2       MUST BE JCP                                   V2  04 01241
                    1253          IFT     VORTEX-2                                                    V2  04 01242
001302 001010 A     1254          JAZ     TYU19-1       MUST BE JCP                                       04 01243
001303 001[illegible] R
001304 005001 A     1255          TZA                                                                     04 01244
001305 055016 A     1256          STA     CTOPBF,X                                                        04 01245
                    1257          IFF     VORTEX-2                                                    V2  04 01246
                    1258          STA     CTJOFL,X      INITIALIZE JCP/OPCOM INPUT FLAG               V2  04 01247
001306 020311 A     1259          LDB     V*OPCL        OPCOM TIDB                                        04 01248
001307 010347 A     1260          LDA     V*FGLB        FOREGND LIB KEY AND LU NO.                        04 01249
001310 001000 A     1261          JMP     TYU19+2                                                         04 01250
001311 001204 R
                    1262 *                                                                                04 01251
001312 055013 A     1263 TYU30    STA     CTWDS,X       ENTER FOR SEMI-COLON CHAR.                        04 01252
001313 010346 A     1264          LDA     V*OPCF        CK OPCOM IN-PROGRSS LOCK OUT FLAG                 04 01253
001314 001016 A     1265          JANZ    TYU21         YES. IGNORE INPUT.                                04 01254
001315 001215 R
001316 005021 A     1266          TBA                                                                     04 01255
001317 020311 A     1267          LDB     V*OPCL        OPCOM TIDB                                        04 01256
001320 026001 A     1268          LDB     TBST,B        GET STATUS WORD,CHECK BIT 0                       04 01257
001321 006420 A     1269          BT      BTB1,TYU21    B=1,TASK STILL NOT EXITED                         04 01258
001322 001215 R
001323 040346 A     1270          INR     V*OPCF        NO. NOW SET LOCKOUT FLAG.                         04 01259
001324 020413 A     1271          LDB     V*OCB         CHAR IN A REG                                     04 01260
001325 065016 A     1272          STB     CTOPBF,X      SET OPCOM BUFFER                                  04 01261
                    1273          IFF     VORTEX-2                                                    V2  04 01262
                    1274          JMP     TYU41                                                       V2  04 01263
                    1275          IFT     VORTEX-2                                                    V2  04 01264
001326 001000 A     1276          JMP     TYU9                                                            04 01265
001327 001164 R
                    1277 *                                                                                04 01266
001330 010377 A     1278 TYU40    LDA     V*JDP         CHECK IF JCP OPERATING. CHAR IN B REG.            04 01267
001331 001016 A     1279          JANZ    TYU21         IGNORE INPUT                                      04 01268
001332 001215 R
001333 055013 A     1280          STA     CTWDS,X       NO.                                               04 01269
001334 005021 A     1281          TBA                                                                     04 01270
001335 020412 A     1282          LDB     V*JCB         GET JCP BUFFER ADDR.                              04 01271
001336 065017 A     1283          STB     CTJCPB,X      A= CHAR                                           04 01272
                    1284          IFF     VORTEX-2                                                    V2  04 01273
                    1285 TYU41    STB     CTJOFL,X      SET JCP/OPCOM INPUT INDICATOR FLAG            V2  04 01274
001337 001000 A     1286          JMP     TYU9                                                            04 01275
001340 001164 R
                    1287 *    TELETYPE SPECIAL CHARACTER CODES                                            04 01276
001341 120240 A     1288 TYDBLK   DATA    0120240       BLANK,BLANK                                       04 01277
001342 105212 A     1289 TYLF     DATA    0105212       LINE FEED BUFFER                                  04 01278
001343 105212 A     1290          DATA    0105212                                                         04 01279
001344 000215 A     1291 TYCR     DATA    0215          CARRIAGE RETURN CHARACTER                         04 01280
001345 000207 A     1292 TYBEL    DATA    0207          BELL CHARACTER                                    04 01281
001346 000240 A     1293 TYBLK    DATA    0240          ASCII BLANK                                       04 01282
001347 000201 A     1294 HASPCR   DATA    0201          CONTROL-A CHARACTER                         D.1   04 01283
001350 000273 A     1295 TYSCOL   DATA    0273          SEMI-COLON CHARACTER                              04 01284
001351 000257 A     1296 TYSLSH   DATA    0257          SLASH CHARACTER                                   04 01285
001352 000337 A     1297 TYBARR   DATA    0337          BACK-ARROW CHARACTER                              04 01286
001353 000334 A     1298 TYBSLH   DATA    0334          BACKSLASH CHARACTER                               04 01287
001354 106612 A     1299 TYCRLF   DATA    0106612       CR AND LF                                         04 01288
                    1300 *                                                                                04 01289
001355 000253 A     1301 TYPLS    DATA    0253          ASCII PLUS SIGN                             D.1   04 01290
001356 000000 A     1302 TYPLSF   DATA    0             PLUS FLAG                                   D.1   04 01291
001357 000000 A     1303 TYTEMP   DATA    0             TEMPORARY                                   D.1   04 01292
                    1304          EJEC                                                                    04 01293
001360 000000 A     1305 TYPIM    ENTR                  ENTER TO ENABLE OR DISABLE OUTPUT PIM             04 01294
                    1306 *                                ENTER WITH OVERFLOW ON TO DISABLE LINE          04 01295
                    1307 *                                           OVERFLOW OFF TO ENABLE               04 01296
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001361 064020 A 1308            STB    TYP10+2                 X REG = CTBL                        04 01297
001362 054021 A 1309            STA    TYP10+4                                                     04 01298
001363 025020 A 1310            LDB    CTWPIM,X         PIM NO.                                    04 01299
001364 016363 A 1311            LDA    V$PIMN,B         GET PIM DEVICE ADDR                        04 01300
001365 006110 A 1312            ORAI   0103100                                                     04 01301
001366 103100 A
001367 054010 A 1313            STA    TYP10            OAR PIM INSTRUCTION                        04 01302
001370 016323 A 1314            LDA    V$IM,B           GET SYSTEM PIM MASK.                       04 01303
001371 025021 A 1315            LDB    CTWLMK,X         LINE NO.                                   04 01304
001372 116421 A 1316            ORA    BSO,B            GET MASK                                   04 01305
001373 001001 A 1317            JOF    *+2              JUMP IF TO DISABLE.                        04 01306
001374 001376 R
001375 136421 A 1318            ERA    BSO,B            TURN INTERRUPT ON                          04 01307
001376 025020 A 1319            LDB    CTWPIM,X                                                    04 01308
001377 056320 A 1320            STA    V$IM,B           RESTORE SYSTEM MASK                        04 01309
001400 103140 A 1321 TYP10      OAR    PIM1             INSTRUCTION MODIFIED FOR PROPER PIM        04 01310
001401 006020 A 1322            LDBI   *                RESTORE B REG.                             04 01311
001402 001401 R
001403 006010 A 1323            LDAI   *                RESTORE A REG.                             04 01312
001404 001403 R
001405 100147 A 1324            EXC    ENACLK                                                      04 01313
001406 100244 A 1325            EXC    ENAPIM                                                      04 01314
001407 001000 A 1326            JMP*   TYPIM                                                       04 01315
001410 101360 R
                1327            EJEC                                                               04 01316
                1328 *          SUBROUTINE TO STORE 1 CHAR.                                        04 01317
001411 000000 A 1329 TYSTOR     ENTR                    ENTER WITH X=CTBL,A=CHAR IN BITS 7-0       04 01318
                1330            IFF    VORTEX-2                                               V2   04 01319
                1331            LDX    CTJOFL,X         JOP/OPCOM INPUT FLAG                  V2   04 01320
001412 006437 A 1332            SF     BPB1+15,TYST1    TEST SIGN BIT OF B REG. B=BUFFER ADDR      04 01321
001413 001422 R
001414 004250 A 1333            LLLA   8                CHAR N , POSITION TO BITS 15-8             04 01322
                1334            IFT    VORTEX-2                                               V2   04 01323
                1335            GOTO   ENDC07                                                 V2   04 01324
                1336            XXNZ   TYSTOA           STORE CHARACTER                       V2   04 01325
                1337            JXNZ   TYSTOB                                                 V2   04 01326
                1338            DMS    MPDVAD,V$ST3     SWITCH TO USER MAP                    V2   04 01327
                1339 TYSTOA     STA    0,B              STORE CHARACTER                       V2   04 01328
                1340            DMS    MPDVAD,V$ST0     RESTORE MAP 0                         V2   04 01329
                1341 TYSTOB     EQU    *                                                      V2   04 01330
                1342 ENDC07     CONT                                                          V2   04 01331
                1343            IFT    VORTEX-2                                               V2   04 01332
001415 056000 A 1344            STA    0,B              STORE CHAR                                 04 01333
001416 004250 A 1345            LRLA   8                                                           04 01334
001417 005222 A 1346            CPB                     COMPLEMENT BUFFER ADDR FOR CHAR N+1        04 01335
001420 001000 A 1347            JMP    TYST2                                                       04 01336
001421 001432 R
001422 005222 A 1348 TYST1      CPB                     CHAR N+1                                   04 01337
                1349            IFF    VORTEX-2                                               V2   04 01338
                1350            GOTO   ENDC09                                                 V2   04 01339
                1351            STA    TYST1C+1         SAVE CHARACTER TO BE STORED           V2   04 01340
                1352            XXNZ   TYST1A           GET PRIOR STORED CHARACTER            V2   04 01341
                1353            JXNZ   TYST1B                                                 V2   04 01342
                1354            DMS    MPDVAD,V$ST3     SWITCH TO USER MAP                    V2   04 01343
                1355 TYST1A     LDA    0,B              GET PRIOR STORED CHARACTER            V2   04 01344
                1356            DMS    MPDVAD,V$ST0     RESTORE MAP 0                         V2   04 01345
                1357 TYST1B     EQU    *                                                      V2   04 01346
                1358 ENDC09     CONT                                                          V2   04 01347
                1359            IFF    VORTEX-2                                                    04 01348
                1360            GOTO   ENDC10                                                 V2   04 01349
001423 054003 A 1361            STA    3,4                                                         04 01350
001424 016000 A 1362            LDA    0,B              GET PRIOR STORED CHAR N                    04 01351
                1363            IFF    VORTEX-2                                               V2   04 01352
                1364 ENDC10     CONT                                                          V2   04 01353
001425 150462 A 1365            ANA    LOW              CLEAR IN CASE BACKARROW                    04 01354
                1366            IFT    VORTEX-2                                               V2   04 01355
                1367            GOTO   ENDC11                                                 V2   04 01356
                1368 TYST1C     ORAI   *                COMBINE CHARACTERS N AND N+1          V2   04 01357
                1369            XXNZ   TYST1D           STORE CHARACTERS N AND N+1            V2   04 01358
                1370            JXNZ   TYST1E                                                 V2   04 01359
                1371            DMS    MPDVAD,V$ST3     SWITCH TO USER MAP                    V2   04 01360
                1372 TYST1D     STA    0,B              STORE CHARACTERS N AND N+1            V2   04 01361
                1373            DMS    MPDVAD,V$ST0     RESTORE MAP 0                         V2   04 01362
                1374 TYST1E     EQU    *                                                      V2   04 01363
                1375 ENDC11     CONT                                                          V2   04 01364
                1376            IFF    VORTEX-2                                               V2   04 01365
                1377            GOTO   ENDC12                                                 V2   04 01366
001426 006110 A 1378            ORAI   *                                                           04 01367
001427 001426 R
001430 056000 A 1379            STA    0,B              STORE CHAR                                 04 01368
                1380            IFF    VORTEX-2                                               V2   04 01369
                1381 ENDC12     CONT                                                          V2   04 01370
001431 005122 A 1382            IBR                     INCREMENT TO NEXT BUFFER LOCATION          04 01371
                1383            IFT    VORTEX-2                                               V2   04 01372
                1384            GOTO   ENDC13                                                 V2   04 01373
                1385 TYST2      LDX    V$CTL            CONTROLER TIDB                        V2   04 01374
                1386            LDX    TBCUTS,X         CTBL ADDRESS                          V2   04 01375
                1387            INR    CTWDS,X          INCREMENT INPUT COUNT                 V2   04 01376
                1388 ENDC13     CONT                                                          V2   04 01377
                1389            IFT    VORTEX-2                                               V2   04 01378
001432 045013 A 1390 TYST2      INR    CTWDS,X          RETURN WITH A = CHAR PROCESS IN BITS 7-0   04 01379
001433 100147 A 1391            EXC    ENACLK                                                      04 01380
001434 100244 A 1392            EXC    ENAPIM                                                      04 01381
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001435 001000 A 1393          JMP*    TYSTOR                    B = NEXT BUFFER LOCATION          04 01382
001436 101411 R
                1394          EJEC                                                                04 01383
                1395 *        SUBROUTINE TO CHECK FOR ASCII SLASH AND BACKARROW CHARACTERS       04 01384
001437 000000 A 1396 TYCONT   ENTR      ENTER WITH CHAR IN B REG, BUFFER IN A REG                 04 01385
                1397          IFF     VORTEX-2                                          V2      04 01386
                1398          LDX     CTJOFL,X  JCP/OPCOM INPUT FLAG                    V2      04 01387
001440 054034 A 1399          STA     TYCT20+1  SAVE BUFFER ADDR                                04 01388
001441 054022 A 1400          STA     TYCT5+1                                                   04 01389
001442 007400 A 1401          RDF                                                               04 01390
001443 005021 A 1402          TBA                                                               04 01391
001444 006137 A 1403          ERAE    TYBSLH    BACKSLH CHARACTER                               04 01392
001445 001353 R
001446 001010 A 1404          JAZ     TYCT10                                                    04 01393
001447 001471 R
001450 005021 A 1405          TBA                                                               04 01394
001451 006137 A 1406          ERAE    TYBARR    BACK-ARROW CHARACTER                            04 01395
001452 001352 R
001453 001010 A 1407          JAZ     TYCT20                                                    04 01396
001454 001474 R
001455 005021 A 1408          TBA                                                               04 01397
001456 006137 A 1409          ERAE    TYCR                                                      04 01398
001457 001344 R
001460 001010 A 1410          JAZ     TYCT24    CR                                              04 01399
001461 001524 R
001462 005021 A 1411          TBA                                                               04 01400
001463 006020 A 1412 TYCT5    LDBI    *                                                         04 01401
001464 001463 R
                1413          IFT     VORTEX-2                                          V2      04 01402
                1414          GOTO    ENDC08                                            V2      04 01403
                1415          LDX     V$CTL     CONTROLER TIDB ADDRESS                  V2      04 01404
                1416          LDX     TBRSTS,X  CTRL ADDRESS                            V2      04 01405
                1417 ENDC08   CONT                                                      V2      04 01406
001465 100244 A 1418          EXC     ENAPIM                                                    04 01407
001466 100147 A 1419          EXC     ENACLK                                                    04 01408
001467 001000 A 1420          JMP*    TYCONT    RETURN WITH OVERFLOW OFF                        04 01409
001470 101437 R
                1421 *                                                                          04 01410
        001471 R 1422 TYCT10  EQU     *         ENTER FOR BACKSLASH                             04 01411
001471 005002 A 1423          TZB               SET B=0,OVERFLOW TO INDICATE BACKSLASH.         04 01412
001472 001000 A 1424          JMP     TYCT24+1                                                  04 01413
001473 001525 R
001474 006020 A 1425 TYCT20   LDBI    *         ENTER FOR BACK-ARROW                            04 01414
001475 001474 R
001476 005021 A 1426          TBA                                                               04 01415
001477 001004 A 1427          JAN     TYCT22    CHAR. N LAST STORED CHAR.                       04 01416
001500 001515 R
001501 005322 A 1428          DBR               CHAR. N-1 LAST STORED CHAR                      04 01417
                1429          IFT     VORTEX-2                                          V2      04 01418
                1430          GOTO    ENDC14                                            V2      04 01419
                1431          XXNZ    TYCTA     GET PRIOR STORED CHARACTER              V2      04 01420
                1432          JXNZ    TYCTB                                             V2      04 01421
                1433          DME     MPDVAD,V$ST3  SWITCH TO USER MAP                  V2      04 01422
                1434 TYCTA    LDA     0,3       GET PREVIOUSLY STORED CHARACTER         V2      04 01423
                1435          DME     MPDVAD,V$ST0  RESTORE MAP 0                       V2      04 01424
                1436 TYCTB    EQU     *                                                 V2      04 01425
                1437 ENDC14   CONT                                                      V2      04 01426
                1438          IFT     VORTEX-2                                          V2      04 01427
001502 016000 A 1439          LDA     0,3       NO                                              04 01428
001503 150462 A 1440          ANA     CHW       CLEAR CHAR N+1                                  04 01429
001504 006117 A 1441          ORAE    TYBLK     OR ASCII BLANK FOR CHAR N+1                     04 01430
001505 001346 R
                1442          IFT     VORTEX-2                                          V2      04 01431
                1443          GOTO    ENDC15                                            V2      04 01432
                1444          XXNZ    TYCTC                                             V2      04 01433
                1445          JXNZ    TYCTD                                             V2      04 01434
                1446          DME     MPDVAD,V$ST3  SWITCH TO USER MAP                  V2      04 01435
                1447 TYCTC    STA     0,3                                               V2      04 01436
                1448          DME     MPDVAD,V$ST0  RESTORE MAP 0                       V2      04 01437
                1449 TYCTD    EQU     *                                                 V2      04 01438
                1450 ENDC15   CONT                                                      V2      04 01439
                1451          IFT     VORTEX-2                                          V2      04 01440
001506 056000 A 1452          STA     0,B                                                       04 01441
001507 005222 A 1453          DPB                                                               04 01442
                1454          IFT     VORTEX-2                                          V2      04 01443
                1455          GOTO    ENDC16                                            V2      04 01444
                1456 TYCT21   LDX     V$CTL     CONTROLER TIDB                          V2      04 01445
                1457          LDX     TBRSTS,X  CTRL ADDRESS                            V2      04 01446
                1458          LDA     CTWDS,X                                           V2      04 01447
                1459 ENDC16   CONT                                                      V2      04 01448
                1460          IFT     VORTEX-2                                          V2      04 01449
001510 015013 A 1461 TYCT21   LDA     CTWDS,X                                                   04 01450
001511 005311 A 1462          DAR                                                               04 01451
001512 055013 A 1463          STA     CTWDS,X                                                   04 01452
                1464          IFF     VORTEX-2                                          V2      04 01453
                1465          JANZ    TYCT24+1  NOT FIRST CHARACTER                     V2      04 01454
                1466          IFF     VORTEX-2                                          V2      04 01455
                1467          STA     CTJOFL,X  CLEAR JCP/OPCOM INPUT FLAG              V2      04 01456
001513 001000 A 1468          JMP     TYCT24+1                                                  04 01457
001514 001525 R
001515 006017 A 1469 TYCT22   LDAE    TYBLK                                                     04 01458
001516 001346 R
001517 004250 A 1470          LRLA    8                                                         04 01459
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001520 005222 A 1471            CPB                                                          04 01460
                1472            IFT     VORTEX-2                                     V2      04 01461
                1473            GOTO    ENDC17                                       V2      04 01462
                1474            VXNZ    TYCTE                                        V2      04 01463
                1475            JXNZ    TYCTF                                        V2      04 01464
                1476            OMI     MPDVAD,V$ST3  SWITCH TO USER MAP             V2      04 01465
                1477 TYCTE      STA     0,B                                          V2      04 01466
                1478            OMI     MPDVAD,V$ST0  RESTORE MAP 0                  V2      04 01467
                1479 TYCTF      EQU     *                                            V2      04 01468
                1480 ENDC17     CONT                                                 V2      04 01469
                1481            IFT     VORTEX-2                                     V2      04 01470
001521 056000 A 1482            STA     0,B                                                  04 01471
001522 001000 A 1483            JMP     TYCT21                                               04 01472
001523 001510 R
001524 005102 A 1484 TYCT24     INCR    2             CR CHAR.,D=1                           04 01473
001525 007401 A 1485            SOF                   SET OVERFLOW FOR CR,BACKSLASH,BACKARROW 04 01474
001526 001000 A 1486            JMP     TYCT5+2                                              04 01475
001527 001465 R
                1487            EJEC                                                         04 01476
                1488 *    OUTPUT/INPUT 1 CHARACTER SUBROUTINE                                04 01477
001530 000000 A 1489 TYOUT      ENTR                  ENTER  VIA JMPM TYOUT                  04 01478
                1490 *                                      WITH A= CHAR TO OUTPUT,X=CTBL    04 01479
                1491 *                                RETURN OVERFLOW OFF IF OUTPUT SUCCESSFUL 04 01480
001531 007400 A 1492            SOF                         OVERFLOW ON IF INPUT CHARACTER 04 01481
001532 020432 A 1493            LDB     R19   TIME-OUT COUNT,MAKE COMPATIBLE TO DEBUG        04 01482
001533 065005 A 1494            STB     CTRCNT,X                                             04 01483
001534 005010 A 1495            TAB                                                          04 01484
001535 006010 A 1496            LDAI    B'101100        DETECTED,INPUT IN A REG.             04 01485
001536 101100 A
001537 115006 A 1497            BSA     CTDVAT,X                                             04 01486
001540 054013 A 1498            STA     TYOT2         THIS SUBROUTINES SENSES INPUT BUFFER   04 01487
001541 120427 A 1499            AND     B56            BEFORE CHECKING OUTPUT BUFFR.         04 01488
001542 054007 A 1500            STA     TYOT1         SENSE INPUT                            04 01489
001543 006120 A 1501            ADDI    B'100                                                04 01490
001544 001300 A
001545 054042 A 1502            STA     TYOT5         CIA                                    04 01491
001546 120431 A 1503            AND     B26                                                  04 01492
001547 054035 A 1504            STA     TYOT3         OAP                                    04 01493
001550 007400 A 1505            SOF                                                          04 01494
001551 005021 A 1506            IRA                                                          04 01495
001552 101201 A 1507 TYOT1      SEN     0001,TYOT6    SENSE INPUT READY                      04 01496
001553 001610 R
001554 101101 A 1508 TYOT2      SFN     0101,TYOT3    SENSE WRITE READY                      04 01497
001555 001605 R
001556 030300 A 1509            LDX     #CTL                                                 04 01498
001557 005002 A 1510            TAB                   CLEAR EVENT WORD                       04 01499
001560 065003 A 1511            STB     CEVNT,X                                              04 01500
001561 006027 A 1512            LINK    TYOUT         SAVE RETURN ADDR.                      04 01501
001562 001534 R
                1513            DELAY   0,0,0         DELAY 15 MILLISEC                      04 01502
001563 006505 A
001564 000436 A
001565 001100 A
001566 000003 A
001567 000000 A
001570 100444 A 1514            SNC     #ISPIM                                               04 01503
001571 100747 A 1515            SNZ     #ISCLK                                               04 01504
001572 030300 A 1516            LDX     #CTL          RESTORE CTRL                           04 01505
001573 035010 A 1517            LDB     #PRSTS,X                                             04 01506
001574 006067 A 1518            STBE    TYOUT                                                04 01507
001575 001530 R
001576 025005 A 1519            LDB     CTRCNT,X                                             04 01508
001577 001020 A 1520            JBZ     TYO0          TIMED OUT                              04 01509
001600 000379 R
001601 005322 A 1521            DRA                                                          04 01510
001602 065005 A 1522            STB     CTRCNT,X                                             04 01511
001603 001000 A 1523            JMP     TYOUT+4                                              04 01512
001604 001534 R
001605 103101 A 1524 TYOT3      OAP     01            OUTPUT 1 CHAR                          04 01513
001606 001000 A 1525            JMP*    TYOUT                                                04 01514
001607 101530 P
001610 102501 A 1526 TYOT6      CIA     01            INPUT 1 CHAR                           04 01515
001611 007401 A 1527            SOF                                                          04 01516
001612 001000 A 1528            JMP     TYOT2         NON ECHO CHAR.                         04 01517
001613 001754 R
                1529            END                                                          04 01518
ENTRY NAMES
000000 R  V$TYA
EXTERNAL NAMES
001106 E  H$SFLG  000377 E  V$ERR   000000 E  V$EXEC  000638 E  V$FNR
001242 E  V$FNRM
SYMBOLS
000044 A  APIM    000002 A  B       000000 A  B0      000001 A  B1
000012 A  B10     000013 A  B11     000014 A  B12     000015 A  B13
000016 A  B14     000017 A  B15     000002 A  B2      000003 A  B3
000004 A  B4      000005 A  B5      000006 A  B6      000007 A  B7
000010 A  B8      000011 A  B9      000000 C  BICNUM  000001 A  BM1
000472 A  BM17    000473 A  BM177   000477 A  BM1777  000002 A  BM2
000473 A  BM37    000463 A  BM377   000007 A  BM7     000177 A  BM77
000476 A  BM777   000441 A  BR0     000443 A  BR1     000445 A  BR10
000454 A  BR11    000455 A  BR12    000456 A  BR13    000457 A  BR14
000460 A  BR15    000442 A  BR2     000444 A  BR3     000447 A  BR4
000446 A  BR5     000447 A  BR6     000450 A  BR7     000451 A  BR8
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000452 A BR9     000421 A BS0     000422 A BS1     000433 A BS10
000434 A BS11    000435 A BS12    000436 A BS13    000437 A BS14
000440 A BS15    000423 A BS2     000424 A BS3     000425 A BS4
000426 A BS5     000427 A BS6     000430 A BS7     000431 A BS8
000432 A BS9     000040 A BTA0    000000 A BTA1    000020 A BTB1
000047 A CLOCK   000000 A COTAD1  000000 A CTACT   000001 A CTADNC
000011 A CTBICB  000015 A CTBUFF  000003 A CTDST   000006 A CTDVAT
000023 A CTEMP   000012 A CTFCB   000014 A CTFRCT  000014 A CTFREQ
000000 A CTIDB   000007 A CTIOA   000017 A CTJCPB  000025 A CTMODE
000022 A CTODST  000016 A CTOPBF  000002 A CTOPM   000017 A CTPST0
000020 A CTPST1  000021 A CTPST2  000022 A CTPST3  000005 A CTRCNT
000024 A CTREAD  000004 A CTRQBK  000005 A CTRTRY  000010 A CTSTAT
000015 A CTSTSZ  000016 A CTTRSZ  000013 A CTWDS   000021 A CTWLMK
000020 A CTWPIM  000001 A DBUFF   000002 A DCNT    000747 A DISCLK
000745 A DISMP   000444 A DISPIM  000000 A DRECL   000002 A DSCTAD
000000 A DSDASS  000000 A DSDVDN  000002 A DSLCKO  000001 A DSNAME
000000 A DSNORQ  000002 A DSOPCM  000002 A DSPSTI  000002 A DSREND
000000 A DSUNAM  000002 A DSUNTN  000421 A EIGHT   000147 A ENACLK
000645 A ENAMP   000244 A ENAPIM  000002 A FACM    000001 A FBUFF
000003 A FCADR   000004 A FCEOF   000006 A FEFE    000005 A FIFE
000465 A FIVE    000007 A FNAM1   000010 A FNAM2   000011 A FNAM3
000423 A FOUR    000000 A FRECL   001106 E H$SFLG  001347 R HASPCR
000306 A KOP     000300 A LC      000050 A LCJP    000462 A LHW
000152 A LOP     000126 R MODE4   000045 A MP      000045 A MPMR0
000145 A MPMR1   000245 A MPMR2   000343 A MPMR3   000420 A MT
000461 A NEG     000470 A NINE    000341 R NMDE4   000000 A NW
000421 A ONE     000040 A PIM1    000041 A PIM2    000042 A PIM3
000043 A PIM4    000040 A PIM5    000040 A PIM6    000040 A PIM7
000040 A PIM8    000012 A POP     000002 A PSBADT  000000 A PSBEG
000004 A PSEND   000003 A PSNSEC  000001 A PSPROT  000000 A RA0
000000 A RA1     000004 A RADNR   000060 A RB0     000020 A RB1
000002 A RFCB    000463 A RHW     000001 A RDPWD   000000 A RSTPR
000003 A RTIDB   000467 A SEVEN   000466 A SIX     000027 A TBATSK
000026 A TBCPTH  000011 A TBENTY  000003 A TBEVNT  000021 A TBIO
000014 A TBISA   000015 A TBISB   000017 A TBISP   000020 A TBIORS
000016 A TBISX   000022 A TBKN1   000023 A TBKN2   000024 A TBKN3
000002 A TBPL    000004 A TBRSA   000005 A TBRSB   000030 A TBRSE
000007 A TBRSP   000010 A TBRSTS  000006 A TBRSX   000000 A TBSC
000001 A TBS1    000012 A TBS10   000013 A TBS11   000014 A TBS12
000015 A TBS13   000016 A TBS14   000017 A TBS15   000002 A TBS2
000003 A TBS3    000004 A TBS4    000005 A TBS5    000006 A TBS6
000007 A TBS7    000010 A TBS8    000011 A TBS9    000001 A TBSI
000025 A TBTLC   000013 A TBTMIN  000012 A TBTMS   000000 A TBTRD
000471 A TEN     000464 A THREE   000422 A TWO     000021 R TY02
000055 R TY04    000063 R TY04A   000072 R TY05    000100 R TY06
000106 R TY07    000117 R TY08    000136 R TY10    000541 R TY105
000156 R TY20    000165 R TY28    000213 R TY28A   000232 R TY29
000241 R TY30    000261 R TY31    000272 R TY32    000320 R TY34
000347 R TY40    000355 R TY42    000370 R TY50    001350 R TYBARR
001345 R TYBEL   001346 R TYBLK   001353 R TYBSLH  001437 R TYCONT
001344 R TYCR    001354 R TYCRLF  001471 R TYCT10  001474 R TYCT20
001510 R TYCT21  001515 R TYCT22  001524 R TYCT24  001463 R TYCT5
001341 R TYDBLK  000420 R TYI00   000424 R TYI01   000437 R TYI01A
000451 R TYI01B  000466 R TYI02   000525 R TYI03   000533 R TYI04
000546 R TYI06   000575 R TYI10   000637 R TYI12   000602 R TYI13
000616 R TYI14   000674 R TYI15A  000701 R TYI16   000710 R TYI16A
000710 R TYI16B  000741 R TYI17   000753 R TYI18   000650 R TYI20
000762 R TYI22   000770 R TYI24   001001 R TYI26   001013 R TYI30
001026 R TYI32   001032 R TYI33   001036 R TYI34   000630 R TYISMT
000400 R TYITOO  001342 R TYLF    001552 R TYOT1   001554 R TYOT2
001605 R TYOT3   001610 R TYOT6   001533 R TYOUT   001400 R TYPLS
001360 R TYPIM   001355 R TYPLS   001356 R TYPLSF  001350 R TYSCOL
001351 R TYSLSH  001422 R TYST1   001432 R TYST2   001411 R TYSTOR
001357 R TYTEMP  001045 R TYU1    001176 R TYU10   001202 R TYU19
001057 R TYU2    001213 R TYU20   001215 R TYU21   001275 R TYU21A
001243 R TYU22   001260 R TYU24   001265 R TYU26   001301 R TYU27
001312 R TYU30   001063 R TYU4    001330 R TYU40   001105 R TYU5A
001125 R TYU5    001155 R TYU6    001164 R TYU9    001037 R TYUN30
000403 A V$1MIN  000415 A V$BFC   000075 A V$DGLB  000050 A V$DTC1
000315 A V$DTB   000414 A V$DVH   000334 A V$DAM   000353 A V$DVD
000411 A V$DKIT  000310 A V$DKPT  000301 A V$DPL   000075 A V$DSUM
000341 A V$DRDR  000354 A V$DRM   000302 A V$DRS   000350 A V$DTAD
000300 A V$DTL   000351 A V$DTMS  000070 A V$DATE  000355 A V$DSTB
000376 A V$ERFG  000377 E V$ERR   000000 E V$EXEC  000347 A V$FGLB
000306 A V$FLRS  000636 E V$FNR   001242 E V$FNRM  000300 A V$FTDF
000320 A V$IM    000412 A V$IOA   000412 A V$JCB   000055 A V$JCNG
000277 A V$JCTM  000050 A V$JNAM  000377 A V$JOP   000054 A V$LCNT
000313 A V$LER   000356 A V$LIT   000317 A V$LLUP  000307 A V$LRSK
000312 A V$LSAL  000345 A V$LUNT  000316 A V$LUP   000400 A V$LUT1
000401 A V$LUT2  000402 A V$LUT3  000330 A V$MPM   000362 A V$NDID
000413 A V$OCB   000346 A V$OPOF  000311 A V$OPOL  000342 A V$PTMN
000074 A V$PLCT  000303 A V$PTVB  000301 A V$SCIL  001358 A V$SSCV
000375 A V$SLFG  000303 A V$TB    000342 A V$TYDT   000416 A V$TYC
000314 A V$TJCP  000344 A V$TMN   000343 A V$TMS   000000 R V$TYA
000304 A V$UTB   000001 A VORTEX  000001 A X       000420 A ZERO
  0 ERRORS ASSEMBLY COMPLETE

  360   APIM      370   371
  351   CLOCK     353   354
   49   ENDCOI     43
  133   LC        134   135   136   137   138   139   140   141   142
                  143   144   145   146   147   150   151   155   156
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                158   161   162   167   168   169   170   171   172
                173   174   175   177   178   179   180   181   182
                183   184   185   186   187   188   189   190   192
                195   196   197   198   210   211   212   213   214
                215   216   231   232   233   236   241   242   243
152   LCD1      149
157   LCD2      154
164   LCD3      160
176   LCD4      166
204   LCD5      201
209   LCD6      206
223   LCD7      218
230   LCD8      225
108   LCJP      109   110   111   118   119   120   121   122   125
374   MP        375   376   377   378   379   380
252   MT        253   254   255   256   257   258   259   260   261
                262   263   264   265   266   267   268   269   270
                271   272   273   274   275   276   277   278   279
                280   281   282   283   284   285   286   287   288
                289   290   291   292   293   294   295   296   297
                298   299   300   301   302   303   304   305   306
                307   308
  0   V$TYA       11
  1   VORTEX      42   148   153   157   165   191   193   200   205
                 217   224   255
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000001 A     1 VORTEX SET     1               PUT LAST FOR VORTEX                         02 00001
             2 *  THIS IS A COPYRIGHTED PROGRAM.COPYRIGHT 1972 BY VARIAN DATA MACHINES  02 00002
             3 *                                                                         02 00003
             4 *       V.D.M.  PART  NO.        92L0605-145B                             02 00004
             5 *                                                                         02 00005
             6 *                                                RELEASED    03/01/74     02 00006
             7 *                                                                         02 00007
             8 *                                                                         02 00008
             9 *                                                                         02 00009
            10 *                                                                         02 00010
            11 *                 VZDD                                                    02 00011
            12 *                                                                         02 00012
            13 *                                                                         02 00013
            14          TITLE    VZDD                                                    02 00014
            15 *                                                                         02 00015
            16 *        I/O      DRIVER FOR MODEL E2505                                  02 00016
            17 *                                                                        R02 00017
            18 *                                                                        R02 00018
            19 *                                                                        R02 00019
            20 *                                                                        R02 00020
            21          EXT      V$EXEC                                                 R02 00021
            22          EXT      V$IOC                                                  R02 00022
            23          EXT      V$FNR                                                  R02 00023
            24          EXT      V$ERR                                                  R02 00024
            25          EXT      V$IOST                                                 R02 00025
            27 ***********************************************************************R02 00027
            28 ****      TIDB SETUP                                                  ***R02 00028
            29 *                                                                        R02 00029
            30 ***********************************************************************R02 00030
000000 A    32 TBTRD   EQU      0               TASK THREAD                             R02 00032
000001 A    33 TBST    EQU      1               TASK STATUS                             R02 00033
000002 A    34 TBPL    EQU      2               STATUS CONT. (BITS15-6),PRIORITY LEVEL(5-0R02 00034
000003 A    35 TBEVNT  EQU      3               INTERRUPT EVENT                         R02 00035
000004 A    36 TBRSA   EQU      4               A           REENTRANT AND SUSPEND STACK R02 00036
000005 A    37 TBRSB   EQU      5               B           REENTRANT AND SUSPEND STACK R02 00037
000006 A    38 TBRSX   EQU      6               X           REENTRANT AND SUSPEND STACK R02 00038
000007 A    39 TBRSP   EQU      7               OF/P        REENTRANT AND SUSPEND STACK R02 00039
000010 A    40 TBRSTS  EQU      8               TEMP. STG. REENTRANT AND SUSPEND STACK  R02 00040
000011 A    41 TBENTY  EQU      9               TASK ENTRY LOCATION                     R02 00041
000012 A    42 TBTMS   EQU      10              TIME COUNTER - CLOCK RESOLUTION IN 5MS INCR02 00042
000013 A    43 TBTMIN  EQU      11              TIME COUNTER - CLOCK MINUTE INCREMENTS  R02 00043
000014 A    44 TBISA   EQU      12              A              INTERRUPT STACK          R02 00044
000015 A    45 TBISB   EQU      13              B              INTERRUPT STACK          R02 00045
000016 A    46 TBISX   EQU      14              X              INTERRUPT STACK          R02 00046
000017 A    47 TBISP   EQU      15              OF/P           INTERRUPT STACK          R02 00047
000020 A    48 TBISRS  EQU      16              REENT. STACK   INTERRUPT STACK          R02 00048
000021 A    49 TBIO    EQU      17              BLK ALLOC(15-10),I/O THR(9-5),I/O ACT(4-0)R02 00049
000022 A    50 TBKN1   EQU      18              TASK NAME                               R02 00050
000023 A    51 TBKN2   EQU      19              TASK NAME                               R02 00051
000024 A    52 TBKN3   EQU      20              TASK NAME                               R02 00052
000025 A    53 TBTLC   EQU      21              1ST LOC. OF TASK ALLOCATABLE            R02 00053
000026 A    54 TBCPTH  EQU      22              BACKGROUND TASK QUEUE                   R02 00054
000027 A    55 TBATSK  EQU      23              TIDB LOC. OF ACTIVATING TASK            R02 00055
000030 A    56 TBRSE   EQU      24              TASK ERROR CODE                         R02 00056
            57         IFT      VORTEX-2                                             V2 02 00057
            58         GOTO     ENDC01                                               V2 02 00058
            59 TBSIZ   EQU      25               TASK SIZE, BITS 15-10               V2 02 00059
            60 TBNULL  EQU      26               NUCLEUS MODULE INDICATOR, BITS 15-08 V2 02 00060
            61 TBKEY   EQU      26               TASK'S MAP KEY, BITS 03-00          V2 02 00061
            62 TBMIMG  EQU      27               TASK'S MAP IMAGE                    V2 02 00062
            63 TBIST   EQU      28               INTERRUPT STATUS                    V2 02 00063
            64 ENDC01  CONT                                                         V2  02 00064
            65         EJEC                                                             R02 00065
            66 ***********************************************************************R02 00066
            67 *                                                                        R02 00067
            68 ****      TASK STATUS DESCRIPTION  (BIT SET WORD 1)                   ***R02 00068
            69 *                                                                        R02 00069
            70 ***********************************************************************R02 00070
000017 A    72 TBS15   EQU      15              INTERRUPT SUSPEND                       R02 00072
000016 A    74 TBS14   EQU      14              TASK SUSPEND                            R02 00074
000015 A    75 TBS13   EQU      13              TASK ABORT                              R02 00075
000014 A    76 TBS12   EQU      12              TASK EXIT                               R02 00076
000013 A    78 TBS11   EQU      11              TIDB CORE RESIDENT                      R02 00078
000012 A    79 TBS10   EQU      10              CORE RESIDENT TASK                      R02 00079
000011 A    80 TBS9    EQU      9               FOREGROUND TASK                         R02 00080
000010 A    82 TBS8    EQU      8               TASK PROTECTED                          R02 00082
000007 A    83 TBS7    EQU      7               TASK SCHEDULED BY TIME DELAY            R02 00083
000006 A    84 TBS6    EQU      6               TIME DELAY ACTIVE                       R02 00084
000005 A    86 TBS5    EQU      5               TASK WAITING TO BE LOADED               R02 00086
000004 A    87 TBS4    EQU      4               TASK ERROR                              R02 00087
000003 A    88 TBS3    EQU      3               TASK INTERRUPT EXPECTED                 R02 00088
000002 A    90 TBS2    EQU      2               OVERLAY TASK                            R02 00090
000001 A    91 TBS1    EQU      1               UPON TERMINATION ACTIVATE TASK SCHED TASK R02 00091
000000 A    92 TBS0    EQU      0               TASK SEARCH-ALLOCATED-LOADED            R02 00092
            93         EJEC                                                             R02 00093
            94 ***********************************************************************R02 00094
            95 *                                                                        R02 00095
            96 ***       TASK STATUS DESCRIPTION  (BIT SET WORD 2)                   ***R02 00096
            97 *                                                                        R02 00097
            98 ***********************************************************************R02 00098
           100 *        BIT 15  -  TASK OPENED                                          R02 00100
           102 *        BIT 14  -  UNUSED                                               R02 00102
           103 *        BIT 13  -  OVERLAY LOAD                                         R02 00103
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                    104 *       BIT 12  -  TASK WAITING FOR BACKGROUND TASK I/O TO COMPLETE     R02 00104
                    105 *                  TASK LOCKED-OUT UNTIL BG I/O COMPLETE OR BIT 11    R02 00105
                    106 *                  IS SET  (ALLOCATABLE SPACE AVAILABLE)              R02 00106
                    108 *       BIT 11  -  DEFINES THAT ALLOCATABLE SPACE IS AVAILABLE, TRY   R02 00108
                    109 *                  ALLOCATING TASK AGAIN.  OVERRIDES BIT 12 SET OR    R02 00109
                    110 *                  BIT 5 IN STATUS WORD.                              R02 00110
                    111 *       BIT 10  -  BACKGROUND TASK BEING WRITTEN ON CHECKPOINT FILE.  R02 00111
                    112 *       BIT  9  -  TASK WAITING FOR A TIDB TO COME AVAILABLE FOR      R02 00112
                    113 *                  SCHEDULING.                                        R02 00113
                    115 *       BIT  8 TO 6  - UNUSED                                         R02 00115
                    116         EJEC                                                          R02 00116
                    117 ********************************************************************* R02 00117
                    118 *                                                                     R02 00118
                    119 ***     JCB PROCESSOR LOW CORE EQUATES                              ** R02 00119
                    120 *                                                                     R02 00120
                    121 ********************************************************************* R02 00121
000050 A            123 LCJP    EQU     050                                                   R02 00123
000050 A            124 V$JNAM  EQU     LCJP            JCP NAME                              R02 00124
000054 A            125 V$LCNT  EQU     LCJP+4          LINE COUNT                            R02 00125
000055 A            126 V$JCFG  EQU     LCJP+5          JCP FLAGS                             R02 00126
                    127 *                               BIT 2-0    = LOAD AND GO FLAGS        R02 00127
                    128 *                               BIT  3     = DUMP FLAG  1=DUMP, 0=NO DUMP R02 00128
                    129 *                               BIT  4     = DUMP FLAG IF LOAD AND GO R02 00129
                    130 *                               BIT 9-5    = UNUSED                   R02 00130
                    131 *                               BIT 15-10  = BG EXTRA CORE BLOCKS TO ALLOC R02 00131
000056 A            133 V$BIC1  EQU     LCJP+6          BIC INTERRUPT ADDRESS TABLE  (10 WORDS) R02 00133
000070 A            134 V$DATE  EQU     LCJP+16         JCP DATE RECORD                       R02 00134
000074 A            135 V$PLCT  EQU     LCJP+20         PERMINATE LINE COUNT                  R02 00135
000075 A            136 V$BGLB  EQU     LCJP+21         JCP LIB KEY AND LU NO. (BACKGROUND LIB) R02 00136
000076 A            137 V$CRDM  EQU     LCJP+22         CARD KEYPUNCH TYPE, 0=026, 1=029      R02 00137
                    138 *                               BIT 0 = SYSTEM NOMINAL KEYPUNCH MODE. R02 00138
                    139 *                               BIT 9 = CURRENT JOB KEYPUNCH MODE.    R02 00139
000077 A            140 V$JCTM  EQU     LCJP+23         TEMP. STORAGE FOR /MEM BLOCK          R02 00140
                    141         EJEC                                                          R02 00141
                    142 ********************************************************************* R02 00142
                    143 *                                                                     R02 00143
                    144 ****    LOW CORE DESCRIPTION                                        *** R02 00144
                    145 *                                                                     R02 00145
                    146 ********************************************************************* R02 00146
000300 A            148 LC      EQU     0300                                                  R02 00148
000300 A            149 V$CTL   EQU     LC              CURRENT TASK TIDB LOCATION            R02 00149
000301 A            150 V$CPL   EQU     LC+1            CURRENT PRIORITY LEVEL                R02 00150
000302 A            151 V$CRS   EQU     LC+2            CURRENT REENTRANT STACK POINTER       R02 00151
000303 A            152 V$TB    EQU     LC+3            POINTER TO HIGHEST PRIORITY TIDB      R02 00152
000304 A            153 V$UTB   EQU     LC+4            POINTER TO UNUSED TASK TIDB           R02 00153
000305 A            154 V$PTVB  EQU     LC+5            POINTER TO NEXT ENTRY IN REENTRANT STACK R02 00154
000306 A            155 V$FLRS  EQU     LC+6            FIRST LOC. OF REENTRANT STACK         R02 00155
000307 A            156 V$LRSK  EQU     LC+7            LAST LOC. OF REENTRANT STACK+1        R02 00156
000310 A            157 V$CKPT  EQU     LC+8            CHECKPOINT FLAG 1=ON, 0=OFF           R02 00157
000311 A            158 V$DPCL  EQU     LC+9            LOC. OF TIDB FOR DPCOM TASK           R02 00158
000312 A            159 V$LSAL  EQU     LC+10           LOC. OF TIDB FOR SYSTEM SAL TASK      R02 00159
000313 A            160 V$LER   EQU     LC+11           LOC. OF TIDB FOR SYSTEM ERROR TASK    R02 00160
000314 A            161 V$TJCP  EQU     LC+12           LOC. OF TIDB FOR JOB CONTROL PROCESSOR TAS R02 00161
000315 A            162 V$BTB   EQU     LC+13           LOC. OF CURRENT ACTIVE BACKGROUND TSK TIDB R02 00162
                    163         IFT     VORTEX-2                                              V2
                    164         GOTO    LCD1            ASSEMBLE FOR VORTEX II                V2
                    165 V$NPAG  EQU     LC+14           NUMBER OF AVAILABLE PAGES IN V$PAGE   V2
                    166 V$LPP   EQU     LC+15           POINTER OF LAST WORD TESTED IN V$PAGE V2
                    167 LCD1    CONT                                                          V2
                    168         IFF     VORTEX-2                                              V2
                    169         GOTO    LCD2            ASSEMBLE IF NOT VORTEX II             V2
000316 A            170 V$LUP   EQU     LC+14           LOC. OF 1ST UNPROTECTED WORD          V2
000317 A            171 V$LLUP  EQU     LC+15           LOC. OF LAST UNPROTECTED WORD         V2
                    172 LCD2    CONT                                                          V2
000320 A            173 V$IM    EQU     LC+16           INTERRUPT MASK  (8 WORDS)             V2
                    174         IFF     VORTEX-2                                              V2
                    175         GOTO    LCD3                                                  V2
000330 A            176 V$MPM   EQU     LC+24           MEMORY PROTECT MASK  (4 WORDS)        V2
000334 A            177 V$CAM   EQU     LC+28           CORE ALLOCATION MASK  (4 WORDS)       V2
                    178 *       EQU     LC+32           UNUSED                                V2
                    179 LCD3    CONT                                                          V2
                    180         IFT     VORTEX-2                                              V2
                    181         GOTO    LCD4            ASSEMBLE IF VORTEX II                 V2
                    182 V$MAP   EQU     LC+24           MAP KEY AVAILABILITY MASK             V2
                    183 V$BTBM  EQU     LC+25           BOTTOM OF RUNNABLE TABLE MODULE       V2
                    184 V$GFCB  EQU     LC+26           GLOBAL FCB MODULE                     V2
                    185 V$MIMG  EQU     LC+27           MAP 3 IMAGE ADDRESS                   V2
                    186 V$ST0   EQU     LC+28           FUNC 1 CONTROL WORD TO SWITCH EXECUTIVEV2
                    187 V$ST1   EQU     LC+29            MODE STATES: V$ST0 - STATE 0         V2
                    188 V$ST2   EQU     LC+30                         V$ST1 - STATE 1        V2
                    189 V$ST3   EQU     LC+31                        ETC                     V2
                    190 V$KEY   EQU     LC+32           EXECUTING TASK'S MAP KEY              V2
                    191 LCD4    CONT                                                          V2
000341 A            192 V$CRDR  EQU     LC+33           CORE RESIDENT DIRECTORY LOCATION
000342 A            193 V$TBGT  EQU     LC+34           TOP OF THREAD OF BG TSK WAITING TO BE ALLO
000343 A            194 V$TMS   EQU     LC+35           TIME OF DAY IN 5 MILLISECOND INCREMENTS
000344 A            195 V$TMN   EQU     LC+36           TIME OF DAY IN MINUTE INCREMENTS
000345 A            196 V$LUNT  EQU     LC+37           ADDR. OF LOGICAL UNIT NAME TABLE
000346 A            197 V$DPCF  EQU     LC+38           DPCOM LOCKOUT FLAG
000347 A            198 V$FGLB  EQU     LC+39           KEY AND LU NO. FOR FOREGROUND LIB
000350 A            199 V$FREE  EQU     LC+40           FREE RUNNING COUNTER INCR. IN MICROSECONDS
000351 A            200 V$CTMS  EQU     LC+41           CLOCK RESOLUTION IN 5 MILLISECOND INCR.
000352 A            201 V$SCV   EQU     LC+42           CLOCK SELECTED COUNT VALUE (1 TO 4095)
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000353 A  202 V$CKB   EQU   LC+43    BASIC CLOCK INTERRUPT RATE IN MICROSECONDS  R02 00202
000354 A  203 V$CRM   EQU   LC+44    CLOCK RESOLUTION INCR. FOR 1 MINUTE.        R02 00203
000355 A  204 V$DSTB  EQU   LC+45    BASE ADDR. FOR DST BLOCK                    R02 00204
000356 A  205 V$LIT   EQU   LC+46    LAST LOCATION OF BACKGROUND LITERAL TABLE   R02 00205
          206         IFF   VORTEX-2 ASSEMBLE IF VORTEX II                      V2  02 00206
          207 V$PGT   EQU   LC+47    V$PAGE ADDRESS                             V2  02 00207
          208         IFT   VORTEX-2 ASSEMBLE IF NOT VORTEX II                  V2  02 00208
          209 *       EQU   LC+47    UNUSED                                     R02 00209
000360 A  210 V$CTAD  EQU   LC+48    BASE ADDR. FOR CONTROLLER ADDR. TABLE      R02 00210
000361 A  211 V$SCTL  EQU   LC+49    CURRENT CONTROLLER IN SCAN                 R02 00211
000362 A  212 V$NCTR  EQU   LC+50    NO. OF CONTROLLERS                         R02 00212
000363 A  213 V$PIMN  EQU   LC+51    EXTERNAL DEVICE ADDRESS TABLE FOR PIMS     R02 00213
          214 *                        (8 WORDS DEFINED IN PIM NO ORDER)      R02 00214
          215         IFF   VORTEX-2                                           V2  02 00215
          216         GOTO  LCD5     ASSEMBLE IF NOT VORTEX II                 V2  02 00216
          217 *       EQU   LC+59    UNUSED                                     R02 00217
          218 *       EQU   LC+60    UNUSED                                     R02 00218
          219 LCD5    CONT                                                     V2  02 00219
          220         IFT   VORTEX-2                                           V2  02 00220
          221         GOTO  LCD6     ASSEMBLE IF VORTEX II                     V2  02 00221
          222 *       EQU   LC+59    JMP V$IOST   PAGE 0 ENTRY FOR I/O         V2  02 00222
          223 *       EQU   LC+60                 STAT CALLS.                  V2  02 00223
          224 LCD6    CONT                                                     V2  02 00224
000375 A  225 V$SLFG  EQU   LC+61    SAL TASK BUSY FLAG     1=BUSY, 0=NOT BUSY  R02 00225
000376 A  226 V$ERFG  EQU   LC+62    ERROR TASK BUSY FLAG   1=BUSY, 0=NOT BUSY  R02 00226
000377 A  227 V$JOP   EQU   LC+63    JCP OPERATING FLAG                         R02 00227
000400 A  228 V$LUT1  EQU   LC+64    START LUN ADDR FOR JCP/OPCOM ASSIGNABLE    R02 00228
000401 A  229 V$LUT2  EQU   LC+65    START LUN ADDR FOR UNASSIGNABLE            R02 00229
000402 A  230 V$LUT3  EQU   LC+66    START LUN ADDR FOR OPCOM ASSIGNABLE        R02 00230
000403 A  231 V$1MIN  EQU   LC+67    32767 - (60000/(5*V$CTMS)) + 1             R02 00231
          232         IFF   VORTEX-2                                           V2  02 00232
          233         GOTO  LCD7     ASSEMBLE IF NOT VORTEX II                 V2  02 00233
          234 *       EQU   LC+68    UNUSED                                     R02 00234
          235 *       EQU   LC+69    UNUSED                                     R02 00235
          236 *       EQU   LC+70    UNUSED                                     R02 00236
          237 *       EQU   LC+71    UNUSED                                     R02 00237
          238 LCD7    CONT                                                     V2  02 00238
          239         IFT   VORTEX-2                                           V2  02 00239
          240         GOTO  LCD8                                               V2  02 00240
          241 *       EQU   LC+68    JMP V$IOC    PAGE 0 ENTRY FOR IOC        V2  02 00241
          242 *       EQU   LC+69                  CALLS.                      V2  02 00242
          243 *       EQU   LC+70    JMP V$EXEC   PAGE 0 ENTRY FOR RTE        V2  02 00243
          244 *       EQU   LC+71                  CALLS.                      V2  02 00244
          245 LCD8    CONT                                                     V2  02 00245
000410 A  246 V$IOA   EQU   LC+72    I/O ALGORITHM                              R02 00246
000411 A  247 V$CKIT  EQU   LC+73    CLOCK INT. IN PIM BEFORE LOCKOUT FLAG.     R02 00247
000412 A  248 V$JCB   EQU   LC+74    ALL SYSTEM BACKGROUND PROGRAMS AND JCP USE  R02 00248
          249 *                      THIS SYSTEM BUFFER TO READ DIRECTIVES AND  R02 00249
          250 *                      SOURCE RECORDS IN.                         R02 00250
000413 A  251 V$OCB   EQU   LC+75    OPCOM WILL READ OPERATOR KEY-IN REQUESTS    R02 00251
          252 *                      IN THIS BUFFER.  IF JCP IS SET NOT ACTIVE  R02 00252
          253 *                      AND A 1 DIRECTIVE IS INPUTED, OPCOM        R02 00253
          254 *                      WILL MOVE THE DIRECTIVE TO V$JCB BEFORE    R02 00254
          255 *                      SCHEDULING JCP.                            R02 00255
000414 A  256 V$RVN   EQU   LC+76    BOTTOM OF VORTEX NUCLEUS                   R02 00256
000415 A  257 V$BFC   EQU   LC+77    TOP OF FC RES. AREA/BOTTOM OF FG BLK COMM.  R02 00257
000416 A  258 V$TFC   EQU   LC+78    TOP OF FG BLK COMMUNI/TOP OF VORTEX CORE.   R02 00258
          259 *       EQU   LC+79    UNUSED                                     R02 00259
          260         EJEC                                                     R02 00260
          261 ********************************************************************R02 00261
          262 *                                                                  R02 00262
          263 ****     MASK TABLE DESCRIPTION                                  ***R02 00263
          264 *                                                                  R02 00264
          265 ********************************************************************R02 00265
          266                                                                    R02 00266
000420 A  267 MT      SET   0420                                                 R02 00267
000420 A  268 ZERO    EQU   MT       ZERO WORD                                   R02 00268
000421 A  269 BS0     EQU   MT+1     BIT MASK CONTENTS  000001                   R02 00269
000422 A  270 BS1     EQU   MT+2                        000002                   R02 00270
000423 A  271 BS2     EQU   MT+3                        000004                   R02 00271
000424 A  272 BS3     EQU   MT+4                        000010                   R02 00272
000425 A  273 BS4     EQU   MT+5                        000020                   R02 00273
000426 A  274 BS5     EQU   MT+6                        000040                   R02 00274
000427 A  275 BS6     EQU   MT+7                        000100                   R02 00275
000430 A  276 BS7     EQU   MT+8                        000200                   R02 00276
000431 A  277 BS8     EQU   MT+9                        000400                   R02 00277
000432 A  278 BS9     EQU   MT+10                       001000                   R02 00278
000433 A  279 BS10    EQU   MT+11                       002000                   R02 00279
000434 A  280 BS11    EQU   MT+12                       004000                   R02 00280
000435 A  281 BS12    EQU   MT+13                       010000                   R02 00281
000436 A  282 BS13    EQU   MT+14                       020000                   R02 00282
000437 A  283 BS14    EQU   MT+15                       040000                   R02 00283
000440 A  284 BS15    EQU   MT+16                       100000                   R02 00284
000441 A  285 BR0     EQU   MT+17    BIT MASK CONTENTS  177776                   R02 00285
000442 A  286 BR1     EQU   MT+18                       177775                   R02 00286
000443 A  287 BR2     EQU   MT+19                       177773                   R02 00287
000444 A  288 BR3     EQU   MT+20                       177767                   R02 00288
000445 A  289 BR4     EQU   MT+21                       177757                   R02 00289
000446 A  290 BR5     EQU   MT+22                       177737                   R02 00290
000447 A  291 BR6     EQU   MT+23                       177677                   R02 00291
000450 A  292 BR7     EQU   MT+24                       177577                   R02 00292
000451 A  293 BR8     EQU   MT+25                       177377                   R02 00293
000452 A  294 BR9     EQU   MT+26                       176777                   R02 00294
000453 A  295 BR10    EQU   MT+27                       175777                   R02 00295
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000454 A   296 BR11    EQU     MT+28
000455 A   297 BR12    EQU     MT+29
000456 A   298 BR13    EQU     MT+30
000457 A   299 BR14    EQU     MT+31
000460 A   300 BR15    EQU     MT+32
000461 A   301 NEG     EQU     MT+33
000462 A   302 LHW     EQU     MT+34
000463 A   303 RHW     EQU     MT+35
000421 A   304 ONE     EQU     MT+1
000422 A   305 TWO     EQU     MT+2
000464 A   306 THREE   EQU     MT+36
000423 A   307 FOUR    EQU     MT+3
000465 A   308 FIVE    EQU     MT+37
000466 A   309 SIX     EQU     MT+38
000467 A   310 SEVEN   EQU     MT+39
000424 A   311 EIGHT   EQU     MT+4
000470 A   312 NINE    EQU     MT+40
000471 A   313 TEN     EQU     MT+41
000421 A   314 BM1     EQU     MT+1
000464 A   315 BM3     EQU     MT+36
000467 A   316 BM7     EQU     MT+39
000472 A   317 BM17    EQU     MT+42
000473 A   318 BM37    EQU     MT+43
000474 A   319 BM77    EQU     MT+44
000475 A   320 BM177   EQU     MT+45
000463 A   321 BM377   EQU     MT+35
000476 A   322 BM777   EQU     MT+46
000477 A   323 BM1777  EQU     MT+47
           324         SUBC
           325 ********************************************************************************
           326 *
           327 ****     BIT TEST BIT DESIGNATION                                        ***
           328 *
           329 ********************************************************************************
000040 A   331 BA0     EQU     040             BT JUMPS WHEN A REGISTER IS 0
000000 A   332 BA1     EQU     000             BT JUMPS WHEN A REGISTER IS 1
000060 A   333 BB0     EQU     060             BT JUMPS WHEN B REGISTER IS 0
000020 A   334 BB1     EQU     020             BT JUMPS WHEN B REGISTER IS 1
           336 ********************************************************************************
           337 *
           338 **       THE BIT CHECKED
           339 *
           340 ********************************************************************************
000000 A   342 B0      EQU     0
000001 A   343 B1      EQU     1
000002 A   344 B2      EQU     2
000003 A   345 B3      EQU     3
000004 A   346 B4      EQU     4
000005 A   347 B5      EQU     5
000006 A   348 B6      EQU     6
000007 A   349 B7      EQU     7
000010 A   350 B8      EQU     8
000011 A   351 B9      EQU     9
000012 A   352 B10     EQU     10
000013 A   353 B11     EQU     11
000014 A   354 B12     EQU     12
000015 A   355 B13     EQU     13
000016 A   356 B14     EQU     14
000017 A   357 B15     EQU     15
           358         SUBC
           359 ********************************************************************************
           360 *
           361 ****     DEVICE AND FUNCTION CODES                                       ***
           362 *
           363 ********************************************************************************
           365 ****     REAL TIME CLOCK                                                 ***
000047 A   366 CLOCK   EQU     047             DEVICE NUMBER 047
           367 *
000747 A   368 DISCLK  EQU     0700+CLOCK      DISABLE CLOCK
000147 A   369 ENACLK  EQU     0100+CLOCK      ENABLE CLOCK
           370         IFF     VORTEX-2                                                VX
           371 *
           372         IFF     VORTEX-2                                                VX
           373 ****    MEMORY MAP DEVICE ADDRESS                                       VX
           374         IFF     VORTEX-2                                                VX
           375 MPDVAD  EQU     046             RAM ADDRESS                             VX
           377 *
           378 ****     PIM                                                            ***
000044 A   379 APIM    EQU     044             ALL PIMS DEVICE NUMBER
000040 A   380 PIM1    EQU     040
000041 A   381 PIM2    EQU     041
000042 A   382 PIM3    EQU     042
000043 A   383 PIM4    EQU     043
000040 A   384 PIM5    EQU     040
000040 A   385 PIM6    EQU     040
000040 A   386 PIM7    EQU     040
000040 A   387 PIM8    EQU     040
           388 *
000444 A   389 DISPIM  EQU     0400+APIM
000244 A   390 ENAPIM  EQU     0200+APIM
           392 ****       MEMORY PROTECT                                              ***
000045 A   393 MP      EQU     045             DEVICE ADDRESS 045
000745 A   394 DISMP   EQU     0700+MP         DISABLE MEMORY PROTECT

                                0173777
                                0167777
                                0157777
                                0137777
                                0077777
SET ALL BITS
LEFT HALF WORD MASK 0177400
RIGHT HALF WORD MASK   0377
CONTAINS NUMBER  1
CONTAINS NUMBER  2
CONTAINS NUMBER  3
CONTAINS NUMBER  4
CONTAINS NUMBER  5
CONTAINS NUMBER  6
CONTAINS NUMBER  7
CONTAINS NUMBER  8
CONTAINS NUMBER  9
CONTAINS NUMBER 10
BIT MASK WORD 00001
BIT MASK WORD  00003
BIT MASK WORD  00007
BIT MASK WORD  00017
BIT MASK WORD  00037
BIT MASK WORD  00077
BIT MASK WORD  00177
BIT MASK WORD  00377
BIT MASK WORD  00777
BIT MASK WORD  01777
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000645 A  395 ENAMP   EQU     0600+MP         ENABLE MEMORY PROTECT                    R02 00395
000045 A  396 MPMR0   EQU     0000+MP         SELECT MASK REGISTER 0                   R02 00396
000145 A  397 MPMR1   EQU     0100+MP         SELECT MASK REGISTER 1                   R02 00397
000245 A  398 MPMR2   EQU     0200+MP         SELECT MASK REGISTER 2                   R02 00398
000345 A  399 MPMR3   EQU     0300+MP         SELECT MASK REGISTER 3                   R02 00399
          400         EJEC                                                           R02 00400
          401 *       CONTROLLER TABLE POSITIONS                                     R02 00401
          402 *                                                                      R02 00402
          403 *                                                                      R02 00403
000003 A  406 CTDST   EQU     3               DST ADR                                  R02 00406
000004 A  407 CTRQBK  EQU     4               RPB ADR                                  R02 00407
000005 A  408 CTRTRY  EQU     5               RETRY CONSTANT                           R02 00408
000005 A  409 CTRCNT  EQU     5               RETRY COUNT                              R02 00409
000006 A  410 CTDVAD  EQU     6               DEVICE ADR                               R02 00410
000010 A  411 CTSTAT  EQU     8               DRIVER STATUS                            R02 00411
000011 A  412 CTBICB  EQU     9               BIC ADR                                  R02 00412
000012 A  413 CTFCB   EQU     10              FCB ADR                                  R02 00413
000013 A  414 CTWDS   EQU     11              WORDS XMITTED                            R02 00414
          415 *       ROTATING MEMORY PORTION                                        R02 00415
000015 A  416 CTSTSZ  EQU     13              WORDS / SECTOR                           R02 00416
000016 A  417 CTTKSZ  EQU     14              SECTORS / TRACK                          R02 00417
000017 A  418 CTPST0  EQU     15              PST BASE ADR FOR UNIT 0 (DRUM/DIST.)     R02 00418
000020 A  419 CTPST1  EQU     16              PST BASE ADR FOR UNIT 1 (DISC ONLY)      R02 00419
000021 A  420 CTPST2  EQU     17              PST BASE ADR FOR UNIT 2 (DISC ONLY)      R02 00420
000022 A  421 CTPST3  EQU     18              PST BASE ADR FOR UNIT 3 (DISC ONLY)      R02 00421
000023 A  422 CTBTT   EQU     CTPST3+1        BAD TK TBL                               R02 00422
000024 A  423 CTOP    EQU     CTPST3+2        OP TO DO                                 R02 00423
000025 A  424 CTMODE  EQU     CTPST3+3        MODE                                     R02 00424
000026 A  425 CTDEOF  EQU     CTPST3+4        'END OF FILE'                            R02 00425
000027 A  426 CTEOFT  EQU     CTPST3+5        TRACK OF EOF                             R02 00426
000030 A  427 CTEOD   EQU     CTPST3+6        END OF DEVICE                            R02 00427
000031 A  428 CTDADR  EQU     CTPST3+7        RMD ADR                                  R02 00428
000032 A  429 CTDTRK  EQU     CTPST3+8        TRK OF DADR                              R02 00429
000033 A  430 CTDSEC  EQU     CTPST3+9        SEC OF DADR                              R02 00430
000034 A  431 CTBFAD  EQU     CTPST3+10       DATA BUFF PSN                            R02 00431
000035 A  432 CTOPWD  EQU     CTPST3+11       OP LENGTH TO DO                          R02 00432
000036 A  433 CTWLFT  EQU     CTPST3+12       WORDS LEFT TO DO                         R02 00433
000037 A  434 CTEMP1  EQU     CTPST3+13       DRIVER TEMP STORAGE                      R02 00434
000040 A  435 CTEMP2  EQU     CTPST3+14       DRIVER TEMP STORAGE                      R02 00435
000041 A  436 CTRTN1  EQU     CTPST3+15       SUBROUTINE RTN ADR                       R02 00436
000042 A  437 CTRTN2  EQU     CTPST3+16       SUBROUTINE RTN ADR                       R02 00437
000043 A  438 CTRTN3  EQU     CTPST3+17       SUBROUTINE RTN ADR                       R02 00438
000044 A  439 CTRTN4  EQU     CTPST3+18       SUBROUTINE RTN ADR                       R02 00439
000045 A  440 CTPEXT  EQU     CTPST3+19       CURRENT PST TRACK NO.                    R02 00440
000046 A  441 CTBDTK  EQU     CTPST3+20                                                R02 00441
000047 A  442 CTRTN   EQU     CTPST3+21       SAVE RETURN ADDR.                        02 00442
000050 A  443 CTIST   EQU     CTPST3+22       DISC INPUT STATUS                        R02 00443
000051 A  444 CTCONV  EQU     CTPST3+23       NO.OF PHYSICAL RECORDS IN LOGICAL RECORD R02 00444
000052 A  445 CTUCBF  EQU     CTPST3+24       START OF OPEN/CLOSE BUFFER               R02 00445
000242 A  446 CTHEAD  EQU     CTPST3+25+119   HEAD NO.                                02 00446
000243 A  447 CTUNIT  EQU     CTHEAD+1        DISC UNIT NUMBER,BITS 14-13              02 00447
000244 A  448 CTSUW   EQU     CTHEAD+2        OUTPUT SET-UP WORD                       02 00448
          449 *                               BITS14-13 = UNIT NO.                   02 00449
          450 *                               BITS 12-08 = HEAD NO.                  02 00450
          451 *                               BITS 07-00 = RECORD NO.,CYC DIF        02 00451
000245 A  452 CTCYLN  EQU     CTHEAD+3        CYCLINDER NUMBER                         02 00452
000246 A  453 CTWORD  EQU     CTHEAD+4        WORD COUNT IN TRACK                      02 00453
000247 A  454 CTCCYL  EQU     CTHEAD+5        CURRENT CYL ADDR. FROM DCU               02 00454
          455         IFF     VORTEX-2                                         V2      02 00455
          456 CTFCB0  EQU     CTHEAD+6        START OF FCB SAVE AREA           V2      02 00456
          457         EJEC                                                           R02 00457
          459 *       CONTROLLER TIDB POSITIONS                                      R02 00459
          460 *                                                                      R02 00460
000001 A  462 TBST    EQU     1               TASK STATUS                              R02 00462
000003 A  463 TBEVNT  EQU     3               INTERRUPT EVENT                          R02 00463
000010 A  464 TBRSTS  EQU     8               CTRL ADR                                 R02 00464
          467 *       PST POSITIONS                                                  R02 00467
          468 *                                                                      R02 00468
000000 A  470 PSBOD   EQU     0               BEGIN OF PTN                             R02 00470
000001 A  471 PSKEY   EQU     1               PROTECT KEY WORD                         R02 00471
000002 A  472 PSBDTK  EQU     2               NO. OF BAD TRACKS IN PARTITION           R02 00472
000003 A  473 PSEOD   EQU     3               END OF PTN                               R02 00473
          474         EJEC                                                           R02 00474
          477 *       DST POSITIONS                                                  R02 00477
          478 *                                                                      R02 00478
000002 A  480 DSPSTI  EQU     2                                                        R02 00480
000002 A  481 DSUNTN  EQU     2                                                        R02 00481
          482         EJEC                                                           R02 00482
          483 *                                                                      R02 00483
          484 *       FILE CONTROL BLOCK POSITIONS                                   R02 00484
          485 *                                                                      R02 00485
          486 *                                                                      R02 00486
000000 A  487 FCRECL  EQU     0               RECORD LENGTH                            R02 00487
000001 A  488 FCBUFF  EQU     1               BUFF ADR                                 R02 00488
000002 A  489 FCACM   EQU     2               ACCESS METHOD                            R02 00489
000003 A  490 FCCADR  EQU     3               CURR ADR                                 R02 00490
000004 A  491 FCCEOF  EQU     4               CURR EOF                                 R02 00491
000005 A  492 FCIFE   EQU     5               INIT FILE EXTENT                         R02 00492
000006 A  493 FCCFE   EQU     6               ENT FILE EXTENT                          R02 00493
000007 A  494 FCNAM1  EQU     7               FILE NAME                                R02 00494
000010 A  495 FCNAM2  EQU     8               "                                        R02 00495
000011 A  496 FCNAM3  EQU     9               "                                        R02 00496
          500 *       REQUEST BLOCK POSITIONS                                        R02 00500
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                      501 *                                                                                   R02 00501
       000000 A       503 RPSTPR EQU     0             REQUEST STATUS                                         R02 00503
       000001 A       504 RPOPWD EQU     1             MODE / OP-CODE                                         R02 00504
                      505            IFF     VORTEX-2                                                   V2   02 00505
                      506 RFCB   EQU     2             FCB OR DCB ADDRESS                               V2   02 00506
                      507            IFF     VORTEX-2                                                   V2   02 00507
                      508 RTIDB  EQU     3             REQUESTER'S TIDB ADDRESS                         V2   02 00508
                      509            EJEC                                                                     R02 00509
       000001 A       510 X      EQU     1                                                                    R02 00510
       000002 A       511 B      EQU     2                                                                    R02 00511
       000001 A       512 A      EQU     1                                                                    R02 00512
                      513 ************************************************************************************R02 00513
                      514 *                                                                                   R02 00514
                      515 *                                                                                   R02 00515
                      516 ************************************************************************************R02 00516
                      517 *                      *                                             *             R02 00517
                      518 *                      ****      DRIVER INITIALIZE PROCESSOR      ****             R02 00518
                      519 *                      *                                             *             R02 00519
                      520 *                      ***********************************************             R02 00520
                      521            EXT     V$BIC                                                            R02 00521
000000 030300 A       524 VZDD   LDX     V$CTL         ADDR. OF CURRENT TIDB                                  R02 00524
                      525            NAME    VZDD                                                             R02 00525
000001 035010 A       526            LDX     TBRSTS,X      CTRL ADR                                           R02 00526
                      527            IFT     VORTEX-2                                                   V2   02 00527
                      528            GOTO    ENDC02                                                     V2   02 00528
                      529            JSR     GETKEY,B      GET REQUESTER'S MAP KEY                          V2   02 00529
                      530            JSR     XFRFCB,B      XFER FCB TO CTBL STORAGE AREA                    V2   02 00530
                      531 ENDC02 CONT                                                                   V2   02 00531
000002 025003 A       533            LDB     CTDST,X       DST ADR                                            R02 00533
000003 016002 A       534            LDA     DSUNTN,B      GET UNIT NUMBER AND                                R02 00534
000004 006150 A       535            ANAI    060000                                                           R02 00535
000005 060000 A
000006 055243 A       536            STA     CTUNIT,X      SET UP UNIT NUMBER                                 R02 00536
000007 004355 A       537            LSRA    13                                                               R02 00537
000010 006120 A       538            ADDI    015017        ADD ''LDA CTPST,X '' COMMAND                       R02 00538
000011 015017 A
000012 100444 A       539            EXC     DISPIM                                                           R02 00539
000013 100747 A       540            EXC     DISCLK                                                           R02 00540
000014 054004 A       541            STA     VZDC1         STORE CONSTRUCTED COMMAND                          R02 00541
000015 016002 A       542            LDA     DSPSTI,B                                                         R02 00542
000016 004553 A       543            LLSR    11                                                               R02 00543
000017 004153 A       544            LSRB    11                                                               R02 00544
000020 005322 A       545            DBR                                                                      R02 00545
000021 015017 A       546 VZDC1  LDA     CTPST0,X      PST BASE ADDR.                                     R02 00546
000022 100244 A       547            EXC     ENAPIM                                                           R02 00547
000023 100147 A       548            EXC     ENACLK                                                           R02 00548
000024 055023 A       549            STA     CTBTT,X       TEMP STORE PST BASE ADDR.                          R02 00549
000025 005111 A       550            TAR                                                                      R02 00550
000026 160464 A       551            MUL     THREE         B= PST ADDR.                                       R02 00551
000027 016000 A       553            LDA     PSBOD,B                                                          R02 00553
000030 055037 A       554            STA     CTEMP1,X      SAVE BEGIN OF LUN                                  R02 00554
000031 055045 A       555            STA     CTPEXT,X      SAVE PST TRACK ADDR.                               R02 00555
000032 016003 A       556            LDA     PSEOD,B                                                          R02 00556
000033 055030 A       557            STA     CTEOD,X       END ADR OF LUN                                     R02 00557
000034 016002 A       559            LDA     PSBDTK,B      STORE NO. OF BAD TRACKS IN PARTITION               R02 00559
000035 055046 A       560            STA     CTBDTK,X                                                         R02 00560
000036 025023 A       561            LDB     CTBTT,X       GET PST BASE ADDR.                                 R02 00561
000037 016000 A       562            LDA     0,B           STORE BAD TRK TABLE ADDR.                          R02 00562
000040 055023 A       563            STA     CTBTT,X                                                          R02 00563
000041 015037 A       564 DC1A   LDA     CTEMP1,X      TEST IF GOOD TRACK                                 R02 00564
000042 006506 A       565            JSR     DLTSTS,B                                                         R02 00565
000043 001707 R
000044 001002 A       566            JAP     DC2A          YES                                                R02 00566
000045 000052 R
000046 045037 A       567            INR     CTEMP1,X      NO. UPDATE TRACK COUNT                             R02 00567
000047 045045 A       568            INR     CTPEXT,X                                                         R02 00568
000050 001000 A       569            JMP     DC1A                                                             R02 00569
000051 000041 R
       000052 R       570 DC2A   LOU     *                                                                    R02 00570
000052 005101 A       571            INCR    1             A=1                                                R02 00571
000053 055051 A       572            STA     CTCDNV,X      CTCDNV=1 FOR ACCESS BY 120 WD RECORD               R02 00572
000054 025012 A       573            LDB     CTFCB,X                                                          R02 00573
000055 016002 A       574            LDA     FCACM,B                                                          R02 00574
000056 006411 A       575            BT      RA1+9,DC02    JMP IF PHYSICAL 120 WD RECORD                      R02 00575
000057 000067 R
000060 005001 A       576            TZA                                                                      R02 00576
000061 026000 A       577            LDA     FCRECL,B                                                         R02 00577
000062 175015 A       578            DIV     CTSTSZ,X                                                         R02 00578
000063 001010 A       579            JAZ     DC02-1                                                           R02 00579
000064 000066 R
000065 005122 A       580            IBR                                                                      R02 00580
000066 065051 A       581            STB     CTCDNV,X      NO. OF PHYSICAL RECORDS IN 1 LOGICAL REC.          R02 00581
       000067 R       582 DC02   EQU     *                                                                    R02 00582
000067 005001 A       583            TZA                                                                      R02 00583
000070 055013 A       584            STA     CTWDS,X       RESET NUMBER WORDS XMITTED                         R02 00584
000071 055246 A       585            STA     CTWORD,X                                                         R02 00585
000072 025004 A       587            LDB     CTRQBK,X      RPB ADR                                            R02 00587
000073 016000 A       588            LDA     RPSTPR,B                                                         R02 00588
000074 150473 A       589            ANA     BM37                                                             R02 00589
000075 056000 A       590            STA     RPSTPR,B      ZERO TASK STATUS                                   R02 00590
000076 016001 A       592            LDA     RPOPWD,B      FETCH OP-CODE                                      R02 00592
                      593            IFT     VORTEX-2                                                   V2   02 00593
                      594            GOTO    ENDC03                                                     V2   02 00594
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                    595           ANAI    0177760                                                    V2  02 00595
                    596           ADD     CTMODE,X    ADD IN MAP KEY VALUE                           V2  02 00596
                    597 ENDC03    CONT                                                               V2  02 00597
000077 055025 A     598           STA     CTMODE,X    SAVE MODE                                          R02 00598
000100 004244 A     599           LRLA    4                                                              R02 00599
000101 005002 A     600           TZB                                                                    R02 00600
000102 004444 A     601           LLRL    4           OP-CODE IN B                                       R02 00601
000103 006026 A     602           LDBE    D1OTBL,B                                                       R02 00602
000104 000111 R
000105 001020 A     603           JBZ     V$FNR                                                          R02 00603
000106 000000 E
000107 006706 A     604           IJMP    0,B         BRANCH ON OP-CODE                                  R02 00604
000110 000000 A
000111 000230 R     607 D1OTBL    DATA    D1READ      OP CODE = READ RECORD                              R02 00607
000112 000222 R     608           DATA    D1WRIT            1 = WRITE RECORD                         R02 00608
000113 000000 A     609           DATA    0                     (WEOF)                               R02 00609
000114 001740 R     610           DATA    D1REW             3 = REWIND UNIT                          R02 00610
000115 001516 R     611           DATA    D1SREC            4 = SKIP RECORD                          R02 00611
000116 000000 A     612           DATA    0                     (FUNC)                               R02 00612
000117 001112 R     613           DATA    D1OPEN            6 = OPEN FILE                            R02 00613
000120 001105 R     614           DATA    D1CLSE            7 = CLOSE FILE                           R02 00614
000121 005122 A     616 D1IBR     IBR                                                                R02 00616
                    617           EJEC    ****        DRIVER EXIT ROUTINES    ****                   R02 00617
000122 006010 A     620 D1EXT1    LDAI    0300        STATUS = BEGIN OF DEVICE                       R02 00620
000123 000300 A
000124 001000 A     621           JMP     *+3                                                        R02 00621
000125 000127 R
000126 014246 A     623 D1EXT2    LDA     D1RWB6+1    END-OF-FILE STATUS                                 R02 00623
000127 025004 A     624           LDB     CTRQBK,X    RPB ADR                                            R02 00624
000130 116000 A     625           ORA     RPSTPR,B    SET REQUEST STATUS                                 R02 00625
000131 056000 A     626           STA     RPSTPR,B                                                       R02 00626
                    627           IFF     VORTEX-2                                               V2  02 00627
                    628           JMP     RSTFNR      RESTORE FCB AND EXIT TO V$FNR              V2  02 00628
                    629           IFT     VORTEX-2                                               V2  02 00629
000132 001000 A     631           JMP     V$FNR       EXIT TO FIND NEXT REQUEST                      R02 00631
000133 000106 E
                    632           EJEC    ****        ERROR PROCESSING ROUTINES    ****              R02 00632
                    634 *     CONTROLLER BUSY, DISC UNIT NOT READY, OR FILE PROTECTED                  02 00634
000134 006020 A     635 D1SKER    LDBI    0240                                                           R02 00635
000135 000240 A
000136 005001 A     636           ZERO    A                                                              R02 00636
000137 001000 A     637           JMP     D1ERRX      ERROR                                              R02 00637
000140 000152 R
000141 015005 A     639 D1DCER    LDA     CTRCNT,X    OPEN/CLOSE ERROR RETRY                             R02 00639
000142 005311 A     640           DAR                 DECREMENT RETRY COUNT                              R02 00640
000143 055005 A     641           STA     CTRCNT,X                                                       R02 00641
000144 150463 A     642           ANA     RHW                                                            R02 00642
000145 001016 A     643           JANZ    D1DCI3      TRY AGAIN, NOT DONE                                02 00643
000146 001152 R
000147 006020 A     645 D1FERR    LDBI    012240      FATAL ERROR                                        R02 00645
000150 012240 A
000151 005301 A     646 D1FER1    DECR    A                                                              R02 00646
000152 055037 A     648 D1ERRX    STA     CTEMP1,X    SAVE A REG                                         R02 00648
000153 005021 A     649           TBA                 SET STATUS                                         R02 00649
000154 025004 A     650           LDB     CTRQBK,X                                                       R02 00650
000155 116000 A     651           ORA     RPSTPR,B                                                       R02 00651
000156 056000 A     652           STA     RPSTPR,B    RESTORE IT                                         R02 00652
000157 015037 A     654           LDA     CTEMP1,X    SET A REG                                          R02 00654
                    655           IFF     VORTEX-2                                               V2  02 00655
                    656           JMP     RSTERR      RESTORE FCB AND EXIT TO V$ERR              V2  02 00656
                    657           IFT     VORTEX-2                                               V2  02 00657
000160 001000 A     658           JMP     V$ERR       EXIT TO ERROR ROUTINE                          R02 00658
000161 000000 E
000162 006020 A     660 D1PERR    LDBI    011240      PARAMETER ERROR                                    R02 00660
000163 011240 A
000164 001000 A     661           JMP     D1FER1      TAKE ERROR EXIT                                    R02 00661
000165 000151 R
000166 006020 A     663 D1AERR    LDBI    003240      ACCESS ERROR                                       R02 00663
000167 003240 A
000170 001000 A     664           JMP     D1FER1                                                         R02 00664
000171 000151 R
000172 006015 A     666 D1BERR    LDAE*   CTDICB,X    BIC ERROR                                          R02 00666
000173 100011 A
000174 150467 A     667           ANA     SEVEN                                                          R02 00667
000175 004250 A     668           LRLA    8           BIC NUMBER / 8                                     R02 00668
000176 006110 A     669           ORAI    020240                                                         R02 00669
000177 020240 A
000200 005012 A     670           TAB                                                                    R02 00670
000201 100244 A     672 D1IERR    EXC     ENAPIM                                                         R02 00672
000202 100147 A     673           EXC     ENACLK      ENABLE INTERRUPTS                                  R02 00673
000203 015010 A     675           LDA     CTSTAT,X                                                       R02 00675
000204 140422 A     676           SUB     TWO         TEST DRIVER STATE                                  R02 00676
000205 001002 A     677           JAP     D1DCER      D/C DOES OWN RETRY                                 R02 00677
000206 000141 R
000207 065037 A     678           STB     CTEMP1,X                                                       R02 00678
000210 015005 A     679           LDA     CTRCNT,X                                                       R02 00679
000211 150463 A     680           ANA     RHW                                                            R02 00680
000212 001016 A     681           JANZ    D1IER1      RETRY NOT DONE                                     R02 00681
000213 000216 R
000214 006506 A     683           JSR     D1CMPS,B    SET CURR ADR BY ACCESS METHOD                      R02 00683
000215 001053 R
000216 025037 A     685 D1IER1    LDB     CTEMP1,X                                                       R02 00685
000217 005101 A     686           INCR    A                                                              R02 00686
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000220 001000 A   687          JMP     D1ERRX          TAKE ERROR EXIT                                  R02 00687
000221 000152 R
                  688          EJEC    ****            READ/WRITE PROCESSOR     ****                    R02 00688
                  689 *                                                                                 R02 00689
                  690 *        INITIATE OPERATION                                                       R02 00690
000222 025012 A   693 D1WRIT   LDB     CTFCB,X         WRITE RECORD COMMAND                             R02 00693
000223 016006 A   694          LDA     FCEFE,B                                                          R02 00694
000224 055026 A   695          STA     CTDEOF,X        SET EOF TO END OF EXTENT                         R02 00695
000225 010440 A   696          LDA     BS15            LOAD WRITE OP INST                                 02 00696
000226 001000 A   697          JMP     D1RWI1                                                           R02 00697
000227 000234 R
000230 025012 A   698 D1READ   LDB     CTFCB,X         READ RECORD COMMAND                              R02 00698
000231 016004 A   699          LDA     FCCEOF,B                                                         R02 00699
000232 055026 A   700          STA     CTDEOF,X        SET EOF TO CURR EOF                              R02 00700
000233 005001 A   701          TZA                     LOAD READ OP INST.                                 02 00701
000234 055024 A   703 D1RWI1   STA     CTOP,X          SAVE MACHINE OP                                  R02 00703
000235 016002 A   704          LDA     FCACM,B                                                          R02 00704
000236 006411 A   705          BT      RA1+9,D1RW1                                                      R02 00705
000237 000251 R
000240 015026 A   706          LDA     CTDEOF,X                                                         R02 00706
000241 146005 A   707          SUB     FCIFE,B                                                          R02 00707
000242 005012 A   708          TAB                                                                      R02 00708
000243 005001 A   709          TZA                                                                      R02 00709
000244 165051 A   710          MUL     CTCONV,X        CONVERT TO PHYSICAL RECORD                       R02 00710
000245 005021 A   711          TBA                                                                      R02 00711
000246 025012 A   712          LDB     CTFCB,X                                                          R02 00712
000247 126005 A   713          ADD     FCIFE,B                                                          R02 00713
000250 055026 A   714          STA     CTDEOF,X                                                         R02 00714
                  000251 R     715 D1RW1  EQU  *                                                       R02 00715
000251 005001 A   717          TZA                                                                        02 00717
000252 025026 A   718          LDB     CTDEOF,X        ADJUST EOF FOR BAD TRKS                            02 00718
000253 005322 A   719          DBR                                                                        02 00719
000254 175016 A   720          DIV     CTTKSZ,X                                                           02 00720
000255 003016 A   721          XANZ    D1IBR                                                              02 00721
000256 000121 R
000257 005021 A   722          TBA                                                                        02 00722
000260 125045 A   723          ADD     CTPEXT,X        A= END TRK NO.                                     02 00723
000261 005311 A   724          DAR                                                                        02 00724
000262 055027 A   725          STA     CTEOFT,X        SAVE TRK NO.                                       02 00725
000263 025045 A   726          LDB     CTPEXT,X        B= START TRK NO.                                   02 00726
000264 100747 A   727          EXC     DISCLK                                                             02 00727
000265 100444 A   728          EXC     DISPIM                                                             02 00728
000266 002000 A   729          CALL    DBADTK                                                             02 00729
000267 001777 R
000270 005012 A   730          TAB                     A= NO. OF BAD TRKS,NOW                             02 00730
000271 125027 A   731          ADD     CTEOFT,X        UPDATE FOR BAD TRK                                 02 00731
000272 055027 A   732          STA     CTEOFT,X        EOF TRK NO.                                        02 00732
000273 145030 A   733          SUB     CTEOD,X         CHECK IF EXCEED PARTITION                          02 00733
000274 001004 A   734          JAM     D1RW2           OK                                                 02 00734
000275 000301 R
000276 025030 A   735          LDB     CTEOD,X         SET TO PARTITION                                   02 00735
000277 005322 A   736          DBR                                                                        02 00736
000300 065027 A   737          STB     CTEOFT,X                                                           02 00737
                  000301 R     738 D1RW2  EQU  *                                                          02 00738
000301 015026 A   739          LDA     CTDEOF,X          CONVERT TO RECORDS.                              02 00739
000302 165016 A   740          MUL     CTTKSZ,X                                                           02 00740
000303 065026 A   741          STB     CTDEOF,X        UPDATED EOF                                        02 00741
                  000304 R     742 D1RW7  EQU  *                                                       R02 00742
000304 006506 A   743          JSR     D1SRCS,B        VALIDATE ADRS, SKIP TO CURRENT RECORD           R02 00743
000305 001556 R
000306 025012 A   746 D1RWI3   LDB     CTFCB,X                                                            02 00746
000307 016000 A   747          LDA     FCRECL,B                                                           02 00747
000310 055036 A   748          STA     CTWLFT,X        SAVE OP LENGTH                                     02 00748
000311 016001 A   750          LDA     FCBUFF,B                                                           02 00750
000312 055034 A   751          STA     CTBFAD,X        SAVE USER DATA BUFF ADR                            02 00751
                  000313 R     752 D1RWI4 EQU  *                                                          02 00752
000313 006506 A   753          JSR     DSEEK,B                                                            02 00753
000314 002170 R
                  754 *    NOW CALCULATE R/W LENGTH WHILE WAITING FOR SEEK COMPLETE.                     02 00754
                  755          EJEC    ****            CALCULATE R/W OPERATION LENGTH     ****            02 00755
000315 005001 A   758 D1RWBG   TZA                                                                       R02 00758
000316 025036 A   759          LDB     CTWLFT,X                                                           02 00759
000317 175015 A   760          DIV     CTSTSZ,X        CONVERT WORDS LEFT                                 02 00760
000320 003016 A   761          XANZ    D1IDS                                                              02 00761
000321 000121 R
000322 005321 A   762          DECR    J21             OP LENGTH -1 IN SECTORS                              02 00762
000323 125033 A   763          ADD     CTDSEC,X                                                           02 00763
000324 055037 A   764          STA     CTEMP1,X        ADD TO CURR SECTOR                               R02 00764
000325 015032 A   765          LDA     CTDTRK,X                                                         R02 00765
000326 055040 A   766          STA     CTEMP2,X        SAVE NEXT TRACK                                    02 00766
000327 015037 A   768 D1RWB1   LDA     CTEMP1,X        TEST SECTOR COUNT                                  02 00768
000330 145016 A   769          SUB     CTTKSZ,X                                                           02 00769
000331 001004 A   770          JAP     D1RWB2          IF LESS THAN 1 TRACK                               02 00770
000332 000354 R
000333 025012 A   771          LDB     CTFCB,X         SKIP IF ACCESS BY LOGICAL RECORD                 R02 00771
000334 016002 A   772          LDA     FCACM,B                                                          R02 00772
000335 006451 A   773          BT      RA1+9,D1RWBA                                                     R02 00773
000336 000343 R
000337 015040 A   774          LDA     CTEMP2,X                                                           02 00774
000340 145027 A   775          SUB     CTEOFT,X        CHECK FOR EOF IN TRACK.                            02 00775
000341 001002 A   776          JAP     D1RWB2          YES.                                               02 00776
000342 000374 R
                  000343 R     777 D1RWBA EQU  *                                                          02 00777
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000343 015040 A  778          LDA     CTEMP2,X    NO                                          R02 00778
000344 055031 A  779          STA     CTDADR,X    STORE LAST TRACK ACCESSED                   R02 00779
000345 015016 A  780          LDA     CTTKSZ,X    TRACK SIZE, 24 SECTORS                       02 00780
000346 145033 A  781          SUB     CTDSEC,X    CURRENT SECTOR, 0-23                         02 00781
000347 005012 A  782          TAB                 NO.OF SECTORS TO XFR                        R02 00782
000350 005001 A  783          TZA                                                             R02 00783
000351 165015 A  784          MUL     CTSTSZ,X    NOW NO. OF WORDS TO XFR IN THIS TRACK.      R02 00784
000352 001000 A  785          JMP     D1RWB5                                                  R02 00785
000353 000414 R
       000354 R  786 D1RWB2   EQU     *           LESS THAN 1 TRACK LEFT TO DO                R02 00786
000354 025012 A  787          LDB     CTFCB,X                                                 R02 00787
000355 016002 A  788          LDA     FCACM,B     SKIP IF ACCESS BY LOGICAL RECORD            R02 00788
000356 006451 A  789          BT      RA0+9,D1RWB8                                            R02 00789
000357 000371 R
000360 015040 A  790          LDA     CTEMP2,X                                                R02 00790
000361 145045 A  791          SUB     CTPEXT,X    NOW RELATIVE TRK NO. WITHIN PARTITION       R02 00791
000362 005012 A  792          TAB                                 IN PARTITION                R02 00792
000363 015037 A  793          LDA     CTEMP1,X                                                R02 00793
000364 165016 A  794          MUL     CTTKSZ,X                                                R02 00794
000365 005021 A  795          TBA                                                              02 00795
000366 145026 A  796          SUB     CTDEOF,X    TEST NEXT ADR                               R02 00796
000367 001002 A  797          JAP     D1RWB3      JUMP IF NOT IN FILE                         R02 00797
000370 000374 R
       000371 R  799 D1RWB8   EQU     *                                                       R02 00799
000371 025036 A  800          LDB     CTWLFT,X    CAN FINISH OP THIS TIME                     R02 00800
000372 001000 A  801          JMP     D1RWB4                                                  R02 00801
000373 000412 R
       000374 R  803 D1RWB3   EQU     *                                                        02 00803
000374 006010 A  804 D1RWB6   LDAI    000300                                                  R02 00804
000375 000300 A
000376 025004 A  805          LDB     CTROBK,X    SET EOF STATUS                               02 00805
000377 116000 A  806          ORA     RPSTPR,B                                                R02 00806
000400 056000 A  807          STA     RPSTPR,B                                                R02 00807
000401 005001 A  808 D1RWB7   TZA                                                              02 00808
000402 025026 A  809          LDB     CTDEOF,X    DETERMINE MAX. NUMBER                        02 00809
000403 175016 A  810          DIV     CTTKSZ,X     OF SECTORS IN TRK                           02 00810
000404 145033 A  811          SUB     CTDSEC,X                                                02 00811
000405 001010 A  812          JAZ     D1RB20      ALL DONE                                    02 00812
000406 000435 R
000407 005012 A  813          TAB                                                             R02 00813
000410 005001 A  814          TZA                 CONVERT TO WORDS                            R02 00814
000411 165015 A  815          MUL     CTSTSZ,X                                                R02 00815
000412 005101 A  817 D1RWB4   INCR    A           DRIVER STATUS TO COMPLETE                   R02 00817
000413 055010 A  818          STA     CTSTAT,X                                                R02 00818
000414 065035 A  820 D1RWB5   STB     CTOPWD,X    SAVE OP LENGTH IN WORDS                     R02 00820
000415 065246 A  821          STB     CTWORD,X    USED IN D1RGOP TO DETERMINE NUMBER           02 00821
                 822 *                             OF RECORDS OF TRANSFER PER TRACK            02 00822
       000416 R  823 D1RWB9   EQU     *                                                       R02 00823
000416 020300 A  824          LDB     V$CTL       CONTROLLER TIDB                             R02 00824
000417 016003 A  825          LDA     TBEVNT,B                                                 02 00825
000420 001016 A  826          JANZ    D1RB30      IF ALREADY 1, BY-PASS SEEK DELAY             02 00826
000421 000463 R
000422 005041 A  827          TXA                 SAVE  X REGISTER.                           R02 00827
                 828          DELAY   100,0,2     DELAY FOR SEEK COMPLETE, 500 MILISEC.        02 00828
000423 006505 A
000424 000406 A
000425 001102 A
000426 000144 A
000427 000000 A
000430 005014 A  829          TAX                 RESTORE X=CTBL                              R02 00829
000431 016001 A  830          LDA     TBST,B                                                  R02 00830
000432 006150 A  831          ANAI    0177667     RESET TIMER                                 R02 00831
000433 177667 A
000434 056001 A  832          STA     TBST,B                                                  R02 00832
000435 016003 A  833          LDA     TBEVNT,B                                                R02 00833
000436 001016 A  834          JANZ    D1RB30                                                 E.2*********
000437 000463 R
000440 006506 A  835          JSR     DRECAL,B    RECALIBRATE                                E.2*********
000441 002165 R
000442 005041 A  836 D1RW10   TXA                                                             02 00838
                 837          DELAY   100,0,2     DELAY 500 MSEC FOR RECALIBRATE               02 00839
000443 006505 A
000444 000406 A
000445 001102 A
000446 000144 A
000447 000000 A
000450 005014 A  838          TAX                                                             02 00840
000451 006020 A  839          LDBI    014240      TIMED OUT.NO SEEK COMPLETE.                 R02 00841
000452 014240 A
000453 001000 A  840          JMP     D1TERR                                                  R02 00842
000454 000201 R
000455 020300 A  841 D1RB20   LDB     V$CTL                                                    02 00843
000456 016001 A  842          LDA     TBST,B      CLEAR TIME DELAY FLAG                        02 00844
000457 150444 A  843          ANA     RR3          TO IGNORE SEEK COMPLETE.                    02 00845
000460 056001 A  844          STA     TBST,B                                                   02 00846
000461 001000 A  845          JMP     D1COMP+3                                                 02 00847
000462 001047 R
       000463 R  846 D1RB30   EQU     *           SEEK COMPLETE,CHECK STATUS                   02 00848
000463 006506 A  847          JSR     DINST,B                                                  02 00849
000464 001373 R
000465 006150 A  848          ANAI    06677       CHECK FOR MALFUNCTION                        02 00850
000466 006677 A
000467 001016 A  849          JANZ    D1RB31      JUMP ON BAD STATUS FROM SEEK                E.2*********
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000470 000477 R
000471 006506 A   850          JSR     DRCA,B      READ CURRENT ADDRESS                    E.2********
000472 002076 R
000473 015245 A   851          LDA     CTCYLN,X    CALCULATED CYLINDER NUMBER              E.2********
000474 145052 A   852          SUB     CTOCBF,X    SUBTRACT ACTUAL CYLINDER NUMBER         E.2********
000475 001010 A   853          JAZ     D1BGOP      0, ON CYLINDER                          E.2********
000476 000514 R
000477 006506 A   854 D1RB31   JSR     DRECAL,B    RECALIBRATE                             E.2********
000500 002166 R
000501 005041 A   855          TXA                 SAVE X                                  E.2********
                  856          DELAY   100,0,2     DELAY 500 MS FOR RECALIBRATE            E.2********
000502 006505 A
000503 000406 A
000504 001102 A
000505 000144 A
000506 000000 A
000507 005011 A   857          TAX                                                         E.2********
000510 006020 A   858          LDBI    015240      YES. DC15 MSG.                            R02 00852
000511 015240 A
000512 001000 A   859          JMP     D1FER1      ERROR EXIT.                               R02 00853
000513 000151 R
                  860          EJEC    ****        BEGIN I/O DISC OPERATION                  R02 00854
                  861 *                                                                      R02 00855
      000514 R    863 D1BGOP   EQU     *                                                     R02 00856
000514 006020 A   864          LDBI    3000        APPROX. 25 MSEC                           R02 00858
000515 005670 A
000516 006017 A   865          LDAE    DSEN4       =101400                                   R02 00859
000517 002270 R
000520 115006 A   866          ORA     CTDVAD,X    SENSE UNIT NOT READY.                     R02 00860
000521 100444 A   867          EXC     DISPIM                                                R02 00861
000522 100747 A   868          EXC     DISCLK                                                R02 00862
000523 054027 A   869          STA     D1BG02      =1014XX                                   R02 00863
000524 015242 A   870          LDA     CTHEAD,X    GET CURRENT HEAD NO.                      R02 00864
000525 004250 A   871          LRLA    9           POSITION IT FOR SUW                       R02 00865
000526 115243 A   872          ORA     CTUNIT,X    OR IN UNIT NO.                            R02 00866
000527 115033 A   873          ORA     CTDSEC,X    OR IN CURRENT SECTOR NO.                  R02 00867
000530 115024 A   874          ORA     CTOP,X      OR IN READ/WRITE CODE                     R02 00868
000531 055244 A   875          STA     CTSUW,X     SAVE SUW                                  R02 00869
000532 006010 A   876          LDAI    0103400     FORM READ/WRITE EXC COMMAND               R02 00870
000533 103400 A
000534 115006 A   877          ORA     CTDVAD,X    OR IN DEVICE ADDRESS                      R02 00871
000535 054106 A   878          STA     D1RG06      SAVE IT                                   R02 00872
000536 006010 A   879          LDAI    0103100     FORM OUTPUT SUW COMMAND                   R02 00873
000537 103100 A
000540 115006 A   880          ORA     CTDVAD,X    OR IN DEVICE ADDRESS                      R02 00874
000541 054046 A   881          STA     D1BG03      SAVE IT                                   R02 00875
000542 054023 A   882          STA     D1BG04+2                                              R02 00876
000543 054054 A   883          STA     D1BG05+2                                              R02 00877
000544 010440 A   884          LDA     PS10        FORM STOP TRANS. AND INITIALIZE COMMAND   R02 00878
000545 115006 A   885          ORA     CTDVAD,X    OR IN DEVICE ADDRESS                      R02 00879
000546 054015 A   886          STA     D1BG04      SAVE IT                                   R02 00880
000547 054037 A   887          STA     D1BG01                                                R02 00881
000550 054045 A   888          STA     D1BG05                                                R02 00882
000551 054021 A   889          STA     D1BG00                                                R02 00883
000552 054036 A   890          STA     D1BG03+1                                              R02 00884
000553 101400 A   891 D1BG02   SEN     0400,D1BG04 IF NOT BUSY,CONTINUE.                     R02 00885
000554 000564 R
000555 100241 A   892          EXC     ENAPIM      OTHERWISE ALLOW TIME FOR SHORT RECORD     R02 00886
000556 100147 A   893          EXC     ENACLK                                                R02 00887
000557 005322 A   894          DBR                                                           R02 00888
000560 001026 A   895          JBNZ    D1BGOP+2    RETRY.                                    R02 00889
000561 000516 R
000562 001000 A   896          JMP     D1SKER      DONE. REPORT AS ERROR.                    R02 00890
000563 000134 R
000564 100000 A   897 D1BG04   EXC     0           STOP TRANSFER AND INITIALIZE              R02 00891
000565 015244 A   898          LDA     CTSUW,X     GET SUW                                   R02 00892
000566 103100 A   899          OAR     0           OUTPUT SUW                                R02 00893
000567 006010 A   900          LDAI    0102500                                               R02 00894
000570 102500 A
000571 115006 A   901          ORA     CTDVAD,X                                              R02 00895
000572 054001 A   902          STA     *+2         BUILD INPUT STATUS WORD INSTR.            R02 00896
000573 100000 A   903 D1BG00   EXC     0           SELECT THE UNIT                           R02 00897
000574 102500 A   904          CIA     0                                                     R02 00898
000575 025024 A   905          LDB     CTOP,X      GET OPERATION CODE.                       R02 00899
000576 006477 A   906          BT      PB0+15,*+4  READ OP , SKIP NEXT OP                    R02 00900
000577 000602 R
000600 006411 A   907          BT      PA1+9,*+4   FILE PROTECTED DURING WRITE OP, ERROR     R02 00901
000601 000604 R
000602 006446 A   908          BT      PA0+6,D1BG05 UNIT ON-LINE, OK                         R02 00902
000603 000616 R
000604 015243 A   909          LDA     CTUNIT,X    GET OFF-LINE UNIT'S NO.                   R02 00903
000605 006150 A   910          ANAI    060000                                                R02 00904
000606 060000 A
000607 100000 A   911 D1BG01   EXC     0           STOP XFER AND INITIALIZE                  R02 00905
000610 103100 A   912 D1BG03   OAR     0           OUTPUT SUW TO SELECT ANOTHER UNIT         R02 00906
000611 100000 A   913          EXC     0           SELECT THAT UNIT                          R02 00907
000612 100244 A   914          EXC     ENAPIM                                                R02 00908
000613 100147 A   915          EXC     ENACLK                                                R02 00909
000614 001000 A   916          JMP     D1SKER      GO TELL USER UNIT IS OFF-LINE             R02 00910
000615 000134 R
000616 100000 A   917 D1BG05   EXC     0           STOP XFER AND INITIALIZE                  R02 00911
000617 015244 A   918          LDA     CTSUW,X     GET SUW                                   R02 00912
000620 103100 A   919          OAR     0           OUTPUT SUW                                R02 00913
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                    920          IFT     VORTEX-2                                                    V2  02 00914
                    921          GOTO    ENDC04                                                      V2  02 00915
                    922          LDA     CTSTAT,X    ENTRY STATE CODE                                V2  02 00916
                    923          SUB     TWO                                                         V2  02 00917
                    924          JAN     D1BGOA      SKIP IF CONT/COMP OF READ/WRITE                 V2  02 00918
                    925          TZA                 MAP KEY 0                                       V2  02 00919
                    926          JMP     D1BGOA+2                                                    V2  02 00920
                    927 D1BGOA   LDA     CTMODE,X                                                    V2  02 00921
                    928          ANA     BM17        EXTRACT MAP KEY VALUE                           V2  02 00922
                    929          STA     MPKEY1      STORE IT IN V$BIC CALLING SEQUENCE              V2  02 00923
                    930 ENDC04   CONT                                                                V2  02 00924
000621 015246 A     931          LDA     CTWORD,X    GET THE NO. OF WORDS IN THIS OP                     02 00925
000622 145015 A     932          SUB     CTSTSZ,X                                                        02 00926
000623 001004 A     933          JAN     *+5         JUMP IF LESS THAN 1 SECTOR                          02 00927
000624 000630 R
000625 015015 A     934          LDA     CTSTSZ,X                                                        02 00928
000626 001000 A     935          JMP     *+0                                                             02 00929
000627 000631 R
000630 015246 A     936          LDA     CTWORD,X                                                        02 00930
000631 125031 A     937          ADD     CTBFAD,X                                                        02 00931
000632 005311 A     938          DAR                                                                  R02 00932
000633 035034 A     939          LDX     CTBFAD,X    X= INITIAL ADDR.                                 R02 00933
000634 006506 A     940          JSR     V$BIC,B     GOTO COMMON BIC ROUTINE                          R02 00934
000635 000000 E
000636 000001 A     941          DATA    1           FOR V$BIC CALL                                   R02 00935
                    942          IFF     VORTEX-2                                                    V2  02 00936
                    943 MPKEY1   DATA    0           MAP KEY VALUE                                   V2  02 00937
000637 001004 A     944          JAN     D1BERR      ERROR IF BIC NOT READY.                          R02 00938
000640 000172 R
000641 005001 A     945          TZA                                                                  R02 00939
000642 020300 A     946          LDB     V$CTL                                                        R02 00940
000643 056003 A     947          STA     TBEVNT,B    CLEAR INTERRUPT EVENT WORD.                      R02 00941
000644 100400 A     948 D1BG06   EXC     0400        READ/WRITE COMMAND                                  02 00942
000645 005041 A     949          TXA                                                                  R02 00943
                    950          DELAY   25,0,2      SUSPEND FOR INTERRUPT                               02 00944
000646 006505 A
000647 000406 A
000650 001102 A
000651 000031 A
000652 000000 A
                    952 *     RETURN FROM INTERRUPT OR TIME-OUT.                                     R02 00946
000653 005014 A     953          TAX                 RESTORE X REG.                                   R02 00947
000654 016001 A     954          LDA     TBST,B                                                       R02 00948
000655 006150 A     955          ANAI    0177667     RESET TIMER                                      R02 00949
000656 177667 A
000657 056001 A     956          STA     TBST,B                                                       R02 00950
000660 016003 A     957          LDA     TBEVNT,B                                                     R02 00951
000661 001010 A     958          JAZ     D1BERR      BIC ERROR IF TIMED OUT.                          R02 00952
000662 000172 R
000663 006506 A     959          JSR     D1NST,B     INPUT DISC I/O STATUS                               02 00953
000664 001373 R
000665 150452 A     960          ANA     BR9         AND OUT READ ONLY STATUS                            02 00954
000666 001016 A     961          JANZ    D1RWE2      ERROR SOMEWHERE                                  R02 00955
000667 000746 R
000670 006015 A     962          LDAE*   CTBICB,X                                                     R02 00956
000671 100011 A
000672 006110 A     963          DRAI    0101001                                                      R02 00957
000673 101001 A
000674 100444 A     964          EXC     DISPIM                                                       R02 00958
000675 100747 A     965          EXC     DISCLK      DISABLE INTERRUPTS.                              R02 00959
000676 054000 A     966          STA     *+1                                                          R02 00960
000677 101021 A     967          SEN     021,D1RWE1  ABNORMAL BIC HALT.                               R02 00961
000700 000731 R
                    968          IFT     VORTEX-2                                                    V2  02 00962
                    969          GOTO    ENDC05                                                      V2  02 00963
                    970          LDAE*   CTBICB,X                                                    V2  02 00964
                    971          ANA     BM77                                                        V2  02 00965
                    972          IAR                 MAKE BIC NUMBER ODD                             V2  02 00966
                    973          DRAI    0101100                                                     V2  02 00967
                    974          STA     *+1         STORE INLINE                                    V2  02 00968
                    975          SEN     0120,D1BER1 SENSE FOR UNASSIGNED MEMORY VIOLATION           V2  02 00969
                    976 ENDC05   CONT                                                                V2  02 00970
000701 100244 A     977          EXC     ENAPIM                                                          02 00971
000702 100147 A     978          EXC     ENACLK                                                          02 00972
000703 015246 A     979          LDA     CTWORD,X    CHECK IF ALL RECORDS FOR THIS HAS BEEN              02 00973
000704 145015 A     980          SUB     CTSTSZ,X     TRANSFERRED.                                       02 00974
000705 001004 A     981          JAN     D1STAT      IF A NEGATIVE                                       02 00975
000706 000720 R
000707 001010 A     982          JAZ     D1STAT      OR A=0 , CONTINUE                                   02 00976
000710 000720 R
000711 055246 A     983          STA     CTWORD,X    OTHERWISE DO NEXT RECORD FOR THIS TRACK             02 00977
000712 045033 A     984          INR     CTDSEC,X    UPDATE SECTOR ADDRESS TO POINT TO NEXT SECT         02 00978
000713 015034 A     985          LDA     CTBFAD,X                                                        02 00979
000714 125015 A     986          ADD     CTSTSZ,X    UPDATE BUFFER ADDRESS BY 1 SECTOR                   02 00980
000715 055034 A     987          STA     CTBFAD,X                                                        02 00981
000716 001000 A     988          JMP     D1BGOP                                                          02 00982
000717 000514 R
000720 000720 R     989 D1STAT   EQU     *                                                               02 00983
000720 025010 A     990          LDB     CTSTAT,X    NO ERRORS                                        R02 00984
000721 006026 A     991          LDBE    D1STBL,B                                                     R02 00985
000722 000725 R
000723 006706 A     992          IJMP    0,B         BRANCH ON DRIVER  STATUS.                        R02 00986
000724 000000 A
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000725 000777 R   994 D1STBL DATA     D1CONT          STATUS 0 = CONT R/W                                  R02 00988
000726 001044 R   995        DATA     D1COMP                 1 = COMPLETE R/W                              R02 00989
000727 001161 R   996        DATA     D1SRCH                 2 = SEARCH DIRECTORY                          R02 00990
000730 001506 R   997        DATA     D1FNSH                 3 = FINISH DIR. REWRITE                       R02 00991
000731 006015 A   999 D1RWE1 LDAE*    CTBICB,X        ABNORMAL BIC TERMINATION                             R02 00993
000732 100011 A
000733 006110 A  1000        DRAI     0102500                                                              R02 00994
000734 102500 A
000735 006040 A  1001        INRI     0               NOTE THE ERROR                      *****            R02 00995
000736 000000 A
000737 054000 A  1002        STA      *+1                                                                  R02 00996
000740 102500 A  1003        CIA      *-*             INPUT ADR OF HALT                                    R02 00997
000741 025012 A  1004        LDB      CTFCB,X         GET FCB ADDRESS                                       02 00998
000742 146001 A  1005        SUB      FCBUFF,B        SUBTRACT STARTING LOC. FOR THE OPERATION              02 00999
000743 055013 A  1006        STA      CTWDS,X         UPDATE WORDS XMITTED                                 R02 01000
000744 001000 A  1007        JMP      D1RERR          BIC ERROR EXIT                                       R02 01001
000745 000172 R
000746 005002 A  1008 D1RWE2 TZB                      ENTER FOR INPUT STATUS ERROR.                         02 01002
000747 006400 A  1009        BT       RA1+0,D1RWE4    TIMING ERROR, IO16                                    02 01003
000750 000766 R
000751 005122 A  1010        IBR                                                                           02 01004
000752 006402 A  1011        BT       RA1+2,D1RWE4    FORMAT ERROR, IO33                                    02 01005
000753 000766 R
000754 006405 A  1012        BT       RA1+5,D1RWE4    END-OF-FILE ERROR ,IO33                               02 01006
000755 000766 R
000756 006413 A  1013        BT       RA1+11,D1RWE4   HEAD SELECT ERROR ,IO33                               02 01007
000757 000766 R
000760 005122 A  1014        IBR                                                                           02 01008
000761 006403 A  1015        BT       RA1+3,D1RWE4    SEARCH CYCLIC CHECK ERROR, IO30                       02 01009
000762 000766 R
000763 006404 A  1016        BT       RA1+4,D1RWE4    DATA CYCLIC CHECK ERROR,IO30                          02 01010
000764 000766 R
000765 005122 A  1017        IBR                                                                           02 01011
000766 006026 A  1018 D1RWE4 LDBE     D1RWE5,B        GET ERROR CODE                                        02 01012
000767 000773 R
000770 005101 A  1019        INCR'    01                                                                    02 01013
000771 001000 A  1020        JMP      D1ERRX                                                                02 01014
000772 000152 R
                 1021 *                                                                                    02 01015
000773 016240 A  1022 D1RWE5 DATA     016240          TIMING ERROR                                          02 01016
000774 045240 A  1023        DATA     045240          END OF FILE,FORMAT,HEAD SELECTION          V2         02 01017
000775 030240 A  1024        DATA     030240          SEARCH OR DATA CYCLIC CHECK ERROR                     02 01018
000776 015240 A  1025        DATA     015240          MALFUNCTION -ALL OTHERS                               02 01019
                 1026        IFT      VORTEX-2                                                   V2         00 01020
                 1027        COTO     ENDC06                                                     V2         00 01021
                 1028 D1BER1 LDBI     048240          ERROR CODE-UNASSIGNED MEMORY VIOLATION     V2         00 01022
                 1029        LDA      BS15                                                       V2         00 01023
                 1030        EXC      ENAOLK                                                     V2         00 01024
                 1031        EXC      ENAPIM                                                     V2         00 01025
                 1032        JMP      D1ERRX                                                     V2         00 01026
                 1033        EJSC                                                                V2         00 01027
                 1034 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * V2 00 01028
                 1035 *                                                                                    *V2 00 01029
                 1036 *       SUBROUTINE:        GETKEY                                                    *V2 00 01030
                 1037 *                                                                                    *V2 00 01031
                 1038 *       PURPOSE:           TO OBTAIN THE REQUESTER'S MAP KEY                         *V2 00 01032
                 1039 *                          VALUE.  IF THE REQUESTER IS V$SAK,                        *V2 00 01033
                 1040 *                          THE MAP KEY IS OBTAINED FROM                              *V2 00 01034
                 1041 *                          THE REQUESTER'S TREVAT.                                   *V2 00 01035
                 1042 *                          OTHERWISE, IT IS OBTAINED FROM THE                        *V2 00 01036
                 1043 *                          REQUESTER'S TRKEY.                                        *V2 00 01037
                 1044 *                                                                                    *V2 00 01038
                 1045 *       ON ENTRY:          (B) = RETURN ADDRESS                                      *V2 00 01039
                 1046 *                          (X) = CTBL ADDRESS                                        *V2 00 01040
                 1047 *                                                                                    *V2 00 01041
                 1048 *       ON EXIT:           (X) = CTBL ADDRESS                                        *V2 00 01042
                 1049 *                          ALL OTHER REGISTERS ARE DESTROYED                         *V2 00 01043
                 1050 *                                                                                    *V2 00 01044
                 1051 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *V2 00 01045
                 1052         SPAC                                                                         V2 00 01046
                 1053 GETKEY  EQU      *               GETKEY ENTRY POINT                                 V2 00 01047
                 1054         EXC      DISPIM                                                             V2 00 01048
                 1055         EXC      DISCLK                                                             V2 00 01049
                 1056         STB      GET2            SAVE RETURN ADDRESS                                V2 00 01050
                 1057         LDB      CTRQBK,X        PWA OF REQUEST BLOCK                               V2 00 01051
                 1058         LDA      RQTDB,B         REQUESTER'S TIDB ADDRESS                           V2 00 01052
                 1059         TAB                                                                         V2 00 01053
                 1060         SUB      V$LSAL          LOCATION OF V$SAL'S TIDB                           V2 00 01054
                 1061         JANZ     GET1            SKIP IF THIS IS NOT V$SAL                          V2 00 01055
                 1062         LDA      TBEVNT,B        GET MAP KEY VALUE FOR TASK FOR WHICH               V2 00 01056
                 1063 ***     ***      ***             V$SAL IS ALLOCATING                                V2 00 01057
                 1064         JMP      GET1+1                                                             V2 00 01058
                 1065 GET1    LDA      TBKEY,B         GET MAP KEY VALUE                                  V2 00 01059
                 1066         ANA      BM17                                                               V2 00 01060
                 1067         STA      CTMODE,X        SAVE IT IN LOWER PORTION OF CTMODE                 V2 00 01061
                 1068         ENC      ENAOLK                                                             V2 00 01062
                 1069         EXC      ENAPIM                                                             V2 00 01063
                 1070         JMP      *-*             EXIT                                               V2 00 01064
                 1071 GET2    BES      0                                                                  V2 00 01065
                 1072         EJEC                                                                        V2 00 01066
                 1073 ********************************************************************************** *V2 00 01067
                 1074 *                                                                                    *V2 00 01068
                 1075 *       SUBROUTINE:        XFRTCB                                                    *V2 00 01069
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1076 *                                                                                *V2  02 01070
1077 *       PURPOSE:                TO MOVE THE CONTENTS OF THE FCB TO A             *V2  02 01071
1078 *                               STORAGE AREA IN THE CTBL ENTRY.                  *V2  02 01072
1079 *                                                                                *V2  02 01073
1080 *       ON ENTRY:               (B) = RETURN ADDRESS                             *V2  02 01074
1081 *                                                                                *V2  02 01075
1082 *       ON EXIT:                (B) = FWA OF CONTROLER TIDB                      *V2  02 01076
1083 *                               (X) = FWA OF CTBL ENTRY                          *V2  02 01077
1084 *                                                                                *V2  02 01078
1085 ************************************************************************************V2  02 01079
1086          SPAC                                                                     V2  02 01080
1087 XFRFCB  EXC     DISPIM                                                           V2  02 01081
1088          EXC     DISCLK                                                           V2  02 01082
1089          STB     XFRRTN          SAVE RETURN ADDRESS                              V2  02 01083
1090          LDX     VSCTL           CONTROLER TIDB                                   V2  02 01084
1091          LDX     TBRSTS,X        CTBL ADDRESS                                     V2  02 01085
1092          LDB     CTFCB,X         FWA OF FCB                                       V2  02 01086
1093          TXA                                                                      V2  02 01087
1094          ADDI    CTFCB0          FORM ADDRESS OF FCB SAVE AREA IN CTBL            V2  02 01088
1095          STA     CTFCB,X         SUBSTITUTE STORAGE AREA ADDRESS                  V2  02 01089
1096          TAX                                                                      V2  02 01090
1097          LDA     BS15                                                             V2  02 01091
1098          SUB     TEN                                                              V2  02 01092
1099          STA     XFRCNT          LOOP COUNTER                                     V2  02 01093
1100          RDF                                                                      V2  02 01094
1101          SPAC                                                                     V2  02 01095
1102 ***      THE FCB IS TRANSFERRED INTO THE CTBL ENTRY STORAGE AREA IN               V2  02 01096
1103 ***      MAP 0.                                                                   V2  02 01097
1104          SPAC                                                                     V2  02 01098
1105 XFR1     OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                             V2  02 01099
1106          LDA     0,B             PICK UP WORD FROM FCB                            V2  02 01100
1107          OME     MPDVAD,V$ST0    SWITCH BACK TO MAP 0                             V2  02 01101
1108          STA     0,X             STORE FCB WORD IN CTBL ENTRY                     V2  02 01102
1109          INR     XFRCNT                                                           V2  02 01103
1110          JOF     XFR2            SKIP IF XFER COMPLETE                            V2  02 01104
1111          IBR                                                                      V2  02 01105
1112          IXR                                                                      V2  02 01106
1113          JMP     XFR1            RETURN TO XFER NEXT WORD                         V2  02 01107
1114 XFR2     LDB     V$CTL                                                            V2  02 01108
1115          LDX     TBRSTS,B                                                         V2  02 01109
1116          EXC     ENACLK                                                           V2  02 01110
1117          EXC     ENAPIM                                                           V2  02 01111
1118          JMP     *-*             RETURN                                           V2  02 01112
1119 XFRRTN   EQU     *-1                                                              V2  02 01113
1120 XFRCNT   DATA    0                                                                V2  02 01114
1121          EJEC                                                                     V2  02 01115
1122 ************************************************************************************V2  02 01116
1123 *                                                                                *V2  02 01117
1124 *       SUBROUTINE:             RSTFCB                                           *V2  02 01118
1125 *                                                                                *V2  02 01119
1126 *       PURPOSE:                TO TRANSFER THE CONTENTS OF THE FCB              *V2  02 01120
1127 *                               STORAGE AREA IN THE CTBL ENTRY BACK              *V2  02 01121
1128 *                               TO THE FCB  AND TO RESTORE THE                   *V2  02 01122
1129 *                               POINTER (CTFCB) BACK TO ITS ORIGINAL             *V2  02 01123
1130 *                               VALUE.                                           *V2  02 01124
1131 *                                                                                *V2  02 01125
1132 *       ON ENTRY'               (B) = RETURN ADDRESS                             *V2  02 01126
1133 *                                                                                *V2  02 01127
1134 *       ON EXIT:                (A) = RESTORED                                   *V2  02 01128
1135 *                               (B) = DESTROYED                                  *V2  02 01129
1136 *                               (X) = DESTROYED                                  *V2  02 01130
1137 *                                                                                *V2  02 01131
1138 ************************************************************************************V2  02 01132
1139          SPAC                                                                     V2  02 01133
1140 RSTERR   LDBI    V$ERR           EXIT ADDRESS                                     V2  02 01134
1141          JMP     RSTFCB                                                           V2  02 01135
1142 RSTFNR   LDBI    V$FNR                                                            V2  02 01136
1143 RSTFCB   EQU     *                                                                V2  02 01137
1144          EXC     DISPIM                                                           V2  02 01138
1145          EXC     DISCLK                                                           V2  02 01139
1146          STA     SVAREG          SAVE (A)-REGISTER                                V2  02 01140
1147          STB     EXITAD          SAVE EXIT ADDRESS                                V2  02 01141
1148          LDA     BS15                                                             V2  02 01142
1149          SUB     SEVEN                                                            V2  02 01143
1150          STA     RSTCNT          LOOP COUNTER                                     V2  02 01144
1151          RDF                                                                      V2  02 01145
1152          LDB     V$CTL           CONTROLER TIDB                                   V2  02 01146
1153          LDX     TBRSTS,B        CTBL ENTRY ADDRESS                               V2  02 01147
1154          LDB     CTROBK,X        FWA OF REQUEST BLOCK                             V2  02 01148
1155          LDA     CTFCB,X         POINTER TO FCB SAVE AREA IN CTBL                 V2  02 01149
1156          STA     RSTEMP          SAVE POINTER IN TEMP. STORAGE                    V2  02 01150
1157          LDA     RPSTPR,B        PICK UP REQUESTER'S PRIORITY                     V2  02 01151
1158          LDB     RFCB,B          REQUESTER'S FCB ADDRESS                          V2  02 01152
1159          STB     CTFCB,X         RESTORE ORIGINAL POINTER IN CTBL                 V2  02 01153
1160          ANA     BM07            EXTRACT REQUESTER'S PRIORITY                     V2  02 01154
1161          LSRA    1               SHIFT OUT LOW ORDER BIT                          V2  02 01155
1162          TZX                                                                      V2  02 01156
1163          JANZ    RST1            JUMP IF REQUESTER IS NOT PRIORITY 0/1            V2  02 01157
1164          TBA                     FCB ADDRESS IN (A)-REG.                          V2  02 01158
1165          SUB     V$GFCB          ADDRESS OF FIRST GLOBAL FCB                      V2  02 01159
1166          JAN     RST1            JUMP IF FCB NOT GLOBAL                           V2  02 01160
1167          SUBI    80                                                               V2  02 01161
1168          JAP     RST1            JUMP IF FCB NOT GLOBAL                           V2  02 01162
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                    1169                IXR                                 SET (X)-REG. TO INDICATE GLOBAL FCB          V2  02 01163
                    1170 RST1   LDAE*   RSTEMP              PICK UP WORD FROM FCB AREA IN CTBL           V2  02 01164
                    1171                XXNZ    RST1A       STORE IN MAP 0 IF GLOBAL FCB                 V2  02 01165
                    1172                JXNZ    RST1B                                                    V2  02 01166
                    1173                OMS     MPDVAD,V$ST3 SWITCH TO USER MAP                          V2  02 01167
                    1174 RST1A  EQU     *                                                                V2  02 01168
                    1175                STA     0,B         STORE WORD IN USER'S FCB                     V2  02 01169
                    1176                OMS     MPDVAD,V$ST0 RESTORE MAP 0                               V2  02 01170
                    1177 RST1B  EQU     *                                                                V2  02 01171
                    1178                INR     RS1CNT                                                   V2  02 01172
                    1179                JOF     RST2        SKIP IF XFER COMPLETE                        V2  02 01173
                    1180                IBR                                                              V2  02 01174
                    1181                INR     RSTEMP      INCREMENT POINTER TO FCB AREA IN CTBL        V2  02 01175
                    1182                JMP     RST1        RETURN TO XFER NEXT WORD                     V2  02 01176
                    1183 RST2   LDAI    *-*                 RESTORE (A)-REGISTER                         V2  02 01177
                    1184 SVAREG EQU     *-1                                                              V2  02 01178
                    1185                EXC     ENACLK                                                   V2  02 01179
                    1186                EXC     ENAPIM                                                   V2  02 01180
                    1187                JMP     *-*                                                      V2  02 01181
                    1188 EXITAD EQU     *-1                                                              V2  02 01182
                    1189 RSTCNT DATA    0                                                                V2  02 01183
                    1190 RSTEMP DATA    0                                                                V2  02 01184
                    1191 ENDC06 CONT                                                                     V2  02 01185
                    1192                EJEC    ****        CONTINUE R/W STATE ENTRY    ****             R02 01186
000777 015036 A     1195 D1CONT LDA     CTWLFT,X    OPERATION PARTIALLY COMPLETED                        R02 01189
001000 145035 A     1196        SUB     CTOPWD,X    DECREMENT WORDS LEFT TO DO                           R02 01190
001001 001010 A     1197        JAZ     D1COMP      COMPLETE IF ALL DONE                                 R02 01191
001002 001044 R
001003 055036 A     1198        STA     CTWLFT,X                                                         R02 01192
001004 015031 A     1200        LDA     CTDADR,X                                                         R02 01194
001005 055032 A     1201        STA     CTDTRK,X    LAST TRACK PROCESSED                                 R02 01195
001006 005001 A     1203        TZA                 SET TO NEXT TRK                                      02  01197
001007 055033 A     1204        STA     CTDSEC,X                                                         02  01198
001010 015016 A     1205        LDA     SCTKSZ,X                                                         02  01199
001011 055037 A     1206        STA     CTEMP1,X    SKIP TO                                              02  01200
001012 005101 A     1207        INCR    A                                                                02  01201
001013 055040 A     1208        STA     CTEMP2,X                                                         02  01202
001014 015013 A     1210        LDA     CTWDS,X                                                          R02 01204
001015 125035 A     1211        ADD     CTOPWD,X    INCREMENT WORDS XMITTED                              R02 01205
001016 055013 A     1212        STA     CTWDS,X                                                          R02 01206
001017 015245 A     1213        LDA     CTCYLN,X                                                         02  01207
001020 055047 A     1214        STA     CYRTN,X     TEMP. SAVE CURRENT CYL ADDRESS                       02  01208
001021 006506 A     1215        JSR     D1SKPS,B    DETERMINE NEXT GOOD ADR                              R02 01209
001022 001615 R
001023 001004 A     1216        JAN     D1EXT2      PASS EOF                                             02  01210
001024 000126 R
001025 015245 A     1217        LDA     CTCYLN,X    GET NEW CYL ADDR                                     02  01211
001026 145047 A     1218        SUB     CTRTN,X     SUBTRACT OLD CYL ADDR                                02  01212
001027 001010 A     1219        JAZ     *+*         NO SEEK NECESSARY                                    02  01213
001030 001033 R
001031 006506 A     1220        JSR     DSEEK,B     SEEK NEW CYL                                         02  01214
001032 002170 R
001033 015027 A     1221        LDA     CTEOFT,X    EOF  TRACK NUMBER                                    02  01215
001034 145032 A     1222        SUB     CTDTRK,X    TRACK TO SEEK                                        02  01216
001035 001004 A     1223        JAN     D1EXT2      OUTSIDE OF FILE                                      02  01217
001036 000126 R
001037 015034 A     1224        LDA     CTDTAD,X                                                         02  01218
001040 125015 A     1225        ADD     CTSTSZ,X    INCREMENT BUFFER ADDRESS FOR LAST SECT. OP           02  01219
001041 055034 A     1226        STA     CTDTAD,X                                                         02  01220
001042 001000 A     1227        JMP     D1RNBG                                                           02  01221
001043 000315 R
                    1228                EJEC    ****        COMPLETE R/W STATE ENTRY    ****             R02 01222
001044 015013 A     1230 D1COMP LDA     CTWDS,X     OPERATION COMPLETED                                  R02 01224
001045 125035 A     1231        ADD     CTOPWD,X                                                         R02 01225
001046 055013 A     1232        STA     CTWDS,X     UPDATE WORDS XMITTED                                 R02 01226
001047 006506 A     1234        JSR     D1CMPS,B    SET CURR ADR BY ACCESS METHOD                        R02 01228
001050 001053 R
                    1235                IFT     VORTEX-2                                         V2      02  01229
                    1236                JMP     RSTENR      RESTORE FCB AND EXIT TO V$TNR        V2      02  01230
                    1238                IFT     VORTEX-2                                         V2      02  01232
001051 001000 A     1239        JMP     V$TNR       EXIT FROM DRIVER                                     R02 01233
001052 000133 R
001053 065041 A     1242 D1CMPS STA     CTRTN1,X    SET CURRENT ADR FROM ACCESS METHOD                   R02 01235
001054 025012 A     1243        LDX     CTFCB,X                                                          R02 01237
001055 016002 A     1244        LDA     FCBCM,B     TEST ACCESS METHOD                                   R02 01238
001056 006450 A     1245        BT      PHD+8,D1RTRN IF SEQUENTIAL ACCESS                                R02 01239
001057 001102 R
001060 046003 A     1246        INR     FCLADR,B    INCREMENT RECORD #                                   R02 01241
001061 015024 A     1247        LDA     CTCP,X                                                           R02 01241
001062 006457 A     1248        BT      PHD+15,D1RTRN   SKIP IF READ                                     02  01242
001063 001102 R
001064 016004 A     1249        LDA     FCBEOF,B    WRITE.CHECK IF CURRENT EOF IS TO BE UPDATER          R02 01243
001065 146005 A     1250        SUB     FCIFE,B                                                          R02 01244
001066 146003 A     1251        SUB     FCLADR,B                                                         R02 01245
001067 005111 A     1252                IAS         POSITION TO WHERE IT WAS                             R02 01246
001070 001002 A     1253        JAF     D1RTRN      NO.                                                  R02 01247
001071 001102 R
001072 046004 A     1254        INR     FCBEOF,B    YES                                                  R02 01248
001073 016002 A     1255        LDA     FCBCM,B                                                          02  01249
001074 006451 A     1256        BT      PHD+9,D1RTRN PHYSICAL RECORD ?                                   02  01250
001075 001102 R
001076 016005 A     1257        LDA     FCIFE,B     YES                                                  02  01251
001077 126000 A     1258        ADD     FCLADR,B                                                         02  01252
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001100 005311 A 1259           DAR                                                    02 01253
001101 056004 A 1260           STA     FCCEOF,B    UPDATE FCB(EOF)                    02 01254
001102 025041 A 1261 D1RTRN    LDB     CTRTN1,X    RETURN FROM SUBROUTINE             R02 01255
001103 006706 A 1262           IJMP    0,B                                            R02 01256
001104 000000 A
                    1263       EJEC    ****        OPEN/CLOSE FILE PROCESSOR  ****    R02 01257
                    1265 *     INITIATE OPERATION                                     R02 01259
001105 015025 A 1268 D1CLSE    LDA     CTMODE,X    CLOSE FILE                         R02 01262
001106 006454 A 1269           BT      RA0+12,D1FNSH JUMP IF MODE = LEAVE             R02 01263
001107 001506 R
001110 005001 A 1270           ZERO    A                                              R02 01264
001111 001016 A 1271           DATA    01016       SKIP NEXT WORD                     R02 01265
001112 005301 A 1273 D1OPEN    DECR    A           OPEN FILE                          R02 01267
001113 055036 A 1274           STA     CTWLFT,X    SET O/C FLAG                       R02 01268
001114 005001 A 1275           TZA                                                    02 01269
001115 055024 A 1276           STA     CTOP,X      SET OP INST TO READ                R02 01270
001116 005041 A 1278           TXA                                                    R02 01272
001117 006120 A 1279           ADDI    CTOCBF                                         R02 01273
001120 000052 A
001121 055034 A 1280           STA     CTBFAD,X    SET BUFFER TO O/C BUFF ADR         R02 01274
001122 015015 A 1281           LDA     CTSISZ,X                                       R02 01275
001123 055035 A 1282           STA     CTOPWD,X    OP LENGTH TO 1 SECTOR               02 01276
001124 055246 A 1283           STA     CTWORD,X                                        02 01277
001125 025037 A 1285 D1OCI1    LDB     CTEMP1,X    SET RMD ADR TO BEGIN OF LUN         02 01279
001126 005021 A 1286           TBA                 TEST IF DADR IN LUN                02 01280
001127 145030 A 1287           SUB     CTEOD,X                                        R02 01281
001130 001002 A 1288           JAP     D1FERR      BAD DIR THREAD                     R02 01282
001131 000147 R
001132 005001 A 1289           TZA                                                    R02 01283
001133 065032 A 1290           STB     CTDTRK,X    TO TRACK ADDR. = PSBUD,PARTITION TRK NO.  02 01284
001134 055033 A 1291           STA     CTDSEC,X    AND SECTOR                         R02 01285
001135 005021 A 1293           TBA                                                    R02 01287
001136 006506 A 1294 D1OCI2    JSR     D1TSTS,B    TEST IF TRACK GOOD                 R02 01288
001137 001707 R
001140 001004 A 1295           JAN     D1OCI4      TRY NEXT TRACK                     R02 01289
001141 001156 R
001142 005001 A 1296           TZA                                                    02 01290
001143 025032 A 1297           LDB     CTDTRK,X    GET TRACK NO.                      02 01291
001144 005322 A 1298           DPR                 DECREMENT TO GET PROPER RANGE      02 01292
001145 006170 A 1299           DIVI    20          FIND HEAD NO.                      02 01293
001146 000024 A
001147 055242 A 1300           STA     CTHEAD,X    SET-UP NEW HEAD NO.                02 01294
001150 010422 A 1301           LDA     TWO                                            R02 01295
001151 055010 A 1302           STA     CTSTAT,X    DRIVER STATUS TO SEARCH            R02 01296
001152 006506 A 1303 D1OCI3    JSR     DSEEK,B                                        02 01297
001153 002170 R
001154 001000 A 1304           JMP     D1RWB9      WAIT FOR INTERRUPT.                R02 01298
001155 000416 R
001156 045037 A 1305 D1OCI4    INR     CTEMP1,X                                       R02 01299
001157 001000 A 1306           JMP     D1OCI1      TRY NEXT TRK.                       02 01300
001160 001125 R
                    1307       EJEC    ****        SEARCH DIRECTORY STATE ENTRY  ****  R02 01301
                    1309 *     PERFORMS OPEN; INITIATES CLOSE-UPDATE                  R02 01303
001161 025034 A 1312 D1SRCH    LDB     CTBFAD,X    SEARCH INTERNAL STATE ENTRY        R02 01306
001162 016000 A 1313           LDA     0,B                                            R02 01307
001163 001010 A 1314           JAZ     D1SCH4      JMP IF NO DIRECTORY ENTRIES        R02 01308
001164 001276 R
001165 006010 A 1315           LDAI    077754      FOR MAX. OF 19 ENTRIES             R02 01309
001166 077754 A
001167 055040 A 1316           STA     CTEMP2,X    TEMP STORAGE                       R02 01310
001170 005322 A 1317           DBR                                                    R02 01311
001171 035012 A 1318           LDX     CTFCB,X     REFERENCE FCB                      R02 01312
001172 005021 A 1320 D1SCH1    TBA                                                    R02 01314
001173 120466 A 1321           ADD     SIX         GET NEXT ENTRY                     R02 01315
001174 005012 A 1322           TAB                                                    R02 01316
001175 016000 A 1323           LDA     0,B                                            R02 01317
001176 001010 A 1324           JAZ     D1SCH3      EMPTY                              R02 01318
001177 001270 R
001200 001002 A 1325           JAP     D1SCH2      END OF DIRECTORY SECTOR            R02 01319
001201 001256 R
001202 145007 A 1326           SUB     FCNAM1,X                                       R02 01320
001203 001016 A 1327           JANZ    D1SCH3      TEST FIRST 2 CHARACTERS OF NAME    R02 01321
001204 001270 R
001205 016001 A 1328           LDA     1,B                                            R02 01322
001206 145010 A 1329           SUB     FCNAM2,X                                       R02 01323
001207 001016 A 1330           JANZ    D1SCH3      CHARS 3 AND 4                      R02 01324
001210 001270 R
001211 016002 A 1331           LDA     2,B                                            R02 01325
001212 145011 A 1332           SUB     FCNAM3,X                                       R02 01326
001213 001016 A 1333           JANZ    D1SCH3      CHARS 5 AND 6                      R02 01327
001214 001270 R
001215 030300 A 1334           LDX     V$CTL       NAME FOUND - RESTORE X             R02 01328
001216 035010 A 1335           LDX     TBRSTS,X                                       R02 01329
001217 065024 A 1336           STB     CTOP,X      SAVE ENTRY POINTER                 R02 01330
001220 015036 A 1338           LDA     CTWLFT,X    TEST O/C FLAG                      R02 01332
001221 001004 A 1339           JAN     D1SCO1      JUMP IF OPEN                       R02 01333
001222 001302 R
001223 025012 A 1342           LDB     CTFCB,X     CLOSE FILE PROCESSING              R02 01336
001224 016005 A 1343           LDA     FCIFE,B                                        R02 01337
001225 026003 A 1344           LDB     FCCADR,B                                       R02 01338
001226 005322 A 1345           DBR                 CONVERT TO PHYSICAL RECORD NO., IF NOT.  R02 01339
001227 165051 A 1346           MUL     CTCONV,X                                       R02 01340
001230 005021 A 1347           TBA                                                    R02 01341
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001231 025024 A 1348          LDB     CTOP,X          GET PNTR TO DIR ENTRY                          R02 01342
001232 055037 A 1349          STA     CTEMP1,X        COMPARE CADR TO FILE EXTENTS                   R02 01343
001233 146004 A 1350          SUB     4,B                                                            R02 01344
001234 001004 A 1351          JAN     D.PERR          PARAM ERR IF BELOW IFE                         R02 01345
001235 000162 R
001236 016005 A 1353          LDA     5,B                                                            R02 01347
001237 145037 A 1354          SUB     CTEMP1,X                                                       R02 01348
001240 001004 A 1355          JAN     D1PERR          OR IF ABOVE EFE                                R02 01349
001241 000162 R
001242 015037 A 1357          LDA     CTEMP1,X                                                       R02 01351
001243 056003 A 1358          STA     3,B             SET CURR EOF ADR                               R02 01352
001244 010440 A 1359          LDA     BS15                                                            02 01353
001245 055024 A 1360          STA     CTOP,X          SET OP INST TO WRITE                           R02 01354
001246 045010 A 1362          INR     DTSTAT,X        SET DRIVER STATUS TO FINISH                    R02 01356
001247 015005 A 1364          LDA     CRTRY,X                                                        R02 01358
001250 005012 A 1365          TAB                                                                    R02 01359
001251 004350 A 1366          LSRA    8               INIT RETRY COUNT                               R02 01360
001252 004450 A 1367          LLRL    8                                                              R02 01361
001253 055005 A 1368          STA     CTRCNT,X                                                       R02 01362
001254 001000 A 1370          JMP     D1BGOP          BEGIN REWRITE OF SECTOR, NO SEEKS NEEDED        02 01364
001255 000514 R
001256 030303 A 1371 D1SCH2   LDX     V$CTL           END OF DIRECTORY SECTOR                        R02 01365
001257 035010 A 1372          LDX     TBRSTS,X                                                       R02 01366
001260 005311 A 1373          DAR                                                                    R02 01367
001261 024013 A 1374          LDB     D1SCH4+1                                                       R02 01368
001262 001010 A 1375          JAZ     D1PER1          END OF DIR - NAME NOT FOUND                    R02 01369
001263 000151 R
001264 006506 A 1376          JSR     BTSECT,B                                                       R02 01370
001265 001452 R
001266 001000 A 1377          JMP     D1GCI2          READ NEXT SECTOR                               R02 01371
001267 001136 R
                    1379  *       CHECK FOR MAXIMUM OF 19 ENTRIES IN DIRECTORY                     R02 01373
001270 007400 A 1380 D1SCH3   ROF                                                                    R02 01374
001271 030300 A 1381          LDX     V$CTL                                                          R02 01375
001272 035010 A 1382          LDX     TBRSTS,X        CTBL                                           R02 01376
001273 045040 A 1383          INR     CTEMP2,X        INCREMENT NO. OF ENTRIES PROCESSED.            R02 01377
001274 001007 A 1384          JOFN    D1SCH1-1        TRY NEXT ENTRY                                 R02 01378
001275 001171 R
       001276 R 1385 D1SCH4   EQU     *                                                              R02 01379
001276 006020 A 1386          LDBI    D10240          EXCEEDED 19 ENTRIES                            R02 01380
001277 010240 A
001300 001000 A 1387          JMP     D1FER1          ERROR                                          R02 01381
001301 000151 R
                    1390  *                                                                         R02 01384
001302 035012 A 1392 D1SCD1   LDX     CTFCB,X         OPEN FILE PROCESSING                           R02 01386
001303 016004 A 1393          LDA     4,B                                                            R02 01387
001304 055005 A 1394          STA     FCIFE,X         SET INIT FILE EXTENT FROM DIR ENTRY            R02 01388
001305 016005 A 1395          LDA     5,B                                                            R02 01389
001306 055006 A 1396          STA     FCEFE,X         SET END OF FILE EXTENT                         R02 01390
001307 026003 A 1398          LDB     3,B                                                            R02 01392
001310 065004 A 1399          STB     FCCEOF,X        SET CURRENT END OF FILE                        R02 01393
001311 030300 A 1400          LDX     V$CTL                                                          R02 01394
001312 035010 A 1401          LDX     TBRSTS,X                                                       R02 01395
001313 025012 A 1402          LDB     CTFCB,X                                                        R02 01396
001314 016002 A 1403          LDA     FCRCM,B         GET ACCESS METHOD                              R02 01397
001315 006451 A 1404          BT      RA0+9,D1SC04    JMP IF LOGICAL RECORD.                         R02 01398
001316 001334 R
001317 015025 A 1405 D1SC05   LDA     CTMODE,X                                                       R02 01399
001320 006414 A 1406          BT      RA1+12,D1SC03                                                  R02 01400
001321 001326 R
001322 005101 A 1408          INCR    A               CURRENT RECORD TO 1                            R02 01402
001323 056003 A 1410 D1SCD2   STA     FCCRDR,B        STORE CURR REC OR VDR                          R02 01404
                    1411          IFT     VORTEX-2                                                  V2  01405
                    1412          JMP     RSTFNR          RESTORE FCB AND EXIT TO V$FNR             V2  01406
                    1413          IFT     VORTEX-2                                                  V2  01407
001324 001000 A 1414          JMP     V$FNR           EXIT TO FIND NEXT REQUEST                      R02 01408
001325 001052 R
       001326 R 1417 D1SCD3   EQU     *               OPEN AND LOAD                                  R02 01411
001326 025012 A 1418          LDB     CTFCB,X                                                        R02 01412
001327 016004 A 1419          LDA     FCCEOF,B                                                       R02 01413
001330 146005 A 1420          SUB     FCIFE,B                                                        R02 01414
001331 005111 A 1421          TAR                                                                    R02 01415
001332 001000 A 1422          JMP     D1SCD2                                                         R02 01416
001333 001323 R
                    1423  *                                                                         R02 01417
       001334 R 1424 D1SC04   EQU     *                                                              R02 01418
001334 025012 A 1425          LDB     CTFCB,X                                                        R02 01419
001335 016006 A 1426          LDA     FCEFE,B         GET FINAL RECORD NO.                           R02 01420
001336 146005 A 1427          SUB     FCIFE,B         DIFF= NO.OF RELATIVE RECORDS IN FILE           R02 01421
001337 005012 A 1428          TAB                                                                    R02 01422
001340 005001 A 1429          INCA                                                                   R02 01423
001341 175051 A 1430          DIV     CTCONV,X        (FCEFE-FCIFE) / CTCONV                         R02 01424
001342 005021 A 1431          TBA                                                                    R02 01425
001343 025012 A 1432          LDB     CTFCB,X                                                        R02 01426
001344 126005 A 1433          ADD     FCIFE,B         INITIAL FILE EXTENT                            R02 01427
001345 056006 A 1434          STA     FCEFE,B         UPDATE FINAL FILE EXTENT FOR LOGICAL REC.      R02 01428
001346 016004 A 1435          LDA     FCCEOF,B        FCEOF-FCIFE ,RELATIVE NO. OF RECORDS           R02 01429
001347 146005 A 1436          SUB     FCIFE,B         FCEOF-FCIFE ,RELATIVE NO. OF RECORDS.          R02 01430
001350 005012 A 1437          TAB                                                                    R02 01431
001351 005001 A 1438          INCA                                                                   R02 01432
001352 175051 A 1439          DIV     CTCONV,X        (FCFOF-FCIFE) / CTCONV                         R02 01433
001353 005021 A 1440          TBA                                                                    R02 01434
001354 025012 A 1441          LDB     CTFCB,X                                                        R02 01435
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001355 126003 A 1442          ADD     I FCIFE,B       INITIAL FILE EXTENT                                    R02 01436
001356 056004 A 1443          STA       FCCEOF,B      NOW UPDATE CURRENT EOF FOR LOGICAL RECORD.             R02 01437
001357 001000 A 1444          JMP       DISC05                                                               R02 01438
001360 001317 R
               1445           EJEC                                                                           P02 01439
001361 000000 A 1446 DNSECT   ENTR      SUBROUTINE TO CALCULATE NO.OF SECTORS                                  R02 01440
001362 026000 A 1447          LDB       FCRECL,B       IN FCRECL.  ENTER WITH B= FCB                         R02 01441
001363 005001 A 1448          TZA                                    X= CTBL                                 R02 01442
001364 175015 A 1449          DIV       CTSTSZ,X                                                             R02 01443
001365 003016 A 1450          XANZ      D1IBR           INCREMENT TO NEXT SECTOR                             R02 01444
001366 000121 R
001367 100244 A 1451 DNSEC2   EXC       ENAPIM                                                               RJ2 01445
001370 100147 A 1452          EXC       ENACLK                                                               R02 01446
001371 001000 A 1453          JMP*      DNSECT                                                               R02 01447
001372 101361 R
               1454 *                                                                                        R02 01448
               1455 *                                                                                        R02 01449
      001373 R 1457 DINST     EQU       *               SUBROUTINE TO INPUT STATUS WORD.                       02 01451
001373 065050 A 1458          STB       CTIST,X         SAVE RETURN ADDR.                                      02 01452
001374 006020 A 1459          LDBI      3200            SET COUNTER FOR APPROX 25 MSEC WAIT                    02 01453
001375 006200 A
      001376 R 1460 DINST5    EQU       *                                                                      02 01454
001376 006010 A 1461          LDAI      0101400         BUILD SNSE DCU NOT BUSY INSTR                          02 01455
001377 101400 A
001400 115006 A 1462          ORA       CTDVAD,X                                                             02 01456
001401 100444 A 1463          EXC       DISPIM                                                               02 01457
001402 100747 A 1464          EXC       DISCLK                                                               02 01458
001403 054000 A 1465          STA       *+1                                                                  02 01459
001404 101400 A 1466          SEN       0400,DINST1     SENSE DCU NOT BUSY                                   02 01460
001405 001415 R
001406 100244 A 1467          EXC       ENAPIM                                                               02 01461
001407 100147 A 1468          EXC       ENACLK                                                               02 01462
001410 005322 A 1469          DBR                       DECREMENT COUNTER                                    02 01463
001411 001026 A 1470          JBNZ      DINST5          WAIT FOR SHORT RECORN                                02 01464
001412 001376 R
001413 001000 A 1471          JMP       DISKER          ERROR, NOT READY                                     02 01465
001414 000134 R
      001415 R 1472 DINST1    EQU       *                                                                      02 01466
001415 025050 A 1473          LDB       CTIST,X         REPLACE RETURN ADDR. TO B-REG                        02 01467
001416 006010 A 1474          LDAI      0102500         BUILD INPUT STATUS WORD INSTRUCTION.                 R02 01468
001417 102500 A
001420 115006 A 1475          ORA       CTDVAD,X        01025XX                                              02 01469
001421 054000 A 1476          STA       *+1                                                                  R02 01470
001422 102516 A 1477          CIA       016             INPUT STATUS WORD.                                   R02 01471
001423 150455 A 1478          ANA       BR12            AND OUT BAD TRACK FLAG                               02 01472
001424 055050 A 1479          STA       CTIST,X         STORE INPUT STATUS WORD                              R02 01473
001425 006446 A 1480          BT        PA0+6,DINST4    UNIT IS O.K., CONTINUE                               02 01474
001426 001445 R
001427 006010 A 1481          LDAI      0103100                                                              02 01475
001430 103100 A
001431 115006 A 1482          ORA       CTDVAD,X                                                             02 01476
001432 054003 A 1483          STA       DINST2          CONSTRUCT OUTPUT SOW INSTR.                          02 01477
001433 015243 A 1484          LDA       CTUNIT,X        GET UNIT NO.                                         02 01478
001434 006150 A 1485          ANAI      060000                                                               02 01479
001435 060000 A
001436 103100 A 1486 DINST2   OAR       0               OUTPUT SOW TO SELECT ANOTHER UNIT                    02 01480
001437 010440 A 1487          LDA       RS15                                                                 02 01481
001440 115006 A 1488          ORA       CTDVAD,X                                                             02 01482
001441 054000 A 1489          STA       *+1             BUILD STOP XFER AND INITIAL. INSTR.                  02 01483
001442 100000 A 1490          EXC       0               SELECT THAT UNIT                                     02 01484
001443 001000 A 1491          JMP       DISKER          GO TELL USER UNIT IS OFF-LINE                        02 01485
001444 000134 R
001445 015050 A 1492 DINST4   LDA       CTIST,X                                                              02 01486
001446 100244 A 1493          EXC       ENAPIM                                                               02 01487
001447 100147 A 1494          EXC       ENACLK                                                               R02 01488
001450 006706 A 1495          IJMP      0,B             NOW RETURN                                           02 01489
001451 000000 A
               1497 *                                                                                        R02 01491
               1498 *                                                                                        R02 01492
001452 065042 A 1499 DTSECT   STB       CTRTN2,X        CALC. TRACK AND SECTOR NO.                           R02 01493
001453 005012 A 1500          TAB       ENTER WITH A= RELATIVE SECTOR NUMBER                                 R02 01494
001454 005001 A 1501          TZA                                                                            02 01495
001455 175016 A 1502          DIV       CTTKSZ,X          WITHIN PARTITION,IE, FCIFE.                        R02 01496
001456 055033 A 1503          STA       CTDSEC,X            X= CTBL                                          R02 01497
001457 005021 A 1504          TBA                           CTDSEC= SECTOR NO.WITHIN TRACK.                  R02 01498
001460 125045 A 1505          ADD       CTPEXT,X                                                             R02 01499
001461 055032 A 1506          STA       CTDTRK,X            CTDTRK= TRACK NO.                                R02 01500
001462 001020 A 1507          JBZ       DTSET2          SAME AS PARTITION START.                             02 01501
001463 001476 R
001464 025045 A 1508          LDB       CTPEXT,X        A=END TRK NO.  B= START TRK NO.                      R02 01502
001465 100444 A 1509          EXC       DISPIM                                                               02 01503
001466 100747 A 1510          EXC       DISCLK                                                               02 01504
001467 002000 A 1511          JMPM      DBADTK          FIND NO. OF BAD TRACKS.                              R02 01505
001470 001777 R
001471 125032 A 1512          ADD       CTDTRK,X         RETURN WITH A= NO.OF BAD TRACKS                     R02 01506
001472 055032 A 1513          STA       CTDTRK,X                                                             R02 01507
001473 025042 A 1514 DTSET4   LDB       CTRTN2,X                                                             R02 01508
001474 006706 A 1515          IJMP      0,B                                                                  02 01509
001475 000000 A
               1516 *                                                                                        R02 01510
001476 006506 A 1517 DTSET2   JSR       DTSTS,B         CHECK IF GOOD OR BAD TRACK                           R02 01511
001477 001707 R
001500 001002 A 1518          JAP       DTSET4          GOOD TRACK                                           R02 01512
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001501 001473 R
001502 045032 A 1519          INR     CTDTRK,X      BAD. INCREMENT TO NEXT TRACK.                R02 01513
001503 015032 A 1520          LDA     CTDTRK,X                                                   R02 01514
001504 001000 A 1521          JMP     RTSET2                                                     R02 01515
001505 001473 R
                1522 *                                                                           R02 01516
                1523          EJEC    ****          FINISH CLOSE STATE ENTRY    ****             R02 01517
001506 025012 A 1526 D1FNSH   LDB     CTFCB,X       FINISH THE CLOSE                             R02 01520
001507 005001 A 1527          TZA                                                                R02 01521
001510 056003 A 1528          STA     FCCADR,B      ZERO THE FOUR ADDRESS                        R02 01522
001511 056004 A 1529          STA     FCCEOF,B      WORDS IN THE FCB, TO                         R02 01523
001512 056005 A 1530          STA     FCIFE,B       PREVENT ITS FURTHER USE                      R02 01524
001513 056006 A 1531          STA     FCEFE,B                                                    R02 01525
                1533          IFF     VORTEX-2                                          V2       02 01527
                1534          JMP     RSTFNR        RESTORE FCB AND EXIT TO V$FNR       V2       02 01528
                1535          IFT     VORTEX-2                                          V2       02 01529
001514 001000 A 1536          JMP     V$FNR         EXIT TO FIND NEXT REQUEST                    R02 01530
001515 001325 R
                1537          EJEC    ****          SKIP RECORD PROCESSOR     ****               R02 01531
001516 025012 A 1540 D1SREC   LDB     CTFCB,X       FCB ADR                                      R02 01534
001517 016002 A 1541          LDA     FCACM,B                                                    R02 01535
001520 006430 A 1542          BT      XA0+8,D1AERR  ERROR IF DIRECT ACCESS.                      R02 01536
001521 000163 R
001522 016006 A 1543          LDA     FCEFE,B                                                    R02 01537
001523 146005 A 1544          SUB     FCIFE,B                                                    R02 01539
001524 005012 A 1545          TPD                                                                R02 01539
001525 005301 A 1546          TZA                                                                R02 01540
001526 165051 A 1547          MUL     CTCONV,X      CONVERT TO PHYSICAL RECORD                   R02 01541
001527 005021 A 1548          TBA                                                                R02 01542
001530 025012 A 1549          LDB     CTFCB,X                                                    R02 01543
001531 126005 A 1550          ADD     FCIFE,B                                                    R02 01544
001532 055026 A 1551          STA     CTSEOF,X                                                   R02 01545
001533 015025 A 1553          LDA     CTMODE,X                                                     02 01547
001534 006417 A 1554          BT      XR1+12,D1SRC1  JMP IF MODE = REVERSE                         02 01548
001535 001547 R
001536 016005 A 1555          LDA     FCIFE,B                                                      02 01549
001537 126003 A 1556          ADD     FCCADR,B                                                     02 01550
001540 005111 A 1557          IAR                                                                  02 01551
001541 146006 A 1558          SUB     FCLFE,B       CHECK IF PASS EOF.                             02 01552
001542 001002 A 1559          JAP     D1EXT2        YES                                            02 01553
001543 000126 R
001544 046003 A 1560          INR     FCCADR,B      INCREMENT RECORD NUM                         R02 01554
                1561          IFF     VORTEX-2                                          V2       02 01555
                1562          JMP     RSTFNR        RESTORE FCB, THEN EXIT              V2       02 01556
                1563          IFT     VORTEX-2                                          V2       02 01557
001545 001000 A 1564          JMP     V$FNR         EXIT TO FIND NEXT REQUEST                    R02 01558
001546 001515 R
001547 001547 R 1566 D1SRC1   EQU     *             SKIP - REVERSE                                 02 01560
001547 016003 A 1567          LDA     FCCADR,B                                                   R02 01561
001550 005311 A 1568          DAR                   DECREMENT RECORD NUM                         R02 01562
001551 001010 A 1569          JAT     D1EXT1        BEGINNING OF FILE                            R02 01563
001552 000122 R
001553 056003 A 1570          STA     FCCADR,B                                                   R02 01564
                1571          IFF     VORTEX-2                                          V2       02 01565
                1572          JMP     RSTFNR        RESTORE FCB AND EXIT TO V$FNR       V2       02 01566
                1573          IFT     VORTEX-2                                          V2       02 01567
001554 001000 A 1574          JMP     V$FNR         EXIT TO FIND NEXT REQUEST                    R02 01568
001555 001543 E
                1575          EJEC                  VALIDATE ADRS, SKIP TO CURRENT RECORD        R02 01569
001556 065041 A 1577 D1SRCS   STP     CTPTN1,X                                                   R02 01571
001557 025012 A 1578          LDB     CTFCB,X                                                    R02 01572
001560 016003 A 1579          LDA     FCCADR,B                                                   R02 01573
001561 005311 A 1580          DAR                   SET CURR REC NUM                             R02 01574
001562 055037 A 1581          STA     CTEMP1,X      INTO SKIP COUNT                              R02 01575
001563 016002 A 1583          LDA     FCACM,B                                                    R02 01577
001564 006451 A 1584          BT      XA0+9,D1SRS1  JUMP IF ACCESS BY LOGICAL RECORD             R02 01578
001565 001571 R
001566 020421 A 1586          LDX     ONE           RECORD LENGTH = 1 SECTOR                     R02 01580
001567 001000 A 1587          JMP     D1SRS2                                                     R02 01581
001570 001573 R
001571 100444 A 1588 D1SRS1   EXC     DISPIM
001572 100747 A 1589          EXL     D.SCLK
001573 002000 A 1590          JMPM    .DIRECT       FIND NO. OF SECTORS.                         R02 01584
001574 001361 R
001575 065040 A 1591 D1SRS2   STD     CTSKPS,X      STORE IN SKIP LENGTH                         R02 01585
001576 015027 A 1593          LDA     CTSOFT,X                                                   R02 01586
001577 145030 A 1594          SUB     CTSSD,X       CHECK IF EOF PASS PARTITION END              R02 01587
001600 001002 A 1595          JAT     D1EXT2        SET EOF                                      R02 01588
001601 000126 R
001602 025012 A 1596          LDB     CTFCB,X                                                    R02 01590
001603 016005 A 1597          LDA     FCIFE,B                                                    R02 01591
001604 005311 A 1598          DAR                                                                R02 01592
001605 006506 A 1599          JSR     RTSECT,B      CONVERT TO TRACK AND SECTOR                  R02 01593
001606 001452 R
001607 006506 A 1601          JSR     D1SKPS,B      SKIP TO CURRENT RECORD                       R02 01595
001610 001617 R
001611 001004 A 1602          JAT     D1EXT2        PAST EOF                                     02 01596
001612 000125 R
001613 001000 A 1603          RTRN    RTRTN         RETURN                                       R02 01597
001614 001102 R
                1604          EJEC                  **    SKIP SECTORS  SUBROUTINE    **         02 01598
                1605 *                                                                           02 01599
                1606 *        ENTRY:  X REG- CTBL ADDR                                           02 01600
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                    1607 *                B REG- RETURN ADDR                                          02 01601
                    1608 *                CTEMP1 = NUMBER OF RECORDS TO SKIP                          02 01602
                    1609 *                CTEMP2 = FOR LOGICAL RECORDS, NUMBER OF 120 WD              02 01603
                    1610 *                         RECORDS IN LOGICAL RECORD.                         02 01604
                    1611 *                CTDTRK = TRK FROM WHICH SKIP STARTS.                        02 01605
                    1612 *                                                                            02 01606
                    1613 *        DISKPS  UPDATES CTDTRK AND CTDSEC TO THE RECORD SPECIFIED           02 01607
                    1614 *                IN CTEMP1.                                                  02 01608
                    1615 *                                                                            02 01609
                    1616 *        EXIT :  A REG   = 0     SKIP COMPLETED                              02 01610
                    1617 *                        = 1     RECORD SPECIFIED IS EOF RECORD              02 01611
                    1618 *                        = -1    PAST EOF                                    02 01612
                    1619 *                                                                            02 01613
                    1620 *                B REG           RETURN ADDR                                 02 01614
                    1621 *                X REG           CTBL ADDR                                   02 01615
                    1622 *                                                                            02 01616
                    1623 *                                                                            02 01617
       001615 R 1624 D1SKPS EQU   *               SUBROUTINE ENTRY                                    02 01618
001615 065044 A 1625        STB   CTRTN4,X        SAVE RETURN ADDR                                    02 01619
001616 015033 A 1626        LDA   CTDSEC,X        CTDTRK/CTDSEC = TRK/SECTOR INITIAL ADDR.            02 01620
001617 025037 A 1627        LDB   CTEMP1,X         NOW CALC. DESIRED TRK/SECTOR ADDR.                 02 01621
001620 165040 A 1628        MUL   CTEMP2,X         ADJUST FOR LOGICAL RECORD,IF SPECIFIED.            02 01622
001621 005001 A 1629        TZA                    B= RECORD COUNT.                                   02 01623
001622 175016 A 1630        DIV   CTTKSZ,X         CONVERT TO TRKS                                    02 01624
001623 055033 A 1631        STA   CTDSEC,X        SAVE SECTOR COUNT.                                  02 01625
001624 005021 A 1632        TBA                                                                       02 01626
001625 125032 A 1633        ADD   CTDTRK,X                                                            02 01627
001626 025032 A 1634        LDB   CTDTRK,X                                                            02 01628
001627 055032 A 1635        STA   CTDTRK,X        UPDATE TRK COUNT TO SPECIFIED TRK.                  02 01629
001630 100444 A 1636        EXC   DISPIM                                                              02 01630
001631 100747 A 1637        EXC   DISCLK                                                              02 01631
001632 002000 A 1638        CALL  DBADTK          FIND NO. OF BAD TRKS                                02 01632
001633 001777 R
       001634 R 1639 D1SKP2 EQU   *                                                                   02 01633
001634 125032 A 1640        ADD   CTDTRK,X                                                            02 01634
001635 055032 A 1641        STA   CTDTRK,X        UPDATE TRK COUNT FOR BAD TRKS.                      02 01635
001636 015027 A 1642        LDA   CTEOFT,X        GET EOF.READ= FCCEOF,WRITE=FCEFE.                   02 01636
001637 145032 A 1643        SUB   CTDTRK,X        CTEOFT= TRK WITH EOF SECTOR.                        02 01637
001640 001004 A 1644        JAN   D1SKS4          EXCEEDS EOF                                         02 01638
001641 001662 R
001642 001016 A 1645        JANZ  D1RTN4          OK                                                  02 01639
001643 001672 R
001644 025026 A 1646        LDB   CTDEOF,X        EOF IN SAME TRK,CHECK SECTOR                        02 01640
001645 005322 A 1647        DBR                   START SECTOR COUNT FROM 0.                          02 01641
001646 175016 A 1648        DIV   CTTKSZ,X        CTDEOF = EOF, COUNT = SECTORS.                      02 01642
001647 001020 A 1649        JBZ   D1SKP5          1ST TRK                                             02 01643
001650 001654 R
001651 001016 A 1650        JANZ  *+3             IF 0, RESET TO LAST SECTOR                          02 01644
001652 001654 R
001653 015016 A 1651        LDA   CTTKSZ,X                                                            02 01645
001654 005311 A 1652 D1SKP5 DAR                                                                       02 01646
001655 145033 A 1653        SUB   CTDSEC,X        CHECK IF SECTOR THE SAME                            02 01647
001656 001004 A 1654        JAN   D1SKS4                                                              02 01648
001657 001662 R
001660 001016 A 1655        JANZ  D1RTN4                                                              02 01649
001661 001672 R
001662 025026 A 1656 D1SKS4 LDB   CTDEOF,X                                                            02 01650
001663 065031 A 1657        STB   CTDADR,X        SET EOF ADDR.                                       02 01651
001664 001010 A 1658        JAZ   D1RTN4-2        AT EOF                                              02 01652
001665 001670 R
001666 005301 A 1659        DECR  A                                                                   02 01653
001667 001040 A 1660        DATA  01040           X NEVER 0, SKIP NEXT INSTR.                         02 01654
001670 005101 A 1661        INCR  A                                                                   02 01655
001671 001040 A 1662        DATA  01040           SKIP NEXT INSTR.                                    02 01656
001672 005001 A 1663 D1RTN4 TZA                                                                       02 01657
001673 055037 A 1664        STA   CTEMP1,X        SET EOF INDICATOR                                   02 01658
001674 005001 A 1665        TZA                                                                       02 01659
001675 025032 A 1666        LDB   CTDTRK,X        GET NEW TRK NO.                                     02 01660
001676 005322 A 1667        DBR                   DECREMENT TO GET 0-8119 RANGE                       02 01661
001677 006170 A 1668        DIVI  20              DIV BY 20 TRKS/CYL                                  02 01662
001700 000024 A
001701 065245 A 1669        STB   CTCYLN,X        MAY BE A NEW CYL SO SAVE IT                         02 01663
001702 055242 A 1670        STA   CTHEAD,X        SAVE NEW HEAD NO.                                   02 01664
001703 015037 A 1671        LDA   CTEMP1,X        GET EOF INDICATOR                                   02 01665
001704 025044 A 1672        LDB   CTRTN4,X                                                            02 01666
001705 006706 A 1673        IJMP  0,B             RETURN                                              02 01667
001706 000000 A
                1674        EJEC  ****            TEST TRACK STATUS SUBROUTINE      ****             R02 01668
                1676 *      ENTRY: A REG - TRACK TO TEST                                             R02 01670
                1677 *             B REG - RETURN ADR                                                R02 01671
                1678 *             X REG - CTBL ADR                                                  R02 01672
                1679 *                                                                               R02 01673
                1680 *      EXIT:  A REG NEGATIVE - TRACK IS BAD                                     R02 01674
                1681 *             A REG POSITIVE - TRACK IS GOOD                                    R02 01675
                1682 *             B REG - RETURN ADR                                                R02 01676
                1683 *             X REG - CTBL ADR                                                  R02 01677
001707 065043 A 1686 D1TSTS STB   CTRTN3,X        SUBROUTINE ENTRY                                   R02 01680
001710 025023 A 1687        LDB   CTBTT,X                                                            R02 01681
001711 001020 A 1688        JBZ   D1RTN3          NO BAD TKS THIS LUN                                R02 01682
001712 001734 R
001713 100444 A 1690        EXC   DISPIM                                                              02 01684
001714 100747 A 1691        EXC   DISCLK                                                              02 01685
001715 064007 A 1692        STB   D1TST2          STORE TABLE ADR                                    R02 01686
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001716 005311 A 1693          DAR                                                    02 01687
001717 005012 A 1694          TAB                                                   R02 01688
001720 004144 A 1695          LSRB    4         WORD NUMBER IN B                    R02 01689
001721 150472 A 1696          ANA     BM17      0-15 BIT POSITION                   R02 01690
001722 114014 A 1697          ORA     D1TSBT                                        R02 01691
001723 054003 A 1698          STA     D1TST3    STORE BIT TEST INSTRUCTION          R02 01692
001724 006026 A 1699          LDBE    *-*,B     LOAD PROPER TABLE WORD              R02 01693
001725 000000 A
       001725 R 1700 D1TST2   EQU     *-1       ADDRESS OF BAD TK TBL               R02 01694
001726 005301 A 1701          DECR    A                                             R02 01695
001727 006400 A 1703 D1TST3   BT      *-*,D1TST4 TEST TRACK BIT (EXIT IF BAD)       R02 01697
001730 001732 R
001731 003001 A 1704          ZERO    A         TRACK GOOD                          R02 01698
001732 100147 A 1705 D1TST4   EXC     ENACLK    ENABLE INTERRUPTS                   R02 01699
001733 100244 A 1706          EXC     ENAPIM                                        R02 01700
001734 025043 A 1708 D1RTN3   LDB     CTRTN3,X                                      R02 01702
001735 006706 A 1709          IJMP    0,B       RETURN                              R02 01703
001736 000000 A
001737 006420 A 1712 D1TSBT   DATA    06420     BIT TEST INST (B REG, IF BIT SET)   R02 01706
               1713           EJEC    *** REWIND UNIT PROCESSOR ****              R02 01707
       001740 R 1716 D1REW    EQU     *                                             R02 01710
001740 015030 A 1717          LDA     CTFCB,X   END OF LUN                          R02 01711
001741 145037 A 1718          SUB     CTEMP1,X  BEG. OF LUN                         R02 01712
001742 145046 A 1719          SUB     CTBDTK,X  REDUCE SIZE BY NO. OF BAD TRKS IN PARTITN R02 01713
001743 005012 A 1720          TAB                                                   R02 01714
001744 003001 A 1721          TZA               FIND RELATIVE SECTOR NO.            R02 01715
001745 165016 A 1722          MUL     CTTKSZ,X                                      R02 01716
001746 005021 A 1723          TBA                                                   R02 01717
001747 025012 A 1724          LDB     CTFCB,X                                       R02 01718
001750 005111 A 1725          IAR                                                   R02 01719
001751 056004 A 1726          STA     FCCEOF,B  STORE IN CURR EOF                   R02 01720
001752 056006 A 1727          STA     FCEFE,B   AND END OF EXTENT                   R02 01721
001753 016002 A 1728          LDA     FCBCM,B                                       R02 01722
001754 006451 A 1729          BI      BA0+9,D1REW4 JMP IF LOGICAL RECORD.           R02 01723
001755 001764 R
       001756 R 1731 D1REW2   EQU     *                                             R02 01725
001756 005101 A 1732          INCR    A         CURR RECORD = 1                     R02 01726
001757 056003 A 1733          STA     FCCADR,B                                      R02 01727
001760 005111 A 1734          IAR               SKIP 1ST SECTOR                     R02 01728
001761 056005 A 1735          STA     FCIFE,B   BEG. OF FILE?                       R02 01729
001762 001000 A 1737          JMP     D1EXT1    SET BEGIN OF DEVICE AND EXIT        R02 01731
001763 000122 R
       001764 R 1738 D1REW4   EQU     *                                             R02 01732
001764 016004 A 1739          LDA     FCCEOF,B                                      R02 01733
001765 005312 A 1740          DECR    A         B=A-1                               R02 01734
001766 005001 A 1741          TZA                                                   R02 01735
001767 175051 A 1742          DIV     CTCONV,X                                      R02 01736
001770 005021 A 1743          TBA                                                   R02 01737
001771 025012 A 1744          LDB     CTFCB,X                                       R02 01738
001772 005111 A 1745          IAR                                                   R02 01739
001773 056004 A 1746          STA     FCCEOF,B                                      R02 01740
001774 056006 A 1747          STA     FCEFE,B                                       R02 01741
001775 001000 A 1748          JMP     D1REW2                                        R02 01742
001776 001756 R
               1749           EJEC                                                  R02 01743
               1750 *
               1751 *                                                               R02 01744
               1752 *        DBADTK                                                 R02 01745
               1753 *                                                               R02 01746
               1754 *        THIS SUBROUTINE WILL COUNT THE NUMBER OF BAD TRACKS    R02 01747
               1755 *         IN A RANGE OF TRACK NUMBERS SPECIFIED IN THE A,B      R02 01748
               1756 *         REGISTERS.                                           R02 01749
               1757 *              ENTER WITH:   B= TRK NO. START                   R02 01750
               1758 *                            A= TRK NO. END                     R02 01751
               1759 *                            X= CTRL                            R02 01752
               1760 *                                                               R02 01753
               1761 *              EXIT  WITH    A= NO. OF BAD TRACKS               R02 01754
               1762 *                            B= DESTROYED.                      R02 01755
               1763 *                            X= CTRL                            R02 01756
               1764 *                                                               R02 01757
               1765 *                                                               R02 01758
001777 000000 A 1766 DBADTK   ENTR                                                  R02 01759
002000 064012 A 1767          STB     DBAD01+1  BEGIN TRK NO.                      R02 01760
002001 025023 A 1768          LDB     CTBIT,X                                      R02 01761
002002 001020 A 1769          JRZ     DBAD12        NO BAD TRACKS ON THIS  UNIT    R02 01763
002003 002073 R
002004 064025 A 1770          STB     DBAD03+1  BAD TRK TABLE ADDR.                R02 01764
002005 025046 A 1771          LDB     CTBDTK,X                                     R02 01765
002006 001020 A 1772          JRZ     DBA912    NO BAD TRACKS THIS PARTITION       R02 01766
002007 002073 R
002010 144002 A 1773          SUB     DBAD01+1  A= END TRACK NO.                   R02 01767
002011 005014 A 1774          TAX               X= NO. OF TRACKS TO TEST - 1       R02 01768
002012 006010 A 1775 DBAD01   LDAI    *         BEGIN TRK NO.                      R02 01769
002013 002012 R
002014 005311 A 1776          DAR                                                  R02 01770
002015 005012 A 1777          TAB                                                  R02 01771
002016 004144 A 1778          LSRB    4         B= INDEX INTO BAD TRACK TABLE      R02 01772
002017 150472 A 1779          ANA     BM17      NOW  0-15                          R02 01773
002020 054041 A 1780          STA     DBA009                                       R02 01774
002021 124033 A 1781          XRD     *+DBAD07+1 LSKA  INSTRUCTION                 R02 01775
002022 054010 A 1782          STA     *+DBD05                                      R02 01776
002023 005001 A 1783          TZA                                                  R02 01777
002024 054041 A 1784          STA     DBAD10+3  CLEAR COUNTER                      R02 01778
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002025 014024 A 1785          LDA     DBAD07-2        =077760                                  R02 01779
002026 124033 A 1786          ADD     DBAD09                                                   R02 01780
002027 150460 A 1787          ANA     BR15                                                     R02 01781
002030 054031 A 1788          STA     DBAD09          SET BIT COUNTER                          R02 01782
002031 006016 A 1789 DBAD03   LDAE    *,B             GET BAD TRACK TABLE WORD                 R02 01783
002032 002031 R
002033 004340 A 1790 DBAD05   LSRA    0               MODIFIED ABOVE                           R02 01784
002034 006440 A 1791          BT      RA0+0,DBAD06                                             R02 01785
002035 002041 R
002036 044027 A 1792          INR     DBAD10+3        1= BAD TRK. INCREMENT COUNT.             R02 01786
002037 001000 A 1793          JMP     DBAD06+3        CHECK NEXT TRK                            02 01787
002040 002044 R
       002041 R 1794 DBAD06   EQU     *                                                        R02 01788
002041 001040 A 1795          JXZ     DBAD10          ALL CHECKED.                             R02 01789
002042 002063 R
002043 005344 A 1796          DXR                     DECREMENT NO. OF TRKS TESTED             R02 01790
002044 044015 A 1797          INR     DBAD09          NO.OF TRKS TO BE TESTED THIS WORD.       R02 01791
002045 004341 A 1798          LSRA    1                                                        R02 01792
002046 001007 A 1799          JOFN    DBAD05+1        TEST                                     R02 01793
002047 002034 R
002050 005122 A 1800          IBR                     COMPLETED THIS WORD.                     R02 01794
002051 006010 A 1801          LDAI    077760                                                   R02 01795
002052 077760 A
002053 054006 A 1802          STA     DBAD09                                                   R02 01796
002054 006010 A 1803 DBAD07   LDAI    04340           LSRA 0                                   R02 01797
002055 004340 A
002056 006057 A 1804          STAE    DBAD05                                                   R02 01798
002057 002033 R
002060 001001 A 1805          JOF     DBAD03          RESET OVERFLOW.                          R02 01799
002061 002031 R
002062 000000 A 1806 DBAD09   DATA    0               BIT COUNT                                R02 01800
002063 030300 A 1807 DBAD10   LDX     V$CTL                                                    R02 01801
002064 035010 A 1808          LDX     TBRSTS,X        RESTORE X REG.                           R02 01802
002065 006010 A 1809          LDAI    0               COUNT OF BAD TRACKS                      R02 01803
002066 000000 A
       002067 R 1810 DBAD11   EQU     *                                                        R02 01804
002067 100244 A 1811          EXC     ENAPIM                                                   R02 01805
002070 100147 A 1812          EXC     ENACLK                                                   R02 01806
002071 001000 A 1813          JMP*    DBADTK                                                   R02 01807
002072 101777 R
002073 005021 A 1814 DBAD12   TBA                     SET A=0                                  R02 01808
002074 001000 A 1815          JMP     DBAD11                                                   R02 01809
002075 002067 R
                 1816         EJEC                                                                E.2********
                 1817 *       SUBROUTINE:             DRCA                                        E.2********
                 1818 *                                                                           E.2********
                 1819 *       PURPOSE:                READ CURRENT ADDRESS                        E.2********
                 1820 *                                                                           E.2********
                 1821 *       DESCRIPTION:            READS THE CURRENT ADDRESS FROM THE 5        E.2********
                 1822 *                               WORD COUNT FIELD IN THE RMD RECORD          E.2********
                 1823 *                               UNDER BIC CONTROL.  THE CURRENT             E.2********
                 1824 *                               ADDRESS IS READ INTO THE BUFFER             E.2********
                 1825 *                               STARTING AT CTOCBF.                         E.2********
                 1826 *                                                                           E.2********
                 1827 *       CALLING SEQUENCE:       JSR     DRCA,B                              E.2********
                 1828 *                                                                           E.2********
                 1829 *       ON ENTRY:               X = CTBL ADDRESS                            E.2********
                 1830 *                               B = RETURN ADDRESS                          E.2********
                 1831 *                                                                           E.2********
                 1832 *       ON EXIT:                X = CTBL ADDRESS                            E.2********
                 1833 *                                                                           E.2********
       002076 R 1834 DRCA     EQU     *                                                           E.2********
002076 065047 A 1835          STB     CTRTN,X         SAVE RETURN ADDRESS                         E.2********
002077 006020 A 1836          LDBI    6000            APPROX. 50 MS DELAY                         E.2********
002100 013560 A
       002101 R 1837 DRCA01   EQU     *                                                           E.2********
002101 014166 A 1838          LDA     DSEN4           OP-CODE FOR SEN  0400                       E.2********
002102 115006 A 1839          ORA     CTDVAD,X                                                    E.2********
002103 100444 A 1840          EXC     DISPIM          DISABLE PIMS                                E.2********
002104 100747 A 1841          EXC     DISCLK          DISABLE CLOCK                               E.2********
002105 054000 A 1842          STA     *+1                                                         E.2********
002106 101400 A 1843          SEN     0400,DRCA02     SENSE DCU NOT BUSY                          E.2********
002107 002117 R
002110 100244 A 1844          EXC     ENAPIM          ENABLE PIMS                                 E.2********
002111 100147 A 1845          EXC     ENACLK          ENABLE CLOCK                                E.2********
002112 005322 A 1846          DBR                                                                 E.2********
002113 001026 A 1847          JBNZ    DRCA01          WAIT                                        E.2********
002114 002101 R
002115 001000 A 1848          JMP     DISKER          REPORT ERROR, DCU BUSY TOO LONG             E.2********
002116 000134 R
       002117 R 1849 DRCA02   EQU     *                                                           E.2********
002117 010440 A 1850          LDA     DS15            OP-CODE FOR EXC                             E.2********
002120 115006 A 1851          ORA     CTDVAD,X        :EXC     0DD: COMMAND                       E.2********
002121 054005 A 1852          STA     DRCA03                                                      E.2********
002122 110430 A 1853          ORA     BS7             :EXC     02DD: COMMAND                      E.2********
002123 054025 A 1854          STA     DRCA05          STORE :READ ADDRESS: COMMAND               E.2********
002124 014142 A 1855          LDA     DOAR            :OAR     0: OP-CODE                         E.2********
002125 115006 A 1856          ORA     CTDVAD,X                                                    E.2********
002126 054002 A 1857          STA     DRCA04          STORE :OAR     0DD: COMMAND                 E.2********
002127 100000 A 1858 DRCA03   EXC     0               STOP TRANSFER AND INITIALIZE                E.2********
002130 015243 A 1859          LDA     CTUNIT,X                                                    E.2********
002131 103100 A 1860 DRCA04   OAR     0               OUTPUT SUW                                  E.2********
002132 005041 A 1861          TXA                                                                 E.2********
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002133 006120 A 1862          ADDI    CTDCBF          FORM FWA OF INPUT BUFFER                    E.2*********
002134 000052 A
002135 005014 A 1863          TAX                                                                 E.2*********
002136 005111 A 1864          IAR             FORM LWA OF ADDRESS BUFFER                          E.2*********
002137 006506 A 1865          JSR     V$BIC,B COMMON BIC SETUP ROUTINE                            E.2*********
002140 000635 E
002141 000001 A 1866          DATA    1                                                           E.2*********
                1867          IFF     VORTEX-2                                                    E.2*********
                1868          DATA    0       MAP KEY VALUE                                       E.2*********
002142 001004 A 1869          JAN     D1BERR  ERROR IF BIC NOT READY                              E.2*********
002143 000172 R
002144 020300 A 1870          LDB     V$CTL   CTBL TIDB ADDRESS                                   E.2*********
002145 016001 A 1871          LDA     TBST,B                                                      E.2*********
002146 006150 A 1872          ANAI    0177667 CLEAR TIMEOUT AND INTERRUPT                         E.2*********
002147 177667 A
                1873 *                        EXPECTED BITS                                       E.2*********
002150 056001 A 1874          STA     TBST,B                                                      E.2*********
002151 100200 A 1875 DRCA05   EXC     0200    READ ADDRESS                                        E.2*********
002152 100244 A 1876          EXC     ENAPIM                                                      E.2*********
002153 100147 A 1877          EXC     ENACLK                                                      E.2*********
002154 006506 A 1878          JSR     DINST,B INPUT STATUS                                        E.2*********
002155 001373 R
002156 001016 A 1879          JANZ    D1RWE2          JUMP ON BAD STATUS                          E.2*********
002157 000746 R
002160 015053 A 1880          LDA     CTDCBF+1,X      FETCH WORD CONTAINING CYLINDER ADDRESS      E.2*********
002161 150476 A 1881          ANA     PM777           EXTRACT CYLINDER NUMBER                     E.2*********
002162 055052 A 1882          STA     CTDCBF,X        SAVE CURRENT ACTUAL CYLINDER NUMBER         E.2*********
002163 025047 A 1883          LDB     CTRTN,X         RESTORE RETURN ADDRESS                      E.2*********
002164 006706 A 1884          IJMP    0,B                                                         E.2*********
002165 000000 A
                1885          EJEC                                                                02 01810
                1886 *                                                                            02 01811
                1887 * SEEK  CYLINDER  ROUTINE                                                    02 01812
                1888 *                                                                            02 01813
                1889 *        DSEEK                                                               02 01814
                1890 *                  CTDTRK = TRACK  TO SEEK                                   02 01815
                1891 *        ENTER VIA   JSR  DSEEK,B     WITH B= RETURN ADDR                    02 01816
                1892 *                                          X= CONTROLLER TABLE               02 01817
                1893 *                                                                            02 01818
                1894 *        EXIT  WITH  TBEVNT = 0  IF SEEK CYLINDER INITIATED.                 02 01819
                1895 *                    TBEVNT = 1  IF NO SEEK REQUIRED.                        02 01820
                1896 *                                                                            02 01821
                1897 *                                                                            02 01822
                1898 *                                                                            02 01823
002166 007400 A 1899 DRECAL   RSF             RESET RECALIBRATE INDICATOR                         E.2*********
002167 001001 A 1900          DATA    01001   SOF OPCODE                                          E.2*********
002170 007401 A 1901 DSEEK    SSF             SET SEEK INDICATOR                                  E.2*********
002171 065047 A 1902          STB     CTRTN,X SAVE RETURN ADDRESS                                 E.2*********
002172 006506 A 1903          JSR     DINST,B CHECK UNIT ONLINE AND DCU READY                     02 01825
002173 001373 R
002174 005002 A 1904          TZB                                                                 E.2*********
002175 001007 A 1905          JANN    DSK01   JUMP FOR RECALIBRATE                                E.2*********
002176 002204 R
002177 005001 A 1906          TZA             NOW TRK NO. IN CTDTRK TO CYLINDER NUMBER            02 01826
002200 025032 A 1907          LDB     CTDTRK,X TRACK NUMBER TO SEEK, 1-4060                       02 01827
002201 005322 A 1908          DBR              QUOTIENT = CYLINDER NUMBER, 1-203                  02 01828
002202 006170 A 1909          DVI     20      DIVIDE BY 20 HEADS WITH                             02 01829
002203 000024 A
        002204 R 1910 DSK01   EQU     *                                                           E.2*********
002204 065245 A 1911          STB     CTCYLN,X NOW 0-202                                          02 01830
002205 006020 A 1912          IDBI    3000    APPROX. 25 MSEC                                     02 01831
002206 005670 A
        002207 R 1913 DSK20   EQU     *                                                           02 01832
002207 015243 A 1914          LDA     CTUNIT,X GET UNIT NO.                                       02 01833
002210 004347 A 1915          LLRA    7         IN BITS 7-5                                       02 01834
002211 114057 A 1916          ORB     DSEN      OR IN SENSE INSTR.                                02 01835
002212 115006 A 1917          LRH     CTDVAD,X      AND DEVICE ADDR.                            02 01836
002213 100444 A 1918          EXC     ENAPIM                                                    02 01837
002214 100747 A 1919          EXC     DISCLK                                                    02 01838
002215 054000 A 1920          STA     *+1                                                       02 01839
002216 101000 A 1921          SFN     0,DSK21 SENSE UNIT SEEKING                                02 01840
002217 002232 R
002220 100244 A 1922          EXC     ENAPIM                                                    02 01841
002221 100147 A 1923          EXC     ENACLK                                                    02 01842
002222 005322 A 1924          DBR                                                               02 01843
002223 001026 A 1925          JANZ    DSK20   WAIT                                              02 01844
002224 002207 R
002225 005101 A 1926          INCR    01                                                        02 01845
002226 006027 A 1927          LDBR    D1RWE5+3 B=016240                                         02 01846
002227 000776 R
002230 001000 A 1928          JMP     D1ERRX  ERROR, DEVICE 'SEEKING' TOO LONG                  02 01847
002231 000152 R
        002232 R 1929 DSK21   EQU     *       DEVICE NOT SEEKING                                02 01848
002232 100244 A 1930          EXC     ENAPIM                                                    E.2*********
002233 100147 A 1931          EXC     ENACLK                                                    E.2*********
        002234 R 1932 DSK04   EQU     *                                                         02 01849
002234 020300 A 1933          LDB     V$CTL                                                     02 01850
002235 015245 A 1934          LDA     CTCYLN,X BUILD SUW                                        02 01851
002236 115243 A 1935 DSK05    ORA     CTUNIT,X UNIT NUMBER                                      02 01852
002237 055244 A 1936          STA     CTSUW,X                                                   02 01853
        002240 R 1937 DSK06   EQU     *                                                         02 01854
002240 010440 A 1938          LDA     =015                                                      02 01855
002241 115006 A 1939          ORA     CTDVAD,X STOP TRANSFER AND INITIALIZE                     02 01856
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002242 100444 A 1940          EXC     DISPIM                                    02 01857
002243 100747 A 1941          EXC     DISCLK                                    02 01858
002244 054007 A 1942          STA     DSK07                                     02 01859
002245 110427 A 1943          DRA     BS6                                       02 01860
002246 003007 A 1944          XOFN    SETB8       FORM RECALIBRATE COMMAND    E.2********
002247 002272 R
002250 054010 A 1945          STA     DSK10-1     SELECT CYLINDER               02 01861
002251 014015 A 1946          LDA     DDAR                                      02 01862
002252 115006 A 1947          DRA     CTDVAD,X                                  02 01863
002253 054002 A 1948          STA     DSK08       OUTPUT SET-UP WORD            02 01864
002254 100000 A 1949 DSK07    EXC     0           STOP TRANSFER AND INITIALIZE  02 01865
002255 015244 A 1950          LDA     CTSUW,X                                   02 01866
002256 103100 A 1951 DSK08    DAR     0           OUTPUT SET-UP WORD            02 01867
002257 005001 A 1952          TZA                                               02 01868
002260 056003 A 1953          STA     TBEVNT,B    CLEAR INTERRUPT EVENT WORD.   02 01869
002261 100100 A 1954          EXC     0100        SELECT CYLINDER OR RECALIBRATE E.2********
002262 025047 A 1955 DSK10    LDB     CTRTN,X                                   02 01871
002263 100147 A 1956          EXC     ENACLK                                    02 01872
002264 100244 A 1957          EXC     ENAPIM                                    02 01873
002265 006706 A 1958          IJMP    0,B         RETURN TO USER.               02 01874
002266 000000 A
                1959 *                                                          02 01875
002267 103100 A 1960 DDAR     DAR     0           OUTPUT SETUP WORD             02 01876
002270 101400 A 1961 DSEN4    DATA    0101400     SENSE DCU NOT BUSY            02 01877
002271 101000 A 1962 DSEN     DATA    0101000     SENSE DISC                    02 01878
002272 110431 A 1963 SETB8    DRA     BS8                                     E.2********
                1964          END                                               R02 01879
ENTRY NAMES
000000 R VZDD
EXTERNAL NAMES
002140 E V$BIC  000161 E V$ERR  000000 E V$EXEC 001555 E V$FNR
000000 E V$IOC  000000 E V$IOST
SYMBOLS
000001 A A      000044 A APIM   000002 A B      000000 A B0
000001 A B1     000012 A B10    000013 A B11    000014 A B12
000015 A B13    000016 A B14    000017 A B15    000002 A B2
000003 A B3     000004 A B4     000005 A B5     000006 A B6
000007 A B7     000010 A B8     000011 A B9     000421 A BM1
000472 A BM17   000475 A BM177  000477 A BM1777 000464 A BM3
000473 A BM37   000463 A BM377  000467 A BM7    000474 A BM77
000476 A BM777  000441 A BR0    000442 A BR1    000453 A BR10
000454 A BR11   000455 A BR12   000456 A BR13   000457 A BR14
000460 A BR15   000443 A BR2    000444 A BR3    000445 A BR4
000446 A BR5    000447 A BR6    000450 A BR7    000451 A BR8
000452 A BR9    000421 A BS0    000422 A BS1    000433 A BS10
000434 A BS11   000435 A BS12   000436 A BS13   000437 A BS14
000440 A BS15   000423 A BS2    000424 A BS3    000425 A BS4
000426 A BS5    000427 A BS6    000430 A BS7    000431 A BS8
000432 A BS9    000047 A CLOCK  000046 A CTBDTK 000034 A CTBFAD
000011 A CTBICB 000023 A CTBTT  000247 A CTCCYL 000051 A CTCONV
000245 A CTCYLH 000031 A CTDADR 000026 A CTDEOF 000033 A CTDSEC
000003 A CTDST  000032 A CTDTRK 000006 A CTDVAD 000037 A CTEMP1
000040 A CTEMP2 000030 A CTEOD  000027 A CTEOFT 000012 A CTFCB
000242 A CTHEAD 000050 A CTIST  000025 A CTMODE 000052 A CTOCBF
000024 A CTOP   000035 A CTOPWD 000045 A CTPEXT 000017 A CTPST0
000020 A CTPST1 000021 A CTPST2 000022 A CTPST3 000005 A CTRCNT
000004 A CTRQBK 000047 A CTRTN  000041 A CTRTN1 000042 A CTRTN2
000043 A CTRTN3 000044 A CTRTN4 000005 A CTRTRY 000010 A CTSTAT
000015 A CTSTSZ 000244 A CTSUW  000016 A CTTKSZ 000243 A CTUNIT
000013 A CTWDS  000036 A CTWLFT 000246 A CTWORD 000160 R D1AERR
000172 R D1BERR 000573 R D1BG00 000607 R D1BG01 000553 R D1BG02
000610 R D1BG03 000564 R D1BG04 000616 R D1BG05 000644 R D1BG06
000514 R D1BGOP 001105 R D1CLSE 001053 R D1CMPS 001044 R D1COMP
000777 R D1CONT 000152 R D1ERRX 000122 R D1EXT1 000126 R D1EXT2
000151 R D1FER1 000147 R D1FERR 001506 R D1FNSH 000121 R D1IBR
000216 R D1IER1 000201 R D1ICRR 000141 R D1IOER 001125 R D1IOI1
001136 R D1IOI2 001152 R D1IOI3 001156 R D1IOI4 001162 R D1IOPEN
000111 R D1IOTBL 000162 R D1PERR 000455 R D1RB20 000463 R D1RB30
000477 R D1RB31 000230 R D1READ 001740 R D1REW  001756 R D1REW2
001764 R D1REW4 001734 R D1RTN3 001672 R D1RTN4 001102 R D1RTRM
000251 R D1RW1  000442 R D1RW10 000301 R D1RW2  000304 R D1RW7
000327 R D1RWB1 000354 R D1RWB2 000374 R D1RWB3 000412 R D1RWB4
000414 R D1RWB5 000374 R D1RWB6 000401 R D1RWB7 000371 R D1RWB8
000416 R D1RWB9 000343 R D1RWBA 000315 R D1RWBG 000701 R D1RWE1
000746 R D1RWE2 000766 R D1RWE4 000773 R D1RWE5 000234 R D1RWI1
000306 R D1RWI3 000313 R D1RWI4 001172 R D1SCH1 001256 R D1SCH2
001270 R D1SCH3 001276 R D1SCH4 001302 R D1SCO1 001363 R D1SCO2
001326 R D1SCO3 000134 R D1SKER 001634 R D1SKP2 001654 R D1SKP5
001615 R D1SKPS 001662 R D1SKS4 001547 R D1SRC1 001101 R D1SRCH
001556 R D1SRCS 001516 R D1SREC 001571 R D1SRS1 001575 R D1SRS2
000720 R D1STAT 000725 R D1STBL 001737 R D1TSBT 001725 R D1TSP2
001727 R D1TST3 001732 R D1TST4 001707 R D1TSTS 000222 R D1WRIT
002012 R DBAD01 002031 R DBAD03 002033 R DBAD05 002041 R DBAD06
002054 R DBAD07 002062 R DBAD09 002060 R DBAD10 002067 R DBAD11
002073 R DBAD12 001777 R DBADTK 000067 R DC02   000041 R DC1A
000052 R DC2A   001373 R DINST  001415 R DINST1 001436 R DINST2
001445 R DINST4 001376 R DINST5 001334 R DISC04 001317 R DISC05
000747 A DISCLK 000745 A DISMP  000444 A DISPIM 001367 R DNSEC2
001361 R DNSECT 002267 R DOAR   002076 R DRCA   002101 R DRCA01
002117 R DRCA02 002127 R DRCA03 002131 R DRCA04 002151 R DRCA05
002166 R DRECAL 002170 R DSEEK  002271 R DSEN   002270 R DSEN4
002204 R DSK01  002234 R DSK04  002236 R DSK05  002240 R DSK06
002254 R DSK07  002256 R DSK08  002262 R DSK10  002207 R DSK20
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002232 R DSK21   000002 A DSPSTI 000002 A DSUNTN 001456 R DTSECT
001476 R DTSET2  001473 R DTSET4 000424 A EIGHT   000147 A ENACLK
000645 A ENAMP   000244 A ENAPIM 000002 A FCACM   000001 A FCBUFF
000883 A FCCADR  000004 A FCCEOF 000006 A FCEFE   000005 A FCIFE
000007 A FCNAM1  000010 A FCNAM2 000011 A FCNAM3  000000 A FCRECL
000465 A FIVE    000423 A FOUR   000300 A LC      000050 A LCJP
000462 A LHW     000045 A MP     000045 A MPMR0   000145 A MPMR1
000245 A MPMR2   000345 A MPMR3  000420 A MT      000461 A NEG
000470 A NINE    000421 A ONE    000040 A PIM1    000041 A PIM2
000042 A PIM3    000043 A PIM4   000040 A PIM5    000040 A PIM6
000040 A PIM7    000040 A PIM8   000002 A PSBDTK  000000 A PSBOD
000003 A PSEOD   000001 A PSKEY  000040 A RA0     000000 A RA1
000060 A RB0     000020 A RB1    000460 A RHW     000001 A RPDPWD
000000 A RPSTPR  002272 R SETBS  000467 A SEVEN   000466 A SIX
000027 A TBATSK  000026 A TBCPTH 000011 A TBENTY  000003 A TBEVNT
000021 A TBID    000014 A TBISA  000015 A TBISB   000017 A TBISP
000020 A TBISRS  000016 A TBISX  000022 A TBKN1   000023 A TBKN2
000024 A TBKN3   000002 A TBPL   000004 A TBRSA   000005 A TBRSB
000030 A TBRSE   000007 A TBRSP  000010 A TBRSTS  000006 A TBRSX
000000 A TBS0    000001 A TBS1   000012 A TBS10   000013 A TBS11
000014 A TBS12   000015 A TBS13  000016 A TBS14   000017 A TBS15
000002 A TBS2    000003 A TBS3   000004 A TBS4    000005 A TBS5
000006 A TBS6    000007 A TBS7   000010 A TBS8    000011 A TBS9
000001 A TBST    000025 A TBTLC  000013 A TBTMIN  000012 A TBTMS
000000 A TBTRD   000471 A TEN    000464 A THREE   000472 A TWO
000403 A V$1MIN  000415 A V$BPC  000075 A V$BGLB  002140 E V$BIO
000056 A V$BIC1  000315 A V$BTB  000414 A V$BVN   000324 A V$COM
000353 A V$CKB   000411 A V$CKIT 000310 A V$CKPT  000301 A V$CPL
000076 A V$CRDM  000341 A V$CRDR 000354 A V$CRM   000302 A V$CRS
000360 A V$CTAD  000300 A V$CTL  000351 A V$CTMS  000070 A V$DATM
000355 A V$DSTB  000376 A V$ERFG 000161 E V$ERR   000000 E V$EXEC
000347 A V$FGLB  000306 A V$FLRS 001555 E V$FNR   000300 A V$FREE
000320 A V$IM    000410 A V$IOA  000000 E V$IOC   000000 E V$IOST
000412 A V$JCB   000055 A V$JCCB 000077 A V$JCTM  000050 A V$JMAM
000377 A V$JOP   000054 A V$LCNT 000313 A V$LER   000356 A V$LIT
000317 A V$LLUP  000307 A V$LRSK 000312 A V$LSAL  000345 A V$LUNT
000316 A V$LUP   000400 A V$LUT1 000401 A V$LUT2  000402 A V$LUT3
000330 A V$MCN   000362 A V$NCTR 000413 A V$OCB   000347 A V$OPCF
000311 A V$OPCL  000360 A V$PIMN 000074 A V$PLCT  000305 A V$PTY8
000361 A V$SCTL  000352 A V$SCV  000375 A V$SLFG  000303 A V$TB
000342 A V$TBGT  000416 A V$TFC  000314 A V$TJCP  000343 A V$TMN
000343 A V$TMS   000304 A V$UTB  000001 A VORTEX  000001 R VZBC1
000000 R VZDD    000001 A X      000420 A ZERO
  0 ERRORS ASSEMBLY COMPLETE
```

```
379   APIM      389   390
366   CLOCK     368   369
446   CTHEAD    447   448   452   453   454   456
421   CTPST3    422   423   424   425   426   427   428   429   430
                431   432   433   434   435   436   437   438   439
                440   441   442   443   444   445   446
 64   ENDC01     58
148   LC        149   150   151   152   153   154   155   156   157
                158   159   160   161   162   165   166   170   171
                173   176   177   182   183   184   185   186   187
                188   189   190   192   193   194   195   194   197
                198   199   200   201   202   203   204   205   207
                210   211   212   213   225   226   227   228   229
                230   231   246   247   248   251   256   257   258
167   LCD1      164
172   LCD2      169
179   LCD3      175
191   LCD4      181
219   LCD5      216
224   LCD6      221
238   LCD7      233
245   LCD8      240
123   LCJP      124   125   126   130   134   135   136   137   140
393   MP        394   395   396   397   398   399
267   MT        268   269   270   271   272   273   274   275   276
                277   278   279   280   281   282   283   284   285
                286   287   288   289   290   291   292   293   294
                295   296   297   298   299   300   301   302   303
                304   305   306   307   308   309   310   311   312
                313   314   315   316   317   318   319   320   321
                322   323
  0   VSBIC     521
149   VSCTL     524
  0   VSERR      24
  0   VSEXEC     21
  0   VSFNR      23
  0   VSIOC      22
  0   VSIOST     25
  1   VORTEX     57   163   168   174   180   206   208   210   220
              232   239   370   372   374   453   505   507
524   VZDD      14   525
```

```
000001 A    1 VORTEX SET      1                 PUT LAST FOR VORTEX                    03 00001
            2 * THIS IS A COPYRIGHTED PROGRAM.COPYRIGHT 1972 BY VARIAN DATA MACHINES  03 00002
            3 *                                                                       03 00003
            4 *      V.D.M.  PART  NO.          92L0605-098D                    C     03 00004
            5 *                                                                       03 00005
            6 *                                             RELEASED     03/01/74     03 00006
            7 *                                                                       03 00007
            8 *                 VZCRA                                                 03 00008
            9 *                                                                       03 00009
           10 *                                                                       03 00010
           11           TITLE   VZCRA                                                 03 00011
           12 ********************************************************************** 03 00012
           13 ****       TIDB SETUP                                               *** 03 00013
           14 *                                                                       03 00014
           15 ********************************************************************** 03 00015
000000 A   17 TBTRD  EQU      0                 TASK THREAD                           03 00017
000001 A   18 TBST   EQU      1                 TASK STATUS                           03 00018
000002 A   19 TBPL   EQU      2                 STATUS CONT. (BITS15-6),PRIORITY LEVEL(5-0 03 00019
000003 A   20 TBEVNT EQU      3                 INTERRUPT EVENT                       03 00020
000004 A   21 TBRSA  EQU      4                 A          REENTRANT AND SUSPEND STACK 03 00021
000005 A   22 TBRSB  EQU      5                 B          REENTRANT AND SUSPEND STACK 03 00022
000006 A   23 TBRSX  EQU      6                 X          REENTRANT AND SUSPEND STACK 03 00023
000007 A   24 TBRSP  EQU      7                 OF/P       REENTRANT AND SUSPEND STACK 03 00024
000010 A   25 TBRSTS EQU      8                 TEMP. STG. REENTRANT AND SUSPEND STACK 03 00025
000011 A   26 TBENTY EQU      9                 TASK ENTRY LOCATION                   03 00026
000012 A   27 TBTMS  EQU      10                TIME COUNTER - CLOCK RESOLUTION IN 5MS INC 03 00027
000013 A   28 TBTMIN EQU      11                TIME COUNTER - CLOCK MINUTE INCREMENTS 03 00028
000014 A   29 TBISA  EQU      12                A               INTERRUPT STACK       03 00029
000015 A   30 TBISB  EQU      13                B               INTERRUPT STACK       03 00030
000016 A   31 TBISX  EQU      14                X               INTERRUPT STACK       03 00031
000017 A   32 TBISP  EQU      15                OF/P            INTERRUPT STACK       03 00032
000020 A   33 TBISRS EQU      16                REENT. STACK    INTERRUPT STACK       03 00033
000021 A   34 TBIO   EQU      17                BLK ALLOC(15-10),I/O THR(9-5),I/O ACT(4-0) 03 00034
000022 A   35 TBKN1  EQU      18                TASK NAME                             03 00035
000023 A   36 TBKN2  EQU      19                TASK NAME                             03 00036
000024 A   37 TBKN3  EQU      20                TASK NAME                             03 00037
000025 A   38 TBTLC  EQU      21                1ST LOC. OF TASK ALLOCATABLE          03 00038
000026 A   39 TBCPTH EQU      22                BACKGROUND TASK QUEUE                 03 00039
000027 A   40 TBATSK EQU      23                TIDB LOC. OF ACTIVATING TASK          03 00040
000030 A   41 TBRSE  EQU      24                TASK ERROR CODE                       03 00041
           42        IFT      VORTEX-2                                             V2 03 00042
           43        GOTO     ENDC01                                               V2 03 00043
           44 TBSIZ  EQU      25                  TASK SIZE BITS 15-10             V2 03 00044
           45 TBMULL EQU      26                  NUCLEUS MODULE INDICATOR, BITS 15-08 V2 03 00045
           46 TBKEY  EQU      26                  TASK'S MAP KEY BITS 03-00        V2 03 00046
           47 TBMIMG EQU      27                  TASK'S MAP IMAGE                 V2 03 00047
           48 TBIST  EQU      28                  INTERRUPT STATUS                 V2 03 00048
           49 ENDC01 CONT                                                         V2  03 00049
           50        EJEC                                                             03 00050
           51 ********************************************************************** 03 00051
           52 *                                                                       03 00052
           53 ****      TASK STATUS DESCRIPTION   (BIT SET WORD 1)                *** 03 00053
           54 *                                                                       03 00054
           55 ********************************************************************** 03 00055
000017 A   57 TBS15  EQU      15                INTERRUPT SUSPEND                     03 00057
000016 A   59 TBS14  EQU      14                TASK SUSPEND                          03 00059
000015 A   60 TBS13  EQU      13                TASK ABORT                            03 00060
000014 A   61 TBS12  EQU      12                TASK EXIT                             03 00061
000013 A   63 TBS11  EQU      11                TIDB CORE RESIDENT                    03 00063
000012 A   64 TBS10  EQU      10                CORE RESIDENT TASK                    03 00064
000011 A   65 TBS9   EQU      9                 FOREGROUND TASK                       03 00065
000010 A   67 TBS8   EQU      8                 TASK PROTECTED                        03 00067
000007 A   68 TBS7   EQU      7                 TASK SCHEDULED BY TIME DELAY          03 00068
000006 A   69 TBS6   EQU      6                 TIME DELAY ACTIVE                     03 00069
000005 A   71 TBS5   EQU      5                 TASK WAITING TO BE LOADED             03 00071
000004 A   72 TBS4   EQU      4                 TASK ERROR                            03 00072
000003 A   73 TBS3   EQU      3                 TASK INTERRUPT EXPECTED               03 00073
000002 A   75 TBS2   EQU      2                 OVERLAY TASK                          03 00075
000001 A   76 TBS1   EQU      1                 UPON TERMINATION ACTIVATE TASK SCHED TASK 03 00076
000000 A   77 TBS0   EQU      0                 TASK SEARCH-ALLOCATED-LOADED          03 00077
           78        EJEC                                                             03 00078
           79 ********************************************************************** 03 00079
           80 *                                                                       03 00080
           81 ***       TASK STATUS DESCRIPTION   (BIT SET WORD 2)                *** 03 00081
           82 *                                                                       03 00082
           83 ********************************************************************** 03 00083
           85 *         BIT 15   -   TASK OPENED                                       03 00085
           87 *         BIT 14   -   UNUSED                                            03 00087
           88 *         BIT 13   -   OVERLAY LOAD                                      03 00088
           89 *         BIT 12   -   TASK WAITING FOR BACKGROUND TASK I/O TO COMPLETE  03 00089
           90 *                       TASK LOCKED-OUT UNTIL BG I/O COMPLETE OR BIT 11  03 00090
           91 *                       IS SET  (ALLOCATABLE SPACE AVAILABLE)            03 00091
           93 *         BIT 11   -   DEFINES THAT ALLOCATABLE SPACE IS AVAILABLE, TRY  03 00093
           94 *                       ALLOCATING TASK AGAIN.  OVERRIDES BIT 12 SET OR  03 00094
           95 *                       BIT 5 IN STATUS WORD.                            03 00095
           96 *         BIT 10   -   BACKGROUND TASK BEING WRITTEN ON CHECKPOINT FILE. 03 00096
           97 *         BIT  9   -   TASK WAITING FOR A TIDB TO COME AVAILABLE FOR     03 00097
           98 *                       SCHEDULING.                                       03 00098
          100 *         BIT  8 TO 6  - UNUSED                                           03 00100
          101        EJEC                                                             03 00101
          102 ********************************************************************** 03 00102
          103 *                                                                       03 00103
          104 ***       JOB PROCESSOR LOW CORE EQUATES                               ** 03 00104
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                    105 *
                    106 ********************************************************************************
000050 A            108 LCJP    EQU     050
000050 A            109 V$JNAM  EQU     LCJP            JCP NAME
000054 A            110 V$LCNT  EQU     LCJP+4          LINE COUNT
000055 A            111 V$JCFG  EQU     LCJP+5          JCP FLAGS
                    112 *                               BIT 2-0    = LOAD AND GO FLAGS
                    113 *                               BIT  3     = DUMP FLAG  1=DUMP, 0=NO DUMP
                    114 *                               BIT  4     = DUMP FLAG IF LOAD AND GO
                    115 *                               BIT 9-5    = UNUSED
                    116 *                               BIT 15-10  = BG EXTRA CORE BLOCKS TO ALLOC
000056 A            118 V$BIC1  EQU     LCJP+6          BIC INTERRUPT ADDRESS TABLE  (10 WORDS)
000070 A            119 V$DATE  EQU     LCJP+16         JCP DATE RECORD
000074 A            120 V$PLCT  EQU     LCJP+20         PERMINATE LINE COUNT
000075 A            121 V$BGLB  EQU     LCJP+21         JCP LIB KEY AND LU NO. (BACKGROUND LIB)
000046 A            122 V$CRDM  EQU     LCJP-2          CARD KEYPUNCH TYPE. 0=026, 1=029          D.1
                    123 *                               BIT 0 = SYSTEM NOMINAL KEYPUNCH MODE.
                    124 *                               BIT 9 = CURRENT JOB KEYPUNCH MODE.
000047 A            125 V$JCTM  EQU     LCJP-1          TEMP. STORAGE FOR /MEM BLOCK              D.1
                    126         EJEC
                    127 ********************************************************************************
                    128 *
                    129 ****    LOW CORE DESCRIPTION                                                ***
                    130 *
                    131 ********************************************************************************
000300 A            133 LC      EQU     0300
000300 A            134 V$CTL   EQU     LC              CURRENT TASK TIDB LOCATION
000301 A            135 V$CPL   EQU     LC+1            CURRENT PRIORITY LEVEL
000302 A            136 V$CRS   EQU     LC+2            CURRENT REENTRANT STACK POINTER
000303 A            137 V$TB    EQU     LC+3            POINTER TO HIGHEST PRIORITY TIDB
000304 A            138 V$UTB   EQU     LC+4            POINTER TO UNUSED TASK TIDB
000305 A            139 V$PTVB  EQU     LC+5            POINTER TO NEXT ENTRY IN REENTRANT STACK
000306 A            140 V$FLRS  EQU     LC+6            FIRST LOC. OF REENTRANT STACK
000307 A            141 V$LRSK  EQU     LC+7            LAST LOC. OF REENTRANT STACK+1
000310 A            142 V$CKPT  EQU     LC+8            CHECKPOINT FLAG 1=ON, 0=OFF
000311 A            143 V$DPCL  EQU     LC+9            LOC. OF TIDB FOR DSPOOM TASK
000312 A            144 V$LSAL  EQU     LC+10           LOC. OF TIDB FOR SYSTEM SAL TASK
000313 A            145 V$LER   EQU     LC+11           LOC. OF TIDB FOR SYSTEM ERROR TASK
000314 A            146 V$TJCP  EQU     LC+12           LOC. OF TIDB FOR JOB CONTROL PROCESSOR TAS
000315 A            147 V$BTD   EQU     LC+13           LOC. OF CURRENT ACTIVE BACKGROUND TSK TIDB
                    148         IFT     VORTEX-2                                                  V2
                    149         GOTO    LCD1            ASSEMBLE FOR VORTEX II                    V2
                    150 V$NPAG  EQU     LC+14           NUMBER OF AVAILABLE PAGES IN V$PAGE       V2
                    151 V$LPP   EQU     LC+15           POINTER OF LAST WORD TESTED IN V$PAGE     V2
                    152 LCD1    CONT                                                              V2
                    153         IFF     VORTEX-2                                                  V2
                    154         GOTO    LCD2            ASSEMBLE IF NOT VORTEX II                 V2
000316 A            155 V$LUP   EQU     LC+14           LOC. OF 1ST UNPROTECTED WORD
000317 A            156 V$LLUP  EQU     LC+15           LOC. OF LAST UNPROTECTED WORD
                    157 LCD2    CONT                                                              V2
000320 A            158 V$IM    EQU     LC+16           INTERRUPT MASK  (8 WORDS)
                    159         IFF     VORTEX-2                                                  V2
                    160         GOTO    LCD3                                                      V2
000330 A            161 V$MPM   EQU     LC+24           MEMORY PROTECT MASK  (4 WORDS)
000334 A            162 V$CAM   EQU     LC+28           CORE ALLOCATION MASK  (4 WORDS)
                    163 *       EQU     LC+32           UNUSED
                    164 LCD3    CONT                                                              V2
                    165         IFT     VORTEX-2                                                  V2
                    166         GOTO    LCD4            ASSEMBLE IF VORTEX II                     V2
                    167 V$MAP   EQU     LC+24           MAP KEY AVAILABILITY MASK                 V2
                    168 V$BTBM  EQU     LC+25           BOTTOM OF NUCLEUS TABLE MODULE            V2
                    169 V$GFCB  EQU     LC+26           GLOBAL FCB MODULE                         V2
                    170 V$MIMG  EQU     LC+27           MAP 0 IMAGE ADDRESS                       V2
                    171 V$ST0   EQU     LC+28           FUNC 1 CONTROL WORD TO SWITCH EXECUTIVE   V2
                    172 V$ST1   EQU     LC+29             MODE STATUS: V$ST0- STATE 0             V2
                    173 V$ST2   EQU     LC+30                          V$ST1- STATE 1             V2
                    174 V$ST3   EQU     LC+31                          STC                        V2
                    175 V$KEY   EQU     LC+32           EXECUTING TASK'S MAP KEY                  V2
                    176 LCD4    CONT                                                              V2
000341 A            177 V$CRDR  EQU     LC+33           CORE RESIDENT DIRECTORY LOCATION
000342 A            178 V$TDGT  EQU     LC+34           TCB OF THREAD OF BG TSK WAITING TO BE ALLO
000343 A            179 V$TMS   EQU     LC+35           TIME OF DAY IN 5 MILLISECOND INCREMENTS
000344 A            180 V$TMN   EQU     LC+36           TIME OF DAY IN MINUTE INCREMENTS
000345 A            181 V$LUNT  EQU     LC+37           ADDR. OF LOGICAL UNIT NAME TABLE
000346 A            182 V$UPCF  EQU     LC+38           DPOOP LOCKOUT FLAG
000347 A            183 V$FGLB  EQU     LC+39           KEY AND LU NO. FOR FOREGROUND LIB
000350 A            184 V$FREE  EQU     LC+40           FREE RUNNING COUNTER INCR. IN MICROSECONDS
000351 A            185 V$CTMS  EQU     LC+41           CLOCK RESOLUTION (N 5 MILLISECOND INCR.
000352 A            186 V$SCV   EQU     LC+42           CLOCK SELECTED COUNT VALUE (1 TO 4095)
000353 A            187 V$CKB   EQU     LC+43           BASIC CLOCK INTERRUPT RATE IN MICROSECONDS
000354 A            188 V$CRM   EQU     LC+44           CLOCK RESOLUTION INCR. FOR 1 MINUTE.
000355 A            189 V$DSTB  EQU     LC+45           BASE ADDR. FOR DST BLOCK
000356 A            190 V$LIT   EQU     LC+46           LAST LOCATION OF BACKGROUND LITERAL TABLE
                    191         IFT     VORTEX-2        ASSEMBLE IF VORTEX II                     V2
                    192 V$PGT   EQU     LC+47           V$PAGE ADDRESS                            V2
                    193         IFT     VORTEX-2        ASSEMBLE IF NOT VORTEX II                 V2
                    194 *       EQU     LC+47           UNUSED
000360 A            195 V$CTAD  EQU     LC+48           BASE ADDR. FOR CONTROLLER ADDR. TABLE
000361 A            196 V$CCTL  EQU     LC+49           CURRENT CONTROLLER IN SCAN
000362 A            197 V$NCTR  EQU     LC+50           NO. OF CONTROLLERS
000363 A            198 V$PIMN  EQU     LC+51           EXTERNAL DEVICE ADDRESS TABLE FOR PIMS
                    199 *                               (2 WORDS DEFINED IN PIM NO ORDER)
                    200         IFT     VORTEX-2                                                  V2
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                201          GOTO    LCD5        ASSEMBLE IF NOT VORTEX II                V2  03 00201
                202 *        EQU     LC+59       UNUSED                                       03 00202
                203 *        EQU     LC+60       UNUSED                                       03 00203
                204 LCD5     CONT                                                         V2  03 00204
                205          IFT     VORTEX-2                                             V2  03 00205
                206          GOTO    LCD6        ASSEMBLE IF VORTEX II                    V2  03 00206
                207 *        EQU     LC+59       JMP V$IUST    PAGE 0 ENTRY FOR I/O       V2  03 00207
                208 *        EQU     LC+60                     STAT CALLS.                V2  03 00208
                209 LCD6     CONT                                                         V2  03 00209
000375 A        210 V$SLFG   EQU     LC+61       SAL TASK BUSY FLAG      1=BUSY, 0=NOT BUSY   03 00210
000376 A        211 V$ERFG   EQU     LC+62       ERROR TASK BUSY FLAG    1=BUSY, 0=NOT BUSY   03 00211
000377 A        212 V$JOP    EQU     LC+63       JCP OPERATING FLAG                           03 00212
000400 A        213 V$LUT1   EQU     LC+64       START LUN ADDR FOR JCP/OPCOM ASSIGNABLE      03 00213
000401 A        214 V$LUT2   EQU     LC+65       START LUN ADDR FOR UNASSIGNABLE              03 00214
000402 A        215 V$LUT3   EQU     LC+66       START LUN ADDR FOR OPCOM ASSIGNABLE          03 00215
000403 A        216 V$IMIN   EQU     LC+67       32767 - (60000/(5*V$CTMS)) + 1               03 00216
                217          IFF     VORTEX-2                                             V2  03 00217
                218          GOTO    LCD7        ASSEMBLE IF NOT VORTEX II                V2  03 00218
                219 *        EQU     LC+68       UNUSED                                       03 00219
                220 *        EQU     LC+69       UNUSED                                       03 00220
                221 *        EQU     LC+70       UNUSED                                       03 00221
                222 *        EQU     LC+71       UNUSED                                       03 00222
                223 LCD7     CONT                                                         V2  03 00223
                224          IFT     VORTEX-2                                             V2  03 00224
                225          GOTO    LCD8                                                 V2  03 00225
                226 *        EQU     LC+68       JMP V$IOC     PAGE 0 ENTRY FOR IOC       V2  03 00226
                227 *        EQU     LC+69                      CALLS.                    V2  03 00227
                228 *        EQU     LC+70       JMP V$EXEC    PAGE 0 ENTRY FOR RTE       V2  03 00228
                229 *        EQU     LC+71                      CALLS.                    V2  03 00229
                230 LCD8     CONT                                                         V2  03 00230
000410 A        231 V$IOA    EQU     LC+72       I/O ALGORITHM                                03 00231
000411 A        232 V$CKIT   EQU     LC+73       CLOCK INT. IN PIM BEFORE LOCKOUT FLAG.       03 00232
000412 A        233 V$JCB    EQU     LC+74       ALL SYSTEM BACKGROUND PROGRAMS AND JCP USE   03 00233
                234 *                            THIS SYSTEM BUFFER TO READ DIRECTIVES AND    03 00234
                235 *                            SOURCE RECORDS IN.                           03 00235
000413 A        236 V$OCB    EQU     LC+75       OPCOM WILL READ OPERATOR KEY-IN REQUESTS     03 00236
                237 *                            IN THIS BUFFER.  IF JCP IS SET NOT ACTIVE    03 00237
                238 *                            AND A 1 DIRECTIVE IS INPUTED, OPCOM          03 00238
                239 *                            WILL MOVE THE DIRECTIVE TO V$JCB BEFORE      03 00239
                240 *                            SCHEDULING JCP.                              03 00240
000414 A        241 V$BVN    EQU     LC+76       BOTTOM OF VORTEX NUCLEUS                     03 00241
000415 A        242 V$BFC    EQU     LC+77       TOP OF FG RES. AREA/BOTTOM OF FG BLK COMM.   03 00242
000416 A        243 V$TFC    EQU     LC+78       TOP OF FG BLK COMMON/TOP OF VORTEX CORE.     03 00243
                244 *        EQU     LC+79       UNUSED                                       03 00244
                245          EJEC                                                             03 00245
                246 ********************************************************************************* 03 00246
                247 *                                                                         03 00247
                248 ****      MASK TABLE DESCRIPTION                                       *** 03 00248
                249 *                                                                         03 00249
                250 ********************************************************************************* 03 00250
000420 A        252 MT       SET     0420                                                     03 00252
000420 A        253 ZERO     EQU     MT          ZERO WORD                                    03 00253
000421 A        254 BS0      EQU     MT+1        BIT MASK CONTENTS 000001                     03 00254
000422 A        255 BS1      EQU     MT+2                          000002                     03 00255
000423 A        256 BS2      EQU     MT+3                          000004                     03 00256
000424 A        257 BS3      EQU     MT+4                          000010                     03 00257
000425 A        258 BS4      EQU     MT+5                          000020                     03 00258
000426 A        259 BS5      EQU     MT+6                          000040                     03 00259
000427 A        260 BS6      EQU     MT+7                          000100                     03 00260
000430 A        261 BS7      EQU     MT+8                          000200                     03 00261
000431 A        262 BS8      EQU     MT+9                          000400                     03 00262
000432 A        263 BS9      EQU     MT+10                         001000                     03 00263
000433 A        264 BS10     EQU     MT+11                         002000                     03 00264
000434 A        265 BS11     EQU     MT+12                         004000                     03 00265
000435 A        266 BS12     EQU     MT+13                         010000                     03 00266
000436 A        267 BS13     EQU     MT+14                         020000                     03 00267
000437 A        268 BS14     EQU     MT+15                         040000                     03 00268
000440 A        269 BS15     EQU     MT+16                        0100000                     03 00269
000441 A        270 BR0      EQU     MT+17       BIT MASK CONTENTS  0177776                   03 00270
000442 A        271 BR1      EQU     MT+18                          0177775                   03 00271
000443 A        272 BR2      EQU     MT+19                          0177773                   03 00272
000444 A        273 BR3      EQU     MT+20                          0177767                   03 00273
000445 A        274 BR4      EQU     MT+21                          0177757                   03 00274
000446 A        275 BR5      EQU     MT+22                          0177737                   03 00275
000447 A        276 BR6      EQU     MT+23                          0177677                   03 00276
000450 A        277 BR7      EQU     MT+24                          0177577                   03 00277
000451 A        278 BR8      EQU     MT+25                          0177377                   03 00278
000452 A        279 BR9      EQU     MT+26                          0176777                   03 00279
000453 A        280 BR10     EQU     MT+27                          0175777                   03 00280
000454 A        281 BR11     EQU     MT+28                          0173777                   03 00281
000455 A        282 BR12     EQU     MT+29                          0167777                   03 00282
000456 A        283 BR13     EQU     MT+30                          0157777                   03 00283
000457 A        284 BR14     EQU     MT+31                          0137777                   03 00284
000460 A        285 BR15     EQU     MT+32                          0077777                   03 00285
000461 A        286 NEG      EQU     MT+33       SET ALL BITS                                 03 00286
000462 A        287 LHW      EQU     MT+34       LEFT HALF WORD MASK 0177400                  03 00287
000463 A        288 RHW      EQU     MT+35       RIGHT HALF WORD MASK    0377                 03 00288
000421 A        289 ONE      EQU     MT+1        CONTAINS NUMBER  1                           03 00289
000422 A        290 TWO      EQU     MT+2        CONTAINS NUMBER  2                           03 00290
000464 A        291 THREE    EQU     MT+36       CONTAINS NUMBER  3                           03 00291
000423 A        292 FOUR     EQU     MT+3        CONTAINS NUMBER  4                           03 00292
000465 A        293 FIVE     EQU     MT+37       CONTAINS NUMBER  5                           03 00293
000466 A        294 SIX      EQU     MT+38       CONTAINS NUMBER  6                           03 00294
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000467 A  295 SEVEN   EQU     MT+39          CONTAINS NUMBER  7                        03 00295
000424 A  296 EIGHT   EQU     MT+40          CONTAINS NUMBER  8                        03 00296
000470 A  297 NINE    EQU     MT+40          CONTAINS NUMBER  9                        03 00297
000471 A  298 TEN     EQU     MT+41          CONTAINS NUMBER 10                        03 00298
000421 A  299 BM1     EQU     MT+1           BIT MASK WORD 00001                       03 00299
000464 A  300 BM3     EQU     MT+36          BIT MASK WORD  00003                      03 00300
000467 A  301 BM7     EQU     MT+39          BIT MASK WORD  00007                      03 00301
000472 A  302 BM17    EQU     MT+42          BIT MASK WORD  00017                      03 00302
000473 A  303 BM37    EQU     MT+43          BIT MASK WORD  00037                      03 00303
000474 A  304 BM77    EQU     MT+44          BIT MASK WORD  00077                      03 00304
000475 A  305 BM177   EQU     MT+45          BIT MASK WORD  00177                      03 00305
000463 A  306 BM377   EQU     MT+35          BIT MASK WORD  00377                      03 00306
000476 A  307 BM777   EQU     MT+46          BIT MASK WORD  00777                      03 00307
000477 A  308 BM1777  EQU     MT+47          BIT MASK WORD  01777                      03 00308
          309         EJEC                                                           03 00309
          310 ********************************************************************** 03 00310
          311 *                                                                      03 00311
          312 ****     BIT TEST BIT DESIGNATION                                ***   03 00312
          313 *                                                                      03 00313
          314 ********************************************************************** 03 00314
000040 A  316 RA0     EQU     040            BT JUMPS WHEN A REGISTER IS 0             03 00316
000000 A  317 RA1     EQU     000            BT JUMPS WHEN A REGISTER IS 1             03 00317
000060 A  318 RB0     EQU     060            BT JUMPS WHEN B REGISTER IS 0             03 00318
000020 A  319 RB1     EQU     020            BT JUMPS WHEN B REGISTER IS 1             03 00319
          321 ********************************************************************** 03 00321
          322 *                                                                      03 00322
          323 **       THE BIT CHECKED                                             03 00323
          324 *                                                                      03 00324
          325 ********************************************************************** 03 00325
000000 A  327 B0      EQU     0                                                      03 00327
000001 A  328 B1      EQU     1                                                      03 00328
000002 A  329 B2      EQU     2                                                      03 00329
000003 A  330 B3      EQU     3                                                      03 00330
000004 A  331 B4      EQU     4                                                      03 00331
000005 A  332 B5      EQU     5                                                      03 00332
000006 A  333 B6      EQU     6                                                      03 00333
000007 A  334 B7      EQU     7                                                      03 00334
000010 A  335 B8      EQU     8                                                      03 00335
000011 A  336 B9      EQU     9                                                      03 00336
000012 A  337 B10     EQU     10                                                     03 00337
000013 A  338 B11     EQU     11                                                     03 00338
000014 A  339 B12     EQU     12                                                     03 00339
000015 A  340 B13     EQU     13                                                     03 00340
000016 A  341 B14     EQU     14                                                     03 00341
000017 A  342 B15     EQU     15                                                     03 00342
          343         EJEC                                                           03 00343
          344 ********************************************************************** 03 00344
          345 *                                                                      03 00345
          346 ****     DEVICE AND FUNCTION CODES                                ***  03 00346
          347 *                                                                      03 00347
          348 ********************************************************************** 03 00348
          350 ****     REAL TIME CLOCK                                          ***  03 00350
000047 A  351 CLOCK   EQU     047            DEVICE NUMBER 047                         03 00351
          352 *                                                                      03 00352
000747 A  353 DISCLK  EQU     0700+CLOCK     DISABLE CLOCK                             03 00353
000147 A  354 ENBCLK  EQU     0100+CLOCK     ENABLE CLOCK                              03 00354
          355         IFF     VORTEX-2                                         V2   03 00355
          356 MPDVAD  EQU     046            RAM ADDRESS                       V2   03 00356
          358 *                                                                      03 00358
          359 ****     PIM                                                     ***  03 00359
000044 A  360 APIM    EQU     044            ALL PIMS DEVICE NUMBER                    03 00360
000040 A  361 PIM1    EQU     040                                                      03 00361
000041 A  362 PIM2    EQU     041                                                      03 00362
000042 A  363 PIM3    EQU     042                                                      03 00363
000043 A  364 PIM4    EQU     043                                                      03 00364
000040 A  365 PIM5    EQU     040                                                      03 00365
000040 A  366 PIM6    EQU     040                                                      03 00366
000040 A  367 PIM7    EQU     040                                                      03 00367
000040 A  368 PIM8    EQU     040                                                      03 00368
          369 *                                                                      03 00369
000444 A  370 DISPIM  EQU     0400+APIM                                                03 00370
000244 A  371 ENAPIM  EQU     0200+APIM                                                03 00371
          373 ****     MEMORY PROTECT                                          ***  03 00373
000045 A  374 MP      EQU     045            DEVICE ADDRESS 045                        03 00374
000745 A  375 DISMP   EQU     0700+MP        DISABLE MEMORY PROTECT                    03 00375
000645 A  376 ENAMP   EQU     0600+MP        ENABLE MEMORY PROTECT                     03 00376
000045 A  377 MPMR0   EQU     0000+MP        SELECT MASK REGISTER 0                    03 00377
000145 A  378 MPMR1   EQU     0100+MP        SELECT MASK REGISTER 1                    03 00378
000245 A  379 MPMR2   EQU     0200+MP        SELECT MASK REGISTER 2                    03 00379
000345 A  380 MPMR3   EQU     0300+MP        SELECT MASK REGISTER 3                    03 00380
          381         EJEC                                                           03 00381
          382         NAME    VZCRA                                                  03 00382
          385         EXT     V$ERR                                                  03 00385
          386         EXT     V$TNR                                                  03 00386
          387         EXT     V$EXEC                                                 03 00387
          388         EXT     V$BIC                                                  03 00388
000200 A  391 READCD  EQU     0200           READ ONE CARD EXT. CONTROL                03 00391
          394 *               CONTROLLER TABLE EQUATES  (CTBL)                       03 00394
000000 A  395 CTACT   EQU     0              CONTROLLER ACTIVE FLAG (BIT 15)           03 00395
000000 A  396 CTIDB   EQU     0              TIRB ADDRESS  (BITS 14-0)                 03 00396
000001 A  397 CTADNC  EQU     1              ADDRESS OF NEXT CONTROLLER IN CHAIN       03 00397
000002 A  398 CTOPM   EQU     2              OP-CODE MASK                              03 00398
000003 A  399 CTDST   EQU     3              ADDRESS OF CURRENT DST                    03 00399
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                000004  A   400  CTRQBK  EQU     4               CURRENT REQUEST BLOCK                                    03 00400
                000005  A   401  CTRTRY  EQU     5               RETRY CONSTDNT  (BITS 15-8)                            03 00401
                000005  A   402  CTRCNT  EQU     5               V$ERR RETRY COUNTER (BITS 7-0)                           03 00402
                000006  A   403  CTDVAT  EQU     6               DEVICE ADDRESS                                           03 00403
                000007  A   404  CTIOA   EQU     7               I/O ALGORITHM VALUE                                      03 00404
                000010  A   405  CTSTAT  EQU     8               DRIVER STATUS                                            03 00405
                000011  A   406  CTBICB  EQU     9               BIC FLAG TABLE ADDRESS                                   03 00406
                000012  A   407  CTFCB   EQU     10              FCB OR DCB ADDRESS                                       03 00407
                000013  A   408  CTWDS   EQU     11              NO. OF WORDS TRANSFERRED                                 03 00408
                000014  A   409  CTFRCT  EQU     12              FREQUENCY CONSTANT  (BITS 15-8)                          03 00409
                000014  A   410  CTFREQ  EQU     12              FREQUENCY COUNT  (BITS 7-0)                              03 00410
                000015  A   411  CTRTLC  EQU     CTFREQ+1        RETURN LOC USED VIA DRIVER SUBROUTINE                    03 00411
                000016  A   412  CTBUF   EQU     CTFREQ+2        80 WORD BUFFER                                           03 00412
                000017  A   413  CTBUFL  EQU     CTFREQ+3        LAST LOC OF 80 WORD BUFFER                               03 00413
                000020  A   414  CTUBUF  EQU     CTFREQ+4        USER'S BUFFER LOCATION CURRENTY STORING                  03 00414
                000021  A   415  CTCCNT  EQU     CTFREQ+5        COLUMN COUNT                                             03 00415
                000022  A   416  CTWCNT  EQU     CTFREQ+6        WORD COUNT                                               03 00416
                000023  A   417  CTOPFG  EQU     CTFREQ+7        OPERATIONS FLAG                                 D.1 03 00417
                            418          EJEC
000000  030300  A   420  VZCRA   LDX     V$CTL           GET TIDB LOC                                             03 00420
000001  005001  A   421          TZA                                                                              03 00421
000002  055003  A   422          STA     TBEVNT,1        CLEAR EVENT WORD                                         03 00422
000003  035010  A   423          LDX     TBRSTS,1        GET CONTROLLER TABLE ADDRESS                             03 00423
000004  014636  A   424          LDA     SENHOP          SENSE HOPPER TYPE CODE                                   03 00424
000005  125006  A   425          ADD     CTDVAT,1        DEVICE ADDRESS                                           03 00425
000006  006506  A   426          JSR     SENCRD,2        SENSE HOPPER EMPTY                                       03 00426
000007  000614  R
000010  001002  A   427          JAP     NREADY                                                                   03 00427
000011  000357  R
000012  014631  A   428          LDA     SENRDY          SENSE READER READY CODE                                  03 00428
000013  125006  A   429          ADD     CTDVAT,1        DEVICE ADDRESS                                           03 00429
000014  006506  A   430          JSR     SENCRD,2        SENSE READER READY                                       03 00430
000015  000614  R
000016  001002  A   431          JAP     VZCR1           IF READY                                            E.2*******
000017  000035  R
                    432          DELAY   1,0,0           WAIT 5MS IN CASE READER STILL IN MOTION             E.2*******
000020  006505  A
000021  000406  A
000022  001100  A
000023  000001  A
000024  000000  A
000025  030300  A   433          LDX     V$CTL           TIDB LOCATION                                       E.2*******
000026  035010  A   434          LDX     TBRSTS,1        GET CONTROLLER TABLE ADDR                           E.2*******
000027  014614  A   435          LDA     SENRDY          SENSE READER READY                                  E.2*******
000030  125006  A   436          ADD     CTDVAT,1        DEVICE ADDR                                         E.2*******
000031  006506  A   437          JSR     SENCRD,2        SENSE READER READY                                  E.2*******
000032  000614  R
000033  001004  A   438          JAN     NREADY          TROUBLE IF STILL NOT READY                          E.2*******
000034  000357  R
000035  000035  R   439  VZCR1   EQU     *                                                                        ********
000035  025004  A   440          LDB     CTRQBK,1                                                            D.1 03 00432
000036  016001  A   441          LDA     1,2             OPERATION WORD                                       D.0 03 00433
000037  004350  A   442          LSRA    8                                                                    D.0 03 00434
000040  150472  A   443          ANA     BM17            ISOLATE OPCODE                                      D.1 03 00435
000041  055023  A   444          STA     CTOPFG,1        SAVE IT                                             D.1 03 00436
000042  015017  A   445          LDA     CTBUFL,1        FINAL BUFFER ADDRESS                                     03 00437
000043  035016  A   446          LDX     CTBUF,1         INITIAL BUFFER ADDRESS                                   03 00438
000044  006506  A   447          JSR     V$BIC,2                                                                  03 00439
000045  000000  E
000046  000001  A   448          DATA    1               EVENT WORD                                               03 00440
                    449          IFF     VORTEX-2                                                            V2 03 00441
                    450  MAPKEY  DATA    0                MAP KEY VALUE                                      V2 03 00442
000047  001004  A   451          JAN     BICER           CHECK IF BIC ERROR                                       03 00443
000050  000366  R
000051  015006  A   452          LDA     CTDVAT,1        CARD READER DEVICE ADDRESS                               03 00444
000052  110440  A   453          ORA     BS15            BUILD I/O INST. - READ ONE CARD                          03 00445
000053  110430  A   454          ORA     BS7                                                                      03 00446
000054  054000  A   455          STA     *+1                                                                      03 00447
000055  000000  A   456          DATA    0                                                                        03 00448
000056  006505  A   457          JSR     V$EXEC,1                                                                 03 00449
000057  000000  E
000060  001102  A   458          DATA    01102           DELAY REQUEST TYPE TWO                                   03 00450
000061  001440  A   459          DATA    800,0           4 SECOND DELAY                                           03 00451
000062  000000  A
000063  020300  A   460  CKDRIP  LDX     V$CTL           INTERRUPT PROCESSOR                                      03 00452
000064  016001  A   461          LDA     TBST,2                                                                   03 00453
000065  150444  A   462          ANA     BR3             CLEAR INTERRUPT EXPECTED BIT                             03 00454
000066  150447  A   463          ANA     BR6             CLEAR TIME DELAY ACTIVE BIT                              03 00455
000067  056001  A   464          STA     TBST,2                                                                   03 00456
000070  036010  A   465          LDX     TBRSTS,2        GET CONTROLLER TABLE LOC.                                03 00457
000071  100444  A   466          EXC     DISPIM          DISABLE CLOCK AND PIMS                                   03 00458
000072  100747  A   467          EXC     DISCLK                                                                   03 00459
000073  006015  A   468          LDAE*   CTBICB,1        BIC ADDRESS                                              03 00460
000074  100011  A
000075  110440  A   469          ORA     BS15            BUILD BIC INITIALIZE INST.                               03 00461
000076  005111  A   470          IAR                                                                              03 00462
000077  054000  A   471          STA     *+1                                                                      03 00463
000100  000000  A   472          DATA    0               I/O BIC INITIALIZE INST.                                 03 00464
000101  005311  A   473          DAR                                                                              03 00465
000102  006110  A   474          DRAI    0102500         BUILD CIA INST.                                          03 00466
000103  102500  A
000104  054000  A   475          STA     *+1                                                                      03 00467
000105  000000  A   476          DATA    0               I/O INST. TO INPUT LAST LOC+1 BIC'ED INTO                03 00468
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000106 100244 A   477          EXC     ENAPIM                                                    03 00469
000107 100147 A   478          EXC     ENACLK                                                    03 00470
000110 026003 A   479          LDB     TBEVNT,2    CHECK IF TIMED-OUT                            03 00471
000111 001026 A   480          JBNZ    CRDR2                                                     03 00472
000112 000120 R
000113 145016 A   481          SUB     CTBUF,1     CHECK IF NO WORDS TRANSFERED                  03 00473
000114 001010 A   482          JAZ     NREADY        NOT READ CONDITION - PICK FAILURE.          03 00474
000115 000357 R
000116 001000 A   483          JMP     DICER         PIC TIME OUT ERROR                          03 00475
000117 000366 R
000120 145016 A   484 CRDR2    SUB     CTBUF,1     CHECK IF NO WORDS TRANSFERRED                 03 00476
000121 001010 A   485          JAZ     NREADY        NOR READ CONDITION - PICK FAILURE           03 00477
000122 000357 R
000123 125016 A   486          ADD     CTBUF,1                                                   03 00478
000124 145017 A   487          SUB     CTBUFL,1    CHECK IF ALL 80 COLUMNS TRANSFERRED           03 00479
000125 005311 A   488          DAR                                                               03 00480
000126 001010 A   489          JAZ     CRDR5       IF 80 COLUMNS XFERED                      C   03 00481
000127 000134 R
000130 006140 A   490          SUBI    28          CHECK IF APERTURE CARD (52 COLUMNS)       C   03 00482
000131 000034 A
000132 001016 A   491          JANZ    CDRDER      ERROR IF NOT 80 OR 52 COLUMNS             C   03 00483
000133 000362 R
000134 014510 A   492 CRDR5    LDA     SENERR      SENSE READER ERROR TYPE CODE              C   03 00484
000135 125006 A   493          ADD     CTDVAT,1    DEVICE ADDRESS                                03 00485
000136 006506 A   494          JSR     SENCRD,2    SENSE READER ERROR                            03 00486
000137 000614 R
000140 001002 A   495          JAP     CDRDER                                                    03 00487
000141 000362 R
000142 006015 A   496          LDAE*   CTBUF,1     CHECK IF FIRST COLUMN EOF                     03 00488
000143 100016 A
000144 134466 A   497          ERA     EOF                                                       03 00489
000145 001010 A   498          JAZ     CRDR6       IF EOF                                  D.103 00490
000146 000154 R
000147 015023 A   499          LDA     CTOPFG,1    OPERATION FLAG                          D.103 00491
000150 001010 A   500          JAZ     CRDR4       IF READ                                 D.103 00492
000151 000164 R
000152 001000 A   501          JMP     V$FNR       JUMP TO FINE NEXT REQUEST               D.103 00493
000153 000000 E
       000154 R   502 CRDR6    EQU     *                                                   D.103 00494
000154 014457 A   503          LDA     EOFST       EOF STATUS                                    03 00495
000155 006025 A   504 CRDR3    LDAE*   CTRQBK,1       SET UP STATUS WORD IN RQBLK               03 00496
000156 100004 A
000157 005032 A   505          MERG    032                                                       03 00497
000160 006065 A   506          STBE*   CTRQBK,1                                                03 00498
000161 100004 A
000162 001000 A   507          JMP     V$FNR       JUMP TO FIND NEXT REQUEST                     03 00499
000163 000153 E
000164 005001 A   508 CRDR4    TZA                 ZERO CHAR. AND WORD COUNT.                    03 00500
000165 055021 A   509          STA     CTCCNT,1                                                  03 00501
000166 055022 A   510          STA     CTWCNT,1                                                  03 00502
000167 025012 A   511          LDB     CTFCB,1     SET UP NO. OF WORD TO TRANSFER                03 00503
                  512          IFT     VORTEX-2                                              V2  03 00504
                  513          GOTO    ENDC04                                                V2  03 00505
                  514          DME     MPDVAD,V$ST3  SWITCH TO USER'S MAP                    V2  03 00506
                  515          LDA     0,2           RECORD LENGTH                           V2  03 00507
                  516          LDB     1,2           FWA OF USER'S BUFFER                    V2  03 00508
                  517          DME     MPDVAD,V$ST0  RESTORE MAP 0                           V2  03 00509
                  518          STA     CTWDS,1                                               V2  03 00510
                  519          STB     CTUBUF,1                                              V2  03 00511
                  520 ENDC04   CONT                                                          V2  03 00512
                  521          IFF     VORTEX-2                                              V2  03 00513
                  522          GOTO    ENDC05                                                V2  03 00514
000170 016000 A   523          LDA     0,2                                                       03 00515
000171 055013 A   524          STA     CTWDS,1                                                   03 00516
000172 016001 A   525          LDA     1,2           SET UP 1ST LOC. OF USERS BUFFER             03 00517
000173 055020 A   526          STA     CTUBUF,1                                                  03 00518
                  527 ENDC05   CONT                                                          V2  03 00519
000174 025004 A   528          LDB     CTRQBK,1      GET READ MODE                               03 00520
000175 016001 A   529          LDA     1,2                                                       03 00521
000176 006415 A   530          BT      RA1+B13,ASCII   TRANSFER TO NON-BINARY PROCESSOR          03 00522
000177 000302 R
000200 006414 A   531          BT      RA1+B12,ASCINP  TRANSFER TO NON-BINARY PROCESSOR          03 00523
000201 000274 R
000202 015016 A   532 SYSBIN   LDA     CTBUF,1       GET INPUT BUFFER LOCATION                   03 00524
000203 125021 A   533          ADD     CTCCNT,1      ADD COLUMN COUNT                            03 00525
000204 005012 A   534          TAB                                                               03 00526
000205 026000 A   535          LDB     0,2           GET 16 BIT BINARY COLUMN                    03 00527
000206 004044 A   536          LRLB    4                                                         03 00528
000207 015021 A   537          LDA     CTCCNT,1      GET POSITION FORMAT TYPE                    03 00529
000210 150464 A   538          ANA     BM3                                                       03 00530
                  539          IFT     VORTEX-2                                              V2  03 00531
                  540          GOTO    ENDC06                                                V2  03 00532
                  541          EXC     DISPIM                                                V2  03 00533
                  542          EXC     ENACLK                                                V2  03 00534
                  543 ENDC06   CONT                                                          V2  03 00535
000211 001010 A   544          JAZ     TYPE4                                                     03 00536
000212 000226 R
000213 140422 A   545          SUB     TWO                                                       03 00537
000214 001004 A   546          JAN     TYPE1                                                     03 00538
000215 000233 R
000216 001016 A   547          JANZ    TYPE3                                                     03 00539
000217 000251 R
                  548          IFF     VORTEX-2                                              V2  03 00540
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                    549 TYPE2   JMPM    LDAUMP      LOAD (A) WITH WORD FROM USER'S MAP      V2 03 00541
                    550         IFT     VORTEX-2                                            V2 03 00542
000220 006015 A     551 TYPE2   LDAE*   CTUBUF,1                                               03 00543
000221 100020 A
000222 004350 A     552         LSRA    8                                                      03 00544
000223 004450 A     553         LLRL    8                                                      03 00545
000224 001000 A     554         JMP     TYPE1A                                                 03 00546
000225 000237 R
                    555         IFT     VORTEX-2                                            V2 03 00547
                    556         GOTO    ENDC07                                              V2 03 00548
                    557 TYPE4   TBA                                                         V2 03 00549
                    558         JSR     STAUMP,2    STORE CONTENTS OF (A) IN USER'S BUFFER  V2 03 00550
                    559 ENDC07  CONT                                                        V2 03 00551
                    560         IFT     VORTEX-2                                            V2 03 00552
000226 006065 A     561 TYPE4   STBE*   CTUBUF,1    STORE BINARY NO. IN USERS BUFFER           03 00553
000227 100020 A
000230 045021 A     562         INR     CTCCNT,1    INCREMEN CHAR. COUNT.                      03 00554
000231 001000 A     563         JMP     SYSBIN                                                 03 00555
000232 000202 R
                    564         IFF     VORTEX-2                                            V2 03 00556
                    565 TYPE1   JMPM    LDAUMP      LOAD (A) WITH WORD FROM USER' BUFFER    V2 03 00557
                    566         IFT     VORTEX-2                                            V2 03 00558
000233 006015 A     567 TYPE1   LDAE*   CTUBUF,1                                               03 00559
000234 100020 A
000235 004344 A     568         LSRA    4                                                      03 00560
000236 004444 A     569         LLRL    4                                                      03 00561
                    570         IFT     VORTEX-2                                         V2 03 00562
                    571         GOTO    ENDC01                                           V2 03 00563
                    572 TYPE1A  EQU     *                                                V2 03 00564
                    573         STB     CTRTLC,1    SAVE CONTENTS OF (B)-REG.            V2 03 00565
                    574         JSR     STAUMP,2    STORE (A)-REG. IN USER BUFFER        V2 03 00566
                    575         LDB     CTRTLC,1    RESTORE (B)-REG.                     V2 03 00567
                    576 ENDC01  CONT                                                     V2 03 00568
                    577         IFT     VORTEX-2                                            V2 03 00569
000237 006055 A     578 TYPE1A  STAE*   CTUBUF,1    STORE BINARY NO. IN USERS BUFFER           03 00570
000240 100020 A
000241 045022 A     579         INR     CTWCNT,1                                           03 00571
000242 045020 A     580         INR     CTUBUF,1                                           03 00572
000243 015022 A     581         LDA     CTWCNT,1    CHECK IF REQUESTED NO. OF WORDS TRANSFERED 03 00573
000244 145013 A     582         SUB     CTWDS,1                                            03 00574
000245 001010 A     583         JAZ     CRDR10                                             03 00575
000246 000352 R
000247 001000 A     584         JMP     TYPE4                                              03 00576
000250 000226 R
                    585         IFF     VORTEX-2                                        V2 03 00577
                    586 TYPE3   JMPM    LDAUMP       LOAD WORD FROM USER'S BUFFER       V2 03 00578
                    587         IFT     VORTEX-2                                        V2 03 00579
000251 006015 A     588 TYPE3   LDAE*   CTUBUF,1                                           03 00580
000252 100020 A
000253 004354 A     589         LSRA    12                                                 03 00581
000254 004454 A     590         LLRL    12                                                 03 00582
                    591         IFF     VORTEX-2                                        V2 03 00583
                    592         JSR     STAUMP,2     STORE CONTENTS OF (A) IN USER'S BUFFER V2 03 00584
                    593         IFT     VORTEX-2                                        V2 03 00585
000255 006055 A     594         STAE*   CTUBUF,1                                           03 00586
000256 100020 A
000257 045021 A     595         INR     CTCCNT,1    INCREMENT CHAR COUNT                   03 00587
000260 045022 A     596         INR     CTWCNT,1    INCREMENT WORD COUNT                   03 00588
000261 045020 A     597         INR     CTUBUF,1    INCR BUFFER STORAGE LOCATION           03 00589
000262 015022 A     598         LDA     CTWCNT,1    CHECK IF REQUESTED NO OF WORDS TRANSFERED 03 00590
000263 145013 A     599         SUB     CTWDS,1                                            03 00591
000264 001010 A     600         JAZ     CRDR10                                             03 00592
000265 000352 R
000266 015021 A     601         LDA     CTCCNT,1    CHECK IF 80 COLUMNS TRANSFERED.        03 00593
000267 144351 A     602         SUB     EIGHTY                                             03 00594
000270 001010 A     603         JAZ     CRDR10                                             03 00595
000271 000352 R
000272 001000 A     604         JMP     SYSBIN                                             03 00596
000273 000202 R
000274 006015 A     605 ASCINP  LDAE*   CTBUF,1     GET 1ST COLUMN                         03 00597
000275 100016 A
000276 154343 A     606         ANA     BINARY      CHECK IF BINARY INPUT                  03 00598
000277 134342 A     607         ERA     BINARY                                             03 00599
000300 001010 A     608         JAZ     SYSBIN                                             03 00600
000301 000202 R
000302 015016 A     609 ASCII   LDA     CTBUF,1     INPUT BUFFER LOC                       03 00601
000303 125021 A     610         ADD     CTCCNT,1    ADD COLUMN COUNT                       03 00602
000304 005012 A     611         TAB                                                        03 00603
000305 016000 A     612         LDA     0,2         GET 12 BIT BINARY COLUMN TO BE CONVERTED. 03 00604
000306 006506 A     613         JSR     CNVA,2                                             03 00605
000307 000404 R
000310 055015 A     614         STA     CTMTLC,1    SAVE ASCII CHAR. RIGHT JUSTIFIED       03 00606
000311 015021 A     615         LDA     CTCCNT,1                                           03 00607
000312 150421 A     616         ANA     ONE         EVEN = LEFT CHAR./ODD = RIGHT CHAR.    03 00608
000313 005012 A     617         TAB                                                        03 00609
                    618         IFT     VORTEX-2                                        V2 03 00610
                    619         GOTO    ENDC08                                          V2 03 00611
                    620         EXC     DISPIM                                          V2 03 00612
                    621         EXC     DISPIM                                             03 00613
                    622         JMPM    LDAUMP       GET WORD FROM USER'S BUFFER        V2 03 00614
                    623 ENDC08  CONT                                                    V2 03 00615
                    624         IFT     VORTEX-2                                        V2 03 00616
000314 006015 A     625         LDAE*   CTUBUF,1                                           03 00617
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000315 100020 A
000316 003020 A  626          XBZ     ST1             EXECUTE IF LEFT CHAR. (TZA     )                03 00616
000317 000635 R
000320 115015 A  627          DRA     CTRTLC,1                                                        03 00619
000321 003020 A  628          XBZ     ST2             EXECUTE IF RIGHT CHAR.(LRLA   8)                03 00620
000322 000636 R
                 629          IFT     VORTEX-2                                                  V2    03 00621
                 630          GOTO    ENDC09                                                    V2    03 00622
                 631          STB     CTRTLC,1         SAVE (B)-REGISTER                        V2    03 00623
                 632          JSR     STAUMP,2         STORE CONTENTS OF (A) IN USER'S BUFFER   V2    03 00624
                 633          LDB     CTRTLC,1         RESTORE (B)-REGISTER                     V2    03 00625
                 634 ENDC09   CONT                                                            V2      03 00626
                 635          IFT     VORTEX-2                                                  V2    03 00627
000323 006055 A  636          STAE*   CTUBUF,1                                                        03 00628
000324 100020 A
000325 003026 A  637          XBNZ    ST3             IF RIGHT CHAR. INCR. WORD COUNT (CTWCNT)        03 00629
000326 000637 R
000327 003026 A  638          XBNZ    ST4             IF RIGHT CHAR. INCR. BUFFER STORAGE LOC.        03 00630
000330 000640 R
000331 045021 A  639 COMP     INR     CTCCNT,1        INCR. COLUMN COUNT.                             03 00631
000332 015022 A  640          LDA     CTWCNT,1                                                        03 00632
000333 145013 A  641          SUB     CTWDS,1         CHECK IF REQUIRED NO. OF WORDS TRANSFERED.      03 00633
000334 001010 A  642          JAZ     CRDR10                                                          03 00634
000335 000352 R
000336 015021 A  643          LDA     CTCCNT,1        CHECK IF 80 COLUMNS TRANSFERED                  03 00635
000337 144301 A  644          SUB     EIGHTY                                                          03 00636
000340 001010 A  645          JAZ     CRDR10                                                          03 00637
000341 000352 R
000342 001000 A  646          JMP     ASCII                                                           03 00638
000343 000302 R
                 647          IFF     VORTEX-2                                                  V2    03 00639
                 648 UNFORM   JSR     STAUMP,2         STORE CONTENTS OF (A) IN USER'S BUFFER   V2    03 00640
                 649          IFT     VORTEX-2                                                  V2    03 00641
000344 006055 A  650 UNFORM   STAE*   CTUBUF,1         STORE IN USERS BUFFER                           03 00642
000345 100020 A
000346 045020 A  651          INR     CTUBUF,1                                                        03 00643
000347 045022 A  652          INR     CTWCNT,1        WORD COUNT                                      03 00644
000350 001000 A  653          JMP     COMP                                                            03 00645
000351 000331 R
000352 015022 A  654 CRDR10   LDA     CTWCNT,1        STORE WORD COUNT IN NO. OF WORDS                03 00646
000353 055013 A  655          STA     CTWDS,1            TRANSFERED.                                  03 00647
000354 005001 A  656          TZA                     NO ERRORS                                       03 00648
000355 001000 A  657          JMP     CRDR3           SET UP RQBLK AND RETURN TO V$FNR                03 00649
000356 000155 R
                 658          EJEC                                                      V2            03 00650
                 659          IFT     VORTEX-2                                           V2           03 00651
                 660          GOTO    ENDC10                                             V2           03 00652
                 661 *        SUBROUTINE:  LDAUMP                                       V2           03 00653
                 662 *                                                                  V2            03 00654
                 663 *        THIS SUBROUTINE LOADS THE (A)-REGISTER WITH A WORD FROM   V2           03 00655
                 664 *        A USER'S BUFFER.  THE LOCATION FROM WHERE THE WORD IS     V2           03 00656
                 665 *        OBTAINED IS SPECIFIED BY CTUBUF.                          V2           03 00657
                 666 *                                                                  V2            03 00658
                 667 *        ON ENTRY:                                                 V2            03 00659
                 668 *                (X) = CTBL ADDRESS                                52           03 00660
                 669 *                INTERRUPTS MUST BE DISABLED                       52           03 00661
                 670 *        ON EXIT:                                                  52           03 00662
                 671 *                (A) = WORD FROM USER'S BUFFER                     52           03 00663
                 672 *                (B) = UNCHANGED                                   52           03 00664
                 673 *                (X) = UNCHANGED                                   52           03 00665
                 674 *                INTERRUPTS ARE ENABLED                            52           03 00666
                 675          SPAC                                                      52           03 00667
                 676 LDAUMP   ENTR                                                      52           03 00668
                 677          TBA                                                       52           03 00669
                 678          LDB     CTUBUF,1         GET POINTER INTO USER'S BUFFER     52        03 00670
                 679          OME     MPDVAD,V$ST3     SWITCH TO USER'S MAP              V2        03 00671
                 680          LDB     0,2              LOAD WORD FROM USER'S BUFFER       52        03 00672
                 681          OME     MPDVAD,V$ST0     RESTORE MAP 0                     V2        03 00673
                 682          LLRL    16               SWAP (A,B)                         52        03 00674
                 683          EXC     ENAOLK                                              52        03 00675
                 684          EXC     ENAPIM                                              52        03 00676
                 685          JMP*    LDAUMP           EXIT                               52        03 00677
                 686          EJEC                                                      V2           03 00678
                 687 *        SUBROUTINE:  STAUMP                                       52           03 00679
                 688 *                                                                  52           03 00680
                 689 *        THIS SUBROUTINE STORES THE CONTENTS OF THE (A)            52           03 00681
                 690 *        REGISTER IN THE USER'S BUFFER AT THE ADDRESS SPECIFIED BY 52           03 00682
                 691 *        CTUBUF.                                                   52           03 00683
                 692 *                                                                  52           03 00684
                 693 *        ON ENTRY'                                                 52           03 00685
                 694 *                (A) = WORD TO BE STORED IN USER'S BUFFER          52           03 00686
                 695 *                (B) = RETURN ADDRESS                              52           03 00687
                 696 *                (X) = CTBL ADDRESS                                52           03 00688
                 697 *        ON EXIT:                                                  52           03 00689
                 698 *                (A) = UNCHANGED                                   52           03 00690
                 699 *                (B) = DESTROIED                                   52           03 00691
                 700 *                (X) = UNCHANGED                                   52           03 00692
                 701          SPAC                                                      52           03 00693
                 702 STAUMP   EXC     DISPIM                                            52           03 00694
                 703          EXC     DISCLK                                            52           03 00695
                 704          STB     RTNADR+1         SAVE RETURN ADDRESS              52           03 00696
                 705          LDB     CTUBUF,1         ADDRESS WHERE WORD IS TO BE STORED 52         03 00697
                 706          OME     MPDVAD,V$ST3     SWITCH TO USER'S MAP              V2        03 00698
```

```
                    707           STA     0,2             STORE WORD IN USER'S BUFFER                  52 03 00699
                    708           OME     MPDVAD,V$STO    RESTORE MAP 0                               V2 03 00700
                    709           EXC     ENACLK                                                       52 03 00701
                    710           EXC     ENAPIM                                                       52 03 00702
                    711 RTNADR    JMP     *-*              EXIT                                        52 03 00703
                    712 ENDC10    CONT                                                                 52 03 00704
                    713 *           CARD READER NOT READY PROCESSING                                      03 00705
000357 005001 A     714 NREADY    TZA                     SET UP RSTPR  BITS 14-5 = 0   A = 0             03 00706
000360 001000 A     715           JMP     BICER1            NOT READY CONDITION                         03 00707
000361 000375 R
000362 006010 A     716 CURDER    LDAI    031640          SET UP RSTPR - CARD READER ERROR              03 00708
000363 031640 A
000364 001000 A     717           JMP     BICER1                                                        03 00709
000365 000375 R
000366 006015 A     718 BICER     LDAE*   CTBICB,1        GET BIC NO.                                   03 00710
000367 100011 A
000370 004341 A     719           LSRA    1                                                             03 00711
000371 150467 A     720           ANA     SEVEN                                                      C  03 00712
000372 004251 A     721           LRLA    9               SET UP RSTPR  -  BIC ERROR                    03 00713
000373 006120 A     722           ADDI    020640                                                        03 00714
000374 020640 A
000375 006025 A     723 BICER1    LDBE*   CTRQBK,1          GET STATUS WORD IN RQBLK                    03 00715
000376 100004 A
000377 005032 A     724           MERG    032             AND SET UP STATUS                             03 00716
000400 006065 A     725           STBE*   CTRQBK,1                                                      03 00717
000401 100004 A
000402 001000 A     726           JMP     VSERR           A = ERROR TYPE  0=NOT READY/ +=HARDWARE       03 00718
000403 000000 E
                    727           EJEC                                                                  03 00719
                    728 ********************************************************************************* 03 00720
                    729 *   THIS SUBROUTINE CONVERTS THE A REG. FROM TWELVE-(12) BIT BINARY             03 00721
                    730 *       COLUMN FORMAT TO ONE EIGHT BIT ASCII CHARACTER.                         03 00722
                    731 *       THE METHOD USED IS A FOLLOWS                                            03 00723
                    732 *                                                                               03 00724
                    733 *       1) ROWS 12, 11, AND ZERO(0) ARE USED TO INDEX INTO AN EIGHT             03 00725
                    734 *          WORD TABLE TO GENERATE A  0, 020, 040, OR 060                        03 00726
                    735 *                                                                               03 00727
                    736 *       2) IF THERE ARE NO PUNCHES IN ROWS 1, 3, 5, 7 OR 9; ONE IS              03 00728
                    737 *          LOGICALLY OR'D WITH ABOVE.                                           03 00729
                    738 *                                                                               03 00730
                    739 *       3) IF THERE ARE NO PUNCHES IN ROWS 2, 3, 6, OR 7;  TWO IS               03 00731
                    740 *          LOGICALLY OR'D WITH THE ABOVE.                                       03 00732
                    741 *                                                                               03 00733
                    742 *       4) IF THERE ARE NO PUNCHES IN ROWS 4, 5, 6, OR 7;  FOUR IS              03 00734
                    743 *          LOGICALLY OR'D WITH THE ABOVE.                                       03 00735
                    744 *                                                                               03 00736
                    745 *       5) IF THERE ARE NO PUNCHES IN ROWS 8 OR 9;  EIGHT IS                    03 00737
                    746 *          LOGICALLY OR'D WITH THE ABOVE.                                       03 00738
                    747 *                                                                               03 00739
                    748 *       6) THE RESULTING SIX BIT NUMBER IS USED TO INDEX INTO A                 03 00740
                    749 *          THIRTY-TWO WORD TABLE OF ASCII CHARACTERS.                           03 00741
                    750 *                                                                               03 00742
                    751 *                                                                               03 00743
                    752 *                                                                               03 00744
                    753 *       CALLING SEQUENCE                                                        03 00745
                    754 *                                                                               03 00746
                    755 *       JSR     CNVA,2                                                          03 00747
                    756 *                                                                               03 00748
                    757 *       WITH!                                                                   03 00749
                    758 *          A REGISTER  CONTAINING COLUMN TO BE CONVERTED                        03 00750
                    759 *          X REGISTER  CONTAINS CONTROLLER TABLE ADDRESS.                       03 00751
                    760 *          B REGISTER  CONTAINS RETURN LOCATION                                 03 00752
                    761 *                                                                               03 00753
                    762 *       RETURNS WITH `                                                          03 00754
                    763 *          A REGISTER  CONTAINS ASCII CHAR. RIGHT-JUSTIFIED WITH LEADING        03 00755
                    764 *                      ZEROS.                                                   03 00756
                    765 *          B REGISTER - DESTROYED                                               03 00757
                    766 *          X REGISTER  CONTAINS CONTROLLER TABLE ADDRESS                        03 00758
                    767 *                                                                               03 00759
                    768 ********************************************************************************* 03 00760
000404 065015 A     770 CNVA      STB     CTRTLC,1                                                      03 00762
000405 025004 A     771           LDB     CTRQBK,1        GET MODE                                      03 00763
000406 026001 A     772           LDB     1,2             CHECK IF ASCII OR UNFORMATTED                 03 00764
000407 006435 A     773           BT      RB1+B13,UNFORM                                                03 00765
000410 000344 R
000411 001016 A     774           JANZ    *+6             CHECK IF BLANK CHARACTER.                     03 00766
000412 000417 R
000413 006010 A     775           LDAI    0240            BLANK CHARACTER                               03 00767
000414 000240 A
000415 001000 A     776           JMP     CNVA1                                                         03 00768
000416 000477 R
000417 020432 A     777           LDB     BS9             OCTAL 01000                                   03 00769
000420 004511 A     778           LASR    9               SPLIT OFF ZONE                                03 00770
000421 006120 A     779           ADDI    ZTBL                                                          03 00771
000422 000504 R
000423 005014 A     780           TAX                                                                   03 00772
000424 035000 A     781           LDX     0,1             GET ZONE CONVERSION                           03 00773
000425 005021 A     782           TBA                                                                   03 00774
000426 006150 A     783           ANAI    052500                                                        03 00775
000427 052500 A
000430 003010 A     784           XAZ     CNVZ            IF NO ROW 1, 3, 5, 7, OR 9                    03 00776
000431 000503 R
000432 004401 A     785           LASL    1                                                             03 00777
```

```
000433 005021 A  786          TBA                                                                  03 00778
000434 006150 A  787          ANAI    063000                                                       03 00779
000435 063000 A
000436 003010 A  788          XAZ     CNVZ        IF NO ROW 2, 3, 6, OR  7                         03 00780
000437 000503 R
000440 004401 A  789          LASL    1                                                            03 00781
000441 005021 A  790          TBA                                                                  03 00782
000442 006150 A  791          ANAI    036000                                                       03 00783
000443 036000 A
000444 003010 A  792          XAZ     CNVZ        IF NO ROW 4, 5, 6, OR 7                          03 00784
000445 000503 R
000446 004401 A  793          LASL    1                                                            03 00785
000447 005021 A  794          TBA                                                                  03 00786
000450 154171 A  795          ANA     BINARY      OCTAL 03000                                      03 00787
000451 003010 A  796          XAZ     CNVZ        IF NO ROW 8 OR 9                                 03 00788
000452 000503 R
000453 005041 A  797          TXA                                                                  03 00789
000454 005002 A  798          TZB                                                                  03 00790
000455 150474 A  799          ANA     BM77        CLEAN IT TO 6 BITS                               03 00791
000456 004541 A  800          LLSR    1                                                            03 00792
000457 006120 A  801          ADDI    CTBL26      GET TABLE ADDRESS                                03 00793
000460 000514 R
000461 005024 A  802          TBX                                                                  03 00794
000462 020046 A  803          LDB     V$CRDM      CHECK IF 026 CODE                                03 00795
000463 006470 A  804          BT      RB0+B8,*+4                                                   03 00796
000464 000467 R
000465 006120 A  805          ADDI    CTBL29-CTBL26 029 CODE  ADD RELATIVE ADDRESS FROM 026 TA     03 00797
000466 000040 A
000467 005042 A  806          TXB                                                                  03 00798
000470 005014 A  807          TAX                                                                  03 00799
000471 015000 A  808          LDA     0,1         GET WORD                                         03 00800
000472 003020 A  809          XBZ     CNVY        IF LEFT BYTE                                     03 00801
000473 000502 R
000474 150463 A  810          ANA     BM377       CLEAN BYTE                                       03 00802
000475 020300 A  811          LDB     V$CTL       TIDB LOC.                                        03 00803
000476 036010 A  812          LDX     TBRSTS,2    CONTROLLER TABLE LOC.                            03 00804
000477 025015 A  813 CNVA1    LDB     CTRTLC,1    RETURN LOC. ADDRESS                              03 00805
000500 006706 A  814          IJMP    0,2         RETURN TO CALLING TASK.                          03 00806
000501 000000 A
000502 004350 A  815 CNVY     LSRA    8                                                            03 00807
000503 005064 A  816 CNVZ     MERG    064                                                          03 00808
000504 000000 A  817 ZTBL     DATA    0,060,040,0,020,0,060,0                                      03 00809
000505 000060 A
000506 000040 A
000507 000000 A
000510 000020 A
000511 000000 A
000512 000060 A
000513 000000 A
000514                818 CTBL26 BSS     0           CHARACTER TABLE, 026 KEYPUNCH                03 00810
                      819 * ..... CHARACTER TABLE, 026 KEYPUNCH                                    03 00811
000514 157276 A  820          DATA    '↑>'                                                         03 00812
000515 135247 A  821          DATA    0135247                                                      03 00813
000516 136737 A  822          DATA    '=←987654321 '                                               03 00814
000517 134670 A
000520 133666 A
000521 132664 A
000522 131662 A
000523 130640 A
000524 123273 A  823          DATA    '&<().?IHGFEDCBA+%:J*$!RQPONMLKJ-#\"(,@ZYXWVUTS/0'           03 00815
000525 155651 A
000526 127277 A
000527 144710 A
000530 143706 A
000531 142704 A
000532 141702 A
000533 140653 A
000534 122673 A
000535 156652 A
000536 122241 A
000537 151321 A
000540 150317 A
000541 147315 A
000542 146313 A
000543 145255 A
000544 121734 A
000545 121250 A
000546 126300 A
000547 155331 A
000550 154327 A
000551 153323 A
000552 152323 A
000553 127660 A
                      824 *........ CHARACTER TABLE, 029 KEYPUNCH                                  03 00816
000554                825 CTBL29 BSS     0                                                         03 00817
000554 121275 A  826          DATA    '"='                                                         03 00818
000555 123700 A  827          DATA    0123700                                                      03 00819
000556 121672 A  828          DATA    '@:987654321 '                                               03 00820
000557 134670 A
000560 133666 A
000561 132664 A
000562 131662 A
000563 130640 A
```

```
000564 157253 A  829          DATA    '↑+<<.[IHGFEDCBA&\]>*$!RQPONMLKJ-?>←%,IZYXWVUTS/0'   D   03 00821
000565 124274 A
000566 127333 A
000567 144710 A
000570 143706 A
000571 142704 A
000572 141702 A
000573 140646 A
000574 156273 A
000575 124652 A
000576 122241 A
000577 151321 A
000600 150317 A
000601 147315 A
000602 146313 A
000603 145255 A
000604 137676 A
000605 157645 A
000606 126335 A
000607 155331 A
000610 154327 A
000611 153325 A
000612 152323 A
000613 127660 A
                830          EJEC                                                                03 00822
                831 ********************************************************************************03 00823
                832 *         REENTRANT CARD READER AND BIC SENSE LOOP                            03 00824
                833 *         UPON ENTRANCE                                                       03 00825
                834 *            A = SENSE TYPE AND DEVICE ADDRESS                                03 00826
                835 *            B = RETURN LOC                                                   03 00827
                836 *            X = CONTROLLER TABLE                                             03 00828
                837 *         UPON RETURN                                                         03 00829
                838 *            A = NEG. FOR FALSE, POSITIVE NUMBER FOR TRUE                     03 00830
                839 *            X = CONTROLLER TABLE                                             03 00831
                840 *            B = DESTROYED                                                    03 00832
                841 *         CALLING SEQUENCE                                                    03 00833
                842 *            JSR    SENCRD,2                                                  03 00834
                843 *            RETURN LOC - INTERRUPTS ENABLED                                  03 00835
                844 ********************************************************************************03 00836
000614 100747 A  845 SENCRD EXC     DISCLK          DISABLE CLOCK AND PIM                          03 00837
000615 100444 A  846        EXC     DISPIM                                                         03 00838
000616 054012 R  847        STB     RETLOC+1        SAVE RETURN LOC.                               03 00839
000617 006110 A  848        DRAI    0101000         SET UP SENSE INSTRUCTION                       03 00840
000620 101000 A
000621 054000 A  849        STA     *+1                                                            03 00841
000622 005000 A  850        NOP                     SENSE CARD READER                              03 00842
000623 000625 R  851        DATA    *+2                                                            03 00843
000624 130440 A  852        ERA     BS15            FALSE                                          03 00844
000625 130440 A  853        ERA     BS15            TRUE                                           03 00845
000626 100147 A  854        EXC     ENACLK          ENABLE CLOCK AND PIMS                          03 00846
000627 100244 A  855        EXC     ENAPIM                                                         03 00847
000630 001000 A  856 RETLOC JMP     *-*             RETURN TO CALLING PROGRAM                      03 00848
000631 000000 A
                857          EJEC                                                                03 00849
000632 177700 A  858 ADRMSK DATA    0177700         ADDRESS MASK                                   03 00850
000633 000207 A  859 EOF    DATA    0207            EOF - TWELVE BIT BINARY COLUMN FORMAT          03 00851
000634 000300 A  860 EOFST  DATA    0300            EOF - STATUS                                   03 00852
000635 005001 A  861 ST1    TPA                                                                    03 00853
000636 004250 A  862 ST2    LRLA    8                                                              03 00854
000637 045022 A  863 ST3    INR     CTWCNT,1                                                       03 00855
000640 045020 A  864 ST4    INR     CTUBUF,1                                                       03 00856
000641 000120 A  865 EIGHTY DATA    80                                                             03 00857
000642 003000 A  866 BINARY DATA    03000                                                          03 00858
000643 000300 A  867 SENHOP DATA    0300            SENSE HOPPER EMPTY                             03 00859
000644 000600 A  868 SENRDY DATA    0600            SENSE READER READY                             03 00860
000645 000200 A  869 SENERR DATA    0200            SENSE READER ERROR                             03 00861
                870          END                                                                 03 00862
ENTRY NAMES
000000 R VZCRA
EXTERNAL NAMES
000045 E V$BIC   000403 E V$ERR   000057 E V$EXEC 000163 E V$FNR
SYMBOLS
000632 R ADRMSK  000044 A APIM    000302 R ASCII   000274 R ASCINP
000000 A B0      000001 A B1      000012 A B10     000013 A B11
000014 A B12     000015 A B13     000016 A B14     000017 A B15
000002 A B2      000003 A B3      000004 A B4      000005 A B5
000006 A B6      000007 A B7      000010 A B8      000011 A B9
000366 R BICER   000375 R BICER1  000642 R BINARY  000401 A BM1
000472 A BM17    000475 A BM177   000477 A BM1777  000464 A BM3
000473 A BM37    000463 A BM377   000467 A BM7     000474 A BM77
000476 A BM777   000441 A BR0     000442 A BR1     000453 A BR10
000454 A BR11    000455 A BR12    000456 A BR13    000457 A BR14
000460 A BR15    000443 A BR2     000444 A BR3     000445 A BR4
000446 A BR5     000447 A BR6     000450 A BR7     000451 A BR8
000452 A BR9     000421 A BS0     000422 A BS1     000433 A BS10
000434 A BS11    000435 A BS12    000436 A BS13    000437 A BS14
000440 A BS15    000423 A BS2     000424 A BS3     000425 A BS4
000426 A BS5     000427 A BS6     000430 A BS7     000431 A BS8
000432 A BS9     000362 R CDRDER  000047 A CLOCK   000404 R CNVA
000477 R CNVA1   000502 R CNVY    000503 R CNVZ    000331 R COMP
000352 R CRDR10  000120 R CRDR2   000155 R CRDR3   000164 R CRDR4
000134 R CRDR5   000154 R CRDR6   000063 R CRDRIP  000000 A CTACT
000001 A CTADNC  000011 A CTBICB  000514 R CTBL26  000554 R CTBL29
```

```
000016 A CTBUF   000017 A CTBUFL 000021 A CTCCNT 000003 A CTDST
000006 A CTDVAT 000012 A CTFCB   000014 A CTFRCT 000014 A CTFREQ
000000 A CTIDB   000007 A CTIOA  000023 A CTOPFG 000002 A CTOPM
000005 A CTRCNT 000004 A CTRQBK 000015 A CTRTLC 000005 A CTRTRY
000010 A CTSTAT 000020 A CTUBUF 000022 A CTWCNT 000013 A CTWDS
000747 A DISCLK 000745 A DISMP   000444 A DISPIM 000424 A EIGHT
000641 R EIGHTY 000147 A ENACLK 000645 A ENAMP   000244 A ENAPIM
000633 R EOF     000634 R EOFST  000465 A FIVE    000423 A FOUR
000300 A LC      000050 A LCJP   000462 A LHW     000045 A MP
000045 A MPMR0   000145 A MPMR1  000245 A MPMR2  000345 A MPMR3
000420 A MT      000461 A NEG    000470 A NINE    000357 R NREADY
000421 A ONE     000040 A PIM1   000041 A PIM2   000042 A PIM3
000043 A PIM4    000040 A PIM5   000040 A PIM6   000040 A PIM7
000040 A PIM8    000040 A RA0    000000 A RA1    000060 A RB0
000020 A RB1     000200 A READCD 000630 R RETLOC 000463 A RHW
000614 R SENCRD 000645 R SENERR 000643 R SENHOP 000644 R SENRDY
000467 A SEVEN   000466 A SIX    000635 R ST1    000636 R ST2
000637 R ST3     000640 R ST4    000202 R SYSBIN 000027 A TBATSK
000026 A TBCPTH 000011 A TBENTY 000003 A TBEVNT 000021 A TBIO
000014 A TBISA   000015 A TBISB  000017 A TBISP  000020 A TBISPS
000016 A TBISX   000022 A TBKN1  000023 A TBKN2  000024 A TBKN3
000002 A TBPL    000004 A TBRSA  000005 A TBRSB  000030 A TBRSE
000007 A TBRSP   000010 A TBRSTS 000006 A TBRSX  000000 A TBS0
000001 A TBS1    000012 A TBS10  000013 A TBS11  000014 A TBS12
000015 A TBS13   000016 A TBS14  000017 A TBS15  000002 A TBS2
000003 A TBS3    000004 A TBS4   000005 A TBS5   000006 A TBS6
000007 A TBS7    000010 A TBS8   000011 A TBS9   000001 A TBST
000025 A TBTLC   000013 A TBTMIN 000012 A TBTMS  000000 A TBTRD
000471 A TEN     000464 A THREE  000422 A TWO    000233 R TYPE1
000237 R TYPE1A 000220 R TYPE2  000251 R TYPE3  000226 R TYPE4
000344 R UNFORM 000403 A V$1MIN 000415 A V$BFC  000075 A V$BGLB
000045 E V$BIC   000056 A V$BIC1 000315 A V$BTB  000414 A V$BVN
000334 A V$CAM   000353 A V$CKD  000411 A V$CKIT 000310 A V$CKPT
000301 A V$CPL   000046 A V$CRDM 000341 A V$CRDR 000354 A V$CRM
000302 A V$CRS   000360 A V$CTAD 000300 A V$CTL  000351 A V$CTMS
000070 A V$DATE  000355 A V$DSTB 000376 A V$ERFG 000403 E V$ERR
000057 E V$EXEC  000347 A V$FGLB 000306 A V$FLRS 000163 E V$FNR
000350 A V$FREE  000320 A V$IM   000410 A V$IOA  000412 A V$JOB
000055 A V$JCFG  000047 A V$JCTM 000050 A V$JNAM 000377 A V$JOP
000054 A V$LCNT  000313 A V$LER  000356 A V$LIT  000317 A V$LLUP
000307 A V$LRSK  000312 A V$LSAL 000345 A V$LUNT 000316 A V$LUP
000400 A V$LUT1  000401 A V$LUT2 000402 A V$LUT3 000330 A V$MPM
000362 A V$NCTR  000413 A V$OCB  000346 A V$OPCF 000311 A V$OPCL
000363 A V$PIMN  000074 A V$PLCT 000305 A V$PTVB 000361 A V$SCTL
000352 A V$SCV   000375 A V$SLFG 000303 A V$TB   000342 A V$TBCT
000416 A V$TFC   000314 A V$TJCP 000344 A V$TMN  000343 A V$TMS
000304 A V$UTM   000001 A VORTEX 000035 R VZCR1  000000 R VZCRA
000420 A ZERO    000504 R ZTBL
  0 ERRORS ASSEMBLY COMPLETE
```

```
360   APIM      370   371
  0   BICER     451   483
302   BM17      443
273   BR3       462
276   BR6       463
269   BS15      453   469
261   BS7       454
  0   CDRDER    491   495
351   CLOCK     353   354
484   CRDR2     480
508   CRDR4     500
492   CRDR5     489
502   CRDR6     498
406   CTBICB    468
412   CTBUF     446   481   484   486   496
413   CTBUFL    445   487
415   CTCCNT    509
403   CTDVAT    425   429   436   452   493
407   CTFCB     511
410   CTFREQ    411   412   413   414   415   416   417
417   CTOPFG    444   499
400   CTRQBK    440   504   506
414   CTUBUF    519
416   CTWCNT    510
408   CTWDS     518   524
353   DISCLK    467
370   DISPIM    466
354   ENACLK    478
371   ENAPIM    477
 49   ENDC01     43
520   ENDC04    513
  0   ENDC05    522
  0   EOF       497
  0   EOFST     503
133   LC        134   135   136   137   138   139   140   141   142
                143   144   145   146   147   150   151   155   156
                158   161   162   167   168   169   170   171   172
                173   174   175   177   178   179   180   181   182
                183   184   185   186   187   188   189   190   192
                195   196   197   200   210   211   212   213   214
                215   216   231   232   233   236   241   242   243
152   LCD1      149
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157	LCD2	154								
164	LCD3	160								
176	LCD4	166								
204	LCD5	201								
209	LCD6	206								
223	LCD7	218								
230	LCD8	225								
108	LCJP	109	110	111	118	119	120	121	122	125
374	MP	375	376	377	378	379	380			
356	MPDVAD	514	517							
252	MT	253	254	255	256	257	258	259	260	261
		262	263	264	265	266	267	268	269	270
		271	272	273	274	275	276	277	278	279
		280	281	282	283	284	285	286	287	288
		289	290	291	292	293	294	295	296	297
		298	299	300	301	302	303	304	305	306
		307	308							
0	NREADY	427	438	482	485					
0	SENCRD	426	430	437	494					
0	SENERR	492								
0	SENHDP	424								
0	SENRDY	428	435							
20	TBEVNT	428	479							
25	TBRSTS	423	434	465						
18	TBST	461	464							
0	VSBIC	388	447							
134	VSCTL	420	433	460						
0	VSERR	385								
0	VSEXEC	387	457							
0	VSFNR	386	501	507						
171	VSST0	517								
174	VSST3	514								
1	VORTEX	42	148	153	159	165	191	193	200	205
		217	224	355	449	512	521			
439	VZCR1	431								
420	VZCRA	11	382							

```
000001 A     1 VORTEX SET      1                  PUT LAST FOR VORTEX                         00 00001
             2 * THIS IS A COPYRIGHTED PROGRAM.COPYRIGHT 1974 BY VARIAN DATA MACHINES         00 00002
             3 *                                                                              00 00003
             4 *      V.D.M.   PART   NO.         92L0605-199A                           D.1 00 00004
             5 *                                                                              00 00005
             6 *                                                RELEASED      08/02/74   D.1 00 00006
             7 *                                                                              00 00007
             8 *                 V$CLPS                                                  D.1 00 00008
             9 *                                                                              00 00009
            10 *                                                                              00 00010
            11              TITLE   V$CLPS                                               D.1 00 00011
            12 ****************************************************************           L00 00012
            13 *                                                                            L00 00013
            14 ****       TIDB SETUP                                                     ***L00 00014
            15 *                                                                            L00 00015
            16 ****************************************************************************L00 00016
000000 A    18 TBTRD  EQU      0          TASK THREAD                                      L00 00018
000001 A    19 TBST   EQU      1          TASK STATUS                                      L00 00019
000002 A    20 TBPL   EQU      2          STATUS CONT. (BITS15-6),PRIORITY LEVEL(5-0L00 00020
000003 A    21 TBEVNT EQU      3          INTERRUPT EVENT                                  L00 00021
000004 A    22 TBRSA  EQU      4          A             REENTRANT AND SUSPEND STACK        L00 00022
000005 A    23 TBRSB  EQU      5          B             REENTRANT AND SUSPEND STACK        L00 00023
000006 A    24 TBRSX  EQU      6          X             REENTRANT AND SUSPEND STACK        L00 00024
000007 A    25 TBRSP  EQU      7          OF/P          REENTRANT AND SUSPEND STACK        L00 00025
000010 A    26 TBRSTS EQU      8          TEMP. STG. REENTRANT AND SUSPEND STACK           L00 00026
000011 A    27 TBENTY EQU      9          TASK ENTRY LOCATION                              L00 00027
000012 A    28 TBTMS  EQU      10         TIME COUNTER - CLOCK RESOLUTION IN 5MS INCL00 00028
000013 A    29 TBTMIN EQU      11         TIME COUNTER - CLOCK MINUTE INCREMENTS           L00 00029
000014 A    30 TBISA  EQU      12         A                 INTERRUPT STACK                L00 00030
000015 A    31 TBISB  EQU      13         B                 INTERRUPT STACK                L00 00031
000016 A    32 TBISX  EQU      14         X                 INTERRUPT STACK                L00 00032
000017 A    33 TBISP  EQU      15         OF/P              INTERRUPT STACK                L00 00033
000020 A    34 TBISRS EQU      16         REENT. STACK  INTERRUPT STACK                    L00 00034
000021 A    35 TBIO   EQU      17         BLK ALLOC(15-10),I/O THR(9-5),I/O ACT(4-0)L00 00035
000022 A    36 TBKN1  EQU      18         TASK NAME                                        L00 00036
000023 A    37 TBKN2  EQU      19         TASK NAME                                        L00 00037
000024 A    38 TBKN3  EQU      20         TASK NAME                                        L00 00038
000025 A    39 TBTLC  EQU      21         1ST LOC. OF TASK ALLOCATABLE                     L00 00039
000026 A    40 TBCPTH EQU      22         CHECK POINT THREAD                               L00 00040
000027 A    41 TBATSK EQU      23         TIDB LOC. OF ACTIVATING TASK                 D.1 00 00041
000030 A    42 TBRSE  EQU      24         TASK ERROR CODE                                  L00 00042
            43        IFT      VORTEX-2                                                V2 00 00043
            44        GOTO     ENDC01                                                  V2 00 00044
            45 TBSIZ  EQU      25          TASK SIZE, BITS 15-10                           V2 00 00045
            46 TBNULL EQU      25          NUCLEUS MODULE INDICATOR, BITS 15-08            V2 00 00046
            47 TBKEY  EQU      26          TASK'S MAP KEY, BITS 03-00                      V2 00 00047
            48 TBMIMG EQU      27          TASK'S MAP IMAGE                                V2 00 00048
            49 TBIST  EQU      28          INTERRUPT STATUS                                V2 00 00049
            50 ENDC01 CONT                                                             V2 00 00050
            51        EJEC                                                                 L00 00051
            52 ****************************************************************************L00 00052
            53 *                                                                            L00 00053
            54 ****       TASK STATUS DESCRIPTION  (BIT SET WORD 1)                      ***L00 00054
            55 *                                                                            L00 00055
            56 ****************************************************************************L00 00056
000017 A    58 TBS15  EQU      15         INTERRUPT SUSPEND                                L00 00058
000016 A    60 TBS14  EQU      14         TASK SUSPEND                                     L00 00060
000015 A    61 TBS13  EQU      13         TASK ABORT                                       L00 00061
000014 A    62 TBS12  EQU      12         TASK EXIT                                        L00 00062
000013 A    64 TBS11  EQU      11         TIDB CORE RESIDENT                               L00 00064
000012 A    65 TBS10  EQU      10         CORE RESIDENT TASK                               L00 00065
000011 A    66 TBS9   EQU      9          FOREGROUND TASK                                  L00 00066
000010 A    68 TBS8   EQU      8          TASK PROTECTED                                   L00 00068
000007 A    69 TBS7   EQU      7          TASK SCHEDULED BY TIME DELAY                     L00 00069
000006 A    70 TBS6   EQU      6          TIME DELAY ACTIVE                                L00 00070
000005 A    72 TBS5   EQU      5          TASK WAITING TO BE LOADED                        L00 00072
000004 A    73 TBS4   EQU      4          TASK ERROR                                       L00 00073
000003 A    74 TBS3   EQU      3          TASK INTERRUPT EXPECTED                          L00 00074
000002 A    76 TBS2   EQU      2          OVERLAY TASK                                     L00 00076
000001 A    77 TBS1   EQU      1          UPON TERMINATION ACTIVATE TASK SCHED TASK L00 00077
000000 A    78 TBS0   EQU      0          TASK SEARCH-ALLOCATED-LOADED                     L00 00078
            79        EJEC                                                                 L00 00079
            80 ****************************************************************************L00 00080
            81 *                                                                            L00 00081
            82 ***        TASK STATUS DESCRIPTION  (BIT SET WORD 2)                      ***L00 00082
            83 *                                                                            L00 00083
            84 ****************************************************************************L00 00084
            86 *          BIT 15   -   TASK OPENED                                        L00 00086
            88 *          BIT 14   -   UNUSED                                             L00 00088
            89 *          BIT 13   -   OVERLAY LOAD                                       L00 00089
            90 *          BIT 12   -   TASK WAITING FOR BACKGROUND TASK I/O TO COMPLETE   L00 00090
            91 *                       TASK LOCKED-OUT UNTIL BG I/O COMPLETE OR BIT 11    L00 00091
            92 *                       IS SET  (ALLOCATABLE SPACE AVAILABLE)              L00 00092
            94 *          BIT 11   -   DEFINES THAT ALLOCATABLE SPACE IS AVAILABLE. TRY   L00 00094
            95 *                       ALLOCATING TASK AGAIN.  OVERRIDES BIT 12 SET OR    L00 00095
            96 *                       BIT 5 IN STATUS WORD.                              L00 00096
            97 *          BIT 10   -   BACKGROUND TASK BEING WRITTEN ON CHECKPOINT FILE.  L00 00097
            98 *          BIT  9   -   TASK WAITING FOR A TIDB TO COME AVAILABLE FOR      L00 00098
            99 *                       SCHEDULING.                                        L00 00099
           101 *          BIT  8 TO 6  - UNUSED                                             L00 00101
           102        EJEC                                                                 L00 00102
           103 ****************************************************************************L00 00103
           104 *                                                                            L00 00104
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          105 ***     JOD PROCESSOR LOW CORE EQUATES                                    **L00  00105
          106 *                                                                          L00  00106
          107 *************************************************************************L00  00107
000050 A  109 LCJP    EQU     050                                                        L00  00109
000050 A  110 V$JNAM  EQU     LCJP         JCP NAME                                      L00  00110
000054 A  111 V$LCNT  EQU     LCJP+4       LINE COUNT                                    L00  00111
000055 A  112 V$JCFG  EQU     LCJP+5       JCP FLAGS                                     L00  00112
          113 *                            BIT 2-0   = LOAD AND GO FLAGS                 L00  00113
          114 *                            BIT  3    = DUMP FLAG  1=DUMP, 0=NO DUMP      L00  00114
          115 *                            BIT 9-4   = UNUSED                            L00  00115
          116 *                            BIT 15-10 = BG EXTRA CORE BLOCKS TO ALLOC     L00  00116
000056 A  118 V$JFCB  EQU     LCJP+6       JCP FILE CONTROL BLOCK                        L00  00118
000070 A  119 V$DATE  EQU     LCJP+16      JCP DATA RECORD                               L00  00119
000074 A  120 V$PLCT  EQU     LCJP+20      PERMINATE LINE COUNT                          L00  00120
000075 A  121 V$BGLB  EQU     LCJP+21      JCP LIB KEY AND LU NO. (BACKGROUND LIB)       L00  00121
000076 A  122 V$CRDM  EQU     LCJP+22      CARD KEYPUNCH TYPE, 0=026, 1=029              L00  00122
          123 *                            BIT 0 = SYSTEM NOMINAL KEYPUNCH MODE.         L00  00123
          124 *                            BIT 9 = CURRENT JOB KEYPUNCH MODE.            L00  00124
          125         EJEC                                                               L00  00125
          126 *************************************************************************L00  00126
          127 *                                                                          L00  00127
          128 ****    LOW CORE DESCRIPTION                                             ***L00  00128
          129 *                                                                          L00  00129
          130 *************************************************************************L00  00130
000300 A  132 LC      EQU     0300                                                       L00  00132
000300 A  133 V$CTL   EQU     LC           CURRENT TASK TIDB LOCATION                    L00  00133
000301 A  134 V$CPL   EQU     LC+1         CURRENT PRIORITY LEVEL                        L00  00134
000302 A  135 V$CRS   EQU     LC+2         CURRENT REENTRANT STACK POINTER               L00  00135
000303 A  136 V$TB    EQU     LC+3         POINTER TO HIGHEST PRIORITY TIDB              L00  00136
000304 A  137 V$UTB   EQU     LC+4         POINTER TO UNUSED TASK TIDB                   L00  00137
000305 A  138 V$PTVB  EQU     LC+5         POINTER TO NEXT ENTRY IN REENTRANT STACK      L00  00138
000306 A  139 V$FLRS  EQU     LC+6         FIRST LOC. OF REENTRANT STACK                 L00  00139
000307 A  140 V$LRSK  EQU     LC+7         LAST LOC. OF REENTRANT STACK+1                L00  00140
000310 A  141 V$CKPT  EQU     LC+8         CHECKPOINT FLAG 1=ON, 0=OFF                   L00  00141
          142 *       EQU     LC+9         UNUSED                                        L00  00142
000312 A  143 V$LSAL  EQU     LC+10        LOC. OF TIDB FOR SYSTEM SAL TASK              L00  00143
000313 A  144 V$LER   EQU     LC+11        LOC. OF TIDB FOR SYSTEM ERROR TASK            L00  00144
000314 A  145 V$TJCP  EQU     LC+12        LOC. OF TIDB FOR JOB CONTROL PROCESSOR TASL00  00145
000315 A  146 V$BTB   EQU     LC+13        LOC. OF CURRENT ACTIVE BACKGROUND TSK TIDBL00  00146
          147         IFT     VORTEX-2                                               V2   00  00147
          148         GOTO    LCD1         ASSEMBLE FOR VORTEX II                    V2   00  00148
          149 V$NPAG  EQU     LC+14        NUMBER OF AVAILABLE PAGES IN V$PAGE       V2   00  00149
          150 V$LPP   EQU     LC+15        POINTER OF LAST WORD TESTED IN V$PAGE     V2   00  00150
          151 LCD1    CONT                                                           V2   00  00151
          152         IFF     VORTEX-2                                               V2   00  00152
          153         GOTO    LCD2         ASSEMBLE IF NOT VORTEX II                 V2   00  00153
000316 A  154 V$LUP   EQU     LC+14        LOC. OF 1ST UNPROTECTED WORD                  L00  00154
000317 A  155 V$LLUP  EQU     LC+15        LOC. OF LAST UNPROTECTED WORD                 L00  00155
          156 LCD2    CONT                                                           V2   00  00156
000320 A  157 V$IM    EQU     LC+16        INTERRUPT MASK  (8 WORDS)                     L00  00157
          158         IFF     VORTEX-2                                               V2   00  00158
          159         GOTO    LCD3                                                   V2   00  00159
000330 A  160 V$MPM   EQU     LC+24        MEMORY PROTECT MASK  (4 WORDS)                L00  00160
000334 A  161 V$CAM   EQU     LC+28        CORE ALLOCATION MASK  (4 WORDS)               L00  00161
          162 *       EQU     LC+32        UNUSED                                        L00  00162
          163 LCD3    CONT                                                           V2   00  00163
          164         IFT     VORTEX-2                                               V2   00  00164
          165         GOTO    LCD4         ASSEMBLE IF VORTEX II                     V2   00  00165
          166 V$MAP   EQU     LC+24        MAP KEY AVAILABILITY MASK                 V2   00  00166
          167 V$BTBM  EQU     LC+25        BOTTOM OF NUCLEUS TABLE MODULE            V2   00  00167
          168 V$GFCB  EQU     LC+26        GLOPAL FCB MODULE                         V2   00  00168
          169 V$MIMG  EQU     LC+27        MAP 0 IMAGE ADDRESS                       V2   00  00169
          170 V$ST0   EQU     LC+28        FUNC 1 CONTROL WORD TO SWITCH EXECUTIVEV2   00  00170
          171 V$ST1   EQU     LC+29         MODE STATES: V$ST0- STATE 0              V2   00  00171
          172 V$ST2   EQU     LC+30                      V$ST1- STATE 1              V2   00  00172
          173 V$ST3   EQU     LC+31                      ETC                         V2   00  00173
          174 V$KEY   EQU     LC+32        EXECUTING TASK'S MAP KEY                  V2   00  00174
          175 LCD4    CONT                                                           V2   00  00175
000341 A  176 V$CRDR  EQU     LC+33        CORE RESIDENT DIRECTORY LOCATION              L00  00176
000342 A  177 V$TBGT  EQU     LC+34        TOP OF THREAD OF BG TSK WAITING TO BE ALLOL00  00177
000343 A  178 V$TMS   EQU     LC+35        TIME OF DAY IN 5 MILLISECOND INCREMENTS       L00  00178
000344 A  179 V$TMN   EQU     LC+36        TIME OF DAY IN MINUTE INCREMENTS              L00  00179
000345 A  180 V$LUNT  EQU     LC+37        ADDR. OF LOGICAL UNIT NAME TABLE              L00  00180
000346 A  181 V$OPCF  EQU     LC+38        OPCOM LOCKOUT FLAG                            L00  00181
000347 A  182 V$FGLB  EQU     LC+39        KEY AND LU NO. FOR FOREGROUND LIB             L00  00182
000350 A  183 V$FREE  EQU     LC+40        FREE RUNNING COUNTER INCR. IN MICROSECONDSL00  00183
000351 A  184 V$CTMS  EQU     LC+41        CLOCK RESOLUTION IN 5 MILLISECOND INCR.       L00  00184
000352 A  185 V$SCV   EQU     LC+42        CLOCK SELECTED COUNT VALUE (1 TO 4095)        L00  00185
000353 A  186 V$CKB   EQU     LC+43        BASIC CLOCK INTERRUPT RATE IN MICROSECONDSL00  00186
000354 A  187 V$CRM   EQU     LC+44        CLOCK RESOLUTION INCR. FOR 1 MINUTE.          L00  00187
000355 A  188 V$DSTB  EQU     LC+45        BASE ADDR. FOR DST BLOCK                      L00  00188
000356 A  189 V$LIT   EQU     LC+46        LAST LOCATION OF BACKGROUND LITERAL TABLE L00  00189
          190         IFF     VORTEX-2     ASSEMBLE IF VORTEX II                     V2   00  00190
          191 V$PGT   EQU     LC+47        V$PAGE ADDRESS                            V2   00  00191
          192         IFT     VORTEX-2     ASSEMBLE IF NOT VORTEX II                 V2   00  00192
000357 A  193 V$TKSZ  EQU     LC+47        RMD TRACK SIZE                                L00  00193
000360 A  194 V$CTAD  EQU     LC+48        BASE ADDR. FOR CONTROLLER ADDR. TABLE         L00  00194
000361 A  195 V$SCTL  EQU     LC+49        CURRENT CONTROLLER IN SCAN                    L00  00195
000362 A  196 V$NCTR  EQU     LC+50        NO. OF CONTROLLERS                            L00  00196
000363 A  197 V$PIMN  EQU     LC+51        EXTERNAL DEVICE ADDRESS TABLE FOR PIMS        L00  00197
          198 *                              (8 WORDS DEFINED IN PIM NO ORDER)           L00  00198
          199 *       EQU     LC+59        UNUSED                                        L00  00199
          200         IFF     VORTEX-2                                               V2   00  00200
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            201          GOTO    LCD5          ASSEMBLE IF NOT VORTEX II                 V2   00 00201
            202 *        EQU     LC+60         UNUSED                                        L00 00202
            203 LCD5     CONT                                                          V2   00 00203
            204          IFT     VORTEX-2                                              V2   00 00204
            205          GOTO    LCD6          ASSEMBLE IF VORTEX II                   V2   00 00205
            206 *        EQU     LC+59         JMP V$IOST    PAGE 0 ENTRY FOR I/O      V2   00 00206
            207 *        EQU     LC+60                       STAT CALLS.               V2   00 00207
            208 LCD6     CONT                                                          V2   00 00208
000375 A    209 V$SLFG   EQU     LC+61         SAL TASK BUSY FLAG      1=BUSY, 0=NOT BUSY L00 00209
000376 A    210 V$ERFG   EQU     LC+62         ERROR TASK BUSY FLAG    1=BUSY, 0=NOT BUSY L00 00210
000377 A    211 V$JOP    EQU     LC+63         JCP OPERATING FLAG                            L00 00211
000400 A    212 V$LUT1   EQU     LC+64         START LUN ADDR FOR JCP/OPCOM ASSIGNABLE       L00 00212
000401 A    213 V$LUT2   EQU     LC+65         START LUN ADDR FOR UNASSIGNABLE               L00 00213
000402 A    214 V$LUT3   EQU     LC+66         START LUN ADDR FOR OPCOM ASSIGNABLE           L00 00214
000403 A    215 V$1MIN   EQU     LC+67         32767 - (60000/(5*V$CTMS)) + 1                L00 00215
            216          IFF     VORTEX-2                                              V2   00 00216
            217          GOTO    LCD7          ASSEMBLE IF NOT VORTEX II               V2   00 00217
000404 A    218 V$BIC1   EQU     LC+68         BIC ONE INTERRUPT LOCATION                    L00 00218
000405 A    219 V$BIC2   EQU     LC+69         BIC TWO INTERRUPT LOCATION                    L00 00219
000406 A    220 V$BIC3   EQU     LC+70         BIC THREE INTERRUPT LOCATION                  L00 00220
000407 A    221 V$BIC4   EQU     LC+71         BIC FOUR INTERRUPT LOCATION                   L00 00221
            222 LCD7     CONT                                                          V2   00 00222
            223          IFT     VORTEX-2                                              V2   00 00223
            224          GOTO    LCD8                                                  V2   00 00224
            225 *        EQU     LC+68         JMP V$IOC      PAGE 0 ENTRY FOR IOC     V2   00 00225
            226 *        EQU     LC+69                         CALLS.                  V2   00 00226
            227 *        EQU     LC+70         JMP V$EXEC     PAGE 0 ENTRY FOR RTE     V2   00 00227
            228 *        EQU     LC+71                         CALLS.                  V2   00 00228
            229 LCD8     CONT                                                          V2   00 00229
000410 A    230 V$IOA    EQU     LC+72         I/O ALGORITHM                                 L00 00230
000411 A    231 V$CKIT   EQU     LC+73         CLOCK INT. IN PIM BEFORE LOCKOUT FLAG.        L00 00231
000412 A    232 V$JCB    EQU     LC+74         ALL SYSTEM BACKGROUND PROGRAMS AND JCP USEL00 00232
            233 *                              THIS SYSTEM BUFFER TO READ DIRECTIVES AND L00 00233
            234 *                              SOURCE RECORDS IN.                            L00 00234
000413 A    235 V$OCB    EQU     LC+75         OPCOM WILL READ OPERATOR KEY-IN REQUESTS  L00 00235
            236 *                              IN THIS BUFFER.  IF JCP IS SET NOT ACTIVE L00 00236
            237 *                              AND A 1 DIRECTIVE IS INPUTED, OPCOM       L00 00237
            238 *                              WILL MOVE THE DIRECTIVE TO V$JCB BEFORE   L00 00238
            239 *                              SCHEDULING JCP.                               L00 00239
000414 A    240 V$BVN    EQU     LC+76         BOTTOM OF VORTEX NUCLEUS                      L00 00240
000415 A    241 V$BFC    EQU     LC+77         TOP OF FG RES. AREA/BOTTOM OF FG BLK COMM.L00 00241
000416 A    242 V$TFC    EQU     LC+78         TOP OF FG BLK COMMON/TOP OF VORTEX CORE.  L00 00242
000417 A    243 V$STSZ   EQU     LC+79         ACTURAL SECTOR SIZE                           L00 00243
            244          EJEC                                                                L00 00244
            245 ************************************************************************L00 00245
            246 *                                                                            L00 00246
            247 ****        MASK TABLE DESCRIPTION                                       ***L00 00247
            248 *                                                                            L00 00248
            249 ************************************************************************L00 00249
000420 A    251 MT       SET     0420                                                        L00 00251
000420 A    252 ZERO     EQU     MT            ZERO WORD                                     L00 00252
000421 A    253 BS0      EQU     MT+1          BIT MASK CONTENTS 000001                      L00 00253
000422 A    254 BS1      EQU     MT+2                            000002                      L00 00254
000423 A    255 BS2      EQU     MT+3                            000004                      L00 00255
000424 A    256 BS3      EQU     MT+4                            000010                      L00 00256
000425 A    257 BS4      EQU     MT+5                            000020                      L00 00257
000426 A    258 BS5      EQU     MT+6                            000040                      L00 00258
000427 A    259 BS6      EQU     MT+7                            000100                      L00 00259
000430 A    260 BS7      EQU     MT+8                            000200                      L00 00260
000431 A    261 BS8      EQU     MT+9                            000400                      L00 00261
000432 A    262 BS9      EQU     MT+10                           001000                      L00 00262
000433 A    263 BS10     EQU     MT+11                           002000                      L00 00263
000434 A    264 BS11     EQU     MT+12                           004000                      L00 00264
000435 A    265 BS12     EQU     MT+13                           010000                      L00 00265
000436 A    266 BS13     EQU     MT+14                           020000                      L00 00266
000437 A    267 BS14     EQU     MT+15                           040000                      L00 00267
000440 A    268 BS15     EQU     MT+16                          0100000                      L00 00268
000441 A    269 BR0      EQU     MT+17         BIT MASK CONTENTS  0177776                    L00 00269
000442 A    270 BR1      EQU     MT+18                            0177775                    L00 00270
000443 A    271 BR2      EQU     MT+19                            0177773                    L00 00271
000444 A    272 BR3      EQU     MT+20                            0177767                    L00 00272
000445 A    273 BR4      EQU     MT+21                            0177757                    L00 00273
000446 A    274 BR5      EQU     MT+22                            0177737                    L00 00274
000447 A    275 BR6      EQU     MT+23                            0177677                    L00 00275
000450 A    276 BR7      EQU     MT+24                            0177577                    L00 00276
000451 A    277 BR8      EQU     MT+25                            0177377                    L00 00277
000452 A    278 BR9      EQU     MT+26                            0176777                    L00 00278
000453 A    279 BR10     EQU     MT+27                            0175777                    L00 00279
000454 A    280 BR11     EQU     MT+28                            0173777                    L00 00280
000455 A    281 BR12     EQU     MT+29                            0167777                    L00 00281
000456 A    282 BR13     EQU     MT+30                            0157777                    L00 00282
000457 A    283 BR14     EQU     MT+31                            0137777                    L00 00283
000460 A    284 BR15     EQU     MT+32                            0077777                    L00 00284
000461 A    285 NEG      EQU     MT+33         SET ALL BITS                                  L00 00285
000462 A    286 LHW      EQU     MT+34         LEFT HALF WORD MASK 0177400                   L00 00286
000463 A    287 RHW      EQU     MT+35         RIGHT HALF WORD MASK    0377                  L00 00287
000421 A    288 ONE      EQU     MT+1          CONTAINS NUMBER  1                            L00 00288
000422 A    289 TWO      EQU     MT+2          CONTAINS NUMBER  2                            L00 00289
000464 A    290 THREE    EQU     MT+36         CONTAINS NUMBER  3                            L00 00290
000423 A    291 FOUR     EQU     MT+3          CONTAINS NUMBER  4                            L00 00291
000465 A    292 FIVE     EQU     MT+37         CONTAINS NUMBER  5                            L00 00292
000466 A    293 SIX      EQU     MT+38         CONTAINS NUMBER  6                            L00 00293
000467 A    294 SEVEN    EQU     MT+39         CONTAINS NUMBER  7                            L00 00294
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000424 A  295 EIGHT   EQU     MT+4          CONTAINS NUMBER  8                          L00 00295
000470 A  296 NINE    EQU     MT+40         CONTAINS NUMBER  9                          L00 00296
000471 A  297 TEN     EQU     MT+41         CONTAINS NUMBER 10                          L00 00297
000421 A  298 BM1     EQU     MT+1          BIT MASK WORD 00001                         L00 00298
000464 A  299 BM3     EQU     MT+36         BIT MASK WORD  00003                        L00 00299
000467 A  300 BM7     EQU     MT+39         BIT MASK WORD  00007                        L00 00300
000472 A  301 BM17    EQU     MT+42         BIT MASK WORD  00017                        L00 00301
000473 A  302 BM37    EQU     MT+43         BIT MASK WORD  00037                        L00 00302
000474 A  303 BM77    EQU     MT+44         BIT MASK WORD  00077                        L00 00303
000475 A  304 BM177   EQU     MT+45         BIT MASK WORD  00177                        L00 00304
000463 A  305 BM377   EQU     MT+35         BIT MASK WORD  00377                        L00 00305
000476 A  306 BM777   EQU     MT+46         BIT MASK WORD  00777                        L00 00306
000477 A  307 BM1777  EQU     MT+47         BIT MASK WORD  01777                        L00 00307
          308         EJEC                                                            L00 00308
          309 ********************************************************************** L00 00309
          310 *                                                                      L00 00310
          311 ****     BIT TEST BIT DESIGNATION                                  *** L00 00311
          312 *                                                                      L00 00312
          313 ********************************************************************** L00 00313
000040 A  315 RA0     EQU     040           BT JUMPS WHEN A REGISTER IS 0               L00 00315
000000 A  316 RA1     EQU     000           BT JUMPS WHEN A REGISTER IS 1               L00 00316
000060 A  317 RB0     EQU     060           BT JUMPS WHEN B REGISTER IS 0               L00 00317
000020 A  318 RB1     EQU     020           BT JUMPS WHEN B REGISTER IS 1               L00 00318
          320 ********************************************************************** L00 00320
          321 *                                                                      L00 00321
          322 **       THE BIT CHECKED                                            L00 00322
          323 *                                                                      L00 00323
          324 ********************************************************************** L00 00324
000000 A  326 B0      EQU     0                                                       L00 00326
000001 A  327 B1      EQU     1                                                       L00 00327
000002 A  328 B2      EQU     2                                                       L00 00328
000003 A  329 B3      EQU     3                                                       L00 00329
000004 A  330 B4      EQU     4                                                       L00 00330
000005 A  331 B5      EQU     5                                                       L00 00331
000006 A  332 B6      EQU     6                                                       L00 00332
000007 A  333 B7      EQU     7                                                       L00 00333
000010 A  334 B8      EQU     8                                                       L00 00334
000011 A  335 B9      EQU     9                                                       L00 00335
000012 A  336 B10     EQU     10                                                      L00 00336
000013 A  337 B11     EQU     11                                                      L00 00337
000014 A  338 B12     EQU     12                                                      L00 00338
000015 A  339 B13     EQU     13                                                      L00 00339
000016 A  340 B14     EQU     14                                                      L00 00340
000017 A  341 B15     EQU     15                                                      L00 00341
          342         EJEC                                                            L00 00342
          343 ********************************************************************** L00 00343
          344 *                                                                      L00 00344
          345 ****     DEVICE AND FUNCTION CODES                                 *** L00 00345
          346 *                                                                      L00 00346
          347 ********************************************************************** L00 00347
          349 ****     REAL TIME CLOCK                                           *** L00 00349
000047 A  350 CLOCK   EQU     047           DEVICE NUMBER 047                           L00 00350
          351 *                                                                      L00 00351
000747 A  352 DISCLK  EQU     0700+CLOCK    DISABLE CLOCK                               L00 00352
000147 A  353 ENACLK  EQU     0100+CLOCK    ENABLE CLOCK                                L00 00353
          354         IFF     VORTEX-2                                          V2  00 00354
          355 MPDVAD  EQU     046           RAM ADDRESS                         V2  00 00355
          357 *                                                                      L00 00357
          358 ****     PIM                                                       *** L00 00358
000044 A  359 APIM    EQU     044           ALL PIMS DEVICE NUMBER                      L00 00359
000040 A  360 PIM1    EQU     040                                                       L00 00360
000041 A  361 PIM2    EQU     041                                                       L00 00361
000042 A  362 PIM3    EQU     042                                                       L00 00362
000043 A  363 PIM4    EQU     043                                                       L00 00363
000040 A  364 PIM5    EQU     040                                                       L00 00364
000040 A  365 PIM6    EQU     040                                                       L00 00365
000040 A  366 PIM7    EQU     040                                                       L00 00366
000040 A  367 PIM8    EQU     040                                                       L00 00367
          368 *                                                                      L00 00368
000444 A  369 DISPIM  EQU     0400+APIM                                                 L00 00369
000244 A  370 ENAPIM  EQU     0200+APIM                                                 L00 00370
          372 ****       MEMORY PROTECT                                          *** L00 00372
000045 A  373 MP      EQU     045           DEVICE ADDRESS 045                          L00 00373
000745 A  374 DISMP   EQU     0700+MP       DISABLE MEMORY PROTECT                      L00 00374
000645 A  375 ENAMP   EQU     0600+MP       ENABLE MEMORY PROTECT                       L00 00375
000045 A  376 MPMR0   EQU     0000+MP       SELECT MASK REGISTER 0                      L00 00376
000145 A  377 MPMR1   EQU     0100+MP       SELECT MASK REGISTER 1                      L00 00377
000245 A  378 MPMR2   EQU     0200+MP       SELECT MASK REGISTER 2                      L00 00378
000345 A  379 MPMR3   EQU     0300+MP       SELECT MASK REGISTER 3                      L00 00379
          380         EJEC                                                            L00 00380
          381         EJEC                                                            L00 00381
          382 *    CTBL FOR EACH CONTROLLER.                                         L00 00382
000000 A  383 CTACT   EQU     0             CONTROLLER ACTIVE IND.,1=ACTIVE ,BIT 15     L00 00383
000000 A  384 CTIDB   EQU     0             CONTROLLER/DRIVER TIDB ADDR.,BITS 14-0      L00 00384
000001 A  385 CTADNC  EQU     1             ADDR. OF NEXT CONTROLLER IN CHAIN           L00 00385
000002 A  386 CTOPM   EQU     2             OP-CODE MASK                                L00 00386
000003 A  387 CTDST   EQU     3             ADDR.OF CURRENT DST                         L00 00387
000004 A  388 CTRQBK  EQU     4             FIRST REQUEST BLOCK                         L00 00388
000005 A  389 CTRTRY  EQU     5             ERROR RETRY CONSTANT,BITS 15-8              L00 00389
000005 A  390 CTRCNT  EQU     5             V$ERR RETRY COUNTER ,BITS 7-0               L00 00390
000006 A  391 CTDVAT  EQU     6             DEVICE ADDR.                                L00 00391
000007 A  392 CTIOA   EQU     7             I/O ALGORITHM VALUE                         L00 00392
000010 A  393 CTSTAT  EQU     8             DRIVER STATUS                               L00 00393
```

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000011 A   394 CTBICB EQU     9              ADDR. FOR BIC FLAG TABLE,BITS 15-0
000012 A   395 CTFCB  EQU     10             FCB OR DCB ADDR.
000013 A   396 CTWDS  EQU     11             NO.OF WORDS TRANSFERED.
000014 A   397 CTFRCT EQU     12             BITS 15-8,FREQUENCY CONSTANT
000014 A   398 CTFREQ EQU     12             BITS 7-0,FREQUENCY COUNT
000015 A   399 CTSTSZ EQU     13             NO.OF WORDS PER SECTOR FOR RMD ONLY
000016 A   400 CTTRSZ EQU     14             NO.OF SECTORS PER TRACK FOR RMD ONLY
000017 A   401 CTPST0 EQU     15             PST BASE ADDR,RMD,UNIT 0
000020 A   402 CTPST1 EQU     16             PST BASE ADDR,RMD,UNIT 1
000021 A   403 CTPST2 EQU     17             PST BASE ADDR,RMD,UNIT 2
000022 A   404 CTPST3 EQU     18             PST BASE ADDR,RMD,UNIT 3
           405 *
           406       EJEC
           407 * DEVICE SPECIFICATION TABLE, DST
           408 *   DST FOR EACH DEVICE,AND EACH RMD PARTITION
           409 *
000000 A   410 DSDVDN EQU     0              DEVICE DOWN INDICATOR,1=DOWN  BIT 15
000000 A   411 DSDASS EQU     0              DEVICE ASSGNMT INDICATOR,BITS 14-13
           412 *                               00 ASSIGNABLE BY JCP AND OPCOM
           413 *                               01 ASSIGNABLE BY OPCOM ONLY
           414 *                               10 UNASSIGNABLE
           415 *                               00 UNUSED
000000 A   416 DSUNAM EQU     0              DEV NAME,CH.3 B12-10,CH.4 B9-4
           417 *                              ADD 0260 TO GET ASCII CHARACTER
000000 A   418 DSNORQ EQU     0              DEVICE REQUEST COUNTER, BITS 3-0.
000001 A   419 DSNAME EQU     1              DEVICE NAME,2 ASCII CHAR.
000002 A   420 DSREWD EQU     2              DEVICE REWIND INDICATOR,1=REWIND,BIT 15
000002 A   421 DSUNTN EQU     2              DEVICE UNIT NO. ,BITS 14-13
000002 A   422 DSLCKO EQU     2              PARTITION LOCKOUT FLAG BIT 12
000002 A   423 DSOPCM EQU     2              OPCOM DEVICE INDICATOR,BIT 11
000002 A   424 DSPSTI EQU     2              INDEX TO PST,BITS 10-6.
000002 A   425 DSCTAD EQU     2              INDEX TO COTAD,CONTRLLR ADDR TABLE,B5-0.
           426 *
           427 *
           428       EJEC
           429 * CONTROLLER ADDRESS TABLE,COTAD
           430 *   1 ENTRY FOR EACH CTBL.
           431 *
000000 A   432 COTAD1 EQU     0              BASE ADDRESS FOR CONTROLLER TABLE
           433 *
           434       EJEC
           435 *  BIC FLAG TABLE
           436 *   1 ENTRY FOR EACH BIC ,EACH CONTROLLER TABLE,CTBL, WHICH
           437 *     UTILIZES A BIC CONTAINS AN ADDRESS,CTBICB, POINTING
           438 *     TO ITS BIC ENTRY.
           439 *
000000 A   440 BICNUM EQU     0              BIC NUMBER FOR THIS ENTRY.
           441 *                               POSITIVE VALUE MEANS BIC IS AVAILABLE
           442 *                               NEGATIVE VALUE,COMPLEMENTED BIC NO.,
           443 *                                 MEANS BIC IS CURRENTLY IN USE.
           444 *
           445 *
           446       EJEC
           447 *  REQUEST BLOCK , RQBLK
           448 *    1 FOR EACH IOC REQUEST. RQBLKS ARE QUEUED ACCORDING TO TASK
           449 *     PRIORITY TO CTBL.
           450 *
           451 *
000000 A   452 RSTPR  EQU     0              BIT 15 = I/O COMPLETED INDICATOR.
           453 *                             BITS14-5,DRIVER STATUS
           454 *                             BITS 4-0, REQUESTING TASK PRIORITY.
000001 A   455 RQPWD  EQU     1              BIT 15 = WAIT OPTION
           456 *                             BITS14-12, MODE,USED BY DRIVERS
           457 *                             BITS 11-8,OP-CODE
           458 *                             BITS 7-0, LOGICAL UNIT NO.
000002 A   459 RFCB   EQU     2              FCB OR DCB ADDR.
000003 A   460 RTIDB  EQU     3      "       REQUESTING TASK TIDB ADDR.
000004 A   461 RADNR  EQU     4              ADDR.OF NEXT RQBLK IN QUEUE.,0= NONE.
           462 *
           463       EJEC
           464 *
           465 *     PARTITION SPECIFICATION TABLE, PST
           466 *
           467 *       A PST EXISTS FOR EACH ROTATING MEMORY DEVICE. EACH PARTITION
           468 *       ON THE RMD HAS A FIVE WORD ENTRY IN THE PST. THE PARTITION'S
           469 *       PST ENTRY NUMBER IS SPECIFIED IN THE DEVICE SPECIFICATION
           470 *       TABLE,DST,THUS LINKING THE PST WITH A LOGICAL UNIT NUMBER.
           471 *       THE EFFECTIVE ADDR FOR AN ENTRY IS FOUND AS FOLLOWS:
           472 *
           473 *
           474 *                                  BITS 14-8, UNUSED
           475       EJEC
           476 *
           477 *     DATA CONTROL BLOCK, DCB
           478 *
           479 *       A DCB IS REFERENCED BY EACH I/O REQUEST BLOCK,RQBLK, SPECIFY-
           480 *        ING A NON-ROTATING MEMORY DEVICE. DCB CONTAINS ADDITION INFOR-
           481 *        MATION NECESSARY TO COMPLETE THE I/O OPERATION.
           482 *       DCB IS A FIXED LENGTH TABLE OF 3 WORDS EACH. THE FCB IS THE DCB
           483 *       EQUIVALENT FOR RMD.
           484 *
           485 *
000000 A   486 DRECL  EQU     0              RECORD LENGTH
```

```
000001 A   487 DBUFF   EQU     1              USER BUFFER AREA                                    L00 00487
000002 A   488 DCNT    EQU     2              NO. OF COUNTS,USE FOR FUNC REQUESTS.                L00 00488
           489 *                                                                                 L00 00489
           490 *                                                                                 L00 00490
           491 *                                                                                 L00 00491
           492         EJEC                                                                      L00 00492
           493 *                                                                                 L00 00493
           494 *                                                                                 L00 00494
           495 *     FILE CONTROL BLOCK, FCB                                                     L00 00495
           496 *                                                                                 L00 00496
           497 *       A FCB IS REFERENCED BY EACH I/O REQUEST BLOCK,RQBLK, SPECIFY-           L00 00497
           498 *         ING A ROTATING MEMORY DEVICE. FCB CONTAINS ADDITION INFORMA-          L00 00498
           499 *         TION NECESSARY TO COMPLETE THE I/O INFORMATION ON RMD.               L00 00499
           500 *       FCB IS A FIXED LENGTH TABLE OF 10 WORDS.                                L00 00500
           501 *                                                                               L00 00501
           502 *                                                                               L00 00502
000000 A   503 FRECL   EQU     0              RECORD LENGTH                                       L00 00503
000001 A   504 FBUFF   EQU     1              BUFFER AREA                                         L00 00504
000002 A   505 FACM    EQU     2              ACCESS METHOD ,BITS 15-8                            L00 00505
           506 *                                 0 = DIRECT ACCESS BY LOGICAL RECORD.           L00 00506
           507 *                                 1 = SEQ ACCESS BY LOGICAL RECORD               L00 00507
           508 *                                 2 = DIRECT ACCESS USIN ACTUAL ADDR.            L00 00508
           509 *                                 4 = SEQ ACCESS USING ACTUAL ADDR               L00 00509
           510 *                           PROTECT KEY,  BITS 7-0                              L00 00510
000003 A   511 FCADR   EQU     3              CURRENT RECORD NO.,OR CURRENT SECTOR ADDR           L00 00511
000004 A   512 FCEOF   EQU     4              CURRENT END OF FILE POSITION                        L00 00512
000005 A   513 FIFE    EQU     5              BEGIN FILE EXTENT                                   L00 00513
000006 A   514 FEFE    EQU     6              END FILE EXTENT.                                    L00 00514
000007 A   515 FNAM1   EQU     7              FILE NAME. CHAR N   , CHAR N+1                      L00 00515
000010 A   516 FNAM2   EQU     8                         CHAR N+2, CHAR N+3                    L00 00516
000011 A   517 FNAM3   EQU     9                         CHAR N+4, CHAR N+5                    L00 00517
           518 *                                                                               L00 00518
           519         EJEC                                                                    L00 00519
           520 *                                                                               L00 00520
           521 *                                                                               L00 00521
           522 *       VORTEX STATOS 31/33 PRINTER/PLOTTER                             D.1 00  00522
           523 *                                                                           00  00523
           524 *       THIS MODULE IS COMMON TO ALL STATOS MODELS ON THE SYSTEM         D.1 00  00524
           525 *                                                                           L00 00525
           526 *                                                                           L00 00526
           527 *       THE MAJOR SUBCOMPONENTS OF THE DRIVER ARE:                          L00 00527
           528 *                                                                           L00 00528
           529 *         VZLPF - WRITE/FUNC INITIATOR                                      00  00529
           530 *         STS4 - WRITE PROCESSOR (PRINT/PLOT)                               00  00530
           531 *         STS8 - FUNC PROCESSOR (FUNCTION)                                  00  00531
           532 *         STINT - INTERRUPT PROCESSOR                                       00  00532
           533 *                                                                           L00 00533
           534 *                                                                           L00 00534
           535 *                                                                           L00 00535
           536 *                                                                           00  00536
           537         NAME    V$CLPS                                                  D.1 00  00537
           538         EXT     V$FNR,V$ERR,V$BIC                                       D.1 00  00538
           539         NAME    V$STEP,V$TOFM,V$SPAC,V$STBO                             D.1 00  00539
           540 *                                                                           00  00540
           541 *                                                                           L00 00541
000015 A   542 CTBUFP  EQU     CTFREQ+1       STATOS BUFFER POINTER                       D.1 00  00542
000016 A   543 CTMODE  EQU     CTFREQ+2       FLAG FOR WRITE/PLOT                         D.1 00  00543
000017 A   544 CTATTR  EQU     CTFREQ+3       STATOS MODEL ATTRIBUTES                     D.1 00  00544
000020 A   545 CTEMP1  EQU     CTFREQ+4       TEMPORARY STORAGE                           D.1 00  00545
000021 A   546 CTEMP2  EQU     CTFREQ+5       TEMPORARY STORAGE                           D.1 00  00546
000022 A   547 CTEMP3  EQU     CTFREQ+6       TEMPORARY STORAGE                           D.1 00  00547
000023 A   548 CTEMP4  EQU     CTFREQ+7       TEMPORARY STORAGE                           D.1 00  00548
000024 A   549 CTEMP5  EQU     CTFREQ+8       TEMPORARY STORAGE                           D.1 00  00549
000025 A   550 CWRT1   EQU     CTFREQ+9       TEMPORARY STORAGE                           D.1 00  00550
000026 A   551 CWRT2   EQU     CTFREQ+10      TEMPORARY STORAGE                           D.1 00  00551
000027 A   552 CTBEND  EQU     CTFREQ+11      ENDING ADDRESS FOR BIC TRANSFER             D.1 00  00552
000030 A   553 CTCI    EQU     CTFREQ+12      STATOS CONTROL WORD                         D.1 00  00553
000031 A   554 CTDBFP  EQU     CTFREQ+13      POINTER TO USER BUFFER                      D.1 00  00554
000032 A   555 CSLIN   EQU     CTFREQ+14      RASTER STEP COUNTER                         D.1 00  00555
000033 A   556 CTLWID  EQU     CTFREQ+15      MAXIMUM LINE WIDTH CODE                     D.1 00  00556
000034 A   557 CTSIZE  EQU     CTFREQ+16      CURRENT PRINT SIZE CODE                     D.1 00  00557
000035 A   558 CTLINC  EQU     CTFREQ+17      RASTER LINES/CHARACTER                      D.1 00  00558
000036 A   559 CTTERM  EQU     CTFREQ+18      LINE TERMINATION CHARACTER                  D.1 00  00559
000037 A   560 CTENAB  EQU     CTFREQ+19      BUFFER BUSY FLAG                            D.1 00  00560
000040 A   561 CLINE   EQU     CTFREQ+20      MATRIX SCAN INDEX                           D.1 00  00561
000041 A   562 CINDX   EQU     CTFREQ+21      CHARACTER CONVERSION INDEX                  D.1 00  00562
000042 A   563 CBITPO  EQU     CTFREQ+22      SHIFT FACTOR FOR PACKING BUFFER             D.1 00  00563
000043 A   564 CBITPT  EQU     CTFREQ+23      RASTER BIT POINTER TO USER BUFFER           D.1 00  00564
000044 A   565 CWIDTH  EQU     CTFREQ+24      WIDTH OF MATRIX ROW IN BITS                 D.1 00  00565
000045 A   566 CTLSIZ  EQU     CTFREQ+25      LINE WIDTH IN CHARACTERS                    D.1 00  00566
000046 A   567 CTWRIT  EQU     CTFREQ+26      POINTER TO AUXILIARY WRITE ROUTINE          D.1 00  00567
000047 A   568 CTFUNC  EQU     CTFREQ+27      POINTER TO AUXILIARY FUNC ROUTINE           D.1 00  00568
000050 A   569 CTBUFA  EQU     CTFREQ+28      POINTER TO BEGINNING OF STATOS BUFFER       D.1 00  00569
000051 A   570 CTEND   EQU     CTFREQ+29      POINTER TO END OF STATOS BUFFER             D.1 00  00570
000052 A   571 CTLWCH  EQU     CTFREQ+30      MAXIMUM LINE WIDTH IN CHARACTERS            D.1 00  00571
000053 A   572 CTLWWD  EQU     CTFREQ+31      MAXIMUM LINE WIDTH IN RASTER WORDS          D.1 00  00572
000054 A   573 CTHCGS  EQU     CTFREQ+32      HARDWARE CHAR GEN SELECT CODE               D.1 00  00573
000055 A   574 CTBUFF  EQU     CTFREQ+33      STATOS BUFFER                               D.1 00  00574
           575 *                                                                           00  00575
000001 A   576 X       EQU     1                                                          L00 00576
000002 A   577 B       EQU     2                                                          L00 00577
           578 *                                                                       D.1 00  00578
           579 *       STATOS DRIVER ATTRIBUTE BITS (CTATTR)                           D.1 00  00579
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                     *                                                                      D.1 00 00580
                     *         BITS 0-8                MODEL CODE                           D.1 00 00581
                     *                                 0=MODEL D                            D.1 00 00582
                     *                                 1=MODEL E                                00 00583
                     *                                 1=MODEL E                            D.1 00 00584
                     *                                 2=MODEL G                            D.1 00 00585
                     *                                 3=MODEL H                            D.1 00 00586
                     *                                 4=MODEL J                            D.1 00 00587
                     *         BIT  9                  HAS HCG                              D.1 00 00588
                     *         BIT 10                  HAS SIMULTANEOUS PRINT/PLOT OPTION   D.1 00 00589
                     *         BIT 11                  HAS HCG-41                           D.1 00 00590
                     *         BIT 12                  HAS HCG-42                           D.1 00 00591
                     *         BIT 13                  HAS SINGLE LINE BUFFER OPTINN        D.1 00 00592
                     *         BIT 14                  MODEL 31 STATOS                      D.1 00 00593
                     *         BIT 15                  NOT USED                             D.1 00 00594
                     *                                                                      D.1 00 00595
                               EJEC                                                             00 00596
                     *                                                                         L00 00597
                     *                                                                         L00 00598
                     *                                                                          00 00599
       000000 R      V$CLPS    EQU     *                                                        00 00600
000000 020300 A                LDB     V$CTL           GET CONTROLLER TIDB                     L00 00601
000001 036010 A                LDX     TBRSTS,B        SET TO CONTROLLER TABLE                 L00 00602
000002 015006 A                LDA     CTDVAT,X        GET DEVICE ADDRESS                      L00 00603
000003 006117 A                ORAE    SENS1           AND SENSE NOT READY INSTRUCTION         L00 00604
000004 001544 R
000005 100444 A                EXC     DISPIM          DISABLE PIMS                            L00 00605
000006 100747 A                EXC     DISCLK          DISABLE CLOCK                           L00 00606
000007 054000 A                STA     *+1                                                     L00 00607
000010 101000 A                SEN     0,ENAB          GO ON STATOS NOT READY                  L00 00608
000011 001403 R
       000012 R      STS0      EQU     *                                                    D.1 00 00609
000012 006017 A                LDAE    SENS0                                                D.1 00 00610
000013 001543 R
000014 006506 A                JSR     STS9,B          TEST IF INPUT BUSY                   D.1 00 00611
000015 001440 R
000016 015052 A                LDA     CTLWCH,X        CHECK IF LINE WIDTH ALREADY CALCULATED D.1 00 00612
000017 001016 A                JANZ    STS3A                                                D.1 00 00613
000020 000045 R
000021 015017 A                LDA     CTATTR,X        GET ATTRIBUTE WORD                   D.100 00614
000022 150463 A                ANA     RHW             EXTRACT MODEL CODE WORD              D.100 00615
000023 004203 A                ASLA    3               MULTIPLY BY 8                        D.100 00616
000024 055020 A                STA     CTEMP1,X                                             D.1 00 00617
000025 015033 A                LDA     CTLWID,X        GET LINE WIDTH CODE                  D.1 00 00618
000026 150464 A                ANA     THREE           EXTRACT TWO BITS                     E.1 *******
000027 004201 A                ASLA    1               MULTIPLY BY 2                        D.1 00 00619
000030 125020 A                ADD     CTEMP1,X                                             D.1 00 00620
000031 125050 A                ADD     CTBUFA,X        ADD ORIGIN OF LINE WIDTH TABLE       D.1 00 00621
000032 005012 A                TAB                                                          D.100 00622
000033 016000 A                LDA     0,B             GET PRINT LINE WIDTH (IN CHARS)      D.100 00623
000034 055052 A                STA     CTLWCH,X                                             D.100 00624
000035 016001 A                LDA     1,B             GET PLOT LINE                        D.100 00625
000036 055053 A                STA     CTLWWD,X                                             D.100 00626
000037 015033 A                LDA     CTLWID,X        GET LINE WIDTH CODE                  E.1 *******
000040 006442 A                BT      RA0+B2,STS3A    JUMP IF SLIB SPECIFIED               E.1 *******
000041 000045 R
000042 015017 A                LDA     CTATTR,X        IF NOT, RESET SLIB BIT               E.1 *******
000043 150456 A                ANA     BR13            IN ATTRIBUTE WORD                    E.1 *******
000044 055017 A                STA     CTATTR,X                                             E.1 *******
       000045 R      STS3A     EQU     *                                                    D.1 00 00627
000045 015050 A                LDA     CTBUFA,X                                             D.1 00 00628
000046 055015 A                STA     CTBUFP,X        INITIALIZE ADDRESS OF STATOS BUFFER  D.1 00 00629
000047 005001 A                TZA                                                          D.1 00 00630
000050 055030 A                STA     CTCI,X                                               D.1 00 00631
000051 055016 A                STA     CTMODE,X                                             D.1 00 00632
000052 025004 A                LDB     CTRQBK,X        GET REQUEST BLOCK ADDRESS            D.1 00 00633
000053 016001 A                LDA     ROPWD,B         GET OPCODE, MODE                        L00 00634
000054 055020 A                STA     CTEMP1,X        AND SAVE                                L00 00635
000055 026002 A                LDB     RFCB,B          GET CONTROL BLOCK ADDRESS               L00 00636
000056 004350 A                LSRA    8                                                       L00 00637
000057 150472 A                ANA     BM17            EXTRACT OPCODE                          L00 00638
000060 005311 A                DAR                                                             L00 00639
000061 001010 A                JAZ     STS4            WRITE                                   L00 00640
000062 000527 R
                               EJEC                                                             00 00641
                     *                                                                         L00 00642
                     *                                                                         L00 00643
                     * FUNCTION OPERATION                                                      L00 00644
                     *                                                                         L00 00645
                     *                                                                         L00 00646
                     *         COUNT = 0               TOP OF FORM                             L00 00647
                     *         COUNT = 1               SINGLE SPACE                            L00 00648
                     *         COUNT = 2               DOUBLE SPACE                            L00 00649
                     *         COUNT = 7               BOTTOM OF FORM                          L00 00650
                     *         COUNT = 8               STEP STATOS                          D.1 00 00651
                     *         COUNT = 10-17           SELECT CHARACTER SIZE/ORIENTATION    D.1 00 00652
                     *         COUNT = 20              CUT PAPER                            D.1 00 00653
                     *         COUNT = 21              END CUT PAPER                        D.1 00 00654
                     *         COUNT = 40              DISABLE STATOS                       D.1 00 00655
                     *                                                                          00 00656
                     *                                                                          00 00657
                     *         FUNCTIONS INAPPROPRIATE TO A PARTICULAR MODEL, OR FUNCTION   D.1 00 00658
                     *         CODES NOT SPECIFIED, ARE IGNORED BY THE DRIVER               D.1 00 00659
```

```
                    666 *
                    667 *
                    668 *
         000063 R   669 STS8    EQU     *
000063 006010 A     670         LDAI    -1
000064 177777 A
000065 055016 A     671         STA     CTMODE,X    CTMODE NEG = FUNC OPERATION
                    672         IFF     VORTEX-2
                    673         OME     MPDVAD,V$ST3  SWITCH TO USER'S MAP
000066 016002 A     674         LDA     DCNT,B        GET COUNT FIELD
                    675         IFF     VORTEX-2
                    676         OME     MPDVAD,V$ST0  RESTORE MAP 0
000067 055021 A     677         STA     CTEMP2,X      SAVE FUNCTION CODE
000070 001010 A     678         JAZ     STS8A         TOP OF FORM
000071 000257 R
000072 005311 A     679         DAR
000073 001010 A     680         JAZ     STS8B         SINGLE SPACE
000074 000270 R
000075 005311 A     681         DAR
000076 001010 A     682         JAZ     STS8C         DOUBLE SPACE
000077 000301 R
000100 140465 A     683         SUB     FIVE
000101 001010 A     684         JAZ     STS8E       BOTTOM OF FORM
000102 000311 R
000103 005311 A     685         DAR
000104 001016 A     686         JANZ    STS8D         JUMP IF NOT STEP FUNCTION
000105 000112 R
000106 006506 A     687         JSR     STEP,B      8 = STEP PLOTTER
000107 000317 R
000110 001000 A     688         JMP     STINT2      RETURN TO RTE
000111 001002 R
         000112 R   689 STS8D   EQU     *
000112 140422 A     690         SUB     TWO
000113 001004 A     691         JAN     STINT2        NOT VALID
000114 001002 R
000115 140424 A     692         SUB     EIGHT         CHECK IF 10-17 RANGE
000116 001004 A     693         JAN     STS3B
000117 000134 R
000120 140422 A     694         SUB     TWO           CHECK IF CUT FUNCTION
000121 001010 A     695         JAZ     STS3D
000122 000175 R
000123 005311 A     696         DAR                   OR END CUT FUNCTION
000124 001010 A     697         JAZ     STS3E
000125 000201 R
000126 006147 A     698         SUBE    D19           CHECK IF STATUS DISABLED
000127 001526 R
000130 001010 A     699         JAZ     STS3G
000131 000220 R
000132 001000 A     700         JMP     STINT2
000133 001002 R
                    701 *
                    702 *
                    703 *       SIZE AND ORIENTATION CONTROL FUNCTIONS  (10-17)
                    704 *
         000134 R   705 STS3B   EQU     *
000134 015021 A     706         LDA     CTEMP2,X      GET FUNCTION CODE
000135 140471 A     707         SUB     TEN
000136 025017 A     708         LDB     CTATTR,X
000137 006471 A     709         BT      RB0+B9,STS3B1   JUMP IF SOFTWARE CHAR GENERATOR
000140 000154 R
000141 006474 A     710         BT      RB0+B12,STINT2  OR NOT HCG-42
000142 001002 R
000143 005012 A     711         TAB
000144 006016 A     712         LDAE    SIZTBL,B
000145 001553 R
000146 055034 A     713         STA     CTSIZE,X      SET CURRENT SIZE
000147 006016 A     714         LDAE    LFTBL,B
000150 001563 R
000151 055035 A     715         STA     CTLINC,X      SET LINE COUNTER
000152 001000 A     716         JMP     STINT2        RETURN TO RTE
000153 001002 R
                    717 *
         000154 R   718 STS3B1  EQU     *
000154 001010 A     719         JAZ     STS3B2
000155 000170 R
000156 140423 A     720         SUB     FOUR
000157 001016 A     721         JANZ    STINT2        INVALID FOR THIS MODEL
000160 001002 R
000161 010421 A     722         LDA     ONE
000162 055034 A     723         STA     CTSIZE,X      SET TO LARGE CHAR SIZE
                    724 *       LARGE CHARACTER SIZE
000163 015052 A     725         LDA     CTLWCH,X
000164 004301 A     726         ASRA
000165 055045 A     727         STA     CTLSIZ,X      SET LINE WIDTH IN CHARS
000166 001000 A     728         JMP     STINT2
000167 001002 R
                    729 *       SMALL CHARACTER SIZE
         000170 R   730 STS3B2  EQU     *
000170 055034 A     731         STA     CTSIZE,X      SET TO NORMAL CHAR SIZE
000171 015052 A     732         LDA     CTLWCH,X
000172 055045 A     733         STA     CTLSIZ,X      SET LINE WIDTH IN CHARS
000173 001000 A     734         JMP     STINT2
000174 001002 R
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                    735 *
                    736 *
                    737 *       PAPER CUT CONTROL FUNCTIONS  (20,21)
                    738 *
                    739 *       PAPER CUT
         000173 R   740 STS3D   EQU     *
000175   006506 A   741         JSR     STCUT,B       OUTPUT PAPER CUT COMMAND
000176   000512 R
000177   001000 A   742         JMP     STINT2        RETURN TO RTE
000200   001002 R
                    743 *       END PAPER CUT
         000201 R   744 STS3E   EQU     *
000201   006506 A   745         JSR     STCUT,B       OUTPUT PAPER CUT COMMAND
000202   000512 R
000203   005001 A   746         TZA
000204   055021 A   747         STA     CTEMP2,X      RESET STEP COUNTER
000205   006506 A   748 STS3F   JSR     STEP,B        STEP PRINTER/PLOTTER
000206   000317 R
000207   015021 A   749         LDA     CTEMP2,X
000210   005111 A   750         IAR                   INCREMENT STEP COUNTER
000211   055021 A   751         STA     CTEMP2,X
000212   006140 A   752         SUBI    3400
000213   006510 A
000214   001010 A   753         JAZ     STINT2        RETURN TO RTE
000215   001002 R
000216   001000 A   754         JMP     STS3F         DO ANOTHER STEP
000217   000205 R
                    755 *       DISABLE STATOS (IF STATOS 31 ONLY)
                    756 *
         000220 R   757 STS3G   EQU     *
000220   015017 A   758         LDA     CTATTR,X
000221   006456 A   759         BT      RA0+B14,STINT2  IGNORE IF STATOS 33
000222   001002 R
000223   006017 A   760         LDAE    SENS0
000224   001543 R
000225   006506 A   761         JSR     STS9,B        CHECK INPUT BUSY
000226   001440 R
000227   015006 A   762         LDA     CTDVAT,X
000230   110440 A   763         ORA     BS15
000231   100444 A   764         EXC     DISPIM
000232   100747 A   765         EXC     DISCLK
000233   054000 A   766         STA     DISAB1
000234   100000 A   767 DISAB1  EXC     0             STATOS CONTROL SELECT
000235   006017 A   768         LDAE    SENS3
000236   001545 R
000237   006506 A   769         JSR     STS9,B        TEST IF PAPER CONTROL BUSY
000240   001440 R
000241   100444 A   770         EXC     DISPIM
000242   100747 A   771         EXC     DISCLK
000243   015006 A   772         LDA     CTDVAT,X
000244   110440 A   773         ORA     BS15
000245   006117 A   774         ORAE    D31
000246   001527 R
000247   054002 A   775         STA     DISAB4
000250   006017 A   776         LDAE    DISABL
000251   001533 R
000252   103100 A   777 DISAB4  DAR     0             DISABLE STATOS
000253   100147 A   778         EXC     ENACLK
000254   100244 A   779         EXC     ENAPIM
000255   001000 A   780         JMP     STINT2        RETURN TO RTE
000256   001002 R
                    781         EJEC
                    782 *
                    783 *       PAPER MOVEMENT CONTROL FUNCTIONS (0,1,2,7,8)
                    784 *
                    785 *
                    786 * TOP OF FORM
                    787 *
         000257 R   788 STS8A   EQU     *
000257   065021 A   789         STB     CTEMP2,X      SAVE B REGISTER
000260   006506 A   790         JSR     TOFM,B        TOP OF FORM
000261   000423 R
000262   025021 A   791         LDB     CTEMP2,X      RECOVER B REGISTER
000263   015010 A   792         LDA     CTSTAT,X      GET DRIVER STATUS
000264   001010 A   793         JAZ     STINT2        PREPARE TO EXIT FROM DRIVER
000265   001002 R
000266   001000 A   794         JMP     STS4B1
000267   000714 R
                    795 *
                    796 * SINGLE SPACE
                    797 *
         000270 R   798 STS8B   EQU     *
000270   065021 A   799         STB     CTEMP2,X      SAVE B REGISTER
000271   006506 A   800         JSR     SPAC,B        SPACE ONE LINE
000272   000365 R
000273   025021 A   801         LDB     CTEMP2,X      RECOVER B REGISTER
000274   015010 A   802         LDA     CTSTAT,X      GET DRIVER STATUS
000275   001010 A   803         JAZ     STINT2
000276   001002 R
000277   001000 A   804         JMP     STS4B1
000300   000714 R
                    805 *
                    806 * DOUBLE SPACE
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                    807 *                                                                                   L00 00801
         000301 R   808 STS8C   EQU     *                                                                   L00 00802
000301 065021 A     809         STB     CTEMP2,X        SAVE B REGISTER                                     L00 00803
000302 006506 A     810         JSR     SPAC,B          SPACE TWO LINES                                     L00 00804
000303 000365 R
000304 006506 A     811         JSR     SPAC,B                                                              L00 00805
000305 000365 R
000306 025021 A     812         LDB     CTEMP2,X        RECOVER B REGISTER                                  L00 00806
000307 001000 A     813         JMP     STINT2                                                              L00 00807
000310 001002 R
                    814 *                                                                                   L00 00808
                    815 * BOTTOM OF FORM                                                                    L00 00809
                    816 *                                                                                   L00 00810
         000311 R   817 STS8E   EQU     *                                                                   L00 00811
000311 065021 A     818         STB     CTEMP2,X        SAVE B REGISTER                                     L00 00812
000312 006506 A     819         JSR     BOFM,B          BOTTOM OF FORM                                      L00 00813
000313 000466 R
000314 025021 A     820         LDB     CTEMP2,X        RECOVER B REGISTER                                  L00 00814
000315 001000 A     821         JMP     STINT2                                                              L00 00815
000316 001002 R
                    822 *                                                                                   L00 00816
                    823 *                                                                                   L00 00817
                    824 * STEP STATOS ROUTINE                                                              L00 00818
                    825 *                                                                                   L00 00819
         000317 R   826 V*STEP  EQU     *                                                           D.1 00  00820
         000317 R   827 STEP    EQU     *                                                               L00 00821
000317 065025 A     828         STB     CWRT1,X         SAVE RETURN LOCATION                                L00 00822
000320 006017 A     829         LDAE    SENS3                                                       D.1 00  00823
000321 001545 R
000322 006506 A     830         JSR     STS9,B          TEST IF PAPER CONTROL BUSY                  D.1 00  00824
000323 001440 R
000324 015006 A     831         LDA     CTDVAT,X                                                            L00 00825
000325 110440 A     832         ORA     BS15                                                                L00 00826
000326 100444 A     833         EXC     DISPIM                                                              L00 00827
000327 100747 A     834         EXC     DISCLK                                                              L00 00828
000330 054003 A     835         STA     STEP1A                                                              L00 00829
000331 006117 A     836         ORAE    D31                                                                  00 00830
000332 001527 R
000333 054006 A     837         STA     STEP2A                                                              L00 00831
000334 100000 A     838 STEP1A  EXC     0               STATOS CONTROL SELECT                               L00 00832
000335 020300 A     839         LDB     V*CTL           GET CONTROLLER TIDB                                 L00 00833
000336 005001 A     840         TZA                                                                         L00 00834
000337 056003 A     841         STA     TBEVNT,B                                                            L00 00835
000340 006017 A     842         LDAE    STP1                                                                 00 00836
000341 001552 R
000342 103100 A     843 STEP2A  OAR     0               PLOT MODE/STEP                                      L00 00837
                    844         DELAY   1000,0,2        WAIT FOR INTERRUPT                                  L00 00838
000343 006505 A
000344 000406 A
000345 001102 A
000346 001750 A
000347 000000 A
                    845 *                                                                                   L00 00839
                    846 * RETURN HERE AFTER PAPER CONTROL INTERRUPT                                        L00 00840
                    847 *                                                                                   L00 00841
000350 020300 A     848         LDB     V*CTL           GET CONTROLLER TIDB                                 L00 00842
000351 036010 A     849         LDX     TBRSTS,B        GET CONTROLLER TABLE                                L00 00843
000352 016001 A     850         LDA     TBST,B                                                              L00 00844
000353 150447 A     851         ANA     BR6             RESET DELAY TIMER BIT                               L00 00845
000354 150444 A     852         ANA     BR3                                                                  00 00846
000355 056001 A     853         STA     TBST,B                                                              L00 00847
000356 016003 A     854         LDA     TBEVNT,B                                                            L00 00848
000357 001010 A     855         JAZ     STS7            TIMEOUT                                             L00 00849
000360 001356 R
         000361 R   856 STEP1   EQU     *                                                                   L00 00850
000361 045032 A     857         INR     CSLIN,X         STEP RASTER COUNT                                   L00 00851
         000362 R   858 STEP2   EQU     *                                                                   L00 00852
000362 025025 A     859         LDB     CWRT1,X                                                             L00 00853
000363 006706 A     860         IJMP    0,B             RETURN                                              L00 00854
000364 000000 A
                    861 *                                                                                   L00 00855
                    862 *                                                                                   L00 00856
                    863 *                                                                                   L00 00857
                    864 *       SPACE STATOS ONE ASCII LINE                                         D.1 00  00858
                    865 *                                                                                   L00 00859
         000365 R   866 V*SPAC  EQU     *                                                           D.1  00 00860
         000365 R   867 SPAC    EQU     *                                                                00 00861
000365 065026 A     868         STB     CWRT2,X         SAVE RETURN ADDR                            D.1 00  00862
000366 015017 A     869         LDA     CTATTR,X                                                    D.1 00  00863
000367 006451 A     870         BT      RA0+B9,SPAC2    JUMP IF NO HCG                              D.1 00  00864
000370 000410 R
000371 006010 A     871         LDAI    LNFD            LOAD LINE FEED CODE                         D.1 00  00865
000372 001551 R
000373 055015 A     872         STA     CTBUFP,X        SET UP ADDRESSES FOR BIC XFER                   00  00866
000374 055027 A     873         STA     CTBEND,X                                                        00  00867
000375 015054 A     874         LDA     CTHCGS,X        LOAD HCG SELECT                             D.1 00  00868
000376 055030 A     875         STA     CTCI,X                                                          00  00869
000377 006506 A     876         JSR     STBO,B          GO DO LINE FEED                                 00  00870
000400 001131 R
000401 015032 A     877         LDA     CSLIN,X         BUMP RASTER COUNTER BY NO OF STEPS              00  00871
000402 006125 A     878         ADDE    CTLINC,X                                                        00  00872
000403 000035 A
000404 055032 A     879         STA     CSLIN,X                                                         00  00873
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                    880 SPAC1   EQU     *                                                       D.1 00 00874
000405 025026 A     881         LDB     CWRT2,X     GET RETURN ADDR                             D.1 00 00875
000406 006706 A     882         IJMP    0,B                                                     D.1 00 00876
000407 000000 A
000410 015035 A     883 SPAC2   LDA     CTLINC,X    GET RASTER LINES/CHARACTER                  D.1 00 00877
000411 055047 A     884         STA     CTFUNC,X    SET STEP COUNT                              E.1 ********
000412 006506 A     885 SPAC3   JSR     STEP,B      STEP STATOS                                 D.1 00 00879
000413 000317 R
000414 015047 A     886         LDA     CTFUNC,X                                                E.1 ********
000415 005311 A     887         DAR                                                             E.1 ********
000416 055047 A     888         STA     CTFUNC,X                                                E.1 ********
000417 001010 A     889         JAZ     SPAC1                                                   D.1 00 00883
000420 000405 R
000421 001000 A     890         JMP     SPAC3                                                   D.1 00 00884
000422 000412 R
                    891 *                                                                           L00 00885
                    892 *                                                                           L00 00886
                    893 * POSITION STATOS TO TOP OF FORM                                           L00 00887
                    894 *                                                                           L00 00888
                    895 V$TOFM  EQU     *                                                       D.1 00 00889
                    896 TOFM    EQU     *                                                           L00 00890
000423 065044 A     897         STB     CWIDTH,X    SAVE RETURN LOCATION                        D.1 00 00891
                    898 TOFM1   EQU     *                                                           L00 00892
000424 006506 A     899         JSR     BOFM,B      SET BOF FLAG IN STATOS 31                       00 00893
000425 000466 R
                    900 TOFMA   EQU     *                                                           L00 00894
000426 006506 A     901         JSR     TOFBS,B     BUILD SENSE BOF INST                            00 00895
000427 000434 R
000430 101000 A     902 TOFMB   SEN     0,TOFZF     IF FLAG SET THEN HAVE Z FOLD                    00 00896
000431 000444 R
000432 006506 A     903 TOFR1   JSR     STEP,B      MOVE PAPER                                      00 00897
000433 000317 R
000434 015032 A     904         LDA     CSLIN,X     LINE COUNT                                      00 00898
000435 006140 A     905         SUBI    106                                                         00 00899
000436 000152 A
000437 001004 A     906         JAN     TOFR1       IF NOT AT TOF YET                               00 00900
000440 000432 R
000441 025044 A     907 TOFMC   LDB     CWIDTH,X    RECOVER RETURN ADDRESS                      D.1 00 00901
000442 006706 A     908         IJMP    0,B         RETURN                                          00 00902
000443 000000 A
                    909 *                                                                           00 00903
000444 006506 A     910 TOFZF   JSR     STEP,B      MOVE PAPER                                      00 00904
000445 000317 R
000446 006506 A     911         JSR     TOFBS,B     BUILD SENSE BOF INST                            00 00905
000447 000434 R
000450 101000 A     912 TOFZ1   SEN     0,TOFZF     IF FLAG STILL SET, CONTINUE                     00 00906
000451 000444 R
000452 001000 A     913         JMP     TOFMC                                                       00 00907
000453 000441 R
                    914 *                                                                           00 00908
                    915 TOFBS   EQU     *                                                           00 00909
000454 100444 A     916         EXC     DISPIM                                                      00 00910
000455 100747 A     917         EXC     DISCLK                                                      00 00911
000456 015006 A     918         LDA     CTDVAT,X    DEVICE ADDR                                     00 00912
000457 006117 A     919         ORAE    SENS6       BUILD SENSE INSTR                           D.1 00 00913
000460 001547 R
000461 056000 A     920         STA     0,B         STORE AT RETURN                                 00 00914
000462 100147 A     921         EXC     ENACLK                                                      00 00915
000463 100244 A     922         EXC     ENAPIM                                                      00 00916
000464 006706 A     923         IJMP    0,B                                                         00 00917
000465 000000 A
                    924 *                                                                           L00 00918
                    925 *                                                                           L00 00919
                    926 * POSITION STATOS TO BOTTOM OF FORM                                       L00 00920
                    927 *                                                                           L00 00921
                    928 BOFM    EQU     *                                                           L00 00922
000466 065026 A     929         STB     CWRT2,X     SAVE RETURN LOCATION                            L00 00923
                    930 BOFM1   EQU     *                                                           L00 00924
000467 006506 A     931         JSR     TOFBS,B     BUILD SENSE FOR INSTRUCTION                     00 00925
000470 000454 R
000471 101000 A     932         SEN     0,BOFM2     GO IF AT BOF MARK                               00 00926
000472 000505 R
000473 006506 A     933         JSR     STEP,B      MOVE PAPER                                      00 00927
000474 000317 R
000475 015032 A     934         LDA     CSLIN,X                                                     00 00928
000476 001002 A     935         JAP     *+3                                                         00 00929
000477 000501 R
000500 005211 A     936         CPA                 DONT ALLOW NEGATIVE VALUES                      00 00930
000501 006140 A     937         SUBI    1120        RASTERS PER PAGE  (PLUS SLACK)              E.1 ********
000502 002140 A
                    938         NAME    V$STPL                                                  E.1 ********
000502              939 V$STPL  BES     0                                                       E.1 ********
000503 001004 A     940         JAN     BOFM1       LOOP UNTIL COUNT EXCEEDS 11 INCH PAPER          00 00932
000504 000467 R
000505 025026 A     941 BOFM2   EQU     *                                                           00 00933
000506 005001 A     942         LDB     CWRT2,X                                                     00 00934
000507 055032 A     943         TZA                                                                 00 00935
000510 006706 A     944         STA     CSLIN,X     RESET LINE COUNT                                00 00936
000511 000000 A     945         IJMP    0,B         RETURN                                          00 00937
                    946 *                                                                           00 00938
                    947 *       CUT PAPER ROUTINE                                                   00 00939
                    948 *                                                                           00 00940
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                                                                                                                00 00941
000512 065025 A  950 STCUT   STB      CWRT1,X     SAVE RETURN ADDRESS                                            00 00942
000513 006010 A  951         LDAI     NOP         OUTPUT CHARACTER                                               00 00943
000514 001541 R
000515 055015 A  952         STA      CTBUFP,X                                                                   00 00944
000516 055027 A  953         STA      CTBEND,X                                                                   00 00945
000517 006017 A  954         LDAE     RASCUT        RASTER/CUT CODES                                         D.1 00 00946
000520 001542 R
000521 055030 A  955         STA      CTCI,X                                                                     00 00947
000522 006506 A  956         JSR      STBD,B                                                                     00 00948
000523 001131 R
000524 025025 A  957         LDB      CWRT1,X     GET RETURN ADDRESS                                             00 00949
000525 006706 A  958         IJMP     0,B                                                                        00 00950
000526 000000 A
                 959         EJEC                                                                               00 00951
                 960 *                                                                                        L00 00952
                 961 *                                                                                        L00 00953
                 962 *                                                                                        L00 00954
                 963 * WRITE OPERATION                                                                         L00 00955
                 964 *                                                                                        L00 00956
                 965 *                                                                                        L00 00957
                 966 *                                                                                    D.1 00 00958
                 967 *       MODE 1 = ASCII PRINT MODE                                                    D.1 00 00959
                 968 *       MODE 3 = PLOT MODE                                                           D.1 00 00960
                 969 *       MODE 4 = SIZE/ORIENTATION PRINT MODE (31-142 HCG ONLY)                       D.1 00 00961
                 970 *       MODE 5 = SIMULTANEOUS PRINT MODE (31-151 OPTION ONLY)                        D.1 00 00962
                 971 *       MODE 6 = SIMULTANEOUS PLOT MODE (31-151 OPTION ONLY)                         D.1 00 00963
                 972 *                                                                                    D.1 00 00964
                 973 *       ALL OTHER MODES DEFAULT TO MODE 1                                            D.1 00 00965
                 974 *                                                                                    D.1 00 00966
000527 R         975 STS4    EQU      *                                                                         L00 00967
000527 015020 A  976         LDA      CTEMP1,X                                                                  L00 00968
000530 004354 A  977         LSRA     12                                                                        L00 00969
000531 150467 A  978         ANA      BM7           EXTRACT WRITE MODE                                          00 00970
000532 055016 A  979         STA      CTMODE,X      SAVE MODE (WRITE/PLOT)                                      00 00971
000533 140466 A  980         SUB      SIX         MODE = 6                                                      00 00972
000534 001010 A  981         JAZ      STSM6       SIMULTANEOUS PRINT PLOT (BINARY BUFFER)                       00 00973
000535 001042 R
000536 006017 A  982         LDAE     SENS4                                                                D.1 00 00974
000537 001546 R
000540 006506 A  983         JSR      STS9,B        TEST IF BUFFER BUSY                                    D.1 00 00975
000541 001440 R
000542 025004 A  984         LDB      CTRQBK,X      GET REQUEST BLOCK ADDRESS                              D.1 00 00976
000543 026002 A  985         LDB      RFCB,B        GET CONTROL BLOCK ADDRESS                                   00 00977
000544 015016 A  986         LDA      CTMODE,X    GET MODE                                                      00 00978
000545 140464 A  987         SUB      THREE       MODE 3                                                        00 00979
000546 001010 A  988         JAZ      STSM3       PLOT RASTER MODE ONLY                                         00 00980
000547 001053 R
000550 005311 A  989         DAR                  MODE 4                                                      00 00981
000551 001010 A  990         JAZ      STSM4         PRINT (SIZE AND ORIENTATION)                           D.1 00 00982
000552 000604 R
000553 005311 A  991         DAR                  MODE 5                                                      00 00983
000554 001010 A  992         JAZ      STSM5         SIMULTANEOUS PRINT/PLOT(ASCII BUFFER)                  D.1 00 00984
000555 000615 R
                 993 *                                                                                        00 00985
                 994 *                                                                                        00 00986
                 995 *       PRINT MODE - MODE 1 OR DEFAULT ANY MODE                                      D.1 00 00987
                 996 *                    OTHER THAN 3,4,5 OR 6                                           D.1 00 00988
                 997 *                                                                                        00 00989
                 998 *                                                                                        00 00990
000556 010421 A  999         LDA      RS0                                                                  D.1 00 00991
000557 055010 A 1000         STA      CTSTAT,X      SET STATUS FOR FORMATTED PRINT                         D.1 00 00992
000560 055016 A 1001         STA      CTMODE,X                                                             D.1 00 00993
000561 015017 A 1002         LDA      CTATTR,X    DOES MODEL HAVE HCG?                                     D.1 00 00994
000562 006451 A 1003         BT       RA0+B9,STS4E  JUMP IF NOT                                            D.1 00 00995
000563 001032 R
000564 R        1004 STS1D   EQU      *                                                                    D.1 00 00996
000564 015017 A 1005         LDA      CTATTR,X                                                             D.1 00 00997
000565 006414 A 1006         BT       RA1+B12,STSM1G  TEST IF HCG-42                                       D.1 00 00998
000566 000572 R
000567 015054 A 1007         LDA      CTHCGS,X      GET HCG-41 SELECT CODE                                 D.1 00 00999
000570 001000 A 1008         JMP      STSM41                                                               D.1 00 01000
000571 000643 R
000572 R        1009 STSM1G  EQU      *                                                                    D.1 00 01001
000572 006017 A 1010         LDAE     LFTBL                                                                D.1 00 01002
000573 001563 R
000574 055035 A 1011         STA      CTLINC,X      SET LINE INCREMENT = SMALL/UP                          D.1 00 01003
000575 006017 A 1012         LDAE     SMUPLO                                                               D.1 00 01004
000576 001540 R
000577 006055 A 1013         STAE*    CTBUFP,X      SET WORD 1 OF BUFFER =SMALL UPRIGHT/SLO                    00 01005
000600 100015 A
000601 045015 A 1014         INR      CTBUFP,X                                                             D.1 00 01006
000602 001000 A 1015         JMP      STSM31                                                               D.1 00 01007
000603 000635 R
                 1016 *                                                                                       00 01008
                 1017 *       MODE 4                                                                      D.1 00 01009
                 1018 *                                                                                       00 01010
000604 R        1019 STSM4   EQU      *                                                                    D.1 00 01011
000604 015017 A 1020         LDA      CTATTR,X                                                             D.1 00 01012
000605 006454 A 1021         BT       RA0+B12,STINT2  IF NOT HCG-42,IGNORE                                 D.1 00 01013
000606 001002 R
000607 015034 A 1022         LDA      CTSIZE,X                                                             D.1 00 01014
000610 006055 A 1023         STAE*    CTBUFP,X      SET TO SELECT SIZE/ORIENTATION                         D.1 00 01015
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000611 100015 A
000612 045015 A 1024          INR     CTBUFP,X                                                D.1 00 01016
000613 001000 A 1025          JMP     STSM31                                                  D.1 00 01017
000614 000635 R
                1026 *                                                                        D.1 00 01018
                1027 *        MODE 5                                                          D.1 00 01019
                1028 *                                                                        D.1 00 01020
       000615 R 1029 STSM5    EQU     *                                                       D.1 00 01021
000615 015017 A 1030          LDA     CTATTR,X                                                D.1 00 01022
000616 006452 A 1031          BT      RA0+B10,STINT2  JUMP IF NO SIMULTANEOUS PRINT PLOT      D.1 00 01023
000617 001002 R
000620 006413 A 1032          BT      RA1+B11,STSM51  OR IF HCG-41                            D.1 00 01024
000621 000626 R
000622 015034 A 1033          LDA     CTSIZE,X                                                D.1 00 01025
000623 006055 A 1034          STAE*   CTBUFP,X      SET TO SELECT SIZE/ORIENTATION          D.1 00 01026
000624 100015 A
000625 045015 A 1035          INR     CTBUFP,X                                                D.1 00 01027
       000626 R 1036 STSM51   EQU     *                                                       D.1 00 01028
000626 006010 A 1037          LDAI    0752                                                    D.1 00 01029
000627 000752 A
000630 006055 A 1038          STAE*   CTBUFP,X      SET TO SELECT PLOT MODE/MAX SPEED       D.1 00 01030
000631 100015 A
000632 045015 A 1039          INR     CTBUFP,X                                                D.1 00 01031
000633 001000 A 1040          JMP     STSM32                                                  D.1 00 01032
000634 000642 R
       000635 R 1041 STSM31   EQU     *                                                       D.1 00 01033
000635 006010 A 1042          LDAI    0751                                                    D.1 00 01034
000636 000751 A
000637 006055 A 1043          STAE*   CTBUFP,X      SET TO SELECT PRINT MODE/MAX SPEED       D.1 00 01035
000640 100015 A
000641 045015 A 1044          INR     CTBUFP,X                                                D.1 00 01036
000642 015054 A 1045 STSM32   LDA     CTHCGS,X      GET HCG-42 SELECT CODE                    D.1 00 01037
000643 055030 A 1046 STSM41   STA     CTCI,X        SET CONTROL SELECT TO HCG SELECT          D.1 00 01038
000644 015015 A 1047          LDA     CTBUFP,X                                                D.1 00 01039
000645 004241 A 1048          LRLA    1             CREATE STORE BYTE POINTER                 D.1 00 01040
000646 055043 A 1049          STA     CBITPT,X                                                D.1 00 01041
                1050          IFF     VORTEX-2                                                V2  00 01042
                1051          OME     MPDVAD,V$ST3  SWITCH TO USER'S MAP                      V2  00 01043
000647 016000 A 1052          LDB     DRECL,B       CHECK IF RECORD SIZE LARGER THAN BUFR     V2  00 01044
                1053          IFF     VORTEX-2                                                V2  00 01045
                1054          OME     MPDVAD,V$ST0  RESTORE MAP 0                             V2  00 01046
000650 055013 A 1055          STA     CTWDS,X                                                     00 01047
000651 004201 A 1056          ASLA    1             MAKE CHARACTER COUNT                      D.1 00 01048
000652 005311 A 1057          DAR                                                             D.1 00 01049
000653 055041 A 1058          STA     CINDX,X       SAVE IT                                   D.1 00 01050
000654 145052 A 1059          SUB     CTLWCH,X                                                D.1 00 01051
000655 005311 A 1060          DAR                                                                 00 01052
000656 001004 A 1061          JAN     STS4A         JUMP IF OK SIZE                               00 01053
000657 000664 R
000660 015052 A 1062          LDA     CTLWCH,X                                                D.1 00 01054
000661 055041 A 1063          STA     CINDX,X                                                 D.1 00 01055
000662 004341 A 1064          LSRA    1             SET UP NUMBER OF WORDS TRANSFERRED        D.1 00 01056
000663 055013 A 1065          STA     CTWDS,X                                                 D.1 00 01057
000664 015050 A 1066 STS4A    LDA     CTBUFA,X    GET ADDR OF STATUS BUFFER                         00 01058
000665 120422 A 1067          ADD     TWO                                                       00 01059
000666 055015 A 1068          STA     CTBUFP,X      POINT TO IT                                 00 01060
                1069          IFF     VORTEX-2                                                V2  00 01061
                1070          OME     MPDVAD,V$ST3  SELECT USER'S MAP                         V2  00 01062
000667 016001 A 1071          LDA     DBUFF,B       GET ADDR OF USER'S BUFFER                 V2  00 01063
                1072          IFF     VORTEX-2                                                V2  00 01064
                1073          OME     MPDVAD,V$ST0  RESTORE MAP 0                             V2  00 01065
000670 055031 A 1074          STA     CTDBFP,X      SET POINTER TO USER'S BUFFER              V2  00 01066
                1075          IFT     VORTEX-2                                                V2  00 01067
                1076          GOTO    ENDC02                                                  V2  00 01068
                1077 STS4B    LDB     CTDBFP,X      POINTER TO USER'S DATA BUFFER             V2  00 01069
                1078          OME     MPDVAD,V$ST3  USER'S MAP                                V2  00 01070
                1079          LDA     0,B           PICK UP TWO CHARS                         V2  00 01071
                1080          OME     MPDVAD,V$ST0  MAP 0                                     V2  00 01072
                1081 ENDC02   CONT                                                            V2  00 01073
                1082          IFT     VORTEX-2                                                V2  00 01074
000671 006015 A 1083 STS4B    LDAE*   CTDBFP,X      GET FIRST WORD OF USER BUFFER                 00 01075
000672 100031 A
000673 055023 A 1084          STA     CTEMP4,X                                                D.1 00 01076
000674 015010 A 1085          LDA     CTSTAT,X                                                D.1 00 01077
000675 001010 A 1086          JAZ     STS4D         JUMP IF NOT FORMATTED PRINT               D.1 00 01078
000676 000723 R
000677 015023 A 1087          LDA     CTEMP4,X                                                D.1 00 01079
000700 055010 A 1088          STA     CTSTAT,X                                                D.1 00 01080
000701 025015 A 1089          LDB     CTBUFP,X                                                D.1 00 01081
000702 150462 A 1090          ANA     LHW           LOOK AT FIRST CHARACTER                   D.1 00 01082
000703 004350 A 1091          LSRA    8                                                       D.1 00 01083
000704 144623 A 1092          SUB     D260                                                    D.1 00 01084
000705 001010 A 1093          JAZ     STS8B         SKIP LINE BEFORE PRINT                    D.1 00 01085
000706 000270 R
000707 005311 A 1094          DAR                                                             D.1 00 01086
000710 001010 A 1095          JAZ     STS8A         TOP OF FORM BEFORE PRINT                  D.1 00 01087
000711 000257 R
000712 001000 A 1096          JMP     STS4B2                                                  D.1 00 01088
000713 000717 R
       000714 R 1097 STS4B1   EQU     *                                                       D.1 00 01089
000714 065015 A 1098          STB     CTBUFP,X      RESTORE STATUS BUFFER POINTER             D.1 00 01090
000715 015010 A 1099          LDA     CTSTAT,X      AND FIRST CHARACTER                       D.1 00 01091
000716 055023 A 1100          STA     CTEMP4,X                                                    00 01092
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                                                                                                                D.1 00 01093
000717 005001 A 1102                TZA                                                                         D.1 00 01094
000720 055010 A 1103                STA     CTSTAT,X        RESET STATUS                                        D.1 00 01095
000721 001000 A 1104                JMP     STS5A                                                               D.1 00 01096
000722 000736 R
                    1105 *                                                                                      D.1 00 01097
                    1106                IFT     VORTEX-2                                                    V2  D.1 00 01098
                    1107                GOTO    ENDC06                                                      V2  D.1 00 01099
                    1108 STS4D          LDB     CTDBFP,X        GET POINTER TO USER'S BUFFER                V2  D.1 00 01100
                    1109                DME     MPDVAD,V$ST3    USER'S MAP                                  V2  D.1 00 01101
                    1110                LDA     0,B             GET TWO CHARACTERS                          V2  D.1 00 01102
                    1111                DME     MPDVAD,V$ST0    MAP 0                                       V2  D.1 00 01103
                    1112 ENDC06         CONT                                                                V2  D.1 00 01104
                    1113                IFT     VORTEX-2                                                    V2  D.1 00 01105
000723 006015 A 1114 STS4D          LDAE*   CTDBFP,X        GET TWO CHARACTERS                          V2  D.1 00 01106
000724 100031 A
000725 055023 A 1115                STA     CTEMP4,X                                                            D.1 00 01107
000726 004350 A 1116                LSRA    8                                                                   D.1 00 01108
000727 006506 A 1117                JSR     SBT,B           STORE LEFT CHARACTER                                D.1 00 01109
000730 001477 R
000731 015041 A 1118                LDA     CINDX,X                                                             D.1 00 01110
000732 005311 A 1119                DAR                     DECREMENT CHARACTER COUNT                           D.1 00 01111
000733 001010 A 1120                JAZ     STS4C                                                               D.1 00 01112
000734 000753 R
000735 055041 A 1121                STA     CINDX,X                                                             D.1 00 01113
       000736 R 1122 STS5A          EQU     *                                                                   D.1 00 01114
000736 015023 A 1123                LDA     CTEMP4,X                                                            D.1 00 01115
000737 150463 A 1124                ANA     RHW                                                                 D.1 00 01116
000740 006506 A 1125                JSR     SBT,B           STORE RIGHT CHARACTER                               D.1 00 01117
000741 001477 R
000742 015041 A 1126                LDA     CINDX,X                                                             D.1 00 01118
000743 005311 A 1127                DAR                     DECREMENT CHARACTER COUNT                           D.1 00 01119
000744 001010 A 1128                JAZ     STS4C                                                               D.1 00 01120
000745 000753 R
000746 055041 A 1129                STA     CINDX,X                                                             D.1 00 01121
000747 045031 A 1130                INR     CTDBFP,X        BUMP BOTH BUFFER POINTERS                           D.1 00 01122
000750 045015 A 1131                INR     CTBUFP,X                                                            D.1 00 01123
000751 001000 A 1132                JMP     STS4D                                                               D.1 00 01124
000752 000723 R
       000753 R 1133 STS4C          EQU     *                                                                   D.1 00 01125
000753 015036 A 1134                LDA     CTTERM,X                                                            D.1 00 01126
000754 006506 A 1135                JSR     SBT,B           STORE TERMINATING CHARACTER                         D.1 00 01127
000755 001477 R
000756 015043 A 1136                LDA     CBITPT,X                                                          D.100 01128
000757 005311 A 1137                DAR                                                                         D.1 00 01129
000760 004341 A 1138                LSRA    1                                                                   D.1 00 01130
000761 055027 A 1139                STA     CTBEND,X        CREATE BIC ENDING ADDRESS                           D.1 00 01131
000762 015050 A 1140                LDA     CTBUFA,X                                                            D.1 00 01132
000763 055015 A 1141                STA     CTBUFP,X        CREATE BIC STARTING ADDRESS                         D.1 00 01133
000764 006506 A 1142 STS4C2         JSR     STBO,B      JUMP TO DO BIC TRANSFER                                     00 01134
000765 001131 R
       000766 R 1143 STS4C3         EQU     *                                                                   D.1 00 01135
000766 015035 A 1144                LDA     CTLINC,X    ADD CURRENT LINE SPACE COUNT                            00 01136
000767 125032 A 1145                ADD     CSLIN,X     UPDATE LINE COUNTER                                     00 01137
000770 055032 A 1146                STA     CSLIN,X                                                             00 01138
       000771 R 1147 STS4C8         EQU     *                                                                   D.1 00 01139
000771 100444 A 1148                EXC     DISPIM                                                              D.1 00 01140
000772 100747 A 1149                EXC     DISCLK                                                              D.1 00 01141
000773 015017 A 1150                LDA     CTATTR,X                                                            D.1 00 01146
000774 006452 A 1151                BT      RA0+B10,STINT2  JUM IF NO SIMULTANEOUS PRINT/PLOT                   D.1 00 01147
000775 001002 R
000776 015016 A 1152                LDA     CTMODE,X                                                            D.1 00 01148
000777 140466 A 1153                SUB     SIX                                                                 D.1 00 01149
001000 001010 A 1154                JAZ     STS4C6          JUMP IF WRITE MODE 6                                D.1 00 01150
001001 001020 R
001002 025004 A 1155 STINT2         LDB     CTRQBK,X                                                            00 01151
001003 016000 A 1156                LDA     RSTPR,B                                                             00 01152
001004 150473 A 1157                ANA     BM37                                                                00 01153
001005 056000 A 1158                STA     RSTPR,B         INDICATE NORMAL COMPLETION                          00 01154
001006 001000 A 1159                JMP     V$FNR                                                               00 01155
001007 000000 E
001010 055020 A 1160 STS4C5         STA     CTEMP1,X        SAVE STATUS                                         D.1 00 01158
001011 025004 A 1161                LDB     CTRQBK,X        GET REQUEST BLOCK ADDRESS                           D.1 00 01159
001012 016000 A 1162                LDA     RSTPR,B                                                             D.1 00 01160
001013 150473 A 1163                ANA     BM37                                                                D.1 00 01161
001014 115020 A 1164                ORA     CTEMP1,X        UPDATE COMPLETION CODE                              D.1 00 01162
001015 056000 A 1165                STA     RSTPR,B         IN REQUEST BLOCK                                    D.1 00 01163
001016 001000 A 1166                JMP     V$FNR                                                               D.1 00 01164
001017 001007 E
       001020 R 1167 STS4C6         EQU     *                                                                   D.1 00 01165
001020 015006 A 1168                LDA     CTDVAT,X                                                            D.1 00 01166
001021 114524 A 1169                ORA     SENS4           BUILD SENSE INSTR                                   D.1 00 01167
001022 054000 A 1170                STA     *+1                                                                 D.1 00 01168
001023 101000 A 1171                SEN     0,STS4C7        JUMP IF BUFFER BUSY                                 D.1 00 01169
001024 001027 R
001025 001000 A 1172                JMP     STINT2          POST NORMAL COMPLETION                              D.1 00 01170
001026 001002 R
       001027 R 1173 STS4C7         EQU     *                                                                   D.1 00 01171
001027 014523 A 1174                LDA     N340                                                                D.1 00 01172
001030 001000 A 1175                JMP     STS4C5                                                              D.1 00 01173
001031 001010 R
                    1176 *                                                                                          00 01174
                    1177 *      BUILD -JSR- TO AUXILIARY WRITE ROUTINE                                          D.1 00 01175
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                    1178 *       TO USE SOFTWARE CHARACTER GENERATOR
                    1179 *
          001032 R  1180 STS4E   EQU     *
001032    015046 A  1181         LDA     CTWRIT,X      GET ENTRY TO AUXILIARY WRITE
001033    100444 A  1182         EXC     DISPIM
001034    100747 A  1183         EXC     DISCLK
001035    054001 A  1184         STA     STS4E1        PUT DESTINATION IN JSR
001036    006506 A  1185         JSR     STS4C3,B
001037    000766 R
001037              1186 STS4E1  BES     0
001040    001000 A  1187         JMP     STS4C8        GO END OPERATION
001041    000771 R
                    1188         EJEC
                    1189 *
                    1190 *       MODE 6
                    1191 *
                    1192 *
                    1193 *
                    1194 *           WRITE MODE = 6 (SIMULTANEOUS PRINT/PLOT)
                    1195 *           SELECTS OUTPUT VIA MUX (150 SELECT)
                    1196 *
                    1197 *
          001042 R  1198 STSM6   EQU     *
001042    100147 A  1199         EXC     ENACLK
001043    100244 A  1200         EXC     ENAPIM
001044    015017 A  1201         LDA     CTATTR,X
001045    006452 A  1202         BT      RA0+B10,STINT2  JUMP IF NO SIMULTANEOUS PRINT/PLOT
001046    001002 R
001047    014465 A  1203         LDA     MUXLSN        GET MULTIPLEX SELECT/LINE SEYNC
001050    055030 A  1204         STA     CTCI,X        SAVE CONTROL SELECT
001051    001000 A  1205         JMP     STPLT         GO OUTPUT BINARY DATA
001052    001060 R
                    1206 *
                    1207 *           WRITE MODE = 3 (RASTER MODE ONLY)
                    1208 *           SELECTS OUTPUT VIA RASTER (3540 SELECT)
                    1209 *
          001053 R  1210 STSM3   EQU     *
001053    015017 A  1211         LDA     CTATTR,X
001054    006451 A  1212         BT      RA0+B9,STPLT    JUMP IF NO HCG
001055    001060 R
001056    014455 A  1213         LDA     RASLSN          GET MULTIPLEXOR SELECT/LINE SYNC
001057    055030 A  1214         STA     CTCI,X        SAVE CONTROL SELECT
                    1215 *
                    1216 * IF NOT ASCII MODE, TRANSFER RASTER PLOT DATA
                    1217 *
          001060 R  1218 STPLT   EQU     *
                    1219         IFF     VORTEX-2
                    1220         DME     MPDVAD,V$ST3  USER'S MAP
001060    016001 A  1221         LDA     IBUFF,B       GET USER'S BUFFER ADDR
                    1222         IFF     VORTEX-2
                    1223         DME     MPDVAD,V$ST0  MAP 0
001061    055015 A  1224         STA     CTBUFP,X      SAVE FOR BIC XFER
                    1225         IFF     VORTEX-2
                    1226         DME     MPDVAD,V$ST3  USER'S MAP
001062    016000 A  1227         LDA     IRECL,B       GET RECORD LENGTH
                    1228         IFF     VORTEX-2
                    1229         DME     MPDVAD,V$ST0  MAP 0
001063    055020 A  1230         STA     CTEMP1,X      SAVE TOTAL COUNT
          001064 R  1231 STPLT1  EQU     *
001064    145053 A  1232         SUB     CTLWWD,X
001065    055021 A  1233         STA     CTEMP2,X      SAVE REMAINING COUNT
001066    001004 A  1234         JAN     STPLT2
001067    001073 R
001070    015053 A  1235         LDA     CTLWWD,X      SET UP FOR FULL RASTER
001071    001000 A  1236         JMP     STPLT3
001072    001074 R
001073    015020 A  1237 STPLT2  LDA     CTEMP1,X      OUTPUT SHORT RASTER
001074    055013 A  1238 STPLT3  STA     CTWDS,X       SAVE NO WORDS TRANSFERED
001075    125015 H  1239         ADD     CTBUFP,X
001076    005311 A  1240         DAR
001077    055027 A  1241         STA     CTBEND,X      SET UP FINAL BIC ADDR
001100    015017 A  1242         LDA     CTATTR,X
001101    006456 A  1243         BT      R00+B14,STPLT4  JUMP IF STATUS 33
001102    001111 R
001103    006506 A  1244         JSR     STEP,B          STEP STATUS
001104    000317 R
001105    006506 A  1245         JSR     STBO,B          PROCESS WRITE
001106    001131 R
001107    001000 A  1246         JMP     STPLT5
001110    001115 R
          001111 R  1247 STPLT4  EQU     *
001111    006506 A  1248         JSR     STBO,B          PROCESS WRITE
001112    001131 R
001113    006506 A  1249         JSR     STEP,B          STEP STATUS
001114    000317 R
          001115 R  1250 STPLT5  EQU     *
001115    015021 A  1251         LDA     CTEMP2,X
001116    055020 A  1252         STA     CTEMP1,X
001117    001010 A  1253         JAZ     STS4C8          END OUTPUT
001120    000771 R
001121    001004 A  1254         JAN     STS4C8          END OUTPUT
001122    000771 R
001123    015027 A  1255         LDA     CTBEND,X      LOAD END ADDRESS
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001124 005111 A 1256          IAR                                                    00 01247
001125 055015 A 1257          STA     CTBUFP,X    NEW BIC START ADDRESS              00 01248
001126 015020 A 1258          LDA     CTEMP1,X    LOAD REMAINING COUNT               00 01249
001127 001000 A 1259          JMP     STPLT1      OUTPUT ANOTHER RASTER              00 01250
001130 001064 R
                1260          EJEC                                                   00 01251
                1261  ********************************************************************00 01252
                1262  *                                                                *00 01253
                1263  *       THIS ROUTINE INITIATES BIC XFER TO STATOS                 *00 01254
                1264  *       IT CHECKS FOR ERROR CONDITIONS IN XFER                   *00 01255
                1265  *       ENTRY:                                                   *00 01256
                1266  *               CTBUFP = 1ST WORD OF BIC XFER                    *00 01257
                1267  *               CTBEND = LAST WORD OF BIC XFER                   *00 01258
                1268  *                                                                *00 01259
                1269  ********************************************************************00 01260
        001131 R 1270  V$STBO  EQU     *                                              00 01261
        001131 R 1271  STBO    EQU     *                                              00 01262
001131 065022 A 1272          STB     CTEMP3,X      SAVE RETURN LOCATION             00 01263
001132 015006 A 1273          LDA     CTDVAT,X      GET DEVICE ADDRESS               L00 01264
001133 110440 A 1274          ORA     BS15                                           L00 01265
001134 100444 A 1275          EXC     DISPIM        DISABLE PIMS                     L00 01266
001135 100747 A 1276          EXC     DISCLK        DISABLE CLOCK                    L00 01267
001136 054000 A 1277          STA     STS6A                                          L00 01268
001137 100D00 A 1278  STS6A    EXC     0             STATOS CONTROL SELECT              L00 01269
001140 015017 A 1279          LDA     CTATTR,X                                   D.1 00 01270
001141 006456 A 1280          BT      RA0+B14,STS6A0  JUMP IF STATOS 33          D.1 00 01271
001142 001145 R
001143 006455 A 1281          BT      RA0+B13,STS6A2  JUMP IF NO SLB             D.1 00 01272
001144 001210 R
        001145 R 1282  STS6A0  EQU     *                                          D.1 00 01273
001145 015016 A 1283          LDA     CTMODE,X                                   D.1 00 01274
001146 140464 A 1284          SUB     THREE         JUMP IF PLOT MODE            D.1 00 01275
001147 001010 A 1285          JAZ     STS6A2                                     D.1 00 01276
001150 001210 R
001151 140422 A 1286          SUB     TWO                                        D.1 00 01277
001152 001010 A 1287          JAZ     STS6A2        JUMP IF SIMULTANEOUS PRINT   D.1 00 01278
001153 001210 R
001154 005311 A 1288          DAR                                                D.1 00 01279
001155 001010 A 1289          JAZ     STS6A2        OR SIMULTANEOUS PLOT         D.1 00 01280
001156 001210 R
001157 015017 A 1290          LDA     CTATTR,X                                   E.1 ********
001160 006456 A 1291          BT      RA0+B14,STS6A3  JUMP IF STATOS 33          E.1 ********
001161 001213 R
001162 014360 A 1292          LDA     SENS0                                      D.1 00 01282
001163 006506 A 1293          JSR     STS9,B        TEST IF INPUT BUSY           D.1 00 01283
001164 001440 R
001165 014360 A 1294          LDA     SENS4                                      D.1 00 01284
001166 006506 A 1295          JSR     STS9,B        TEST IF BUFFER BUSY          D.1 00 01285
001167 001440 R
001170 015006 A 1296          LDA     CTDVAT,X                                   D.1 00 01286
001171 110440 A 1297          ORA     BS15                                       D.1 00 01287
001172 114334 A 1298          ORA     D31                                        D.1 00 01288
001173 100444 A 1299          EXC     DISPIM                                     D.1 00 01289
001174 100747 A 1300          EXC     DISCLK                                     D.1 00 01290
001175 054001 A 1301          STA     STS6A1                                     D.1 00 01291
001176 014340 A 1302          LDA     SLBS                                       D.1 00 01292
001177 103100 A 1303  STS6A1   DAR     0             SELECT SINGLE LINE BUFFER    D.1 00 01293
001200 014342 A 1304          LDA     SENS0                                      D.1 00 01294
001201 006506 A 1305          JSR     STS9,B        TEST IF INPUT BUSY           D.1 00 01295
001202 001440 R
001203 014342 A 1306          LDA     SENS4                                      D.1 00 01296
001204 006506 A 1307          JSR     STS9,B        TEST IF BUFFER BUSY          D.1 00 01297
001205 001440 R
001206 001000 A 1308          JMP     STS6A3                                     D.1 00 01298
001207 001213 R
        001210 R 1309  STS6A2  EQU     *                                          D.1 00 01299
001210 014334 A 1310          LDA     SENS3                                      D.1 00 01300
001211 006506 A 1311          JSR     STS9,B        TEST IF PAPER CONTROL BUSY   D.1 00 01301
001212 001440 R
        001213 R 1312  STS6A3  EQU     *                                          D.1 00 01302
001213 015006 A 1313          LDA     CTDVAT,X                                   D.1 00 01303
001214 110440 A 1314          ORA     BS15                                       D.1 00 01304
001215 114311 A 1315          ORA     D31                                        D.1 00 01305
001216 100444 A 1316          EXC     DISPIM                                     D.1 00 01306
001217 100747 A 1317          EXC     DISCLK                                     D.1 00 01307
001220 054001 A 1318          STA     STS6B                                      D.1 00 01308
001221 015030 A 1319          LDA     CTCI,X        LOAD A WITH CONTROL INSTRUCTION  00 01309
001222 103100 A 1320  STS6B    DAR     0             OUTPUT LINE SYNC OR HCG SELECT   00 01310
                1321          IFT     VORTEX-2                                   V2 00 01311
                1322          GOTO    ENDC03                                     V2 00 01312
                1323          LDB     V$CTL         POINTER TO CONTROLLER TIDB       00 01313
                1324          LDA     CTMODE,X                                       00 01314
                1325          JAN     STS6B1        IF FUNC OPERATION                00 01315
                1326          ANA     BS1                                            00 01316
                1327          JAZ     STS6B1        IF MODES 1,4 OR 5 (DATA IN CT BUFFER)  00 01317
                1328          LDB     CTRQBK,X      REQUEST BLOCK ADDR               00 01318
                1329          LDB     RTIDB,B       ADDRESS OF CALLER'S TIDB         00 01319
                1330  STS6B1  LDA     TBKEY,B       MAP KEY VALUE                    00 01320
                1331          ANA     BM17                                           00 01321
                1332          STA     MAPKEY        STORE IT IN V$BIC CALLING SEQ    00 01322
                1333  ENDC03  CONT                                                   00 01323
001223 025015 A 1334          LDB     CTBUFP,X      GET INITIAL ADDRESS OF STATOS BUFFER  00 01324
001224 015027 A 1335          LDA     CTBEND,X      GET FINAL ADDR                   00 01325
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001225 005024 A 1336          TBX                                                    L00 01326
001226 006506 A 1337          JSR     V$BIC,B     INITIATE TRANSFER                  L00 01327
001227 000000 E
001230 000001 A 1338          DATA    1                                              L00 01328
                1339          IFF     VORTEX-2                                    V2  00 01329
                1340 MAPKEY   DATA    0           MAP KEY VALUE                   V2  00 01330
001231 001004 A 1341          JAN     STS7B       UNSUCCESSFUL                       L00 01331
001232 001371 R
001233 020300 A 1342          LDB     V$CTL       GET CONTROLLER TIDB                L00 01332
001234 036010 A 1343          LDX     TBRSTS,B    GET CONTROLLER TABLE               L00 01333
001235 014305 A 1344          LDA     SENS0                                       D.1 00 01334
001236 006506 A 1345          JSR     STS9,B      TEST IF INPUT BUSY              D.1 00 01335
001237 001440 R
001240 020300 A 1346          LDB     V$CTL       GET CONTROLLER TIDB                L00 01336
001241 005001 A 1347          TZA                                                    L00 01337
001242 056003 A 1348          STA     TBEVNT,B    ZERO INTERRUPT EVENT WORD          L00 01338
001243 015006 A 1349          LDA     CTDVAT,X                                    D.1 00 01339
001244 110440 A 1350          ORA     BS15                                        D.1 00 01340
001245 114261 A 1351          ORA     D31                                         D.1 00 01341
001246 100444 A 1352          EXC     DISPIM                                      D.1 00 01342
001247 100747 A 1353          EXC     DISCLK                                      D.1 00 01343
001250 054001 A 1354          STA     STS6C                                       D.1 00 01344
001251 014253 A 1355          LDA     BICD                                           L00 01345
001252 103100 A 1356 STS6C    OAR     0           OUTPUT BIC CONNECT/DATA SELECT     L00 01346
                1357          DELAY   2000,0,2     WAIT FOR INTERRUPT                 00 01347
001253 006505 A
001254 000406 A
001255 001102 A
001256 003720 A
001257 000000 A
                1358 *                                                               L00 01348
                1359 *      RETURN HERE FROM BIC COMPLETE INTERRUPT                   00 01349
                1360 *                                                               L00 01350
001260 020300 A 1361          LDB     VSCTL                                          00 01351
001261 036010 A 1362          LDX     TBRSTS,B                                       00 01352
001262 015015 A 1363          LDA     CTMODE,X                                       00 01353
001263 001004 A 1364          JAN     STS6D       FUNC OPERATION                     00 01354
001264 001315 R
001265 140464 A 1365          SUB     THREE                                          00 01355
001266 001010 A 1366          JAZ     STS6D         JUMP FOR PLOT                    00 01356
001267 001315 R
001270 140422 A 1367          SUB     TWO                                            00 01357
001271 001010 A 1368          JAZ     STS6D       MODE = 5                           00 01358
001272 001315 R
001273 140421 A 1369          SUB     ONE         MODE = 6                           00 01359
001274 001010 A 1370          JAZ     STS6D       PLOT MODE                          00 01360
001275 001315 R
001276 015017 A 1371          LDA     CTATTR,X                                    D.1 00 01361
001277 006451 A 1372          BT      R00+B9,STS6D   JUMP IF NO MCG               D.1 00 01362
001300 001315 R
001301 016003 A 1373          LDA     TBEVNT,B                                       00 01363
001302 150441 A 1374          ANA     BP9                                            00 01364
001303 056003 A 1375          STA     TBLVNT,B                                       00 01365
                1376          DELAY   2000,0,2     DELAY FOR BUFFER NOT BUSY INTERRUPT 00 01366
001304 006505 A
001305 000406 A
001306 001102 A
001307 003720 A
001310 000000 A
                1377 *                                                               00 01367
                1378 *      RETURN HERE FROM BUFFER NOT BUSY INTERRUPT                00 01368
                1379 *                                                               00 01369
001311 020300 A 1380          LDB     VSCTL                                          00 01370
001312 036010 A 1381          LDX     TBRSTS,B    POINT X TO CONTROLLER TABLE        00 01371
001313 001000 A 1382          JMP     STINT       JUMP TO TEST FOR TIME OUT          00 01372
001314 001331 R
001315 015006 A 1383 STS6D    LDA     CTDVAT,X    GET DEVICE ADDR AND CREATE CONTROL SELECT 00 01373
001316 110440 A 1384          ORA     BS15          SELECT INSTRUCTION               00 01374
001317 100444 A 1385          EXC     DISPIM      DISABLE PIMS                       00 01375
001320 100747 A 1386          EXC     DISCLK      DISABLE CLOCK                      00 01376
001321 054002 A 1387          STA     CTSL                                           00 01377
001322 114204 A 1388          ORA     D31                                            00 01378
001323 054002 A 1389          STA     LYSC                                           00 01379
001324 100000 A 1390 CTSL     EXC     0           STATUS CONTROL SELECT              00 01380
001325 014210 A 1391          LDA     LSYN                                           00 01381
001326 103100 A 1392 LYSC     OAR     0           OUTPUT LINE SYNC                   00 01382
001327 100147 A 1393 STS6E    EXC     ENACLK      ENABLE CLOCK                       00 01383
001330 100244 A 1394          EXC     ENAPIM      ENABLE PIMS                        00 01384
                1395 *                                                               00 01385
        001331 R 1396 STINT   EQU     *                                              L00 01386
001331 016001 A 1397          LDA     TBST,B                                         L00 01387
001332 150447 A 1398          ANA     BR1         RESET DELAY TIMER BIT              L00 01388
001333 150444 A 1399          ANA     BP3                                            00 01389
001334 056001 A 1400          STA     TBST,B                                         L00 01390
001335 016000 A 1401          LDA     TBEVNT,B                                       L00 01391
001336 001010 A 1402          JAZ     STS7        TIMEOUT                            L00 01392
001337 001356 R
001340 006015 A 1403          LDAE*   CTBICB,X                                      L00 01393
001341 100011 A
001342 005111 A 1404          TAR                                                    L00 01394
001343 114177 A 1405          ORA     SENS0                                       D.1 00 01395
001344 100444 A 1406          EXC     DISPIM                                         L00 01396
001345 100747 A 1407          EXC     DISCLK                                         L00 01397
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001346 054000 A 1408          STA     *+1                                                    L00 01398
001347 101000 A 1409          SEN     0,STS7B         BIC ABNORMAL STOP                      L00 01399
001350 001371 R
                1410          IFT     VORTEX-2                                          V2   00 01400
                1411          GOTO    ENDC04                                            V2   00 01401
                1412          DRAI    0120            BUILD SENSE COMMAND               V2   00 01402
                1413          STA     *+1                                               V2   00 01403
                1414          SEN     0120,STBERR     SKIP IF UNASSIGNED MEMORY ERROR   V2   00 01404
                1415 ENDC04   CONT                                                      V2   00 01405
001351 100147 A 1416          EXC     ENACLK          ENABLE CLOCK                           L00 01406
001352 100244 A 1417          EXC     ENAPIM          ENABLE PIMS                            L00 01407
001353 025022 A 1418          LDB     CTEMP3,X        GET RETURN LOCATION                     00 01408
001354 006706 A 1419          IJMP    0,B                                                     00 01409
001355 000000 A
                1420 *                                                                        L00 01410
        001356 R 1421 STS7    EQU     *                                                      L00 01411
001356 006010 A 1422          LDAI    0240            INDICATE UNIT NOT READY                L00 01412
001357 000240 A
001360 025004 A 1423          LDB     CTRQBK,X                                               L00 01413
001361 005004 A 1424          TZX                                                            L00 01414
001362 100147 A 1425 STS7A    EXC     ENACLK          ENABLE CLOCK                           L00 01415
001363 100244 A 1426          EXC     ENAPIM          ENABLE PIMS                            L00 01416
001364 116000 A 1427          DRA     RSTPR,B                                                L00 01417
001365 056000 A 1428          STA     RSTPR,B         UPDATE REQUEST BLOCK STATUS            L00 01418
001366 005041 A 1429          TXA                                                            L00 01419
001367 001000 A 1430          JMP     VSERR                                                  L00 01420
001370 000000 E
                1431 *                                                                        L00 01421
        001371 R 1432 STS7B   EQU     *                                                      L00 01422
001371 006015 A 1433          LDAE*   CTBICB,X        GET BIC DEVICE ADDRESS                 L00 01423
001372 100011 A
001373 150467 A 1434          ANA     SEVEN                                                  L00 01424
001374 004250 A 1435          LRLA    8                                                      L00 01425
001375 006110 A 1436          DRAI    020240          INDICATE POSSIBLE BIC ERROR            L00 01426
001376 020240 A
001377 025004 A 1437          LDB     CTRQBK,X        GET REQUEST BLOCK ADDRESS              L00 01427
001400 005104 A 1438          INCR    04              SET X REG EQUAL 1                       00 01428
001401 001000 A 1439          JMP     STS7A                                                  L00 01429
001402 001362 R
                1440          IFT     VORTEX-2                                          V2   00 01430
                1441          GOTO    ENDC05                                            V2   00 01431
                1442 STBERR   LDAI    046240          UNASSIGNED MEMORY ERROR           V2   00 01432
                1443          LDX     BS15                                              V2   00 01433
                1444          JMP     STS7A                                             V2   00 01434
                1445 ENDC05   CONT                                                      V2   00 01435
                1446          EJEC                                                           00 01436
                1447 *                                                                    L00 01437
                1448 *                                                                    L00 01438
                1449 *                                                                    L00 01439
                1450 *                                                                    L00 01440
                1451 * ENABLE STATUS ROUTINE                                             L00 01441
                1452 *                                                                    L00 01442
        001403 R 1453 ENAB    EQU     *                                                  L00 01443
001403 015006 A 1454          LDA     CTDVAT,X                                           L00 01444
001404 110440 A 1455          ORA     BS15                                               L00 01445
001405 100444 A 1456          EXC     DISPIM                                             L00 01446
001406 100747 A 1457          EXC     DISCLK                                             L00 01447
001407 054002 A 1458          STA     ENAB1                                              L00 01448
001410 114116 A 1459          ORA     D31                                                L00 01449
001411 054010 A 1460          STA     ENAB2                                              L00 01450
001412 100000 A 1461 ENAB1    EXC     0               STATUS CONTROL SELECT              L00 01451
001413 015017 A 1462          LDA     CTATTR,X                                      D.1  00 01452
001414 006456 A 1463          BT      RA0+B14,ENAB2A  JUMP IF MODEL 33              D.1  00 01453
001415 001421 R
001416 014112 A 1464          LDA     ENABL1                                             L00 01454
001417 001000 A 1465          JMP     ENAB2                                         D.1  00 01455
001420 001422 R
001421 014110 A 1466 ENAB2A   LDA     ENABL2          GET LOW SPEED/LINE SYNC CODES      D.1  00 01456
001422 103100 A 1467 ENAB2    DAR     0               PLOT MODE/REMOTE ENABLE                L00 01457
001423 014120 A 1468          LDA     SENS1                                              D.1  00 01458
001424 006506 A 1469          JSR     STS9,B          TEST IF STATUS BUSY                D.1  00 01459
001425 001440 R
                1470 *                                                                        L00 01460
        001426 R 1471 ENAB5   EQU     *                                                      L00 01461
001426 015006 A 1472          LDA     CTDVAT,X                                               L00 01462
001427 110440 A 1473          ORA     BS15                                                   L00 01463
001430 114076 A 1474          ORA     D31                                                     00 01464
001431 100444 A 1475          EXC     DISPIM                                             D.1  00 01465
001432 100747 A 1476          EXC     DISCLK                                             D.1  00 01466
001433 054001 A 1477          STA     ENAB6                                                  L00 01467
001434 014075 A 1478          LDA     ENABL2                                                  00 01468
001435 103100 A 1479 ENAB6    DAR     0               LOW SPEED/LINE SYNC                    L00 01469
001436 001000 A 1480          JMP     ST$0                                                   L00 01470
001437 000012 R
                1481          EJEC                                                      D.1  00 01471
                1482 *                                                                  D.1  00 01472
                1483 *        STATUS SENSE ROUTINE                                      D.1  00 01473
                1484 *                                                                  D.1  00 01474
                1485 *        CALLING SEQUENCE:                                         D.1  00 01475
                1486 *        LDA     SENSE INSTRUCTION SKELETON                        D.1  00 01476
                1487 *        JSR     STS9,B                                            D.1  00 01477
                1488 *        GOES TO -STS7- IF DEVICE TIMEOUT                          D.1  00 01478
                1489 *        RETURN  WHEN CONDITION FALSE                              D.1  00 01479
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                    1490 *
                    1491 STS9   EQU     *
001440 065023 A     1492        STB     CTEMP4,X    SAVE RETURN ADDRESS
001441 055037 A     1493        STA     CTENAB,X    SAVE SENSE INSTRUCTION SKELETON
001442 010473 A     1494        LDA     BM177
001443 055020 A     1495        STA     CTEMP1,X    SET WAIT LOOP TIMER
                    1496 STS9A  EQU     *
001444 015006 A     1497        LDA     CTDVAT,X    GET DEVICE ADDRESS
001445 115037 A     1498        ORA     CTENAB,X    CREATE SENSE INSTRUCTION
001446 100444 A     1499        EXC     DISPIM
001447 100747 A     1500        EXC     DISCLK
001450 054000 A     1501        STA     *+1
001451 101000 A     1502        SEN     0,STS9B
001452 001460 R
001453 100147 A     1503        EXC     ENACLK
001454 100244 A     1504        EXC     ENAPIM
001455 025023 A     1505        LDB     CTEMP4,X    GET RETURN ADDRESS
001456 006706 A     1506        IJMP    0,B
001457 000000 A
                    1507 STS9B  EQU     *
001460 015020 A     1508        LDA     CTEMP1,X
001461 005311 A     1509        DAR
001462 001010 A     1510        JAZ     STS7        DEVICE TIMEOUT
001463 001356 R
001464 005311 A     1511        DAR                 DECREMENT TIMER
001465 055020 A     1512        STA     CTEMP1,X
001466 005041 A     1513        TXA                 SAVE CONTROLLER TABLE POINTER
                    1514        DELAY   10          WAIT 50 MS
001467 006505 A
001470 000406 A
001471 001100 A
001472 000012 A
001473 000000 A
001474 005014 A     1515        TAX
001475 001000 A     1516        JMP     STS9A
001476 001444 R
                    1517 *
                    1518 *      STORE BYTE ROUTINE
                    1519 *
                    1520 SBT    EQU     *
001477 065024 A     1521        STB     CTEMP5,X    SAVE RETURN ADDRESS
001500 055040 A     1522        STA     CLINE,X     SAVE CHARACTER
001501 015043 A     1523        LDA     CBITPT,X    GET BYTE POINTER
001502 005012 A     1524        TAB
001503 004141 A     1525        LSRB    1           MAKE WORD ADDRESS
001504 004257 A     1526        LRLA    15
001505 001004 A     1527        JAN     SBT1
001506 001515 R
001507 015040 A     1528        LDA     CLINE,X     GET CHARACTER
001510 004250 A     1529        LRLA    8           LEFT JUSTIFY
001511 150462 A     1530        ANA     LHW
001512 056000 A     1531        STA     0,B         STORE LEFT BYTE
001513 001000 A     1532        JMP     SBT2
001514 001521 R
                    1533 SBT1   EQU     *
001515 016000 A     1534        LDA     0,B         GET WORD FROM STATUS BUFFER
001516 150462 A     1535        ANA     LHW         EXTRACT LEFT BYTE
001517 115040 A     1536        ORA     CLINE,X     OR IN RIGHT BYTE
001520 056000 A     1537        STA     0,B
                    1538 SBT2   EQU     *
001521 045043 A     1539        INR     CBITPT,X    INCREMENT BYTE POINTER
001522 025024 A     1540        LDB     CTEMP5,X
001523 006706 A     1541        IJMP    0,B         GET RETURN LOCATION
001524 000000 A
                    1542        EJEC
                    1543 *
                    1544 ********************************************************************************
                    1545 *
                    1546 *                   DATA BLOCK
                    1547 *
                    1548 ********************************************************************************
001525 000307 A     1549 BICD   DATA    0307            BIC CONNECT/DATA SELECT
001526 000023 A     1550 D19    DATA    19
001527 003100 A     1551 D31    DATA    03100
001530 000260 A     1552 D260   DATA    0260
001531 160040 A     1553 ENABL1 DATA    0160040         PLOT MODE/REMOTE ENABLE
001532 033642 A     1554 ENABL2 DATA    033642          LOW SPEED/LINE SYNC
001533 000241 A     1555 DISABL DATA    0241            REMOTE DISABLE
001534 160242 A     1556 RASLSN DATA    0160242       RASTER/LINE SYNC
001535 064242 A     1557 MUXLSN DATA    064242        MUX/LINE SYNC
001536 121000 A     1558 LSYN   DATA    0121000         LINE SYNC
001537 000320 A     1559 SLBS   DATA    0320            SINGLE LINE BUFFER SELECT
001540 160367 A     1560 SMUPLO DATA    0160367       SMALL /UPRIGHT/SLO SPD
001541 000000 A     1561 NOP    DATA    0               STATUS NOP CODE
001542 160062 A     1562 RASCUT DATA    0160062       RASTER SELECT/CUT SELECT
001543 101000 A     1563 SENS0  DATA    0101000         INPUT BUSY
001544 101100 A     1564 SENS1  DATA    0101100         STATUS NOT READY
001545 101300 A     1565 SENS3  DATA    0101300         PAPER CONTROL BUSY
001546 101400 A     1566 SENS4  DATA    0101400         BUFFER BUSY
001547 101600 A     1567 SENS6  DATA    0101600         BOTTOM OF FORM
001550 000300 A     1568 N300   DATA    0300
001551 000212 A     1569 LNFD   DATA    0212          LINE FEED CODE
001552 160064 A     1570 STP1   DATA    0160064         RASTER MODE/STEP STATUS
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        001553 R 1571 N340   EQU     *                                                    D.1 00 01561
001553  000340 A 1572 SIZTBL DATA    0340,0341,0342,0343     SMALL SIZES                      00 01562
001554  000341 A
001555  000342 A
001556  000343 A
001557  000344 A 1573        DATA    0344,0345,0346,0347     LARGE SIZES                      00 01563
001560  000345 A
001561  000346 A
001562  000347 A
        001563 R 1574 LFTBL  EQU     *                                                        00 01564
001563  000012 A 1575        DATA    10,8,10,8                                                00 01565
001564  000010 A
001565  000012 A
001566  000010 A
001567  000021 A 1576        DATA    17,13,17,13                                              00 01566
001570  000015 A
001571  000021 A
001572  000015 A
                 1577 *                                                                       00 01567
                 1578 *                                                                      L00 01568
                 1579        END                                                              00 01569
ENTRY NAMES
000000 R V$CLPS  000365 R V$SPAC  001131 R V$STBD  000317 R V$STEP
000502 R V$STPL  000423 R V$TOFM
EXTERNAL NAMES
001227 E V$BIC   001370 E V$ERR   000000 E V$EXEC  001017 E V$FNR
SYMBOLS
000044 A APIM    000002 A B       000000 A B0      000001 A B1
000012 A B10     000013 A B11     000014 A B12     000015 A B13
000016 A B14     000017 A B15     000002 A B2      000003 A B3
000004 A B4      000005 A B5      000006 A B6      000007 A B7
000010 A B8      000011 A B9      000000 A BICNUM  001525 R BICO
000421 A BM1     000472 A BM17    000475 A BM177   000477 A BM1777
000464 A BM3     000473 A BM37    000463 A BM377   000467 A BM7
000474 A BM77    000476 A BM777   000466 R BOFM    000467 R BOFM1
000505 R BOFM2   000441 A BR0     000442 A BR1     000453 A BR10
000454 A BR11    000455 A BR12    000456 A BR13    000457 A BR14
000460 A BR15    000443 A BR2     000444 A BR3     000445 A BR4
000446 A BR5     000447 A BR6     000450 A BR7     000451 A BR8
000452 A BR9     000421 A BS0     000422 A BS1     000433 A BS10
000434 A BS11    000435 A BS12    000436 A BS13    000437 A BS14
000440 A BS15    000423 A BS2     000424 A BS3     000425 A BS4
000426 A BS5     000427 A BS6     000430 A BS7     000431 A BS8
000432 A BS9     000042 A CBITPO  000043 A CBITPT  000041 A CINDX
000040 A CLINE   000047 A CLOCK   000000 A COTAD1  000032 A CSLIN
000000 A CTACT   000001 A CTADNC  000017 A CTATTR  000027 A CTBEND
000011 A CTBICB  000050 A CTBUFA  000055 A CTBUFF  000015 A CTBUFP
000030 A CTCI    000031 A CTDBFP  000003 A CTDST   000006 A CTDVAT
000020 A CTEMP1  000021 A CTEMP2  000022 A CTEMP3  000023 A CTEMP4
000024 A CTEMP5  000037 A CTENAB  000051 A CTEND   000012 A CTFCB
000014 A CTFRCT  000014 A CTFREQ  000047 A CTFUNC  000054 A CTHCGS
000000 A CTIDB   000007 A CTIOA   000035 A CTLINC  000045 A CTLSIZ
000052 A CTLWCH  000033 A CTLWID  000053 A CTLWWD  000016 A CTMODE
000002 A CTOPM   000017 A CTPST0  000020 A CTPST1  000021 A CTPST2
000022 A CTPST3  000005 A CTRCNT  000004 A CTRQBK  000005 A CTRTRY
000034 A CTSIZE  001324 R CTSL    000010 A CTSTAT  000015 A CTSTSZ
000036 A CTTERM  000016 A CTTRSZ  000013 A CTWDS   000046 A CTWRIT
000044 A CWIDTH  000025 A CWRT1   000026 A CWRT2   001526 R D19
001530 R D260    001527 R D31     000001 A DBUFF   000002 A DCNT
000234 R DISAB1  000252 R DISAB4  001533 R DISABL  000747 A DISCLK
000745 A DISMP   000444 A DISPIM  000000 A DRECL   000002 A DSCTAD
000000 A DSDASS  000000 A DSDVDN  000002 A DSLCKO  000001 A DSNAME
000000 A DSNORQ  000002 A DSOPCM  000002 A DSPSTI  000002 A DSREWD
000000 A DSUNAM  000002 A DSUNTN  000424 A EIGHT   001403 R ENAB
001412 R ENAB1   001422 R ENAB2   001421 R ENAB2A  001426 R ENAB5
001435 R ENAB6   001531 R ENABL1  001532 R ENABL2  000147 A ENACLK
000645 A ENAMP   000244 A ENAPIM  000002 A FACM    000001 A FBUFF
000003 A FCADR   000004 A FCEOF   000006 A FEFE    000005 A FIFE
000465 A FIVE    000007 A FNAM1   000010 A FNAM2   000011 A FNAM3
000423 A FOUR    000000 A FRECL   000300 A LC      000050 A LCJP
001563 R LFTBL   000462 A LHW     001551 R LNFD    001536 R LSYN
001326 R LYSC    000045 A MP      000045 A MPMR0   000145 A MPMR1
000245 A MPMR2   000345 A MPMR3   000420 A MT      001535 R MUXLSN
001550 R N300    001553 R N340    000461 A NEG     000470 A NINE
001541 R NOP     000421 A ONE     000040 A PIM1    000041 A PIM2
000042 A PIM3    000043 A PIM4    000040 A PIM5    000040 A PIM6
000040 A PIM7    000040 A PIM8    000040 A RA0     000000 A RA1
000004 A RADNR   001542 R RASCUT  001534 R RASLSN  000060 A RB0
000020 A RB1     000002 A RFCB    000463 A RHW     000001 A ROPWD
000000 A RSTPR   000003 A RTIDB   001477 R SBT     001515 R SBT1
001521 R SBT2    001543 R SENS0   001544 R SENS1   001545 R SENS3
001546 R SENS4   001547 R SENS6   000467 A SEVEN   000466 A SIX
001553 R SIZTBL  001537 R SLBS    001540 R SMUPLO  000365 R SPAC
000405 R SPAC1   000410 R SPAC2   000412 R SPAC3   001131 R STBO
000512 R STCUT   000317 R STEP    000361 R STEP1   000334 R STEP1A
000362 R STEP2   000342 R STEP2A  001331 R STINT   001002 R STINT2
001552 R STP1    001060 R STPLT   001064 R STPLT1  001073 R STPLT2
001074 R STPLT3  001111 R STPLT4  001115 R STPLT5  000012 R STS0
000564 R STS1D   000045 R STS3A   000134 R STS3B   000154 R STS3B1
000170 R STS3B2  000175 R STS3D   000201 R STS3E   000205 R STS3F
000220 R STS3G   000527 R STS4    000664 R STS4A   000671 R STS4B
000714 R STS4B1  000717 R STS4B2  000753 R STS4C   000764 R STS4C2
000766 R STS4C3  001010 R STS4C5  001020 R STS4C6  001027 R STS4C7
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000771 R STS4C8  000723 R STS4I   001032 R STS4E   001037 R STS4E1
000736 R STS5A   001137 R STS6A   001145 R STS6A0  001177 R STS6A1
001210 R STS6A2  001213 R STS6A3  001222 R STS6B   001252 R STS6C
001315 R STS6D   001327 R STS6E   001356 R STS7    001362 R STS7A
001371 R STS7B   000063 R STS8    000257 R STS8A   000270 R STS8B
000301 R STS8C   000112 R STS8D   000311 R STS8E   001440 R STS9
001444 R STS9A   001460 R STS9B   000572 R STSM1G  001053 R STSM3
000635 R STSM31  000642 R STSM32  000604 R STSM4   000643 R STSM41
000615 R STSM5   000626 R STSM51  001042 R STSM6   000027 A TBATSK
000026 A TBCPTH  000011 A TBENTY  000003 A TBEVNT  000021 A TBID
000014 A TBISA   000015 A TBISB   000017 A TBISP   000020 A TBISRS
000016 A TBISX   000022 A TBKN1   000023 A TBKN2   000024 A TBKN3
000002 A TBPL    000004 A TBRSA   000005 A TBRSB   000030 A TBRSE
000007 A TBRSP   000010 A TBRSTS  000006 A TBRSX   000000 A TBS0
000001 A TBS1    000012 A TBS10   000013 A TBS11   000014 A TBS12
000015 A TBS13   000016 A TBS14   000017 A TBS15   000002 A TBS2
000003 A TBS3    000004 A TBS4    000005 A TBS5    000006 A TBS6
000007 A TBS7    000010 A TBS8    000011 A TBS9    000001 A TBST
000025 A TBTLC   000013 A TBTMIN  000012 A TBTMS   000000 A TBTPD
000471 A TEN     000464 A THREE   000434 R TOFBS   000420 R TOFM
000424 R TOFM1   000426 R TOFMA   000430 R TOFMB   000441 R TOFMC
000432 R TOFR1   000450 R TOFZ1   000444 R TOFZF   000422 A TWO
000403 A V$1MIN  000415 A V$BFC   000075 A V$BGLB  001229 E V$BIC
000404 A V$BIC1  000405 A V$BIC2  000406 A V$BIC3  000407 A V$BIC4
000315 A V$BTB   000414 A V$BVN   000334 A V$CAM   000353 A V$CKB
000411 A V$CKIT  000310 A V$CKPT  000000 R V$CLPS  000301 A V$CPL
000076 A V$CRDM  000341 A V$CRDR  000354 A V$CRM   000307 A V$CRS
000360 A V$CTAD  000300 A V$CTL   000351 A V$CTMS  000070 A V$DATE
000355 A V$DSTB  000376 A V$ERFG  001370 E V$ERR   000000 E V$EXEC
000347 A V$FGLB  000306 A V$FLRS  001017 E V$FNR   000356 A V$FREE
000320 A V$IM    000410 A V$IOA   000412 A V$JCB   000055 A V$JCFG
000056 A V$JFCB  000050 A V$JMAM  000377 A V$JOP   000054 A V$LCNT
000313 A V$LER   000356 A V$LIT   000317 A V$LLUP  000307 A V$LRSK
000312 A V$LSAL  000345 A V$LUNT  000313 A V$LUP   000400 A V$LUT1
000401 A V$LUT2  000402 A V$LUT3  000330 A V$MPM   000360 A V$NCTR
000413 A V$OCB   000346 A V$OPCP  000363 A V$PIMN  000074 A V$PLCT
000305 A V$PTVB  000361 A V$SCTL  000352 A V$SCV   000375 A V$SLTS
000365 R V$SPAC  001131 R V$STBO  000317 R V$STEP  000502 A V$STPL
000417 A V$STSZ  000303 A V$TB    000342 A V$TBGT  000416 A V$TFC
000314 A V$TJCP  000357 A V$TMSZ  000344 A V$TMN   000343 A V$TMS
000423 R V$TOFM  000304 A V$UTB   000001 A VORTEX  000001 A X
000420 A ZERO
   0 ERRORS ASSEMBLY COMPLETE

   359   APIM       369    370
   350   CLOCK      352    353
    50   ENDC01      44
   132   LC         133    134    135    136    137    138    139    140    141
                    143    144    145    146    149    150    154    155    157
                    160    161    166    167    168    169    170    171    172
                    173    174    176    177    178    179    180    181    182
                    183    184    185    186    187    188    189    191    193
                    194    195    196    197    209    210    211    212    213
                    214    215    218    219    220    221    230    231    232
                    235    240    241    242    243
   151   LCD1       148
   156   LCD2       153
   163   LCD3       159
   175   LCD4       165
   203   LCD5       201
   208   LCD6       205
   222   LCD7       217
   229   LCD8       224
   109   LCJP       110    111    112    118    119    120    121    122
   373   MP         374    375    376    377    378    379
   251   MT         252    253    254    255    256    257    258    259    260
                    261    262    263    264    265    266    267    268    269
                    270    271    272    273    274    275    276    277    278
                    279    280    281    282    283    284    285    286    287
                    288    289    290    291    292    293    294    295    296
                    297    298    299    300    301    302    303    304    305
                    306    307
     0   V$CLPS      11
     1   VORTEX      43    147    152    155    164    190    192    200    204
                    216    223    354
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000001 A     1 VORTEX SET      1                 PUT LAST FOR VORTEX                   D.1 00 00001
             2 * THIS IS A COPYRIGHTED PROGRAM.COPYRIGHT 1974 BY VARIAN DATA MACHINES   00 00002
             3 *                                                                        00 00003
             4 *       V.D.M.  PART  NO.         92L0605-200A                          D.1 00 00004
             5 *                                                                        00 00005
             6 *                                              RELEASED     08/02/74    D.1 00 00006
             7 *                                                                        00 00007
             8 *                 VZLPDX                                                D.1 00 00008
             9 *                                                                        00 00009
            10 *                                                                        00 00010
            11           TITLE   VZLPDX                                                D.1 00 00011
            12 ***********************************************************                L00 00012
            13 *                                                                         L00 00013
            14 ****       TIDB SETUP                                                  ***L00 00014
            15 *                                                                         L00 00015
            16 ************************************************************************L00 00016
000000 A    18 TBTRD   EQU     0                 TASK THREAD                             L00 00018
000001 A    19 TBST    EQU     1                 TASK STATUS                             L00 00019
000002 A    20 TBPL    EQU     2                 STATUS CONT. (BITS15-6),PRIORITY LEVEL(5-0L00 00020
000003 A    21 TBEVNT  EQU     3                 INTERRUPT EVENT                         L00 00021
000004 A    22 TBRSA   EQU     4                 A          REENTRANT AND SUSPEND STACK  L00 00022
000005 A    23 TBRSB   EQU     5                 B          REENTRANT AND SUSPEND STACK  L00 00023
000006 A    24 TBRSX   EQU     6                 X          REENTRANT AND SUSPEND STACK  L00 00024
000007 A    25 TBRSP   EQU     7                 OF/P       REENTRANT AND SUSPEND STACK  L00 00025
000010 A    26 TBRSTS  EQU     8                 TEMP. STG. REENTRANT AND SUSPEND STACK  L00 00026
000011 A    27 TBENTY  EQU     9                 TASK ENTRY LOCATION                     L00 00027
000012 A    28 TBTMS   EQU     10                TIME COUNTER - CLOCK RESOLUTION IN 5MS INCL00 00028
000013 A    29 TBTMIN  EQU     11                TIME COUNTER - CLOCK MINUTE INCREMENTS  L00 00029
000014 A    30 TBISA   EQU     12                A             INTERRUPT STACK           L00 00030
000015 A    31 TBISB   EQU     13                B             INTERRUPT STACK           L00 00031
000016 A    32 TBISX   EQU     14                X             INTERRUPT STACK           L00 00032
000017 A    33 TBISP   EQU     15                OF/P          INTERRUPT STACK           L00 00033
000020 A    34 TBISRS  EQU     16                REENT. STACK  INTERRUPT STACK           L00 00034
000021 A    35 TBIO    EQU     17                BLK ALLOC(15-10),I/O THR(9-5),I/O ACT(4-0)L00 00035
000022 A    36 TBKN1   EQU     18                TASK NAME                               L00 00036
000023 A    37 TBKN2   EQU     19                TASK NAME                               L00 00037
000024 A    38 TBKN3   EQU     20                TASK NAME                               L00 00038
000025 A    39 TBTLC   EQU     21                1ST LOC. OF TASK ALLOCATABLE            L00 00039
000026 A    40 TBCPTH  EQU     22                CHECK POINT THREAD                      L00 00040
000027 A    41 TBATSK  EQU     23                TIDB LOC. OF ACTIVATING TASK          D.1 00 00041
000030 A    42 TBRSE   EQU     24                TASK ERROR CODE                         L00 00042
            43         IFT     VORTEX-2                                                V2 00 00043
            44         GOTO    ENDC01                                                  V2 00 00044
            45 TBSIZ   EQU     25                 TASK SIZE, BITS 15-10                V2 00 00045
            46 TBNULL  EQU     26                 NUCLEUS MODULE INDICATOR, BITS 15-08 V2 00 00046
            47 TBKEY   EQU     26                 TASK'S MAP KEY, BITS 03-00           V2 00 00047
            48 TBMIMG  EQU     27                 TASK'S MAP IMAGE                     V2 00 00048
            49 TBIST   EQU     28,                INTERRUPT STATUS                     V2 00 00049
            50 ENDC01  CONT                                                            V2  00 00050
            51         EJEC                                                              L00 00051
            52 ************************************************************************L00 00052
            53 *                                                                         L00 00053
            54 ****       TASK STATUS DESCRIPTION  (BIT SET WORD 1)                   ***L00 00054
            55 *                                                                         L00 00055
            56 ************************************************************************L00 00056
000017 A    58 TBS15   EQU     15                INTERRUPT SUSPEND                       L00 00058
000016 A    60 TBS14   EQU     14                TASK SUSPEND                            L00 00060
000015 A    61 TBS13   EQU     13                TASK ABORT                              L00 00061
000014 A    62 TBS12   EQU     12                TASK EXIT                               L00 00062
000013 A    64 TBS11   EQU     11                TIDB CORE RESIDENT                      L00 00064
000012 A    65 TBS10   EQU     10                CORE RESIDENT TASK                      L00 00065
000011 A    66 TBS9    EQU     9                 FOREGROUND TASK                         L00 00066
000010 A    68 TBS8    EQU     8                 TASK PROTECTED                          L00 00068
000007 A    69 TBS7    EQU     7                 TASK SCHEDULED BY TIME DELAY            L00 00069
000006 A    70 TBS6    EQU     6                 TIME DELAY ACTIVE                       L00 00070
000005 A    72 TBS5    EQU     5                 TASK WAITING TO BE LOADED               L00 00072
000004 A    73 TBS4    EQU     4                 TASK ERROR                              L00 00073
000003 A    74 TBS3    EQU     3                 TASK INTERRUPT EXPECTED                 L00 00074
000002 A    76 TBS2    EQU     2                 OVERLAY TASK                            L00 00076
000001 A    77 TBS1    EQU     1                 UPON TERMINATION ACTIVATE TASK SCHED TASK L00 00077
000000 A    78 TBS0    EQU     0                 TASK SEARCH-ALLOCATED-LOADED            L00 00078
            79         EJEC                                                              L00 00079
            80 ************************************************************************L00 00080
            81 *                                                                         L00 00081
            82 ***        TASK STATUS DESCRIPTION  (BIT SET WORD 2)                   ***L00 00082
            83 *                                                                         L00 00083
            84 ************************************************************************L00 00084
            86 *          BIT 15   -   TASK OPENED                                       L00 00086
            88 *          BIT 14   -   UNUSED                                            L00 00088
            89 *          BIT 13   -   OVERLAY LOAD                                      L00 00089
            90 *          BIT 12   -   TASK WAITING FOR BACKGROUND TASK I/O TO COMPLETE  L00 00090
            91 *                       TASK LOCKED-OUT UNTIL BG I/O COMPLETE OR BIT 11   L00 00091
            92 *                       IS SET  (ALLOCATABLE SPACE AVAILABLE)             L00 00092
            94 *          BIT 11   -   DEFINES THAT ALLOCATABLE SPACE IS AVAILABLE, TRY  L00 00094
            95 *                       ALLOCATING TASK AGAIN.  OVERRIDES BIT 12 SET OR   L00 00095
            96 *                       BIT 5 IN STATUS WORD.                             L00 00096
            97 *          BIT 10   -   BACKGROUND TASK BEING WRITTEN ON CHECKPOINT FILE. L00 00097
            98 *          BIT  9   -   TASK WAITING FOR A TIDB TO COME AVAILABLE FOR     L00 00098
            99 *                       SCHEDULING.                                       L00 00099
           101 *          BIT  8 TO 6  - UNUSED                                          L00 00101
           102         EJEC                                                              L00 00102
           103 ************************************************************************L00 00103
           104 *                                                                         L00 00104
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                105 ***      JOB PROCESSOR LOW CORE EQUATES                                         **L00 00105
                106 *                                                                                 L00 00106
                107 *****************************************************************************L00 00107
000050 A        109 LCJP    EQU       050                                                         L00 00109
000050 A        110 V$JNAM  EQU       LCJP              JCP NAME                                  L00 00110
000054 A        111 V$LCNT  EQU       LCJP+4            LINE COUNT                                L00 00111
000055 A        112 V$JCFG  EQU       LCJP+5            JCP FLAGS                                 L00 00112
                113 *                                   BIT 2-0   = LOAD AND GO FLAGS             L00 00113
                114 *                                   BIT  3    = DUMP FLAG  1=DUMP, 0=NO DUMP  L00 00114
                115 *                                   BIT 9-4   = UNUSED                        L00 00115
                116 *                                   BIT 15-10 = BG EXTRA CORE BLOCKS TO ALLOC L00 00116
000056 A        118 V$JFCB  EQU       LCJP+6            JCP FILE CONTROL BLOCK                    L00 00118
000070 A        119 V$DATE  EQU       LCJP+16           JCP DATA RECORD                           L00 00119
000074 A        120 V$PLCT  EQU       LCJP+20           PERMINATE LINE COUNT                      L00 00120
000075 A        121 V$BGLB  EQU       LCJP+21           JCP LIB KEY AND LU NO. (BACKGROUND LIB)   L00 00121
000076 A        122 V$CRDM  EQU       LCJP+22           CARD KEYPUNCH TYPE, 0=026, 1=029          L00 00122
                123 *                                   BIT 0 = SYSTEM NOMINAL KEYPUNCH MODE.     L00 00123
                124 *                                   BIT 9 = CURRENT JOB KEYPUNCH MODE.        L00 00124
                125         EJEC                                                                  L00 00125
                126 *****************************************************************************L00 00126
                127 *                                                                             L00 00127
                128 ****     LOW CORE DESCRIPTION                                              ***L00 00128
                129 *                                                                             L00 00129
                130 *****************************************************************************L00 00130
000300 A        132 LC      EQU       0300                                                        L00 00132
000300 A        133 V$CTL   EQU       LC                CURRENT TASK TIDB LOCATION                L00 00133
000301 A        134 V$CPL   EQU       LC+1              CURRENT PRIORITY LEVEL                    L00 00134
000302 A        135 V$CRS   EQU       LC+2              CURRENT REENTRANT STACK POINTER           L00 00135
000303 A        136 V$TB    EQU       LC+3              POINTER TO HIGHEST PRIORITY TIDB          L00 00136
000304 A        137 V$UTB   EQU       LC+4              POINTER TO UNUSED TASK TIDB               L00 00137
000305 A        138 V$PTVB  EQU       LC+5              POINTER TO NEXT ENTRY IN REENTRANT STACK  L00 00138
000306 A        139 V$FLRS  EQU       LC+6              FIRST LOC. OF REENTRANT STACK             L00 00139
000307 A        140 V$LRSK  EQU       LC+7              LAST LOC. OF REENTRANT STACK+1            L00 00140
000310 A        141 V$CKPT  EQU       LC+8              CHECKPOINT FLAG 1=ON, 0=OFF               L00 00141
                142 *       EQU       LC+9              UNUSED                                    L00 00142
000312 A        143 V$LSAL  EQU       LC+10             LOC. OF TIDB FOR SYSTEM SAL TASK          L00 00143
000313 A        144 V$LER   EQU       LC+11             LOC. OF TIDB FOR SYSTEM ERROR TASK        L00 00144
000314 A        145 V$TJCP  EQU       LC+12             LOC. OF TIDB FOR JOB CONTROL PROCESSOR TASL00 00145
000315 A        146 V$BTB   EQU       LC+13             LOC. OF CURRENT ACTIVE BACKGROUND TSK TIDBL00 00146
                147         IFT       VORTEX-2                                                V2  00 00147
                148         GOTO      LCD1              ASSEMBLE FOR VORTEX II                    V2  00 00148
                149 V$NPAG  EQU       LC+14             NUMBER OF AVAILABLE PAGES IN V$PAGE       V2  00 00149
                150 V$LPP   EQU       LC+15             POINTER OF LAST WORD TESTED IN V$PAGE     V2  00 00150
                151 LCD1    CONT                                                              V2  00 00151
                152         IFF       VORTEX-2                                                V2  00 00152
                153         GOTO      LCD2              ASSEMBLE IF NOT VORTEX II                 V2  00 00153
000316 A        154 V$LUP   EQU       LC+14             LOC. OF 1ST UNPROTECTED WORD              L00 00154
000317 A        155 V$LLUP  EQU       LC+15             LOC. OF LAST UNPROTECTED WORD             L00 00155
                156 LCD2    CONT                                                              V2  00 00156
000320 A        157 V$IM    EQU       LC+16             INTERRUPT MASK  (8 WORDS)                 L00 00157
                158         IFF       VORTEX-2                                                V2  00 00158
                159         GOTO      LCD3                                                    V2  00 00159
000330 A        160 V$MPM   EQU       LC+24             MEMORY PROTECT MASK  (4 WORDS)            L00 00160
000334 A        161 V$CAM   EQU       LC+28             CORE ALLOCATION MASK  (4 WORDS)           L00 00161
                162 *       EQU       LC+32             UNUSED                                    L00 00162
                163 LCD3    CONT                                                              V2  00 00163
                164         IFT       VORTEX-2                                                V2  00 00164
                165         GOTO      LCD4              ASSEMBLE IF VORTEX II                     V2  00 00165
                166 V$MAP   EQU       LC+24             MAP KEY AVAILABILITY MASK                 V2  00 00166
                167 V$BTBM  EQU       LC+25             BOTTOM OF NUCLEUS TABLE MODULE            V2  00 00167
                168 V$GFCB  EQU       LC+26             GLOBAL FCB MODULE                         V2  00 00168
                169 V$MIMG  EQU       LC+27             MAP 0 IMAGE ADDRESS                       V2  00 00169
                170 V$ST0   EQU       LC+28             FUNC 1 CONTROL WORD TO SWITCH EXECUTIVEV2  00 00170
                171 V$ST1   EQU       LC+29              MODE STATES: V$ST0- STATE 0              V2  00 00171
                172 V$ST2   EQU       LC+30                           V$ST1- STATE 1              V2  00 00172
                173 V$ST3   EQU       LC+31                         ETC                           V2  00 00173
                174 V$KEY   EQU       LC+32             EXECUTING TASK'S MAP KEY                  V2  00 00174
                175 LCD4    CONT                                                              V2  00 00175
000341 A        176 V$CRDR  EQU       LC+33             CORE RESIDENT DIRECTORY LOCATION          L00 00176
000342 A        177 V$TBGT  EQU       LC+34             TOP OF THREAD OF BG TSK WAITING TO BE ALLOL00 00177
000343 A        178 V$TMS   EQU       LC+35             TIME OF DAY IN 5 MILLISECOND INCREMENTS   L00 00178
000344 A        179 V$TMN   EQU       LC+36             TIME OF DAY IN MINUTE INCREMENTS          L00 00179
000345 A        180 V$LUNT  EQU       LC+37             ADDR. OF LOGICAL UNIT NAME TABLE          L00 00180
000346 A        181 V$OPCF  EQU       LC+38             OPCOM LOCKOUT FLAG                        L00 00181
000347 A        182 V$FGLB  EQU       LC+39             KEY AND LU NO. FOR FOREGROUND LIB         L00 00182
000350 A        183 V$FREE  EQU       LC+40             FREE RUNNING COUNTER INCR. IN MICROSECONDSL00 00183
000351 A        184 V$CTMS  EQU       LC+41             CLOCK RESOLUTION IN 5 MILLISECOND INCR.   L00 00184
000352 A        185 V$SCV   EQU       LC+42             CLOCK SELECTED COUNT VALUE (1 TO 4095)    L00 00185
000353 A        186 V$CKB   EQU       LC+43             BASIC CLOCK INTERRUPT RATE IN MICROSECONDSL00 00186
000354 A        187 V$CRM   EQU       LC+44             CLOCK RESOLUTION INCR. FOR 1 MINUTE.      L00 00187
000355 A        188 V$DSTB  EQU       LC+45             BASE ADDR. FOR DST BLOCK                  L00 00188
000356 A        189 V$LIT   EQU       LC+46             LAST LOCATION OF BACKGROUND LITERAL TABLE L00 00189
                190         IFF       VORTEX-2          ASSEMBLE IF VORTEX II                     V2  00 00190
                191 V$PGT   EQU       LC+47             V$PAGE ADDRESS                            V2  00 00191
                192         IFT       VORTEX-2          ASSEMBLE IF NOT VORTEX II                 V2  00 00192
000357 A        193 V$TKSZ  EQU       LC+47             RMD TRACK SIZE                            L00 00193
000360 A        194 V$CTAD  EQU       LC+48             BASE ADDR. FOR CONTROLLER ADDR. TABLE     L00 00194
000361 A        195 V$CCTL  EQU       LC+49             CURRENT CONTROLLER IN SCAN                L00 00195
000362 A        196 V$NCTR  EQU       LC+50             NO. OF CONTROLLERS                        L00 00196
000363 A        197 V$PIMN  EQU       LC+51             EXTERNAL DEVICE ADDRESS TABLE FOR PIMS    L00 00197
                198 *                                     (8 WORDS DEFINED IN PIM NO ORDER)       L00 00198
                199 *       EQU       LC+59             UNUSED                                    L00 00199
                200         IFF       VORTEX-2                                                V2  00 00200
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              201               GOTO      LCD5          ASSEMBLE IF NOT VORTEX II                V2  00 00201
              202 *             EQU       LC+60         UNUSED                                      L00 00202
              203 LCD5          CONT                                                            V2  00 00203
              204               IFT       VORTEX-2                                              V2  00 00204
              205               GOTO      LCD6          ASSEMBLE IF VORTEX II                    V2  00 00205
              206 *             EQU       LC+59         JMP V$IOST   PAGE 0 ENTRY FOR I/O        V2  00 00206
              207 *             EQU       LC+60                      STAT CALLS.                 V2  00 00207
              208 LCD6          CONT                                                            V2  00 00208
000375 A      209 V$SLFG        EQU       LC+61         SAL TASK BUSY FLAG      1=BUSY, 0=NOT BUSY L00 00209
000376 A      210 V$ERFG        EQU       LC+62         ERROR TASK BUSY FLAG    1=BUSY, 0=NOT BUSY L00 00210
000377 A      211 V$JOP         EQU       LC+63         JCP OPERATING FLAG                          L00 00211
000400 A      212 V$LUT1        EQU       LC+64         START LUN ADDR FOR JCP/OPCOM ASSIGNABLE     L00 00212
000401 A      213 V$LUT2        EQU       LC+65         START LUN ADDR FOR UNASSIGNABLE             L00 00213
000402 A      214 V$LUT3        EQU       LC+66         START LUN ADDR FOR OPCOM ASSIGNABLE         L00 00214
000403 A      215 V$1MIN        EQU       LC+67         32767 - (60000/(5*V$CTMS)) + 1              L00 00215
              216               IFF       VORTEX-2                                              V2  00 00216
              217               GOTO      LCD7          ASSEMBLE IF NOT VORTEX II                V2  00 00217
000404 A      218 V$BIC1        EQU       LC+68         BIC UNE INTERRUPT LOCATION                  L00 00218
000405 A      219 V$BIC2        EQU       LC+69         BIC TWO INTERRUPT LOCATION                  L00 00219
000406 A      220 V$BIC3        EQU       LC+70         BIC THREE INTERRUPT LOCATION                L00 00220
000407 A      221 V$BIC4        EQU       LC+71         BIC FOUR INTERRUPT LOCATION                 L00 00221
              222 LCD7          CONT                                                            V2  00 00222
              223               IFT       VORTEX-2                                              V2  00 00223
              224               GOTO      LCD8                                                  V2  00 00224
              225 *             EQU       LC+68         JMP V$IOC     PAGE 0 ENTRY FOR IOC       V2  00 00225
              226 *             EQU       LC+69                         CALLS.                   V2  00 00226
              227 *             EQU       LC+70         JMP V$EXEC    PAGE 0 ENTRY FOR RTE       V2  00 00227
              228 *             EQU       LC+71                         CALLS.                   V2  00 00228
              229 LCD8          CONT                                                            V2  00 00229
000410 A      230 V$IOA         EQU       LC+72         I/O ALGORITHM                               L00 00230
000411 A      231 V$CKIT        EQU       LC+73         CLOCK INT. IN PIM BEFORE LOCKOUT FLAG.      L00 00231
000412 A      232 V$JCB         EQU       LC+74         ALL SYSTEM BACKGROUND PROGRAMS AND JCP USEL00 00232
              233 *                                     THIS SYSTEM BUFFER TO READ DIRECTIVES AND L00 00233
              234 *                                     SOURCE RECORDS IN.                          L00 00234
000413 A      235 V$OCB         EQU       LC+75         OPCOM WILL READ OPERATOR KEY-IN REQUESTS    L00 00235
              236 *                                     IN THIS BUFFER.  IF JCP IS SET NOT ACTIVE L00 00236
              237 *                                     AND A 1 DIRECTIVE IS INPUTED, OPCOM         L00 00237
              238 *                                     WILL MOVE THE DIRECTIVE TO V$JCB BEFORE     L00 00238
              239 *                                     SCHEDULING JCP.                             L00 00239
000414 A      240 V$BVM         EQU       LC+76         BOTTOM OF VORTEX NUCLEUS                    L00 00240
000415 A      241 V$BFC         EQU       LC+77         TOP OF FG RES. AREA/BOTTOM OF FG BLK COMM.L00 00241
000416 A      242 V$TFC         EQU       LC+78         TOP OF FG BLK COMMON/TOP OF VORTEX CORE.    L00 00242
000417 A      243 V$STSZ        EQU       LC+79         ACTURAL SECTOR SIZE                         L00 00243
              244               EJEC                                                                L00 00244
              245 ************************************************************************************L00 00245
              246 *                                                                                 L00 00246
              247 ****          MASK TABLE DESCRIPTION                                           ***L00 00247
              248 *                                                                                 L00 00248
              249 ************************************************************************************L00 00249
000420 A      251 MT            SET       0420                                                      L00 00251
000420 A      252 ZERO          EQU       MT            ZERO WORD                                   L00 00252
000421 A      253 BS0           EQU       MT+1          BIT MASK CONTENTS 000001                    L00 00253
000422 A      254 BS1           EQU       MT+2                            000002                    L00 00254
000423 A      255 BS2           EQU       MT+3                            000004                    L00 00255
000424 A      256 BS3           EQU       MT+4                            000010                    L00 00256
000425 A      257 BS4           EQU       MT+5                            000020                    L00 00257
000426 A      258 BS5           EQU       MT+6                            000040                    L00 00258
000427 A      259 BS6           EQU       MT+7                            000100                    L00 00259
000430 A      260 BS7           EQU       MT+8                            000200                    L00 00260
000431 A      261 BS8           EQU       MT+9                            000400                    L00 00261
000432 A      262 BS9           EQU       MT+10                           001000                    L00 00262
000433 A      263 BS10          EQU       MT+11                           002000                    L00 00263
000434 A      264 BS11          EQU       MT+12                           004000                    L00 00264
000435 A      265 BS12          EQU       MT+13                           010000                    L00 00265
000436 A      266 BS13          EQU       MT+14                           020000                    L00 00266
000437 A      267 BS14          EQU       MT+15                           040000                    L00 00267
000440 A      268 BS15          EQU       MT+16                          0100000                    L00 00268
000441 A      269 BR0           EQU       MT+17         BIT MASK CONTENTS  0177776                  L00 00269
000442 A      270 BR1           EQU       MT+18                            0177775                  L00 00270
000443 A      271 BR2           EQU       MT+19                            0177773                  L00 00271
000444 A      272 BR3           EQU       MT+20                            0177767                  L00 00272
000445 A      273 BR4           EQU       MT+21                            0177757                  L00 00273
000446 A      274 BR5           EQU       MT+22                            0177737                  L00 00274
000447 A      275 BR6           EQU       MT+23                            0177677                  L00 00275
000450 A      276 BR7           EQU       MT+24                            0177577                  L00 00276
000451 A      277 BR8           EQU       MT+25                            0177377                  L00 00277
000452 A      278 BR9           EQU       MT+26                            0176777                  L00 00278
000453 A      279 BR10          EQU       MT+27                            0175777                  L00 00279
000454 A      280 BR11          EQU       MT+28                            0173777                  L00 00280
000455 A      281 BR12          EQU       MT+29                            0167777                  L00 00281
000456 A      282 BR13          EQU       MT+30                            0157777                  L00 00282
000457 A      283 BR14          EQU       MT+31                            0137777                  L00 00283
000460 A      284 BR15          EQU       MT+32                            0077777                  L00 00284
000461 A      285 NEG           EQU       MT+33         SET ALL BITS                                L00 00285
000462 A      286 LHW           EQU       MT+34         LEFT HALF WORD MASK 0177400                 L00 00286
000463 A      287 RHW           EQU       MT+35         RIGHT HALF WORD MASK    0377                L00 00287
000421 A      288 ONE           EQU       MT+1          CONTAINS NUMBER  1                          L00 00288
000422 A      289 TWO           EQU       MT+2          CONTAINS NUMBER  2                          L00 00289
000464 A      290 THREE         EQU       MT+36         CONTAINS NUMBER  3                          L00 00290
000423 A      291 FOUR          EQU       MT+3          CONTAINS NUMBER  4                          L00 00291
000465 A      292 FIVE          EQU       MT+37         CONTAINS NUMBER  5                          L00 00292
000466 A      293 SIX           EQU       MT+38         CONTAINS NUMBER  6                          L00 00293
000467 A      294 SEVEN         EQU       MT+39         CONTAINS NUMBER  7                          L00 00294
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000424 A   295 EIGHT   EQU     MT+4          CONTAINS NUMBER  8                          L00 00295
000470 A   296 NINE    EQU     MT+40         CONTAINS NUMBER  9                          L00 00296
000471 A   297 TEN     EQU     MT+41         CONTAINS NUMBER 10                          L00 00297
000421 A   298 BM1     EQU     MT+1          BIT MASK WORD 00001                         L00 00298
000464 A   299 BM3     EQU     MT+36         BIT MASK WORD  00003                        L00 00299
000467 A   300 BM7     EQU     MT+39         BIT MASK WORD  00007                        L00 00300
000472 A   301 BM17    EQU     MT+42         BIT MASK WORD  00017                        L00 00301
000473 A   302 BM37    EQU     MT+43         BIT MASK WORD  00037                        L00 00302
000474 A   303 BM77    EQU     MT+44         BIT MASK WORD  00077                        L00 00303
000475 A   304 BM177   EQU     MT+45         BIT MASK WORD  00177                        L00 00304
000463 A   305 BM377   EQU     MT+35         BIT MASK WORD  00377                        L00 00305
000476 A   306 BM777   EQU     MT+46         BIT MASK WORD  00777                        L00 00306
000477 A   307 BM1777  EQU     MT+47         BIT MASK WORD  01777                        L00 00307
           308         EJEC                                                            L00 00308
           309 ********************************************************************** L00 00309
           310 *                                                                       L00 00310
           311 ****     PIT TEST BIT DESIGNATION                                  *** L00 00311
           312 *                                                                       L00 00312
           313 ********************************************************************** L00 00313
000040 A   315 RA0     EQU     040           BT JUMPS WHEN A REGISTER IS 0               L00 00315
000000 A   316 RA1     EQU     000           BT JUMPS WHEN A REGISTER IS 1               L00 00316
000060 A   317 RB0     EQU     060           BT JUMPS WHEN B REGISTER IS 0               L00 00317
000020 A   318 RB1     EQU     020           BT JUMPS WHEN B REGISTER IS 1               L00 00318
           320 ********************************************************************** L00 00320
           321 *                                                                       L00 00321
           322 **       THE BIT CHECKED                                              L00 00322
           323 *                                                                       L00 00323
           324 ********************************************************************** L00 00324
000000 A   326 B0      EQU     0                                                       L00 00326
000001 A   327 B1      EQU     1                                                       L00 00327
000002 A   328 B2      EQU     2                                                       L00 00328
000003 A   329 B3      EQU     3                                                       L00 00329
000004 A   330 B4      EQU     4                                                       L00 00330
000005 A   331 B5      EQU     5                                                       L00 00331
000006 A   332 B6      EQU     6                                                       L00 00332
000007 A   333 B7      EQU     7                                                       L00 00333
000010 A   334 B8      EQU     8                                                       L00 00334
000011 A   335 B9      EQU     9                                                       L00 00335
000012 A   336 B10     EQU     10                                                      L00 00336
000013 A   337 B11     EQU     11                                                      L00 00337
000014 A   338 B12     EQU     12                                                      L00 00338
000015 A   339 B13     EQU     13                                                      L00 00339
000016 A   340 B14     EQU     14                                                      L00 00340
000017 A   341 B15     EQU     15                                                      L00 00341
           342         EJEC                                                            L00 00342
           343 ********************************************************************** L00 00343
           344 *                                                                       L00 00344
           345 ****     DEVICE AND FUNCTION CODES                                 *** L00 00345
           346 *                                                                       L00 00346
           347 ********************************************************************** L00 00347
           349 ****     REAL TIME CLOCK                                           *** L00 00349
000047 A   350 CLOCK   EQU     047           DEVICE NUMBER 047                           L00 00350
           351 *                                                                       L00 00351
000747 A   352 DISCLK  EQU     0700+CLOCK    DISABLE CLOCK                               L00 00352
000147 A   353 ENACLK  EQU     0100+CLOCK    ENABLE CLOCK                                L00 00353
           354         IFF     VORTEX-2                                          V2    L00 00354
           355 MPDVAD  EQU     046           RAM ADDRESS                         V2    L00 00355
           357 *                                                                       L00 00357
           358 ****     PIM                                                       *** L00 00358
000044 A   359 APIM    EQU     044           ALL PIMS DEVICE NUMBER                      L00 00359
000040 A   360 PIM1    EQU     040                                                       L00 00360
000041 A   361 PIM2    EQU     041                                                       L00 00361
000042 A   362 PIM3    EQU     042                                                       L00 00362
000043 A   363 PIM4    EQU     043                                                       L00 00363
000040 A   364 PIM5    EQU     040                                                       L00 00364
000040 A   365 PIM6    EQU     040                                                       L00 00365
000040 A   366 PIM7    EQU     040                                                       L00 00366
000040 A   367 PIM8    EQU     040                                                       L00 00367
           368 *                                                                       L00 00368
000444 A   369 DISPIM  EQU     0400+APIM                                                 L00 00369
000244 A   370 ENAPIM  EQU     0200+APIM                                                 L00 00370
           372 ****       MEMORY PROTECT                                          *** L00 00372
000045 A   373 MP      EQU     045           DEVICE ADDRESS 045                          L00 00373
000745 A   374 DISMP   EQU     0700+MP       DISABLE MEMORY PROTECT                      L00 00374
000645 A   375 ENAMP   EQU     0600+MP       ENABLE MEMORY PROTECT                       L00 00375
000045 A   376 MPMR0   EQU     0000+MP       SELECT MASK REGISTER 0                      L00 00376
000145 A   377 MPMR1   EQU     0100+MP       SELECT MASK REGISTER 1                      L00 00377
000245 A   378 MPMR2   EQU     0200+MP       SELECT MASK REGISTER 2                      L00 00378
000345 A   379 MPMR3   EQU     0300+MP       SELECT MASK REGISTER 3                      L00 00379
           380         EJEC                                                            L00 00380
           381         EJEC                                                            L00 00381
           382 *     CTBL FOR EACH CONTROLLER.                                         L00 00382
000000 A   383 CTACT   EQU     0             CONTROLLER ACTIVE IND.,1=ACTIVE ,BIT 15     L00 00383
000000 A   384 CTIDB   EQU     0             CONTROLLER/DRIVER TIDB ADDR.,BITS 14-0      L00 00384
000001 A   385 CTADNC  EQU     1             ADDR. OF NEXT CONTROLLER IN CHAIN           L00 00385
000002 A   386 CTOPM   EQU     2             OP-CODE MASK                                L00 00386
000003 A   387 CTDST   EQU     3             ADDR.OF CURRENT DST                         L00 00387
000004 A   388 CTRQBK  EQU     4             FIRST REQUEST BLOCK                         L00 00388
000005 A   389 CTRTRY  EQU     5             ERROR RETRY CONSTANT,BITS 15-8              L00 00389
000005 A   390 CTRCNT  EQU     5             V=ERR RETRY COUNTER ,BITS 7-0               L00 00390
000006 A   391 CTDVAT  EQU     6             DEVICE ADDR.                                L00 00391
000007 A   392 CTIOA   EQU     7             I/O ALGORITHM VALUE                         L00 00392
000010 A   393 CTSTAT  EQU     8             DRIVER STATUS                               L00 00393
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000011 A   394 CTBICB EQU     9            ADDR. FOR BIC FLAG TABLE,BITS 15-0          L00 00394
000012 A   395 CTFCB  EQU     10           FCB OR DCB ADDR.                            L00 00395
000013 A   396 CTWDS  EQU     11           NO.OF WORDS TRANSFERED.                     L00 00396
000014 A   397 CTFRCT EQU     12           BITS 15-8,FREQUENCY CONSTANT                L00 00397
000014 A   398 CTFREQ EQU     12           BITS 7-0,FREQUENCY COUNT                    L00 00398
000015 A   399 CTSTSZ EQU     13           NO.OF WORDS PER SECTOR FOR RMD ONLY         L00 00399
000016 A   400 CTTRSZ EQU     14           NO.OF SECTORS PER TRACK FOR RMD ONLY        L00 00400
000017 A   401 CTPST0 EQU     15           PST BASE ADDR,RMD,UNIT 0                    L00 00401
000020 A   402 CTPST1 EQU     16           PST BASE ADDR,RMD,UNIT 1                    L00 00402
000021 A   403 CTPST2 EQU     17           PST BASE ADDR,RMD,UNIT 2                    L00 00403
000022 A   404 CTPST3 EQU     18           PST BASE ADDR,RMD,UNIT 3                    L00 00404
           405 *                                                                     L00 00405
           406       EJEC                                                            L00 00406
           407 * DEVICE SPECIFICATION TABLE, DST                                     L00 00407
           408 *  DST FOR EACH DEVICE,AND EACH RMD PARTITION                         L00 00408
           409 *                                                                     L00 00409
000000 A   410 DSDVDN EQU     0            DEVICE DOWN INDICATOR,1=DOWN  BIT 15        L00 00410
000000 A   411 DSDASS EQU     0            DEVICE ASSGNMT INDICATOR,BITS 14-13         L00 00411
           412 *                             00 ASSIGNABLE BY JCP AND OPCOM           L00 00412
           413 *                             01 ASSIGNABLE BY OPCOM ONLY              L00 00413
           414 *                             10 UNASSIGNABLE                          L00 00414
           415 *                             00 UNUSED                                L00 00415
000000 A   416 DSUNAM EQU     0            DEV NAME,CH.3 B12-10,CH.4 B9-4              L00 00416
           417 *                            ADD 0260 TO GET ASCII CHARACTER           L00 00417
000000 A   418 DSNORQ EQU     0            DEVICE REQUEST COUNTER, BITS 3-0.           L00 00418
000001 A   419 DSNAME EQU     1            DEVICE NAME,2 ASCII CHAR.                   L00 00419
000002 A   420 DSREWD EQU     2            DEVICE REWIND INDICATOR,1=REWIND,BIT 15     L00 00420
000002 A   421 DSUNTN EQU     2            DEVICE UNIT NO. ,BITS 14-13                 L00 00421
000002 A   422 DSLCKO EQU     2            PARTITION LOCKOUT FLAG BIT 12               L00 00422
000002 A   423 DSOPCM EQU     2            OPCOM DEVICE INDICATOR,BIT 11               L00 00423
000002 A   424 DSPSTI EQU     2            INDEX TO PST,BITS 10-6.                     L00 00424
000002 A   425 DSCTAD EQU     2            INDEX TO COTAD,CONTRLLR ADDR TABLE,B5-0.    L00 00425
           426 *                                                                     L00 00426
           427 *                                                                     L00 00427
           428       EJEC                                                            L00 00428
           429 * CONTROLLER ADDRESS TABLE,COTAD                                      L00 00429
           430 *   1 ENTRY FOR EACH CTBL.                                            L00 00430
           431 *                                                                     L00 00431
000000 A   432 COTAD1 EQU     0            BASE ADDRESS FOR CONTROLLER TABLE           L00 00432
           433 *                                                                     L00 00433
           434       EJEC                                                            L00 00434
           435 *  BIC FLAG TABLE                                                     L00 00435
           436 *   1 ENTRY FOR EACH BIC ,EACH CONTROLLER TABLE,CTBL, WHICH           L00 00436
           437 *     UTILIZES A BIC CONTAINS AN ADDRESS,CTBICB, POINTING             L00 00437
           438 *     TO ITS BIC ENTRY.                                               L00 00438
           439 *                                                                     L00 00439
000000 A   440 BICNUM EQU     0            BIC NUMBER FOR THIS ENTRY.                  L00 00440
           441 *                             POSITIVE VALUE MEANS BIC IS AVAILABLE   L00 00441
           442 *                             NEGATIVE VALUE,COMPLEMENTED BIC NO.,    L00 00442
           443 *                               MEANS BIC IS CURRENTLY IN USE.        L00 00443
           444 *                                                                     L00 00444
           445 *                                                                     L00 00445
           446       EJEC                                                            L00 00446
           447 *  REQUEST BLOCK , RQBLK                                              L00 00447
           448 *    1 FOR EACH IOC REQUEST; RQBLKS ARE QUEUED ACCORDING TO TASK      L00 00448
           449 *     PRIORITY TO CTBL.                                               L00 00449
           450 *                                                                     L00 00450
           451 *                                                                     L00 00451
000000 A   452 RSTPR  EQU     0            BIT 15 = I/O COMPLETED INDICATOR.           L00 00452
           453 *                           BITS14-5,DRIVER STATUS                    L00 00453
           454 *                           BITS 4-0, REQUESTING TASK PRIORITY.       L00 00454
000001 A   455 RQPWD  EQU     1            BIT 15 = WAIT OPTION                        L00 00455
           456 *                           BITS14-12, MODE,USED BY DRIVERS           L00 00456
           457 *                           BITS 11-8,OP-CODE                         L00 00457
           458 *                           BITS 7-0, LOGICAL UNIT NO.                L00 00458
000002 A   459 RFCB   EQU     2            FCB OR DCB ADDR.                            L00 00459
000003 A   460 RTIDB  EQU     3            REQUESTING TASK TIDB ADDR.                  L00 00460
000004 A   461 RADNR  EQU     4            ADDR.OF NEXT RQBLK IN QUEUE.,0= NONE.       L00 00461
           462 *                                                                     L00 00462
           463       EJEC                                                            L00 00463
           464 *                                                                     L00 00464
           465 *     PARTITION SPECIFICATION TABLE, PST                              L00 00465
           466 *                                                                     L00 00466
           467 *       A PST EXISTS FOR EACH ROTATING MEMORY DEVICE. EACH PARTITION  L00 00467
           468 *       ON THE RMD HAS A FIVE WORD ENTRY IN THE PST. THE PARTITION'S  L00 00468
           469 *       PST ENTRY NUMBER IS SPECIFIED IN THE DEVICE SPECIFICATION     L00 00469
           470 *       TABLE,DST,THUS LINKING THE PST WITH A LOGICAL UNIT NUMBER.    L00 00470
           471 *       THE EFFECTIVE ADDR FOR AN ENTRY IS FOUND AS FOLLOWS:          L00 00471
           472 *                                                                     L00 00472
           473 *                                                                     L00 00473
           474 *                                   BITS 14-8, UNUSED                 L00 00474
           475       EJEC                                                            L00 00475
           476 *                                                                     L00 00476
           477 *     DATA CONTROL BLOCK, DCB                                         L00 00477
           478 *                                                                     L00 00478
           479 *       A DCB IS REFERENCED BY EACH I/O REQUEST BLOCK,RQBLK, SPECIFY- L00 00479
           480 *        ING A NON-ROTATING MEMORY DEVICE. DCB CONTAINS ADDITION INFOR- L00 00480
           481 *        MATION NECESSARY TO COMPLETE THE I/O OPERATION.               L00 00481
           482 *       DCB IS A FIXED LENGTH TABLE OF 3 WORDS EACH. THE FCB IS THE DCB L00 00482
           483 *       EQUIVALENT FOR RMD.                                           L00 00483
           484 *                                                                     L00 00484
           485 *                                                                     L00 00485
000000 A   486 DRECL  EQU     0            RECORD LENGTH                               L00 00486
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000001 A  DBUFF  EQU    1            USER BUFFER AREA
000002 A  DCNT   EQU    2            NO. OF COUNTS,USE FOR FUNC REQUESTS.
          *
          *
          *
                 EJEC
          *
          *
          *      FILE CONTROL BLOCK, FCB
          *
          *        A FCB IS REFERENCED BY EACH I/O REQUEST BLOCK,RQBLK, SPECIFY-
          *         ING A ROTATING MEMORY DEVICE. FCB CONTAINS ADDITION INFORMA-
          *         TION NECESSARY TO COMPLETE THE I/O INFORMATION ON RMD.
          *        FCB IS A FIXED LENGTH TABLE OF 10 WORDS.
          *
          *
000000 A  FRECL  EQU    0            RECORD LENGTH
000001 A  FBUFF  EQU    1            BUFFER AREA
000002 A  FACM   EQU    2            ACCESS METHOD ,BITS 15-8
          *                             0 = DIRECT ACCESS BY LOGICAL RECORD.
          *                             1 = SEQ ACCESS BY LOGICAL RECORD
          *                             2 = DIRECT ACCESS USIN ACTUAL ADDR.
          *                             4 = SEQ ACCESS USING ACTUAL ADDR
          *                          PROTECT KEY,  BITS 7-0
000003 A  FCADR  EQU    3            CURRENT RECORD NO.,OR CURRENT SECTOR ADDR
000004 A  FCEOF  EQU    4            CURRENT END OF FILE POSITION
000005 A  FIFE   EQU    5            BEGIN FILE EXTENT
000006 A  FEFE   EQU    6            END FILE EXTENT.
000007 A  FNAM1  EQU    7            FILE NAME. CHAR N  , CHAR N+1
000010 A  FNAM2  EQU    8                       CHAR N+2, CHAR N+3
000011 A  FNAM3  EQU    9                       CHAR N+4, CHAR N+5
          *
                 EJEC
          *
          *
          *      VORTEX STATOS 31/33 PRINTER/PLOTTER
          *
          *      AUXILIARY WRITE MODULE
          *
          *      CONTAINS SOFTWARE CHARACTER GENERATOR FOR USE BY MODEL D
          *
          *      THE MAJOR SUBCOMPONENTS OF THIS MODULE ARE:
          *
          *      V$WRIT - PRINT MODE INITIATOR
          *      PUTROW - BUFFER PACKING ROUTINE
          *      STCLR  - BUFFER CLEARING ROUTINE
          *
          *
          *
          *
                 NAME   V$WRIT
                 EXT    V$STEP,V$TOFM,V$SPAC,V$STPO
          *
          *
000015 A  CTBUFP EQU    CTFREQ+1     STATOS BUFFER POINTER
000016 A  CTMODE EQU    CTFREQ+2     FLAG FOR WRITE/PLOT
000017 A  CTATTR EQU    CTFREQ+3     STATOS MODEL ATTRIBUTES
000020 A  CTEMP1 EQU    CTFREQ+4     TEMPORARY STORAGE
000021 A  CTEMP2 EQU    CTFREQ+5     TEMPORARY STORAGE
000022 A  CTEMP3 EQU    CTFREQ+6     TEMPORARY STORAGE
000023 A  CTEMP4 EQU    CTFREQ+7     TEMPORARY STORAGE
000024 A  CTEMP5 EQU    CTFREQ+8     TEMPORARY STORAGE
000025 A  CWRT1  EQU    CTFREQ+9     TEMPORARY STORAGE
000026 A  CWRT2  EQU    CTFREQ+10    TEMPORARY STORAGE
000027 A  CTBEND EQU    CTFREQ+11    ENDING ADDRESS FOR BIC TRANSFER
000030 A  CTCI   EQU    CTFREQ+12    STATOS CONTROL WORD
000031 A  CTDBFP EQU    CTFREQ+13    POINTER TO USER BUFFER
000032 A  CSLIN  EQU    CTFREQ+14    RASTER STEP COUNTER
000033 A  CTLWID EQU    CTFREQ+15    MAXIMUM LINE WIDTH CODE
000034 A  CTSIZE EQU    CTFREQ+16    CURRENT PRINT SIZE CODE
000035 A  CTLINC EQU    CTFREQ+17    RASTER LINES/CHARACTER
000036 A  CTTERM EQU    CTFREQ+18    LINE TERMINATION CHARACTER
000037 A  CTENAB EQU    CTFREQ+19    BUFFER BUSY FLAG
000040 A  CLINE  EQU    CTFREQ+20    MATRIX SCAN INDEX
000041 A  CINDX  EQU    CTFREQ+21    CHARACTER CONVERSION INDEX
000042 A  CBITPO EQU    CTFREQ+22    SHIFT FACTOR FOR PACKING BUFFER
000043 A  CBITPT EQU    CTFREQ+23    RASTER BIT POINTER TO USER BUFFER
000044 A  CWIDTH EQU    CTFREQ+24    WIDTH OF MATRIX ROW IN BITS
000045 A  CTLSIZ EQU    CTFREQ+25    LINE WIDTH IN CHARACTERS
000046 A  CTWRIT EQU    CTFREQ+26    POINTER TO AUXILIARY WRITE ROUTINE
000047 A  CTFUNC EQU    CTFREQ+27    POINTER TO AUXILIARY FUNC ROUTINE
000050 A  CTBUFA EQU    CTFREQ+28    POINTER TO BEGINNING OF STATOS BUFFER
000051 A  CTEND  EQU    CTFREQ+29    POINTER TO END OF STATOS BUFFER
000052 A  CTLWCH EQU    CTFREQ+30    MAXIMUM LINE WIDTH IN CHARACTERS
000053 A  CTLWWD EQU    CTFREQ+31    MAXIMUM LINE WIDTH IN RASTER WORDS
000054 A  CTHCGS EQU    CTFREQ+32    HARDWARE CHAR GEN SELECT CODE
000055 A  CTBUFF EQU    CTFREQ+33    STATOS BUFFER
          *
000001 A  X      EQU    1
000002 A  B      EQU    2
          *
          *
          *
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                    580 * WRITE OPERATION                                                                   L00  00580
                    581 *                                                                                   L00  00581
                    582 *                                                                                   L00  00582
      000000  R     583 V$WRIT  EQU     *                                                                  D.100  00583
      000000  R     584 ST$4    EQU     *                                                                   L00  00584
000000 065024  A    585         STB     CTEMP5,X        SAVE RETURN LOCATION                               D.100  00585
000001 025004  A    586         LDB     CTRQBK,X        GET REQUEST BLOCK ADDRESS                          D.1  00  00586
000002 026002  A    587         LDB     RFCB,B          GET CONTROL BLOCK ADDRESS                          D.1  00  00587
                    588         IFF     VORTEX-2                                                           V2   00  00588
                    589         OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                               V2   00  00589
000003 016000  A    590         LDA     DRECL,B         ASCII MODE, GET RECORD SIZE                         L00  00590
                    591         IFF     VORTEX-2                                                           V2   00  00591
                    592         OME     MPDVAD,V$ST0    RESTORE MAP 0                                      V2   00  00592
000004 055013  A    593         STA     CTWDS,X                                                             L00  00593
000005 004201  A    594         ASLA    1                                                                  D.1  00  00594
000006 145052  A    595         SUB     CTLWCH,X        GREATER THAN LINE WIDTH ?                          E.1  ********
000007 005311  A    596         DAR                                                                         L00  00596
000010 001004  A    597         JAN     STS4A                                                               L00  00597
000011 000015  R
000012 015052  A    598         LDA     CTLWCH,X                                                           S.1  ********
000013 004301  A    599         ASRA    1                                                                  D.1  00  00599
000014 055013  A    600         STA     CTWDS,X                                                             L00  00600
      000015  R     601 STS4A   EQU     *                                                                   L00  00601
000015 005001  A    602         TZA                                                                         00   00602
000016 055043  A    603         STA     CBITPT,X        RESET CHARACTER ROW BIT POINTER                     00   00603
000017 055040  A    604         STA     CLINE,X         RESET MATRIX INDEX                                  L00  00604
000020 010421  A    605         LDA     BS0                                                                D.1  00  00605
000021 055041  A    606         STA     CINDX,X         RESET CHARACTER INDEX                               L00  00606
000022 010423  A    607         LDA     BS2                                                                 L00  00607
000023 055010  A    608         STA     CTSTAT,X        SET DRIVER STATUS TO FORMATTED PRINT                L00  00608
                    609         IFF     VORTEX-2                                                           V2   00  00609
                    610         OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                               V2   00  00610
000024 016001  A    611         LDA     DBUFF,B                                                             L00  00611
                    612         IFF     VORTEX-2                                                           V2   00  00612
                    613         OME     MPDVAD,V$ST0    RESTORE MAP 0                                      V2   00  00613
000025 055031  A    614         STA     CTDBFP,X        SAVE USER BUFFER ORIGIN                           D.1  00  00614
000026 005012  A    615         TAB                                                                         L00  00615
                    616         IFF     VORTEX-2                                                           V2   00  00616
                    617         OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                               V2   00  00617
000027 016000  A    618         LDA     0,2             GET FIRST WORD FROM BUFFER                          L00  00618
                    619         IFF     VORTEX-2                                                           V2   00  00619
                    620         OME     MPDVAD,V$ST0    RESTORE MAP 0                                      V2   00  00620
000030 004350  A    621         LSRA    8               EXAMINE FIRST CHARACTER                             L00  00621
000031 006140  A    622         SUBI    D260            ASCII ZERO                                          00   00622
000032 000260  A
000033 001010  A    623         JAZ     STS8B           SKIP LINE BEFORE PRINT                              L03  00623
000034 000342  R
000035 005311  A    624         DAR                     ASCII ONE                                           L00  00624
000036 001010  A    625         JAZ     STS8A           TOP OF FORM BEFORE PRINT                            L00  00625
000037 000350  R
000040 065020  A    626         STB     CTEMP1,X                                                            00   00626
000041 006506  A    627         JSR     V$STEP,B                                                           D.1  00  00627
000042 000000  E
000043 006506  A    628         JSR     V$STEP,B                                                           D.1  00  00628
000044 000042  E
000045 025020  A    629         LDB     CTEMP1,X                                                            00   00629
000046 005001  A    630         TZA                                                                         L03  00630
000047 055010  A    631         STA     CTSTAT,X        NEITHER, RESET DRIVER STATUS                        L00  00631
      000050  R     632 STS4AA  EQU     *               RETURN HERE AFTER EACH SCAN OF CHAR GEN             L00  00632
000050 006506  A    633         JSR     STCLR,B                                                            B.2  00  00633
000051 000322  R
      000052  R     634 STS5    EQU     *                                                                   L00  00634
000052 015041  A    635         LDA     CINDX,X         GET CHAR INDEX                                      L00  00635
000053 004301  A    636         ASRA    1                                                                   L00  00636
000054 125031  A    637         ADD     CTDBFP,X        ADD USER BUFFER ADDRESS                            D.1  00  00637
000055 005012  A    638         TAB                                                                         L00  00638
                    639         IFF     VORTEX-2                                                           V2   00  00639
                    640         OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                               V2   00  00640
000056 026000  A    641         LDB     0,B             GET TWO CHARACTERS FROM USER BUFFER                 L00  00641
                    642         IFF     VORTEX-2                                                           V2   00  00642
                    643         OME     MPDVAD,V$ST0    RESTORE MAP 0                                      V2   00  00643
000057 015041  A    644         LDA     CINDX,X         GET CHAR INDEX                                      L00  00644
000060 005111  A    645         IAR                                                                         L00  00645
000061 150421  A    646         ANA     BS0             EXTRACT LSB OF COUNT                                L00  00646
000062 001010  A    647         JAZ     *+3             JUMP IF CHAR IN BITS 0-7                            L00  00647
000063 000065  R
000064 004050  A    648         LRLB    8               CHAR IN BITS 8-15                                   L01  00648
000065 005021  A    649         TBA                                                                         L00  00649
000066 150463  A    650         ANA     BM377           EXTRACT CHAR                                        L00  00650
000067 005012  A    651         TAB                                                                         L00  00651
000070 144273  A    652         SUB     D215            CARRIAGE RETURN?                                    00   00652
000071 001010  A    653         JAZ     STS8            OUTPUT TO STATUS                                    00   00653
000072 000172  R
000073 005021  A    654         TBA                                                                         L00  00654
000074 144270  A    655         SUB     D240            CHAR UNDER 040?                                     L00  00655
000075 001004  A    656         JAN     *+5             YES, NOT ASCII                                      L00  00656
000076 000102  R
000077 140427  A    657         SUB     M26             CHAR OVER 0377?                                     L00  00657
000100 001004  A    658         JAN     *+5             NO, LEGAL ASCII CHAR                                L00  00659
000101 000105  R
000102 005001  A    659 STS5A   TZA                     ILLEGAL CHAR - SUBSTITUTE SPACE CHAR                L00  00659
000103 001000  A    660         JMP     *+3                                                                 L00  00660
000104 000106  R
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000105 120427 A  661          ADD     BS6                                                    L00 00661
000106 055023 R  662          STA     CHRT1,X         SAVE INDEX                             L00 00662
                 663 *                GET RASTER PATTERN FOR CHAR                            L00 00663
000107 004301 A  664          ASRA    1               CONVERSION TABLE INDEX                 L00 00664
000110 005012 A  665          TAB                                                              00 00665
000111 005001 A  666          TZA                                                              00 00666
000112 006160 A  667          MULI    013             INDEX TIMES ELEVEN                       00 00667
000113 000013 A
000114 005021 A  668          TBA                                                              00 00668
000115 125040 A  669          ADD     CLINE,X         ADD MATRIX INDEX                       L00 00669
000116 006127 A  670          ADDE    CCNV            ADD CONVERSION TABLE ADDRESS           L00 00670
000117 000401 R
000120 005012 A  671          TAB                                                            L00 00671
000121 026000 A  672          LDB     0,B                                                    L00 00672
000122 015025 A  673          LDA     CHRT1,X                                                L00 00673
000123 005111 A  674          IAR                                                            L00 00674
000124 150421 A  675          ANA     BS0                                                    L00 00675
000125 001010 A  676          JAZ     *+3                                                    L00 00676
000126 000130 R
000127 004050 A  677          LRLB    8               PATTERN IN BITS 8-15                   L00 00677
000130 005021 A  678          TBA                                                            L00 00678
000131 150463 A  679          ANA     BM377                                                  L00 00679
000132 055025 A  680          STA     CHRT1,X         SAVE MATRIX PATTERN                    L00 00680
                 681 *                PUT CHARACTER IN STATUS BUFFER                         L00 00681
000133 010471 A  682          LDA     TEN             SET CHARACTER MATRIX WIDTH TO            00 00682
000134 055044 A  683          STA     CWIDTH,X          TEN BITS FOR NORMAL SIZE               00 00683
000135 025034 A  684          LDB     CTSIZE,X                                               00 00684
000136 001020 A  685          JBZ     STNRM           NORMAL CHAR SIZE                       00 00685
000137 000163 R
000140 120471 A  686 STLRG    ADD     TEN             DOUBLE MATRIX WIDTH FOR LARGE SIZE     00 00686
000141 055044 A  687          STA     CWIDTH,X          CHARACTERS                           00 00687
000142 005002 A  688          TZB                     LARGE SIZE-EXPAND MATRIX               00 00688
000143 005122 A  689          IBR                     SET BIT 10 SERVE AS FLAG TO INDICATE DONE L00 00689
000144 015025 A  690          LDA     CHRT1,X         RECOVER MATRIX                         L00 00690
000145 004250 A  691          LRLA    8               PLACE IN TOP BYTE                      L00 00691
000146 055023 A  692          STA     CTEMP4,X        SAVE MATRIX SHIFTED                    L00 00692
000147 015023 A  693 STLRGA   LDA     CTEMP4,X        RECOVER MATRIX SHIFTED                 L00 00693
000150 004301 A  694          ASRA    1               EXTEND SIGN BIT                        L00 00694
000151 004442 A  695          LLRL    2               STORE DOUBLE BIT IN B REGISTER         L00 00695
000152 055023 A  696          STA     CTEMP4,X                                               L00 00696
000153 150421 A  697          ANA     BS0             MASK OF FLAG BIT COMING FROM B REGISTER L00 00697
000154 001010 A  698          JAZ     STLRGA          NOT FINISHED YET                       L00 00698
000155 000147 R
000156 065025 A  699          STB     CHRT1,X         SAVE EXPANDED ROW                        00 00699
000157 006506 A  700          JSR     PUTROW,B        PACK LARGE CHAR INTO BUFFER          B.2 00 00700
000160 000244 R
000161 001000 A  701          JMP     STS5B                                                    00 00701
000162 000165 R
000163 000163 R  702 STNRM    EQU     *                                                      L00 00702
000163 006503 A  703          JSR     PUTROW,B        PACK NORMAL CHAR INTO BUFFER         B.2 00 00703
000164 000244 R
000165 R         704 STS5B    EQU     *                                                      L00 00704
000165 015041 A  705          LDA     CINDX,X         GET COUNT OF CHARACTERS TRANSFERRED      00 00705
000166 004301 A  706          ASRA    1               DIVIDE BY 2 TO GET NUMBER OF WORDS TAKEN 00 00706
                 707 *                  FROM USER BUFFER                                     00 00707
000167 145013 A  708          SUB     CTWDS,X         SUBTRACT NUMBER OF WORDS IN RECORD       00 00708
000170 001004 A  709          JPN     STS5            NOT END OF RECORD-MORE WORK TO DO        00 00709
000171 000052 R
000172 R         710 STS6     EQU     *                                                      L00 00710
000172 006506 A  711          JSR     VSSTEP,B        STEP STATUS                        D.1 00 00711
000173 000044 E
000174 015015 A  712          LDA     CTBUFP,X                                           D.1 00 00712
000175 055027 A  713          STA     CTREND,X        CREATE BIC ENDING ADDRESS          D.1 00 00713
000176 015050 A  714          LDA     CTBUFA,X                                           D.1 00 00714
000177 055015 A  715          STA     CTBUFP,X        CREATE BIC STARTING ADDRESS        D.1 00 00715
000200 006506 A  716          JSR     VSSTBO,B        OUTPUT RASTER LINE                 D.1 00 00716
000201 000000 E
000202 010421 A  717          LDA     BS0                                                D.1 00 00717
000203 055041 A  718          STA     CINDX,X           RESET CHARACTER INDEX                00 00718
000204 005001 A  719          TZA                                                        D.1 00 00719
000205 055043 A  720          STA     CBITPT,X      RESET BIT POINTER                        00 00720
000206 015034 A  721          LDA     CTSIZE,X        GET CHAR SIZE, ZERO FOR NORMAL         00 00721
000207 001010 A  722          JAZ     STINT1          NORMAL SIZE                            00 00722
000210 000217 R
000211 005211 A  723          CPA                                                            00 00723
000212 055034 A  724          STA     CTSIZE,X        LARGE SIZE NOT ZERO                    00 00724
000213 001002 A  725          JAP     *+4             NORMAL SIZE THIS TRIP                  00 00725
000214 000217 R
000215 001004 A  726          JAN     *+3             FIRST SCAN OF LARGE SIZE CHAR          00 00726
000216 000220 R
000217 R         727 STINT1   EQU     *                                                      00 00727
000217 045040 A  728          INR     CLINE,X         STEP MATRIX INDEX ON SECOND SCAN OF LARGE 00 00728
000220 015040 A  729          LDA     CLINE,X         CHECK TO SEE IF DONE WITH TEXT         00 00729
000221 006140 A  730          SUBI    11                                                     00 00730
000222 000013 A
000223 001010 A  731          JAZ     STINTA          DO EXTRA STEPS AT END                  00 00731
000224 000227 R
000225 001000 A  732          JMP     STS4AA          DO NEXT SCAN FOR TEXT                  00 00732
000226 000050 R
000227 R         733 STINTA   EQU     *                                                      00 00733
000227 015034 A  734          LDA     CTSIZE,X        GET CHAR SIZE                          00 00734
000230 001010 A  735          JAZ     STINTB          SMALL CHARS                            00 00735
000231 000236 R
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000232 006506 A   736          JSR     V$STEP,B                                                D.1 00 00736
000233 000173 E
000234 006506 A   737          JSR     V$STEP,B                                                D.1 00 00737
000235 000233 E
000236 005001 A   738 STINTB   TZA                                                               L00 00738
000237 055037 A   739          STA     CTENAB,X    RESET BUFFER BUSY FLAG                      L00 00739
000240 055010 A   740          STA     CTSTAT,X    RESET FORMAT FLAG                           L00 00740
000241 025024 A   741          LDB     CTEMP5,X    GET RETURN LOCATION                        D.100 00741
000242 006706 A   742          IJMP    0,B                                                    D.100 00742
000243 000000 A
                  743 *                                                                          00 00743
                  744 * PACK CHARACTER ROWS OF RASTER DATA INTO STATUS BUFFER-THE WIDTH OF       00 00744
                  745 *      THE MATRIX IS SPECIFIED IN CWIDTH                                   00 00745
                  746 *                                                                          00 00746
000244 065021 A   747 PUTROW  STB     CTEMP2,X    SAVE ENTRY                                  C.1 00 00747
000245 025043 A   748          LDB     CBITPT,X    USE BIT POINTER TO COMPUT STATUS BUFFER         00 00748
000246 005001 A   749          TZA                                                                 00 00749
000247 170425 A   750          DIV     BS4           WORD AND BIT POSITION                         00 00750
000250 065015 A   751          STB     CTBUFP,X    SAVE BUFFER WORD                            D.1 00 00751
000251 055020 A   752          STA     CTEMP1,X    SAVE REMAINDER                                  00 00752
000252 006010 A   753          LDAI    020         ACTUAL BIT POSITION IS 16 MINUS REMAINDER       00 00753
000253 000020 A
000254 145020 A   754          SUB     CTEMP1,X    COMPUTE BIT POSITION                            00 00754
000255 055042 A   755          STA     CBITPO,X    SAVE BIT POSITION                               00 00755
000256 025025 A   756          LDB     CWRT1,X     GET CHARACTER MATRIX ROW-SAVE IN B REG          00 00756
000257 015034 A   757          LDA     CTSIZE,X                                                    00 00757
000260 001016 A   758          JANZ    PUT1        JUMP FOR LARGE SIZE CHAR                        00 00758
000261 000265 R
000262 015042 A   759          LDA     CBITPO,X    RECOVER BIT POSITION                            00 00759
000263 120424 A   760          ADD     BS3         ADJUST SHIFT FACTOR FOR NORMAL CHAR SIZE        00 00760
000264 055042 A   761          STA     CBITPO,X    SAVE SHIFT FACTOR                               00 00761
000265 015015 A   762 PUT1     LDA     CTBUFP,X    GET BUFFER WORD LOCATION                    D.1 00 00762
000266 125050 A   763          ADD     CTBUFA,X    ADD BUFFER ORIGIN                           D.1 00 00763
000267 055015 A   764          STA     CTBUFP,X    SAVE ACTUAL LOCATION                        D.1 00 00764
000270 100747 A   765          EXC     DISCLK      DISABLE CLOCK                                   00 00765
000271 100444 A   766          EXC     DISPIM      DISABLE PINS                                    00 00766
000272 015042 A   767          LDA     CBITPO,X    GET BIT POSITION                                00 00767
000273 114062 A   768          ORA     LLRL1                                                       00 00768
000274 054001 A   769          STA     *+2                                                         00 00769
000275 005001 A   770          TZA                                                                 00 00770
000276 004440 A   771          LLRL    0           SHIFT AB REG TO POSITION ROW TO PROPER           00 00771
                  772 *            BIT POSITION                                                  00 00772
000277 100244 A   773          EXC     ENAPIM      ENABLE PINS                                     00 00773
000300 100147 A   774          EXC     ENACLK      ENABLE CLOCK                                    00 00774
000301 006115 A   775          ORAE*   CTBUFP,X    PUT PART OF ROW IN A REG INTO BUFFER        D.1 00 00775
000302 100015 A
000303 006055 A   776          STAE*   CTBUFP,X                                                D.1 00 00776
000304 100015 A
000305 045015 A   777          INR     CTBUFP,X                                                D.1 00 00777
000306 005021 A   778          TBA                                                                 00 00778
000307 006115 A   779          ORAE*   CTBUFP,X    PUT PART OF ROW IN B REG INTO BUFFER        D.1 00 00779
000310 100015 A
000311 006055 A   780          STAE*   CTBUFP,X                                                D.1 00 00780
000312 100015 A
000313 015043 A   781          LDA     CBITPT,X    INCREMENT THE BUFFER POINTER BY THE             00 00781
000314 125044 A   782          ADD     CWIDTH,X      WIDTH OF THE CHARACTERS TRANSFERRED           00 00782
000315 055043 A   783          STA     CBITPT,X    SAVE BIT POINTER                                00 00783
000316 045041 A   784          INR     CINDX,X     UPDATE COUNT OF NUMBER OF CHARACTERS            00 00784
                  785 *            TRANSFERRED SO FAR                                            00 00785
000317 025021 A   786          LDB     CTEMP2,X    RESTORE RETURN ADDRESS                      C.1 00 00786
000317            787 PUT2     BES     0           RETURN ADDRESS PUT HERE                     B.2 00 00787
000320 006706 A   788          IJMP    0,B         RETURN                                      B.2 00 00788
000321 000000 A
                  789 *                                                                          B.2 00 00789
                  790          IFT     VORTEX-2                                                   V2 00 00790
                  791          GOTO    ENDC06                                                        00 00791
                  792 STCLR    TXA                 CTBL ADDRESS                               V2 00 00792
                  793          ADDI    CTBUFF      FORM POINTER TO STATUS BUFFER                  V2 00 00793
                  794 ENDC06   CONT                                                               V2 00 00794
                  795          IFF     VORTEX-2                                                   V2 00 00795
                  796          GOTO    ENDC07                                                     V2 00 00796
000322 015050 A   797 STCLR    LDA     CTBUFA,X    GET ORIGIN OF BUFFER                        D.1 00 00797
                  798          IFF     VORTEX-2                                                   V2 00 00798
                  799 ENDC07   CONT                                                               V2 00 00799
000323 055015 A   800          STA     CTBUFP,X                                                    00 00800
000324 006010 A   801          LDAI    91          INITIALIZE BUFFER INDEX                     D.1 00 00801
000325 000133 A
000326 005311 A   802 STS4A1   DAR                                                                 00 00802
000327 055020 A   803          STA     CTEMP1,X    SAVE INDEX                                      00 00803
000330 125015 A   804          ADD     CTBUFP,X    ADD BUFFER ORIGIN TO INDEX                      00 00804
000331 055021 A   805          STA     CTEMP2,X    CTEMP2 HAS ACTUAL ADDRESS OF BUFFER WORD        00 00805
000332 005001 A   806          TZA                                                                 00 00806
000333 006055 A   807          STAE*   CTEMP2,X    CLEAR BUFFER WORD                               00 00807
000334 100021 A
000335 015020 A   808          LDA     CTEMP1,X    GET INDEX AND SEE IF DONE CLEARING BUFF         00 00808
000336 001016 A   809          JANZ    STS4A1      JUMP IF NOT DONE                                00 00809
000337 000326 R
000340 006706 A   810          IJMP    0,2         RETURN                                      B.2 00 00810
000341 000000 A
       000342 R   811 STS8B     EQU     *                                                       D.1 00 00811
000342 006506 A   812          JSR     V$SPAC,B    SPACE ONE LINE                              D.1 00 00812
000343 000000 E
000344 005001 A   813          TZA                                                             D.1 00 00813
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000345 055010 A   814          STA     CTSTAT,X    RESET DRIVER STATUS                    D.1 00 00814
000346 001000 A   815          JMP     STS4AA                                             D.1 00 00815
000347 000050 R
                  816 *                                                                     00 00816
        000350 R  817 STS8A    EQU     *                                                  D.1 00 00817
000350 006506 A   818          JSR     V$TOFM,B    TOP OF FORM                            D.1 00 00818
000351 000000 E
000352 005001 A   819          TZA                                                        D.1 00 00819
000353 055010 A   820          STA     CTSTAT,X    RESET DRIVER STATUS                    D.1 00 00820
000354 001000 A   821          JMP     STS4AA                                             D.1 00 00821
000355 000050 R
                  822 *                                                                    L00 00822
000356 004440 A   823 LLRL1    DATA    04440       LONG LOGICAL ROTATE LEFT INSTRUCTION     00 00823
000357 160241 A   824 DSABL1   DATA    0160241     PLOT MODE/REMOTE DISABLE               L00 00824
000360 033642 A   825 ENABL2   DATA    033642      LOW SPEED/LINE SYNC                    L00 00825
000361 000012 A   826 D12      DATA    012                                                L00 00826
000362 000015 A   827 D13      DATA    015                                                 00 00827
000363 003100 A   828 D31      DATA    03100                                              L00 00828
000364 000215 A   829 D215     DATA    0215                                               L00 00829
000365 000240 A   830 D240     DATA    0240                                               L00 00830
000366 000260 A   831 D260     DATA    0260                                               L00 00831
000367 001440 A   832 D800     DATA    800         10 INCHES PER PAGE IS 800 RASTER SCANS L00 00832
000370 000120 A   833 DTOP     DATA    80          DISTANCE FROM TOP IS IS ONE INCH       L00 00833
000371 001560 A   834 DBOT     DATA    880         880 SCANS IS 11 INCHES IS BOTTOM OF PAGE L00 00834
000372 101100 A   835 SENS1    DATA    0101100                                            L00 00835
000373 101000 A   836 SENS2    DATA    0101000                                            L00 00836
000374 000307 A   837 BICO     DATA    0307        BIC CONNECT/DATA SELECT                L00 00837
000375 160064 A   838 STP1     DATA    0160064     RASTER MODE/STEP STATUS                L00 00838
000376 121000 A   839 LSYN     DATA    0121000     LINE SYNC                               00 00839
000377 160040 A   840 ENABL1   DATA    0160040     PLOT MODE/REMOTE ENABLE                L00 00840
000400 160241 A   841 DSAB6    DATA    0160241     PLOT MODE/REMOTE DISABLE               L00 00841
                  842 *                                                                    L00 00842
                  843 *                                                                    L00 00843
000401 000402 R   844 CONV     DATA    *+1         ASCII/RASTER CONVERSION TABLE          L00 00844
                  845 *                                                                    L00 00845
000402 000020 A   846          DATA    0000020   SPACE/EXCLAMATION                        L00 00846
000403 000020 A   847          DATA    0000020                                            L00 00847
000404 000020 A   848          DATA    0000020                                            L00 00848
000405 000020 A   849          DATA    0000020                                            L00 00849
000406 000020 A   850          DATA    0000020                                            L00 00850
000407 000020 A   851          DATA    0000020                                            L00 00851
000410 000000 A   852          DATA    0000000                                            L00 00852
000411 000020 A   853          DATA    0000020                                            L00 00853
000412 000020 A   854          DATA    0000020                                            L00 00854
000413 000000 A   855          DATA    0000000                                            L00 00855
000414 000000 A   856          DATA    0000000                                            L00 00856
                  857 *                                                                    L00 00857
000415 024050 A   858          DATA    0024050   QUOTE / NUMBER                          L00 00858
000416 024050 A   859          DATA    0024050                                            L00 00859
000417 024376 A   860          DATA    0024376                                            L00 00860
000420 024050 A   861          DATA    0024050                                            L00 00861
000421 000050 A   862          DATA    0000050                                            L00 00862
000422 000050 A   863          DATA    0000050                                            L00 00863
000423 000376 A   864          DATA    0000376                                            L00 00864
000424 000050 A   865          DATA    0000050                                            L00 00865
000425 000050 A   866          DATA    0000050                                            L00 00866
000426 000000 A   867          DATA    0000000                                            L00 00867
000427 000000 A   868          DATA    0000000                                            L00 00868
                  869 *                                                                    L00 00869
000430 024100 A   870          DATA    0024100   DOLLAR SIGN/ PER CENT SIGN              L00 00870
000431 077242 A   871          DATA    0077242                                            L00 00871
000432 124244 A   872          DATA    0124244                                            L00 00872
000433 124110 A   873          DATA    0124110                                            L00 00873
000434 076020 A   874          DATA    0076020                                            L00 00874
000435 025044 A   875          DATA    0025044                                            L00 00875
000436 025112 A   876          DATA    0025112                                            L00 00876
000437 176212 A   877          DATA    0176212                                            L00 00877
000440 024004 A   878          DATA    0024004                                            L00 00878
000441 000000 A   879          DATA    0000000                                            L00 00879
000442 000000 A   880          DATA    0000000                                            L00 00880
                  881 *                                                                    L00 00881
000443 060010 A   882          DATA    0060010   AMPERSAND/APOSTROPHE                    L00 00882
000444 110010 A   883          DATA    0110010                                            L00 00883
000445 110020 A   884          DATA    0110020                                            L00 00884
000446 060040 A   885          DATA    0060040                                            L00 00885
000447 060000 A   886          DATA    0060000                                            L00 00886
000450 112000 A   887          DATA    0112000                                            L00 00887
000451 106000 A   888          DATA    0106000                                            L00 00888
000452 102000 A   889          DATA    0102000                                            L00 00889
000453 075000 A   890          DATA    0075000                                            L00 00890
000454 000000 A   891          DATA    0000000                                            L00 00891
000455 000000 A   892          DATA    0000000                                            L00 00892
                  893 *                                                                    L00 00893
000456 004040 A   894          DATA    0004040   OPEN PAREN/CLOSE PAREN                  L00 00894
000457 010020 A   895          DATA    0010020                                            L00 00895
000460 020010 A   896          DATA    0020010                                            L00 00896
000461 020010 A   897          DATA    0020010                                            L00 00897
000462 020010 A   898          DATA    0020010                                            L00 00898
000463 020010 A   899          DATA    0020010                                            L00 00899
000464 020010 A   900          DATA    0020010                                            L00 00900
000465 010020 A   901          DATA    0010020                                            L00 00901
000466 004040 A   902          DATA    0004040                                            L00 00902
000467 000000 A   903          DATA    0000000                                            L00 00903
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000470 000000 A   904          DATA    0000000                                  L00  00904
                  905 *                                                         L00  00905
000471 010000 A   906          DATA    0010000   ASTERISK/PLUS                  L00  00906
000472 111020 A   907          DATA    0111020                                  L00  00907
000473 052020 A   908          DATA    0052020                                  L00  00908
000474 034020 A   909          DATA    0034020                                  L00  00909
000475 010376 A   910          DATA    0010376                                  L00  00910
000476 034020 A   911          DATA    0034020                                  L00  00911
000477 052020 A   912          DATA    0052020                                  L00  00912
000500 111020 A   913          DATA    0111020                                  L00  00913
000501 010000 A   914          DATA    0010000                                  L00  00914
000502 000000 A   915          DATA    0000000                                  L00  00915
000503 000000 A   916          DATA    0000000                                  L00  00916
                  917 *                                                         L00  00917
000504 000000 A   918          DATA    0000000   COMMA/MINUS                    L00  00918
000505 000000 A   919          DATA    0000000                                  L00  00919
000506 000000 A   920          DATA    0000000                                  L00  00920
000507 000000 A   921          DATA    0000000                                  L00  00921
000510 000376 A   922          DATA    0000376                                  L00  00922
000511 000000 A   923          DATA    0000000                                  L00  00923
000512 000000 A   924          DATA    0000000                                  L00  00924
000513 000000 A   925          DATA    0000000                                  L00  00925
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000515 004000 A   927          DATA    0004000                                  L00  00927
000516 010000 A   928          DATA    0010000                                  L00  00928
                  929 *                                                         L00  00929
000517 000000 A   930          DATA    0000000   PERIOD/SLASH                   L00  00930
000520 000002 A   931          DATA    0000002                                  L00  00931
000521 000004 A   932          DATA    0000004                                  L00  00932
000522 000010 A   933          DATA    0000010                                  L00  00933
000523 000020 A   934          DATA    0000020                                  L00  00934
000524 000040 A   935          DATA    0000040                                  L00  00935
000525 000100 A   936          DATA    0000100                                  L00  00936
000526 010200 A   937          DATA    0010200                                  L00  00937
000527 010000 A   938          DATA    0010000                                  L00  00938
000530 000000 A   939          DATA    0000000                                  L00  00939
000531 000000 A   940          DATA    0000000                                  L00  00940
                  941 *                                                         L00  00941
000532 034020 A   942          DATA    0034020   ZERO/1                        L00  00942
000533 042060 A   943          DATA    0042060                                  L00  00943
000534 103120 A   944          DATA    0103120                                  L00  00944
000535 105020 A   945          DATA    0105020                                  L00  00945
000536 111020 A   946          DATA    0111020                                  L00  00946
000537 121020 A   947          DATA    0121020                                  L00  00947
000540 141020 A   948          DATA    0141020                                  L00  00948
000541 042020 A   949          DATA    0042020                                  L00  00949
000542 034174 A   950          DATA    0034174                                  L00  00950
000543 000000 A   951          DATA    0000000                                  L00  00951
000544 000000 A   952          DATA    0000000                                  L00  00952
                  953 *                                                         L00  00953
000545 076174 A   954          DATA    0076174   2/3                            L00  00954
000546 101202 A   955          DATA    0101202                                  L00  00955
000547 001002 A   956          DATA    0001002                                  L00  00956
000550 001002 A   957          DATA    0001002                                  L00  00957
000551 076034 A   958          DATA    0076034                                  L00  00958
000552 100002 A   959          DATA    0100002                                  L00  00959
000553 100002 A   960          DATA    0100002                                  L00  00960
000554 100202 A   961          DATA    0100202                                  L00  00961
000555 076174 A   962          DATA    0076174                                  L00  00962
000556 000000 A   963          DATA    0000000                                  L00  00963
000557 000000 A   964          DATA    0000000                                  L00  00964
                  965 *                                                         L00  00965
000560 002376 A   966          DATA    0002376   4/5                            L00  00966
000561 006200 A   967          DATA    0006200                                  L00  00967
000562 012200 A   968          DATA    0012200                                  L00  00968
000563 022200 A   969          DATA    0022200                                  L00  00969
000564 042374 A   970          DATA    0042374                                  L00  00970
000565 177002 A   971          DATA    0177002                                  L00  00971
000566 002002 A   972          DATA    0002002                                  L00  00972
000567 002202 A   973          DATA    0002202                                  L00  00973
000570 002174 A   974          DATA    0002174                                  L00  00974
000571 000000 A   975          DATA    0000000                                  L00  00975
000572 000000 A   976          DATA    0000000                                  L00  00976
                  977 *                                                         L00  00977
000573 036376 A   978          DATA    0036376   6/7                            L00  00978
000574 041202 A   979          DATA    0041202                                  L00  00979
000575 100002 A   980          DATA    0100002                                  L00  00980
000576 100004 A   981          DATA    0100004                                  L00  00981
000577 136010 A   982          DATA    0136010                                  L00  00982
000600 141020 A   983          DATA    0141020                                  L00  00983
000601 101040 A   984          DATA    0101040                                  L00  00984
000602 101040 A   985          DATA    0101040                                  L00  00985
000603 076040 A   986          DATA    0076040                                  L00  00986
000604 000000 A   987          DATA    0000000                                  L00  00987
000605 000000 A   988          DATA    0000000                                  L00  00988
                  989 *                                                         L00  00989
000606 076174 A   990          DATA    0076174   8/9                            L00  00990
000607 101202 A   991          DATA    0101202                                  L00  00991
000610 101202 A   992          DATA    0101202                                  L00  00992
000611 042202 A   993          DATA    0042202                                  L00  00993
000612 034102 A   994          DATA    0034102                                  L00  00994
000613 042076 A   995          DATA    0042076                                  L00  00995
000614 101002 A   996          DATA    0101002                                  L00  00996
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000615 101204 A  997          DATA    0101204                                  L00 00997
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000617 000000 A  999          DATA    0000000                                  L00 00999
000620 000000 A 1000          DATA    0000000                                  L00 01000
                1001 *                                                         L00 01001
000621 000000 A 1002          DATA    0000000  :/;                            L00 01002
000622 000000 A 1003          DATA    0000000                                  L00 01003
000623 010000 A 1004          DATA    0010000                                  L00 01004
000624 010000 A 1005          DATA    0010000                                  L00 01005
000625 000000 A 1006          DATA    0000000                                  L00 01006
000626 010020 A 1007          DATA    0010020                                  L00 01007
000627 010020 A 1008          DATA    0010020                                  L00 01008
000630 000000 A 1009          DATA    0000000                                  L00 01009
000631 000020 A 1010          DATA    0000020                                  L00 01010
000632 000020 A 1011          DATA    0000020                                  L00 01011
000633 000040 A 1012          DATA    0000040                                  L00 01012
                1013 *                                                         L00 01013
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000635 004000 A 1015          DATA    0004000                                  L00 01015
000636 010000 A 1016          DATA    0010000                                  L00 01016
000637 020174 A 1017          DATA    0020174                                  L00 01017
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000644 002000 A 1022          DATA    0002000                                  L00 01022
000645 000000 A 1023          DATA    0000000                                  L00 01023
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                1025 *                                                         L00 01025
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000653 002010 A 1030          DATA    0002010                                  L00 01030
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000657 040020 A 1034          DATA    0040020                                  L00 01034
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                1037 *                                                         L00 01037
000662 036020 A 1038          DATA    0036020  @/A                             L00 01038
000663 041050 A 1039          DATA    0041050                                  L00 01039
000664 115104 A 1040          DATA    0115104                                  L00 01040
000665 125202 A 1041          DATA    0125202                                  L00 01041
000666 125202 A 1042          DATA    0125202                                  L00 01042
000667 137376 A 1043          DATA    0137376                                  L00 01043
000670 100202 A 1044          DATA    0100202                                  L00 01044
000671 041202 A 1045          DATA    0041202                                  L00 01045
000672 036202 A 1046          DATA    0036202                                  L00 01046
000673 000000 A 1047          DATA    0000000                                  L00 01047
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                1049 *                                                         L00 01049
000675 176070 A 1050          DATA    0176070  B/C                             L00 01050
000676 041104 A 1051          DATA    0041104                                  L00 01051
000677 041202 A 1052          DATA    0041202                                  L00 01052
000700 041200 A 1053          DATA    0041200                                  L00 01053
000701 076200 A 1054          DATA    0076200                                  L00 01054
000702 041200 A 1055          DATA    0041200                                  L00 01055
000703 041202 A 1056          DATA    0041202                                  L00 01056
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000705 176070 A 1058          DATA    0176070                                  L00 01058
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000707 000000 A 1060          DATA    0000000                                  L00 01060
                1061 *                                                         L00 01061
000710 174376 A 1062          DATA    0174376  D/E                             L00 01062
000711 042200 A 1063          DATA    0042200                                  L00 01063
000712 041200 A 1064          DATA    0041200                                  L00 01064
000713 041200 A 1065          DATA    0041200                                  L00 01065
000714 041370 A 1066          DATA    0041370                                  L00 01066
000715 041200 A 1067          DATA    0041200                                  L00 01067
000716 041200 A 1068          DATA    0041200                                  L00 01068
000717 042200 A 1069          DATA    0042200                                  L00 01069
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                1073 *                                                         L00 01073
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000724 100104 A 1075          DATA    0100104                                  L00 01075
000725 100202 A 1076          DATA    0100202                                  L00 01076
000726 100200 A 1077          DATA    0100200                                  L00 01077
000727 176200 A 1078          DATA    0176200                                  L00 01078
000730 100216 A 1079          DATA    0100216                                  L00 01079
000731 100202 A 1080          DATA    0100202                                  L00 01080
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000733 100072 A 1082          DATA    0100072                                  L00 01082
000734 000000 A 1083          DATA    0000000                                  L00 01083
000735 000000 A 1084          DATA    0000000                                  L00 01084
                1085 *                                                         L00 01085
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000737 101020 A 1087          DATA    0101020                                  L00 01087
000740 101020 A 1088          DATA    0101020                                  L00 01088
000741 101020 A 1089          DATA    0101020                                  L00 01089
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                1097 *                                                         L00 01097
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000752 002210 A 1099          DATA    0002210                                  L00 01099
000753 002220 A 1100          DATA    0002220                                  L00 01100
000754 002240 A 1101          DATA    0002240                                  L00 01101
000755 002340 A 1102          DATA    0002340                                  L00 01102
000756 002220 A 1103          DATA    0002220                                  L00 01103
000757 002210 A 1104          DATA    0002210                                  L00 01104
000760 102204 A 1105          DATA    0102204                                  L00 01105
000761 074202 A 1106          DATA    0074202                                  L00 01106
000762 000000 A 1107          DATA    0000000                                  L00 01107
000763 000000 A 1108          DATA    0000000                                  L00 01108
                1109 *                                                         L00 01109
000764 100202 A 1110          DATA    0100202   L/M                            L00 01110
000765 100306 A 1111          DATA    0100306                                  L00 01111
000766 100252 A 1112          DATA    0100252                                  L00 01112
000767 100222 A 1113          DATA    0100222                                  L00 01113
000770 100202 A 1114          DATA    0100202                                  L00 01114
000771 100202 A 1115          DATA    0100202                                  L00 01115
000772 100202 A 1116          DATA    0100202                                  L00 01116
000773 101202 A 1117          DATA    0101202                                  L00 01117
000774 177202 A 1118          DATA    0177202                                  L00 01118
000775 000000 A 1119          DATA    0000000                                  L00 01119
000776 000000 A 1120          DATA    0000000                                  L00 01120
                1121 *                                                         L00 01121
000777 101070 A 1122          DATA    0101070   N/O                            L00 01122
001000 141104 A 1123          DATA    0141104                                  L00 01123
001001 121202 A 1124          DATA    0121202                                  L00 01124
001002 111202 A 1125          DATA    0111202                                  L00 01125
001003 105202 A 1126          DATA    0105202                                  L00 01126
001004 103202 A 1127          DATA    0103202                                  L00 01127
001005 101202 A 1128          DATA    0101202                                  L00 01128
001006 101104 A 1129          DATA    0101104                                  L00 01129
001007 101070 A 1130          DATA    0101070                                  L00 01130
001010 000000 A 1131          DATA    0000000                                  L00 01131
001011 000000 A 1132          DATA    0000000                                  L00 01132
                1133 *                                                         L00 01133
001012 176070 A 1134          DATA    0176070   P/Q                            L00 01134
001013 101104 A 1135          DATA    0101104                                  L00 01135
001014 101202 A 1136          DATA    0101202                                  L00 01136
001015 101202 A 1137          DATA    0101202                                  L00 01137
001016 176202 A 1138          DATA    0176202                                  L00 01138
001017 100212 A 1139          DATA    0100212                                  L00 01139
001020 100212 A 1140          DATA    0100212                                  L00 01140
001021 100104 A 1141          DATA    0100104                                  L00 01141
001022 100072 A 1142          DATA    0100072                                  L00 01142
001023 000000 A 1143          DATA    0000000                                  L00 01143
001024 000000 A 1144          DATA    0000000                                  L00 01144
                1145 *                                                         L00 01145
001025 176174 A 1146          DATA    0176174   R/S                            L00 01146
001026 101202 A 1147          DATA    0101202                                  L00 01147
001027 101200 A 1148          DATA    0101200                                  L00 01148
001030 101200 A 1149          DATA    0101200                                  L00 01149
001031 176174 A 1150          DATA    0176174                                  L00 01150
001032 110002 A 1151          DATA    0110002                                  L00 01151
001033 104002 A 1152          DATA    0104002                                  L00 01152
001034 102202 A 1153          DATA    0102202                                  L00 01153
001035 101174 A 1154          DATA    0101174                                  L00 01154
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001037 000000 A 1156          DATA    0000000                                  L00 01156
                1157 *                                                         L00 01157
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001042 010202 A 1160          DATA    0010202                                  L00 01160
001043 010202 A 1161          DATA    0010202                                  L00 01161
001044 010202 A 1162          DATA    0010202                                  L00 01162
001045 010202 A 1163          DATA    0010202                                  L00 01163
001046 010202 A 1164          DATA    0010202                                  L00 01164
001047 010202 A 1165          DATA    0010202                                  L00 01165
001050 010174 A 1166          DATA    0010174                                  L00 01166
001051 000000 A 1167          DATA    0000000                                  L00 01167
001052 000000 A 1168          DATA    0000000                                  L00 01168
                1169 *                                                         L00 01169
001053 101202 A 1170          DATA    0101202   V/W                            L00 01170
001054 101202 A 1171          DATA    0101202                                  L00 01171
001055 101202 A 1172          DATA    0101202                                  L00 01172
001056 042202 A 1173          DATA    0042202                                  L00 01173
001057 042202 A 1174          DATA    0042202                                  L00 01174
001060 024222 A 1175          DATA    0024222                                  L00 01175
001061 024222 A 1176          DATA    0024222                                  L00 01176
001062 010222 A 1177          DATA    0010222                                  L00 01177
001063 010154 A 1178          DATA    0010154                                  L00 01178
001064 000000 A 1179          DATA    0000000                                  L00 01179
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                1181 *                                                         L00 01181
001066 101202 A 1182          DATA    0101202   X/Y                            L00 01182
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001067 101202 A 1183          DATA    0101202                                 L00 01183
001070 042202 A 1184          DATA    0042202                                 L00 01184
001071 024104 A 1185          DATA    0024104                                 L00 01185
001072 010050 A 1186          DATA    0010050                                 L00 01186
001073 024020 A 1187          DATA    0024020                                 L00 01187
001074 042020 A 1188          DATA    0042020                                 L00 01188
001075 101020 A 1189          DATA    0101020                                 L00 01189
001076 101020 A 1190          DATA    0101020                                 L00 01190
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001100 000000 A 1192          DATA    0000000                                 L00 01192
                1193 *                                                        L00 01193
001101 177174 A 1194          DATA    0177174   Z/LEFT BRACKET                L00 01194
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001103 002100 A 1196          DATA    0002100                                 L00 01196
001104 004100 A 1197          DATA    0004100                                 L00 01197
001105 010100 A 1198          DATA    0010100                                 L00 01198
001106 020100 A 1199          DATA    0020100                                 L00 01199
001107 040100 A 1200          DATA    0040100                                 L00 01200
001110 101100 A 1201          DATA    0101100                                 L00 01201
001111 177174 A 1202          DATA    0177174                                 L00 01202
001112 000000 A 1203          DATA    0000000                                 L00 01203
001113 000000 A 1204          DATA    0000000                                 L00 01204
                1205 *                                                        L00 01205
001114 000174 A 1206          DATA    0000174   SLASH/RIGHT BRACKET           L00 01206
001115 100004 A 1207          DATA    0100004                                 L00 01207
001116 040004 A 1208          DATA    0040004                                 L00 01208
001117 020004 A 1209          DATA    0020004                                 L00 01209
001120 010004 A 1210          DATA    0010004                                 L00 01210
001121 004004 A 1211          DATA    0004004                                 L00 01211
001122 002004 A 1212          DATA    0002004                                 L00 01212
001123 001004 A 1213          DATA    0001004                                 L00 01213
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001126 000000 A 1216          DATA    0000000                                 L00 01216
                1217 *                                                        L00 01217
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001131 052000 A 1220          DATA    0052000                                 L00 01220
001132 111000 A 1221          DATA    0111000                                 L00 01221
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                1229 *                                                        L00 01229
                1230          END                                             L00 01230

ENTRY NAMES
000000 R V$WRIT
EXTERNAL NAMES
000343 E V$SPAC 000201 E V$STBO 000235 E V$STEP 000351 E V$TOFM
SYMBOLS
000044 A APIM   000002 A B      000000 A B0     000001 A B1
000012 A B10    000013 A B11    000014 A B12    000015 A B13
000016 A B14    000017 A B15    000002 A B2     000003 A B3
000004 A B4     000005 A B5     000006 A B6     000007 A B7
000010 A B8     000011 A B9     000000 A BICNUM 000374 R BICO
000121 A BM1    000472 A BM17   000475 A BM177  000477 A BM1777
000464 A BM3    000473 A BM37   000463 A BM377  000467 A BM7
000474 A BM77   000476 A BM777  000441 A BR0    000442 A BR1
000453 A BR10   000454 A BR11   000455 A BR12   000456 A BR13
000457 A BR14   000460 A BR15   000443 A BR2    000444 A BR3
000445 A BR4    000446 A BR5    000447 A BR6    000450 A BR7
000451 A BR8    000452 A BR9    000421 A BS0    000422 A BS1
000433 A BS10   000434 A BS11   000435 A BS12   000436 A BS13
000437 A BS14   000440 A BS15   000423 A BS2    000424 A BS3
000425 A BS4    000426 A BS5    000427 A BS6    000430 A BS7
000431 A BS8    000432 A BS9    000042 A CBITPC 000043 A CBITPT
000041 A CINDX  000040 A CLINE  000047 A CLOCK  000401 R CONV
000000 A COTAB1 000032 A CSLIN  000000 A CTACT  000001 A CTADNC
000017 A CTATTR 000027 A CTBEND 000011 A CTBICB 000050 A CTBUFA
000055 A CTBUFF 000015 A CTBUFP 000020 A CTCI   000021 A CTDBUP
000003 A CTDST  000006 A CTDVAT 000020 A CTEMP1 000021 A CTEMP2
000022 A CTEMP3 000023 A CTEMP4 000024 A CTEMP5 000037 A CTENAB
000051 A CTEND  000012 A CTFCB  000014 A CTFRCT 000014 A CTFREQ
000047 A CTFUNC 000054 A CTHOOK 000000 A CTIDB  000007 A CTIDS
000035 A CTLINC 000045 A CTLSIZ 000052 A CTLWCH 000033 A CTLWID
000053 A CTLWHD 000016 A CTMODE 000002 A CTOPM  000017 A CTPST0
000020 A CTPST1 000021 A CTPST2 000022 A CTPST3 000005 A CTPCNT
000004 A CTRTBK 000005 A CTRTRY 000003 A CTSIZE 000010 A CTSTAT
000013 A CTSIS2 000036 A CTTERM 000016 A CTTRSZ 000012 A CTWDS
000046 A CTWRIT 000044 A CWIDTH 000025 A CWRT1  000026 A CWRT2
000361 R D12    000362 R D13    000364 R D215   000365 R D240
000366 R D260   000363 R D31    000367 R D800   000371 R DBOT
000001 A DBUFF  000002 A DCNT   000747 A DISCLK 000745 A DISMF
000444 A DISPIM 000000 A DRECL  000400 R DSAB6  000357 R DSABL1
000002 A DSCTAD 000000 A DSDASS 000002 A DSDVDN 000002 A DSLOKD
000001 A DSNAME 000000 A DSNURO 000018 A DSOPCM 000003 A DSPOST
000002 A DSREWD 000000 A DSUNAM 000002 A DSUNTM 000370 R DTOP
000424 A EIGHT  000377 R ENABL1 000363 R ENABL2 000147 A ENACLK
000645 A ENAMP  000244 A ENAPIM 000002 A FACM   000001 A FBUFF
000003 A FCADR  000004 A FCEOF  000006 A FEFE   000005 A FIFE
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000465 A FIVE    000007 A FNAM1   000010 A FNAM2   000011 A FNAM3
000423 A FOUR    000000 A FRECL   000300 A LC      000050 A LCJP
000462 A LHW     000356 R LLRL1   000376 R LSYN    000045 A MP
000045 A MPMR0   000145 A MPMR1   000245 A MPMR2   000345 A MPMR3
000420 A MT      000461 A NEG     000470 A NINE    000421 A ONE
000040 A PIM1    000041 A PIM2    000042 A PIM3    000043 A PIM4
000040 A PIM5    000040 A PIM6    000040 A PIM7    000040 A PIM8
000265 R PUT1    000317 R PUT2    000244 R PUTROW  000040 A RA0
000000 A RA1     000004 A RADNR   000060 A RB0     000020 A RB1
000002 A RFCB    000463 A RHW     000001 A ROPWD   000000 A RSTPR
000003 A RTIDB   000372 R SENS1   000373 R SENS2   000467 A SEVEN
000466 A SIX     000322 R STCLR   000217 R STINT1  000227 R STINTA
000236 R STINTB  000140 R STLRG   000147 R STLRGA  000163 R STNRM
000375 R STP1    000000 R STS4    000015 R STS4A   000326 R STS4A1
000050 R STS4AA  000052 R STS5    000102 R STS5A   000165 R STS5B
000172 R STS6    000350 R STS8A   000342 R STS8B   000027 A TBATSK
000026 A TBCPTH  000011 A TBENTY  000003 A TBEVNT  000021 A TBID
000014 A TBISA   000015 A TBISB   000017 A TBISP   000020 A TBISRS
000016 A TBISX   000022 A TBKN1   000023 A TBKN2   000024 A TBKN3
000002 A TBPL    000004 A TBRSA   000005 A TBRSB   000030 A TBRSE
000007 A TBRSP   000010 A TBRSTS  000006 A TBRSX   000000 A TBS0
000001 A TBS1    000012 A TBS10   000013 A TBS11   000014 A TBS12
000015 A TBS13   000016 A TBS14   000017 A TBS15   000002 A TBS2
000003 A TBS3    000004 A TBS4    000005 A TBS5    000006 A TBS6
000007 A TBS7    000010 A TBS8    000011 A TBS9    000001 A TBST
000025 A TBTLC   000013 A TBTMIN  000012 A TBTMS   000000 A TBTRD
000471 A TEN     000464 A THREE   000422 A TWO     000403 A V$1MIN
000415 A V$BFC   000075 A V$BGLB  000404 A V$BIC1  000405 A V$BIC2
000406 A V$BIC3  000407 A V$BIC4  000315 A V$BTB   000414 A V$BVN
000334 A V$CAM   000353 A V$CKB   000411 A V$CKIT  000310 A V$CKPT
000301 A V$CPL   000076 A V$CRDM  000341 A V$CRDR  000354 A V$CRM
000302 A V$CRS   000360 A V$CTAD  000300 A V$CTL   000351 A V$CTMS
000070 A V$DATE  000355 A V$DSTB  000376 A V$ERFG  000347 A V$FGLB
000306 A V$FLRS  000350 A V$FREE  000320 A V$IM    000410 A V$IOA
000412 A V$JCB   000055 A V$JCFG  000056 A V$JFCB  000050 A V$JNAM
000377 A V$JOP   000054 A V$LCNT  000313 A V$LER   000356 A V$LIT
000317 A V$LLUP  000307 A V$LRSK  000312 A V$LSAL  000345 A V$LUNT
000316 A V$LUP   000400 A V$LUT1  000401 A V$LUT2  000402 A V$LUT3
000330 A V$MPM   000362 A V$NCTR  000413 A V$OCB   000346 A V$OPCF
000363 A V$PIMN  000074 A V$PLCT  000305 A V$PTVB  000361 A V$SCTL
000352 A V$SCV   000375 A V$SLFG  000343 E V$SPAC  000201 E V$STBC
000235 E V$STEP  000417 A V$STSZ  000303 A V$TB    000342 A V$TBGT
000416 A V$TFC   000314 A V$TJCP  000357 A V$TKSZ  000344 A V$TMN
000343 A V$TMS   000351 E V$TOFM  000304 A V$UTB   000000 R V$WRIT
000001 A VORTEX  000001 A X       000420 A ZERO
  0 ERRORS ASSEMBLY COMPLETE

  359   APIM      369   370
  350   CLOCK     352   353
   50   ENDC01     44
  132   LC        133   134   135   136   137   138   139   140   141
                  143   144   145   146   149   150   154   155   157
                  160   161   166   167   168   169   170   171   172
                  173   174   176   177   178   179   180   181   182
                  183   184   185   186   187   188   189   191   193
                  194   195   196   197   209   210   211   212   213
                  214   215   218   219   220   221   230   231   232
                  235   240   241   242   243
  151   LCD1      148
  156   LCD2      153
  163   LCD3      159
  175   LCD4      165
  203   LCD5      201
  208   LCD6      205
  222   LCD7      217
  229   LCD8      224
  109   LCJP      110   111   112   118   119   120   121   122
  373   MP        374   375   376   377   378   379
  251   MT        252   253   254   255   256   257   258   259   260
                  261   262   263   264   265   266   267   268   269
                  270   271   272   273   274   275   276   277   278
                  279   280   281   282   283   284   285   286   287
                  288   289   290   291   292   293   294   295   296
                  297   298   299   300   301   302   303   304   305
                  306   307
    1   VORTEX     43   147   152   158   164   190   192   200   204
                  216   223   354
    0   VZLPDX     11
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000001 A      1 VORTEX SET      1                PUT LAST FOR VORTEX                        02 00001
              2 * THIS IS A COPYRIGHTED PROGRAM.COPYRIGHT 1972 BY VARIAN DATA MACHINES     02 00002
              3 *                                                                            02 00003
              4 *      V.D.M.  PART  NO.          92L0605-101B                               02 00004
              5 *                                                                            02 00005
              6 *                                              RELEASED     03/01/74         02 00006
              7 *                                                                            02 00007
              8 *                 VZCPA                                                      02 00008
              9 *                                                                            02 00009
             10 *                                                                            02 00010
             11           TITLE   VZCPA                                                      02 00011
             12 ************************************************************************** 02 00012
             13 ****       TIDB SETUP                                                   *** 02 00013
             14 *                                                                            02 00014
             15 ************************************************************************** 02 00015
000000 A     17 TBTRD   EQU       0                 TASK THREAD                              02 00017
000001 A     18 TBST    EQU       1                 TASK STATUS                              02 00018
000002 A     19 TBPL    EQU       2                 STATUS CONT. (BITS15-6),PRIORITY LEVEL(5-0 02 00019
000003 A     20 TBEVNT  EQU       3                 INTERRUPT EVENT                          02 00020
000004 A     21 TBRSA   EQU       4                 A            REENTRANT AND SUSPEND STACK 02 00021
000005 A     22 TBRSB   EQU       5                 B            REENTRANT AND SUSPEND STACK 02 00022
000006 A     23 TBRSX   EQU       6                 X            REENTRANT AND SUSPEND STACK 02 00023
000007 A     24 TBRSP   EQU       7                 OF/P         REENTRANT AND SUSPEND STACK 02 00024
000010 A     25 TBRSTS  EQU       8                 TEMP. STG. REENTRANT AND SUSPEND STACK   02 00025
000011 A     26 TBENTY  EQU       9                 TASK ENTRY LOCATION                      02 00026
000012 A     27 TBTMS   EQU       10                TIME COUNTER - CLOCK RESOLUTION IN 5MS INC 02 00027
000013 A     28 TBTMIN  EQU       11                TIME COUNTER - CLOCK MINUTE INCREMENTS   02 00028
000014 A     29 TBISA   EQU       12                A                 INTERRUPT STACK        02 00029
000015 A     30 TBISB   EQU       13                B                 INTERRUPT STACK        02 00030
000016 A     31 TBISX   EQU       14                X                 INTERRUPT STACK        02 00031
000017 A     32 TBISP   EQU       15                OF/P              INTERRUPT STACK        02 00032
000020 A     33 TBISRS  EQU       16                REENT. STACK   INTERRUPT STACK           02 00033
000021 A     34 TBIO    EQU       17                BLK ALLOC(15-10),I/O THR(9-5),I/O ACT(4-0) 02 00034
000022 A     35 TBKN1   EQU       18                TASK NAME                                02 00035
000023 A     36 TBKN2   EQU       19                TASK NAME                                02 00036
000024 A     37 TBKN3   EQU       20                TASK NAME                                02 00037
000025 A     38 TBTLC   EQU       21                1ST LOC. OF TASK ALLOCATABLE             02 00038
000026 A     39 TBCPTH  EQU       22                BACKGROUND TASK QUEUE                    02 00039
000027 A     40 TBATSK  EQU       23                TIDB LOC. OF ACTIVATING TASK             02 00040
000030 A     41 TBRSE   EQU       24                TASK ERROR CODE                          02 00041
             42         IFT       VORTEX-2                                              V2   02 00042
             43         GOTO      ENDC01                                                V2   02 00043
             44 TBSIZ   EQU       25                TASK SIZE                           V2   02 00044
             45 TBNULL  EQU       26                NUCLEUS INDICATOR, BITS 15-10       V2   02 00045
             46 TBKEY   EQU       26                TASK' MAP KEY, BITS 03-00           V2   02 00046
             47 TBNIMG  EQU       27                TASK'S MAP IMAGE ADDRESS            V2   02 00047
             48 TBIST   EQU       28                INTERRUPT STATUS                    V2   02 00048
             49 ENDC01  CONT                                                            V2   02 00049
             50         EJEC                                                                 02 00050
             51 ************************************************************************** 02 00051
             52 *                                                                            02 00052
             53 ****       TASK STATUS DESCRIPTION  (BIT SET WORD 1)                    *** 02 00053
             54 *                                                                            02 00054
             55 ************************************************************************** 02 00055
000017 A     57 TBS15   EQU       15                INTERRUPT SUSPEND                        02 00057
000016 A     59 TBS14   EQU       14                TASK SUSPEND                             02 00059
000015 A     60 TBS13   EQU       13                TASK ABORT                               02 00060
000014 A     61 TBS12   EQU       12                TASK EXIT                                02 00061
000013 A     63 TBS11   EQU       11                TIDB CORE RESIDENT                       02 00063
000012 A     64 TBS10   EQU       10                CORE RESIDENT TASK                       02 00064
000011 A     65 TBS9    EQU       9                 FOREGROUND TASK                          02 00065
000010 A     67 TBS8    EQU       8                 TASK PROTECTED                           02 00067
000007 A     68 TBS7    EQU       7                 TASK SCHEDULED BY TIME DELAY             02 00068
000006 A     69 TBS6    EQU       6                 TIME DELAY ACTIVE                        02 00069
000005 A     71 TBS5    EQU       5                 TASK WAITING TO BE LOADED                02 00071
000004 A     72 TBS4    EQU       4                 TASK ERROR                               02 00072
000003 A     73 TBS3    EQU       3                 TASK INTERRUPT EXPECTED                  02 00073
000002 A     75 TBS2    EQU       2                 OVERLAY TASK                             02 00075
000001 A     76 TBS1    EQU       1                 UPON TERMINATION ACTIVATE TASK SCHED TASK 02 00076
000000 A     77 TBS0    EQU       0                 TASK SEARCH-ALLOCATED-LOADED             02 00077
             78         EJEC                                                                 02 00078
             79 ************************************************************************** 02 00079
             80 *                                                                            02 00080
             81 ***        TASK STATUS DESCRIPTION  (BIT SET WORD 2)                    *** 02 00081
             82 *                                                                            02 00082
             83 ************************************************************************** 02 00083
             85 *          BIT 15   -   TASK OPENED                                          02 00085
             87 *          BIT 14   -   UNUSED                                               02 00087
             88 *          BIT 13   -   OVERLAY LOAD                                         02 00088
             89 *          BIT 12   -   TASK WAITING FOR BACKGROUND TASK I/O TO COMPLETE     02 00089
             90 *                       TASK LOCKED-OUT UNTIL NO I/O COMPLETE OR BIT 11      02 00090
             91 *                       IS SET  (ALLOCATABLE SPACE AVAILABLE)                02 00091
             93 *          BIT 11   -   DEFINES THAT ALLOCATABLE SPACE IS AVAILABLE, TRY     02 00093
             94 *                       ALLOCATING TASK AGAIN.  OVERRIDES BIT 12 SET OR      02 00094
             95 *                       BIT 5 IN STATUS WORD.                                02 00095
             96 *          BIT 10   -   BACKGROUND TASK BEING WRITTEN ON CHECKPOINT FILE.    02 00096
             97 *          BIT  9   -   TASK WAITING FOR A TIDB TO COME AVAILABLE FOR        02 00097
             98 *                       SCHEDULING.                                          02 00098
            100 *          BIT  8 TO 6  - UNUSED                                             02 00100
            101         EJEC                                                                 02 00101
            102 ************************************************************************** 02 00102
            103 *                                                                            02 00103
            104 ***        JOB PROCESSOR LOW CORE EQUATES                                ** 02 00104
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                 105 *                                                                           02 00105
                 106 ************************************************************************    02 00106
000050 A         108 LCJP     EQU     050                                                        02 00108
000050 A         109 V$JNAM   EQU     LCJP          JCP NAME                                     02 00109
000054 A         110 V$LCNT   EQU     LCJP+4        LINE COUNT                                   02 00110
000055 A         111 V$JCFG   EQU     LCJP+5        JCP FLAGS                                    02 00111
                 112 *                              BIT 2-0   = LOAD AND GO FLAGS                02 00112
                 113 *                              BIT  3    = DUMP FLAG  1=DUMP, 0=NO DUMP     02 00113
                 114 *                              BIT  4    = DUMP FLAG IF LOAD AND GO         02 00114
                 115 *                              BIT 9-5   = UNUSED                           02 00115
                 116 *                              BIT 15-10 = BG EXTRA CORE BLOCKS TO ALLOC    02 00116
000056 A         118 V$BIC1   EQU     LCJP+6        BIC INTERRUPT ADDRESS TABLE  (10 WORDS)      02 00118
000070 A         119 V$DATE   EQU     LCJP+16       JCP DATE RECORD                              02 00119
000074 A         120 V$PLCT   EQU     LCJP+20       PERMINATE LINE COUNT                         02 00120
000075 A         121 V$BGLB   EQU     LCJP+21       JCP LIB KEY AND LU NO. (BACKGROUND LIB)      02 00121
000046 A         122 V$CRDM   EQU     LCJP-2        CARD KEYPUNCH TYPE. 0=026, 1=029        D.102 00122
                 123 *                              BIT 0 = SYSTEM NOMINAL KEYPUNCH MODE.        02 00123
                 124 *                              BIT 9 = CURRENT JOB KEYPUNCH MODE.           02 00124
000047 A         125 V$JCTM   EQU     LCJP-1        TEMP. STORAGE FOR /MEM BLOCK            D.102 00125
                 126          EJEC                                                           02 00126
                 127 ************************************************************************    02 00127
                 128 *                                                                           02 00128
                 129 ****     LOW CORE DESCRIPTION                                           *** 02 00129
                 130 *                                                                           02 00130
                 131 ************************************************************************    02 00131
000300 A         133 LC       EQU     0300                                                       02 00133
000300 A         134 V$CTL    EQU     LC            CURRENT TASK TIDB LOCATION                   02 00134
000301 A         135 V$CPL    EQU     LC+1          CURRENT PRIORITY LEVEL                       02 00135
000302 A         136 V$CRS    EQU     LC+2          CURRENT REENTRANT STACK POINTER              02 00136
000303 A         137 V$TB     EQU     LC+3          POINTER TO HIGHEST PRIORITY TIDB             02 00137
000304 A         138 V$UTB    EQU     LC+4          POINTER TO UNUSED TASK TIDB                  02 00138
000305 A         139 V$PTVB   EQU     LC+5          POINTER TO NEXT ENTRY IN REENTRANT STACK     02 00139
000306 A         140 V$FLRS   EQU     LC+6          FIRST LOC. OF REENTRANT STACK                02 00140
000307 A         141 V$LRSK   EQU     LC+7          LAST LOC. OF REENTRANT STACK+1               02 00141
000310 A         142 V$CKPT   EQU     LC+8          CHECKPOINT FLAG 1=ON, 0=OFF                  02 00142
000311 A         143 V$OPCL   EQU     LC+9          LOC. OF TIDB FOR OPCOM TASK                  02 00143
000312 A         144 V$LSAL   EQU     LC+10         LOC. OF TIDB FOR SYSTEM SAL TASK             02 00144
000313 A         145 V$LER    EQU     LC+11         LOC. OF TIDB FOR SYSTEM ERROR TASK           02 00145
000314 A         146 V$TJCP   EQU     LC+12         LOC. OF TIDB FOR JOB CONTROL PROCESSOR TAS   02 00146
000315 A         147 V$BTB    EQU     LC+13         LOC. OF CURRENT ACTIVE BACKGROUND TSK TIDB   02 00147
                 148          IFT     VORTEX-2                                           V2  02 00148
                 149          GOTO    LCD1          ASSEMBLE FOR VORTEX II               V2  02 00149
                 150 V$NPAG   EQU     LC+14         NUMBER OF AVAILABLE PAGES IN V$PAGE  V2  02 00150
                 151 V$LPP    EQU     LC+15         POINTER OF LAST WORD TESTED IN V$PAGE V2 02 00151
                 152 LCD1     CONT                                                       V2  02 00152
                 153          IFF     VORTEX-2                                           V2  02 00153
                 154          GOTO    LCD2          ASSEMBLE IF NOT VORTEX II            V2  02 00154
000316 A         155 V$LUP    EQU     LC+14         LOC. OF 1ST UNPROTECTED WORD                 02 00155
000317 A         156 V$LLUP   EQU     LC+15         LOC. OF LAST UNPROTECTED WORD                02 00156
                 157 LCD2     CONT                                                       V2  02 00157
000320 A         158 V$IM     EQU     LC+16         INTERRUPT MASK  (8 WORDS)                    02 00158
                 159          IFF     VORTEX-2                                           V2  02 00159
                 160          GOTO    LCD3                                               V2  02 00160
000330 A         161 V$MPM    EQU     LC+24         MEMORY PROTECT MASK  (4 WORDS)               02 00161
000334 A         162 V$CAM    EQU     LC+28         CORE ALLOCATION MASK  (4 WORDS)              02 00162
                 163 *        EQU     LC+32         UNUSED                                       02 00163
                 164 LCD3     CONT                                                       V2  02 00164
                 165          IFT     VORTEX-2                                           V2  02 00165
                 166          GOTO    LCD4          ASSEMBLE IF VORTEX II                V2  02 00166
                 167 V$MAP    EQU     LC+24         MAP KEY AVAILABILITY MASK            V2  02 00167
                 168 V$BTBM   EQU     LC+25         BOTTOM OF NUCLEUS TABLE MODULE       V2  02 00168
                 169 V$GFCB   EQU     LC+26         GLOBAL FCB MODULE                    V2  02 00169
                 170 V$MIMG   EQU     LC+27         MAP 0 IMAGE ADDRESS                  V2  02 00170
                 171 V$ST0    EQU     LC+28         FUNC 1 CONTROL WORD TO SWITCH EXECUTIVEV2 02 00171
                 172 V$ST1    EQU     LC+29          MODE STATES: V$ST0- STATE 0         V2  02 00172
                 173 V$ST2    EQU     LC+30                       V$ST1- STATE 1         V2  02 00173
                 174 V$ST3    EQU     LC+31                       ETC                    V2  02 00174
                 175 V$KEY    EQU     LC+32         EXECUTING TASK'S MAP KEY             V2  02 00175
                 176 LCD4     CONT                                                       V2  02 00176
000341 A         177 V$CRDR   EQU     LC+33         CORE RESIDENT DIRECTORY LOCATION             02 00177
000342 A         178 V$TBGT   EQU     LC+34         TOP OF THREAD OF BG TSK WAITING TO BE ALLO   02 00178
000343 A         179 V$TMS    EQU     LC+35         TIME OF DAY IN 5 MILLISECOND INCREMENTS      02 00179
000344 A         180 V$TMN    EQU     LC+36         TIME OF DAY IN MINUTE INCREMENTS             02 00180
000345 A         181 V$LUNT   EQU     LC+37         ADDR. OF LOGICAL UNIT NAME TABLE             02 00181
000346 A         182 V$OPCF   EQU     LC+38         OPCOM LOCKOUT FLAG                           02 00182
000347 A         183 V$FGLB   EQU     LC+39         KEY AND LU NO. FOR FOREGROUND LIB            02 00183
000350 A         184 V$FREE   EQU     LC+40         FREE RUNNING COUNTER INCR. IN MICROSECONDS   02 00184
000351 A         185 V$CTMS   EQU     LC+41         CLOCK RESOLUTION IN 5 MILLISECOND INCR.      02 00185
000352 A         186 V$SCV    EQU     LC+42         CLOCK SELECTED COUNT VALUE (1 TO 4095)       02 00186
000353 A         187 V$CKB    EQU     LC+43         BASIC CLOCK INTERRUPT RATE IN MICROSECONDS   02 00187
000354 A         188 V$CRM    EQU     LC+44         CLOCK RESOLUTION INCR. FOR 1 MINUTE.         02 00188
000355 A         189 V$DSTB   EQU     LC+45         BASE ADDR. FOR DST BLOCK                     02 00189
000356 A         190 V$LIT    EQU     LC+46         LAST LOCATION OF BACKGROUND LITERAL TABLE    02 00190
                 191          IFF     VORTEX-2      ASSEMBLE IF VORTEX II                V2  02 00191
                 192 V$PGT    EQU     LC+47         V$PAGE ADDRESS                       V2  02 00192
                 193          IFT     VORTEX-2      ASSEMBLE IF NOT VORTEX II            V2  02 00193
                 194 *        EQU     LC+47         UNUSED                                       02 00194
000360 A         195 V$CTAD   EQU     LC+48         BASE ADDR. FOR CONTROLLER ADDR. TABLE        02 00195
000361 A         196 V$SCTL   EQU     LC+49         CURRENT CONTROLLER IN SCAN                   02 00196
000362 A         197 V$NCTR   EQU     LC+50         NO. OF CONTROLLERS                           02 00197
000363 A         198 V$PIMN   EQU     LC+51         EXTERNAL DEVICE ADDRESS TABLE FOR PIMS       02 00198
                 199 *                                (8 WORDS DEFINED IN PIM NO ORDER)          02 00199
                 200          IFF     VORTEX-2                                           V2  02 00200
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                    201          GOTO    LCD5          ASSEMBLE IF NOT VORTEX II                    V2  02 00201
                    202 *        EQU     LC+59         UNUSED                                           02 00202
                    203 *        EQU     LC+60         UNUSED                                           02 00203
                    204 LCD5     CONT                                                               V2  02 00204
                    205          IFT     VORTEX-2                                                   V2  02 00205
                    206          GOTO    LCD6          ASSEMBLE IF VORTEX II                        V2  02 00206
                    207 *        EQU     LC+59         JMP V$IOST   PAGE 0 ENTRY FOR I/O            V2  02 00207
                    208 *        EQU     LC+60                       STAT CALLS.                    V2  02 00208
                    209 LCD6     CONT                                                               V2  02 00209
000375 A            210 V$SLFG   EQU     LC+61         SAL TASK BUSY FLAG      1=BUSY, 0=NOT BUSY       02 00210
000376 A            211 V$ERFG   EQU     LC+62         ERROR TASK BUSY FLAG    1=BUSY, 0=NOT BUSY       02 00211
000377 A            212 V$JOP    EQU     LC+63         JCP OPERATING FLAG                               02 00212
000400 A            213 V$LUT1   EQU     LC+64         START LUN ADDR FOR JCP/OPCOM ASSIGNABLE          02 00213
000401 A            214 V$LUT2   EQU     LC+65         START LUN ADDR FOR UNASSIGNABLE                  02 00214
000402 A            215 V$LUT3   EQU     LC+66         START LUN ADDR FOR OPCOM ASSIGNABLE              02 00215
000403 A            216 V$1MIN   EQU     LC+67         32767 - (60000/(5*V$CTMS)) + 1                   02 00216
                    217          IFF     VORTEX-2                                                   V2  02 00217
                    218          GOTO    LCD7          ASSEMBLE IF NOT VORTEX II                    V2  02 00218
                    219 *        EQU     LC+68         UNUSED                                           02 00219
                    220 *        EQU     LC+69         UNUSED                                           02 00220
                    221 *        EQU     LC+70         UNUSED                                           02 00221
                    222 *        EQU     LC+71         UNUSED                                           02 00222
                    223 LCD7     CONT                                                               V2  02 00223
                    224          IFT     VORTEX-2                                                   V2  02 00224
                    225          GOTO    LCD8                                                       V2  02 00225
                    226 *        EQU     LC+68         JMP V$IOC    PAGE 0 ENTRY FOR IOC            V2  02 00226
                    227 *        EQU     LC+69                       CALLS.                         V2  02 00227
                    228 *        EQU     LC+70         JMP V$EXEC   PAGE 0 ENTRY FOR RTE            V2  02 00228
                    229 *        EQU     LC+71                       CALLS.                         V2  02 00229
                    230 LCD8     CONT                                                               V2  02 00230
000410 A            231 V$IOA    EQU     LC+72         I/O ALGORITHM                                    02 00231
000411 A            232 V$CKIT   EQU     LC+73         CLOCK INT. IN PIM BEFORE LOCKOUT FLAG.           02 00232
000412 A            233 V$JCB    EQU     LC+74         ALL SYSTEM BACKGROUND PROGRAMS AND JCP USE       02 00233
                    234 *                              THIS SYSTEM BUFFER TO READ DIRECTIVES AND        02 00234
                    235 *                              SOURCE RECORDS IN.                               02 00235
000413 A            236 V$OCB    EQU     LC+75         OPCOM WILL READ OPERATOR KEY-IN REQUESTS         02 00236
                    237 *                              IN THIS BUFFER.  IF JCP IS SET NOT ACTIVE        02 00237
                    238 *                              AND A 1 DIRECTIVE IS INPUTED, OPCOM              02 00238
                    239 *                              WILL MOVE THE DIRECTIVE TO V$JCB BEFORE          02 00239
                    240 *                              SCHEDULING JCP.                                  02 00240
000414 A            241 V$BVM    EQU     LC+76         BOTTOM OF VORTEX NUCLEUS                         02 00241
000415 A            242 V$BFC    EQU     LC+77         TOP OF FG RES. AREA/BOTTOM OF FG BLK COMM.       02 00242
000416 A            243 V$TFC    EQU     LC+78         TOP OF FG BLK COMMON/TOP OF VORTEX CORE.         02 00243
                    244 *        EQU     LC+79         UNUSED                                           02 00244
                    245          SUBT
                    246 ********************************************************************************* 02 00245
                    247 *                                                                                02 00246
                    248 ****     MASK TABLE DESCRIPTION                                            ***  02 00247
                    249 *                                                                                02 00248
                    250 ********************************************************************************* 02 00250
000420 A            252 MT       SET     0420                                                           02 00252
000420 A            253 ZERO     EQU     MT            ZERO WORD                                        02 00253
000421 A            254 B00      EQU     MT+1          BIT MASK CONTENTS  000001                        02 00254
000422 A            255 B01      EQU     MT+2                             000002                        02 00255
000423 A            256 B02      EQU     MT+3                             000004                        02 00256
000424 A            257 B03      EQU     MT+4                             000010                        02 00257
000425 A            258 B04      EQU     MT+5                             000020                        02 00258
000426 A            259 B05      EQU     MT+6                             000040                        02 00259
000427 A            260 B06      EQU     MT+7                             000100                        02 00260
000430 A            261 B07      EQU     MT+8                             000200                        02 00261
000431 A            262 B08      EQU     MT+9                             000400                        02 00262
000432 A            263 B09      EQU     MT+10                            001000                        02 00263
000433 A            264 B10      EQU     MT+11                            002000                        02 00264
000434 A            265 B11      EQU     MT+12                            004000                        02 00265
000435 A            266 B12      EQU     MT+13                            010000                        02 00266
000436 A            267 B13      EQU     MT+14                            020000                        02 00267
000437 A            268 B14      EQU     MT+15                            040000                        02 00268
000440 A            269 B15      EQU     MT+16                            100000                        02 00269
000441 A            270 B00      EQU     MT+17         BIT MASK CONTENTS  177776                        02 00270
000442 A            271 B01      EQU     MT+18                            177775                        02 00271
000443 A            272 B02      EQU     MT+19                            177773                        02 00272
000444 A            273 B03      EQU     MT+20                            177767                        02 00273
000445 A            274 B04      EQU     MT+21                            177757                        02 00274
000446 A            275 B05      EQU     MT+22                            177737                        02 00275
000447 A            276 B06      EQU     MT+23                            177677                        02 00276
000450 A            277 B07      EQU     MT+24                            177577                        02 00277
000451 A            278 B08      EQU     MT+25                            177377                        02 00278
000452 A            279 B09      EQU     MT+26                            176777                        02 00279
000453 A            280 B10      EQU     MT+27                            175777                        02 00280
000454 A            281 B11      EQU     MT+28                            173777                        02 00281
000455 A            282 B12      EQU     MT+29                            167777                        02 00282
000456 A            283 B13      EQU     MT+30                            157777                        02 00283
000457 A            284 B14      EQU     MT+31                            137777                        02 00284
000460 A            285 B15      EQU     MT+32                            077777                        02 00285
000461 A            286 NEG      EQU     MT+33         SET ALL BITS                                     02 00286
000462 A            287 LHW      EQU     MT+34         LEFT HALF WORD MASK  0177400                     02 00287
000463 A            288 RHW      EQU     MT+35         RIGHT HALF WORD MASK   0377                     02 00288
000421 A            289 ONE      EQU     MT+1          CONTAINS NUMBER  1                               02 00289
000422 A            290 TWO      EQU     MT+2          CONTAINS NUMBER  2                               02 00290
000464 A            291 THREE    EQU     MT+36         CONTAINS NUMBER  3                               02 00291
000423 A            292 FOUR     EQU     MT+3          CONTAINS NUMBER  4                               02 00292
000465 A            293 FIVE     EQU     MT+37         CONTAINS NUMBER  5                               02 00293
000466 A            294 SIX      EQU     MT+38         CONTAINS NUMBER  6                               02 00294
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000467 A  295 SEVEN   EQU     MT+39          CONTAINS NUMBER  7                          02 00295
000424 A  296 EIGHT   EQU     MT+4           CONTAINS NUMBER  8                          02 00296
000470 A  297 NINE    EQU     MT+40          CONTAINS NUMBER  9                          02 00297
000471 A  298 TEN     EQU     MT+41          CONTAINS NUMBER 10                          02 00298
000421 A  299 BM1     EQU     MT+1           BIT MASK WORD 00001                         02 00299
000464 A  300 BM3     EQU     MT+36          BIT MASK WORD  00003                        02 00300
000467 A  301 BM7     EQU     MT+39          BIT MASK WORD  00007                        02 00301
000472 A  302 BM17    EQU     MT+42          BIT MASK WORD  00017                        02 00302
000473 A  303 BM37    EQU     MT+43          BIT MASK WORD  00037                        02 00303
000474 A  304 BM77    EQU     MT+44          BIT MASK WORD  00077                        02 00304
000475 A  305 BM177   EQU     MT+45          BIT MASK WORD  00177                        02 00305
000463 A  306 BM377   EQU     MT+35          BIT MASK WORD  00377                        02 00306
000476 A  307 BM777   EQU     MT+46          BIT MASK WORD  00777                        02 00307
000477 A  308 BM1777  EQU     MT+47          BIT MASK WORD  01777                        02 00308
          309         EJEC                                                             02 00309
          310 ********************************************************************** 02 00310
          311 *                                                                      02 00311
          312 ****     BIT TEST BIT DESIGNATION                                  *** 02 00312
          313 *                                                                      02 00313
          314 ********************************************************************** 02 00314
000040 A  316 RA0     EQU     040            BT JUMPS WHEN A REGISTER IS 0               02 00316
000000 A  317 RA1     EQU     000            BT JUMPS WHEN A REGISTER IS 1               02 00317
000060 A  318 RB0     EQU     060            BT JUMPS WHEN B REGISTER IS 0               02 00318
000020 A  319 RB1     EQU     020            BT JUMPS WHEN B REGISTER IS 1               02 00319
          321 ********************************************************************** 02 00321
          322 *                                                                      02 00322
          323 **       THE BIT CHECKED                                            02 00323
          324 *                                                                      02 00324
          325 ********************************************************************** 02 00325
000000 A  327 B0      EQU     0                                                       02 00327
000001 A  328 B1      EQU     1                                                       02 00328
000002 A  329 B2      EQU     2                                                       02 00329
000003 A  330 B3      EQU     3                                                       02 00330
000004 A  331 B4      EQU     4                                                       02 00331
000005 A  332 B5      EQU     5                                                       02 00332
000006 A  333 B6      EQU     6                                                       02 00333
000007 A  334 B7      EQU     7                                                       02 00334
000010 A  335 B8      EQU     8                                                       02 00335
000011 A  336 B9      EQU     9                                                       02 00336
000012 A  337 B10     EQU     10                                                      02 00337
000013 A  338 B11     EQU     11                                                      02 00338
000014 A  339 B12     EQU     12                                                      02 00339
000015 A  340 B13     EQU     13                                                      02 00340
000016 A  341 B14     EQU     14                                                      02 00341
000017 A  342 B15     EQU     15                                                      02 00342
          343         EJEC                                                            02 00343
          344 ********************************************************************** 02 00344
          345 *                                                                      02 00345
          346 ****     DEVICE AND FUNCTION CODES                                 *** 02 00346
          347 *                                                                      02 00347
          348 ********************************************************************** 02 00348
          350 ****     REAL TIME CLOCK                                           *** 02 00350
000047 A  351 CLOCK   EQU     047            DEVICE NUMBER 047                       02 00351
          352 *                                                                      02 00352
000747 A  353 DISCLK  EQU     0700+CLOCK     DISABLE CLOCK                           02 00353
000147 A  354 ENACLK  EQU     0100+CLOCK     ENABLE CLOCK                            02 00354
          355         IFF     VORTEX-2                                          V2  02 00355
          356 MPDVAD  EQU     046            RAM ADDRESS                        V2  02 00356
          358 *                                                                      02 00358
          359 ****     PIM                                                       *** 02 00359
000044 A  360 APIM    EQU     044            ALL PIMS DEVICE NUMBER                  02 00360
000040 A  361 PIM1    EQU     040                                                    02 00361
000041 A  362 PIM2    EQU     041                                                    02 00362
000042 A  363 PIM3    EQU     042                                                    02 00363
000043 A  364 PIM4    EQU     043                                                    02 00364
000040 A  365 PIM5    EQU     040                                                    02 00365
000040 A  366 PIM6    EQU     040                                                    02 00366
000040 A  367 PIM7    EQU     040                                                    02 00367
000040 A  368 PIM8    EQU     040                                                    02 00368
          369 *                                                                      02 00369
000444 A  370 DISPIM  EQU     0400+APIM                                              02 00370
000244 A  371 ENAPIM  EQU     0200+APIM                                              02 00371
          373 ****     MEMORY PROTECT                                            *** 02 00373
000045 A  374 MP      EQU     045            DEVICE ADDRESS 045                      02 00374
000745 A  375 DISMP   EQU     0700+MP        DISABLE MEMORY PROTECT                  02 00375
000645 A  376 ENAMP   EQU     0600+MP        ENABLE MEMORY PROTECT                   02 00376
000045 A  377 MPMR0   EQU     0000+MP        SELECT MASK REGISTER 0                  02 00377
000145 A  378 MPMR1   EQU     0100+MP        SELECT MASK REGISTER 1                  02 00378
000245 A  379 MPMR2   EQU     0200+MP        SELECT MASK REGISTER 2                  02 00379
000345 A  380 MPMR3   EQU     0300+MP        SELECT MASK REGISTER 3                  02 00380
          381         EJEC                                                           02 00381
          382 *                                                                      02 00382
          383 *       CARD PUNCH DRIVER                                          02 00383
          384 *       VORTEX OPERATING SYSTEM                                    02 00384
          385 *                                                                      02 00385
          386 *                                                                      02 00386
          387 *                                                                      02 00387
          388 *                                                                      02 00388
          389         EXT     V$CTL,V$FNR,V$ERR,V$CRDM                           02 00389
          390         EXT     V$BIC                                              02 00390
000001 A  391 X       EQU     1                                                      02 00391
000002 A  392 B       EQU     2                                                      02 00392
          393 *                                                                      02 00393
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                    394 *       CONTROLLER TABLE, DEVICE TABLE,                                                  02 00394
                    395 *       AND RQBLK EQUATES                                                                02 00395
                    396 *                                                                                        02 00396
000004  A           397 CTRQBK  EQU     4                                                                        02 00397
000006  A           398 CTDVAD  EQU     6                                                                        02 00398
000003  A           399 CTDST   EQU     3                                                                        02 00399
000010  A           400 CTSTAT  EQU     8                                                                        02 00400
000013  A           401 CTWDS   EQU     11                                                                       02 00401
000000  A           402 RSTFR   EQU     0                                                                        02 00402
000001  A           403 RQPWD   EQU     1                                                                        02 00403
000002  A           404 RFCB    EQU     2                                                                        02 00404
000003  A           405 RTIDB   EQU     3                                                                        02 00405
000000  A           406 DRECL   EQU     0                                                                        02 00406
000001  A           407 DBUFF   EQU     1                                                                        02 00407
000011  A           408 CTBICB  EQU     9                                                                        02 00408
000016  A           409 CTBBGN  EQU     14                                                                       02 00409
000017  A           410 CTBEND  EQU     CTBBGN+1                                                                 02 00410
000020  A           411 CTMPA   EQU     CTBEND+1                                                                 02 00411
000021  A           412 CTMPB   EQU     CTMPA+1                                                                  02 00412
000022  A           413 CTMPC   EQU     CTMPB+1                                                                  02 00413
                    414         EJEC                                                                             02 00414
                    415         NAME    VZCPA                                                                    02 00415
000000  030300  A   416 VZCPA   LDX     V$CTL       ENTRY POINT FOR CARD PUNCH DRIVER                            02 00416
000001  025010  A   417         LDB     TBRSTS,X    GET CTRLR TAB ADRS                                           02 00417
000002  016010  A   418         LDA     CTSTAT,B    TEST PREVIOUS DEVICE STATUS                                  02 00418
000003  001010  A   419         JAZ     CPAA                                                                     02 00419
000004  000045  R
000005  100444  A   420         EXC     DISPIM      WAS NOT READY                                                02 00420
000006  100747  A   421         EXC     DISCLK      DISABLE INTERRUPTS                                           02 00421
000007  016006  A   422         LDA     CTDVAD,B    BUILD                                                        02 00422
000010  006110  A   423         ORAI    0100300     INITIALIZE COMMAND                                           02 00423
000011  100300  A
000012  054000  A   424         STA     CPA3                                                                     02 00424
000013  005000  A   425 CPA3    NOP                 INITIALIZE PUNCH                                             02 00425
                    426         DELAY   200,0,0     WAIT ONE SECOND                                              02 00426
000014  006503  A
000015  000406  A
000016  001100  A
000017  000310  A
000020  000000  A
000021  030300  A   427         LDX     V$CTL                                                                    02 00427
000022  025010  A   428         LDB     TBRSTS,X                                                                 02 00428
000023  016006  A   429         LDA     CTDVAD,B    BUILD                                                        02 00429
000024  006110  A   430         ORAI    0100100     CARD FEED COMMAND                                            02 00430
000025  100100  A
000026  100747  A   431         EXC     DISCLK                                                                   02 00431
000027  100444  A   432         EXC     DISPIM      DISABLE INTERRUPTS                                           02 00432
000030  054000  A   433         STA     CPA2                                                                     02 00433
000031  005000  A   434 CPA2    NOP                 FEED A CARD                                                  02 00434
000032  100147  A   435         EXC     ENACLK      ENABLE                                                       02 00435
000033  100244  A   436         EXC     ENAPIM      INTERRUPTS                                                   02 00436
000034  005001  A   437         TZA                                                                              02 00437
000035  056010  A   438         STA     CTSTAT,B    CLEAR STATUS WORD                                            02 00438
                    439 CPA4    DELAY   1000,0,0    WAIT FIVE SECONDS                                            02 00439
000036  006505  A
000037  000406  A
000040  001100  A
000041  001750  A
000042  000000  A
000043  030300  A   440         LDX     V$CTL                                                                    02 00440
000044  025010  A   441         LDB     TBRSTS,X                                                                 02 00441
000045  014427  A   442 CPAA    LDA     CPSRDY      GET SENSE READY OP                                           02 00442
000046  116006  A   443         ORA     CTDVAD,B    ADD DEVICE ADRS                                              02 00443
000047  100444  A   444         EXC     DISPIM      DISABLE                                                      02 00444
000050  100747  A   445         EXC     DISCLK      INTERRUPTS                                                   02 00445
000051  054000  A   446         STA     CPAB                                                                     02 00446
000052  005000  A   447 CPAB    NOP                 SENSE CP READY                                               02 00447
000053  000063  R   448         DATA    CPAD        JUMP IF READY                                                02 00448
000054  005001  A   449         TZA                                                                              02 00449
000055  100244  A   450 CPAC    EXC     ENAPIM      NOT READY -                                                  02 00450
000056  100147  A   451         EXC     ENACLK      ENABLE INTERRUPTS                                            02 00451
000057  056010  A   452         STA     CTSTAT,B    SET STATUS WORD                                              02 00452
000060  005001  A   453         TZA                 SET A REG                                                    02 00453
000061  001000  A   454         JMP     V$ERR       NOT READY EXIT                                               02 00454
000062  000000  E
000063  006010  A   455 CPAD    LDAI    0101100     BUILD                                                        02 00455
000064  101100  A
000065  116006  A   456         ORA     CTDVAD,B    SENSE MALFUNCTION COMMAND                                    02 00456
000066  054001  A   457         STA     CPADB                                                                    02 00457
000067  010421  A   458         LDA     ONE                                                                      02 00458
000070  005000  A   459 CPADB   NOP                 SENSE MALFUNCTION                                            02 00459
000071  000055  R   460         DATA    CPAC        JUMP IF MALFUNCTION                                          02 00460
000072  100147  A   461         EXC     ENACLK                                                                   02 00461
000073  100244  A   462         EXC     ENAPIM      ENABLE INTERRUPTS                                            02 00462
000074  036016  A   463         LDX     CTBBGN,B    SET BUFR INIT ADRS                                           02 00463
000075  024403  A   464         LDB     D80         SET COUNT                                                    02 00464
000076  005001  A   465         TZA                                                                              02 00465
000077  056000  A   466 CPAF    STA     0,X         CLEAR                                                        02 00466
000100  005144  A   467         INX                 CP                                                           02 00467
000101  005322  A   468         DSA                 BUFFER                                                       02 00468
000102  001026  A   469         JBNZ    CPAF                                                                     02 00469
000103  000077  E
000104  030300  A   470         LDX     V$CTL                                                                    02 00470
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000103 025010 A  471          LDB     TBRSTS,X                                        02 00471
000106 036004 A  472          LDX     CTRQBK,B    GET RQBLK ADRS                      02 00472
000107 015001 A  473          LDA     RQPWD,X                                         02 00473
000110 154372 A  474          ANA     N7400       GET OP CODE                         02 00474
000111 140431 A  475          SUB     BS8         WRITE OPERATION ?                   02 00475
000112 001010 A  476          JAZ     CPBA        YES                                 02 00476
000113 000132 R
000114 140431 A  477          SUB     BS8         NO - WEOF OPERATION ?               02 00477
000115 001016 A  478          JANZ    CPAH        NO                                  02 00478
000116 000124 R
000117 014364 A  479          LDA     WEOFCH      YES - GET WEOF CHAR                 02 00479
000120 036016 A  480          LDX     CTBBGN,B    GET BUFR ADRS                       02 00480
000121 055000 A  481          STA     0,X         STORE CHAR IN BUFR                  02 00481
000122 001000 A  482          JMP     CPEA        GO TO PUNCH CARD                    02 00482
000123 000402 R
000124 140431 A  483 CPAH     SUB     BS8         TEST FOR                            02 00483
000125 140432 A  484          SUB     BS9         FUNC OPERATION                      02 00484
000126 001016 A  485          JANZ    V$FNR       NO - EXIT                           02 00485
000127 000000 E
000130 001000 A  486          JMP     CPEA        YES - GO TO PUNCH CARD              02 00486
000131 000402 R
000132 035002 A  487 CPBA     LDX     RFCB,X                                          02 00487
                 488          IFT     VORTEX-2                                    V2  02 00488
                 489          GOTO    ENDC02                                      V2  02 00489
                 490          OME     MPDVAD,V$ST3  SWITCH TO USER'S MAP          V2  02 00490
                 491          LDA     DRECL,X       GET RECORD LENGTH             V2  02 00491
                 492          LDX     DBUFF,X       GET BUFFER ADDRESS            V2  02 00492
                 493          OME     MPDVAD,V$ST0  RESTORE MAP 0                 V2  02 00493
                 494          STX     CTMPC,B                                     V2  02 00494
                 495 ENDC02   CONT                                                V2  02 00495
                 496          IFT     VORTEX-2                                    V2  02 00496
000133 015000 A  497          LDA     DRECL,X       GET RECORD LENGTH                 02 00497
000134 056021 A  498          STA     CTMPB,B       SAVE IN CTRLR TABLE               02 00498
                 499          IFF     VORTEX-2                                    V2  02 00499
                 500          GOTO    ENDC03                                      V2  02 00500
000135 015001 A  501          LDA     DBUFF,X       GET BUFR ADRS                     02 00501
000136 056022 A  502          STA     CTMPC,B       SAVE IN CTRLR TABLE               02 00502
                 503          IFF     VORTEX-2                                    V2  02 00503
                 504 ENDC03   CONT                                                V2  02 00504
000137 036004 A  505          LDX     CTRQBK,B                                        02 00505
000140 015001 A  506          LDA     RQPWD,X       GET MODE                          02 00506
000141 154340 A  507          ANA     N70000        = SYSTEM BINARY ?                 02 00507
000142 001010 A  508          JAZ     CPCA          YES                               02 00508
000143 000177 R
000144 140435 A  509          SUB     BS12          NO, = ASCII                       02 00509
000145 001010 A  510          JAZ     CPDA          YES                               02 00510
000146 000275 R
000147 016021 A  511          LDA     CTMPB,B       MODE = UNFORMATTED                02 00511
000150 144330 A  512          SUB     D80           GET COUNT                         02 00512
000151 001004 A  513          JAN     CPBC          IF GTR THAN                       02 00513
000152 000156 R
000153 014325 A  514          LDA     D80           80, SET TO 80                     02 00514
000154 056021 A  515          STA     CTMPB,B                                         02 00515
000155 056013 A  516          STA     CTWDS,B                                         02 00516
000156 016016 A  517 CPBC     LDA     CTBBGN,B      SET UP                            02 00517
000157 056020 A  518          STA     CTMPA,B       PUNCH BUFR ADRS                   02 00518
000160 036022 A  519 CPBE     LDX     CTMPC,B                                         02 00519
                 520          IFF     VORTEX-2                                    V2  02 00520
                 521          OME     MPDVAD,V$ST3  SWITCH TO USER'S MAP          V2  02 00521
000161 015000 A  522          LDA     0,X           PICK UP WORD                      02 00522
                 523          IFF     VORTEX-2                                    V2  02 00523
                 524          OME     MPDVAD,V$ST0  RESTORE MAP 0                 V2  02 00524
000162 005144 A  525          IXR                                                     02 00525
000163 076022 A  526          STX     CTMPC,B       SAVE POINTER                      02 00526
000164 036020 A  527          LDX     CTMPA,B                                         02 00527
000165 055000 A  528          STA     0,X           STORE WORD                        02 00528
000166 005144 A  529          IXR                                                     02 00529
000167 076020 A  530          STX     CTMPA,B       SAVE POINTER                      02 00530
000170 016021 A  531          LDA     CTMPB,B                                         02 00531
000171 005311 A  532          DAR                   DECREMENT COUNT                   02 00532
000172 056021 A  533          STA     CTMPB,B                                         02 00533
000173 001016 A  534          JANZ    CPBE          GO BACK FOR NEXT                  02 00534
000174 000160 R
000175 001000 A  535          JMP     CPEA                                            02 00535
000176 000402 R
000177 016021 A  536 CPCA     LDA     CTMPB,B       SYSTEM BINARY MODE                02 00536
000200 144277 A  537          SUB     D60           GET WORD COUNT                    02 00537
000201 001004 A  538          JAN     CPCC          IF GTR THAN                       02 00538
000202 000206 R
000203 014274 A  539          LDA     D60           60, SET TO 60                     02 00539
000204 056021 A  540          STA     CTMPB,B                                         02 00540
000205 056013 A  541          STA     CTWDS,B                                         02 00541
000206 016016 A  542 CPCC     LDA     CTBBGN,B      SET UP                            02 00542
000207 056020 A  543          STA     CTMPA,B       PUNCH BUFR ADRS                   02 00543
000210 036022 A  544 CPCE     LDX     CTMPC,B                                         02 00544
                 545          IFF     VORTEX-2                                    V2  02 00545
                 546          OME     MPDVAD,V$ST3  SWITCH TO USER'S MAP          V2  02 00546
000211 015000 A  547          LDA     0,X           GET 1ST WORD                      02 00547
                 548          IFF     VORTEX-2                                    V2  02 00548
                 549          OME     MPDVAD,V$ST0  RESTORE MAP 0                 V2  02 00549
000212 004254 A  550          LRLA    12            SHIFT                             02 00550
000213 036020 A  551          LDX     CTMPA,B                                         02 00551
000214 055000 A  552          STA     0,X           STORE IN PUNCH BUFFER             02 00552
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000215 004344 A   553          LSRA    4               ADJUST FOR NEXT                                  02 00553
000216 006150 A   554          ANAI    07400                                                            02 00554
000217 007400 A
000220 055001 A   555          STA     1,X             SAVE REMAINDER                                   02 00555
000221 036021 A   556          LDX     CTMPB,B                                                          02 00556
000222 005344 A   557          DXR                     DECREMENT COUNT                                  02 00557
000223 001040 A   558          JXZ     CPCA            JUMP IF DONE                                     02 00558
000224 000402 R
000225 076021 A   559          STX     CTMPB,B                                                          02 00559
000226 036022 A   560          LDX     CTMPC,B                                                          02 00560
                  561          IFF     VORTEX-2                                                 V2      02 00561
                  562          OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                     V2      02 00562
000227 015001 A   563          LDA     1,X             GET 2ND WORD                                     02 00563
                  564          IFF     VORTEX-2                                                 V2      02 00564
                  565          OME     MPDVAD,V$ST0    RESTORE MAP 0                            V2      02 00565
000230 036020 A   566          LDX     CTMPA,B                                                          02 00566
000231 055002 A   567          STA     2,X             SAVE IT                                          02 00567
000232 004350 A   568          LSRA    8                                                                02 00568
000233 115001 A   569          ORA     1,X             ADJUST WORD AND COMBINE WITH PREVIOUS            02 00569
000234 055001 A   570          STA     1,X             STORE IN BUFFER                                  02 00570
000235 015002 A   571          LDA     2,X                                                              02 00571
000236 004244 A   572          LRLA    4               ADJUST REMAINDER                                 02 00572
000237 006150 A   573          ANAI    07760           OF WORD                                          02 00573
000240 007760 A
000241 055002 A   574          STA     2,X                                                              02 00574
000242 036021 A   575          LDX     CTMPB,B                                                          02 00575
000243 005344 A   576          DXR                     DECREMENT COUNT                                  02 00576
000244 001040 A   577          JXZ     CPEA            JUMP IF DONE                                     02 00577
000245 000402 R
000246 076021 A   578          STX     CTMPB,B                                                          02 00578
000247 036022 A   579          LDX     CTMPC,B                                                          02 00579
                  580          IFF     VORTEX-2                                                 V2      02 00580
                  581          OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                     V2      02 00581
000250 015002 A   582          LDA     2,X             GET 3RD WORD                                     02 00582
                  583          IFF     VORTEX-2                                                 V2      02 00583
                  584          OME     MPDVAD,V$ST0    RESTORE MAP 0                            V2      02 00584
000251 036020 A   585          LDX     CTMPA,B                                                          02 00585
000252 055003 A   586          STA     3,X             STORE IN BUFR                                    02 00586
000253 004244 A   587          LRLA    4                                                                02 00587
000254 006150 A   588          ANAI    017             COMBINE WITH REMAINDER                           02 00588
000255 000017 A
000256 115002 A   589          ORA     2,X             OF PREVIOUS WORD                                 02 00589
000257 055002 A   590          STA     2,X             STORE IN BUFR                                    02 00590
000260 036021 A   591          LDX     CTMPB,B                                                          02 00591
000261 005344 A   592          DXR                     DECREMENT COUNT                                  02 00592
000262 001040 A   593          JXZ     CPEA            JUMP IF DONE                                     02 00593
000263 000402 R
000264 076021 A   594          STX     CTMPB,B                                                          02 00594
000265 016020 A   595          LDA     CTMPA,B                                                          02 00595
000266 120423 A   596          ADD     =1              INCREMENT PUNCH                                  02 00596
000267 056020 A   597          STA     CTMPA,B         BUFFER POINTER                                   02 00597
000270 016022 A   598          LDA     CTMPC,B                                                          02 00598
000271 120464 A   599          ADD     =THREE          INCREMENT USER                                   02 00599
000272 056022 A   600          STA     CTMPC,B         BUFFER POINTER                                   02 00600
000273 001000 A   601          JMP     CPCA            GO BACK FOR NEXT                                 02 00601
000274 000210 R
000275 016021 A   602 CPDA     LDA     CTMPB,B         ASCII MODE                                       02 00602
000276 144200 A   603          SUB     =40             GET WORD COUNT                                   02 00603
000277 001004 A   604          JAN     CPDC            IF CTR THAN                                      02 00604
000300 000304 R
000301 014175 A   605          LDA     =40             40, SET TO 40                                    02 00605
000302 056021 A   606          STA     CTMPB,B                                                          02 00606
000303 056013 A   607          STA     CTWDS,B                                                          02 00607
000304 016015 A   608 CPDC     LDA     CTXBGN,B        SET UP PUNCH                                     02 00608
000305 056020 A   609          STA     CTMPA,B         BUFR ADRS                                        02 00609
000306 036022 A   610 CPDE     LDX     CTMPC,B                                                          02 00610
                  611          IFF     VORTEX-2                                                 V2      02 00611
                  612          OME     MPDVAD,V$ST3    SWITCH TO USER'S MAP                     V2      02 00612
000307 015000 A   613          LDA     0,1             GET WORD FROM USER BUF                           02 00613
                  614          IFF     VORTEX-2                                                 V2      02 00614
                  615          OME     MPDVAD,V$ST0    RESTORE MAP 0                            V2      02 00615
000310 036020 A   616          LDX     CTMPA,B                                                          02 00616
000311 055001 A   617          STA     1,X             SAVE IT                                          02 00617
000312 004250 A   618          LRLA    8                                                                02 00618
000313 150463 A   619          ANA     =HFF            GET HIGH ORDER 8 BITS                            02 00619
000314 144161 A   620          SUB     =D240           COMPUTE TABLE DISPLACEMENT                       02 00620
000315 005014 A   621          TAX                                                                      02 00621
000316 006015 A   622          LDAE    CPCTAB,X        CONVERT                                          02 00622
000317 000503 R
000320 001002 A   623          JAP     CPDG                                                             02 00623
000321 000335 R
000322 150463 A   624          ANA     =HFF            SPECIAL CHARACTER -                              02 00624
000323 005014 A   625          TAX                                                                      02 00625
000324 010046 A   626          LDA     V$CRDM          WHAT TYPE KEYPUNCH                               02 00626
000325 006450 A   627          BT      $50,CPDF                                                 V75*****
000326 000333 R
000327 006015 A   628          LDAE    CPCT29,X        029 KEYPUNCH                                     02 00628
000330 000605 R
000331 001000 A   629          JMP     CPDG                                                             02 00629
000332 000335 R
000333 006015 A   630 CPDF     LDAE    CPCT26,X        026 KEYPUNCH                                     02 00630
000334 000630 R
000335 036020 A   631 CPDG     LDX     CTMPA,B                                                          02 00631
```

```
000336 055000 A  632          STA     0,X             STORE IN PUNCH BUFR                    02 00633
000337 015001 A  633          LDA     1,X                                                    02 00634
000340 150463 A  634          ANA     RHW             GET LOW ORDER 8 BITS                   02 00635
000341 144134 A  635          SUB     N240            COMPUTE TABLE DISPLACEMENT             02 00636
000342 005014 A  636          TAX                                                            02 00637
000343 006015 A  637          LDAE    CPCTAB,X        CONVERT                                02 00638
000344 000505 R
000345 001002 A  638          JAP     CPDN                                                   02 00639
000346 000363 R
000347 150463 A  639          ANA     RHW             SPECIAL CHARACTER -                    02 00640
000350 005014 A  640          TAX                                                            02 00641
000351 010046 A  641          LDA     V$CRDM          WHAT TYPE KEYPUNCH                     02 00642
000352 004341 A  642          LSRA    1                                                      02 00643
000353 001010 A  643          JAZ     CPDK                                                   02 00644
000354 000361 R
000355 006015 A  644          LDAE    CPCT29,X        029 KP                                 02 00645
000356 000605 R
000357 001000 A  645          JMP     CPDN                                                   02 00646
000360 000363 R
000361 006015 A  646 CPDK     LDAE    CPCT26,X        026 KP                                 02 00647
000362 000630 R
000363 036020 A  647 CPDN     LDX     CTMPA,B                                                02 00648
000364 055001 A  648          STA     1,X             STORE IN PUNCH BUFR                    02 00649
000365 005144 A  649          IXR                                                            02 00650
000366 005144 A  650          IXR             INCR PUNCH BUFR PNTR                           02 00651
000367 076020 A  651          STX     CTMPA,B                                                02 00652
000370 036021 A  652          LDX     CTMPB,B                                                02 00653
000371 005344 A  653          DXR             DECREMENT WORD COUNT                           02 00654
000372 001040 A  654          JXZ     CPEA            JUMP IF DONE                           02 00655
000373 000402 R
000374 076021 A  655          STX     CTMPB,B                                                02 00656
000375 036022 A  656          LDX     CTMPC,B                                                02 00657
000376 005144 A  657          IXR             INCR USER BUFR PNTR                            02 00658
000377 076022 A  658          STX     CTMPC,B                                                02 00659
000400 001000 A  659          JMP     CPDE            GO BACK FOR NEXT                       02 00660
000401 000306 R
000402 036016 A  660 CPEA     LDX     CTBBGN,B        GET BUFR BEGIN ADRS                    02 00661
000403 016017 A  661          LDA     CTBEND,B        GET BUFR END ADRS                      02 00662
000404 006506 A  662          JSR     V$BIC,B         GO SET UP BIC                          02 00663
000405 000000 E
000406 000001 A  663          DATA    1                                                      02 00664
                 664          IFF     VORTEX-2                                       V2      02 00665
                 665 MAPKEY   DATA    0                                              V2      02 00666
000407 055021 A  666          STA     CTMPB,X         SAVE BIC NO.                           02 00667
000410 001002 A  667          JAP     CPED            GOOD RETURN                            02 00668
000411 000425 R
000412 100244 A  668          EXC     ENAPIM          ERROR -                                02 00669
000413 100147 A  669          EXC     ENACLK          ENABLE INTERRUPTS                      02 00670
000414 005211 A  670          CPA                                                            02 00671
000415 004251 A  671          LRLA    9                                                      02 00672
000416 006120 A  672          ADDI    017000                                                 02 00673
000417 017000 A
000420 035004 A  673          LDX     CTRQBK,X                                               02 00674
000421 115000 A  674          ORA     RSTPR,X         SET ERROR CODE                         02 00675
000422 055000 A  675          STA     RSTPR,X         IN RQBLK                               02 00676
000423 001000 A  676          JMP     V$ERR           ERROR EXIT                             02 00677
000424 000062 E
000425 005042 A  677 CPED     TXB                                                            02 00678
000426 016006 A  678          LDA     CTDVAD,B        BUILD                                  02 00679
000427 006110 A  679          ORAI    0100200         CONNECT BIC COMMAND                    02 00680
000430 100200 A
000431 054000 A  680          STA     CPEF                                                   02 00681
000432 005000 A  681 CPEF     NOP             CONNECT BIC                                    02 00682
000433 030300 A  682          LDX     V$CTL                                                  02 00683
000434 005001 A  683          TZA             CLEAR                                          02 00684
000435 055003 A  684          STA     TBEVNT,X        EVENT WORD IN TIDB                     02 00685
                 685          DELAY   01000,0,2                                              02 00686
000436 006505 A
000437 000406 A
000440 001102 A
000441 001000 A
000442 000000 A
000443 030300 A  686          LDX     V$CTL                                                  02 00687
000444 015001 A  687          LDA     TBST,X                                                 02 00688
000445 150447 A  688          ANA     BR6             CLEAR TIME BIT IN TIDB                 02 00689
000446 150444 A  689          ANA     BR3             CLEAR INT EXPECTED BIT                 02 00690
000447 055001 A  690          STA     TBST,X                                                 02 00691
000450 015003 A  691          LDA     TBEVNT,X        GET EVENT WORD                         02 00692
000451 005002 A  692          TZB                                                            02 00693
000452 065003 A  693          STB     TBEVNT,X        CLEAR EVENT WORD                       02 00694
000453 025010 A  694          LDB     TBRSTS,X                                               02 00695
000454 001016 A  695          JANZ    CPEN            GOOD RETURN                            02 00696
000455 000461 R
000456 010431 A  696          LDA     RS8             TIME OUT -                             02 00697
000457 001000 A  697          JMP     CPFW            IRRECOVERABLE I/O ERROR                02 00698
000460 000470 R
                 698 CPEN     DELAY   8,0,0           WAIT                                   02 00699
000461 006505 A
000462 000406 A
000463 001100 A
000464 000010 A
000465 000000 A
000466 001000 A  699          JMP     V$FNR           RETURN                                 02 00700
```

```
000467 000127 E
000470 036004 A   700 CPEW    LDX     CTRQBK,B    SET ERROR                                  02 00701
000471 115000 A   701         ORA     RSTPR,X     CODE IN RQBLK                              02 00702
000472 055000 A   702         STA     RSTPR,X                                                02 00703
000473 001000 A   703         JMP     VSERR       ERROR EXIT                                 02 00704
000474 000424 E
000475 101000 A   704 CPSRDY  DATA    0101000     SENSE READY                                02 00705
000476 000240 A   705 N240    DATA    0240                                                   02 00706
000477 000050 A   706 D40     DATA    40                                                     02 00707
000500 000074 A   707 D60     DATA    60                                                     02 00708
000501 000120 A   708 D80     DATA    80                                                     02 00709
000502 070000 A   709 N70000  DATA    070000                                                 02 00710
000503 007400 A   710 N7400   DATA    07400                                                  02 00711
000504 000207 A   711 WEOFCH  DATA    0207                                                   02 00712
000505 000000 A   712 CPCTAB  DATA    0           BLANK                                      02 00713
000506 002202 A   713         DATA    02202       EXC POINT                                  02 00714
000507 100000 A   714         DATA    0100000     QUOTES - C                                 02 00715
000510 100001 A   715         DATA    0100001     POUND SIGN - C                             02 00716
000511 002102 A   716         DATA    02102       DOLLAR SIGN                                02 00717
000512 100002 A   717         DATA    0100002     PERCENT - C                                02 00718
000513 100003 A   718         DATA    0100003     AMPERSAND - C                              02 00719
000514 100004 A   719         DATA    0100004     PRIME - C                                  02 00720
000515 100005 A   720         DATA    0100005     LEFT PAREN - C                             02 00721
000516 100006 A   721         DATA    0100006     RT PAREN - C                               02 00722
000517 002042 A   722         DATA    02042       ASTERISK                                   02 00723
000520 100007 A   723         DATA    0100007     PLUS - C                                   02 00724
000521 001102 A   724         DATA    01102       COMMA                                      02 00725
000522 002000 A   725         DATA    02000       MINUS                                      02 00726
000523 004102 A   726         DATA    04102       PERIOD                                     02 00727
000524 001400 A   727         DATA    01400       SLASH                                      02 00728
000525 001000 A   728         DATA    01000       ZERO                                       02 00729
000526 000400 A   729         DATA    00400       1                                          02 00730
000527 000200 A   730         DATA    00200       2                                          02 00731
000530 000100 A   731         DATA    00100       3                                          02 00732
000531 000040 A   732         DATA    00040       4                                          02 00733
000532 000020 A   733         DATA    00020       5                                          02 00734
000533 000010 A   734         DATA    00010       6                                          02 00735
000534 000004 A   735         DATA    00004       7                                          02 00736
000535 000002 A   736         DATA    00002       8                                          02 00737
000536 000001 A   737         DATA    00001       9                                          02 00738
000537 100010 A   738         DATA    0100010     COLON - C                                  02 00739
000540 002012 A   739         DATA    02012       SEMI-COLON                                 02 00740
000541 100011 A   740         DATA    0100011     LESS THAN - C                              02 00741
000542 100012 A   741         DATA    0100012     EQUAL - C                                  02 00742
000543 100013 A   742         DATA    0100013     GTR THAN - C                               02 00743
000544 100014 A   743         DATA    0100014     QUESTION MARK - C                          02 00744
000545 100015 A   744         DATA    0100015     AT SIGN - C                                02 00745
000546 004400 A   745         DATA    04400       A                                          02 00746
000547 004200 A   746         DATA    04200       B                                          02 00747
000550 004100 A   747         DATA    04100       C                                          02 00748
000551 004040 A   748         DATA    04040       D                                          02 00749
000552 004020 A   749         DATA    04020       E                                          02 00750
000553 004010 A   750         DATA    04010       F                                          02 00751
000554 004004 A   751         DATA    04004       G                                          02 00752
000555 004002 A   752         DATA    04002       H                                          02 00753
000556 004001 A   753         DATA    04001       I                                          02 00754
000557 002400 A   754         DATA    02400       J                                          02 00755
000560 002200 A   755         DATA    02200       K                                          02 00756
000561 002100 A   756         DATA    02100       L                                          02 00757
000562 002040 A   757         DATA    02040       M                                          02 00758
000563 002020 A   758         DATA    02020       N                                          02 00759
000564 002010 A   759         DATA    02010       O                                          02 00760
000565 002004 A   760         DATA    02004       P                                          02 00761
000566 002002 A   761         DATA    02002       Q                                          02 00762
000567 002001 A   762         DATA    02001       R                                          02 00763
000570 001200 A   763         DATA    01200       S                                          02 00764
000571 001100 A   764         DATA    01100       T                                          02 00765
000572 001040 A   765         DATA    01040       U                                          02 00766
000573 001020 A   766         DATA    01020       V                                          02 00767
000574 001010 A   767         DATA    01010       W                                          02 00768
000575 001004 A   768         DATA    01004       X                                          02 00769
000576 001002 A   769         DATA    01002       Y                                          02 00770
000577 001001 A   770         DATA    01001       Z                                          02 00771
000600 100016 A   771         DATA    0100016     LEFT BRACKET                               02 00772
000601 100017 A   772         DATA    0100017     BACK SLASH                                 02 00773
000602 100020 A   773         DATA    0100020     RT BRACKET                                 02 00774
000603 100021 A   774         DATA    0100021     UP ARROW                                   02 00775
000604 100022 A   775         DATA    0100022     BAK ARROW                                  02 00776
000605 000006 A   776 CPCT29  DATA    00006       QUOTES                                     02 00777
000606 000102 A   777         DATA    00102       POUND SIGN                                 02 00778
000607 001042 A   778         DATA    01042       PERCENT                                    02 00779
000610 004000 A   779         DATA    04000       AMPERSAND                                  02 00780
000611 000022 A   780         DATA    00022       PRIME                                      02 00781
000612 004022 A   781         DATA    04022       LEFT PAREN                                 02 00782
000613 002022 A   782         DATA    02022       RT PAREN                                   02 00783
000614 004012 A   783         DATA    04012       PLUS                                       02 00784
000615 000202 A   784         DATA    00202       COLON                                      02 00785
000616 004042 A   785         DATA    04042       LESS THAN                                  02 00786
000617 000012 A   786         DATA    00012       EQUAL                                      02 00787
000620 001012 A   787         DATA    01012       GTR THAN                                   02 00788
000621 001006 A   788         DATA    01006       QUESTION MARK                              02 00789
000622 000042 A   789         DATA    00042       AT SIGN                                    02 00790
000623 004202 A   790         DATA    04202       LEFT BRACKET                               02 00791
```

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000624 002006 A  791          DATA    02006   BACKSLASK                    02 00792
000625 001202 A  792          DATA    01202   RT BRACKET                   02 00793
000626 004006 A  793          DATA    04006   UP ARROW                     02 00794
000627 001022 A  794          DATA    01022   BACK ARROW                   02 00795
000630 001022 A  795 CPCT26   DATA    01022   QUOTES                       02 00796
000631 001006 A  796          DATA    01006   POUND SIGN                   02 00797
000632 002006 A  797          DATA    02006   PERCENT                      02 00798
000633 004006 A  798          DATA    04006   AMPERSAND                    02 00799
000634 000042 A  799          DATA    00042   PRIME                        02 00800
000635 001042 A  800          DATA    01042   LEFT PAREN                   02 00801
000636 004042 A  801          DATA    04042   RT PAREN                     02 00802
000637 004000 A  802          DATA    04000   PLUS                         02 00803
000640 000022 A  803          DATA    00022   COLON                        02 00804
000641 004012 A  804          DATA    04012   LESS THAN                    02 00805
000642 000102 A  805          DATA    00102   EQUAL                        02 00806
000643 000012 A  806          DATA    00012   GTR THAN                     02 00807
000644 004202 A  807          DATA    04202   QUESTION MARK                02 00808
000645 001202 A  808          DATA    01202   AT SIGN                      02 00809
000646 004022 A  809          DATA    04022   LEFT BRACKET                 02 00810
000647 001012 A  810          DATA    01012   BACKSLASH                    02 00811
000650 002022 A  811          DATA    02022   RT BRACKET                   02 00812
000651 000006 A  812          DATA    00006   UP ARROW                     02 00813
000652 000202 A  813          DATA    00202   BACK ARROW                   02 00814
       000011 A  814 CTBICB   EQU     9                                    02 00815
       000404 A  815 V$BIB1   EQU     0404                                 02 00816
                 816 *        BIC KINE HANDLER ROUTINE                     02 00817
                 817          END                                          02 00818
ENTRY NAMES
000000 R VZCPA
EXTERNAL NAMES
000405 E V$BIC    000474 E V$ERR    000000 E V$EXEC   000467 E V$FNR
SYMBOLS
000044 A APIM     000002 A B        000000 A B0       000001 A B1
000012 A B10      000013 A B11      000014 A B12      000015 A B13
000016 A B14      000017 A B15      000002 A B2       000003 A B3
000004 A B4       000005 A B5       000006 A B6       000007 A B7
000010 A B8       000011 A B9       000421 A BM1      000472 A BM17
000475 A BM177    000477 A BM1777   000464 A BM3      000473 A BM37
000463 A BM377    000467 A BM7      000474 A BM77     000476 A BM777
000441 A BR0      000442 A BR1      000453 A BR10     000454 A BR11
000455 A BR12     000456 A BR13     000457 A BR14     000460 A BR15
000443 A BR2      000444 A BR3      000445 A BR4      000446 A BR5
000447 A BR6      000450 A BR7      000451 A BR8      000452 A BR9
000421 A BS0      000422 A BS1      000433 A BS10     000434 A BS11
000435 A BS12     000436 A BS13     000437 A BS14     000440 A BS15
000423 A BS2      000424 A BS3      000425 A BS4      000426 A BS5
000427 A BS6      000430 A BS7      000431 A BS8      000432 A BS9
000047 A CLOCK    000031 R CPA2     000013 R CPA3     000036 R CPA4
000045 R CPAA     000052 R CPAB     000055 R CPAC     000063 R CPAD
000070 R CPADB    000077 R CPAF     000124 R CPAH     000132 R CPBA
000156 R CPBC     000160 R CPBE     000177 R CPCA     000206 R CPCC
000210 R CPCE     000630 R CPCT26   000605 R CPCT29   000505 R CPCTAB
000275 R CPDA     000304 R CPDC     000306 R CPDE     000333 R CPDF
000335 R CPDG     000361 R CPDK     000363 R CPDN     000402 R CPEA
000425 R CPED     000432 R CPEF     000461 R CPEN     000470 R CPEW
000475 R CPSRDY   000016 A CTBBGN   000017 A CTBEND   000011 A CTBICB
000003 A CTDST    000006 A CTDVAD   000020 A CTMPA    000021 A CTMPB
000022 A CTMPC    000004 A CTRQBK   000010 A CTSTAT   000013 A CTWDS
000477 R D40      000500 R D60      000501 R D80      000001 A DBUFF
000747 A DISCLK   000745 A DISMP    000444 A DISPIM   000000 A DRECL
000424 A EIGHT    000147 A ENACLK   000645 A ENAMP    000244 A ENAPIM
000465 A FIVE     000423 A FOUR     000300 A LC       000050 A LCJP
000462 A LHW      000045 A MP       000045 A MPMR0    000145 A MPMR1
000245 A MPMR2    000345 A MPMR3    000420 A MT       000476 R N240
000502 R N70000   000503 R N7400    000461 A NEG      000470 A NINE
000421 A ONE      000040 A PIM1     000041 A PIM2     000042 A PIM3
000043 A PIM4     000040 A PIM5     000040 A PIM6     000040 A PIM7
000040 A PIM8     000040 A RA0      000000 A RA1      000060 A RB0
000020 A RB1      000002 A RFCB     000463 A RHW      000001 A RDPWD
000000 A RSTPR    000003 A RTIDB    000467 A SEVEN    000466 A SIX
000027 A TBATSK   000026 A TBCPTH   000011 A TBENTY   000003 A TBEVNT
000021 A TBID     000014 A TBISA    000015 A TBISB    000017 A TBISP
000020 A TBISRS   000016 A TBISX    000022 A TBKN1    000023 A TBKN2
000024 A TBKN3    000002 A TBPL     000004 A TBRSA    000005 A TBRSB
000030 A TBRSE    000007 A TBRSP    000010 A TBRSTS   000006 A TBRSX
000000 A TBS0     000001 A TBS1     000012 A TBS10    000013 A TBS11
000014 A TBS12    000015 A TBS13    000016 A TBS14    000017 A TBS15
000002 A TBS2     000003 A TBS3     000004 A TBS4     000005 A TBS5
000006 A TBS6     000007 A TBS7     000010 A TBS8     000011 A TBS9
000001 A TBST     000023 A TBTLC    000013 A TBTMIN   000012 A TBTMS
000000 A TBTRD    000471 A TEN      000464 A THREE    000422 A TWO
000403 A V$1MIN   000415 A V$BFC    000075 A V$BGLB   000404 A V$BIB1
000405 E V$BIC    000056 A V$BIC1   000315 A V$BTB    000414 A V$BVN
000334 A V$CAM    000353 A V$CKB    000411 A V$CKIT   000310 A V$CKPT
000301 A V$CPL    000046 A V$CRDM   000341 A V$CRDR   000354 A V$CRM
000302 A V$CRS    000360 A V$CTAD   000300 A V$CTL    000351 A V$CTMS
000070 A V$DATE   000355 A V$DSTB   000376 A V$ERFG   000474 E V$ERR
000000 E V$EXEC   000347 A V$FGLB   000306 A V$FLRS   000467 E V$FNR
000350 A V$FREE   000320 A V$IM     000410 A V$IOA    000412 A V$JCB
000055 A V$JCFG   000047 A V$JCTM   000050 A V$JNAM   000377 A V$JOP
000054 A V$LCNT   000313 A V$LER    000356 A V$LIT    000317 A V$LLUP
000307 A V$LRSK   000312 A V$LSAL   000345 A V$LUNT   000316 A V$LUP
000400 A V$LUT1   000401 A V$LUT2   000402 A V$LUT3   000330 A V$MPM
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000362 A V$NCTR 000413 A V$OCB  000346 A V$OPCF 000311 A V$OPCL
000363 A V$PIMN 000074 A V$PLCT 000305 A V$PTVB 000361 A V$SCTL
000352 A V$SCV  000375 A V$SLFG 000303 A V$TB   000342 A V$TBGT
000416 A V$TFC  000314 A V$TJCP 000344 A V$TMN  000343 A V$TMS
000304 A V$UTB  000001 A VORTEX 000000 R VZCPA  000504 R WEOFCH
000001 A X      000420 A ZERO
  0 ERRORS ASSEMBLY COMPLETE
```

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360   APIM      370   371
392   B         418   422   429   438   443   452   456   463   472
                480   494   498   502   505   511   515   516   517
                518   519
266   BS10      509
262   BS8       475   477   483
263   BS9       484
351   CLOCK     353   354
424   CPA2      433
425   CPA3      424
442   CPAA      419
447   CPAB      446
450   CPAC      460
455   CPAD      448
459   CPADB     457
466   CPAF      469
483   CPAH      478
407   CPBA      476
517   CPBC      513
  0   CPCW      508
  0   CPDA      510
  0   CPEA      482   486
  0   CPSRDY    442
408   CTBBGN    410   463   480   517
410   CTBEND    411
398   CTDVAD    422   439   443   456
411   CTMPA     412   518
412   CTMPB     413   498   511   515
413   CTMPC     494   502   519
397   CTRQBK    472   505
400   CTSTAT    418   438   452
401   CTWDS     516
  0   D80       464   512   514
407   DBUFF     492   501
353   DISCLK    421   431   445
370   DISPIM    420   432   444
406   DRECL     491   497
354   ENACLK    435   451   461
371   ENAPIM    436   450   462
 49   ENDC01     43
495   ENDC02    489
504   ENDC03    500
133   LC        134   135   136   137   138   139   140   141   142
                143   144   145   146   147   150   151   155   156
                158   161   162   167   168   169   170   171   172
                173   174   175   177   178   179   180   181   182
                183   184   185   186   187   188   189   190   192
                195   196   197   198   210   211   212   213   214
                215   216   221   232   233   236   241   242   243
152   LCD1      149
157   LCD2      154
164   LCD3      160
176   LCD4      166
204   LCD5      201
209   LCD6      206
223   LCD7      218
230   LCD8      225
108   LCJP      109   110   111   118   119   120   121   122   125
374   MP        375   376   377   378   379   380
356   MPDVAD    490   493   521   524
252   MT        253   254   255   256   257   258   259   260   261
                262   263   264   265   266   267   268   269   270
                271   272   273   274   275   276   277   278   279
                280   281   282   283   284   285   286   287   288
                289   290   291   292   293   294   295   296   297
                298   299   300   301   302   303   304   305   306
                307   308
  0   N70000    507
  0   N7400     474
289   ONE       458
404   RFCB      487
403   ROPWD     473   506
 25   TBRSTS    417   428   441   471
  0   V$BIC     390
122   V$CRDM    389
134   V$CTL     389   416   427   440   470
  0   V$ERR     389   454
  0   V$FMR     389   485
171   V$ST0     493   524
174   V$ST3     490   521
  1   VORTEX     42   148   153   159   165   191   193   200   205
                217   224   255   488   496   499   503   520   523
416   VZCPA      11   415
  0   WEOFCH    479
```

391 X 417 428 441 446 471 473 481 487 491
492 497 501 506 522

```
000001 A     1 VORTEX SET     1                                                                  00  00001
             2 *   THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1972 BY VARIAN DATA MACHINE         00  00002
             3 *                                                                                00  00003
             4 *     V.D.M.  PART  NO.        92L0605-170A                                      00  00004
             5 *                                                                                00  00005
             6 *                                                  RELEASED    03/01/74          00  00006
             7 *                                                                                00  00007
             8 *                VZSPA                                                           00  00008
             9 *                                                                                00  00009
            10 *                                                                                00  00010
            11         TITLE   VZSPA                                                           00  00011
            12 *                                                                                00  00012
            13 *       I/O DRIVER FOR VORTEX SPOOLING SYSTEM                                    00  00013
            14 *                                                                                00  00014
            15 *                                                                                00  00015
            16 *                                                                                00  00016
            17 *                                                                                00  00017
            18         EXT     V$EXEC                                                          00  00018
            19         EXT     V$IOC                                                           00  00019
            20         EXT     V$FNR                                                           00  00020
            21         EXT     V$ERR                                                           00  00021
            22         EXT     V$IOST                                                          00  00022
            23         NAME    VZSP0A                                                          00  00023
            24         NAME    VZSP1A                                                          00  00024
            25         NAME    VZSP2A                                                          00  00025
            26         NAME    VZSP3A                                                          00  00026
            27         NAME    VZSP4A                                                          00  00027
            28         NAME    VZSP5A                                                          00  00028
            29         NAME    VZSP6A                                                          00  00029
            30         NAME    VZSP7A                                                          00  00030
            32 ********************************************************************************00  00032
            33 ****     TIDB SETUP                                                         ***  00  00033
            34 *                                                                                00  00034
            35 ********************************************************************************00  00035
000000 A    37 TBTRD   EQU     0          TASK THREAD                                           00  00037
000001 A    38 TBST    EQU     1          TASK STATUS                                           00  00038
000002 A    39 TBPL    EQU     2          STATUS CONT. (BITS15-6),PRIORITY LEVEL(5-0            00  00039
000003 A    40 TBEVNT  EQU     3          INTERRUPT EVENT                                       00  00040
000004 A    41 TBRSA   EQU     4          A          REENTRANT AND SUSPEND STACK                00  00041
000005 A    42 TBRSB   EQU     5          B          REENTRANT AND SUSPEND STACK                00  00042
000006 A    43 TBRSX   EQU     6          X          REENTRANT AND SUSPEND STACK                00  00043
000007 A    44 TBRSP   EQU     7          OF/P       REENTRANT AND SUSPEND STACK                00  00044
000010 A    45 TBRSTS  EQU     8          TEMP. STG. REENTRANT AND SUSPEND STACK                00  00045
000011 A    46 TBENTY  EQU     9          TASK ENTRY LOCATION                                   00  00046
000012 A    47 TBTMS   EQU     10         TIME COUNTER - CLOCK RESOLUTION IN 5MS INC            00  00047
000013 A    48 TBTMIN  EQU     11         TIME COUNTER - CLOCK MINUTE INCREMENTS                00  00048
000014 A    49 TBISA   EQU     12         A          INTERRUPT STACK                            00  00049
000015 A    50 TBISB   EQU     13         B          INTERRUPT STACK                            00  00050
000016 A    51 TBISX   EQU     14         X          INTERRUPT STACK                            00  00051
000017 A    52 TBISP   EQU     15         OF/P       INTERRUPT STACK                            00  00052
000020 A    53 TBISRS  EQU     16         REENT. STACK  INTERRUPT STACK                         00  00053
000021 A    54 TBIO    EQU     17         BLK ALLOC(15-10),I/O THR(9-5),I/O ACT(4-0)            00  00054
000022 A    55 TBKN1   EQU     18         TASK NAME                                             00  00055
000023 A    56 TBKN2   EQU     19         TASK NAME                                             00  00056
000024 A    57 TBKN3   EQU     20         TASK NAME                                             00  00057
000025 A    58 TBTLC   EQU     21         1ST LOC. OF TASK ALLOCATABLE                          00  00058
000026 A    59 TBCPTH  EQU     22         BACKGROUND TASK QUEUE                                 00  00059
000027 A    60 TBATSK  EQU     23         TIDB LOC. OF ACTIVATING TASK                          00  00060
000030 A    61 TBRSE   EQU     24         TASK ERROR CODE                                       00  00061
            62         EJEC                                                                    00  00062
            63 ********************************************************************************00  00063
            64 *                                                                               00  00064
            65 ****     TASK STATUS DESCRIPTION  (BIT SET WORD 1)                          ***  00  00065
            66 *                                                                               00  00066
            67 ********************************************************************************00  00067
000017 A    69 TBS15   EQU     15         INTERRUPT SUSPEND                                     00  00069
000016 A    71 TBS14   EQU     14         TASK SUSPEND                                          00  00071
000015 A    72 TBS13   EQU     13         TASK ABORT                                            00  00072
000014 A    73 TBS12   EQU     12         TASK EXIT                                             00  00073
000013 A    75 TBS11   EQU     11         TIDB CORE RESIDENT                                    00  00075
000012 A    76 TBS10   EQU     10         CORE RESIDENT TASK                                    00  00076
000011 A    77 TBS9    EQU     9          FOREGROUND TASK                                       00  00077
000010 A    79 TBS8    EQU     8          TASK PROTECTED                                        00  00079
000007 A    80 TBS7    EQU     7          TASK SCHEDULED BY TIME DELAY                          00  00080
000006 A    81 TBS6    EQU     6          TIME DELAY ACTIVE                                     00  00081
000005 A    83 TBS5    EQU     5          TASK WAITING TO BE LOADED                             00  00083
000004 A    84 TBS4    EQU     4          TASK ERROR                                            00  00084
000003 A    85 TBS3    EQU     3          TASK INTERRUPT EXPECTED                               00  00085
000002 A    87 TBS2    EQU     2          OVERLAY TASK                                          00  00087
000001 A    88 TBS1    EQU     1          UPON TERMINATION ACTIVATE TASK SCHED TASK             00  00088
000000 A    89 TBS0    EQU     0          TASK SEARCH-ALLOCATED-LOADED                          00  00089
            90         EJEC                                                                    00  00090
            91 ********************************************************************************00  00091
            92 *                                                                               00  00092
            93 ***      TASK STATUS DESCRIPTION  (BIT SET WORD 2)                          ***  00  00093
            94 *                                                                               00  00094
            95 ********************************************************************************00  00095
            97 *         BIT 15   -   TASK OPENED                                              00  00097
            99 *         BIT 14   -   UNUSED                                                   00  00099
           100 *         BIT 13   -   OVERLAY LOAD                                             00  00100
           101 *         BIT 12   -   TASK WAITING FOR BACKGROUND TASK I/O TO COMPLETE         00  00101
           102 *                      TASK LOCKED-OUT UNTIL BG I/O COMPLETE OR BIT 11       00  00102
           103 *                      IS SET  (ALLOCATABLE SPACE AVAILABLE)                 00  00103
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                    105 *       BIT 11   -  DEFINES THAT ALLOCATABLE SPACE IS AVAILABLE, TRY      00 00105
                    106 *                  ALLOCATING TASK AGAIN.  OVERRIDES BIT 12 SET OR      00 00106
                    107 *                  BIT 5 IN STATUS WORD.                                00 00107
                    108 *       BIT 10   -  BACKGROUND TASK BEING WRITTEN ON CHECKPOINT FILE.    00 00108
                    109 *       BIT  9   -  TASK WAITING FOR A TIDB TO COME AVAILABLE FOR        00 00109
                    110 *                  SCHEDULING.                                          00 00110
                    112 *       BIT  8 TO 6  - UNUSED                                           00 00112
                    113         EJEC                                                            00 00113
                    114 ********************************************************************** 00 00114
                    115 *                                                                       00 00115
                    116 ***     JOB PROCESSOR LOW CORE EQUATES                                ** 00 00116
                    117 *                                                                       00 00117
                    118 ********************************************************************** 00 00118
000050 A            120 LCJP    EQU     050                                                     00 00120
000050 A            121 V$JNAM  EQU     LCJP          JCP NAME                                  00 00121
000054 A            122 V$LCNT  EQU     LCJP+4        LINE COUNT                                00 00122
000055 A            123 V$JCFG  EQU     LCJP+5        JCP FLAGS                                 00 00123
                    124 *                             BIT 2-0    = LOAD AND GO FLAGS            00 00124
                    125 *                             BIT  3     = DUMP FLAG  1=DUMP, 0=NO DUMP 00 00125
                    126 *                             BIT  4     = DUMP FLAG IF LOAD AND GO     00 00126
                    127 *                             BIT 9-5    = UNUSED                       00 00127
                    128 *                             BIT 15-10  = BG EXTRA CORE BLOCKS TO ALLOC 00 00128
000056 A            130 V$BIC1  EQU     LCJP+6        BIC INTERRUPT ADDRESS TABLE  (10 WORDS)   00 00130
000070 A            131 V$DATE  EQU     LCJP+16       JCP DATE RECORD                           00 00131
000074 A            132 V$PLCT  EQU     LCJP+20       PERMINATE LINE COUNT                      00 00132
000075 A            133 V$BGLB  EQU     LCJP+21       JCP LIB KEY AND LU NO. (BACKGROUND LIB)   00 00133
000076 A            134 V$CRDM  EQU     LCJP+22       CARD KEYPUNCH TYPE, 0=026, 1=029          00 00134
                    135 *                             BIT 0 = SYSTEM NOMINAL KEYPUNCH MODE.     00 00135
                    136 *                             BIT 9 = CURRENT JOB KEYPUNCH MODE.        00 00136
000077 A            137 V$JCTM  EQU     LCJP+23       TEMP. STORAGE FOR /MEM BLOCK              00 00137
                    138         EJEC                                                            00 00138
                    139 ********************************************************************** 00 00139
                    140 *                                                                       00 00140
                    141 ****    LOW CORE DESCRIPTION                                          *** 00 00141
                    142 *                                                                       00 00142
                    143 ********************************************************************** 00 00143
000300 A            145 LC      EQU     0300                                                    00 00145
000300 A            146 V$CTL   EQU     LC            CURRENT TASK TIDB LOCATION                00 00146
000301 A            147 V$CPL   EQU     LC+1          CURRENT PRIORITY LEVEL                    00 00147
000302 A            148 V$CRS   EQU     LC+2          CURRENT REENTRANT STACK POINTER           00 00148
000303 A            149 V$TB    EQU     LC+3          POINTER TO HIGHEST PRIORITY TIDB          00 00149
000304 A            150 V$UTB   EQU     LC+4          POINTER TO UNUSED TASK TIDB               00 00150
000305 A            151 V$PTVB  EQU     LC+5          POINTER TO NEXT ENTRY IN REENTRANT STACK  00 00151
000306 A            152 V$FLRS  EQU     LC+6          FIRST LOC. OF REENTRANT STACK             00 00152
000307 A            153 V$LRSK  EQU     LC+7          LAST LOC. OF REENTRANT STACK+1            00 00153
000310 A            154 V$CKPT  EQU     LC+8          CHECKPOINT FLAG 1=ON, 0=OFF               00 00154
000311 A            155 V$OPCL  EQU     LC+9          LOC. OF TIDB FOR OPCOM TASK               00 00155
000312 A            156 V$LSAL  EQU     LC+10         LOC. OF TIDB FOR SYSTEM SAL TASK          00 00156
000313 A            157 V$LER   EQU     LC+11         LOC. OF TIDB FOR SYSTEM ERROR TASK        00 00157
000314 A            158 V$TJCP  EQU     LC+12         LOC. OF TIDB FOR JOB CONTROL PROCESSOR TAS 00 00158
000315 A            159 V$BTB   EQU     LC+13         LOC. OF CURRENT ACTIVE BACKGROUND TSK TIDB 00 00159
000316 A            160 V$LUP   EQU     LC+14         LOC. OF 1ST UNPROTECTED WORD              00 00160
000317 A            161 V$LLUP  EQU     LC+15         LOC. OF LAST UNPROTECTED WORD             00 00161
000320 A            162 V$IM    EQU     LC+16         INTERRUPT MASK  (8 WORDS)                 00 00162
000330 A            163 V$MPM   EQU     LC+24         MEMORY PROTECT MASK  (4 WORDS)            00 00163
000334 A            164 V$CAM   EQU     LC+28         CORE ALLOCATION MASK  (4 WORDS)           00 00164
                    165 *       EQU     LC+32         UNUSED                                    00 00165
000341 A            166 V$CRDR  EQU     LC+33         CORE RESIDENT DIRECTORY LOCATION          00 00166
000342 A            167 V$TBGT  EQU     LC+34         TOP OF THREAD OF BG TSK WAITING TO BE ALLO 00 00167
000343 A            168 V$TMS   EQU     LC+35         TIME OF DAY IN 5 MILLISECOND INCREMENTS    00 00168
000344 A            169 V$TMN   EQU     LC+36         TIME OF DAY IN MINUTE INCREMENTS          00 00169
000345 A            170 V$LUNT  EQU     LC+37         ADDR. OF LOGICAL UNIT NAME TABLE          00 00170
000346 A            171 V$OPCF  EQU     LC+38         OPCOM LOCKOUT FLAG                        00 00171
000347 A            172 V$FGLB  EQU     LC+39         KEY AND LU NO. FOR FOREGROUND LIB         00 00172
000350 A            173 V$FREE  EQU     LC+40         FREE RUNNING COUNTER INCR. IN MICROSECONDS 00 00173
000351 A            174 V$CTMS  EQU     LC+41         CLOCK RESOLUTION IN 5 MILLISECOND INCR.    00 00174
000352 A            175 V$SCV   EQU     LC+42         CLOCK SELECTED COUNT VALUE (1 TO 4095)    00 00175
000353 A            176 V$CKB   EQU     LC+43         BASIC CLOCK INTERRUPT RATE IN MICROSECONDS 00 00176
000354 A            177 V$CRM   EQU     LC+44         CLOCK RESOLUTION INCR. FOR 1 MINUTE.      00 00177
000355 A            178 V$DSTB  EQU     LC+45         BASE ADDR. FOR DST BLOCK                  00 00178
000356 A            179 V$LIT   EQU     LC+46         LAST LOCATION OF BACKGROUND LITERAL TABLE  00 00179
                    180 *       EQU     LC+47         UNUSED                                    00 00180
000360 A            181 V$CTAD  EQU     LC+48         BASE ADDR. FOR CONTROLLER ADDR. TABLE     00 00181
000361 A            182 V$SCTL  EQU     LC+49         CURRENT CONTROLLER IN SCAN                00 00182
000362 A            183 V$NCTR  EQU     LC+50         NO. OF CONTROLLERS                        00 00183
000363 A            184 V$PIMN  EQU     LC+51         EXTERNAL DEVICE ADDRESS TABLE FOR PIMS    00 00184
                    185 *                               (8 WORDS DEFINED IN PIM NO ORDER)       00 00185
                    186 *       EQU     LC+59         UNUSED                                    00 00186
                    187 *       EQU     LC+60         UNUSED                                    00 00187
000375 A            188 V$SLFG  EQU     LC+61         SAL TASK BUSY FLAG     1=BUSY, 0=NOT BUSY 00 00188
000376 A            189 V$ERFG  EQU     LC+62         ERROR TASK BUSY FLAG   1=BUSY, 0=NOT BUSY 00 00189
000377 A            190 V$JDP   EQU     LC+63         JCP OPERATING FLAG                        00 00190
000400 A            191 V$LUT1  EQU     LC+64         START LUN ADDR FOR JCP/OPCOM ASSIGNABLE   00 00191
000401 A            192 V$LUT2  EQU     LC+65         START LUN ADDR FOR UNASSIGNABLE           00 00192
000402 A            193 V$LUT3  EQU     LC+66         START LUN ADDR FOR OPCOM ASSIGNABLE       00 00193
000403 A            194 V$1MIN  EQU     LC+67         32767 - (60000/(5*V$CTMS)) + 1            00 00194
                    195 *       EQU     LC+68         UNUSED                                    00 00195
                    196 *       EQU     LC+69         UNUSED                                    00 00196
                    197 *       EQU     LC+70         UNUSED                                    00 00197
                    198 *       EQU     LC+71         UNUSED                                    00 00198
000410 A            199 V$IOA   EQU     LC+72         I/O ALGORITHM                             00 00199
000411 A            200 V$CKIT  EQU     LC+73         CLOCK INT. IN PIM BEFORE LOCKOUT FLAG.    00 00200
000412 A            201 V$JCB   EQU     LC+74         ALL SYSTEM BACKGROUND PROGRAMS AND JCP USE 00 00201
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           202 *                                THIS SYSTEM BUFFER TO READ DIRECTIVES AND    00 00202
           203 *                                SOURCE RECORDS IN.                           00 00203
000413 A   204 V$OCB   EQU     LC+75            OPCOM WILL READ OPERATOR KEY-IN REQUESTS     00 00204
           205 *                                IN THIS BUFFER.  IF JCP IS SET NOT ACTIVE    00 00205
           206 *                                AND A 1 DIRECTIVE IS INPUTED, OPCOM          00 00206
           207 *                                WILL MOVE THE DIRECTIVE TO V$JCB BEFORE      00 00207
           208 *                                SCHEDULING JCP.                              00 00208
000414 A   209 V$BVN   EQU     LC+76            BOTTOM OF VORTEX NUCLEUS                     00 00209
000415 A   210 V$BFC   EQU     LC+77            TOP OF FG RES. AREA/BOTTOM OF FG BLK COMM.   00 00210
000416 A   211 V$TFC   EQU     LC+78            TOP OF FG BLK COMMON/TOP OF VORTEX CORE.     00 00211
           212 *       EQU     LC+79            UNUSED                                       00 00212
           213         EJEC                                                                  00 00213
           214 ******************************************************************************** 00 00214
           215 *                                                                             00 00215
           216 ****      MASK TABLE DESCRIPTION                                          ***  00 00216
           217 *                                                                             00 00217
           218 ******************************************************************************** 00 00218
000420 A   220 MT      SET     0420                                                          00 00220
000420 A   221 ZERO    EQU     MT               ZERO WORD                                    00 00221
000421 A   222 BS0     EQU     MT+1             BIT MASK CONTENTS 000001                     00 00222
000422 A   223 BS1     EQU     MT+2                               000002                     00 00223
000423 A   224 BS2     EQU     MT+3                               000004                     00 00224
000424 A   225 BS3     EQU     MT+4                               000010                     00 00225
000425 A   226 BS4     EQU     MT+5                               000020                     00 00226
000426 A   227 BS5     EQU     MT+6                               000040                     00 00227
000427 A   228 BS6     EQU     MT+7                               000100                     00 00228
000430 A   229 BS7     EQU     MT+8                               000200                     00 00229
000431 A   230 BS8     EQU     MT+9                               000400                     00 00230
000432 A   231 BS9     EQU     MT+10                              001000                     00 00231
000433 A   232 BS10    EQU     MT+11                              002000                     00 00232
000434 A   233 BS11    EQU     MT+12                              004000                     00 00233
000435 A   234 BS12    EQU     MT+13                              010000                     00 00234
000436 A   235 BS13    EQU     MT+14                              020000                     00 00235
000437 A   236 BS14    EQU     MT+15                              040000                     00 00236
000440 A   237 BS15    EQU     MT+16                             0100000                     00 00237
000441 A   238 BR0     EQU     MT+17            BIT MASK CONTENTS  0177776                   00 00238
000442 A   239 BR1     EQU     MT+18                               0177775                   00 00239
000443 A   240 BR2     EQU     MT+19                               0177773                   00 00240
000444 A   241 BR3     EQU     MT+20                               0177767                   00 00241
000445 A   242 BR4     EQU     MT+21                               0177757                   00 00242
000446 A   243 BR5     EQU     MT+22                               0177737                   00 00243
000447 A   244 BR6     EQU     MT+23                               0177677                   00 00244
000450 A   245 BR7     EQU     MT+24                               0177577                   00 00245
000451 A   246 BR8     EQU     MT+25                               0177377                   00 00246
000452 A   247 BR9     EQU     MT+26                               0176777                   00 00247
000453 A   248 BR10    EQU     MT+27                               0175777                   00 00248
000454 A   249 BR11    EQU     MT+28                               0173777                   00 00249
000455 A   250 BR12    EQU     MT+29                               0167777                   00 00250
000456 A   251 BR13    EQU     MT+30                               0157777                   00 00251
000457 A   252 BR14    EQU     MT+31                               0137777                   00 00252
000460 A   253 BR15    EQU     MT+32                               0077777                   00 00253
000461 A   254 NEG     EQU     MT+33            SET ALL BITS                                 00 00254
000462 A   255 LHW     EQU     MT+34            LEFT HALF WORD MASK 0177400                  00 00255
000463 A   256 RHW     EQU     MT+35            RIGHT HALF WORD MASK   0377                  00 00256
000421 A   257 ONE     EQU     MT+1             CONTAINS NUMBER  1                           00 00257
000422 A   258 TWO     EQU     MT+2             CONTAINS NUMBER  2                           00 00258
000464 A   259 THREE   EQU     MT+36            CONTAINS NUMBER  3                           00 00259
000423 A   260 FOUR    EQU     MT+3             CONTAINS NUMBER  4                           00 00260
000465 A   261 FIVE    EQU     MT+37            CONTAINS NUMBER  5                           00 00261
000466 A   262 SIX     EQU     MT+38            CONTAINS NUMBER  6                           00 00262
000467 A   263 SEVEN   EQU     MT+39            CONTAINS NUMBER  7                           00 00263
000424 A   264 EIGHT   EQU     MT+4             CONTAINS NUMBER  8                           00 00264
000470 A   265 NINE    EQU     MT+40            CONTAINS NUMBER  9                           00 00265
000471 A   266 TEN     EQU     MT+41            CONTAINS NUMBER 10                           00 00266
000421 A   267 BM1     EQU     MT+1             BIT MASK WORD 00001                          00 00267
000464 A   268 BM3     EQU     MT+36            BIT MASK WORD  00003                         00 00268
000467 A   269 BM7     EQU     MT+39            BIT MASK WORD  00007                         00 00269
000472 A   270 BM17    EQU     MT+42            BIT MASK WORD  00017                         00 00270
000473 A   271 BM37    EQU     MT+43            BIT MASK WORD  00037                         00 00271
000474 A   272 BM77    EQU     MT+44            BIT MASK WORD  00077                         00 00272
000475 A   273 BM177   EQU     MT+45            BIT MASK WORD  00177                         00 00273
000463 A   274 BM377   EQU     MT+35            BIT MASK WORD  00377                         00 00274
000476 A   275 BM777   EQU     MT+46            BIT MASK WORD  00777                         00 00275
000477 A   276 BM1777  EQU     MT+47            BIT MASK WORD  01777                         00 00276
           277         EJEC                                                                  00 00277
           278 ******************************************************************************** 00 00278
           279 *                                                                             00 00279
           280 ****      BIT TEST BIT DESIGNATION                                        ***  00 00280
           281 *                                                                             00 00281
           282 ******************************************************************************** 00 00282
000040 A   284 RA0     EQU     040              BT JUMPS WHEN A REGISTER IS 0                00 00284
000000 A   285 RA1     EQU     000              BT JUMPS WHEN A REGISTER IS 1                00 00285
000060 A   286 RB0     EQU     060              BT JUMPS WHEN B REGISTER IS 0                00 00286
000020 A   287 RB1     EQU     020              BT JUMPS WHEN B REGISTER IS 1                00 00287
           289 ******************************************************************************** 00 00289
           290 *                                                                             00 00290
           291 **        THE BIT CHECKED                                                     00 00291
           292 *                                                                             00 00292
           293 ******************************************************************************** 00 00293
000000 A   295 B0      EQU     0                                                             00 00295
000001 A   296 B1      EQU     1                                                             00 00296
000002 A   297 B2      EQU     2                                                             00 00297
000003 A   298 B3      EQU     3                                                             00 00298
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000004 A  299 B4      EQU     4                                                                  00 00299
000005 A  300 B5      EQU     5                                                                  00 00300
000006 A  301 B6      EQU     6                                                                  00 00301
000007 A  302 B7      EQU     7                                                                  00 00302
000010 A  303 B8      EQU     8                                                                  00 00303
000011 A  304 B9      EQU     9                                                                  00 00304
000012 A  305 B10     EQU     10                                                                 00 00305
000013 A  306 B11     EQU     11                                                                 00 00306
000014 A  307 B12     EQU     12                                                                 00 00307
000015 A  308 B13     EQU     13                                                                 00 00308
000016 A  309 B14     EQU     14                                                                 00 00309
000017 A  310 B15     EQU     15                                                                 00 00310
          311         EJEC                                                                       00 00311
          312 ********************************************************************************** 00 00312
          313 *                                                                                  00 00313
          314 ****     DEVICE AND FUNCTION CODES                                          ***    00 00314
          315 *                                                                                  00 00315
          316 ********************************************************************************** 00 00316
          318 ****     REAL TIME CLOCK                                                    ***    00 00318
000047 A  319 CLOCK   EQU     047             DEVICE NUMBER 047                                  00 00319
          320 *                                                                                  00 00320
000747 A  321 DISCLK EQU     0700+CLOCK      DISABLE CLOCK                                      00 00321
000147 A  322 ENACLK EQU     0100+CLOCK      ENABLE CLOCK                                       00 00322
          324 *                                                                                  00 00324
          325 ****     PIM                                                                ***    00 00325
000044 A  326 APIM    EQU     044             ALL PIMS DEVICE NUMBER                             00 00326
000040 A  327 PIM1    EQU     040                                                                00 00327
000041 A  328 PIM2    EQU     041                                                                00 00328
000042 A  329 PIM3    EQU     042                                                                00 00329
000043 A  330 PIM4    EQU     043                                                                00 00330
000040 A  331 PIM5    EQU     040                                                                00 00331
000040 A  332 PIM6    EQU     040                                                                00 00332
000040 A  333 PIM7    EQU     040                                                                00 00333
000040 A  334 PIM8    EQU     040                                                                00 00334
          335 *                                                                                  00 00335
000444 A  336 DISPIM  EQU     0400+APIM                                                          00 00336
000244 A  337 ENAPIM  EQU     0200+APIM                                                          00 00337
          339 ****     MEMORY PROTECT                                                     ***    00 00339
000045 A  340 MP      EQU     045             DEVICE ADDRESS 045                                 00 00340
000745 A  341 DISMP   EQU     0700+MP         DISABLE MEMORY PROTECT                             00 00341
000645 A  342 ENAMP   EQU     0600+MP         ENABLE MEMORY PROTECT                              00 00342
000045 A  343 MPMR0   EQU     0000+MP         SELECT MASK REGISTER 0                             00 00343
000145 A  344 MPMR1   EQU     0100+MP         SELECT MASK REGISTER 1                             00 00344
000245 A  345 MPMR2   EQU     0200+MP         SELECT MASK REGISTER 2                             00 00345
000345 A  346 MPMR3   EQU     0300+MP         SELECT MASK REGISTER 3                             00 00346
          347         EJEC                                                                       00 00347
          348 *       CONTROLLER TABLE POSITIONS                                             00 00348
          349 *                                                                                  00 00349
          350 *                                                                                  00 00350
000001 A  353 CTTEMP  EQU     1               TEMPORARY STORAGE                                  00 00353
000003 A  354 CTDST   EQU     3               DST ADR                                            00 00354
000004 A  355 CTRQBK  EQU     4               RPB ADR                                            00 00355
000005 A  356 CTRTRY  EQU     5               RETRY CONSTANT                                     00 00356
000005 A  357 CTRCNT  EQU     5               RETRY COUNT                                        00 00357
000006 A  358 CTDVAD  EQU     6               DEVICE ADR                                         00 00358
000010 A  359 CTSTAT  EQU     8               DRIVER STATUS                                      00 00359
000011 A  360 CTBICB  EQU     9               BIC ADR                                            00 00360
000012 A  361 CTFCB   EQU     10              FCB ADR                                            00 00361
000013 A  362 CTWDS   EQU     11              WORDS XMITTED                                      00 00362
          363 *                                                                                  00 00363
          364 *         SPOOLER CTBL ADDITIONS                                               00 00364
          365 *                                                                                  00 00365
000016 A  366 CTRCT   EQU     14              RECORD COUNT                                       00 00366
000017 A  367 CTBUF   EQU     15              0-3 = STREAM #                                     00 00367
000020 A  368 CTSCT   EQU     16              START OF SCT TABLE                                 00 00368
000057 A  369 CTDCT   EQU     47              START OF DCT TABLE                                 00 00369
000071 A  370 CTBFST  EQU     071             ADDRESS OF SECOND BUFFER                           00 00370
000072 A  371 CTBF1   EQU     072             ADDRESS OF FIRST BUFFER                            00 00371
000073 A  372 CTBFND  EQU     073             ADDRESS OF LAST BUFFER                             00 00372
          373         EJEC                                                                       00 00373
          374 *                                                                                  00 00374
          375 *       DATA CONTROL BLOCK POSITIONS                                           00 00375
          376 *                                                                                  00 00376
000000 A  377 DCRECL  EQU     0               RECORD LENGTH                                      00 00377
000001 A  378 DCBUFF  EQU     1               BUFFER ADR                                         00 00378
000002 A  379 DCFUNC  EQU     2               FUNCTION CODE                                      00 00379
          380         EJEC                                                                       00 00380
          382 *       CONTROLLER TIDB POSITIONS                                              00 00382
          383 *                                                                                  00 00383
000001 A  385 TBST    EQU     1               TASK STATUS                                        00 00385
000003 A  386 TBEVNT  EQU     3               INTERRUPT EVENT                                    00 00386
000010 A  387 TBRSTS  EQU     8               CTBL ADR                                           00 00387
          390 *       PST POSITIONS                                                          00 00390
          391 *                                                                                  00 00391
000000 A  393 PSBOD   EQU     0               BEGIN OF PTN                                       00 00393
000001 A  394 PSKEY   EQU     1               PROTECT KEY WORD                                   00 00394
000002 A  395 PSBDTK  EQU     2               NO. OF BAD TRACKS IN PARTITION                     00 00395
000003 A  396 PSEOD   EQU     3               END OF PTN                                         00 00396
          397         EJEC                                                                       00 00397
          400 *       DST POSITIONS                                                          00 00400
          401 *                                                                                  00 00401
000002 A  403 DSPSTI  EQU     2                                                                  00 00403
000002 A  404 DSUNTN  EQU     2                                                                  00 00404
```

```
                    405          EJEC
                    409 *        REQUEST BLOCK POSITIONS
                    410 *
000000  A           412 RPSTPR   EQU     0           REQUEST STATUS
000001  A           413 RPOPWD   EQU     1           MODE / OP-CODE
                    414          EJEC
                    415 *
                    416 *            SPOOL BUFFER
                    417 *
000000  A           418 SBLK     EQU     0           CHAIN LINK
000002  A           419 SBBN     EQU     2           BUFFER NUMBER (LEFT BYTE)
000003  A           420 SBRL     EQU     3           RECORD LENGTH (RIGHT BYTE)
000004  A           421 SBCTL    EQU     4           15= WRITE (1),12-14=MODE,8-11=OPCODE,
                    422 *                            0-2= STREAM NUMBER
000005  A           423 SBTIME   EQU     5
000006  A           424 SBDATA   EQU     6
                    425          EJEC
000001  A           426 %        EQU     1
000002  A           427 $        EQU     2
000001  A           428 #        EQU     1
000334  A           429 V$ST0    EQU     0334
000336  A           430 V$ST2    EQU     0336
000046  A           431 MAP      EQU     046
                    432 ********************************************************************** 00 00432
                    433 *                                                                      00 00433
                    434 *                                                                      00 00434
                    435 ********************************************************************** 00 00435
                    436 *                                                    *                 00 00436
                    437 *                DRIVER INITIALIZE PROCESSOR      ***                 00 00437
                    438 *                                                    *                 00 00438
                    439 ********************************************************************** 00 00439
                    440          EXT     V$CTL,V$FNR,V$ERR
                    441          EXT     V$GPSB          GET BUFFER
                    442          EXT     V$SPQS          QUEUE BUFFER
                    443          NAME    V$LEVT          EVENT WORD OF LISTED
000000  100444  A   444 VZSP0A   SVC     DISPIM          DISABLE INTERRUPTS
        000000  R   445 VZSP1A   EQU     VZSP0A
        000000  R   446 VZSP2A   EQU     VZSP0A
        000000  R   447 VZSP3A   EQU     VZSP0A
        000000  R   448 VZSP4A   EQU     VZSP0A
        000000  R   449 VZSP5A   EQU     VZSP0A
        000000  R   450 VZSP6A   EQU     VZSP0A
        000000  R   451 VZSP7A   EQU     VZSP0A
000001  100747  A   452          EXC     DISCLK
000002  014020  A   453          LDA     ONEFLG          IS THIS FIRST TIME = 0
000003  001016  A   454          JMNZ    INTDLY
000004  000027  R
000005  044020  A   455          ANA     ONEFLG          FIRST TIME
000006  100244  A   456          LXS     ENAPIM          ENABLE INTERRUPTS
000007  100147  A   457          EXC     ENACLK
000010  002000  A   458          JMP*M   V$SPIN          INITIALIZE
000011  000000  E
                    459          EXT     V$SPIN
000012  100444  A   460          EXC     DISPIM          DISABLE INTERRUPTS
000013  100747  A   461          EXC     DISCLK
000014  014007  A   462          LDA     JMP             MAKE VZSPA"JMP VZSPA1"
000015  006057  A   463          STAE    VZSP0A
000016  000000  R
000017  014003  A   464          LDA     JMP+1
000020  006057  A   465          STAE    VZSP0A+1
000021  000001  R
000022  100244  A   466          EXC     ENAPIM          ENABLE INTERRUPTS
000023  100147  A   467          EXC     ENACLK
000024  001000  A   468 JMP      JMP     VZSPA1          START SPOOLING
000025  000040  R
000026  000000  A   469 ONEFLG   DATA    0               SET TO 1 FOR SECOND TRY
000027  100147  A   470 INTDLY   EXC     ENACLK          ENABLE INTERRUPTS
000030  100244  A   471          EXC     ENAPIM
                    472          DELAY   2,0             DELAY 60MSEC SO INIT CAN FINISH
000031  006505  A
000032  000406  A
000033  001100  A
000034  000014  A
000035  000000  A
000036  001000  A   473          JMP     VZSP0A
000037  000000  R
                    474 *
                    475 *                HERE ACTUAL SPOOLING BEGINS
                    476 *
000040  030300  A   477 VZSPA1   LDX     V$LTL           ADR OF TIBB
000041  035010  A   478          LDX     TBPSTS,X        CTRL ADR
000042  025004  A   479          LDB     CTRBSK,X        RP2 AIR
000043  016001  A   480          LDA     RPOPWD,B        FETCH OP CODE
000044  004244  A   481          LRLA    3
000045  005002  A   482          TAS
000046  004444  A   483          ALSL    4               OP-CODE IN B
000047  006026  A   484          LDXB    DIOTBL,B
000050  000053  R
000051  006706  A   485          IMP     0,B
000052  000000  R
000053  000063  R   486 DIOTBL   DATA    TRULTR          READ RECORD
000054  000065  R   487          DATA    SRWRIT          WRITE RECORD
000055  000214  R   488          DATA    WTMEOF          WRITE END OF FILE
```

```
000056 000214 R   489          DATA    D1REW           REWIND UNIT                                    00 00489
000057 000063 R   490          DATA    D1ILTR          SKIP RECORD                                    00 00490
000060 000214 R   491          DATA    D1FUNC          FUNCTION                                       00 00491
000061 000063 R   492          DATA    D1ILTR          OPEN FILE                                      00 00492
000062 000063 R   493          DATA    D1ILTR          CLOSE FILE                                     00 00493
000063 001000 A   494 D1ILTR   JMP     V$FNR           ILLEGAL I/O-CAUGHT BY IOC                      00 00494
000064 000000 E
                  495 *                                                                              00 00495
                  496 *          WRITE PROCESSOR - CHECK RECORD LENGTH GT MAX                        00 00496
                  497 *                                                                              00 00497
000065 025012 A   498 D1WRIT  LDB     CTFCB,X         START OF FCB                                   00 00498
                  499          IFF     VORTEX-2                                                       00 00499
                  500          OME     MAP,V$ST2                                                      00 00500
000066 016000 A   501          LDA     DCRECL,B        RECORD LENGTH                                  00 00501
                  502          IFF     VORTEX-2                                                       00 00502
                  503          OME     MAP,V$ST0                                                      00 00503
000067 055013 A   504          STA     CTWDS,X         SET                                            00 00504
000070 055005 A   505          STA     CTRCNT,X        SAVE FOR LATER BUFFER MOVE                     00 00505
000071 144134 A   506          SUB     BFSZ                                                      E.2********
000072 001004 A   507          JAN     D1WR1           BUFFER LENGTH OK                          E.2********
000073 000106 R
000074 014131 A   508          LDA     BFSZ            SET BUFFER LENGTH TO MAX                  E.2********
000075 055013 A   509          STA     CTWDS,X                                                        00 00509
000076 055005 A   510          STA     CTRCNT,X                                                       00 00510
000077 030300 A   511          LDX     V$CTL                                                          00 00511
000100 006010 A   512          LDAI    02247           ERROR FLAG                                     00 00512
000101 002247 A
000102 055030 A   513          STA     TBRSE,X                                                        00 00513
000103 015001 A   514          LDA     TBST,X          SET FLAG TO OUTPUT ERROR MSG                   00 00514
000104 110425 A   515          ORA     BS4                                                            00 00515
000105 055001 A   516          STA     TBST,X                                                         00 00516
000106 005001 A   517 D1WR1    TZA                     SET WRITE FLAG                                 00 00517
                  518 *                                                                              00 00518
                  519 *             SET UP WRITE                                                     00 00519
                  520 *                                                                              00 00520
000107 030300 A   521 D1WROK  LDX     V$CTL                                                          00 00521
000110 035010 A   522          LDX     TBRSTS,X        GET STREAM NUMBER                              00 00522
000111 055006 A   523          STA     CTDVAD,X        SAVE WRITE/FUNC FLAG                           00 00523
000112 015017 A   524          LDA     CTBUF,X                                                        00 00524
000113 006505 A   525          JSR     V$SPSB,X        REQUEST BUFFER FOR WRITE                       00 00525
000114 000000 E
000115 030300 A   526          LDX     V$CTL                                                          00 00526
000116 035010 A   527          LDX     TBRSTS,X        CTBL START                                     00 00527
000117 065014 A   528          STB     CTWDS+1,X       SAVE START ADDRESS                             00 00528
000120 007400 A   529          ROF                                                                    00 00529
000121 015006 A   530          LDA     CTDVAD,X        GET WRITE/FUNC FLAG                            00 00530
000122 001010 A   531          JAZ     *+3             SKIP IF WRITE                                  00 00531
000123 000125 R
000124 007401 A   532          SOF                     SET FUNC FLAG                                  00 00532
000125 015016 A   533          LDA     CTRCT,X                                                        00 00533
000126 005111 A   534          IAR                                                                    00 00534
000127 150463 A   535          ANA     BM377           MASK OUT LEFT BYTE                             00 00535
000130 055016 A   536          STA     CTRCT,X         INCREMENTED WORD COUNT                         00 00536
000131 004250 A   537          LRLA    8               GET INTO LEFT BYTE                             00 00537
000132 115013 A   538          ORA     CTWDS,X         OR IN # WORDS                                  00 00538
000133 056003 A   539          STA     SBRL,B          PUT BUFFER NO, REC LEN INTO BUFFER             00 00539
000134 010344 A   540          LDA     V$TMN           PUT TIME INTO BUFFER                           00 00540
000135 056005 A   541          STA     SBTIME,B                                                       00 00541
000136 035004 A   542          LDX     CTRQBK,X                                                       00 00542
000137 015001 A   543          LDA     RPOPWD,X        GET OP CODE                                    00 00543
000140 150462 A   544          ANA     LHW             MASK OUT LU                                    00 00544
000141 030300 A   545          LDX     V$CTL                                                          00 00545
000142 035010 A   546          LDX     TBRSTS,X        CTBL START                                     00 00546
000143 115017 A   547          ORA     CTBUF,X         INCLUDE STREAM NUMBER                          00 00547
000144 003007 A   548          XOFN    D1ON            SET WRITE FLAG IF WRITE                        00 00548
000145 000205 R
000146 056004 A   549          STA     SBCTL,B                                                        00 00549
000147 001001 A   550          JOF     SPFUNC          JUMP IF NOT WRITE                              00 00550
000150 000220 R
000151 005021 A   551          TBA                                                                    00 00551
000152 125013 A   552          ADD     CTWDS,X                                                        00 00552
000153 055006 A   553          STA     CTDVAD,X        SAVE LAST ADR -5 OF SPOOL BUFFER               00 00553
000154 025012 A   554          LDB     CTFCB,X                                                        00 00554
                  555          IFF     VORTEX-2                                                       00 00555
                  556          OME     MAP,V$ST2                                                      00 00556
000155 016001 A   557          LDA     DCBUFF,B        CALCULATE ADR OF USER DATA BUFFER              00 00557
                  558          IFF     VORTEX-2                                                       00 00558
                  559          OME     MAP,V$ST0                                                      00 00559
000156 125013 A   560          ADD     CTWDS,X                                                        00 00560
000157 005311 A   561          DAR                     POINT A TO END OF BUFFER                       00 00561
000160 055001 A   562          STA     CTTEMP,X        SAVE                                           00 00562
000161 025001 A   563 D1MOVE   LDB     CTTEMP,X                                                       00 00563
                  564          IFF     VORTEX-2                                                       00 00564
                  565          OME     MAP,V$ST2                                                      00 00565
000162 016000 A   566          LDA     0,B             GET DATA FROM BUFFER                           00 00566
                  567          IFF     VORTEX-2                                                       00 00567
                  568          OME     MAP,V$ST0                                                      00 00568
000163 005322 A   569          DBR                                                                    00 00569
000164 065001 A   570          STB     CTTEMP,X        DECREMENT FOR NEXT WORD                        00 00570
000165 025006 A   571          LDB     CTDVAD,X                                                       00 00571
000166 056005 A   572          STA     SBDATA-1,B      PUT DATA IN SPOOL BUFFER                       00 00572
000167 005322 A   573          DBR                                                                    00 00573
000170 065006 A   574          STB     CTDVAD,X        DEC SPOOL POINTER                              00 00574
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000171 015005 A   575          LDA     CTRCNT,X
000172 005311 A   576          DSR
000173 055005 A   577          STA     CTRCNT,X
000174 001016 A   578          JANZ    D1MOVE
000175 000161 R
000176 025014 A   579          LDB     CTWDS+1,X
000177 006505 A   580 D1FINI   JSR     V$SPQS,X
000200 000000 E
000201 100444 A   581          EXC     DISPIM
000202 100747 A   582          EXC     DISCLK
000203 006617 A   583          LDAE*   V$LEVT
000204 100225 R
000205 110440 A   584 D1ON     ORA     BIT5
000206 006657 A   585          STAE*   V$LEVT
000207 100225 R
000210 100244 A   586          EXC     ENAPIM
000211 100147 A   587          EXC     ENACLK
000212 001000 A   588          JMP     V$FNR
000213 000064 E
       000214 R   589 D1WEOF   EQU     *
       000214 R   590 D1REW    EQU     *
       000214 R   591 D1FUNC   EQU     *
000214 005101 A   592          INCR    01
000215 055013 A   593          STA     CTWDS,X
000216 001000 A   594          JMP     D1WROK
000217 000167 R
000220 035012 A   595 SPFUNC   LDX     CTFCB,X
                  596          IFF     VORTEX-2
                  597          DMC     MAP,V$ST2
000221 015002 A   598          LDA     2,X
                  599          IFF     VORTEX-2
                  600          DMA     MAP,V$ST0
000222 056006 A   601          STA     SPDATA,B
000223 001000 A   602          JMP     D1FINI
000224 000177 R
000225 000000 A   603 V$LEVT   DATA    0
000226 000104 A   604 BFSZ     DATA    0104
                  605          END
```

ENTRY NAMES

```
000225 R V$LEVT  000000 R VZSP0A  000000 R VZSP1A  000000 R VZSP2A
000000 R VZSP3A  000000 R VZSP4A  000000 R VZSP5A  000000 R VZSP6A
000000 R VZSP7A
```

EXTERNAL NAMES

```
000000 E V$EPR   000000 E V$EXEC  000213 E V$FNR   000000 E V$IOC
000000 E V$IOST  000011 E V$SPIN  000200 E V$SPQS  000114 E V$SPSB
```

SYMBOLS

```
000001 A A       000044 A APIR    000002 A B       000000 A B0
000001 A B1      000012 A B10     000013 A B11     000014 A B12
000015 A B13     000016 A B14     000017 A B15     000002 A B2
000003 A B3      000004 A B4      000005 A B5      000006 A B6
000007 A B7      000010 A B8      000011 A B9      000226 R BFSZ
000421 A BM1     000472 A BM17    000475 A BM177   000477 A BM1777
000464 A BM3     000473 A BM37    000463 A BM377   000467 A BM7
000474 A BM77    000476 A BM777   000441 A BR0     000442 A BR1
000453 A BR10    000454 A BR11    000455 A BR12    000456 A BR13
000457 A BR14    000460 A BR15    000443 A BR2     000444 A BR3
000445 A BR4     000446 A BR5     000447 A BR6     000450 A BR7
000451 A BR8     000452 A BR9     000431 A BS0     000432 A BS1
000433 A BS10    000434 A BS11    000435 A BS12    000436 A BS13
000437 A BS14    000440 A BS15    000423 A BS2     000424 A BS3
000425 A BS4     000426 A BS5     000427 A BS6     000430 A BS7
000431 A BS8     000432 A BS9     000017 A CLOCK   000072 A CTBF1
000073 A CTBFND  000071 A CTBFST  000011 A CTBICB  000017 A CTBUF
000057 A CTDCT   000003 A CTDST   000006 A CTDVAD  000010 A CTFCB
000005 A CTRCNT  000016 A CTRCT   000004 A CTRGBK  000000 A CTRIRY
000020 A CTSCT   000010 A CTSTAT  000001 A CTTEMP  000013 A CTWDS
000053 R D1DTBL  000177 R D1FINI  000214 R D1FUNC  000060 R D1ILTR
000161 R D1MOVE  000205 R D1ON    000216 R D1REW   000214 R D1WEOF
000106 R D1WR1   000045 R D1WRIT  000107 R D1WROK  000001 A DCBUSY
000002 A DCFUNC  000070 A DCRECL  000075 A DISCLK  000745 A DISPIM
000444 A DISPIM  000010 A DSP_TI  000007 A DSUNIT  000474 A EIGHT
000147 A ENACLK  000615 A ENAPIM  000244 A ENAPIM  000455 A FIVE
000423 A FOUR    000007 R INTDLY  000004 R JMP     000000 A LC
000050 A LOOP    000040 A LHW     000046 A MAP     000045 A MP
000045 A MPMR0   000145 A MPMR1   000265 A MPMR2   000305 A MPMR3
000420 A MT      000171 A NEG     000470 A NINE    000421 A ONE
000026 R ONEFLG  000040 A PIM1    000041 A PIM2    000042 A PIM3
000043 A PIM4    000044 A PIM5    000045 A PIM6    000046 A PIM7
000040 A PIM8    000002 A PSBCTR  000000 A PSBOD   000003 A PSEOD
000001 A PSKEY   000040 A RA0     000000 A RA1     000060 A RBU
000020 A RBI     000463 A RNW     000001 A RPOPWD  000010 A RPSIPR
000003 A SBBN    000004 A SBCTL   000006 A SBDATA  000000 A SBLK
000003 A SBRL    000015 A SBTIME  000457 A SEVEN   000466 A SIX
000220 R SPFUNC  000027 A TBATSK  000026 R TBCPTH  000011 A TBCNTY
000003 A TBEVNT  000021 A TBIO    000014 A TBISA   000015 A TBISB
000017 A TBISR   000020 A TBISX   000022 A TBKN1   000023 A TBKN2
000005 A TBRSB   000000 A TBRSR   000001 A TBRSP   000010 A TBRST0
000006 A TBRSX   000007 A TBS0    000011 A TBS1    000012 A TBS10
000013 A TBS11   000014 A TBS12   000015 A TBS13   000016 A TBS14
000017 A TBS15   000002 A TBS2    000003 A TBS3    000004 A TBS4
000005 A TBS5    000006 A TBS6    000007 A TBS7    000010 A TBS8
000011 A TBS9    000001 A TBST    000000 A TBTLC   000013 A TBTMIN
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000012 A TBTMS   000000 A TBTRD   000471 A TEN     000464 A THREE
000422 A TWO     000403 A V$1MIN  000415 A V$BFC   000075 A V$BGLB
000056 A V$BIC1  000315 A V$BTB   000414 A V$BVN   000334 A V$CAM
000353 A V$CKB   000411 A V$CKIT  000310 A V$CKPT  000301 A V$CPL
000076 A V$CRDM  000341 A V$CRDR  000354 A V$CRM   000302 A V$CRS
000360 A V$CTAD  000300 A V$CTL   000351 A V$CTMS  000070 A V$DATE
000355 A V$DSTB  000376 A V$ERFG  000000 E V$ERR   000000 E V$EXEC
000347 A V$FGLB  000306 A V$FLRS  000213 E V$FNR   000350 A V$FREE
000320 A V$IM    000410 A V$IOA   000000 E V$IOC   000000 E V$IOST
000412 A V$JCB   000055 A V$JCFG  000077 A V$JCTM  000050 A V$JNAM
000377 A V$JOP   000054 A V$LCNT  000313 A V$LER   000225 R V$LEVT
000356 A V$LIT   000317 A V$LLUP  000307 A V$LRSK  000312 A V$LSAL
000345 A V$LUNT  000316 A V$LUP   000400 A V$LUT1  000401 A V$LUT2
000402 A V$LUT3  000330 A V$MPM   000362 A V$NCTR  000413 A V$OCB
000346 A V$OPCF  000311 A V$OPCL  000363 A V$PIMN  000074 A V$PLCT
000305 A V$PTVB  000361 A V$SCTL  000352 A V$SCV   000375 A V$SLFG
000011 E V$SPIN  000200 E V$SPQS  000114 E V$SPSB  000334 A V$ST0
000336 A V$ST2   000303 A V$TB    000342 A V$TBGT  000416 A V$TFC
000314 A V$TJCP  000344 A V$TMN   000343 A V$TMS   000304 A V$UTB
000001 A VORTEX  000000 R VZSP0A  000000 R VZSP1A  000000 R VZSP2A
000000 R VZSP3A  000000 R VZSP4A  000000 R VZSP5A  000000 R VZSP6A
000000 R VZSP7A  000040 R VZSPA1  000001 A X       000420 A ZERO
  0 ERRORS ASSEMBLY COMPLETE
```

```
326  APIM      336  337
427  B         480  484  485  501
  0  BFSZ      506  508
226  BS4       515
319  CLOCK     321  322
367  CTBUF     524
358  CTDVAD    523
361  CTFCB     498
357  CTRCNT    505  510
355  CTRQBK    479
362  CTWDS     504  509
486  D10TBL    484
  0  D1FUNC    491
494  D1ILTR    486  490  492  493
  0  D1REW     489
  0  D1WEOF    488
517  D1WR1     507
498  D1WRIT    487
377  DCRECL    501
321  DISCLK    452  461
336  DISPIM    444  460
322  ENACLK    457  467  470
337  ENAPIM    456  466  471
470  INTDLY    454
468  JMP       462  464
145  LC        146  147  148  149  150  151  152  153  154
               155  156  157  158  159  160  161  162  163
               164  166  167  168  169  170  171  172  173
               174  175  176  177  178  179  181  182  183
               184  188  189  190  191  192  193  194  199
               200  201  204  209  210  211
120  LCJP      121  122  123  130  131  132  133  134  137
431  MAP       500  503
340  MP        341  342  343  344  345  346
220  MT        221  222  223  224  225  226  227  228  229
               230  231  232  233  234  235  236  237  238
               239  240  241  242  243  244  245  246  247
               248  249  250  251  252  253  254  255  256
               257  258  259  260  261  262  263  264  265
               266  267  268  269  270  271  272  273  274
               275  276
469  ONEFLG    453  455
413  RPOPWD    480
 61  TBRSE     513
 45  TBRSTS    478  522
 38  TBST      514  516
146  V$CTL     440  477  511  521
  0  V$ERR      21  440
  0  V$EXEC     18
  0  V$FNR      20  440  494
  0  V$IOC      19
  0  V$IOST     22
  0  V$LEVT    443
  0  V$SPIN    458  459
  0  V$SPQS    442
  0  V$SPSB    441  525
429  V$ST0     503
430  V$ST2     500
  1  VORTEX    499  502
444  VZSP0A     23  445  446  447  448  449  450  451  463
               465  473
445  VZSP1A     24
446  VZSP2A     25
447  VZSP3A     26
448  VZSP4A     27
449  VZSP5A     28
450  VZSP6A     29
451  VZSP7A     30
```

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  0   VZSPA      11
477   VZSPA1    468
426   X         478   479   490   504   505   509   510   513   514
                516   522   523   524   525
```

```
000000 A     1 VORTEX SET     0              PUT LAST FOR VORTEX                                    07 00001
             2 *                                                                                    07 00002
             3 ***************************************************************************        07 00003
             4 *                                                                         *          07 00004
             5 *              R E E N T R A N T   R U N - T I M E   I / O                *          07 00005
             6 *                                                                         *          07 00006
             7 * NAME: SOFTWARE: V$RERS                                                  *          07 00007
             8 *        FIRMWARE: V$RERF                                                 *          07 00008
             9 *                                                                         *          07 00009
            10 *       BITS IN FLAG WORD 'VORTEX' ARE DEFINED THUS:                      *          07 00010
            11 *                                                                         *          07 00011
            12 *       BIT 0: SET FOR VORTEX II                                          *          07 00012
            13 *       BIT 1: SET IF V$RERR IN NUCLEUS                                   *          07 00013
            14 *       BIT 2: SET IF WCS AVAILABLE                                       *          07 00014
            15 *                                                                         *          07 00015
            16 *                                                                         *          07 00016
            17 ***************************************************************************        07 00017
000000 A    19 WCS     SET     VORTEX/4       SET WCS=BIT 2 OF VORTEX                  FG 07 00019
000000 A    20 NUC     SET     WCS*4                                                   FG 07 00020
000000 A    21 VII     SET     VORTEX-NUC                                              FG 07 00021
000000 A    22 NUC     SET     VII/2          SET NUC=BIT 1 OF VORTEX                  FG 07 00022
000000 A    23 VII     SET     VII-NUC-NUC    SET VII=BIT 0 OF VORTEX                  FG 07 00023
            25         IFF     WCS                                                             07 00025
            26         TITLE   V$RERS         SOFTWARE NAME                                    07 00026
            27         IFT     WCS                                                             07 00027
            28         TITLE   V$RERF         FIRMWARE NAME                                    07 00028
            30 ***********                                                                     07 00030
            31 * ENTRIES *                                                                     07 00031
            32 ***********                                                                     07 00032
            33         NAME    V$RERR         ALOC ENTRY                                       07 00033
            34         NAME    V$RER1         NON-ALOC ENTRY                                   07 00034
            35         NAME    V$RERN         V$RERR NUCLEUS FLAG                      V2      07 00035
            37         IFF     WCS                                                             07 00037
            38         NAME    V$RERS         SOFTWARE NAME                                    07 00038
            39         IFT     WCS                                                             07 00039
            40         NAME    V$RERF         FIRMWARE NAME                                    07 00040
000000 R    42 V$RERS  EQU     *              SOFTWARE NAME                                    07 00042
000000 R    43 V$RERF  EQU     *              FIRMWARE NAME                                    07 00043
            45         IFT     NUC                                                     FG      07 00045
            46 V$RERN  EQU     1              V$RERN = 1 IF V$RERR IN NUCLEUS          FG      07 00046
            47         IFF     NUC                                                     FG      07 00047
000000 A    48 V$RERN  EQU     0              V$RERN = 0 IF V$RERR IN OM               FG      07 00048
            50 *************                                                                   07 00050
            51 * EXTERNALS *                                                                   07 00051
            52 *************                                                                   07 00052
            53         EXT     SIFCB                                                           07 00053
            54         EXT     PIFCB                                                           07 00054
            55         EXT     LOFCB                                                           07 00055
            56         EXT     BIFCB                                                           07 00056
            57         EXT     BOFCB                                                           07 00057
            58         EXT     SSFCB                                                           07 00058
            59         EXT     GOFCB                                                           07 00059
            60         EXT     POFCB                                                           07 00060
            61         EXT     V$EXEC         VORTEX EXEC                                      07 00061
            63 ********************************                                                07 00063
            64 * VDM 620/I INSTRUCTION SYMBOLS *                                               07 00064
            65 ********************************                                                07 00065
000040 A    66 ARST    SET     040            A-REG BIT RESET                                  07 00066
000000 A    67 ASET    SET     0              A-REG BIT SET                                    07 00067
000002 A    68 B       SET     2              B-REGISTER                                       07 00068
000000 A    69 B0      SET     0                                                               07 00069
000001 A    70 B1      SET     1                                                               07 00070
000002 A    71 B2      SET     2                                                               07 00071
000003 A    72 B3      SET     3                                                               07 00072
000004 A    73 B4      SET     4                                                               07 00073
000005 A    74 B5      SET     5                                                               07 00074
000006 A    75 B6      SET     6                                                               07 00075
000014 A    76 B12     SET     12                                                              07 00076
000015 A    77 B13     SET     13                                                              07 00077
000016 A    78 B14     SET     14                                                              07 00078
000017 A    79 B15     SET     15                                                              07 00079
000046 A    80 MAP     SET     046            MAP DEVICE ADDRESS                       V2      07 00080
000001 A    81 X       SET     1              X-REGISTER                                       07 00081
            83 ************************                                                        07 00083
            84 * VORTEX LOW-CORE SYMBOLS *                                                     07 00084
            85 ************************                                                        07 00085
000300 A    86 LC      SET     0300                                                            07 00086
000420 A    87 MT      SET     0420                                                            07 00087
000472 A    88 BM17    SET     MT+42                                                           07 00088
000473 A    89 BM37    SET     MT+43                                                           07 00089
000474 A    90 BM77    SET     MT+44                                                           07 00090
000441 A    91 BR0     SET     MT+17                                                           07 00091
000442 A    92 BR1     SET     MT+18                                                           07 00092
000443 A    93 BR2     SET     MT+19                                                           07 00093
000444 A    94 BR3     SET     MT+20                                                           07 00094
000445 A    95 BR4     SET     MT+21                                                           07 00095
000446 A    96 BR5     SET     MT+22                                                           07 00096
000447 A    97 BR6     SET     MT+23                                                           07 00097
000450 A    98 BR7     SET     MT+24                                                           07 00098
000451 A    99 BR8     SET     MT+25                                                           07 00099
000454 A   100 BR11    SET     MT+28                                                           07 00100
000455 A   101 BR12    SET     MT+29                                                           07 00101
000457 A   102 BR14    SET     MT+31                                                           07 00102
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000460  A   103  BR15    SET     MT+32
000421  A   104  BS0     SET     MT+1
000422  A   105  BS1     SET     MT+2
000424  A   106  BS3     SET     MT+4
000425  A   107  BS4     SET     MT+5
000426  A   108  BS5     SET     MT+6
000425  A   109  D16     SET     BS4
000423  A   110  BS2     SET     MT+3
000430  A   111  BS7     SET     MT+8
000431  A   112  BS8     SET     MT+9
000432  A   113  BS9     SET     MT+10
000433  A   114  BS10    SET     MT+11
000434  A   115  BS11    SET     MT+12
000435  A   116  BS12    SET     MT+13
000437  A   117  BS14    SET     MT+15
000440  A   118  BS15    SET     MT+16
000451  A   119  BFD     SET     BR0+BF          RESET BF FLAG
000431  A   120  BFS     SET     BS0+BF          SET BF FLAG
000430  A   121  BXBIAS   SET     RS7             BINARY EXPONENT BIAS
000472  A   122  D15     SET     BM17
000465  A   123  FIVE    SET     MT+37
000015  A   124  FLF     SET     SH+LF           FCB LF FLAG
000423  A   125  FOUR    SET     MT+3
000016  A   126  FPD     SET     SH+PD           FCB PD FLAG
000457  A   127  FPDR    SET     BR0+FPD         RESET FCB PD FLAG
000437  A   128  FPDS    SET     BS0+FPD         SET FCB PD FLAG
000017  A   129  FRB     SET     SH+RB           FCB RB FLAG
000440  A   130  FRBS    SET     BS0+FRB         SET FCB RB FLAG
000014  A   131  FRM     SET     SH+RM           FCB RM FLAG
000430  A   132  GFS     SET     BS0+GF          SET GLOBAL FCB FLAG
000424  A   133  EIGHT   EQU     MT+4
000447  A   134  INR     SET     BR0+IN          RESET IN BIT
000427  A   135  INS     SET     BS0+IN          SET IN FLAG
000422  A   136  LFS     SET     BS0+LF          SET LF FLAG
000462  A   137  LHW     SET     MT+34
000470  A   138  NINE    SET     MT+40
000421  A   139  ONE     SET     MT+1
000443  A   140  PDR     SET     BR0+PD          RESET PD FLAG
000423  A   141  PDS     SET     BS0+PD          SET PD FLAG
000424  A   142  RBS     SET     BS0+RB          SET RB BIT
000463  A   143  RHW     SET     MT+35
000446  A   144  SCR     SET     BR0+SC          RESET SC BIT
000467  A   145  SEVEN   SET     MT+39
000466  A   146  SIX     SET     MT+38
000001  A   147  BR      SET     1               STACK B-REGISTER
000003  A   148  PR      SET     3               STACK P-REGISTER
000421  A   149  RMS     SET     BS0+RM          SET RM BIT
000426  A   150  SCS     SET     BS0+SC          SET SC BIT
000471  A   151  TEN     SET     MT+41
000464  A   152  THREE   SET     MT+36
000425  A   153  TRS     SET     BS0+TR          SET TR BIT
000422  A   154  TWO     SET     MT+2
000414  A   155  V$BVN   SET     LC+76           BOTTOM OF VORTEX NUCLEUS
000301  A   156  V$CPL   SET     LC+1            CURRENT PRIORITY LEVEL
000302  A   157  V$CRS   SET     LC+2            POINTER TO REENTRANT STACK
000355  A   158  V$DSTB  SET     LC+45
000316  A   159  V$LUP   SET     LC+14           1ST WORD OF BACKGROUND
000317  A   160  V$LLUP  SET     LC+15           LAST WORD OF BACKGROUND
000400  A   161  V$LUT1  SET     LC+64
000401  A   162  V$LUT2  SET     LC+65
000402  A   163  V$LUT3  SET     LC+66
000334  A   164  V$ST0   SET     LC+28           EXEC STATE 0
000335  A   165  V$ST1   SET     LC+29           EXEC STATE 1
000336  A   166  V$ST2   SET     LC+30           EXEC STATE 2
000337  A   167  V$ST3   SET     LC+31           EXEC STATE 3
000452  A   168  WRR     SET     BR0+WR          RESET WR BIT
000432  A   169  WRS     SET     BS0+WR          SET WR BIT
000420  A   170  ZERO    EQU     MT
            172  ********************
            173  * CHARACTER TYPE FLAGS *
            174  ********************
000000  A   175  AL      SET     0               ALPHA CHAR BIT(EXCEPT P)
000001  A   176  BL      SET     1               BLANK CHAR BIT
000002  A   177  CM      SET     2               ',' CHAR BIT
000003  A   178  LP      SET     3               '(' CHAR BIT
000004  A   179  MH      SET     4               '-' CHAR FLAG
000005  A   180  NM      SET     5               NUMERIC CHAR BIT
000006  A   181  PL      SET     6               '+' CHAR BIT
000007  A   182  PP      SET     7               'P' SCALE FACTOR
000010  A   183  PT      SET     8               '.' CHAR BIT
000011  A   184  QT      SET     9               ''' CHAR BIT
000012  A   185  RP      SET     10              ')' CHAR BIT
000013  A   186  SL      SET     11              '/' CHAR BIT
            187  ********************
            188  * READ/WRITE FLAGS *
            189  ********************
000000  A   190  RM      SET     0               RMD FLAG
000001  A   191  LF      SET     1               LOGICAL FILE FLAG
000002  A   192  PO      SET     2               BUFFER POSTING FLAG
000003  A   193  RD      SET     3               READ BEFORE WRITE FLAG
000014  A   194  CC      SET     15-WB           FCP CONTROL FLAG SHIFT
000004  A   195  TR      SET     4               TERMINATE FLAG
000005  A   196  SC      SET     5               SUPPRESS CLEAR
```

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000006 A   197 IN      SET     6          INITIALIZE FLAG                    V2  07 00197
000007 A   198 GF      SET     7          GLOBAL FCB FLAG                    V2  07 00198
000010 A   199 BF      SET     8          BUFFER FILL FLAG                   V2  07 00199
000400 A   200 BFA     SET     0400       BF ABS VALUE                           07 00200
000011 A   201 WR      SET     9          WRITE FLAG                         V2  07 00201
000012 A   202 EC      SET     10         ENCODE/DECODE FLAF                  PD 07 00202
000013 A   203 DA      SET     11         DIRECT ACCESS FLAG                  . 07 00203
           204                                                                   07 00204
           206 ************                                                   07 00206
           207 * STACK OPS *                                                  07 00207
           208 ************                                                   07 00208
000012 A   209 STKSZ   SET     10         STACK SIZE                             07 00209
000420 A   210 CXC     SET     ZERO       CALL EXEC FOR IOLINK                   07 00210
000421 A   211 CER     SET     ONE        CALL ERROR                             07 00211
000422 A   212 CEX     SET     TWO        CALL EXIT                              07 00212
000464 A   213 CIO     SET     THREE      CALL I/O                               07 00213
000423 A   214 CRB     SET     FOUR       CALL REENTRANT BLOCK                   07 00214
000465 A   215 CTR     SET     FIVE       TERMINATE                              07 00215
000005 A   216 CTRV    SET     5                                                 V2  07 00216
000466 A   217 CXF     SET     SIX        PARAMETER XFER                         V2  07 00217
000467 A   218 CBK     SET     SEVEN      BACKSPACE                              V2  07 00218
000424 A   219 CEF     SET     EIGHT      ENDFILE                                V2  07 00219
000470 A   220 CRW     SET     NINE       REWIND                                 V2  07 00220
000471 A   221 CRD     SET     TEN        READ                                   V2  07 00221
           222 *CWR    SET     ELEVEN     WRITE                                  V2  07 00222
           223 *CCL    SET     TWELVE     CLOSE FILE                             V2  07 00223
           224 *CCB    SET     THIRTEEN   CLOSE BLOCKED FILE                     V2  07 00224
           225 *COP    SET     FOURTEEN   OPEN FILE                              V2  07 00225
000016 A   226 COPV    SET     14                                                V2  07 00226
           227 *COB    SET     FIFTEEN    OPEN BLOCKED FILE                      V2  07 00227
000020 A   228 CDC     SET     16         DECODE                                  PD 07 00228
000021 A   229 CEN     SET     17         ENCODE                                  PD 07 00229
000022 A   230 CRA     SET     18         DIRECT ACCESS READ                         07 00230
           231 *CWA    SET     19         DIRECT ACCESS WRITE                        07 00231
           233 **********                                                        07 00233
           234 * MACROS *                                                       07 00234
           235 **********                                                        07 00235
           237 ************************************                              07 00237
           238 * ADD B-REF TO B-REF INTO B-REF *                                07 00238
           239 ************************************                              07 00239
           240 ADBBB   MAC                                                       07 00240
           241         LDA     P(1),B                                            07 00241
           242         ADD     P(2),B                                            07 00242
           243         STA     P(3),B                                            07 00243
           244         EMAC                                                      07 00244
           246 ************************                                          07 00246
           247 * DECREMENT/IN A/B-REF *                                         07 00247
           248 ************************                                          07 00248
           249 DAB     MAC                                                       07 00249
           250         LDA     P(1),B                                            07 00250
           251         DAR                                                       07 00251
           252         STA     P(1),B                                            07 00252
           253         EMAC                                                      07 00253
           255 ************************************                              07 00255
           256 * DECREMENT B-REF/IN A/TO B-REF *                                07 00256
           257 ************************************                              07 00257
           258 DABB    MAC                                                       07 00258
           259         LDA     P(1),B                                            07 00259
           260         DAR                                                       07 00260
           261         STA     P(2),B                                            07 00261
           262         EMAC                                                      07 00262
           264 ************************                                          07 00264
           265 * DECREMENT/IN A/X-REF *                                         07 00265
           266 ************************                                          07 00266
           267 DAX     MAC                                                       07 00267
           268         LDA     P(1),X                                            07 00268
           269         DAR                                                       07 00269
           270         STA     P(1),X                                            07 00270
           271         EMAC                                                      07 00271
           273 ************************************                              07 00273
           274 * MOVE B-REF OP TO B-REF OP THRU A *                             07 00274
           275 ************************************                              07 00275
           276 MOVBAB  MAC                                                       07 00276
           277         LDA     P(1),B                                            07 00277
           278         STA     P(2),B                                            07 00278
           279         EMAC                                                      07 00279
           281 ********************************                                  07 00281
           282 * MOVE B-REF TO X-REF THRU A *                                   07 00282
           283 ********************************                                  07 00283
           284 MOVBAX  MAC                                                       07 00284
           285         LDA     P(1),B                                            07 00285
           286         STA     P(2),X                                            07 00286
           287         EMAC                                                      07 00287
           289 ************************************                              07 00289
           290 * MOVE P-REF OP TO B-REF OP THRU A *                             07 00290
           291 ************************************                              07 00291
           292 MOVPAB  MAC                                                       07 00292
           293         LDA     P(1)                                              07 00293
           294         STA     P(2),B                                            07 00294
           295         EMAC                                                      07 00295
           297 ********************************                                  07 00297
           298 * MOVE P-REF/ THRU A/ TO X-REF *                                 07 00298
           299 ********************************                                  07 00299
```

```
                    300 MOVPAX  MAC                                                                 07 00300
                    301         LDA     P(1)                                                        07 00301
                    302         STA     P(2),X                                                      07 00302
                    303         EMAC                                                                07 00303
                    305 ********************************                                            07 00305
                    306 * MOVE X-REF TO B-REF THRU A *                                             07 00306
                    307 ********************************                                            07 00307
                    308 MOVXAB  MAC                                                                 07 00308
                    309         LDA     P(1),X                                                      07 00309
                    310         STA     P(2),B                                                      07 00310
                    311         EMAC                                                                07 00311
                    313 ********************************                                            07 00313
                    314 * MOVE X-REF TO X-REF THRU A *                                             07 00314
                    315 ********************************                                            07 00315
                    316 MOVXAX  MAC                                                                 07 00316
                    317         LDA     P(1),X                                                      07 00317
                    318         STA     P(2),X                                                      07 00318
                    319         EMAC                                                                07 00319
                    321 ************                                                                FG 07 00321
                    322 * POP/JUMP *                                                               FG 07 00322
                    323 ************                                                                FG 07 00323
                    325 POPJ    MAC                                                                 FG 07 00325
                    326         IFF     WCS                                                         FG 07 00326
                    327         GOTO    WCS1                                                        FG 07 00327
                    328         DATA    0105065                                                     FG 07 00328
                    329         GOTO    WCS2                                                        FG 07 00329
                    330 WCS1    CONT                                                                FG 07 00330
                    331         JMP     POJ                                                         FG 07 00331
                    332 WCS2    CONT                                                                FG 07 00332
                    333         EMAC                                                                FG 07 00333
                    335 ****************                                                            V2 07 00335
                    336 * POP OP TO X *                                                            V2 07 00336
                    337 ****************                                                            V2 07 00337
                    338 POPX    MAC                                                                    07 00338
                    339         LDX     UPSTKP,B                                                       07 00339
                    340         INR     OPSTKP,B                                                    FG 07 00340
                    341         LDX     0,X                                                         FG 07 00341
                    342         EMAC                                                                   07 00342
                    344 ****************                                                            V2 07 00344
                    345 * PUSH P(1) *                                                              V2 07 00345
                    346 ****************                                                            V2 07 00346
                    347 PUSH    MAC                                                                    07 00347
                    348         INR     OPSTKP,B                                                       07 00348
                    349         LDX     OPSTKP,B                                                       07 00349
                    350         LDA     P(1)                                                           07 00350
                    351         STA     0,X                                                            07 00351
                    352         EMAC                                                                   07 00352
                    353 ************************************                                           07 00353
                    354 * PUSH OP ONTO VORTEX STACK *                                               07 00354
                    355 ************************************                                           07 00355
                    357 PUSHF   MAC                                                                    07 00357
                    358         LDX     ANRB,B                                                         07 00358
                    359         LDX     OPSTKP,X                                                       07 00359
                    360         DCR                                                                 FG 07 00360
                    361         STA     0,X                                                            07 00361
                    362         TXA                                                                 FG 07 00362
                    363         LDX     ANRB,B                                                      FG 07 00363
                    364         STA     OPSTKP,X                                                    FG 07 00364
                    365         EMAC                                                                   07 00365
                    367 ********************                                                           07 00367
                    368 * PUSH/JUMP TO P(1) *                                                        V2 07 00368
                    369 ********************                                                           07 00369
                    370 PUSHJ   MAC                                                                    07 00370
                    371         IFF     WCS                                                         FG 07 00371
                    372         GOTO    WCS1                                                        FG 07 00372
                    373         DATA    0105025                                                     FG 07 00373
                    374         DATA    P(1)                                                        FG 07 00374
                    375         GOTO    WCS2                                                        FG 07 00375
                    376 WCS1    CONT                                                                FG 07 00376
                    377         LDAI    P(1)                                                        V2 07 00377
                    378         JSR     POJ,X                                                          07 00378
                    379 WCS2    CONT                                                                FG 07 00379
                    380         EMAC                                                                   07 00380
                    382 ************************************                                           07 00382
                    383 * SUBTRACT B-REF MINUS B-REF *                                               07 00383
                    384 ************************************                                           07 00384
                    385 SUTBB   MAC                                                                    07 00385
                    386         LDA     P(1),B                                                         07 00386
                    387         SUB     P(2),B                                                         07 00387
                    388         EMAC                                                                   07 00388
                    390 ****************************************                                       07 00390
                    391 * SUBTRACT B-REF MINUS B-REF TO B-REF *                                      07 00391
                    392 ****************************************                                       07 00392
                    393 SUTBBB  MAC                                                                    07 00393
                    394         LDA     P(1),B                                                         07 00394
                    395         SUB     P(2),B                                                         07 00395
                    396         STA     P(3),B                                                         07 00396
                    397         EMAC                                                                   07 00397
                    399 ****************************************                                       07 00399
                    400 * SUBTRACT B-REF MINUS P-REF TO B-REF *                                      07 00400
                    401 ****************************************                                       07 00401
                    402 SUTBPB  MAC                                                                    07 00402
                    403         LDA     P(1),B                                                         07 00403
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            404          SUB      P(2)                                                          07 00404
            405          STA      P(3),B                                                        07 00405
            406          EMAC                                                                   07 00406
            408 ***************************                                                     07 00408
            409 * TEST NEGATIVE/IN A/B-REF *                                                    07 00409
            410 ***************************                                                     07 00410
            411 TNAB     MAC                                                                    07 00411
            412          LDA      P(1),B                                                        07 00412
            413          JAN      P(2)                                                          07 00413
            414          EMAC                                                                   07 00414
            416 ***************************                                                  V2 07 00416
            417 * TEST NEGATIVE/IN A/X-REF *                                                 V2 07 00417
            418 ***************************                                                  V2 07 00418
            419 TNAX     MAC                                                                 V2 07 00419
            420          LDA      P(1),X                                                     V2 07 00420
            421          JAN      P(2)                                                       V2 07 00421
            422          EMAC                                                                V2 07 00422
            424 ***************************                                                     07 00424
            425 * TEST NOT ZERO/IN A/B-REF *                                                    07 00425
            426 ***************************                                                     07 00426
            427 TNZAB    MAC                                                                    07 00427
            428          LDA      P(1),B                                                        07 00428
            429          JANZ     P(2)                                                          07 00429
            430          EMAC                                                                   07 00430
            432 ***************************                                                     07 00432
            433 * TEST POSITIVE/IN A/B-REF *                                                    07 00433
            434 ***************************                                                     07 00434
            435 TPAB     MAC                                                                    07 00435
            436          LDA      P(1),B                                                        07 00436
            437          JAP      P(2)                                                          07 00437
            438          EMAC                                                                   07 00438
            440 ******************************                                                  07 00440
            441 * TEST BIT/RESET/IN A/B-REF *                                                   07 00441
            442 ******************************                                                  07 00442
            443 TRAB     MAC                                                                    07 00443
            444          LDA      P(1),B                                                        07 00444
            445          BT       ARST+P(2),P(3)                                                07 00445
            446          EMAC                                                                   07 00446
            448 ***************************                                                     07 00448
            449 * TEST BIT/SET/IN A/B-REF *                                                     07 00449
            450 ***************************                                                     07 00450
            451 TSAB     MAC                                                                    07 00451
            452          LDA      P(1),B                                                        07 00452
            453          BT       ASET+P(2),P(3)                                                07 00453
            454          EMAC                                                                   07 00454
            456 ***************************                                                     07 00456
            457 * TEST ZERO/ IN A / B-REF *                                                     07 00457
            458 ***************************                                                     07 00458
            459 TZAB     MAC                                                                    07 00459
            460          LDA      P(1),B                                                        07 00460
            461          JAZ      P(2)                                                          07 00461
            462          EMAC                                                                   07 00462
            464 ************************                                                        07 00464
            465 * TEST ZERO/IN A/X-REF *                                                        07 00465
            466 ************************                                                        07 00466
            467 TZAX     MAC                                                                    07 00467
            468          LDA      P(1),X                                                        07 00468
            469          JAZ      P(2)                                                          07 00469
            470          EMAC                                                                   07 00470
            472 *********************                                                           07 00472
            473 * ZERO THRU A/B-REF *                                                           07 00473
            474 *********************                                                           07 00474
            475 ZAB      MAC                                                                    07 00475
            476          TZA                                                                    07 00476
            477          STA      P(1),B                                                        07 00477
            478          EMAC                                                                   07 00478
            479 *********************                                                           07 00479
            480 * ZERO X-REF THRU A *                                                           07 00480
            481 *********************                                                           07 00481
            482 ZAX      MAC                                                                    07 00482
            483          TZA                                                                    07 00483
            484          STA      P(1),X                                                        07 00484
            485          EMAC                                                                   07 00485
            486          EJEC                                                                   07 00486
            487 ****************************************************************************** 07 00487
            488 *                                                                            * 07 00488
            489 *                  B A S E - R E L A T I V E   S Y M B O L S                 * 07 00489
            490 *                                                                            * 07 00490
            491 ****************************************************************************** 07 00491
000001 A    493 LOC      SET      1                                                             07 00493
000001 A    494 AACC     SET      LOC              ADDRESS OF ACCUMULATOR ACC                V2 07 00494
000002 A    495 LOC      SET      LOC+1                                                      V2 07 00495
000002 A    496 ABSCB    SET      LOC              ADDRESS OF BUFFER SCB                     V2 07 00496
000003 A    497 LOC      SET      LOC+1                                                      V2 07 00497
000003 A    498 ACC      SET      LOC              4-WORD ACCUMULATOR                        V2 07 00498
000007 A    499 LOC      SET      LOC+4                                                      V2 07 00499
000007 A    500 ACHB     SET      LOC              ADDRESS OF DECIMAL DIGIT ARRAY            V2 07 00500
000010 A    501 LOC      SET      LOC+1                                                      V2 07 00501
000010 A    502 ADFCB    SET      LOC              DCB/FCB ADDRESS                           V2 07 00502
000011 A    503 LOC      SET      LOC+1                                                      V2 07 00503
000011 A    504 AFSCB    SET      LOC              ADDRESS OF FORMAT SCB                     V2 07 00504
000012 A    505 LOC      SET      LOC+1                                                      V2 07 00505
000012 A    506 AGPAR    SET      LOC              ADDRESS OF '(' GROUP BLOCK                V2 07 00506
```

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000013  A   507  LOC     SET     LOC+1
000110  A   508  AIBUF   SET     ISCB+1          LIST ITEM ADDRESS                                    V2  07  00507
000013  A   509  AISCB   SET     LOC             ADDRESS OF LIST ITEM SCB                             V2  07  00508
000014  A   510  LOC     SET     LOC+1                                                                V2  07  00509
000027  A   511  ALBF    SET     RSCB+1          ADDRESS OF LOGICAL BUFFER                            V2  07  00510
000014  A   512  ALOC    SET     LOC             ALOC ENTRY FLAG                                      V2  07  00511
000015  A   513  LOC     SET     LOC+1                                                                V2  07  00512
000015  A   514  ANPOJ   SET     LOC             ADDRESS OF V$FORTIO POP/JUMP                         V2  07  00513
000016  A   515  LOC     SET     LOC+1                                                                V2  07  00514
000016  A   516  ANPB    SET     LOC             ADDRESS OF V$FORTIO DATA BLOCK                       V2  07  00515
000017  A   517  LOC     SET     LOC+1                                                                V2  07  00516
000017  A   518  ADPSTK  SET     LOC             ADDRESS OF DP STACK                                  V2  07  00517
000020  A   519  LOC     SET     LOC+1                                                                V2  07  00518
000020  A   520  APBF    SET     LOC             ADDRESS OF PHYSICAL BUFFER                           V2  07  00519
000021  A   521  LOC     SET     LOC+1                                                                V2  07  00520
000021  A   522  ASCB    SET     LOC             SCAN BLOCK ADDRESS                                   V2  07  00521
000022  A   523  LOC     SET     LOC+1                                                                V2  07  00522
000022  A   524  ASFL    SET     LOC             '*' FLAG                                             V2  07  00523
000023  A   525  LOC     SET     LOC+1                                                                V2  07  00524
000023  A   526  ASYSDC  SET     LOC             ADDRESS OF SYSTEM DCB                                V2  07  00525
000024  A   527  LOC     SET     LOC+1                                                                V2  07  00526
000030  A   528  BCHAR   SET     BSCB+2          BUFFER CHARACTER                                     V2  07  00527
000031  A   529  BCODE   SET     BSCB+3          BUFFER CHARACTER CODE                                V2  07  00528
000024  A   530  BEXP    SET     LOC             BINARY EXPONENT                                      V2  07  00529
000025  A   531  LOC     SET     LOC+1                                                                V2  07  00530
000026  A   532  BFPT    SET     BSCB            BUFFER CHARACTER POINTER                             V2  07  00531
000025  A   533  BFWPT   SET     LOC             BUFFER WORD POINTER                                  V2  07  00532
000026  A   534  LOC     SET     LOC+1                                                                V2  07  00533
000026  A   535  BSCB    SET     LOC             BUFFER SCB                                           V2  07  00534
000032  A   536  LOC     SET     LOC+4                                                                V2  07  00535
000032  A   537  CHB     SET     LOC             DECIMAL DIGIT ARRAY                                  V2  07  00536
000050  A   538  LOC     SET     LOC+14                                                               V2  07  00537
000050  A   539  CHBPT   SET     LOC             CHB ARRAY POINTER                                    V2  07  00538
000051  A   540  LOC     SET     LOC+1                                                                V2  07  00539
000051  A   541  CHNHDR  SET     LOC             FCB CHAIN HEADER                                     V2  07  00540
000052  A   542  LOC     SET     LOC+1                                                                V2  07  00541
000052  A   543  COUNT   SET     LOC             COUNTER                                              V2  07  00542
000053  A   544  LOC     SET     LOC+1                                                                V2  07  00543
000053  A   545  CVFL    SET     LOC             CHARACTER VALIDITY FLAGS                             V2  07  00544
000054  A   546  LOC     SET     LOC+1                                                                V2  07  00545
000054  A   547  D       SET     LOC             FRACTIONAL FIELD WIDTH                               V2  07  00546
000055  A   548  LOC     SET     LOC+1                                                                V2  07  00547
000055  A   549  DEXP    SET     LOC             DECIMAL EXPONENT                                     V2  07  00548
000056  A   550  LOC     SET     LOC+1                                                                V2  07  00549
000056  A   551  DI      SET     LOC             WORKING FRACTIONAL FIELD WIDTH                       V2  07  00550
000057  A   552  LOC     SET     LOC+1                                                                V2  07  00551
000057  A   553  EDEXP   SET     LOC             EXPLICIT DECIMAL EXPONENT                            V2  07  00552
000060  A   554  LOC     SET     LOC+1                                                                V2  07  00553
000060  A   555  ERN     SET     LOC             ERROR NUMBER                                         V2  07  00554
000061  A   556  LOC     SET     LOC+1                                                                V2  07  00555
000064  A   557  FCHAR   SET     FSCB+2          FORMAT CHARACTER                                     V2  07  00556
000065  A   558  FCODE   SET     FSCB+3          FORMAT CHARACTER CODE                                V2  07  00557
000061  A   559  FDLKEY  SET     LOC             FIELD DESCRIPTOR KEY                                 V2  07  00558
000062  A   560  LOC     SET     LOC+1                                                                V2  07  00559
000062  A   561  FMPT    SET     FSCB            FORMAT STRING POINTER                                V2  07  00560
000063  A   562  FRMT    SET     FSCB+1          ADDRESS OF FORMAT STRING(0 IF NONE)                  V2  07  00561
000062  A   563  FRPT    SET     FSCB            FORMAT STRING CURRENT POINTER                        V2  07  00562
000062  A   564  FSCB    SET     LOC             FORMAT STRING SCB                                    V2  07  00563
000066  A   565  LOC     SET     LOC+4                                                                V2  07  00564
000066  A   566  GDRPC   SET     LOC             '(' GROUP DYNAMIC REPEAT COUNT                       V2  07  00565
000077  A   567  LOC     SET     LOC+9                                                                V2  07  00566
000071  A   568  GFRPT   SET     GDRPC+3         '(' GROUP FORMAT POINTER                             V2  07  00567
000074  A   569  GSRPC   SET     GDRPC+6         '(' GROUP STATIC REPEAT COUNT                        V2  07  00568
000111  A   570  ICHAR   SET     ISCB+2          LIST ITEM CHARACTER                                  V2  07  00569
000077  A   571  IDEXP   SET     LOC             IMPLICIT DECIMAL EXPONENT                            V2  07  00570
000100  A   572  LOC     SET     LOC+1                                                                V2  07  00571
000100  A   573  IFW     SET     LOC             INTEGER FIELD WIDTH                                  V2  07  00572
000101  A   574  LOC     SET     LOC+1                                                                V2  07  00573
000101  A   575  IIBSZ   SET     LOC             INDIVIDUAL ITEM BYTE SIZE                            V2  07  00574
000102  A   576  LOC     SET     LOC+1                                                                V2  07  00575
000102  A   577  IIWSZ   SET     LOC             INDIVIDUAL ITEM WORD SIZE                            V2  07  00576
000103  A   578  LOC     SET     LOC+1                                                                V2  07  00577
000103  A   579  INFL    SET     LOC             INITIAL ENTRY FLAG                                   V2*  07  00578
000104  A   580  LOC     SET     LOC+1                                                                V2  07  00579
000104  A   581  IOCONT  SET     LOC             V$IOC CONTROL WORD                                   V2  07  00580
000105  A   582  LOC     SET     LOC+1                                                                V2  07  00581
000105  A   583  IOLNK   SET     LOC             IOLINK CONTROL WORD                                  V2  07  00582
000106  A   584  LOC     SET     LOC+1                                                                V2  07  00583
000106  A   585  IOSTAT  SET     LOC             I/O STATUS                                           V2  07  00584
000107  A   586  LOC     SET     LOC+1                                                                V2  07  00585
000107  A   587  ISCB    SET     LOC             ITEM SCB                                             V2  07  00586
000110  A   588  LOC     SET     LOC+4                                                                V2  07  00587
000113  A   589  IIEMAD  SET     LOC             ADDRESS OF LIST ITEM                                 V2  07  00588
000114  A   590  LOC     SET     LOC+1                                                                V2  07  00589
000114  A   591  IIEMWC  SET     LOC             COUNT OF WORDS REMAINING IN ITEM                     V2  07  00590
000115  A   592  LOC     SET     LOC+1                                                                V2  07  00591
000115  A   593  ITMINC  SET     LOC             LIST ITEM WORD INCREMENT                             V2  07  00592
000116  A   594  LOC     SET     LOC+1                                                                V2  07  00593
000116  A   595  IIMODE  SET     LOC             LIST ITEM MODE                                       V2  07  00594
000117  A   596  LOC     SET     LOC+1                                                                V2  07  00595
000123  A   597  LGOV    SET     LRWC            LOGICAL RECORD OVERLAP                               V2  07  00596
000117  A   598  LISTFL  SET     LOC             LIST DATA XFER FLAG                                  V2  07  00597
000120  A   599  LOC     SET     LOC+1                                                                V2  07  00598
```

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000120 A  600 LNKCNT  SET   LOC          LINK COUNT                                        V2  07 00600
000121 A  601 LOC     SET   LOC+1                                                         V2  07 00601
000121 A  602 LRECNO  SET   LOC          LOGICAL RECORD NUMBER                             V2  07 00602
000122 A  603 LOC     SET   LOC+1                                                         V2  07 00603
000122 A  604 LRSZ    SET   LOC          LOGICAL RECORD SIZE                               V2  07 00604
000123 A  605 LOC     SET   LOC+1                                                         V2  07 00605
000123 A  606 LRWC    SET   LOC          LOGICAL RECORD REMAINING WORD COUNT               V2  07 00606
000124 A  607 LOC     SET   LOC+1                                                         V2  07 00607
000124 A  608 MOV     SET   LOC          MULTIPLY OVERFLOW SWITCH                          V2  07 00608
000125 A  609 LOC     SET   LOC+1                                                         V2  07 00609
000125 A  610 N       SET   LOC          H/T/X FIELD WIDTH                                 V2  07 00610
000126 A  611 LOC     SET   LOC+1                                                         V2  07 00611
000126 A  612 NFF     SET   LOC          NUMERIC FORMAT FIELD VALUE                        V2  07 00612
000127 A  613 LOC     SET   LOC+1                                                         V2  07 00613
000127 A  614 OPSTK   SET   LOC          OP STACK                                          V2  07 00614
000141 A  615 LOC     SET   LOC+STKSZ                                                     V2  07 00615
000000 A  616 OPSTKP  SET   0            OP STACK POINTER                                  FG  07 00616
000141 A  617 PARLV   SET   LOC          FORMAT '(' GROUP LEVEL COUNT                      V2  07 00617
000142 A  618 LOC     SET   LOC+1                                                         V2  07 00618
000142 A  619 PBRC    SET   LOC          PHYSICAL BUFFER RECORD COUNT                      V2  07 00619
000143 A  620 LOC     SET   LOC+1                                                         V2  07 00620
000143 A  621 PBSZ    SET   LOC          PHYSICAL BUFFER SIZE                              V2  07 00621
000144 A  622 LOC     SET   LOC+1                                                         V2  07 00622
000144 A  623 PBWC    SET   LOC          PHYSICAL BUFFER REMAINING WORD COUNT              V2  07 00623
000145 A  624 LOC     SET   LOC+1                                                         V2  07 00624
000145 A  625 PRECNO  SET   LOC          PHYSICAL RECORD NUMBER                            V2  07 00625
000146 A  626 LOC     SET   LOC+1                                                         V2  07 00626
000146 A  627 PRLINK  SET   LOC          PREVIOUS FCB LINK                                 V2  07 00627
000147 A  628 LOC     SET   LOC+1                                                         V2  07 00628
000147 A  629 PTFL    SET   LOC          '.' FLAG                                          V2  07 00629
000150 A  630 LOC     SET   LOC+1                                                         V2  07 00630
000150 A  631 QFL     SET   LOC          QUOTE FLAG                                        V2  07 00631
000151 A  632 LOC     SET   LOC+1                                                         V2  07 00632
000125 A  633 R       SET   N            REPEAT COUNT                                      V2  07 00633
000012 A  634 ROPSTP  SET   STKSZ        V$RERR OP STACK POINTER                           V2  07 00634
000151 A  635 RETURN  SET   LOC          RETURN ADDR/'END' ADDR/'ERR' ADDR                 PD  07 00635
000154 A  636 LOC     SET   LOC+3                                                         PD  07 00636
000154 A  637 RWFL    SET   LOC          FLAG WORD                                         V2  07 00637
000155 A  638 LOC     SET   LOC+1                                                         V2  07 00638
000155 A  639 S       SET   LOC          SCALE FACTOR                                      V2  07 00639
000156 A  640 LOC     SET   LOC+1                                                         V2  07 00640
000032 A  641 SAVE    SET   CHB          SAVE PARAMETERS                                   V2  07 00641
000156 A  642 SCF     SET   LOC          SCALE FACTOR FLAG                                 V2  07 00642
000157 A  643 LOC     SET   LOC+1                                                         V2  07 00643
000157 A  644 SGFL    SET   LOC          SIGN FLAG                                         V2  07 00644
000160 A  645 LOC     SET   LOC+1                                                         V2  07 00645
000160 A  646 SVRECN  SET   LOC          SAVE RECORD NO                                        07 00646
000161 A  647 LOC     SET   LOC+1                                                           07 00647
000162 A  648 SYSBF   SET   SYSDCB+1     ADDRESS OF SYSTEM BUFFER $BUF                     V2  07 00648
000161 A  649 SYSDCB  SET   LOC          SYSTEM DCB                                        V2  07 00649
000164 A  650 LOC     SET   LOC+3                                                         V2  07 00650
000164 A  651 TEMP    SET   LOC          TEMP STORE                                        V2  07 00651
000165 A  652 LOC     SET   LOC+1                                                         V2  07 00652
000165 A  653 TEMP1   SET   LOC          TEMP STORE                                            07 00653
000166 A  654 LOC     SET   LOC+1                                                           07 00654
000166 A  655 TERM    SET   LOC          PRODUCT TERM                                      V2  07 00655
000167 A  656 LOC     SET   LOC+1                                                         V2  07 00656
000167 A  657 UNIT    SET   LOC          I/O UNIT NUMBER                                   V2  07 00657
000170 A  658 LOC     SET   LOC+1                                                         V2  07 00658
000170 A  659 W       SET   LOC          FIELD WIDTH                                       V2  07 00659
000171 A  660 LOC     SET   LOC+1                                                         V2  07 00660
000171 A  661 WT      SET   LOC          WORKING VALUE OF W                                V2  07 00661
000172 A  662 LOC     SET   LOC+1                                                         V2  07 00662
000172 A  663 XFFL    SET   LOC          PARAMETER XFER ENABLE FLAG                        V2  07 00663
000173 A  664 LOC     SET   LOC+1                                                         V2  07 00664
000173 A  665 XFL     SET   LOC          EXPONENT FIELD NON-BLANK FLAG                     V2  07 00665
000174 A  666 LOC     SET   LOC+1                                                         V2  07 00666
000174 A  667 XFW     SET   LOC          EXPONENT FIELD WIDTH                              V2  07 00667
000175 A  668 LOC     SET   LOC+1                                                         V2  07 00668
000175 A  669 XSG     SET   LOC          EXPONENT SIGN FLAG                                V2  07 00669
000176 A  670 LOC     SET   LOC+1                                                         V2  07 00670
000176 A  671 ZFW     SET   LOC          LEADING ZERO FIELD WIDTH                          V2  07 00671
000177 A  672 LOC     SET   LOC+1                                                         V2  07 00672
000177 A  673 YYY     SET   LOC          END OF SAVE BLOCK                                 V2  07 00673
000177 A  674 AZER    SET   LOC          ASCII ZERO                                        V2  07 00674
000200 A  675 LOC     SET   LOC+1                                                         V2  07 00675
000200 A  676 BD14    SET   LOC          DECIMAL 14                                        V2  07 00676
000201 A  677 LOC     SET   LOC+1                                                         V2  07 00677
000201 A  678 BD120   SET   LOC          DECIMAL 120                                       V2  07 00678
000202 A  679 LOC     SET   LOC+1                                                         V2  07 00679
000202 A  680 BLNK1   SET   LOC          ASCII BLANK CHARACTER                             V2  07 00680
000203 A  681 LOC     SET   LOC+1                                                         V2  07 00681
000203 A  682 BLNK2   SET   LOC          ASCII BLANK WORD                                  V2  07 00682
000204 A  683 LOC     SET   LOC+1                                                         V2  07 00683
000204 A  684 ZZZ     SET   LOC          END OF DATA BLOCK                                 V2  07 00684
          685         EJEC                                                                  07 00685
          686 ********************************************************************************  07 00686
          687 *                                                                             *  07 00687
          688 *   P R O C E S S   A   F O R M A T   D E S C R I P T O R ( A I O )           *  07 00688
          689 *                                                                             *  07 00689
          690 * FUNCTION: TO PROCESS THE A FORMAT DESCRIPTOR: RAW                          *  07 00690
          691 *                                                                             *  07 00691
          692 * ENTRY: DIRECT FROM FRS                                                      *  07 00692
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                    693 *         WT = W = TOTAL FIELD WIDTH                                                    * 07 00693
                    694 *         IIBSZ = BYTE COUNT OF SINGLE LIST ITEM                                        * 07 00694
                    695 *         ITEMAD = ADDRESS OF LIST ITEM                                                 * 07 00695
                    696 *         RWFL(BIT WR) = 0 READ                                                         * 07 00696
                    697 *                      = 1 WRITE                                                        * 07 00697
                    698 *                                                                                       * 07 00698
                    699 * EXIT : INPUT : DIRECT TO FRS                                                         * 07 00699
                    700 *         OUTPUT: DIRECT TO FRS THRU OBC                                                * 07 00700
                    701 *                                                                                       * 07 00701
                    702 *****************************************************************************************  07 00702
000000  R   000000  704 AIN     EQU     *                                                                        07 00704
000000  R   000000  705 AOUT    EQU     *                                                                        07 00705
                    707         ZAB     AIBUF-1         SET LIST ITEM SCB(0) = 0 (BYTE COUNT)                    07 00707
000000 005001  A
000001 056107  A
                    708         MOVBAB  ITEMAD,AIBUF    SET LIST ITEM SCB(1) = ITEM ADDRESS                      07 00708
000002 016113  A
000003 056110  A
                    709         SUTBBB  WT,IIBSZ,COUNT      GET EXCESS CHAR COUNT WT-IIBSZ                       07 00709
000004 016171  A
000005 146101  A
000006 056052  A
                    710 ***************************                                                               07 00710
                    711 * SLEW THRU W-IIBSZ CHARS *                                                             07 00711
                    712 ***************************                                                               07 00712
                    713         MOVBAB  BLNK1,BCHAR     LOAD BLANK AS REPEAT CHARACTER              V2           07 00713
000007 016202  A
000010 056030  A
                    714         PUSHJ   RCH             REPEAT CHARACTER I/O                        V2           07 00714
000011 006010  A
000012 005176  R
000013 006505  A
000014 004774  R
                    715         TSAB    RWFL,WR,AIOL2       TEST IF INPUT OR OUTPUT                          07 00715
000015 016154  A
000016 006411  A
000017 000063  R
                    716 *********                                                                               07 00716
                    717 * INPUT *                                                                               07 00717
                    718 *********                                                                               07 00718
                    719 AIOL1   PUSHJ   CBC             INPUT BUFFER CHARACTER                      V2           07 00719
000020 006010  A
000021 000104  R
000022 006505  A
000023 004774  R
                    720         MOVBAB  BCHAR,ICHAR         MOVE CHAR FROM BUFF SCB TO ITEM SCB              07 00720
000024 016030  A
000025 056111  A
                    721         MOVBAB  AISCB,ASCB          SET SCB TO LIST ITEM                             07 00721
000026 016013  A
000027 056021  A
                    722         PUSHJ   PCH             PUT CHARACTER IN ITEM                       V2           07 00722
000030 006010  A
000031 003535  R
000032 006505  A
000033 004774  R
                    723         TNZAB   WT,AIOL1            LOOP TILL FIELD WIDTH WT EXHAUSTED               07 00723
000034 016171  A
000035 001016  A
000036 000020  R
                    724         SUTBBB  IISZ,W,COUNT        GET COUNT OF EXCESS CHARS IN ITEM                07 00724
000037 016101  A
000040 146170  R
000041 056052  A
000042 005311  A   725         DAR
000043 001004  A   726         JAN     FRS65           EXIT TO FRS IF LIST ITEM FILLED                          07 00726
000044 001067  R
                    727         MOVBAB  BLNK1,ICHAR     LOAD BLANK AS FILL CHARACTER                V2           07 00727
000045 016202  A
000046 056111  A
000047 016154  A   728         LDA     RWFL,B                                                                   07 00728
000050 110432  A   729         ORA     WRB             SET WRITE FLAG                              V2           07 00729
000051 056154  A   730         STA     RWFL,B                                                                   07 00730
                    731         PUSHJ   RCH             FILL OUT ITEM WITH BLANKS                   V2           07 00731
000052 006010  A
000053 005176  R
000054 006505  A
000055 004774  R
000056 016154  A   732         LDA     RWFL,B                                                                   07 00732
000057 150452  A   733         ANA     WRB             RESTORE I/O MODE TO READ                    V2           07 00733
000060 056154  A   734         STA     RWFL,B                                                                   07 00734
000061 001000  A   735         JMP     FRS65           AND RETURN TO FORMAT SCAN                                07 00735
000062 001067  R
                    736 **********                                                                              07 00736
                    737 * OUTPUT *                                                                              07 00737
                    738 **********                                                                              07 00738
                    739 AIOL2   MOVBAB  AISCB,ASCB          SET SCB TO LIST ITEM                                07 00739
000063 016013  A
000064 056021  A
                    740         PUSHJ   ICC             INPUT CHARACTER FROM LIST ITEM              V2           07 00740
000065 006010  A
000066 001743  R
000067 006505  A
```

```
000070 004774 R
                    741          MOVBAB   ICHAR,BCHAR          MOVE CHAR FROM LIST SCB TO BUFF SCB    07 00741
000071 016111 A
000072 056030 A
                    742          PUSHJ    OCB                 OUTPUT CHARACTER TO BUFFER/EXIT        V2  07 00742
000073 006010 A
000074 002635 R
000075 006503 A
000076 004774 R
000077 001000 A     743          JMP      AIOL2               LOOP TILL DONE                             07 00743
000100 000063 R
                    744          EJEC                                                                    07 00744
                    745 ********************************************************************************* 07 00745
                    746 *                                                                               * 07 00746
                    747 *       C A L L   N O N - R E E N T R A N T   B L O C K ( C A N )               * 07 00747
                    748 *                                                                               * 07 00748
                    749 * FUNCTION: TO RETURN TO V$FORTIO                                               * 07 00749
                    750 *                                                                               * 07 00750
                    751 * ENTRY: ALOC .NE. 0 IF V$RERR ENTERED BY ALOC                                 V2* 07 00751
                    752 *              .EQ. 0 IF V$RERR ENTERED BY DIRECT JUMP                          V2* 07 00752
                    753 *                                                                               * 07 00753
                    754 *         V$CRS = CURRENT REENTRANT STACK POINTER                               * 07 00754
                    755 *         V$CRS(PR) = LOCATION WHERE P-REG(RETURN ADDRESS) IS STORED            * 07 00755
                    756 *                                                                               * 07 00756
                    757 * EXIT : TO V$FORTIO POP/JUMP ADDRESS IN ANPOJ                                  * 07 00757
                    758 *                                                                               * 07 00758
                    759 *              VIA DEALOC IF ENTERED BY ALOC                                    V2* 07 00759
                    760 *              VIA DIRECT JUMP IF ENTERED BY DIRECT JUMP                        V2* 07 00760
                    761 *                                                                               V2* 07 00761
                    762 *       RETURN ADDRESSES IN V$FORTIO STACK SAVED IN V$RERR IF                   * 07 00762
                    763 *       VORTEX II CALL FROM BACKGROUND TO NUCLEUS.                              * 07 00763
                    764 *                                                                               * 07 00764
                    765 ********************************************************************************* 07 00765
000101 036015 A     767 CAN      LDX      ANPOJ,B             POINT X AT V$FORTIO POP/JUMP           V2  07 00767
                    769          IFF      NUC                                                        FG  07 00769
                    770          GOTO     NUC1                                                       FG  07 00770
                    771          SPAC                                                                FG  07 00771
                    772          IFT      VII                                                        FG  07 00772
                    773          GOTO     NUC2                                                       FG  07 00773
                    774          SPAC                                                                FG  07 00774
                    775          LDA      ALOC,B              GET ALOC ENTRY FLAG                    FG  07 00775
                    776          JANZ     CAN1                TEST VORTEX BACKGROUND CALL TO NUCLEUS FG  07 00776
                    777          SPAC                                                                FG  07 00777
                    778 ************************************                                            07 00778
                    779 * EXIT TO V$FORTIO VIA DIRECT JUMP *                                        FG  07 00779
                    780 ************************************                                            07 00780
                    781          SPAC                                                                FG  07 00781
                    782 NUC1     CONT                                                                FG  07 00782
000102 006705 A     783          IJMP     0,X                                                        FG  07 00783
000103 000000 A
                    784 NUC2     CONT                                                                FG  07 00784
                    786 ********************************                                            FG  07 00786
                    787 * EXIT TO V$FORTIO VIA DEALOC *                                            FG  07 00787
                    788 ********************************                                            FG  07 00788
000104 R            790 CAN1     EQU      *                                                          FG  07 00790
                    792          IFF      NUC                                                        FG  07 00792
                    793          GOTO     NUC1                                                       FG  07 00793
                    794          SPAC                                                                FG  07 00794
                    795          IFT      VII                                                        FG  07 00795
                    796          EME      MAP,V$ST2           SET EXEC STATE TO NO                   V2  07 00796
                    797          TBA                          SAVE B                                 V2  07 00797
                    798          LDB      V$CRS               POINT B AT ALOC STACK                  V2  07 00798
                    799          STX      PR,B                STORE POP/JUMP ADDR IN P-REG FIELD     V2  07 00799
                    800          SPAC                                                                FG  07 00800
                    801          IFF      VII                                                        FG  07 00801
                    802          GOTO     VII1                                                       FG  07 00802
                    803          SPAC                                                                FG  07 00803
                    804 ********************************                                            FG  07 00804
                    805 * V$RERR IS IN VORTEX II NUCLEUS *                                          FG  07 00805
                    806 ********************************                                            FG  07 00806
                    807          SPAC                                                                FG  07 00807
                    808          TAB                          RESTORE B                              V2  07 00808
                    809          LDXI     BASE                                                       V2  07 00809
                    810          DECR     1                                                          V2  07 00810
                    811          STA      ROPSTP,X            INITIALIZE COUNT TO -1                 V2  07 00811
                    812          LDX      OPSTKP,B                                                   V2  07 00812
                    813          SPAC                                                                FG  07 00813
                    814 ********************************************************************************* 07 00814
                    815 * LOOP TO FIND TOP OF RETURN ADDRESSES IN V$FORTIO STACK *                     FG  07 00815
                    816 ********************************************************************************* 07 00816
                    817          SPAC                                                                FG  07 00817
                    818          TXA                                                                 FG  07 00818
                    819 CAN1     SUB      AOPSTK,B                                                   FG  07 00819
                    820          JAP      CAN5                END OF STACK ?                         FG  07 00820
                    821          LDA      0,X                 NO. GET OP FROM STACK                  FG  07 00821
                    822          SUB      CEX                                                        V2  07 00822
                    823          JAZ      CAN5                DONT SAVE STACK WITH EXIT OP           V2  07 00823
                    824          LDA      0,X                 LOAD OP                                V2  07 00824
                    825          LSRA     6                                                          V2  07 00825
                    826          JANZ     CAN2                EXIT ON ADDRESS OP                     V2  07 00826
                    827          INCR     045                 BUMP POINTER                           FG  07 00827
                    828          JMP      CAN1                AND CONTINUE                           V2  07 00828
                    829          SPAC                                                                FG  07 00829
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                    830 ********************************************************************************** FG 07 00830
                    831 * TOP OF RETURN ADDRESS STACK FOUND - MOVE FROM V$FORTIO TO V$RERR *  FG 07 00831
                    832 ********************************************************************************** FG 07 00832
                    833         SPEC                                                                       FG 07 00833
                    834 CAN2    TXA                                                                        FG 07 00834
                    835         SUB     ADPSTK,B                                                        V2 07 00835
                    836         LDA                                                                        FG 07 00836
                    837         LDXI    PALE                                                            V2 07 00837
                    838         STA     ADPSTP,X        STORE STACK ITEM COUNT-1                           FG 07 00838
                    839         LDA                                                                        FG 07 00839
                    840         INCR    014             SET Y = -(STACK ITEM COUNT-1)                      FG 07 00840
                    841         ADD     ANDA,B                                                          V2 07 00841
                    842         ADDI    DPSTK+STKSZ                                                        FG 07 00842
                    843         TAB                     POINT B AT V$FOR/IO STACK                       V2 07 00843
                    844 CANL2   LDA     0,B             MOVE STACK ADDRESSES                            V2 07 00844
                    845         STAE    BASE+STKSZ-1,X                                                     FG 07 00845
                    846         JXZ     CAN5            EXIT AT END                                     V2 07 00846
                    847         INR                     BUMP POINTERS                                      FG 07 00847
                    848         INR                                                                        FG 07 00848
                    849         JMP     CANL2           LOOP TILL DONE                                  V2 07 00849
                    850 VII1    CONT                                                                       FG 07 00850
                    851 CAN5    DEALOC                  RETURN TO V$FORTIO VIA DEALOC                   V2 07 00851
                    852 NUC1    CONT                                                                       FG 07 00852
                    853         EJEC                                                                       07 00853
                    854 ********************************************************************************** 07 00854
                    855 *                                                                                  * 07 00855
                    856 *       C Y C L E   B U F F E R   C H A R A C T E R ( C B C )                      * 07 00856
                    857 *                                                                                  * 07 00857
                    858 * FUNCTION: TO HANDLE CHARACTER I/O FROM/TO BUFFER                                * 07 00858
                    859 *                                                                                  * 07 00859
                    860 * ENTRY: BUFFER SCB(0) = CURRENT CHAR COUNT                                       * 07 00860
                    861 *          RWFL(BIT WR) = 0 READ                                                V2 07 00861
                    862 *                       = 1 WRITE                                                 * 07 00862
                    863 *          WT = WIDTH REMAINING IN FORMAT FIELD                                    * 07 00863
                    864 *                                                                                  * 07 00864
                    865 * EXIT : RWFL(BIT WR) = 0 DIRECT TO ICC(INPUT)                                    V2* 07 00865
                    866 *                       = 1 DIRECT TO PCH(OUTPUT)                                 * 07 00866
                    867 *          WT = WT-1                                                               * 07 00867
                    868 *                                                                                  * 07 00868
                    869 ********************************************************************************** 07 00869
000104 036002 A     871 CBC     LDX     ASSCB,B                                                            07 00871
000105 076021 A     872         STX     ASCB,B          SET SCB TO BUFFER                                  07 00872
000106 015000 A     873         LDA     0,X             GET CURRENT CHAR COUNT                             07 00873
000107 006400 A     874         BT      ASCT+B0,CBC4        ON WORD BOUNDARY ?                             07 00874
000110 000115 R
                    875         PUSHJ   CDA             YES. GET NEXT BUFFER ADDRESS                    V2 07 00875
000111 006010 A
000112 001162 R
000113 006505 A
000114 004774 R
                    876 CBC4    DAB     WT              DECREMENT REMAINIG FIELD WIDTH                     07 00876
000115 016171 A
000116 005311 A
000117 056171 A
                    877         TRAB    RWFL,EC,CBC6    JUMP IF NOT ENCODE/DECODE                       PD 07 00877
000120 016154 A
000121 006452 A
000122 000127 R
000123 036152 A     878         LDX     RETURN+1,B                                                      PD 07 00878
000124 001040 A     879         JXZ     CBC6            NO COUNT ADDRESS                                PD 07 00879
000125 000127 R
000126 045000 A     880         INR     0,X             BUMP CHARACTER-PROCESSED COUNT                  PD 07 00880
                    881 CBC6    TRAB    RWFL,WR,ICC     READ: EXIT TO INPUT CHAR FROM BUFFER            PD 07 00881
000127 016154 A
000130 006451 A
000131 001743 R
000132 001000 A     882         JMP     PCH             WRITE: EXIT TO PUT CHAR IN BUFFER                  07 00882
000133 003535 R
                    883         EJEC                                                                       07 00883
                    884 ********************************************************************************** 07 00884
                    885 *                                                                                  * 07 00885
                    886 *                   C L E A R   B U F F E R ( C L B )                              * 07 00886
                    887 *                                                                                  * 07 00887
                    888 * FUNCTION: TO CLEAR A BUFFER                                                     * 07 00888
                    889 *                                                                                  * 07 00889
                    890 * ENTRY: FRMT = 0 IF UNFORMATTED                                                  * 07 00890
                    891 *          BFWPT = ADDRESS OF PREVIOUS BUFFER WORD                              V2 07 00891
                    892 *          LRWC = LOGICAL RECORD REMAING WORD COUNT                                * 07 00892
                    893 *          PBWC = PHYSICAL BUFFER REMAINING WORD COUNT                             * 07 00893
                    894 *                                                                                  * 07 00894
                    895 * EXIT : BUFFER = BLANKS ON FORMATTED I/O                                         * 07 00895
                    896 *                = 0 ON UNFORMATTED I/O                                            * 07 00896
                    897 *                                                                                  * 07 00897
                    898 ********************************************************************************** 07 00898
                    900 CLB     MOVBAB  LRWC,TEMP1                                                         07 00900
000134 016123 A
000135 056165 A
000136 146144 A     901         SUB     PBWC,B                                                             07 00901
000137 001004 A     902         JAN     CLB4            SET COUNT = MINIMUM(LRWC,PBWC)                     07 00902
000140 000143 R
                    903         MOVBAB  PBWC,TEMP1                                                         07 00903
000141 016144 A
000142 056165 A
```

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                    904 CLB4    TZAB    TEMP1,CLBX    EXIT IF COUNT=0                                    07 00904
000143 016165 A
000144 001010 A
000145 000167 R
                    905         TSAB    RWFL,RB,CLBX  DONT CLEAR IF READ-BEFORE-WRITE FLAG SET          07 00905
000146 016154 A
000147 006403 A
000150 000167 R
                    906         TZAB    FRMT,CLB8     CLEAR TO ZEROS ON UNFORMATTED                 V2   07 00906
000151 016063 A
000152 001010 A
000153 000155 R
000154 016203 A     907         LDA     BLNK2,B       CLEAR TO BLANKS ON FORMATTED                  V2   07 00907
000155 056164 A     908 CLB8    STA     TEMP,B                                                      V2   07 00908
000156 036025 A     909         LDX     BFWPT,B                                                     V2   07 00909
                    910 ****************                                                                07 00910
                    911 * FILL LOOP *                                                                   07 00911
                    912 ****************                                                                07 00912
000157 R            913 CLBLP   EQU     *                                                           V2   07 00913
000157 005144 A     914         IXR                   LOAD X AS BUFFER POINTER                      V2   07 00914
                    915         MOVBAX  TEMP,0        MOVE FILL WORD TO BUFFER                      V2   07 00915
000160 016164 A
000161 055000 A
000162 005041 A     916         TXA                                                                 V2   07 00916
000163 146025 A     917         SUB     BFWPT,B                                                     V2   07 00917
000164 146165 A     918         SUB     TEMP1,B                                                          07 00918
000165 001004 A     919         JAN     CLBLP         LOOP TILL DONE                                     07 00919
000166 000157 R
                    920 CLBX    POPJ                  EXIT                                          FG   07 00920
000167 001000 A
000170 004066 R
                    921         EJEC                                                                     07 00921
                    922 ********************************************************************************07 00922
                    923 *                                                                              * 07 00923
                    924 *                    C L O S E   F I L E ( C L S )                             * 07 00924
                    925 *                                                                              * 07 00925
                    926 * FUNCTION: TO PROCESS CALLS TO CLOSE AN RMD FILE                              * 07 00926
                    927 *                                                                              * 07 00927
                    928 * ENTRY: DIRECT FROM RBE                                                       * 07 00928
                    929 *        TEMP = OP = CCL CLOSE NORMAL RMD FILE                            V2* 07 00929
                    930 *                    CCB CLOSE BLOCKED(LOGICAL) FILE                      V2* 07 00930
                    931 *        RETURN = CALL SEQUENCE ADDRESS                                    * 07 00931
                    932 *        RETURN(5) = ADDRESS OF UPDATE/LEAVE CLOSE PARAMETER               * 07 00932
                    933 *                                                                          * 07 00933
                    934 * EXIT : FCB REMOVED FROM CHAIN                                           * 07 00934
                    935 *        BUFFER FLUSHED IF LOGICAL FILE                                    * 07 00935
                    936 *                                                                          * 07 00936
                    937 * ERRORS: ER4 IF U NOT ON CHAIN                                           * 07 00937
                    938 *                                                                          * 07 00938
                    939 ********************************************************************************07 00939
                    941 ******************                                                               07 00941
                    942 * SET UP CONTROL *                                                               07 00942
                    943 ******************                                                               07 00943
000171 010432 A     944 CLS     LDA     WRS           SET WRITE FLAG                                V2   07 00944
000172 056154 A     945         STA     RWFL,B                                                           07 00945
                    946 ****************************                                                     07 00946
                    947 * SEARCH FCB CHAIN FOR U *                                                     07 00947
                    948 ****************************                                                     07 00948
                    949         PUSHJ   SCH           SEARCH FCB CHAIN                              V2   07 00949
000173 006010 A
000174 005735 R
000175 006505 A
000176 004774 R
000177 001010 A     950         JAZ     ER4           ERROR 4/ FCB(U) NOT ON CHAIN /                     07 00950
000200 005467 R
                    951         PUSHJ   PRU           PROCESS FORTRAN UNIT NUMBER U                 V2   07 00951
000201 006010 A
000202 004162 R
000203 006505 A
000204 004774 R
000205 036016 A     952         LDX     ANRB,B                                                      V2   07 00952
                    953         MOVBAX  UNIT,IOCONT   INITIALIZE IOC CONTROL WORD                   V2   07 00953
000206 016167 A
000207 055104 A
000210 036010 A     954         LDX     ADFCB,B       POINT X AT FCB                                     07 00954
000211 015014 A     955         LDA     12,X                                                             07 00955
000212 006455 A     956         BT      ARST+FLF,CLS20      TEST FOR LOGICAL FILE                 V2   07 00956
000213 000241 R
000214 006454 A     957         BT      ARST+FRM,CLS20     AND RMD                                V2   07 00957
000215 000241 R
                    958 ************************                                                     V2   07 00958
                    959 * U IS RMD LOGICAL FILE *                                                   V2   07 00959
                    960 ************************                                                     V2   07 00960
000216 006456 A     961         BT      ARST+FPD,CLS10      ANY UNPOSTED DATA ?                   V2   07 00961
000217 000227 R
                    962         MOVBAX  PBSZ,0        YES. LOAD FCB(0) WITH PHYSICAL BUFF SIZE           07 00962
000220 016143 A
000221 055000 A
                    963         PUSHJ   PSB           AND POST BUFFER                               V2   07 00963
000222 006010 A
000223 004743 R
000224 006505 A
000225 004774 R
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000226 036010 A  964          LDX     FDFCB,B       RESTORE X                                  07 00964
                 965 CLS10    MOVBAX  BD120,0       SET FCB(0) = 120 WORDS              V2     07 00965
000227 016201 A
000230 055000 A
                 966          IZAB    LGOV,CLS15    LOGICAL RECORD OVERLAP ?                   07 00966
000231 016122 A
000232 001010 A
000233 000237 R
                 967          ADBBB   PRECNO,PBRC,PRECNO     YES. BUMP PHYSICAL RECORD NUMBER 07 00967
000234 016145 A
000235 126142 A
000236 056145 A
                 968 CLS15    MOVBAX  PRECNO,3      SET FCB(3) = PHYSICAL RECORD NUMBER        07 00968
000237 016145 A
000240 055003 A
                 969 ********************************                                         07 00969
                 970 * CALL IOC TO CLOSE FILE *                                             07 00970
                 971 ********************************                                         07 00971
000241 036151 A  972 CLS20    LDX     RETURN,B      POINT X AT CALL SEQUENCE                   07 00972
000242 035005 A  973          LDX     5,X           POINT X AT UPDATE/LEAVE PARAMETER          07 00973
000243 015000 A  974          LDA     0,X           GET UPDATE/LEAVE PARAMETER                 07 00974
000244 001010 A  975          JAZ     *+3                                                      07 00975
000245 000247 R
000246 010435 A  976          LDA     BS10          SET FLAG FOR UPDATE                        07 00976
000247 006110 A  977          OPAI    02400         MERGE IN IOC CLOSE SKELETON WORD    V2     07 00977
000250 003400 A
000251 116167 A  978          ORA     UNIT,B        OR IN LUN                                  07 00978
000252 036016 A  979          LDX     ANFB,B        POINT X AT VSFORTIO DATA BLOCK             07 00979
000253 055104 A  980          STA     IOCONT,X      STORE IOC CONTROL WORD IN VSFORTIO         07 00980
                 981          DAN     LNKCNT        DECREMENT LINK COUNT                       07 00981
000254 015120 A
000255 005311 A
000256 055120 A
000257 010464 A  982          LDA     CIO                                              V2     07 00982
000260 006505 A  983          JSR     PSU,X         CALL IOC                           V2     07 00983
000261 004774 R
000262 036010 A  984          LDX     ANFCB,B       POINT X AT FCB                             07 00984
                 985          TRBB    RWFL,LF,CLS30       LOGICAL FILE ?                       07 00985
000263 016154 A
000264 006441 A
000265 000270 R
                 986          MOVBAX  LRSZ,0        YES. RESTORE LOGICAL REC SIZE IN FCB(0)    07 00986
000266 016122 A
000267 055000 A
                 987 ********************************                                         07 00987
                 988 * TAKE FCB OFF CHAIN *                                                 07 00988
                 989 ********************************                                         07 00989
000270 015012 A  990 CLS30    LDA     10,X          GET FORWARD LINK                           07 00990
000271 036146 A  991          LDX     PRLINK,B                                                 07 00991
000272 055012 A  992          STA     10,X          HOOK TO PREVIOUS LINK                      07 00992
                 993 ********                                                                 07 00993
                 994 * EXIT *                                                                 07 00994
                 995 ********                                                                 07 00995
000273 010422 A  996          LDA     DEX                                                      07 00996
                 997          PUSHF                 PUSH EXIT DF ONTO VSFORTIO STACK           07 00997
000274 036016 A
000275 035000 A
000276 005344 A
000277 055000 A
000300 005041 A
000301 036016 A
000302 055000 A
000303 001000 A  998          JMP     CAN           EXIT TO VSFORTIO                           07 00998
000304 000101 R
                 999          SUBC
                1000 ********************************************************************************
                1001 *                                                                              *
                1002 *                4 - W O R D   D I V I D E   B Y   1 0 ( D E C )               *
                1003 *                                                                              *
                1004 * FUNCTION: TO DIVIDE A 4-WORD NUMBER BY 10                                    *
                1005 *                                                                              *
                1006 * ENTRY: ACC = DIVIDEND                                                       *
                1007 *                                                                              *
                1008 * EXIT : ACC = ACC/10                                                         *
                1009 *                                                                              *
                1010 ********************************************************************************
000305 005024 A 1012 D10      TBX                   LOAD X AS BASE REGISTER
000306 005001 A 1013          TZA                   CLEAR HIGH-ORDER WORD OF DIVIDEND
000307 025003 A 1014          DIV     ACC,X
000310 170471 A 1015          STA     TEMP          ACC(0)=ACC(0)/10
000311 065003 A 1016          STA     ACC,X
000312 025004 A 1017          DIV     ACC+1,X
000313 170471 A 1018          STA     TEMP          ACC(1)=(ACC(1)+REM(0))/10
000314 065004 A 1019          STA     ACC+1,X
000315 025005 A 1020          DIV     ACC+2,X
000316 170471 A 1021          STA     TEMP          ACC(2)=(ACC(2)+REM(1))/10
000317 065005 A 1022          STA     ACC+2,X
000320 025006 A 1023          DIV     ACC+3,X
000321 170471 A 1024          STA     TEMP          ACC(3)=(ACC(3)+REM(2))/10
000322 065006 A 1025          STA     ACC+3,X
000323 005042 A 1026          TXB                   RESTORE BASE REGISTER B
                1027          POPJ                  AND EXIT                                   FG
000324 001000 A
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000325 004066 R
                    1028          EJEC                                                                    07 01028
                    1029 ********************************************************************************* 07 01029
                    1030 *                                                                               * 07 01030
                    1031 *   P R O C E S S   D / E / F   O U T P U T   D E S C R I P T O R S             * 07 01031
                    1032 *                                                                               * 07 01032
                    1033 *                              ( D E F )                                        * 07 01033
                    1034 *                                                                               * 07 01034
                    1035 * FUNCTION: TO PROCESS OUTPUT UNDER THE FORMAT DESCRIPTORS:  SRDW.D            * 07 01035
                    1036 *                                                            SREW.D            * 07 01036
                    1037 *                                                            SRFW.D            * 07 01037
                    1038 *                                                            SRGW.D            * 07 01038
                    1039 *                                                                               * 07 01039
                    1040 * ENTRY:  A = INTEGER FIELD COUNT                                               * 07 01040
                    1041 *                                                                               * 07 01041
                    1042 * EXIT :  DIRECT TO ONF                                                         * 07 01042
                    1043 *          PTFL = 1 = '.' FLAG                                                  * 07 01043
                    1044 *          IF A.GE.0 IFW = A = INTEGER FIELD WIDTH                              * 07 01044
                    1045 *          IF A.LT.0 ZFW = -A = ZERO FILL FIELD WIDTH                           * 07 01045
                    1046 *                                                                               * 07 01046
                    1047 ********************************************************************************* 07 01047
000326 001004 A     1049 DEF      JAN      DEF4          IS A .GE. ZERO ?                                  07 01049
000327 000333 R
000330 056100 A     1050          STA      IFW,B         YES. STORE AS INTEGER FIELD WIDTH                 07 01050
000331 001000 A     1051          JMP      DEF8                                                            07 01051
000332 000336 R
000333 005211 A     1052 DEF4     CPA                    A NEGATIVE                                        07 01052
000334 005111 A     1053          IAR                                                                      07 01053
000335 056176 A     1054          STA      ZFW,B         LOAD LEADING ZERO FILL COUNT                      07 01054
000336 046147 A     1055 DEF8     INR      PTFL,B        D/E/F HAVE A '.'                                  07 01055
000337 001000 A     1056          JMP      ONF           EXIT TO OUTPUT NUMERIC FIELD                      07 01056
000340 002670 R
                    1057          EJEC                                                                    07 01057
                    1058 ********************************************************************************* 07 01058
                    1059 *                                                                               * 07 01059
                    1060 *     P R O C E S S   D / E   O U T P U T   D E S C R I P T O R S               * 07 01060
                    1061 *                                                                               * 07 01061
                    1062 *                              ( D E O )                                        * 07 01062
                    1063 *                                                                               * 07 01063
                    1064 * FUNCTION: TO PROCESS OUTPUT UNDER THE FORMAT DESCRIPTORS:  SRDW.D            * 07 01064
                    1065 *                                                            SREW.D            * 07 01065
                    1066 *                                                            SRGW.D            * 07 01066
                    1067 *                                                                               * 07 01067
                    1068 * ENTRY:  DIRECT FROM FRS                                                       * 07 01068
                    1069 *          TO DOUT FOR 'D' FORMAT DESCRIPTOR                                    * 07 01069
                    1070 *          TO EOUT FOR 'E' FORMAT DESCRIPTOR                                    * 07 01070
                    1071 *          TO EOUT FOR 'G' FORMAT DESCRIPTOR                                    * 07 01071
                    1072 *          S = SCALE FACTOR                                                     * 07 01072
                    1073 *                                                                               * 07 01073
                    1074 * EXIT :  DIRECT TO DEF                                                         * 07 01074
                    1075 *          A = S                                                                * 07 01075
                    1076 *          DEXP = DEXP - S = DECIMAL EXPONENT                                   * 07 01076
                    1077 *          XFL = 1 = EXPONENT FIELD FLAG                                        * 07 01077
                    1078 *          XFW = 4 = EXPONENT FIELD WIDTH                                       * 07 01078
                    1079 *          IF S .GT. 0, DT = MAX(0,DT-S+1)                                      * 07 01079
                    1080 *                                                                               * 07 01080
                    1081 ********************************************************************************* 07 01081
000341 R            1083 DOUT     EQU      *                                                               07 01083
000341 R            1084 EOUT     EQU      *                                                               07 01084
                    1085          MOVBAB   D,COUNT       SET SIGNIFICANT DIGIT COUNT TO D                  07 01085
000341 016054 A
000342 056052 A
                    1086          TZAB     S,DEO10       EXIT IF NO SCALE FACTOR                           07 01086
000343 016155 A
000344 001010 A
000345 000363 R
000346 001004 A     1087          JAN      DEO5                                                            07 01087
000347 000361 R
000350 046052 A     1088          INR      COUNT,B       SCALE FACTOR IS +. BUMP COUNT TO D+1              07 01088
000351 146054 A     1089          SUB      D,B                                                             07 01089
000352 005311 A     1090          DAR                                                                      07 01090
000353 001004 A     1091          JAN      DEO10         OK IF D.GE.S                                      07 01091
000354 000363 R
                    1092          MOVBAB   S,COUNT       OTHERWISE, GET S SIGNIFICANT DIGITS               07 01092
000355 016155 A
000356 056052 A
000357 001000 A     1093          JMP      DEO10                                                           07 01093
000360 000363 R
000361 126056 A     1094 DEO5     ADD      DT,B          SCALE FACTOR IS -. SET COUNT TO DT-S              07 01094
000362 056052 A     1095          STA      COUNT,B                                                         07 01095
                    1096 DEO10    PUSHJ    RND           ROUND DECIMAL FIELD                          V2   07 01096
000363 006010 A
000364 005617 R
000365 006505 A
000366 004774 R
000367 046173 A     1098          INR      XFL,B         'D' AND 'E' BOTH HAVE EXPONENT FIELDS             07 01098
                    1099          SUTBBB   DEXP,S,DEXP   SET DEXP = DEXP - S                               07 01099
000370 016055 A
000371 146155 A
000372 056055 A
                    1100          MOVPAB   FOUR,XFW      EXPONENT FIELD IS 4 CHARS WIDE                    07 01100
000373 010423 A
000374 056174 A
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000375 016155 A 1101          LDA     S,B                                                    07 01101
000376 001004 A 1102          JAN     DEF                                                    07 01102
000377 000326 R
000400 001010 A 1103          JAZ     DEF             S .GT. 0 ?                             07 01103
000401 000326 R
000402 016056 A 1104          LDA     DT,B            YES                                    07 01104
000403 146155 A 1105          SUB     S,B                                                    07 01105
000404 005111 A 1106          IAR                                                            07 01106
000405 001002 A 1107          JAP     *+3             SET DT = MAX(0,DT-S+1)                 07 01107
000406 000410 R
000407 005001 A 1108          TZA                                                            07 01108
000410 056056 A 1109          STA     DT,B                                                   07 01109
000411 016155 A 1110          LDA     S,B             EXIT WITH A = S                        07 01110
000412 001000 A 1111          JMP     DEF             PROCESS S                              07 01111
000413 000326 R
                1112          EJEC                                                           07 01112
                1113 ********************************************************************** 07 01113
                1114 *                                                                    * 07 01114
                1115 *   P R O C E S S   F   O U T P U T   D E S C R I P T O R ( F O U )  * 07 01115
                1116 *                                                                    * 07 01116
                1117 * FUNCTION: TO PROCESS OUTPUT UNDER THE FORMAT DESCRIPTOR: SRFW.D    * 07 01117
                1118 *                                                                    * 07 01118
                1119 * ENTRY:  DIRECT FROM FRS                                            * 07 01119
                1120 *         DEXP = DECIMAL EXPONENT                                    * 07 01120
                1121 *         S = SCALE FACTOR                                           * 07 01121
                1122 *                                                                    * 07 01122
                1123 * EXIT :  DIRECT TO DEF                                              * 07 01123
                1124 *         A = DEXP = DEXP+S                                          * 07 01124
                1125 *                                                                    * 07 01125
                1126 ********************************************************************** 07 01126
000414 R        1128 FOUT    EQU     *                                                      07 01128
000414 016155 A 1130          LDA     S,B             GET SCALE FACTOR                       07 01130
000415 126055 A 1131          ADD     DEXP,B          ADD DECIMAL EXPONENT                   07 01131
000416 126054 A 1132          ADD     J,B             ADD FRACTIONAL FIELD COUNT             07 01132
000417 056052 A 1133          STA     COUNT,B         STORE AS SIGNIFICANT DIGIT COUNT       07 01133
                1134          PUSHJ   RND             ROUND TO SIGNIFICANT DIGIT COUNT   V2  07 01134
000420 006010 A
000421 005617 R
000422 006505 A
000423 004774 R
000424 016055 A 1135          LDA     DEXP,B                                                 07 01135
000425 126155 A 1136          ADD     S,B             BUMP EXPONENT BY S                     07 01136
000426 056055 A 1137          STA     DEXP,B                                                 07 01137
000427 001000 A 1138          JMP     DEF             EXIT WITH INTEGER FIELD WIDTH IN A     07 01138
000430 000326 R
                1139          EJEC                                                           07 01139
                1140 ********************************************************************** 07 01140
                1141 *                                                                    * 07 01141
                1142 *                    F O R M A T   S C A N ( F R S )                 * 07 01142
                1143 *                                                                    * 07 01143
                1144 * FUNCTION: TO SCAN AND DECODE A FORMAT CHARACTER STRING             * 07 01144
                1145 *                                                                    * 07 01145
                1146 * ENTRY:  NO SPECIAL CONDITIONS                                      * 07 01146
                1147 *                                                                    * 07 01147
                1148 * EXIT :  FDLKEY = CONVERSION CODE ID KEY                            * 07 01148
                1149 *         TO DESCRIPTOR PROCESSOR FOR H/X/T (NO DATA XFER FROM LIST) * 07 01149
                1150 *         TO DESCRIPTOR PROCESSOR FOR OTHERS IF LIST NOT EXHAUSTED   * 07 01150
                1151 *         OTHERWISE EXIT TO V$FORTIO THRU GNL                    V2  * 07 01151
                1152 *                                                                    * 07 01152
                1153 * ERRORS: ER1 ON INVALID FORMAT STRING                               * 07 01153
                1154 *                                                                    * 07 01154
                1155 ********************************************************************** 07 01155
                1157 ****************
                1158 * INITIAL ENTRY *
                1159 ****************
                1160 FRS     ZAB     FRPT            CLEAR FORMAT STRING POINTER            07 01160
000431 005001 A
000432 056062 A
000433 056075 A 1161          STA     GSRPC+1,B       CLEAR LEVEL 2 GROUP REPEAT COUNT       07 01161
000434 056117 A 1162          STA     LISTFL,B        CLEAR LIST DATA XFER FLAG              07 01162
000435 056141 A 1163          STA     PARLV,B         CLEAR '(' GROUP LEVEL COUNT            07 01163
000436 056155 A 1164          STA     S,B             CLEAR SCALE FACTOR                     07 01164
000437 005101 A 1165          INCR    1                                                      07 01165
000440 056125 A 1166          STA     R,B             SET INITIAL '(' REPEAT COUNT TO 1      07 01166
                1167          PUSHJ   INF             INPUT NON-BLANK FORMAT CHARACTER   V2  07 01167
000441 006010 A
000442 002102 R
000443 006505 A
000444 004774 R
000445 006443 A 1168          BT      ARST+LP,ER1     ERROR 1/ 1ST FORMAT CHAR NOT '(' /     07 01168
000446 005472 R
                1169 ****************                                                       07 01169
                1170 * '(' ENTRY *                                                        07 01170
                1171 ****************                                                       07 01171
000447 046141 A 1172 FRS2    INR     PARLV,B         BUMP '(' LEVEL                         07 01172
000450 016141 A 1173          LDA     PARLV,B                                                07 01173
000451 140423 A 1174          SUB     FOUR                                                   07 01174
000452 001002 A 1175          JAP     ER1             ERROR 1/ MORE THAN 3 '(' LEVELS /      07 01175
000453 005472 R
000454 016012 A 1176          LDA     AGPAR,B                                                07 01176
000455 126141 A 1177          ADD     PARLV,B                                                07 01177
000456 005014 A 1178          TAX                     POINT X AT GROUP REPEAT COUNT          07 01178
000457 016125 A 1179          LDA     R,B             GET REPEAT COUNT                       07 01179
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000460 055000 A 1180          STA     0,X             STORE IN DYNAMIC GROUP REPEAT COUNT TABLE   07 01180
000461 055006 A 1181          STA     GSRPC-GDRPC,X   STORE IN STATIC GROUP REPEAT COUNT TABLE    07 01181
000462 016062 A 1182          LDA     FRPT,B          GET FORMAT CHARACTER POINTER                07 01182
000463 055003 A 1183          STA     GFRPT-GDRPC,X   SAVE IN GROUP TABLE                         07 01183
                1184 ********************************                                            07 01184
                1185 * INPUT NEXT FIELD DESCRIPTOR *                                            07 01185
                1186 ********************************                                            07 01186
                1188 ************************************************************          V2  07 01188
                1189 * ENABLE ALF/BLANK/NUM/',','(','-','*',')','/'/ *                          V2  07 01189
                1190 ************************************************************          V2  07 01190
000464 006010 A 1191 FRS5     LDAI    07077                                                   V2  07 01191
000465 007077 A
000466 056053 A 1192          STA     CVFL,B                                                  V2  07 01192
000467 005101 A 1193          INCR    1                                                           07 01193
000470 056125 A 1194          STA     R,B             SET REPEAT COUNT TO 1                       07 01194
                1195          ZAB     SCF             CLEAR SCALE FACTOR FLAG                     07 01195
000471 005001 A
000472 056156 A
000473 056054 A 1196          STA     D,B             CLEAR FRACTIONAL FIELD WIDTH                07 01196
000474 056022 A 1197          STA     ASFL,B          CLEAR '*' FLAG                              07 01197
000475 056150 A 1198          STA     QFL,B           CLEAR QUOTE FLAG                            07 01198
                1199 FRS10    ZAB     SGFL            CLEAR SIGN FLAG                             07 01199
000476 005001 A
000477 056157 A
                1200          PUSHJ   INF             INPUT NON-BLANK FORMAT CHARACTER        V2  07 01200
000500 006010 A
000501 002102 R
000502 006505 A
000503 004774 R
000504 156053 A 1201          ANA     CVFL,B          CHECK VALIDITY OF CHAR                      07 01201
000505 001010 A 1202          JAZ     ER1             ERROR 1/ ILLEGAL FORMAT CHAR /              07 01202
000506 005472 R
                1203 ************
                1204 * TEST CHAR *                                                             07 01203
                1205 ************                                                              07 01204
                                                                                                07 01205
000507 016065 A 1206          LDA     FCODE,B         RELOAD FORMAT CHARACTER CODE                07 01206
000510 006402 A 1207          BT      ASET+CM,FRS10       TEST FOR ','                            07 01207
000511 000476 R
000512 006403 A 1208          BT      ASET+LP,FRS2    TEST FOR '('                                07 01208
000513 000447 R
000514 006412 A 1209          BT      ASET+RP,FRS15   TEST FOR ')'                                07 01209
000515 000536 R
000516 006404 A 1210          BT      ASET+MN,FRS20   TEST FOR '-'                                07 01210
000517 000620 R
000520 006413 A 1211          BT      ASET+SL,FRS70   TEST FOR '/'                                07 01211
000521 001076 R
000522 006405 A 1212          BT      ASET+NM,FRS25       TEST FOR NUMERIC                        07 01212
000523 000627 R
000524 006400 A 1213          BT      ASET+AL,FRS35       TEST FOR ALPHA                          07 01213
000525 000672 R
000526 046150 A 1214          INR     QFL,B           MUST BE QUOTE. SET FLAG                     07 01214
                1215          MOVPAB  BR15,N          SET FIELD WIDTH TO MAX INTEGER              07 01215
000527 010460 A
000530 056125 A
000531 056171 A 1216          STQ     WT,B                                                    V2  07 01216
                1217          MOVPAB  EIGHT,FDLKEY    LOAD 'H' DESCRIPTOR KEY                     07 01217
000532 010424 A
000533 056061 A
000534 001000 A 1218          JMP     FRS60           EXIT                                        07 01218
000535 001054 R
                1219 ************
                1220 * ')' INPUT *                                                            07 01219
                1221 ************                                                              07 01220
                                                                                                07 01221
000536 016012 A 1222 FRS15    LDA     AGPAR,B                                                     07 01222
000537 126141 A 1223          SBD     PARLV,B                                                     07 01223
000540 005014 A 1224          TAX                     POINT X AT '(' GROUP REPEAT COUNT           07 01224
                1225          DAX     0               DECREMENT DYNAMIC '(' REPEAT COUNT          07 01225
000541 015000 A
000542 005311 A
000543 055000 A
000544 001016 A 1226          JANZ    FRS19           IS '(' GROUP FINISHED ?                     07 01226
000545 000614 R
                1227          DAB     PARLV           YES. DECREMENT '(' LEVEL                    07 01227
000546 016141 A
000547 005311 A
000550 056141 A
000551 001016 A 1228          JANZ    FRS75           CONTINUE SCAN IF NOT LAST ')'               07 01228
000552 001104 R
                1229 ************************                                                  07 01229
                1230 * PROCESS RIGHTMOST ')' *                                                 07 01230
                1231 ************************                                                  07 01231
                1232          ZAB     FDLKEY          DISABLE PXF MODE TEST                       07 01232
000553 005001 A
000554 056061 A
                1233          PUSHJ   GNL             GET ADDRESS OF NEXT LIST ITEM           V2  07 01233
000555 006010 A
000556 001550 R
000557 006505 A
000560 004774 R
                1234          SUTBBB  ITEMAD,ITMINC,ITEMAD    REINITIALIZE LIST CONTROL           07 01234
000561 016113 A
000562 146115 A
000563 056113 A
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                    1235          ADBBB   ITEMWC,ITMINC,ITEMWC                                                07 01235
000564 016114 A
000565 126115 A
000566 056114 A
                    1236          PUSHJ   RCL             RECYCLE LOGICAL BUFFER                      V2      07 01236
000567 006010 A
000570 005251 R
000571 006505 A
000572 004774 R
000573 016117 A 1237          LDA     LISTFL,B                                                            07 01237
000574 001010 A 1238          JAZ     ER1             ERROR 1/ NO DATA XFER DESCRIPTORS /                 07 01238
000575 005472 R
                    1239          ZAB     LISTFL          CLEAR LIST DATA XFER FLAG                           07 01239
000576 005001 A
000577 056117 A
000600 036012 A 1240          LDX     AGPAR,B                                                             07 01240
000601 005144 A 1241  IXR     IXR                     POINT X AT '(' LEVEL 1                              07 01241
000602 046141 A 1242          INR     PARLV,B         ALSO LEVEL COUNTER                                  07 01242
000603 015006 A 1243          LDA     GSRPC-GDRPC,X                                                       07 01243
000604 055000 A 1244          STA     0,X             RELOAD LEVEL 1 DYNAMIC REPEAT COUNT                 07 01244
000605 015007 A 1245          LDA     GSRPC-GDRPC+1,X                                                     07 01245
000606 001010 A 1246          JAZ     FRS19           IS THERE A 2ND LEVEL ?                              07 01246
000607 000614 R
000610 046141 A 1247          INR     PARLV,B         YES                                                 07 01247
000611 005144 A 1248          IXR                     USE 2ND '(' LEVEL                                   07 01248
000612 015006 A 1249          LDA     GSRPC-GDRPC,X       GET STATIC REPEAT COUNT                         07 01249
000613 055000 A 1250          STA     0,X             RELOAD DYNAMIC REPEAT COUNT                         07 01250
000614 015003 A 1251  FRS19   LDA     GFRPT-GDRPC,X                                                       07 01251
000615 056062 A 1252          STA     FRPT,B          BACK UP SCAN TO '('                                 07 01252
000616 001000 A 1253          JMP     FRS5            RESUME SCAN AFTER CORRESPONDING '('                 07 01253
000617 000464 R
                    1254  **************                                                                      07 01254
                    1255  * '-' INPUT *                                                                     07 01255
                    1256  **************                                                                      07 01256
000620 046157 A 1257  FRS20   INR     SGFL,B          SET SIGN FLAG                                       07 01257
                    1258          PUSHJ   INF             INPUT NON-BLANK FOLLOWING '-'               V2      07 01258
000621 006010 A
000622 002102 R
000623 006505 A
000624 004774 R
000625 006445 A 1259          BT      ARST+NM,ER1     ERROR 1/ NOT NUMERIC /                              07 01259
000626 005472 R
                    1260  ************************                                                            07 01260
                    1261  * NUMERIC CHAR INPUT *                                                           07 01261
                    1262  ************************                                                            07 01262
                    1263  FRS25   PUSHJ   IFF             INPUT NUMERIC FORMAT FIELD                  V2      07 01263
000627 006010 A
000630 002043 R
000631 006505 A
000632 004774 R
000633 006150 A 1264          ANAI    0211            ENABLE 'P'/'('/ALPHA                        V2      07 01264
000634 000211 A
000635 001010 A 1265          JAZ     ER1             ERROR 1/ ILLEGAL TERMINATOR /                       07 01265
000636 005472 R
000637 016065 A 1266          LDA     FCODE,B                                                             07 01266
000640 006447 A 1267          BT      ARST+PS,FRS30       TEST IF TERMINATOR IS 'P'                       07 01267
000641 000657 R
                    1268  ******************************                                                  07 01268
                    1269  * DESCRIPTOR HAS 'P' FIELD *                                                     07 01269
                    1270  ******************************                                                  07 01270
000642 046156 A 1271          INR     SCF,B           SET SCALE FACTOR FLAG                               07 01271
000643 016126 A 1272          LDA     NFF,B           GET SCALE FACTOR ABS VALUE IN A                     07 01272
000644 036157 A 1273          LDX     SGFL,B          GET SIGN FLAG IN X                                  07 01273
000645 001040 A 1274          JXZ     *+4                                                                 07 01274
000646 000651 R
000647 005211 A 1275          CPA                     NEGATE A IF SIGN FLAG SET                           07 01275
000650 005111 A 1276          IAR                                                                         07 01276
000651 056155 A 1277          STA     S,B             LOAD SCALE FACTOR S                                 07 01277
000652 006010 A 1278          LDAI    041                                                         V2      07 01278
000653 000041 A
000654 056053 A 1279          STA     CVFL,B          ENABLE ONLY NUMERIC/ALPHA                   V2      07 01279
000655 001000 A 1280          JMP     FRS10                                                               07 01280
000656 000476 R
                    1281  ********************************                                                07 01281
                    1282  * NUMERIC - NOT SCALE FACTOR *                                                   07 01282
                    1283  ********************************                                                07 01283
                    1284  FRS30   TNZAB   SGFL,ER1        ERROR 1/ '-' PRECEDES REPEAT COUNT /                07 01284
000657 016157 A
000660 001016 A
000661 005472 R
                    1285          MOVBAB  NFF,R           LOAD REPEAT COUNT                                   07 01285
000662 016126 A
000663 056125 A
000664 056171 A 1286          STA     WT,B            ALSO AS FIELD WIDTH FOR H/X                         07 01286
000665 016065 A 1287          LDA     FCODE,B                                                             07 01287
000666 006403 A 1288          BT      ASET+LP,FRS2    TEST FOR '('                                        07 01288
000667 000447 R
000670 006440 A 1289          BT      ARST+AL,ER1     ERROR 1/ TERMINATOR NOT ALPHA /                     07 01289
000671 005472 R
                    1290  ****************************                                                    07 01290
                    1291  * ALPHABETIC CHAR INPUT *                                                       07 01291
                    1292  ****************************                                                    07 01292
000672 R            1293  FRS35   EQU     *                                                           V2      07 01293
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000672 016064 A 1294          LDA     FCHAR,B       GET FORMAT DESCRIPTOR CHARACTER          V2  07 01294
                1295          IFF     NUC                                                    FG  07 01295
                1296          GOTO    NV2NUC                                                 FG  07 01296
                1297          IFT     VII                                                    FG  07 01297
                1298          ONE     MAP,V$ST0     SET EXEC STATE TO 00                     V2  07 01298
                1299 NV2NUC   CONT                                                           FG  07 01299
000673 006030 A 1300          LDXI    FRSJT-FRSCHT-1     GET TABLE COUNT IN X                V2  07 01300
000674 000012 A
000675 006145 A 1301 FRSL1    SUBE    FRSCHT,X                                               V2  07 01301
000676 001121 R
000677 001010 A 1302          JAZ     FRS40         MATCH ?                                      07 01302
000700 000706 R
                1303          IFF     NUC                                                    FG  07 01303
                1304          GOTO    NV2NUC                                                 FG  07 01304
                1305          IFT     VII                                                    FG  07 01305
                1306          GOTO    VIINUC                                                 FG  07 01306
                1307 NV2NUC   CONT                                                           FG  07 01307
000701 001040 A 1308          JXZ     ER1           ERROR 1/ ILLEGAL FORMAT CHAR /           V2  07 01308
000702 005472 R
                1309          GOTO    NV2NUC                                                 FG  07 01309
                1310 VIINUC   CONT                                                           FG  07 01310
                1311          JXZ     FRS39                                                  V2  07 01311
                1312 NV2NUC   CONT                                                           FG  07 01312
000703 005344 A 1313          DXR                   DROP TABLE COUNT                         V2  07 01313
000704 001000 A 1314          JMP     FRSL1         AND CONTINUE COMPARISON                      07 01314
000705 000675 R
                1315          IFF     NUC                                                    FG  07 01315
                1316          GOTO    NV2NUC                                                 FG  07 01316
                1317          IFF     VII                                                    FG  07 01317
                1318          GOTO    NV2NUC                                                 FG  07 01318
                1319 FRS39    ONE     MAP,V$ST3     SET EXEC STATE TO NN                     V2  07 01319
                1320          JMP     ER1                                                    V2  07 01320
                1321 NV2NUC   CONT                                                           FG  07 01321
000706 R        1322 FRS40    EQU     *                                                      V2  07 01322
                1323          IFF     NUC                                                    FG  07 01323
                1324          GOTO    NV2NUC                                                 FG  07 01324
                1325          IFT     VII                                                    FG  07 01325
                1326          ONE     MAP,V$ST3     SET EXEC STATE TO NN                     V2  07 01326
                1327 NV2NUC   CONT                                                           FG  07 01327
000706 005041 A 1328          TXA                                                            V2  07 01328
000707 056061 A 1329          STA     FDLKEY,B      SAVE AS DESCRIPTOR KEY                       07 01329
                1330 ********************************                                         07 01330
                1331 * SCAN BEYOND DESCRIPTOR LETTER *                                       07 01331
                1332 ********************************                                         07 01332
                1333          TZAB    SCF,FRS45     DOES DESCRIPTOR HAVE A SCALE FACTOR ?        07 01333
000710 016156 A
000711 001010 A
000712 000717 R
000713 016061 A 1334          LDA     FDLKEY,B      YES                                          07 01334
000714 140423 A 1335          SUB     FOUR                                                       07 01335
000715 001002 A 1336          JAP     ER1           ERROR 1/ ILLEGAL SCALE FACTOR /              07 01336
000716 005472 R
000717 016061 A 1337 FRS45    LDA     FDLKEY,B                                                   07 01337
000720 140424 A 1338          SUB     EIGHT                                                      07 01338
000721 001004 A 1339          JAN     FRS46                                                      07 01339
000722 000732 R
000723 140422 A 1340          SUB     TWO                                                        07 01340
000724 001016 A 1341          JANZ    FRS60         SCAN FINISHED FOR H/X                        07 01341
000725 001054 R
000726 016125 A 1342          LDA     R,B                                                        07 01342
000727 140422 A 1343          SUB     TWO                                                        07 01343
000730 001002 A 1344          JAP     ER1           ERROR 1/ 'T' DESCRIPTOR HAS REPEAT COUNT     07 01344
000731 005472 R
                1345 FRS46    PUSHJ   INF           INPUT NON-BLANK FORMAT CHARACTER         V2  07 01345
000732 006010 A
000733 002102 R
000734 006505 A
000735 004774 R
000736 006445 A 1346          BT      ARST+NM,ER1   ERROR 1/ NON-NUM AFTER DESCRIPTOR LETTER /   07 01346
000737 005472 R
                1347          PUSHJ   IFF           INPUT NUMERIC FIELD                      V2  07 01347
000740 006010 A
000741 002043 R
000742 006505 A
000743 004774 R
000744 016126 A 1348          LDQ     NFF,B                                                      07 01348
000745 056170 A 1349          STA     W,B           LOAD FIELD WIDTH W                           07 01349
000746 001010 A 1350          JAZ     ER1           ERROR 1/ ZERO FIELD WIDTH /                  07 01350
000747 005472 R
000750 016061 A 1351          LDA     FDLKEY,B                                                   07 01351
000751 140423 A 1352          SUB     FOUR                                                       07 01352
000752 001004 A 1353          JAN     FRS47         CONTINUE SCAN FOR D/E/F/G                    07 01353
000753 000761 R
000754 140423 A 1354          SUB     FOUR                                                       07 01354
000755 001004 A 1355          JAN     FRS50         NO FRACTIONAL D FIELD FOR I/L/A          V2  07 01355
000756 001000 R
000757 001000 A 1356          JMP     FRS60         SCAN FINISHED FOR T                          07 01356
000760 001054 R
000761 016065 A 1357 FRS47    LDA     FCODE,B                                                    07 01357
000762 006450 A 1358          BT      ARST+PT,ER1   ERROR 1/ TERMINATOR NOT '.' /                07 01358
000763 005472 R
                1359          PUSHJ   INF           INPUT NON-BLANK FORMAT CHARACTER         V2  07 01359
000764 006010 A
```

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000765 002102 R
000766 006505 A
000767 004774 R
000770 006445 A 1360          BT      ARST+NM,ER1     ERROR 1/ NON-NUMERIC AFTER LETTER /          07 01360
000771 005472 R
                1361          PUSHJ   IFF             INPUT NUMERIC FIELD                  V2      07 01361
000772 006010 A
000773 002043 R
000774 006505 A
000775 004774 R
000776 016126 A 1362          LDA     NFF,B                                                        07 01362
000777 056054 A 1363          STA     D,B             STORE DECIMAL FIELD WIDTH D                  07 01363
                1364 **********************************                                         07 01364
                1365 * DESCRIPTOR REQUIRES LIST ITEM *                                         07 01365
                1366 **********************************                                         07 01366
                1367 FRS50    PUSHJ   GNL             GET ADDRESS OF NEXT LIST ITEM/EXIT   V2      07 01367
001000 006010 A
001001 001550 R
001002 006505 A
001003 004774 R
001004 046117 A 1368          INR     LISTFL,B        SET LIST FLAG                                07 01368
                1369          MOVBAB  W,WT            SET WT=W                                     07 01369
001005 016170 A
001006 056171 A
                1370          MOVBAB  D,DT            SET DT=D                                     07 01370
001007 016054 A
001010 056056 A
                1371          ZAB     ACC             CLEAR ACCUMULATOR ACC                        07 01371
001011 005001 A
001012 056003 A
001013 056004 A 1372          STA     ACC+1,B                                                      07 01372
001014 056005 A 1373          STA     ACC+2,B                                                      07 01373
001015 056006 A 1374          STA     ACC+3,B                                                      07 01374
001016 056022 A 1375          STA     ASFL,B          CLEAR '*' FLAG                               07 01375
001017 056055 A 1376          STA     DEXP,B          CLEAR DECIMAL EXPONENT                       07 01376
001020 056100 A 1377          STA     IFW,B           CLEAR INTEGER FIELD WIDTH                    07 01377
001021 056147 A 1378          STA     PTFL,B          CLEAR '.' FLAG                               07 01378
001022 056157 A 1379          STA     SGFL,B          CLEAR SIGN FLAG                              07 01379
001023 056173 A 1380          STA     XFL,B           CLEAR EXPONENT FIELD FLAG                    07 01380
001024 056174 A 1381          STA     XFW,B           SET EXPONENT FIELD WIDTH TO ZERO             07 01381
001025 056176 A 1382          STA     ZFW,B           CLEAR ZERO FILL FIELD WIDTH                  07 01382
001026 056166 A 1383          STA     TERM,B          CLEAR TERMINATING DIGIT              V2      07 01383
                1384          MOVBAB  ABSCB,ASCB      SET SCB TO BUFFER                            07 01384
001027 016002 A
001030 056021 A
001031 016061 A 1385          LDA     FDLKEY,B                                                     07 01385
001032 140465 A 1386          SUB     FIVE                                                         07 01386
001033 001002 A 1387          JAP     FRS60           EXIT ON NON-NUMERIC DESCRIPTOR               07 01387
001034 001054 R
                1388 ************************                                                   07 01388
                1389 * NUMERIC DESCRIPTOR *                                                     07 01389
                1390 ************************                                                   07 01390
001035 005111 A 1391          IAR                                                                  07 01391
001036 056156 A 1392          STA     SCF,B           DISABLE SCALE FACTOR FOR I INPUT             07 01392
                1393          TSAB    RWFL,WR,FRS55       TEST READ OR WRITE               V2      07 01393
001037 016154 A
001040 006411 A
001041 001050 R
                1394 ********                                                                     07 01394
                1395 * READ *                                                                     07 01395
                1396 ********                                                                     07 01396
                1397          PUSHJ   IXN             INPUT EXTERNAL NUMERIC FIELD         V2      07 01397
001042 006010 A
001043 002126 R
001044 006505 A
001045 004774 R
001046 001000 A 1398          JMP     FRS60                                                        07 01398
001047 001054 R
                1399 *********                                                                    07 01399
                1400 * WRITE *                                                                    07 01400
                1401 *********                                                                    07 01401
                1402 FRS55    PUSHJ   GMI             GET NUMERIC LIST ITEM                V2      07 01402
001050 006010 A
001051 001244 R
001052 006505 A
001053 004774 R
                1403 ************************                                                   07 01403
                1404 * EXIT TO PROCESSOR *                                                     07 01404
                1405 ************************                                                   07 01405
001054 016061 A 1406 FRS60    LDA     FDLKEY,B                                                     07 01406
001055 004241 A 1407          LRLA    1                                                            07 01407
001056 005014 A 1408          TAX             SET X = DESCRIPTOR READ KEY                          07 01408
001057 016154 A 1409          LDA     RWFL,B                                                       07 01409
001060 150432 A 1410          ANA     WRS                                                  V2      07 01410
001061 003016 A 1411          XPNZ    IXR             BUMP KEY FOR WRITE                   V2      07 01411
001062 000601 R
                1412          IFF     NUC                                                    FG    07 01412
                1413          GOTO    NV2NUC                                                 FG    07 01413
                1414          IFT     VII                                                    FG    07 01414
                1415          OME     MAP,V$STO       SET EXEC STATE TO 00                 V2      07 01415
                1416 NV2NUC   CONT                                                           FG    07 01416
001063 006035 A 1417          LDXE    FRSJT,X         GET PROCESSOR ADDRESS FROM TABLE             07 01417
001064 001134 R
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                    1418          IFF     NUC                                                    FG 07 01418
                    1419          GOTO    NV2NUC                                                 FG 07 01419
                    1420          IFT     VII                                                    FG 07 01420
                    1421          OME     MAP,V$ST3     SET EXEC STATE TO NN                     V2 07 01421
                    1422 NV2NUC   CONT                                                           FG 07 01422
001065 006705 A     1423          IJMP    0,X           EXIT TO PROCESSOR                           07 01423
001066 000000 A
                    1424 **********************                                                    07 01424
                    1425 * TEST REPEAT COUNT *                                                    07 01425
                    1426 **********************                                                    07 01426
                    1427 FRS65    DAB     R             DECREMENT REPEAT COUNT                      07 01427
001067 016125 A
001070 005311 A
001071 056125 A
001072 001016 A     1428          JANZ    FRS50         REPEAT DESCRIPTOR R TIMES                   07 01428
001073 001000 R
001074 001000 A     1429          JMP     FRS85         THEN RESUME SCAN                            07 01429
001075 001110 R
                    1430 ****************                                                          07 01430
                    1431 * PROCESS '/' *                                                          07 01431
                    1432 ****************                                                          07 01432
                    1433 FRS70    PUSHJ   RCL           RECYCLE LOGICAL BUFFER                   V2 07 01433
001076 006010 A
001077 005251 R
001100 006505 A
001101 004774 R
001102 001000 A     1434          JMP     FRS5          AND SCAN FORWARD FOR NEXT DESCRIPTOR        07 01434
001103 000464 R
                    1435 ******************************                                          07 01435
                    1436 * PROCESS FIELD SEPARATOR *                                            07 01436
                    1437 ******************************                                          07 01437
                    1438 FRS75    PUSHJ   INF           GET TERMINATING CHARACTER                V2 07 01438
001104 006010 A
001105 002102 R
001106 006505 A
001107 004774 R
001110 016065 A     1439 FRS85    LDA     FCODE,B       GET CHAR CODE                               07 01439
001111 006402 A     1440          BT      ASET+CM,FRS5  TEST FOR ','                                07 01440
001112 000464 R
001113 006413 A     1441          BT      ASET+SL,FRS70 TEST FOR '/'                                07 01441
001114 001076 R
001115 006412 A     1442          BT      ASET+RP,FRS15 TEST FOR ')'                                07 01442
001116 000536 R
001117 001000 A     1443          JMP     FR1           ERROR 1/ ILLEGAL TERMINATOR /               07 01443
001120 005472 R
                    1444 ************************************                                      07 01444
                    1445 * TABLE OF VALID FORMAT SPEC CHARS *                                    07 01445
                    1446 ************************************                                      07 01446
       001121 R     1447 FRSCHT   EQU     *                                                      V2 07 01447
001121 177777 A     1448          DATA    -1            SRDW.D                                   V2 07 01448
001122 177777 A     1449          DATA    -1            SREW.D                                   V2 07 01449
001123 177777 A     1450          DATA    -1            SRFW.D                                   V2 07 01450
001124 177776 A     1451          DATA    -2            SRGW.D                                   V2 07 01451
001125 177757 A     1453          DATA    -021          RIW                                         07 01453
001126 000016 A     1455          DATA    016           RZW                                         07 01455
001127 000013 A     1456          DATA    013           RLW                                      V2 07 01456
001130 177771 A     1457          DATA    -7            RAW                                      V2 07 01457
001131 177760 A     1459          DATA    -020          NH...                                    V2 07 01459
001132 000004 A     1460          DATA    4             NX                                       V2 07 01460
001133 000324 A     1461          DATA    0324          TN                                       V2 07 01461
                    1463 ****************                                                          07 01463
                    1464 * JUMP TABLE *                                                           07 01464
                    1465 ****************                                                          07 01465
       001134 R     1466 FRSJT    EQU     *                                                         07 01466
001134 003565 R     1467          PZE     DIN                                                       07 01467
001135 000341 R     1468          PZE     DOUT                                                      07 01468
001136 003565 R     1469          PZE     EIN                                                       07 01469
001137 000341 R     1470          PZE     EOUT                                                      07 01470
001140 003565 R     1471          PZE     FIN                                                       07 01471
001141 000414 R     1472          PZE     FOUT                                                      07 01472
001142 003565 R     1473          PZE     GIN                                                       07 01473
001143 001604 R     1474          PZE     GOUT                                                      07 01474
001144 003565 R     1475          PZE     IIN                                                       07 01475
001145 002114 R     1476          PZE     IOUT                                                      07 01476
001146 006274 R     1477          PZE     ZIN                                                       07 01477
001147 006274 R     1478          PZE     ZOUT                                                      07 01478
001150 002432 R     1479          PZE     LIN                                                       07 01479
001151 002470 R     1480          PZE     LOUT                                                      07 01480
001152 000000 R     1481          PZE     AIN                                                       07 01481
001153 000000 R     1482          PZE     AOUT                                                      07 01482
001154 001636 R     1483          PZE     HIN                                                       07 01483
001155 001636 R     1484          PZE     HOUT                                                      07 01484
001156 006260 R     1485          PZE     XIN                                                       07 01485
001157 006260 R     1486          PZE     XOUT                                                      07 01486
001160 006034 R     1487          PZE     TIN                                                       07 01487
001161 006034 R     1488          PZE     TOUT                                                      07 01488
                    1490          EJEC                                                              07 01490
                    1491 ********************************************************************** 07 01491
                    1492 *                                                                      * 07 01492
                    1493 *                G E T   B U F F E R   A D D R E S S ( G B A )          * 07 01493
                    1494 *                                                                      * 07 01494
                    1495 * FUNCTION: TO GET ADDRESS OF NEXT BUFFER WORD, AND HANDLE CROSSING   * 07 01495
                    1496 *           OF LOGICAL AND PHYSICAL RECORD BOUNDARIES                  * 07 01496
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                    1497 *                                                                                  * 07 01497
                    1498 * ENTRY:  PBWC = COUNT OF WORDS REMAINING IN PHYSICAL BUFFER                        * 07 01498
                    1499 *         LRWC = COUNT OF WORDS REMAINING IN LOGICAL BUFFER                        * 07 01499
                    1500 *         BFWPT = ADDRESS OF PREVIOUS BUFFER WORD                                  * 07 01500
                    1501 *         RWFL(TR) = 1 ON TERMINATE CALL                                        V2* 07 01501
                    1502 *                                                                                  * 07 01502
                    1503 * EXIT :  IF PBWC .LE. 0                                                         V2* 07 01503
                    1504 *                 RCP CALLED TO RECYCLE PHYSICAL BUFFER                           V2* 07 01504
                    1505 *                                                                                 V2* 07 01505
                    1506 *         BFWPT = BFWPT+1                                                         V2* 07 01506
                    1507 *                                                                                 V2* 07 01507
                    1508 *         IF LRWC .LE. 0                                                          V2* 07 01508
                    1509 *                 LRECNO = LRECNO+1                                               V2* 07 01509
                    1510 *                 ALBF = BFWPT                                                    V2* 07 01510
                    1511 *                 LRWC = LRSZ                                                     V2* 07 01511
                    1512 *                 BFPT = 0                                                        V2* 07 01512
                    1513 *                 CLB CALLED ON WRITE IF TR=0                                     V2* 07 01513
                    1514 *                 PBWC = PBWC-1                                                   V2* 07 01514
                    1515 *                 LRWC = LRWC-1                                                   V2* 07 01515
                    1516 *                                                                                  * 07 01516
                    1517 ************************************************************************************ 07 01517
                    1519 ************************                                                           07 01519
                    1520 * TEST FOR END OF PHYSICAL BUFFER *                                                 07 01520
                    1521 ************************************                                               07 01521
001162 016144 A     1522 GBA     LDA     PBWC,B                                                             07 01522
001163 005311 A     1523          DAR                                                                       07 01523
001164 001002 A     1524          JAP     GBA50                                                             07 01524
001165 001175 R
                    1525          TSAB    RWFL,EC,GBA80                                                PD 07 01525
001166 016154 A
001167 006412 A
001170 001236 R
                    1526 ************************                                                           07 01526
                    1527 * END OF PHYSICAL BUFFER *                                                       07 01527
                    1528 ************************                                                           07 01528
                    1529          PUSHJ   RCP             RECYCLE PHYSICAL BUFFER                      V2  07 01529
001171 006010 A
001172 005313 R
001173 006505 A
001174 004774 R
                    1530 ************************************                                               07 01530
                    1531 * TEST FOR END OF LOGICAL RECORD *                                                07 01531
                    1532 ************************************                                               07 01532
001175 046025 A     1533 GBA50   INR     BFWPT,B         BUMP BUFFER WORD POINTER                          07 01533
001176 016123 A     1534          LDA     LRWC,B                                                            07 01534
001177 005311 A     1535          DAR                                                                       07 01535
001200 001002 A     1536          JAP     GBA70                                                             07 01536
001201 001226 R
                    1537 ************************                                                           07 01537
                    1538 * END OF LOGICAL RECORD *                                                         07 01538
                    1539 ************************                                                           07 01539
001202 046121 A     1540          INR     LRECNO,B        BUMP LOGICAL RECORD NUMBER                        07 01540
                    1541          MOVBAB  BFWPT,ALBF      UPDATE LOGICAL BUFFER ADDRESS                     07 01541
001203 016025 A
001204 056027 A
                    1542 GBA55   MOVBAB  LRSZ,LRWC       RELOAD REMAINING WORD COUNT                  PD 07 01542
001205 016122 A
001206 056123 A
                    1543          ZAB     BFPT            CLEAR BUFFER CHARACTER POINTER                    07 01543
001207 005001 A
001210 056026 A
                    1544          TRAB    RWFL,WR,GBA70       WRITE ?                                       07 01544
001211 016154 A
001212 006451 A
001213 001226 R
001214 006404 A     1545          BT      ASET+TR,GBA70       YES. TERMINATE ?                              07 01545
001215 001226 R
        001216 R    1546 GBA60   EQU     *                                                                 V2  07 01546
                    1547          DAB     BFWPT           NO. SET UP CLB                                V2  07 01547
001216 016025 A
001217 005311 A
001220 056025 A
                    1548          PUSHJ   CLB             CLEAR LOGICAL BUFFER                          V2  07 01548
001221 006010 A
001222 000134 R
001223 006505 A
001224 004774 R
001225 046025 A     1549          INR     BFWPT,B         RESTORE BFWPT                                 V2  07 01549
                    1550 ************************************                                               07 01550
                    1551 * DECREMENT REMAING WORD COUNTERS *                                               07 01551
                    1552 ************************************                                               07 01552
                    1553 GBA70   DAB     PBWC                                                              07 01553
001226 016144 A
001227 005311 A
001230 056144 A
                    1554          DAB     LRWC                                                              07 01554
001231 016123 A
001232 005311 A
001233 056123 A
                    1555          POPJ                    EXIT                                         FG 07 01555
001234 001000 A
001235 004066 R
                    1556 GBA80   MOVBAB  FBSZ,PBWC       RESET ENCODE/DECODE POINTERS                 PD 07 01556
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001236 016143 A
001237 056144 A
                1557          MOVBAB  ALBF,BFWPT                                                    PD 07 01557
001240 016027 A
001241 056025 A
001242 001000 A 1558          JMP     GBA55                                                       PD 07 01558
001243 001205 R
                1559          EJEC                                                                   07 01559
                1560 ********************************************************************************* 07 01560
                1561 *                                                                               * 07 01561
                1562 *                  G E T   N U M E R I C   I T E M ( G N I )                    * 07 01562
                1563 *                                                                               * 07 01563
                1564 * FUNCTION: TO GET A LIST ITEM AND CONVERT IT TO A CHAR STRING                   * 07 01564
                1565 *                                                                               * 07 01565
                1566 * ENTRY:  ITEMAD = ADDRESS OF LIST ITEM                                         * 07 01566
                1567 *         ITMODE = MODE OF LIST ITEM:                                           * 07 01567
                1568 *                = 0 1-WORD INTEGER/LOGICAL                                     * 07 01568
                1569 *                = 1 2-WORD INTEGER/LOGICAL                                     * 07 01569
                1570 *                = 2 REAL                                                       * 07 01570
                1571 *                = 3 DOUBLE PRECISION                                           * 07 01571
                1572 *                = 4 COMPLEX                                                    * 07 01572
                1573 *                > 5 DOUBLE PRECISION INTEGER                                   * 07 01573
                1574 *                                                                               * 07 01574
                1575 * EXIT :  CHB = FRACTIONAL PART(NORMALIZED STRING OF DECIMAL DIGITS)            * 07 01575
                1576 *         DEXP = DECIMAL EXPONENT(=1 IF CHB=0)                                  * 07 01576
                1577 *         SGFL =  0 POSITIVE ITEM                                               * 07 01577
                1578 *              = -1 NEGATIVE ITEM                                               * 07 01578
                1579 *                                                                               * 07 01579
                1580 * ERRORS: ER3 IF INTEGER ITEM = 2**15                                           * 07 01580
                1581 *                                                                               * 07 01581
                1582 ********************************************************************************* 07 01582
001244 036113 A 1584 GNI      LDX     ITEMAD,B        POINT X AT ITEM                                 07 01584
001245 015000 A 1585          LDA     0,X             GET 1ST WORD OF ITEM                            07 01585
001246 004317 A 1586          ASRA    15                                                              07 01586
001247 056157 A 1587          STA     SGFL,B          SAVE SIGN                                       07 01587
001250 016116 A 1588          LDA     ITMODE,B                                                        07 01588
001251 140422 A 1589          SUB     TWO                                                             07 01589
001252 001002 A 1590          JAP     GNI4            TEST FOR INTEGER LIST ITEM                      07 01590
001253 001270 R
                1591 ****************                                                                  07 01591
                1592 * INTEGER ITEM *                                                                 07 01592
                1593 ****************                                                                  07 01593
001254 015000 A 1594          LDA     0,X             GET INTEGER                                     07 01594
001255 001002 A 1595          JAP     GNI2                                                    V2      07 01595
001256 001263 R
001257 005211 A 1596          CPA                                                                     07 01596
001260 005111 A 1597          IAR                                                                     07 01597
001261 001004 A 1598          JAN     ER3             ERROR 3/ INVALID INTEGER /                      07 01598
001262 005470 R
001263 056003 A 1599 GNI2     STA     ACC,B           STORE IN ACC                            V2      07 01599
                1600          MOVPAB  D13,BEXP        LOAD INTEGER BIAS AS BINARY EXPONENT            07 01600
001264 010472 A
001265 056024 A
001266 001000 A 1601          JMP     GNI10                                                           07 01601
001267 001401 R
001270 005311 A 1602 GNI4     DAR                                                                     07 01602
001271 001010 A 1603          JAZ     GNI8            DOUBLE PRECISION #                              07 01603
001272 001324 R
001273 140422 A 1604          SUB     TWO             NO                                              07 01604
001274 001010 A 1605          JAZ     GNI9            TEST DP INTEGER                                 07 01605
001275 001347 R
                1606 **************                                                                    07 01606
                1607 * REAL ITEM *                                                                    07 01607
                1608 **************                                                                    07 01608
001276 015000 A 1609          LDA     0,X             GET 1ST WORD OF REAL ITEM                       07 01609
001277 001002 A 1610          JAP     *+3             CONVERT TO ABS                                  07 01610
001300 001302 R
001301 005211 A 1611          CPA                                                                     07 01611
001302 056164 A 1612          STA     TEMP,B          SAVE                                            07 01612
001303 015001 A 1613          LDA     1,X             GET 2ND WORD OF REAL ITEM                       07 01613
001304 150460 A 1614          ANA     =B15            CLEAR B15                               D.1     07 01614
001305 005024 A 1615          TBX                     LOAD X AS BASE REGISTER                         07 01615
001306 005012 A 1616          TAB                     2ND WORD TO B-REG                               07 01616
001307 015164 A 1617          LDA     TEMP,X          1ST WORD TO A-REG                               07 01617
001310 065164 A 1618          STB     TEMP,X          SAVE 2ND WORD                                   07 01618
001311 004507 A 1619          LASR    7               GET BINARY EXPONENT                             07 01619
001312 140430 A 1620          SUB     =XBIAS          UNBIAS IT                               V2      07 01620
001313 055024 A 1621          STA     BEXP,X          SAVE                                            07 01621
001314 065003 A 1622          STB     ACC,X           STORE 1ST MANTISSA WORD                         07 01622
001315 015164 A 1623          LDA     TEMP,X          RESTORE 2ND WORD                                07 01623
001316 005002 A 1624          TZB                     CLEAR B                                         07 01624
001317 004507 A 1625          LASR    7                                                               07 01625
001320 065004 A 1626          STB     ACC+1,X         SAVE                                            07 01626
001321 005042 A 1627          TXB                     RESTORE BASE REGISTER B                         07 01627
001322 001000 A 1628          JMP     GNI10                                                           07 01628
001323 001401 R
                1629 ************************                                                          07 01629
                1630 * DOUBLE PRECISION ITEM *                                                        07 01630
                1631 ************************                                                          07 01631
001324 015001 A 1632 GNI8     LDA     1,X             GET 1ST MANTISSA WORD                           07 01632
001325 004317 A 1633          ASRA    15                                                              07 01633
001326 056157 A 1634          STA     SGFL,B          GET SIGN                                        07 01634
001327 015001 A 1635          LDA     1,X             RELOAD WORD 1                                   07 01635
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001330 001002 A 1636          JAP     *+3             IS ITEM NEGATIVE ?                          V2  07 01636
001331 001333 R
001332 005211 A 1637          CPA                     YES. GET ABS VALUE                              07 01637
001333 056003 A 1638          STA     ACC,B           LOAD WORD 0 OF ACCUMULATOR                      07 01638
001334 015000 A 1639          LDA     0,X             GET BINARY EXPONENT                             07 01639
001335 140430 A 1640          SUB     BXBIAS          UNBIAS IT                                   V2  07 01640
001336 056024 A 1641          STA     BEXP,B          SAVE                                            07 01641
001337 015002 A 1642          LDA     2,X             GET WORD 2                                  D.1 07 01642
001340 150460 A 1643          ANA     BR15            CLEAR B15                                   D.1 07 01643
001341 056004 A 1644          STA     ACC+1,B                                                     D.1 07 01644
001342 015003 A 1645          LDA     3,X             GET WORD 3                                  D.1 07 01645
001343 150460 A 1646          ANA     BR15            CLEAR B15                                   D.1 07 01646
001344 056005 A 1647          STA     ACC+2,B                                                     D.1 07 01647
001345 001000 A 1648          JMP     GNI10                                                           07 01648
001346 001401 R
                    1649 ****************                                                              07 01649
                    1650 * DF INTEGER *                                                             07 01650
                    1651 ****************                                                              07 01651
001347 006010 A 1652 GNI9     LDAI    30                                                              07 01652
001350 000036 A
001351 056024 A 1653          STA     BEXP,B          LOAD BIAS IN BINARY EXPONENT                    07 01653
001352 015001 A 1654          LDA     1,X             GET 2ND WORD                                    07 01654
001353 150460 A 1655          ANA     BR15            CLEAR HIGH BIT                                  07 01655
001354 050000 A 1656          STA                                                                     07 01656
001355 056004 A 1657          STA     ACC+1,B         STORE                                           07 01657
001356 015000 A 1658          LDA     0,X             GET 1ST WORD                                    07 01658
001357 056003 A 1659          STA     ACC,B           SAVE                                            07 01659
001360 001002 A 1660          JAP     GNI10           NEGATIVE #                                      07 01660
001361 001401 R
001362 005211 A 1661          CPA                     YES. TAKE 1-COMP                                07 01661
001363 056003 A 1662          STA     ACC,B                                                           07 01662
001364 016004 A 1663          LDA     ACC+1,B                                                         07 01663
001365 007400 A 1664          ROF                                                                     07 01664
001366 001016 A 1665          JANZ    GNI9A           IS WORD 2 ZERO #                                07 01665
001367 001375 R
001370 046003 A 1666          INR     ACC,B           YES. 2-COMP WORD 1                              07 01666
001371 001001 A 1667          JOF     ER3             ERROR 3/INVALID NUMBER/                         07 01667
001372 005470 R
001373 001000 A 1668          JMP     GNI10                                                           07 01668
001374 001401 R
001375 005211 A 1669 GNI9A    CPA                     TAKE 2-COMP OF WORD 2                           07 01669
001376 005111 A 1670          IAR                                                                     07 01670
001377 150460 A 1671          ANA     BR15                                                            07 01671
001400 056004 A 1672          STA     ACC+1,B                                                         07 01672
                    1673 ****************                                                              07 01673
                    1674 * TEST FOR ZERO *                                                          07 01674
                    1675 ****************                                                              07 01675
001401 016003 A 1676 GNI10    LDA     ACC,B                                                           07 01676
001402 116004 A 1677          ORA     ACC+1,B                                                         07 01677
001403 116005 A 1678          ORA     ACC+2,B                                                         07 01678
001404 001016 A 1679          JANZ    GNIL1           IS ITEM = ZERO ?                                07 01679
001405 001412 R
001406 005101 A 1680          INCR    1               YES                                             07 01680
001407 056055 A 1681          STA     BEXP,B          YES. SET DECIMAL EXPONENT TO 1                  07 01681
001410 001000 A 1682          JMP     GNI50                                                           07 01682
001411 001527 R
                    1683 ************************************************************                  07 01683
                    1684 * CONVERT TO NORMALIZED FRACTION AND DECIMAL EXPONENT *                       07 01684
                    1685 ************************************************************                  07 01685
                    1686 GNIL1    PUSHJ   NRM             NORMALIZE MANTISSA                      V2  07 01686
001412 006010 A
001413 002564 R
001414 006505 A
001415 004774 R
001416 016024 A 1687          LDA     BEXP,B                                                          07 01687
001417 001010 A 1688          JAZ     GNI50           FINISHED IF BINARY EXPONENT = ZERO              07 01688
001420 001527 R
001421 001004 A 1689          JAN     GNI20                                                           07 01689
001422 001432 R
                    1690 ********************************                                            07 01690
                    1691 * (ACC,BEXP).GE.1 DIVIDE BY 10 *                                           07 01691
                    1692 ********************************                                            07 01692
001423 046003 A 1693          INR     BEXP,B          BUMP DECIMAL EXPONENT                           07 01693
                    1694          PUSHJ   D10             ACC = ACC/10                            V2  07 01694
001424 006010 A
001425 000305 R
001426 006505 A
001427 004774 R
001430 001000 A 1695          JMP     GNIL1           LOOP TILL DONE                                  07 01695
001431 001412 R
                    1696 ********************************                                            07 01696
                    1697 * (ACC,BEXP).LT.1 TEST IF .GE. .1 *                                         07 01697
                    1698 ********************************                                            07 01698
001432 120464 A 1699 GNI20    ADD     THREE                                                           07 01699
001433 001004 A 1700          JAN     GNI30           (ACC,BEXP) .LT. .1 IF BEXP .LT. -3              07 01700
001434 001506 R
001435 001016 A 1701          JANZ    GNI25           (ACC,BEXP) .GT. .1 IF BEXP .GT. -3              07 01701
001436 001475 R
001437 016055 A 1702          LDA     BEXP,B                                                          07 01702
001440 005311 A 1703          DAR                                                                     07 01703
001441 001002 A 1704          JAP     GNI25           DONT OSCILLATE                                  07 01704
001442 001475 R
001443 016003 A 1705          LDA     ACC,B                                                           07 01705
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001444 006140 A 1706          SUBI    063146                                          V2  07 01706
001445 063146 A
001446 001004 A 1707          JAN     GNI30       TEST WORD 0.LT..1                       07 01707
001447 001506 R
001450 001016 A 1708          JANZ    GNI25                                               07 01708
001451 001475 R
001452 016004 A 1709          LDA     ACC+1,B                                             07 01709
001453 006140 A 1710          SUBI    031463                                          V2  07 01710
001454 031463 A
001455 001004 A 1711          JAN     GNI30       TEST WORD 1.LT..1                       07 01711
001456 001506 R
001457 001016 A 1712          JANZ    GNI25                                               07 01712
001460 001475 R
001461 016005 A 1713          LDA     ACC+2,B                                             07 01713
001462 006140 A 1714          SUBI    014631                                          V2  07 01714
001463 014631 A
001464 001004 A 1715          JAN     GNI30       TEST WORD 2.LT..1                       07 01715
001465 001506 R
001466 001016 A 1716          JANZ    GNI25                                               07 01716
001467 001475 R
001470 016006 A 1717          LDA     ACC+3,B                                             07 01717
001471 006140 A 1718          SUBI    046315                                          V2  07 01718
001472 046315 A
001473 001004 A 1719          JAN     GNI30       TEST WORD 3.LT..1                       07 01719
001474 001506 R
                1720 ********************************************************            07 01720
                1721 * .1 .LE. (ACC,BEXP) .LT. 1 SHIFT ACC TO POSITION *                 07 01721
                1722 ********************************************************            07 01722
001475 005001 A 1723 GNI25    TZA                                                         07 01723
001476 146024 A 1724          SUB     BEXP,B                                              07 01724
001477 056052 A 1725          STA     COUNT,B     LOAD SHIFT COUNT                        07 01725
                1726          PUSHJ   SHA         SHIFT ACC TO POSITION               V2  07 01726
001500 006010 A
001501 005765 R
001502 006505 A
001503 004774 R
001504 001000 A 1727          JMP     GNI50                                               07 01727
001505 001527 R
                1728 ************************************                                07 01728
                1729 * (ACC,BEXP) .LT. .1 MULTIPLY BY 10 *                              07 01729
                1730 ************************************                                07 01730
                1731 GNI30    MOVPAB  FOUR,COUNT  SET SHIFT COUNT TO 4                    07 01731
001506 010423 A
001507 056052 A
001510 126024 A 1732          ADD     BEXP,B      BUMP BINARY EXPONENT BY 4               07 01732
001511 056024 A 1733          STA     BEXP,B                                              07 01733
                1734          PUSHJ   SHA         SHIFT ACC RIGHT 4                   V2  07 01734
001512 006010 A
001513 005765 R
001514 006505 A
001515 004774 R
                1735          PUSHJ   M10         ACC = ACC*10                        V2  07 01735
001516 006010 A
001517 002517 R
001520 006505 A
001521 004774 R
                1736          DAB     DEXP        DROP DECIMAL EXPONENT                   07 01736
001522 016055 A
001523 005311 A
001524 056055 A
001525 001000 A 1737          JMP     GNIL1       LOOP TILL DONE                          07 01737
001526 001412 R
                1738 ************************                                            07 01738
                1739 * GENERATE DECIMAL DIGITS *                                        07 01739
                1740 ************************                                            07 01740
                1741 GNI50    MOVBAB  ACHB,CHBPT  INITIALIZE CHB POINTER                  07 01741
001527 016007 A
001530 056050 A
001531 046124 A 1742          INR     MOV,B       SET MULTIPLY OVERFLOW FLAG              07 01742
                1743 GNIL2    PUSHJ   M10         ACC = ACC*10                        V2  07 01743
001532 006010 A
001533 002517 R
001534 006505 A
001535 004774 R
001536 036050 A 1744          LDX     CHBPT,B     POINT X AT ARRAY CHB                    07 01744
001537 055000 A 1745          STA     0,X         STORE DECIMAL DIGIT IN ARRAY CHB        07 01745
001540 005145 A 1746          INCR    045         BUMP ARRAY POINTER                      07 01746
001541 076050 A 1747          STX     CHBPT,B                                             07 01747
001542 146007 A 1748          SUB     ACHB,B                                              07 01748
001543 146200 A 1749          SUB     BD14,B                                          V2  07 01749
001544 001004 A 1750          JAN     GNIL2       LOOP TILL 14 DECIMAL DIGITS GENERATED   07 01750
001545 001532 R
                1751          POPJ                EXIT                                FG  07 01751
001546 001000 A
001547 004066 R
                1752          EJEC                                                        07 01752
                1753 ********************************************************************* 07 01753
                1754 *                                                                   * 07 01754
                1755 *          G E T   N E X T   L I S T   A D D R E S S ( G N L )      * 07 01755
                1756 *                                                                   * 07 01756
                1757 * FUNCTION: TO GET ADDRESS OF NEXT ITEM ON I/O LIST                 * 07 01757
                1758 *                                                                   * 07 01758
                1759 * ENTRY: ITEMAD = ADDRESS OF PREVIOUS LIST ITEM                     * 07 01759
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                    1760 *         ITMINC = WORD INCREMENT BETWEEN ELEMENTS OF LIST ITEM          * 07 01760
                    1761 *         ITEMWC = COUNT OF WORDS REMAINING IN LIST ITEM                 * 07 01761
                    1762 *                                                                        * 07 01762
                    1763 * EXIT :  ITEMAD = ITEMAD+ITMINC                                        * 07 01763
                    1764 *         IF ITEMWC.LE.0 EXIT TO USER PROGRAM                            * 07 01764
                    1765 *         ITEMWC = ITEMWC-ITMINC                                         * 07 01765
                    1766 *                                                                        * 07 01766
                    1767 ************************************************************************** 07 01767
                    1769 GNL     ADBBB   ITEMAD,ITMINC,ITEMAD    BUMP LIST ITEM ADDRESS            07 01769
001550 016113 A
001551 126115 A
001552 056113 A
001553 016114 A 1770         LDA     ITEMWC,B                                                  07 01770
001554 005311 A 1771         DAR                                                               07 01771
001555 001002 A 1772         JAP     GNL2            LIST ITEM FINISHED ?                      07 01772
001556 001577 R
001557 006010 A 1773         LDAI    GNL2            YES                                  V2   07 01773
001560 001577 R
001561 036000 A 1774         LDX     OPSTKP,B                                             V2   07 01774
001562 005344 A 1775         DXR                                                           FG   07 01775
001563 076000 A 1776         STX     OPSTKP,B                                              FG  07 01776
001564 055000 A 1777         STA     0,X             PUSH RETURN ADDRESS GNL2             V2   07 01777
001565 010422 A 1778         LDA     =EX                                                       07 01778
                    1779         PUSHF                   PUSH EXIT OP                          07 01779
001566 036016 A
001567 035000 A
001570 005344 A
001571 055000 A
001572 005041 A
001573 036016 A
001574 055000 A
001575 001000 A 1780         JMP     CAN             EXIT TO V$FORTIO                          07 01780
001576 000101 R
                    1781 GNL2    SUTBBR  ITEMWC,ITMINC,ITEMWC    DECREMENT LIST ITEM WORD COUNT    07 01781
001577 016114 A
001600 146115 A
001601 056114 A
                    1782         POPJ                    EXIT                             FG   07 01782
001602 001000 A
001603 004066 R
                    1783         EJEC                                                      07 01783
                    1784 ************************************************************************** 07 01784
                    1785 *                                                                        * 07 01785
                    1786 *   P R O C E S S   G   O U T P U T   D E S C R I P T O R ( G O U )      * 07 01786
                    1787 *                                                                        * 07 01787
                    1788 * FUNCTION: TO PROCESS OUTPUT UNDER THE G FORMAT DESCRIPTOR: SRGW.D      * 07 01788
                    1789 *                                                                        * 07 01789
                    1790 * ENTRY:  DIRECT FROM FRS                                               * 07 01790
                    1791 *         OUTPUT NUMBER IN (ACC,DEXP)                                    * 07 01791
                    1792 *         WT = W = TOTAL FIELD WIDTH                                     * 07 01792
                    1793 *         DT = D = FRACTIONAL FIELD WIDTH                                * 07 01793
                    1794 *                                                                        * 07 01794
                    1795 * EXIT :  DIRECT TO EOUT IF (ACC,DEXP) .LT. .1 OR .GE. 10**DT          * 07 01795
                    1796 *         OTHERWISE DIRECT TO ONE WITH                                   * 07 01796
                    1797 *                 DT = DT-DEXP                                           * 07 01797
                    1798 *                 IFW = DEXP                                             * 07 01798
                    1799 *                 XFW = 4                                                * 07 01799
                    1800 *                 XFL = 0                                                * 07 01800
                    1801 *                                                                        * 07 01801
                    1802 ************************************************************************** 07 01802
001604 016053 A 1804 GOUT    LDA     DEXP,B          GET DECIMAL EXPONENT                      07 01804
001605 001004 A 1805         JAN     EOUT            PROCESS AS 'E' IF DEXP .LT. ZERO          07 01805
001606 000341 R
001607 146054 A 1806         SUB     D,B                                                       07 01806
001610 005311 A 1807         DAR                                                               07 01807
001611 001002 A 1808         JAP     EOUT            PROCESS AS 'E' IF DEXP .GE. D             07 01808
001612 000341 R
                    1809         MOVBAB  DT,COUNT        LOAD SIGNIFICANT DIGIT COUNT          07 01809
001613 016056 A
001614 056052 A
                    1810         PUSHJ   RND             ROUND DECIMAL DIGIT STRING       V2   07 01810
001615 006010 A
001616 005617 R
001617 006505 A
001620 004774 R
001621 016056 A 1811         LDA     DT,B                                                      07 01811
001622 146055 A 1812         SUB     DEXP,B          DECREMENT FRACTIONAL FIELD                07 01812
001623 001004 A 1813         JAN     EOUT            PROCESS AS 'E' ON ROUNDING OVERFLOW       07 01813
001624 000341 R
001625 056056 A 1814         STA     DT,B                                                      07 01814
                    1815         MOVPAB  FOUR,XFW        SET EXPONENT FIELD WIDTH TO 4             07 01815
001626 010423 A
001627 056174 A
                    1816         ZAB     XFL             SET FLAG TO BLANK OUT EXPONENT FIELD      07 01816
001630 005001 A
001631 056173 A
                    1817         MOVBAB  DEXP,IFW        LOAD INTEGER FIELD WIDTH                  07 01817
001632 016055 A
001633 056100 A
001634 001000 A 1818         JMP     DEF             PROCESS AS 'F' DESCRIPTOR                 07 01818
001635 000326 R
                    1819         EJEC                                                      07 01819
                    1820 ************************************************************************** 07 01820
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                    1821 *                                                                                  * 07 01821
                    1822 *          P R O C E S S   H   D E S C R I P T O R ( H I O )                       * 07 01822
                    1823 *                                                                                  * 07 01823
                    1824 * FUNCTION: TO PROCESS THE FORMAT DESCRIPTORS                                       * 07 01824
                    1825 *                                                                                  * 07 01825
                    1826 *               NH..                                                               * 07 01826
                    1827 *               '...'                                                              * 07 01827
                    1828 *                                                                                  * 07 01828
                    1829 * ENTRY: N = FIELD WIDTH( = 2**15-1 FOR '...' DESCRIPTOR)                          * 07 01829
                    1830 *         HIN  : INPUT ENTRY                                                       * 07 01830
                    1831 *         HOUT : OUTPUT ENTRY                                                      * 07 01831
                    1832 *         QFL = 0 NH.. SPECIFIER                                                   * 07 01832
                    1833 *             = 1 '...' SPECIFIER                                                  * 07 01833
                    1834 *                                                                                  * 07 01834
                    1835 * EXIT : DIRECT TO FRS                                                              07 01835
                    1836 *                                                                                  * 07 01836
                    1837 ************************************************************************************ 07 01837
001636 R            1839 HIN     EQU      *                                                                  07 01839
001636 R            1840 HOUT    EQU      *                                                                  07 01840
                    1842         TZAB     QFL,HIO6      TEST IF H OR '...' DESCRIPTOR                        07 01842
001636 016150 A
001637 001010 A
001640 001677 R
                    1843 ********************                                                               07 01843
                    1844 * '...' SPECIFIER *                                                               07 01844
                    1845 ********************                                                               07 01845
001641 005311 A     1846         DAR                                                                        07 01846
001642 001010 A     1847         JAZ      HIO2         QFL = 2 ?                                           07 01847
001643 001647 R
001644 056150 A     1848         STA      QFL,B        YES. SET QFL = 1                                    07 01848
001645 001000 A     1849         JMP      HIO10         AND INPUT OVER 2ND QUOTE OF PAIR                   07 01849
001646 001707 R
                    1850 HIO2    MOVBAB   AFSCB,ASCB   SET SCB TO FORMAT STRING                            07 01850
001647 016011 A
001650 056021 A
                    1851         PUSHJ    ICC          INPUT FORMAT CHARACTER                        V2    07 01851
001651 006010 A
001652 001743 R
001653 006505 A
001654 004774 R
001655 006451 A     1852         BT       ARST+QT,HIO4      IS CHAR A QUOTE ?                              07 01852
001656 001674 R
                    1853         PUSHJ    ICC          YES. INPUT NEXT CHARACTER                     V2    07 01853
001657 006010 A
001660 001743 R
001661 006505 A
001662 004774 R
001663 006451 A     1854         BT       ARST+QT,FRS85 EXIT TO FORMAT SCAN ON SINGLE QUOTE                  07 01854
001664 001110 R
                    1855         DAB      FMPT          2 CONSECUTIVE QUOTES - BACK UP FORMAT PTR            07 01855
001665 016062 A
001666 005311 A
001667 056062 A
                    1856         TSAB     RWFL,WR,HIO15  READ ?                                              07 01856
001670 016154 A
001671 006411 A
001672 001725 R
001673 046150 A     1857         INR      QFL,B         YES. SET QFL = 2                                     07 01857
                    1858 HIO4    DAB      FMPT          BACK UP FORMAT POINTER                               07 01859
001674 016062 A
001675 005311 A
001676 056062 A
                    1859 ********************                                                               07 01859
                    1860 * NH.. SPECIFIER *                                                               07 01860
                    1861 ********************                                                               07 01861
                    1862 HIO6    DAB      N             DECREMENT FIELD WIDTH N                              07 01862
001677 016125 A
001700 005311 A
001701 056125 A
001702 001004 A     1863         JAN      FRS5          EXIT WHEN FIELD EXHAUSTED                            07 01863
001703 000464 R
                    1864         TSAB     RWFL,WR,HIO15                                               V2    07 01864
001704 016154 A
001705 006411 A
001706 001725 R
                    1865 *********                                                                          07 01865
                    1866 * INPUT *                                                                          07 01866
                    1867 *********                                                                          07 01867
                    1868 HIO10   PUSHJ    CBC           INPUT BUFFER CHARACTER                        V2    07 01868
001707 006010 A
001710 000104 R
001711 006505 A
001712 004774 R
                    1869         MOVBAB   AFSCB,ASCB    SET SCB TO FORMAT STRING                             07 01869
001713 016011 A
001714 056021 A
                    1870         MOVBAB   BCHAR,FCHAR   MOVE CHAR FROM BUFFER SCB TO FORMAT SCB              07 01870
001715 016030 A
001716 056064 A
                    1871         PUSHJ    PCH           PUT CHARACTER IN FORMAT STRING                 V2    07 01871
001717 006010 A
001720 003535 R
001721 006505 A
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001722 004774 R
001723 001000 A 1872          JMP     HIN             PROCESS NEXT CHAR                                   07 01872
001724 001636 R
                1873 **********                                                                            07 01873
                1874 * OUTPUT *                                                                            07 01874
                1875 **********                                                                            07 01875
                1876 HI015  MOVBAB  AFSCB,ASCB      SET SCB TO FORMAT STRING                               07 01876
001725 016011 A
001726 056021 A
                1877          PUSHJ   ICC           INPUT FORMAT CHARACTER                          V2     07 01877
001727 006010 A
001730 001743 R
001731 006505 A
001732 004774 R
                1878          MOVBAB  FCHAR,BCHAR   MOVE CHAR FROM FORMAT SCB TO BUFFER SCB                07 01878
001733 016064 A
001734 056030 A
                1879          PUSHJ   OCB           OUTPUT FORMAT CHARACTER TO BUFFER               V2     07 01879
001735 006010 A
001736 002635 R
001737 006505 A
001740 004774 R
001741 001000 A 1880          JMP     HOUT            PROCESS NEXT CHAR                                   07 01880
001742 001636 R
                1881          EJEC                                                                        07 01881
                1882 ********************************************************************************** 07 01882
                1883 *                                                                                    * 07 01883
                1884 *     I N P U T / C L A S S I F Y   C H A R A C T E R ( I C C )                      * 07 01884
                1885 *                                                                                    * 07 01885
                1886 * FUNCTION: TO INPUT AND CLASSIFY A CHARACTER FROM A STRING.                         * 07 01886
                1887 *                                                                                    * 07 01887
                1888 * ENTRY: ASCB = ADDRESS OF STRING CONTROL BLOCK SCB                                  * 07 01888
                1889 *                                                                                    * 07 01889
                1890 *              SCB(0): CURRENT CHARACTER COUNTER                                     * 07 01890
                1891 *              SCB(1): STRING START ADDRESS                                          * 07 01891
                1892 *                                                                                    * 07 01892
                1893 * EXIT : A = SCB(3) = CHARACTER CODE                                                  * 07 01893
                1894 *        SCB(2) = CHARACTER                                                          * 07 01894
                1895 *                                                                                    * 07 01895
                1896 ********************************************************************************** 07 01896
                1898 ************************                                                            07 01898
                1899 * GET CHAR FROM STRING *                                                             07 01899
                1900 ************************                                                            07 01900
001743 036021 A 1901 ICC    LDX     ASCB,B          POINT X AT SCB                                      07 01901
001744 015000 A 1902        LDA     0,X             GET CURRENT POINTER                                 07 01902
001745 045000 A 1903        INR     0,X             BUMP CURRENT POINTER                                07 01903
001746 007401 A 1904 SOF    SOF                                                                         07 01904
001747 004257 R 1905        LRLA    15              CONVERT BYTE TO WORD COUNT                          07 01905
001750 003004 A 1906        XAN     SOF             OVFL SET IF HIGH BYTE                               07 01906
001751 002340 R
001752 150460 A 1907        ANA     BR15            CLEAR SIGN BIT                                      07 01907
001753 125001 A 1908        ADD     1,X             ADD STRING START ADDRESS                            07 01908
001754 005014 A 1909        TAX                     POINT X AT WORD                                     07 01909
001755 015000 A 1910        LDA     0,X             GET WORD                                            07 01910
001756 003001 A 1911        XOF     LSRA8           RIGHT JUSTIFY BYTE                                  07 01911
001757 002042 R
001760 150463 A 1912        ANA     RHW             CLEAR HIGH BYTE                                     07 01912
001761 036021 A 1913        LDX     ASCB,B          POINT X AT SCB                                      07 01913
001762 055002 A 1914        STA     2,X             STORE CHAR IN SCB                                   07 01914
                1915 ****************                                                                    07 01915
                1916 * CLASSIFY CHAR *                                                                  07 01916
                1917 ****************                                                                    07 01917
                1918          IFF     NUC                                                         FG      07 01918
                1919          GOTO    NV2NUC                                                      FG      07 01919
                1920          IFT     VII                                                         FG      07 01920
                1921          OME     MAP,V$ST0       SET EXEC STATE TO 00                        V2      07 01921
                1922 NV2NUC   CONT                                                                FG      07 01922
001763 034011 A 1923          LDX     ICCCT                                                               07 01923
001764 005144 A 1924 ICCLP    IXR                     POINT X AT CLASSIFICATION TABLE                     07 01924
001765 145000 A 1925          SUB     0,X                                                                 07 01925
001766 001002 A 1926          JAP     ICCLP                                                               07 01926
001767 001764 R
001770 015022 A 1927          LDA     ICCCT1-ICCCT,X      GET CHARACTER CLASSIFICATION CODE               07 01927
                1928          IFF     NUC                                                         FG      07 01928
                1929          GOTO    NV2NUC                                                      FG      07 01929
                1930          IFT     VII                                                         FG      07 01930
                1931          OME     MAP,V$ST3       SET EXEC MODE TO NN                         V2      07 01931
                1932 NV2NUC   CONT                                                                FG      07 01932
001771 036021 A 1933          LDX     ASCB,B          POINT X AT SCB                                      07 01933
001772 055003 A 1934          STA     3,X             A = SCB(3) = CODE                                   07 01934
                1935          POPJ                    EXIT                                        FG      07 01935
001773 001000 A
001774 004066 R
                1936 ************************************                                                07 01936
                1937 * CLASSIFICATION TABLE - CHARS *                                                     07 01937
                1938 ************************************                                                07 01938
001775 001775 R 1939 ICCCT  BSS     *                                                                   07 01939
001776 000240 A 1940        DATA    0240            SPECIAL CHAR                                        07 01940
001777 000001 A 1941        DATA    0241-0240       BLANK                                               07 01941
002000 000006 A 1942        DATA    0247-0241       SPECIAL CHAR                                        07 01942
002001 000001 A 1943        DATA    0250-0247       ' QUOTE                                             07 01943
002002 000001 A 1944        DATA    0251-0250       '(' LEFT PAREN                                      07 01944
002003 000001 A 1945        DATA    0252-0251       ')' RIGHT PAREN                                     07 01945
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002004 000001 A 1946          DATA    0253-0252       SPECIAL CHAR                                                07 01946
002005 000001 A 1947          DATA    0254-0253       '+' PLUS SIGN                                               07 01947
002006 000001 A 1948          DATA    0255-0254       ',' COMMA                                                   07 01948
002007 000001 A 1949          DATA    0256-0255       '-' MINUS SIGN                                              07 01949
002010 000001 A 1950          DATA    0257-0256       '.' PERIOD                                                  07 01950
002011 000001 A 1951          DATA    0260-0257       '/' SLASH                                                   07 01951
002012 000012 A 1952          DATA    0272-0260       NUMERIC                                                     07 01952
002013 000007 A 1953          DATA    0301-0272       SPECIAL CHAR                                                07 01953
002014 000017 A 1954          DATA    0320-0301       ALPHA                                                       07 01954
002015 000001 A 1955          DATA    0321-0320       P                                                           07 01955
002016 000012 A 1956          DATA    0333-0321       ALPHA                                                       07 01956
002017 000045 A 1957          DATA    0400-0333       SPECIAL CHAR                                                07 01957
                1959 ********************************                                                          07 01959
                1960 * CLASSIFICATION TABLE - CODES *                                                          07 01960
                1961 ********************************                                                          07 01961
     002017 R   1962 ICCCT1 EQU     *-1                                                                         07 01962
002020 000000 A 1963          DATA    0               SPECIAL CHAR                                                07 01963
002021 000002 A 1964          DATA    2               BLANK                                                       07 01964
002022 000000 A 1965          DATA    0               SPECIAL CHAR                                                07 01965
002023 001000 A 1966          DATA    01000           ' QUOTE                                                     07 01966
002024 000010 A 1967          DATA    010             '(' LEFT PAREN                                              07 01967
002025 002000 A 1968          DATA    02000           ')' RIGHT PAREN                                             07 01968
002026 000000 A 1969          DATA    0               SPECIAL CHAR                                                07 01969
002027 000100 A 1970          DATA    0100            '+' PLUS SIGN                                               07 01970
002030 000004 A 1971          DATA    4               ',' COMMA                                                   07 01971
002031 000020 A 1972          DATA    020             '-' MINUS SIGN                                              07 01972
002032 000400 A 1973          DATA    0400            '.' PERIOD                                                  07 01973
002033 004000 A 1974          DATA    04000           '/' SLASH                                                   07 01974
002034 000040 A 1975          DATA    040             NUMERIC                                                     07 01975
002035 000000 A 1976          DATA    0               SPECIAL CHAR                                                07 01976
002036 000001 A 1977          DATA    1               ALPHA                                                       07 01977
002037 000200 A 1978          DATA    0200            P                                                           07 01978
002040 000001 A 1979          DATA    1               ALPHA                                                       07 01979
002041 000000 A 1980          DATA    0               SPECIAL CHAR                                                07 01980
002042 004350 A 1981 LSRA8    LSRA    8                                                                           07 01981
                1982          EJEC                                                                              07 01982
                1983 ********************************************************************************          07 01983
                1984 *                                                                              *          07 01984
                1985 *    I N P U T   N U M E R I C   F O R M A T   F I E L D ( I F F )             *          07 01985
                1986 *                                                                              *          07 01986
                1987 * FUNCTION: TO INPUT AND CONVERT AN ASCII DECIMAL STRING FROM A               *          07 01987
                1988 *           FORMAT FIELD                                                       *          07 01988
                1989 *                                                                              *          07 01989
                1990 * ENTRY: 1ST DIGIT IN FCHAR                                                    *          07 01990
                1991 *                                                                              *          07 01991
                1992 * EXIT : BINARY EQUIVALENT IN NFF                                             *          07 01992
                1993 *                                                                              *          07 01993
                1994 * ERRORS: ER1 IF NUMBER .GT. 2**16 - 1                                         *          07 01994
                1995 *                                                                              *          07 01995
                1996 ********************************************************************************          07 01996
                1998 IFF      ZAB       NFF             CLEAR COUNTER                                         07 01998
002043 005001 A
002044 056126 A
                1999 ************************                                                                  07 01999
                2000 * INPUT/CONVERT LOOP *                                                                  07 02000
                2001 ************************                                                                  07 02001
                2002 IFFL     SUTBBB    FCHAR,AZER,FCHAR    CONVERT ASCII DIGIT TO BINARY      V2             07 02002
002045 016064 A
002046 146177 A
002047 056064 A
002050 016126 A 2003          LDA       NFF,B           GET COUNTER                                           07 02003
002051 006140 A 2004          SUBI      3277            TEST IF IT CAN BE MULTIPLIED BY 10      V2            07 02004
002052 006315 A
002053 001002 A 2005          JAP       ER1             ERROR 1/ NUMBER TOO LARGE /                           07 02005
002054 005472 R
002055 016126 A 2006          LDA       NFF,B           RESTORE COUNTER IN A                                  07 02006
002056 005024 A 2007          TBX                       SAVE BASE REGISTER IN X                               07 02007
002057 004560 A 2008          LLSR      16                                                                    07 02008
002060 160471 A 2009          MUL       TEN                                                                   07 02009
002061 005021 A 2010          TBA                                                                             07 02010
002062 005042 A 2011          TXB                       RESTORE BASE REGISTER B                               07 02011
002063 007400 A 2012          ROF                       CLEAR OVFL                                            07 02012
002064 126064 A 2013          ADD       FCHAR,B         ADD IN NEW DIGIT                                      07 02013
002065 001001 A 2014          JOF       ER1             ERROR 1/ NUMBER TOO LARGE /                           07 02014
002066 005472 R
002067 055126 A 2015          STA       NFF,X           UPDATE COUNTER                                        07 02015
                2016 IFFL1    PUSHJ     ICC             INPUT NEXT FORMAT CHARACTER             V2            07 02016
002070 006010 A
002071 001743 R
002072 006503 A
002073 004774 R
002074 006405 A 2017          BT        ASET+NM,IFFL        LOOP ON NUMERIC                                   07 02017
002075 002045 R
002076 006401 A 2018          BT        ASET+BL,IFFL1       IGNORE BLANKS                                     07 02018
002077 002070 R
                2019          POPJ                      EXIT ON NON-NUMERIC                     FG            07 02019
002100 001000 A
002101 004066 R
                2020          EJEC                                                                            07 02020
                2021 ********************************************************************************          07 02021
                2022 *                                                                              *          07 02022
                2023 *   I N P U T   N O N - B L A N K   F O R M A T   C H A R ( I N F )            *          07 02023
                2024 *                                                                              *          07 02024
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                    2025 * FUNCTION: TO SCAN THRU A FORMAT CHAR STRING TO A NON-BLANK          * 07 02025
                    2026 *                                                                     * 07 02026
                    2027 * ENTRY: NO SPECIAL CONDITIONS                                        * 07 02027
                    2028 *                                                                     * 07 02028
                    2029 * EXIT : A = FCODE = NON-BLANK FORMAT CHAR CODE                        * 07 02029
                    2030 *         FCHAR = FORMAT CHAR                                         * 07 02030
                    2031 *                                                                     * 07 02031
                    2032 ***************************************************************************** 07 02032
                    2034 INF     MOVBAB  AFSCB,ASCB     SET SCB TO FORMAT STRING                    07 02034
002102 016011 A
002103 056021 A
                    2035 INFLP   PUSHJ   ICC            INPUT/CLASSIFY CHARACTER              V2  07 02035
002104 006010 A
002105 001743 R
002106 006505 A
002107 004774 R
002110 006401 A 2036         BT      ASET+BL,INFLP      LOOP TILL NON-BLANK INPUT                   07 02036
002111 002104 R
                    2037         POPJ                   EXIT                                  FG  07 02037
002112 001000 A
002113 004066 R
                    2038         EJEC                                                               07 02038
                    2039 ***************************************************************************** 07 02039
                    2040 *                                                                     * 07 02040
                    2041 *   P R O C E S S   I   O U T P U T   D E S C R I P T O R ( I O U )   * 07 02041
                    2042 *                                                                     * 07 02042
                    2043 * FUNCTION: TO PROCESS OUTPUT UNDER THE FORMAT DESCRIPTOR: RIW        * 07 02043
                    2044 *                                                                     * 07 02044
                    2045 * ENTRY: DIRECT TO IOUT                                              * 07 02045
                    2046 *        NUMBER IN (CHB,DEXP,SGFL) WHERE                             * 07 02046
                    2047 *                                                                     * 07 02047
                    2048 *             CHB = 14-WORD ARRAY OF BINARY DECIMAL DIGITS            * 07 02048
                    2049 *             DEXP = DECIMAL EXPONENT                                 * 07 02049
                    2050 *             SGFL .EQ. 0 +                                           * 07 02050
                    2051 *                  .NE. 0 -                                           * 07 02051
                    2052 *                                                                     * 07 02052
                    2053 * EXIT : DIRECT TO DNF                                               * 07 02053
                    2054 *        IFW = DEXP                                                   * 07 02054
                    2055 *                                                                     * 07 02055
                    2056 ***************************************************************************** 07 02056
002114 R            2058 IOUT    EQU     *                                                     07 02058
                    2060         MOVBAB  DEXP,COUNT                                            07 02060
002114 016055 A
002115 056052 A
                    2061         PUSHJ   RND            ROUND TO DEXP DIGITS                  V2  07 02061
002116 006010 A
002117 005617 R
002120 006505 A
002121 004774 R
                    2062         MOVBAB  DEXP,IFW       SET INTEGER COUNT TO DEXP                   07 02062
002122 016055 A
002123 056100 A
002124 001000 A 2063         JMP     DNF            OUTPUT NUMERIC FIELD                        07 02063
002125 002670 R
                    2064         EJEC                                                               07 02064
                    2065 ***************************************************************************** 07 02065
                    2066 *                                                                     * 07 02066
                    2067 *  I N P U T   E X T E R N A L   N U M E R I C   F I E L D ( I X N )  * 07 02067
                    2068 *                                                                     * 07 02068
                    2069 * FUNCTION: TO INPUT/CONVERT AN EXTERNAL NUMERIC FIELD              * 07 02069
                    2070 *                                                                     * 07 02070
                    2071 * ENTRY: ACC(0,1,2,3) = 0                                           * 07 02071
                    2072 *        PTFL = 0                                                     * 07 02072
                    2073 *        S = SCALE FACTOR                                             * 07 02073
                    2074 *        SCF = 0 FOR I FORMAT DESCRIPTOR                              * 07 02074
                    2075 *        SGFL = 0                                                     * 07 02075
                    2076 *        WT = W = FIELD WIDTH IN CHARACTERS                           * 07 02076
                    2077 *                                                                     * 07 02077
                    2078 * EXIT : INPUT NUMBER = (SGFL,ACC,BEXP) , WHERE                     * 07 02078
                    2079 *                SGFL = SIGN FLAG = 0 FOR +                           * 07 02079
                    2080 *                                 = 1 FOR -                           * 07 02080
                    2081 *                ACC = NORMALIZED BINARY FRACTION                     * 07 02081
                    2082 *                BEXP = BINARY EXPONENT                               * 07 02082
                    2083 *                                                                     * 07 02083
                    2084 ***************************************************************************** 07 02084
                    2086 ************************                                               07 02086
                    2087 * CLEAR FLAGS AND COUNTERS *                                          07 02087
                    2088 ************************                                               07 02088
                    2089 IXN     ZAB     EDEXP          CLEAR EXPLICIT DECIMAL EXPONENT             07 02089
002126 005001 A
002127 056057 A
002130 056077 A 2090         STA     IDEXP,B        CLEAR IMPLICIT DECIMAL EXPONENT             07 02090
002131 056124 A 2091         STA     MOV,B          CLEAR MULTIPLY OVERFLOW FLAG                07 02091
002132 056175 A 2092         STA     XSG,B          CLEAR EXPONENT SIGN FLAG                    07 02092
002133 006010 A 2093         LDAI    60                                                   V2    07 02093
002134 000074 A
002135 056024 A 2094         STA     DEXP,B         BIAS ACC AS INTEGER ACCUMULATOR       V2    07 02094
                    2095 ********************************                                       07 02095
                    2096 * INPUT INTEGER AND FRACTIONAL PART *                                 07 02096
                    2097 ********************************                                       07 02097
002136 006010 A 2098         LDAI    0566           ENABLE BLANK/',','/'-'/NUMERIC/'+'/'.'  V2    07 02098
002137 000566 A
002140 056053 A 2099         STA     CVFL,B                                                      07 02099
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                    2100 IXNL1   TZAB    WT,IXN50      EXIT IF FIELD EXHAUSTED                          07 02100
002141 016171 A
002142 001010 A
002143 002331 R
                    2101         PUSHJ   CBC           INPUT BUFFER CHARACTER                    V2     07 02101
002144 006010 A
002145 000104 R
002146 006505 A
002147 004774 R
002150 156053 A 2102         ANA     CVFL,B
002151 001010 A 2103         JAZ     ER3           ERROR 3/ ILLEGAL CHAR /                          07 02103
002152 005470 R
002153 016031 A 2104         LDA     BCODE,B       RELOAD CHARACTER CODE                            07 02104
002154 006402 A 2105         BT      ASET+CM,IXN50     STOP SCAN ON ','                             07 02105
002155 002331 R
002156 006400 A 2106         BT      ASET+AL,IXN15     TEST ALPHA                                   07 02106
002157 002237 R
                    2107 **********************                                                     07 02107
                    2108 * PROCESS BLANK CHAR *                                                    07 02108
                    2109 **********************                                                     07 02109
002160 006441 A 2110         BT      ARST+BL,IXN4      TEST FOR BLANK                               07 02110
002161 002166 R
                    2111         MOVBAB  AZER,BCHAR    REPLACE ASCII BLANK WITH ASCII ZERO       V2     07 02111
002162 016177 A
002163 056030 A
002164 001000 A 2112         JMP     IXN10                                                          07 02112
002165 002226 R
002166 016053 A 2113 IXN4    LDA     CVFL,B        NON-BLANK INPUT                                  07 02113
002167 150445 A 2114         ANA     BR4           DISABLE '-'                                      07 02114
002170 150447 A 2115         ANA     BR6           DISABLE '+'                                      07 02115
002171 056053 A 2116         STA     CVFL,B                                                         07 02116
                    2117 **********************                                                     07 02117
                    2118 * PROCESS '+' AND '-' *                                                   07 02118
                    2119 **********************                                                     07 02119
002172 016031 A 2120         LDA     BCODE,B       RELOAD CHAR CODE                                 07 02120
002173 006406 A 2121         BT      ASET+PL,IXN5      TEST '+'                                     07 02121
002174 002205 R
002175 006444 A 2122         BT      ARST+MN,IXN6      TEST '-'                                     07 02122
002176 002212 R
002177 016053 A 2123         LDA     CVFL,B                                                         07 02123
002200 006414 A 2124         BT      ASET+B12,IXN18    '-' IS EXPONENT IF BIT 12 SET                07 02124
002201 002275 R
002202 046157 A 2125         INR     SGFL,B        SET '-' FLAG                                     07 02125
002203 001000 A 2126         JMP     IXNL1         CONTINUE SCAN                                    07 02126
002204 002141 R
002205 016053 A 2127 IXN5    LDA     CVFL,B                                                         07 02127
002206 006414 A 2128         BT      ASET+B12,IXN18    '+' IS EXPONENT IF BIT 12 SET                07 02128
002207 002275 R
002210 001000 A 2129         JMP     IXNL1         CONTINUE SCAN                                    07 02129
002211 002141 R
002212 006450 A 2130 IXN6    BT      ARST+PT,IXN8      TEST '.'                                     07 02130
002213 002222 R
002214 046147 A 2131         INR     PTFL,B        '.' INPUT. SET FLAG                              07 02131
002215 016053 A 2132         LDA     CVFL,B                                                         07 02132
002216 150451 A 2133         ANA     BR8           DISABLE '.'                                      07 02133
002217 056053 A 2134         STA     CVFL,B                                                         07 02134
002220 001000 A 2135         JMP     IXNL1         CONTINUE SCAN                                    07 02135
002221 002141 R
                    2136 **********************                                                     07 02136
                    2137 * PROCESS NUMERIC CHAR *                                                  07 02137
                    2138 **********************                                                     07 02138
002222 016053 A 2139 IXN8    LDA     CVFL,B                                                         07 02139
002223 006110 A 2140         ORAI    010121        ENABLE ALPHA/EXPONENT SIGN                V2     07 02140
002224 010121 A
002225 056053 A 2141         STA     CVFL,B                                                         07 02141
002226 016030 A 2142 IXN10   LDA     BCHAR,B       GET INPUT NUMERIC CHAR                           07 02142
002227 146177 A 2143         SUB     AZER,B        CONVERY ASCII DIGIT TO BINARY             V2     07 02143
002230 056166 A 2144         STA     TERM,B                                                         07 02144
                    2145         PUSHJ   M:0           ACC = ACC*10 + TERM                       V2     07 02145
002231 006010 A
002232 002517 R
002233 006505 A
002234 004774 R
002235 001000 A 2146         JMP     IXNL1         CONTINUE SCAN                                    07 02146
002236 002141 R
                    2147 **********************                                                     07 02147
                    2148 * ALPHA CHAR INPUT *                                                     07 02148
                    2149 **********************                                                     07 02149
002237 016030 A 2150 IXN15   LDA     BCHAR,B                                                        07 02150
002240 006140 A 2151         SUBI    0304                                                      V2     07 02151
002241 000304 A
002242 001004 A 2152         JAN     ER3           ERROR 3/ NOT 'D' OR 'E' /                        07 02152
002243 005470 R
002244 140422 A 2153         SUB     TWO                                                            07 02153
002245 001002 A 2154         JAP     ER3           ERROR 3/ NOT 'D' OR 'E' /                        07 02154
002246 005470 R
                    2155 **************************                                               07 02155
                    2156 * PROCESS EXPONENT FIELD *                                              07 02156
                    2157 **************************                                               07 02157
002247 006010 A 2158         LDAI    0166                                                      V2     07 02158
002250 000166 A
002251 056053 A 2159         STA     CVFL,B        ENABLE BLANK/'+'/'-'/','/NUMERIC          V2     07 02159
                    2160 IXNL2   TZAB    WT,IXN30      EXIT IF FIELD EXHAUSTED                          07 02160
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002252 016171 A
002253 001010 A
002254 002327 R
                2161            PUSHJ   CBC             INPUT BUFFER CHARACTER                          V2  07 02161
002255 006010 A
002256 000104 R
002257 006505 A
002260 004774 R
002261 156053 A 2162            ANA     CVFL,B                                                              07 02162
002262 001010 A 2163            JAZ     ER3             ERROR 3/ ILLEGAL CHAR /                             07 02163
002263 005470 R
002264 016031 A 2164            LDA     BCODE,B         RELOAD CHARACTER CODE                               07 02164
002265 006402 A 2165            BT      ASET+CM,IXN30           STOP SCAN ON ','                            07 02165
002266 002327 R
002267 006441 A 2166            BT      ARST+BL,IXN20           TEST FOR BLANK                              07 02166
002270 002300 R
                2167            MOVBAB  AZER,BCHAR      REPLACE BLANK WITH ZERO                         V2  07 02167
002271 016177 A
002272 056030 A
002273 001000 A 2168            JMP     IXN25                                                               07 02168
002274 002314 R
002275 006010 A 2169 IXN18      LDAI    0166                                                            V2  07 02169
002276 000166 A
002277 056053 A 2170            STA     CVFL,B          ENABLE BLANK/NUMERIC                            V2  07 02170
002300 016053 A 2171 IXN20      LDA     CVFL,B          NON-BLANK INPUT                                     07 02171
002301 150445 A 2172            ANA     BR4             DISABLE '-'                                         07 02172
002302 150447 A 2173            ANA     BR6             DISABLE '+'                                         07 02173
002303 056053 A 2174            STA     CVFL,B                                                              07 02174
                2175 ********************************                                                    07 02175
                2176 * PROCESS EXPONENT '+' OR '-' *                                                     07 02176
                2177 ********************************                                                    07 02177
002304 016031 A 2178            LDA     BCODE,B         RELOAD BUFFER CHARACTER CODE                        07 02178
002305 006406 A 2179            BT      ASET+PL,IXNL2           CONTINUE SCAN ON '+'                        07 02179
002306 002252 R
002307 006444 A 2180            BT      ARST+MN,IXN25           TEST FOR '-'                                07 02180
002310 002314 R
002311 046175 A 2181            INR     XSG,B           SET '-' EXPONENT SIGN FLAG                          07 02181
002312 001000 A 2182            JMP     IXNL2           CONTINUE SCAN                                       07 02182
002313 002252 R
                2183 ********************************                                                    07 02183
                2184 * PROCESS NUMERIC EXPONENT DIGIT *                                                   07 02184
                2185 ********************************                                                    07 02185
002314 016030 A 2186 IXN25      LDA     BCHAR,B         GET ASCII DIGIT                                     07 02186
002315 146177 A 2187            SUB     AZER,B          CONVERT TO BINARY                               V2  07 02187
002316 005024 A 2188            TBX                     SAVE BASE REGISTER SETTING IN X                     07 02188
002317 025057 A 2189            LDB     EDEXP,X                                                             07 02189
002320 160471 A 2190            MUL     TEN                                                                 07 02190
002321 065057 A 2191            STB     EDEXP,X         UPDATE EXPLICIT DECIMAL EXPONENT                    07 02191
002322 005042 A 2192            TXB                     RESTORE BASE REGISTER B                             07 02192
002323 001016 A 2193            JANZ    ER3             ERROR 3/ EXPONENT TOO LARGE /                       07 02193
002324 005470 R
002325 001000 A 2194            JMP     IXNL2           CONTINUE SCAN                                       07 02194
002326 002252 R
                2195 IXN30      ZAB     SCF             DISABLE SCALE FACTOR IF EXTERNAL EXPONENT           07 02195
002327 005001 A
002330 056156 A
                2196 ********************************                                                    07 02196
                2197 * CONVERT TO STANDARD FORM *                                                        07 02197
                2198 ********************************                                                    07 02198
002331 036001 A 2199 IXN50      LDX     AACC,B          POINT X AT ACC                                      07 02199
002332 015000 A 2200            LDA     0,X                                                                 07 02200
002333 115001 A 2201            ORA     1,X                                                                 07 02201
002334 115002 A 2202            ORA     2,X                                                                 07 02202
002335 115003 A 2203            ORA     3,X                                                                 07 02203
002336 001010 A 2204            JAZ     IXN57           EXIT IF ACC=0                                   FG  07 02204
002337 002376 R
002340 007400 A 2205 RDF        RDF                                                                         07 02205
                2206            TZAB    XSG,IXN52       IS EXPONENT SIGN FLAG SET ?                     V2  07 02206
002341 016175 A
002342 001010 A
002343 002347 R
002344 005001 A 2207            TZA                     YES                                                 07 02207
002345 146057 A 2208            SUB     EDEXP,B         NEGATE EXPLICIT DECIMAL EXPONENT                    07 02208
002346 056057 A 2209            STA     EDEXP,B                                                             07 02209
                2210 IXN52      TNZAB   PTFL,IXN53      HAS A '.' BEEN INPUT ?                          V2  07 02210
002347 016147 A
002350 001016 A
002351 002355 R
                2211            SUTBBB  IDEXP,D,IDEXP           NO. DECREMENT EXPONENT BY D                 07 02211
002352 016077 A
002353 146054 A
002354 056077 A
                2212 IXN53      TZAB    SCF,IXN55       IS SCALE FACTOR ENABLED ?                       V2  07 02212
002355 016156 A
002356 001010 A
002357 002362 R
002360 005001 A 2213            TZA                     YES                                                 07 02213
002361 146155 A 2214            SUB     S,B                                                                 07 02214
002362 126077 A 2215 IXN55      ADD     IDEXP,B         ADD IMPLICIT DECIMAL EXPONENT                   V2  07 02215
002363 126057 A 2216            ADD     EDEXP,B         ADD EXPLICIT DECIMAL EXPONENT                       07 02216
002364 056055 A 2217            STA     DEXP,B          STORE IN DEXP                                       07 02217
002365 001001 A 2218            JOF     ER3             ERROR 3/ EXPONENT TOO LARGE /                       07 02218
002366 005470 R
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                    2219 IXNL3   PUSHJ   NRM             NORMALIZE ACC                          V2  07 02219
002367 006010 A
002370 002564 R
002371 006505 A
002372 004774 R
                    2220         TNZAB   DEXP,IXN58                                            FG  07 02220
002373 016055 A
002374 001016 A
002375 002400 R
                    2221 IXN57   POPJ                    EXIT WHEN DEXP=0                       FG  07 02221
002376 001000 A
002377 004066 R
002400 001002 A     2222 IXN58   JAP     IXN60           TEST SIGN OF DEXP                      FG  07 02222
002401 002411 R
                    2223 ********************************                                            07 02223
                    2224 * NEGATIVE DECIMAL EXPONENT *                                            07 02224
                    2225 ********************************                                            07 02225
                    2226         PUSHJ   D10             ACC = ACC/10                           V2  07 02226
002402 006010 A
002403 000305 R
002404 006505 A
002405 004774 R
002406 046055 A     2227         INR     DEXP,B          BUMP DEXP                                  07 02227
002407 001000 A     2228         JMP     IXNL3           CONTINUE CONVERSION                        07 02228
002410 002367 R
                    2229 ********************************                                            07 02229
                    2230 * POSITIVE DECIMAL EXPONENT *                                            07 02230
                    2231 ********************************                                            07 02231
                    2232 IXN60   MOVPAB  FOUR,COUNT     SET RIGHT SHIFT COUNT TO 4                 07 02232
002411 010423 A
002412 056052 A
002413 126024 A     2233         ADD     BEXP,B          BUMP BINARY EXPONENT                       07 02233
002414 056024 A     2234         STA     BEXP,B                                                     07 02234
                    2235         PUSHJ   SHA             SHIFT ACC RIGHT 4                      V2  07 02235
002415 006010 A
002416 005765 R
002417 006505 A
002420 004774 R
                    2236         PUSHJ   M10             ACC = ACC*10                           V2  07 02236
002421 006010 A
002422 002517 R
002423 006505 A
002424 004774 R
                    2237         DAB     DEXP            DROP DEXP                                  07 02237
002425 016055 A
002426 005311 A
002427 056055 A
002430 001000 A     2238         JMP     IXNL3           CONTINUE CONVERSION                        07 02238
002431 002367 R
                    2239         EJEC                                                               07 02239
                    2240 ********************************************************************** 07 02240
                    2241 *                                                                      * 07 02241
                    2242 *   P R O C E S S   L   I N P U T   D E S C R I P T O R S ( L I N )    * 07 02242
                    2243 *                                                                      * 07 02243
                    2244 * FUNCTION: TO PROCESS THE INPUT FORMAT DESCRIPTOR: RLW               * 07 02244
                    2245 *                                                                      * 07 02245
                    2246 * ENTRY: DIRECT FROM FRS                                              * 07 02246
                    2247 *        WT = W = TOTAL FIELD WIDTH                                    * 07 02247
                    2248 *        ITEMAD = ADDRESS OF LIST ITEM                                 * 07 02248
                    2249 *                                                                      * 07 02249
                    2250 * EXIT : DIRECT TO FRS                                                * 07 02250
                    2251 *        (ITEMAD) = -1 IF 1ST CHAR 'T'                                 * 07 02251
                    2252 *                 =  0 IF 1ST CHAR 'F'                                 * 07 02252
                    2253 *                                                                      * 07 02253
                    2254 * ERRORS: ER3 IF 1ST NON-BLANK CHAR NOT 'T' OR 'F'                    * 07 02254
                    2255 *                                                                      * 07 02255
                    2256 ********************************************************************** 07 02256
                    2258 LIN     TZAB    WT,ER3          ERROR 3/ BLANK FIELD /                     07 02258
002432 016171 A
002433 001010 A
002434 005470 R
                    2259         PUSHJ   CBC             INPUT BUFFER CHARACTER                 V2  07 02259
002435 006010 A
002436 000104 R
002437 006505 A
002440 004774 R
002441 006401 A     2260         BT      ASET+BL,LIN     SLEW THRU BLANKS                           07 02260
002442 002432 R
002443 036113 A     2261         LDX     ITEMAD,B        POINT X AT LIST ITEM                       07 02261
002444 005301 A     2262         DECR    1                                                          07 02262
002445 055000 A     2263         STA     0,X             SET LIST ITEM TO .TRUE. (-1)               07 02263
002446 016030 A     2264         LDA     BCHAR,B         GET INPUT CHAR                             07 02264
002447 006140 A     2265         SUBI    0324                                                   V2  07 02265
002450 000324 A
002451 001010 A     2266         JAZ     LINX            EXIT TO FORMAT SCAN IF 'T'                 07 02266
002452 002460 R
002453 045000 A     2267         INR     0,X             SET LIST ITEM TO .FALSE. (0)               07 02267
002454 006120 A     2268         ADDI    016             TEST FOR 'F'                           V2  07 02268
002455 000016 A
002456 001016 A     2269         JANZ    ER3             ERROR 3/ 1ST CHAR NOT 'T' OR 'F' /         07 02269
002457 005470 R
                    2270 LINX    MOVBAB  WT,COUNT        LOAD REMAINING FIELD WIDTH AS REPEAT COUNT 07 02270
002460 016171 A
```

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002461 056052 A
                2271          PUSHJ   RCH             GOBBLE REST OF FIELD                    V2  07 02271
002462 006010 A
002463 005176 R
002464 006505 A
002465 004774 R
002466 001000 A 2272          JMP     FRS65           EXIT TO FORMAT SCAN                         07 02272
002467 001067 R
                2273          EJEC                                                                07 02273
                2274 ********************************************************************************* 07 02274
                2275 *                                                                               * 07 02275
                2276 *  P R O C E S S   L   O U T P U T   D E S C R I P T O R S ( L O U )            * 07 02276
                2277 *                                                                               * 07 02277
                2278 * FUNCTION: TO PROCESS THE OUTPUT FORMAT DESCRIPTOR: RLW                        * 07 02278
                2279 *                                                                               * 07 02279
                2280 * ENTRY:  DIRECT FROM FRS                                                       * 07 02280
                2281 *         WT = W = TOTAL FIELD WIDTH                                            * 07 02281
                2282 *         ITEMAD = ADDRESS OF LIST ITEM                                         * 07 02282
                2283 *                                                                               * 07 02283
                2284 * EXIT :  TO FRS THRU OBC                                                       * 07 02284
                2285 *         WT-1 LEADING BLANKS OUTPUT                                            * 07 02285
                2286 *         'F' OUTPUT IF (ITEMAD).EQ.ZERO                                        * 07 02286
                2287 *         'T' OUTPUT OTHERWISE                                                  * 07 02287
                2288 *                                                                               * 07 02288
                2289 ********************************************************************************* 07 02289
                2291 LOUT     MOVBAB  BLNK1,BCHAR       LOAD BLANK AS FILL CHARACTER            V2  07 02291
002470 016202 A
002471 056030 A
                2292          DABB    WT,COUNT          SET COUNT TO WT-1                           07 02292
002472 016171 A
002473 005311 A
002474 056052 A
                2293          PUSHJ   RCH               OUTPUT WT-1 LEADING BLANKS              V2  07 02293
002475 006010 A
002476 005176 R
002477 006505 A
002500 004774 R
002501 006010 A 2294          LDAI    0306                                                      V2  07 02294
002502 000306 A
002503 056030 A 2295          STA     BCHAR,B           LOAD 'F' AS OUTPUT CHARACTER            V2  07 02295
002504 036113 A 2296          LDX     ITEMAD,B          POINT X AT LIST ITEM                        07 02296
                2297          TZAX    0,LOU4            TEST LIST ITEM = 0 (FALSE)                  07 02297
002505 015000 A
002506 001010 A
002507 002513 R
002510 006010 A 2298          LDAI    0324              SET OUTPUT CHAR TO 'T' IF NOT           V2  07 02298
002511 000324 A
002512 056030 A 2299          STA     BCHAR,B                                                   V2  07 02299
                2300 LOU4     PUSHJ   OCB               OUTPUT 'T' OR 'F'/EXIT                  V2  07 02300
002513 006010 A
002514 002635 R
002515 006505 A
002516 004774 R
                2301          EJEC                                                                07 02301
                2302 ********************************************************************************* 07 02302
                2303 *                                                                               * 07 02303
                2304 *                  M U L T I P L Y   B Y   1 0 ( M 1 0 )                        * 07 02304
                2305 *                                                                               * 07 02305
                2306 * FUNCTION: MULTIPLIES A 4-WORD FIELD ACC BY 10 AND ADDS AN INTEGER I          * 07 02306
                2307 *           TO THE PRODUCT. MONITORS OVERFLOW AND DECIMAL EXPONENT              * 07 02307
                2308 *                                                                               * 07 02308
                2309 * ENTRY:  TERM = I                                                              * 07 02309
                2310 *         PTFL = 1 IF A '.' HAS BEEN PASSED, 0 IF NOT                           * 07 02310
                2311 *         MOV = 1 IF OVERFLOW ALLOWED, 0 IF NOT                                 * 07 02311
                2312 *                                                                               * 07 02312
                2313 * EXIT :  ACC=ACC*10 + I                                                        * 07 02313
                2314 *         A = OVERFLOW DIGIT                                                    * 07 02314
                2315 *         IDEXP INCREMENTED ON OVERFLOW IF PTFL = 0                             * 07 02315
                2316 *         IDEXP DECREMENTED IF NO OVFL AND PTFL .NE. 0                          * 07 02316
                2317 *                                                                               * 07 02317
                2318 ********************************************************************************* 07 02318
002517 005024 A 2320 M10      TBX                       LOAD X AS BASE REGISTER                     07 02320
002520 015003 A 2321          LDA     ACC,X                                                         07 02321
002521 006140 A 2322          SUBI    3276                                                    V2  07 02322
002522 006314 A
002523 001004 A 2323          JAN     M104              CAN ACC BE MULTIPLIED BY 10 ?               07 02323
002524 002536 R
002525 015124 A 2324          LDA     MOV,X             NO                                          07 02324
002526 001016 A 2325          JANZ    M104              MULTIPLY ANYWAY IF MOV SET                  07 02325
002527 002536 R
002530 015147 A 2326          LDA     PTFL,X                                                        07 02326
002531 001016 A 2327          JANZ    M10X              EXIT IF '.' PASSED                      FG  07 02327
002532 002562 R
002533 045077 A 2328          INR     IDEXP,X           OTHERWISE BUMP IMPLICIT DECIMAL EXPONENT    07 02328
                2329          POPJ                       AND EXIT                               FG  07 02329
002534 001000 A
002535 004066 R
002536 015166 A 2330 M104     LDA     TERM,X            LOAD I                                      07 02330
002537 025006 A 2331          LDB     ACC+3,X                                                       07 02331
002540 160471 A 2332          MUL     TEN               ACC(3)=ACC(3)*10 + I                        07 02332
002541 065006 A 2333          STB     ACC+3,X                                                       07 02333
002542 025005 A 2334          LDB     ACC+2,X                                                       07 02334
002543 160471 A 2335          MUL     TEN               ACC(2)=ACC(2)*10 + OVFL(3)                  07 02335
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002544 065005 A 2336          STB     ACC+2,X                                                  07 02336
002545 025004 A 2337          LDB     ACC+1,X                                                  07 02337
002546 160471 A 2338          MUL     TEN             ACC(1)=ACC(1)*10 + OVFL(2                07 02338
002547 065004 A 2339          STB     ACC+1,X                                                  07 02339
002550 025003 A 2340          LDB     ACC,X                                                    07 02340
002551 160471 A 2341          MUL     TEN             ACC(0)=ACC(0)*10 + OVFL(1)               07 02341
002552 065003 A 2342          STB     ACC,X                                                    07 02342
002553 005042 A 2343          TXB                     RESTORE BASE REGISTER B                  07 02343
002554 036147 A 2344          LDX     PTFL,B                                                   07 02344
002555 001040 A 2345          JXZ     M10X            HAS A '.' BEEN PASSED ?               FG 07 02345
002556 002562 R
002557 036077 A 2346          LDX     IDEXP,B         YES                                      07 02346
002560 005344 A 2347          DXR                     DECREMENT IMPLICIT DECIMAL EXPONENT      07 02347
002561 076077 A 2348          STX     IDEXP,B                                                  07 02348
               2349 M10X      POPJ                    EXIT                                  FG 07 02349
002562 001000 A
002563 004066 R
               2350          EJEC                                                             07 02350
               2351 ********************************************************************** 07 02351
               2352 *                                                                      * 07 02352
               2353 *          N O R M A L I Z E   A C C U M U L A T O R ( N R M )         * 07 02353
               2354 *                                                                      * 07 02354
               2355 * FUNCTION: TO NORMALIZE THE 4-WORD ACCUMULATOR ACC WITH BINARY       * 07 02355
               2356 *           EXPONENT BEXP.                                            * 07 02356
               2357 *                                                                      * 07 02357
               2358 * ENTRY: ACC.NE.0                                                     * 07 02358
               2359 *                                                                      * 07 02359
               2360 * EXIT : (ACC,BEXP) NORMALIZED                                         07 02360
               2361 *                                                                      * 07 02361
               2362 ********************************************************************** 07 02362
002564 005024 A 2364 NRM      TBX                     LOAD X AS BASE REGISTER                  07 02364
002565 015003 A 2365 NRML     LDA     ACC,X                                                    07 02365
002566 004241 A 2366          LRLA    1                                                        07 02366
002567 001004 A 2367          JAN     NRMX            EXIT WHEN NORMALIZED                     07 02367
002570 002632 R
002571 001016 A 2368          JANZ    NRM4            ACC(0) = 0 ?                             07 02368
002572 002610 R
               2369          MOVXAX  ACC+1,ACC       YES. SHIFT 1 WORD                        07 02369
002573 015004 A
002574 055003 A
               2370          MOVXAX  ACC+2,ACC+1                                              07 02370
002575 015005 A
002576 055004 A
               2371          MOVXAX  ACC+3,ACC+2                                              07 02371
002577 015006 A
002600 055005 A
               2372          ZAX     ACC+3                                                    07 02372
002601 005001 A
002602 055006 A
002603 016024 A 2373          LDA     BEXP,B                                                   07 02373
002604 140472 A 2374          SUB     D15                                                      07 02374
002605 056024 A 2375          STA     BEXP,B                                                   07 02375
002606 001000 A 2376          JMP     NRML                                                     07 02376
002607 002565 R
002610 015003 A 2377 NRM4     LDA     ACC,X                                                    07 02377
002611 025004 A 2378          LDB     ACC+1,X                                                  07 02378
002612 004401 A 2379          LASL    1                                                        07 02379
002613 055003 A 2380          STA     ACC,X           SHIFT ACC(0) LEFT 1                      07 02380
002614 015004 A 2381          LDA     ACC+1,X                                                  07 02381
002615 025005 A 2382          LDB     ACC+2,X                                                  07 02382
002616 004401 A 2383          LASL    1                                                        07 02383
002617 055004 A 2384          STA     ACC+1,X         SHIFT ACC(1) LEFT 1                      07 02384
002620 015005 A 2385          LDA     ACC+2,X                                                  07 02385
002621 025006 A 2386          LDB     ACC+3,X                                                  07 02386
002622 004401 A 2387          LASL    1                                                        07 02387
002623 055005 A 2388          STA     ACC+2,X         SHIFT ACC(2) LEFT 1                      07 02388
002624 065006 A 2389          STB     ACC+3,X         SHIFT ACC(3) LEFT 1                      07 02389
002625 015024 A 2390          LDA     BEXP,X                                                   07 02390
002626 005311 A 2391          DAR                     DECREMENT BINARY EXPONENT BEXP           07 02391
002627 056024 A 2392          STA     BEXP,X                                                   07 02392
002630 001000 A 2393          JMP     NRML            CONTINUE NORMALIZE LOOP                  07 02393
002631 002565 R
002632 005042 A 2394 NRMX     TXB                     RESTORE BASE REGISTER B                  07 02394
               2395          POPJ                    EXIT                                  FG 07 02395
002633 001000 A
002634 004066 R
               2396          EJEC                                                             07 02396
               2397 ********************************************************************** 07 02397
               2398 *                                                                      * 07 02398
               2399 *          O U T P U T   C H A R   T O   B U F F E R ( O C B )         * 07 02399
               2400 *                                                                      * 07 02400
               2401 * FUNCTION: TO OUTPUT A CHARACTER TO THE BUFFER                       * 07 02401
               2402 *                                                                      * 07 02402
               2403 * ENTRY: BCHAR = CHAR TO BE OUTPUT                                    * 07 02403
               2404 *         ASFL.NE.0 IF FIELD IS TO BE TERMINATED BY AN '*'             * 07 02404
               2405 *         WT = FIELD WIDTH                                             * 07 02405
               2406 *                                                                      * 07 02406
               2407 * EXIT : '*' OUTPUT IF ASFL.NE.0 AND WT=1                             * 07 02407
               2408 *        DIRECT TO FRS IF WT=0                                         * 07 02408
               2409 *                                                                      * 07 02409
               2410 ********************************************************************** 07 02410
               2412 OCB      TZAB    ASFL,OCB4       IS '*' FLAG SET ?                        07 02412
002635 016022 A
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002636 001010 A
002637 002647 R
002640 016171 A 2413          LDA     WT,B        YES                                  07 02413
002641 005311 A 2414          DAR                                                      07 02414
002642 001016 A 2415          JANZ    DCB4        WT = 1 ?                             07 02415
002643 002647 R
002644 006010 A 2416          LDAI    0252                                         V2  07 02416
002645 000252 A
002646 056030 A 2417          STA     BCHAR,B     YES. LOAD '*' AS OUTPUT CHARACTER    V2  07 02417
                2418 DCB4     PUSHJ   CBC         OUTPUT CHAR TO BUFFER                V2  07 02418
002647 006010 A
002650 000104 R
002651 006505 A
002652 004774 R
                2419          TZAB    WT,DCB6     FIELD EXHAUSTED ?                    FG  07 02419
002653 016171 A
002654 001010 A
002655 002660 R
                2420          POPJ                NO. RETURN                           FG  07 02420
002656 001000 A
002657 004066 R
                2421 DCB6     MOVBAB  @DPSTK,DPSTKP   YES. CLEAR STACK                 FG  07 02421
002660 016017 A
002661 056000 A
002662 016061 A 2422          LDA     FDLKEY,B                                         07 02422
002663 140424 A 2423          SUB     EIGHT                                            07 02423
002664 001002 A 2424          JAP     FRS5        SCAN FOR NEXT FORMAT CHAR ON H/X     07 02424
002665 000464 R
002666 001000 A 2425          JMP     FRS65       RETURN TO FORMAT SCAN                07 02425
002667 001067 R
                2426          EJEC                                                     07 02426
                2427 ********************************************************************** 07 02427
                2428 *                                                                  * 07 02428
                2429 *          O U T P U T   N U M E R I C   F I E L D (O N F)         * 07 02429
                2430 *                                                                  * 07 02430
                2431 * FUNCTION: TO OUTPUT A STRING OF CHARS REPRESENTING A DECIMAL NUMBER * 07 02431
                2432 *                                                                  * 07 02432
                2433 * ENTRY: OUTPUT NUMBER = (SGFL,CHB,DEXP) ,WHERE:                  * 07 02433
                2434 *                                                                  * 07 02434
                2435 *              SGFL = SIGN =  0 FOR '+'                            * 07 02435
                2436 *                         = -1 FOR '-'                             * 07 02436
                2437 *                                                                  * 07 02437
                2438 *              CHB = ARRAY OF BINARY DECIMAL DIGITS                * 07 02438
                2439 *                  = NORMALIZED FRACTIONAL PART OF NUMBER           * 07 02439
                2440 *                                                                  * 07 02440
                2441 *              DEXP = DECIMAL EXPONENT                             * 07 02441
                2442 *                                                                  * 07 02442
                2443 *        WT = FIELD WIDTH                                          * 07 02443
                2444 *        IFW = INTEGER FIELD WIDTH                                 * 07 02444
                2445 *        PTFL = 1 IF '.' TO BE OUTPUT, 0 OTHERWISE                 * 07 02445
                2446 *        DT = FRACTIONAL FIELD WIDTH                               * 07 02446
                2447 *        ZFW = WIDTH OF LEADING ZERO FIELD                         * 07 02447
                2448 *        XFL = 1 IF EXPONENT FIELD PRESENT, 0 OTHERWISE            * 07 02448
                2449 *        XFW = EXPONENT FIELD WIDTH                                * 07 02449
                2450 *                                                                  * 07 02450
                2451 * EXIT : TO FRS THRU DCB                                          * 07 02451
                2452 *                                                                  * 07 02452
                2453 ********************************************************************** 07 02453
                2455 ************************                                           07 02455
                2456 * OUTPUT LEADING BLANKS *                                         07 02456
                2457 ************************                                           07 02457
002670 016171 A 2458 ONF      LDA     WT,B        GET FIELD WIDTH                      07 02458
002671 126157 A 2459          ADD     SGFL,B      SUBTRACT '-'                         07 02459
002672 146100 A 2460          SUB     IFW,B       SUBTRACT WIDTH OF INTEGER FIELD      07 02460
002673 146147 A 2461          SUB     PTFL,B      SUBTRACT SPACE FOR '.'               07 02461
002674 146056 A 2462          SUB     DT,B        SUBTRACT WIDTH OF FRACTIONAL FIELD   07 02462
002675 146174 A 2463          SUB     XFW,B       SUBTRACT WIDTH OF EXPONENT FIELD     07 02463
002676 056052 A 2464          STA     COUNT,B     STORE LEADING BLANK COUNT            07 02464
002677 001002 A 2465          JAP     ONF5        TEST FOR FIELD OVERFLOW              07 02465
002700 002720 R
                2466 *********************                                            07 02466
                2467 * FIELD OVERFLOW *                                              07 02467
                2468 *********************                                            07 02468
002701 005311 A 2469          DAR                 ALLOW 1 SPACE FOR '*'                07 02469
002702 056022 A 2470          STA     ASFL,B      SET '*' FLAG                         07 02470
002703 126056 A 2471          ADD     DT,B                                             07 02471
002704 056056 A 2472          STA     DT,B        REDUCE FRACTIONAL FIELD              07 02472
002705 001002 A 2473          JAP     ONF5        DOES FIELD STILL OVERFLOW ?          07 02473
002706 002720 R
002707 005004 A 2474          TZX                 YES                                  07 02474
002710 076056 A 2475          STX     DT,B        SET FRACTIONAL FIELD WIDTH = 0       07 02475
002711 126147 A 2476          ADD     PTFL,B      DELETE '.'                           07 02476
002712 076147 A 2477          STX     PTFL,B                                           07 02477
002713 126100 A 2478          ADD     IFW,B                                            07 02478
002714 056100 A 2479          STA     IFW,B       REDUCE INTEGER FIELD WIDTH           07 02479
002715 001002 A 2480          JAP     ONF5        DOES FIELD STILL OVERFLOW ?          07 02480
002716 002720 R
002717 076100 A 2481          STX     IFW,B       YES. SET INTEGER FIELD WIDTH = 0     07 02481
                2482 ONF5     MOVBAB  BLNK1,BCHAR LOAD BLANK AS REPEAT CHARACTER   V2  07 02482
002720 016202 A
002721 056030 A
                2483          PUSHJ   PCH         OUTPUT COUNT BLANKS              V2  07 02483
002722 006010 A
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002723 005176 R
002724 006505 A
002725 004774 R
                2484 ****************                                                    07 02484
                2485 * OUTPUT SIGN *                                                   07 02485
                2486 ****************                                                   07 02486
                2487          TZAB    SGFL,ONF20    DONT OUTPUT '+' SIGN               07 02487
002726 016157 A
002727 001010 A
002730 002740 R
002731 006010 A 2488          LDAI    0255                                    V2      07 02488
002732 000255 A
002733 056030 A 2489          STA     BCHAR,B                                 V2      07 02489
                2490          PUSHJ   OCB           OUTPUT '-'                V2      07 02490
002734 006010 A
002735 002635 R
002736 006505 A
002737 004774 R
                2491 ************************                                        07 02491
                2492 * OUTPUT INTEGER FIELD *                                       07 02492
                2493 ************************                                       07 02493
                2494 ONF20    MOVBAB  IFW,COUNT     LOAD LOOP COUNT                   07 02494
002740 016100 A
002741 056052 A
                2495          MOVBAB  ACHB,CHBPT    INITIALIZE CHB ARRAY POINTER      07 02495
002742 016007 A
002743 056050 A
002744 016052 A 2496 ONFL1    LDA     COUNT,B                                         07 02496
002745 005311 A 2497          DAR                   DECREMENT COUNT                   07 02497
002746 001004 A 2498          JAN     ONF30         EXIT WHEN FINISHED                07 02498
002747 002775 R
002750 056052 A 2499          STA     COUNT,B                                         07 02499
002751 036050 A 2500          LDX     CHBPT,B                                         07 02500
002752 046050 A 2501          INR     CHBPT,B       BUMP CHB POINTER                  07 02501
002753 015000 A 2502          LDA     0,X           GET DIGIT                         07 02502
002754 126177 A 2503          ADD     AZER,B        CONVERT TO ASCII          V2      07 02503
002755 056030 A 2504          STA     BCHAR,B                                         07 02504
                2505          PUSHJ   OCB           OUTPUT CHARACTER TO BUFFER V2     07 02505
002756 006010 A
002757 002635 R
002760 006505 A
002761 004774 R
002762 016050 A 2506          LDA     CHBPT,B                                         07 02506
002763 146007 A 2507          SUB     ACHB,B                                          07 02507
002764 146200 A 2508          SUB     BD14,B                                  V2      07 02508
002765 001004 A 2509          JAN     ONFL1                                           07 02509
002766 002744 R
                2510          MOVBAB  AZER,BCHAR    LOAD '0' AS REPEAT CHARACTER V2   07 02510
002767 016177 A
002770 056030 A
                2511          PUSHJ   RCH           OUTPUT '0' FILL           V2      07 02511
002771 006010 A
002772 005176 R
002773 006505 A
002774 004774 R
                2512 ***************                                                 07 02512
                2513 * OUTPUT '.' *                                                 07 02513
                2514 ***************                                                07 02514
                2515 ONF30    TZAB    ?TFL,ONF40    SKIP IF NO '.'                    07 02515
002775 016147 A
002776 001010 A
002777 003053 R
003000 006010 A 2516          LDAI    0256                                    V2      07 02516
003001 000256 A
003002 056030 A 2517          STA     BCHAR,B       LOAD '.' AS OUTPUT CHARACTER V2   07 02517
                2518          PUSHJ   OCB           OUTPUT '.'                V2      07 02518
003003 006010 A
003004 002635 R
003005 006505 A
003006 004774 R
                2519 ********************************************                    07 02519
                2520 * OUTPUT LEADING ZEROS IN FRACTIONAL FIELD *                    07 02520
                2521 ********************************************                   07 02521
                2522          MOVBAB  ZFW,COUNT     LOAD LEADING ZERO COUNT           07 02522
003007 016176 A
003010 056052 A
                2523          MOVBAB  AZER,BCHAR    LOAD '0' AS REPEAT CHARACTER V2   07 02523
003011 016177 A
003012 056030 A
                2524          PUSHJ   RCH           OUTPUT LEADING ZEROS      V2      07 02524
003013 006010 A
003014 005176 R
003015 006505 A
003016 004774 R
                2525 ************************                                        07 02525
                2526 * OUTPUT FRACTIONAL PART *                                     07 02526
                2527 ************************                                       07 02527
                2528          SUTBBB  DT,ZFW,COUNT        LOAD COUNTER              07 02528
003017 016056 A
003020 146176 A
003021 056052 A
003022 016052 A 2529 ONFL2    LDA     COUNT,B                                         07 02529
003023 005311 A 2530          DAR                   DECREMENT COUNT                   07 02530
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003024 001004 A 2531          JAN     ONF40           EXIT WHEN FINISHED                                  07 02531
003025 003053 R
003026 056052 A 2532          STA     COUNT,B                                                             07 02532
003027 036050 A 2533          LDX     CHBPT,B         POINT X AT DIGIT                                    07 02533
003030 046050 A 2534          INR     CHBPT,B         BUMP CHB POINTER                                    07 02534
003031 015000 A 2535          LDA     0,X             GET DIGIT                                           07 02535
003032 126177 A 2536          ADD     AZER,B          CONVERT TO ASCII                            V2      07 02536
003033 056030 A 2537          STA     BCHAR,B                                                             07 02537
                2538          PUSHJ   OCB             OUTPUT CHAR TO BUFFER                       V2      07 02538
003034 006010 A
003035 002635 R
003036 006505 A
003037 004774 R
003040 016050 A 2539          LDA     CHBPT,B                                                             07 02539
003041 146007 A 2540          SUB     ACHB,B                                                              07 02540
003042 146200 A 2541          SUB     BD14,B                                                      V2      07 02541
003043 001004 A 2542          JAN     ONFL2                                                               07 02542
003044 003022 R
                2543          MOVBAB  AZER,BCHAR      LOAD '0' AS REPEAT CHARACTER                V2      07 02543
003045 016177 A
003046 056030 A
                2544          PUSHJ   RCH             OUTPUT '0' FILL                             V2      07 02544
003047 006010 A
003050 005176 R
003051 006505 A
003052 004774 R
                2545 ONF40    TNZAB   XFL,ONF50       TEST EXPONENT FLAG                          V2      07 02545
003053 016173 A
003054 001016 A
003055 003066 R
                2546 **********************************                                                  07 02546
                2547 * OUTPUT BLANK EXPONENT FIELD *                                                     07 02547
                2548 **********************************                                                  07 02548
                2549          MOVPAB  FOUR,COUNT      SET BLANK COUNT TO 4                                07 02549
003056 010423 A
003057 056052 A
                2550          MOVBAB  BLNK1,BCHAR                                                 V2      07 02550
003060 016202 A
003061 056030 A
                2551          PUSHJ   RCH             OUTPUT 4 BLANKS AND EXIT                    V2      07 02551
003062 006010 A
003063 005176 R
003064 006505 A
003065 004774 R
                2552 ***************************                                                         07 02552
                2553 * OUTPUT EXPONENT FIELD *                                                           07 02553
                2554 ***************************                                                         07 02554
003066 006010 A 2555 ONF50    LDAI    0305                                                        V2      07 02555
003067 000305 A
003070 056030 A 2556          STA     BCHAR,B         SET EXPONENT CHARACTER TO 'E'               V2      07 02556
                2557          TNZAB   FDLKEY,ONF52    IS FORMAT DESCRIPTOR 'D' ?                  V2      07 02557
003071 016061 A
003072 001016 A
003073 003077 R
                2558          DAB     BCHAR           YES. LOAD 'D'                               V2      07 02558
003074 016030 A
003075 005311 A
003076 056030 A
                2559 ONF52    PUSHJ   OCB             OUTPUT 'D' OR 'E'                           V2      07 02559
003077 006010 A
003100 002635 R
003101 006505 A
003102 004774 R
                2560          MOVBAB  BLNK1,BCHAR     LOAD BLANK FOR PLUS                         V2      07 02560
003103 016202 A
003104 056030 A
                2561          TPAB    DEXP,ONF55      IS EXPONENT NEGATIVE ?                              07 02561
003105 016055 A
003106 001002 A
003107 003116 R
003110 005211 A 2562          CPA                     YES                                                 07 02562
003111 005111 A 2563          IAR                     CONVERT TO ABS                                      07 02563
003112 056055 A 2564          STA     DEXP,B                                                              07 02564
003113 006010 A 2565          LDAI    0255                                                        V2      07 02565
003114 000255 A
003115 056030 A 2566          STA     BCHAR,B         LOAD '-'                                    V2      07 02566
                2567 ONF55    PUSHJ   OCB             OUTPUT EXPONENT SIGN                        V2      07 02567
003116 006010 A
003117 002635 R
003120 006505 A
003121 004774 R
003122 005024 A 2568          TBX                     LOAD X AS BASE REGISTER                             07 02568
003123 005001 A 2569          IZA                                                                         07 02569
003124 025055 A 2570          LDB     DEXP,X          GET EXPONENT                                        07 02570
003125 170471 A 2571          DIV     TEN             GET DECIMAL DIGITS                                  07 02571
003126 055055 A 2572          STA     DEXP,X                                                              07 02572
003127 005021 A 2573          TBA                     GET TENS DIGIT IN A                                 07 02573
003130 005042 A 2574          TXB                     RESTORE BASE REGISTER B                             07 02574
003131 126177 A 2575          ADD     AZER,B          CONVERT TO ASCII                            V2      07 02575
003132 056030 A 2576          STA     BCHAR,B                                                             07 02576
                2577          PUSHJ   OCB             OUTPUT TENS DIGIT OF EXPONENT               V2      07 02577
003133 006010 A
003134 002635 R
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003135 006505 A
003136 004774 R
003137 016055 A 2578          LDA     0EXP,B          RESTORE UNITS DIGIT                              07 02578
003140 126177 A 2579          ADD     AZER,B          CONVERT TO ASCII                      V2         07 02579
003141 056030 A 2580          STA     BCHAR,B                                                          07 02580
                2581 ONF60    PUSHJ   DCB             OUTPUT UNITS DIGIT/ '*' / EXIT        V2         07 02581
003142 006010 A
003143 002635 R
003144 006505 A
003145 004774 R
003146 001000 A 2582          JMP     ONF60                                                            07 02582
003147 003142 R
                2583          EJEC                                                                     07 02583
                2584 ********************************************************************************* 07 02584
                2585 *                                                                               * 07 02585
                2586 *                        O P E N   F I L E ( O P N )                            * 07 02586
                2587 *                                                                               * 07 02587
                2588 * FUNCTION: TO PROCESS CALLS TO OPEN AN RMD FILE                                * 07 02588
                2589 *                                                                               * 07 02589
                2590 * ENTRY:  DIRECT FROM RBE                                                       * 07 02590
                2591 *         UNIT = FORTRAN UNIT NUMBER U                                          * 07 02591
                2592 *         RETURN = CALL SEQUENCE ADDRESS                                        * 07 02592
                2593 *         RETURN(5) = ADDRESS OF LOGICAL UNIT NUMBER L                          * 07 02593
                2594 *         RETURN(6) = ADDRESS OF FCB ARRAY                                      * 07 02594
                2595 *         RETURN(7) = MODE(REWIND OR LEAVE) OF V$IOC OPEN CALL                  * 07 02595
                2596 *                                                                               * 07 02596
                2597 *         FOR LOGICAL FILES ONLY:                                               * 07 02597
                2598 *                                                                               * 07 02598
                2599 *         RETURN(8) = ADDRESS OF LOGICAL RECORD SIZE                            * 07 02599
                2600 *         RETURN(9) = ADDRESS OF I/O BUFFER ARRAY                               * 07 02600
                2601 *         RETURN(10) = ADDRESS OF READ BEFORE WRITE FLAG                        * 07 02601
                2602 *                                                                               * 07 02602
                2603 * EXIT :  FCB LINKED TO CHAIN                                                   * 07 02603
                2604 *          ADFCB = ADDRESS OF FCB                                               * 07 02604
                2605 *          FCB(0) = LOGICAL RECORD SIZE                                         * 07 02605
                2606 *          FCB(1) = BUFFER ADDRESS                                              * 07 02606
                2607 *          FCB OPENED BY V$IOC OPEN CALL                                        * 07 02607
                2608 *          FCB(11) = U = FORTRAN UNIT NUMBER                                    * 07 02608
                2609 *          FCB(12)(BITS 0-7) = L = LOGICAL UNIT NUMBER                          * 07 02609
                2610 *                                                                               * 07 02610
                2611 *          LOGICAL FILES ONLY:                                                  * 07 02611
                2612 *                                                                               * 07 02612
                2613 *          FCB(2) = CURRENT LOGICAL RECORD NUMBER                               * 07 02613
                2614 *          FCB(12)(BIT RB) = 1  ENABLE READ BEFORE WRITE              V2*       07 02614
                2615 *                          = 0  DISABLE READ BEFORE WRITE             V2*       07 02615
                2616 *                 (BIT LF) = 1  LOGICAL FILE                          V2*       07 02616
                2617 *                            0  NOT LOGICAL FILE                      V2*       07 02617
                2618 *                 (BIT RM) = 1  RMD DEVICE                            V2*       07 02618
                2619 *                            0  NOT RMD DEVICE                        V2*       07 02619
                2620 *                 (BIT GF) = 1  GLOBAL FCB                            V2*       07 02620
                2621 *                            0  NOT GLOBAL FCB                        V2*       07 02621
                2622 *          FCB(13) = 0                                                          * 07 02622
                2623 *                                                                               * 07 02623
                2624 ********************************************************************************* 07 02624
                2626 ***************                                                          V2       07 02626
                2627 * INITIALIZE *                                                          V2       07 02627
                2628 ***************                                                          V2       07 02628
003150 016164 A 2629 OPN      LDA     TEMP,B          GET OP                                V2         07 02629
003151 006140 A 2630          SUBI    COPV            BIAS IT                               V2         07 02630
003152 000016 A
003153 001010 A 2631          JAZ     *+3             LOGICAL FILE ?                        V2         07 02631
003154 003156 R
003155 010422 A 2632          LDA     LFS             YES. SET FLAG                         V2         07 02632
003156 110427 A 2633          ORA     INS             SET INITIALIZE FLAG                   V2         07 02633
003157 056154 A 2634          STA     RWFL,B          STORE FLAG WORD                       V2         07 02634
003160 036016 A 2635          LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                   07 02635
                2636          MOVXAB  SYSBF,SAVE+3    STORE =$BUF AS BUFFER ADDRESS                    07 02636
003161 015162 A
003162 056035 A
                2637 ********************************************************                         07 02637
                2638 * MOVE PARAMETERS FROM CALL SEQ TO DATA BLOCK *                                  07 02638
                2639 ********************************************************                         07 02639
003163 036151 A 2640          LDX     RETURN,B        POINT X AT CALL SEQ                              07 02640
                2641          MOVXAB  5,SAVE          MOVE ADDRESS OF LOGICAL UNIT NUMBER L            07 02641
003164 015005 A
003165 056032 A
                2642          MOVXAB  6,SAVE+6        MOVE ADDRESS OF FCB ARRAY             V2         07 02642
003166 015006 A
003167 056040 A
                2643          MOVXAB  7,SAVE+1        MOVE ADDRESS OF OPEN MODE PARAMETER              07 02643
003170 015007 A
003171 056033 A
                2644          TRAB    RWFL,LF,OPN4    LOGICAL FILE ?                        V2         07 02644
003172 016154 A
003173 006441 A
003174 003203 R
                2645          MOVXAB  8,SAVE+2        YES. MOVE ADDRESS OF LOGICAL RECORD SIZE         07 02645
003175 015010 A
003176 056034 A
                2646          MOVXAB  9,SAVE+3        MOVE BUFFER ADDRESS                              07 02646
003177 015011 A
003200 056035 A
                2647          MOVXAB  10,SAVE+4       SAVE ADDRESS OF READ BEFORE WRITE FLAG           07 02647
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003201 015012 A
003202 056036 A
                    2648 ************************                                                                07 02648
                    2649 * PROCESS PARAMETERS *                                                                07 02649
                    2650 ************************                                                                07 02650
          003203 R  2651 OPN4    EQU     *                                                                     V2 07 02651
                    2652         IFF     NUC                                                                    FG 07 02652
                    2653         GOTO    NUC1                                                                   FG 07 02653
                    2654         IFT     VII                                                                    FG 07 02654
                    2655         GOTO    VII1                                                                   FG 07 02655
                    2656         TZAB    ALOC,OPN5       SKIP BOUNDS TEST IF NOT BACKGROUND                  E.1 07 02656
                    2657         LDA     SAVE+6,B                                                             D.1 07 02657
                    2658         JSR     TBK,X           TEST FCB IN BACKGROUND                              V2 07 02658
                    2659         ADD     BD14,B                                                              V2 07 02659
                    2660         JSR     TBK,X                                                               V2 07 02660
                    2661 OPN5    EQU     *                                                                   E.1 07 02661
                    2662 VII1    CONT                                                                         FG 07 02662
                    2663 NUC1    CONT                                                                         FG 07 02663
003203 036032 A     2664         LDX     SAVE,B          GET ADDRESS OF LOGICAL UNIT NUMBER L                V2 07 02664
                    2665         MOVXAB  0,SAVE          GET L                                                  07 02665
003204 015000 A
003205 056032 A
                    2666         PUSHJ   PRU             PROCESS UNIT NUMBERS U,L                            V2 07 02666
003206 006010 A
003207 004162 R
003210 006505 A
003211 004774 R
003212 036033 A     2667         LDX     SAVE+1,B        POINT X AT OPEN MODE M(REWIND,LEAVE)                   07 02667
003213 015000 A     2668         LDA     0,X             GET M                                                  07 02668
003214 001010 A     2669         JAZ     *+3                                                                    07 02669
003215 003217 R
003216 010435 A     2670         LDA     BS12            SET LEAVE BIT                                          07 02670
003217 116032 A     2671         ORA     SAVE,B          MERGE IN L                                             07 02671
003220 006110 A     2672         ORAI    03000           MERGE IN SKELETON OF IOC OPEN CONT WD               V2 07 02672
003221 003000 A
003222 036016 A     2673         LDX     ANRB,B          POINT X AT V$FORTIO                                    07 02673
003223 055104 A     2674         STA     IOCONT,X        STORE I/O CONTROL WORD IN V$FORTIO                     07 02674
                    2675         MOVBAB  SAVE+6,ADFCB    GET FCB ADDRESS                                     V2 07 02675
003224 016040 A
003225 056010 A
003226 055010 A     2676         STA     ADFCB,X         ALSO IN V$FORTIO                                    V2 07 02676
003227 005014 A     2677         TAX                     POINT X AT FCB                                         07 02677
                    2678         MOVBAX  BD120,0         SET FCB(0) = 120 WORDS                              V2 07 02678
003230 016201 A
003231 055003 A
                    2679         MOVBAX  SAVE+3,1        LOAD BUFFER ADDRESS INTO FCB(1)                        07 02679
003232 016035 A
003233 055001 A
003234 015002 A     2680         LDA     2,X             GET KEY WORD                                           07 02680
003235 150463 A     2681         ANA     =HFFF           CLEAR UPPER BYTE                                       07 02681
003236 006110 A     2682         ORAI    01100           SET MODE TO SEQUENTIAL                              V2 07 02682
003237 001400 A
003240 055002 A     2683         STA     2,X                                                                    07 02683
                    2684 ************************                                                               07 02684
                    2685 * MAKE IOC OPEN CALL *                                                               07 02685
                    2686 ************************                                                               07 02686
003241 010464 A     2687         LDA     CIO                                                                 V2 07 02687
003242 006505 A     2688         JSR     PSJ,X           CALL V$FORTIO TO DO IOC OPEN                        V2 07 02688
003243 004774 R
                    2689 ************************                                                               07 02689
                    2690 * LINK FCB ON CHAIN *                                                               07 02690
                    2691 ************************                                                               07 02691
003244 036146 A     2692         LDX     PSLINK,B        POINT X AT LAST LINK OF FCB CHAIN                      07 02692
                    2693         MOVBAX  ADFCB,10        LINK FCB ON CHAIN                                      07 02693
003245 016010 A
003246 055012 A
003247 036016 A     2694         LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                         07 02694
003250 045120 A     2695         INR     LNKCNT,X        BUMP LINK COUNT                                        07 02695
                    2696 ************************************                                                   07 02696
                    2697 * LOAD PARAMETERS INTO FCB ARRAY *                                                   07 02697
                    2698 ************************************                                                   07 02698
003251 005014 A     2699         TAX                     POINT X AT FCB(U)                                      07 02699
                    2700         MOVBAX  UNIT,11         MOVE FORTRAN UNIT NUMBER U TO FCB(11)                  07 02700
003252 016167 A
003253 055013 A
003254 016154 A     2701         LDA     SWFL,B          GET FLAG WORD                                       V2 07 02701
003255 150447 A     2702         ANA     =NINF           CLEAR INITIALIZE FLAG                               V2 07 02702
003256 004254 A     2703         LRLA    8H              POSITION                                            V2 07 02703
003257 116032 A     2704         ORA     SAVE,B          MERGE IN LOGICAL UNIT NUMBER L                      V2 07 02704
003260 055014 A     2705         STA     12,X            STORE IN FCB(12)                                    V2 07 02705
003261 006455 A     2706         BT      ARST+FLF,OPN30      TEST IF LOGICAL FILE                            V2 07 02706
003262 003322 R
                    2707 ************************************                                                   07 02707
                    2708 * PROCESS LOGICAL FILE PARAMETERS *                                                   07 02708
                    2709 ************************************                                                   07 02709
003263 036034 A     2710         LDX     SAVE+2,B                                                               07 02710
                    2711         MOVXAB  0,SAVE+2        SAVE LOGICAL RECORD SIZE                               07 02711
003264 015000 A
003265 056034 A
003266 036010 A     2712         LDX     ADFCB,B         POINT X AT FCB                                         07 02712
003267 055000 A     2713         STA     0,X             STORE LOGICAL RECORD SIZE IN FCB(0)                    07 02713
                    2714         TRAB    ARFL,RM,OPN30       EXIT IF NOT RMS                                 V2 07 02714
003270 016154 A
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003271 006440 A
003272 003322 R
003273 036036 A 2715          LDX     SAVE+4,B      POINT X AT ADDR OF READ BEFORE WRITE FLAG   07 02715
003274 015000 A 2716          LDA     0,X           GET FLAG                                    07 02716
003275 001010 A 2717          JAZ     *+3                                                       07 02717
003276 003300 R
003277 010440 A 2718          LDA     FRBS          SET READ BEFORE WRITE FLAG            V2    07 02718
003300 036010 A 2719          LDX     ADFCB,B       POINT X AT FCB                              07 02719
003301 115014 A 2720          ORA     12,X          MERGE WITH L                                07 02720
003302 055014 A 2721          STA     12,X          STORE IN FCB(12)                            07 02721
                2722          ZAX     13            SET FCB(13)=0 TO MARK BUFFER EMPTY          07 02722
003303 005001 A
003304 055015 A
003305 015003 A 2723          LDA     3,X           GET CURRENT RECNO                           07 02723
003306 005311 A 2724          DAR                   CHANGE FROM BASE 1 TO BASE 0                07 02724
003307 001010 A 2725          JAZ     OPN30         EXIT IF AT START OF FILE                    07 02725
003310 003322 R
                2726 ***************************************************                       07 02726
                2727 * CONVERT PHYSICAL RECNO TO LOGICAL RECNO IN FCB(3) *                      07 02727
                2728 ***************************************************                       07 02728
003311 005024 A 2729          TBX                   SAVE BASE REGISTER IN X                     07 02729
003312 004560 A 2730          LLSR    16                                                        07 02730
003313 165201 A 2731          MUL     BD120,X                                             V2    07 02731
003314 175034 A 2732          DIV     SAVE+2,X      CONVERT PHYSICAL POSITION TO LOGICAL        07 02732
003315 005021 A 2733          TBA                                                               07 02733
003316 005042 A 2734          TXB                   RESTORE BASE REGISTER B                     07 02734
003317 036010 A 2735          LDX     ADFCB,B       POINT X AT FCB                              07 02735
003320 005111 A 2736          IAR                   CHANGE FROM BASE 0 TO BASE 1                07 02736
003321 055003 A 2737          STA     3,X           STORE LOGICAL RECORD POSITION IN FCB(3)     07 02737
003322 010422 A 2738 OPN30    LDA     CEX                                                       07 02738
                2739          PUSHF                 PUSH EXIT OP ONTO V$FORTIO STACK            07 02739
003323 036016 A
003324 035000 A
003325 005344 A
003326 055000 A
003327 005041 A
003330 036016 A
003331 055000 A
003332 001000 A 2740          JMP     CAN           EXIT TO V$FORTIO                            07 02740
003333 000101 R
                2741          EJEC                                                              07 02741
                2742 ***************************************************************************07 02742
                2743 *                                                                         * 07 02743
                2744 *          P R O C E S S   A U X I L I A R Y   I / O ( P A X )            * 07 02744
                2745 *                                                                         * 07 02745
                2746 * FUNCTION: TO PROCESS THE FORTRAN AUXILIARY I/O STATEMENTS:             * 07 02746
                2747 *                                                                         * 07 02747
                2748 *                 BACKSPACE U                                             * 07 02748
                2749 *                 ENDFILE U                                               * 07 02749
                2750 *                 REWIND U                                                * 07 02750
                2751 *                                                                         * 07 02751
                2752 * ENTRY:  DIRECT FROM RBE                                                 * 07 02752
                2753 *          UNIT = FORTRAN UNIT NUMBER U                                   * 07 02753
                2754 *          TEMP = OP = 6 BACKSPACE                                        * 07 02754
                2755 *                    = 7 ENDFILE                                          * 07 02755
                2756 *                    = 8 REWIND                                           * 07 02756
                2757 *                                                                         * 07 02757
                2758 * EXIT :  TO V$FORTIO WITH EXIT OP STACKED                               * 07 02758
                2759 *          I/O AND EXIT OPS STACKED                                       * 07 02759
                2760 *                                                                         * 07 02760
                2761 ***************************************************************************07 02761
                2763 PAX      SUTBPB  TEMP,CBK,SAVE+1     GET BIASED OP                 V2    07 02763
003334 016164 A
003335 140467 A
003336 056033 A
                2764          ZAB     RWFL          CLEAR FLAG WORD                             07 02764
003337 005001 A
003340 056154 A
                2765          PUSHJ   PRU           PROCESS FORTRAN UNIT NUMBER U         V2    07 02765
003341 006010 A
003342 004162 R
003343 006505 A
003344 004774 R
                2766          TRAB    RWFL,RM,PAX50       TEST IF RMD                     V2    07 02766
003345 016154 A
003346 006440 A
003347 003475 R
                2767 ************                                                            07 02767
                2768 * U IS RMD *                                                          07 02768
                2769 ************                                                            07 02769
                2770          TZAB    SAVE+1,PAX10  BACKSPACE                               07 02770
003350 016033 A
003351 001010 A
003352 003360 R
003353 005311 A 2771          DAR                   NO                                      07 02771
003354 001010 A 2772          JAZ     PAX15         ENDFILE ?                               07 02772
003355 003374 R
003356 001000 A 2773          JMP     PAX30         NO. REWIND                              07 02773
003357 003461 R
                2774 ******************                                                    07 02774
                2775 * BACKSPACE RMD *                                                    07 02775
                2776 ******************                                                    07 02776
                2777 PAX10    TSAB    RWFL,GF,PAX50       CALL V$IOC BACKSPACE IF GLOBAL FCB V2 07 02777
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003360 016154 A
003361 006407 A
003362 003475 R
                    2778 ***************************************                                  07 02778
                    2779 * BACKSPACE BY SETTING FCB(3) = FCB(3)-1 *                                07 02779
                    2780 ***************************************                                  07 02780
003363 036010 A     2781         LDX     ADFCB,B         POINT X AT FCB                          07 02781
                    2782         PAX     3               DECREMENT CURRENT RECORD NUMBER IN FCB(3) 07 02782
003364 015003 A
003365 005311 A
003366 055003 A
003367 005311 A     2783         DAR                                                             07 02783
003370 001004 A     2784         JAN     PAX30           DO REWIND IF FCB(3).LT.1                07 02784
003371 003461 R
003372 001000 A     2785         JMP     PAX70           EXIT                                    07 02785
003373 003505 R
                    2786 ****************                                                         07 02786
                    2787 * ENDFILE RMD *                                                        07 02787
                    2788 ****************                                                         07 02788
                    2789 PAX15   TRAB    RWFL,PO,PAX16   POST BIT SET ?                      V2  07 02789
003374 016154 A
003375 006442 A
003376 003403 R
                    2790         PUSHJ   PSB             YES. POST BUFFER                    V2  07 02790
003377 006010 A
003400 004743 R
003401 006505 A
003402 004774 R
003403 006010 A     2791 PAX16   LDAI    013400          GET SKELETON CLOSE/UPDATE CONTROL WD V2  07 02791
003404 013400 A
003405 116167 A     2792         ORA     UNIT,B          MERGE IN LOGICAL UNIT NUMBER            07 02792
003406 036016 A     2793         LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK          07 02793
003407 055104 A     2794         STA     IOCONT,X        STORE IOC CONTROL WORD IN V$FORTIO      07 02794
003410 016154 A     2795         LDA     RWFL,B                                                  07 02795
003411 006441 A     2796         RT      ARST+LF,PAX20       LOGICAL FILE ?                      07 02796
003412 003434 R
003413 036010 A     2797         LDX     ADFCB,B         YES. POINT X AT FCB                     07 02797
                    2798         MOVBAX  2D120,0         SET RECORD SIZE FCB(0) = 120 WORDS   V2  07 02798
003414 016201 A
003415 055000 A
003416 016121 A     2799         LDA     LRECNO,B                                                07 02799
003417 005311 A     2800         DAR                     CONVERT FROM BASE 1 TO BASE 0           07 02800
003420 005024 A     2801         TBX                     SAVE BASE REGISTER IN X                 07 02801
003421 004560 A     2802         LLSR    16                                                      07 02802
003422 165122 A     2803         MUL     LRSZ,X          GET WORD COUNT                          07 02803
003423 175201 A     2804         DIV     2D120,X         CONVERT TO 120-WORD PHYSICAL REC CNT V2  07 02804
003424 001010 A     2805         JAZ     *+3                                                     07 02805
003425 003427 R
003426 005122 A     2806         IBR                     BUMP 1 FOR PARTIAL RECORD               07 02806
003427 005122 A     2807         IBR                     BUMP 1 TO CONVERT TO BASE 1             07 02807
003430 005021 A     2808         TBA                                                             07 02808
003431 005042 A     2809         TXB                     RESTORE BASE REGISTER B                 07 02809
003432 036010 A     2810         LDX     ADFCB,B         POINT X AT FCB                          07 02810
003433 055003 A     2811         STA     3,X             STORE CURRENT PHYSICAL RECNO IN FCB(3)  07 02811
003434 010464 A     2812 PAX20   LDS     CIO                                                 V2  07 02812
003435 006505 A     2813         JSR     PSJ,X           CALL V$IOC FOR CLOSE/UPDATE         V2  07 02813
003436 004774 R
003437 006010 A     2814         LDAI    013000          GET IOC OPEN/LEAVE SKELETON CONTROL WD V2 07 02814
003440 013000 A
003441 116167 A     2815         ORA     UNIT,B          MERGE IN LOGICAL UNIT NUMBER            07 02815
003442 036016 A     2816         LDX     ANRB,B          POINT X AT V$FORTIO                     07 02816
003443 055104 A     2817         STA     IOCONT,X        STORE IOC CONTROL WORD IN V$FORTIO      07 02817
003444 010464 A     2818         LDA     CIO                                                 V2  07 02818
003445 006505 A     2819         JSR     PSJ,X           CALL V$IOC FOR OPEN/LEAVE           V2  07 02819
003446 004774 R
                    2820         TRAB    RWFL,LF,PAX70       EXIT IF NOT LOGICAL FILE        V2  07 02820
003447 016154 A
003450 006441 A
003451 003505 R
003452 036010 A     2821         LDX     ADFCB,B         POINT X AT FCB                          07 02821
                    2822         MOVBAX  LRSZ,0          RESTORE LOGICAL RECORD SIZE IN FCB(0)   07 02822
003453 016122 A
003454 055000 A
                    2823         MOVBAX  LRECNO,3        RESTORE CURR LOG RECORD NUMBER IN FCB(3) 07 02823
003455 016121 A
003456 055003 A
003457 001000 A     2824         JMP     PAX70           EXIT                                    07 02824
003460 003505 R
                    2825 ****************                                                         07 02825
                    2826 * REWIND RMD *                                                        07 02826
                    2827 ****************                                                         07 02827
                    2828 PAX30   TRAB    RWFL,GF,PAX33       GLOBAL FCB ?                    V2  07 02828
003461 016154 A
003462 006447 A
003463 003470 R
003464 006010 A     2829         LDAI    03000           YES. CALL V$IOC OPEN/REWIND         V2  07 02829
003465 003000 A
003466 001000 A     2830         JMP     PAX55                                                   07 02830
003467 003500 R
003470 036010 A     2831 PAX33   LDX     ADFCB,B         POINT X AT FCB                          07 02831
003471 005101 A     2832         INCR    1                                                       07 02832
003472 055003 A     2833         STA     3,X             SET CURRENT RECORD NUMBER TO 1          07 02833
003473 001000 A     2834         JMP     PAX70           EXIT                                    07 02834
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003474 003505 R
                    2835 ************************
                    2836 * CALL V$IOC TO DO OP *                                                    V2  07 02836
                    2837 ************************                                                        07 02837
003475 036033 A     2838 PAX50   LDX     SAVC+1,B    GET BIASED OP IN X                               07 02838
                    2839         IFF     NUC                                                      FG  07 02839
                    2840         GOTO    NV2NUC                                                   FG  07 02840
                    2841         IFT     VII                                                      FG  07 02841
                    2842         OME     MAP,V$ST0   SET EXEC STATE TO 00                         V2  07 02842
                    2843 NV2NUC  CONT                                                             FG  07 02843
003476 006015 A     2844         LDAE    PAXTAB,X    GET IOC CONTROL WORD MODEL                       07 02844
003477 003532 R
                    2845         IFF     NUC                                                      FG  07 02845
                    2846         GOTO    NV2NUC                                                   FG  07 02846
                    2847         IFT     VII                                                      FG  07 02847
                    2848         OME     MAP,V$ST3   SET EXEC STATE TO NN                         V2  07 02848
                    2849 NV2NUC  CONT                                                             FG  07 02849
003500 116167 A     2850 PAX55   ORA     UNIT,B      MERGE IN LOGICAL UNIT NUMBER                     07 02850
003501 036016 A     2851         LDX     ANRB,B                                                       07 02851
003502 055104 A     2852         STA     IOCONT,X    STORE AS IOC CONTROL WORD                        07 02852
003503 007400 A     2853         ROF                                                                  07 02853
003504 001006 A     2854         DATA    01006                                                        07 02854
003505 007401 A     2855 PAX70   SOF                                                                  07 02855
003506 010422 A     2856         LDA     CEX                                                          07 02856
                    2857         PUSHF               PUSH EXIT OP                                     07 02857
003507 036016 A
003510 035000 A
003511 005344 A
003512 055000 A
003513 005041 A
003514 036016 A
003515 055000 A
003516 001001 A     2858         JOF     CAN         EXIT IF DONE                                     07 02858
003517 000101 R
003520 010464 A     2859         LDA     CIO                                                          07 02859
                    2860         PUSHF               PUSH I/O OP                                      07 02860
003521 036016 A
003522 035000 A
003523 005344 A
003524 055000 A
003525 005041 A
003526 036016 A
003527 055000 A
003530 001000 A     2861         JMP     CAN         EXIT                                             07 02861
003531 000101 R
                    2862 ************************************                                         07 02862
                    2863 * AUXILIARY I/O CONTROL WORD TABLE *                                        07 02863
                    2864 ************************************                                         07 02864
003532 012000 A     2865 PAXTAB  DATA    012000Q     BACKSPACE                                        07 02865
003533 001000 A     2866         DATA    01000       WRITE EOF                                        07 02866
003534 001400 A     2867         DATA    01400       REWIND                                           07 02867
                    2868         EJECT                                                                07 02868
                    2869 ************************************************************************** 07 02869
                    2870 *                                                                        *   07 02870
                    2871 *                  P U T   C H A R A C T E R ( P C H )                    *   07 02871
                    2872 *                                                                        *   07 02872
                    2873 * FUNCTION: TO STORE A CHARACTER                                         *   07 02873
                    2874 *                                                                        *   07 02874
                    2875 * ENTRY: ASCB = ADDRESS OF STRING CONTROL BLOCK SCB                      *   07 02875
                    2876 *                                                                        *   07 02876
                    2877 *              SCB(0): CURRENT CHARACTER COUNTER                         *   07 02877
                    2878 *              SCB(1): STRING START ADDRESS                              *   07 02878
                    2879 *              SCB(2): CHARACTER TO BE STORED                            *   07 02879
                    2880 *                                                                        *   07 02880
                    2881 * EXIT : SCB(0) = SCB(0)+1                                             *   07 02881
                    2882 *                                                                        *   07 02882
                    2883 ************************************************************************** 07 02883
003535 036021 A     2885 PCH     LDX     ASCB,B      POINT X AT SCB                                   07 02885
                    2886         MOVXAB  2,TEMP      SAVE CHAR                                        07 02886
003536 015002 A
003537 056164 A
003540 015000 A     2887         LDA     0,X         GET CURRENT POINTER                              07 02887
003541 045000 A     2888         INR     0,X         BUMP CURRENT POINTER                             07 02888
003542 007401 A     2889         SOF                                                                  07 02889
003543 004257 A     2890         LRLA    15          CONVERT BYTE TO WORD COUNT                       07 02890
003544 003004 A     2891         XAN     MOF         OVFL SET IF HIGH BYTE                            07 02891
003545 002340 R
003546 150460 A     2892         ANA     BR15        CLEAR SIGN BIT                                   07 02892
003547 125001 A     2893         ADD     1,X         ADD STRING START ADDRESS                         07 02893
003550 005014 A     2894         TAX                 POINT X AT WORD                                  07 02894
003551 015000 A     2895         LDA     0,X         GET WORD                                         07 02895
003552 001007 A     2896         JOFN    *+4         HIGH BYTE ?                                      07 02896
003553 003556 R
003554 007401 A     2897         SOF                 YES                                              07 02897
003555 004250 A     2898 LRLA8   LRLA    8           SWAP BYTES                                       07 02898
003556 150462 A     2899         ANA     LHW         CLEAR UNWANTED BYTE                              07 02899
003557 116164 A     2900         ORA     TEMP,B      MERGE IN NEW CHARACTER                           07 02900
003560 003001 A     2901         XOF     LRLA8       SWAP BYTES IF HIGH BYTE                          07 02901
003561 003555 R
003562 055000 A     2902         STA     0,X         STORE IN MEMORY                                  07 02902
                    2903         POPJ                EXIT                                         FG  07 02903
003563 001000 A
003564 004066 R
```

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                    2904          EJEC                                                                                  07 02904
                    2905 ********************************************************************************************* 07 02905
                    2906 *                                                                                           * 07 02906
                    2907 *   P R O C E S S   N U M E R I C   I N P U T   D E S C R I P T O R                         * 07 02907
                    2908 *                                                                                           * 07 02908
                    2909 *                                ( P N I )                                                  * 07 02909
                    2910 *                                                                                           * 07 02910
                    2911 * FUNCTION: TO PROCESS THE INPUT FORMAT DESCRIPTORS:                                        * 07 02911
                    2912 *                                                                                           * 07 02912
                    2913 *                SRDE.D                                                                     * 07 02913
                    2914 *                SREW.D                                                                     * 07 02914
                    2915 *                SRFW.D                                                                     * 07 02915
                    2916 *                SRGW.D                                                                     * 07 02916
                    2917 *                RIW                                                                        * 07 02917
                    2918 *                                                                                           * 07 02918
                    2919 * ENTRY: (ACC,BEXP,SGFL) = INPUT NUMBER, WHERE                                               * 07 02919
                    2920 *                ACC = NORMALIZED BINARY FRACTION                                           * 07 02920
                    2921 *                BEXP = BINARY EXPONENT                                                     * 07 02921
                    2922 *                SGFL = SIGN .EQ. 0 +                                                       * 07 02922
                    2923 *                           .NE. 0 -                                                        * 07 02923
                    2924 *          ITEMAD = ADDRESS OF LIST ITEM                                                    * 07 02924
                    2925 *          IIWSZ = WORD COUNT OF LIST ITEM                                                  * 07 02925
                    2926 *          ITMODE = LIST ITEM MODE                                                          * 07 02926
                    2927 *                 = 0 1-WORD INTEGER/LOGICAL                                                * 07 02927
                    2928 *                 = 1 2-WORD INTEGER/LOGICAL                                                * 07 02928
                    2929 *                 = 2 REAL                                                                  * 07 02929
                    2930 *                 = 3 DOUBLE PRECISION                                                      * 07 02930
                    2931 *                 = 4 COMPLEX                                                               * 07 02931
                    2932 *                                                                                           * 07 02932
                    2933 * EXIT : DIRECT TO FRS                                                                       * 07 02933
                    2934 *                                                                                           * 07 02934
                    2935 ********************************************************************************************* 07 02935
003565 R            2937 DIN      EQU      *                                                                          07 02937
003565 R            2938 EIN      EQU      *                                                                          07 02938
003565 R            2939 FIN      EQU      *                                                                          07 02939
003565 R            2940 GIN      EQU      *                                                                          07 02940
003565 R            2941 IIN      EQU      *                                                                          07 02941
                    2943 ******************                                                                         07 02943
                    2944 * TEST FOR ZERO *                                                                         07 02944
                    2945 ******************                                                                         07 02945
003565 007401 A     2946          SOF                                                                               07 02946
003566 016004 A     2947          LDA      ACC+1,B                                                                  07 02947
003567 116005 A     2948          ORA      ACC+2,B                                                                  07 02948
003570 116006 A     2949          ORA      ACC+3,B                                                                  07 02949
003571 003010 A     2950          XAZ      ROF             OVFL RESET IF ACC(1)=ACC(2)=ACC(3)=0                     07 02950
003572 002340 R
003573 116003 A     2951          ORA      ACC,B                                                                    07 02951
003574 001010 A     2952          JAZ      PNI50           EXIT IF ACC=0                                            07 02952
003575 003770 R
003576 016116 A     2953          LDA      ITMODE,B                                                                 07 02953
003577 140422 A     2954          SUB      TWO                                                                      07 02954
003600 001002 A     2955          JAP      PNI4            TEST INTEGER LIST ITEM                                   07 02955
003601 003650 R
                    2956 **********************                                                                     07 02956
                    2957 * INTEGER LIST ITEM *                                                                     07 02957
                    2958 **********************                                                                     07 02958
003602 001001 A     2959          JDF      ER3             ERROR 37 NOT INTEGER /                                   07 02959
003603 005470 R
003604 016024 A     2960          LDA      BEXP,B          GET BINARY EXPONENT                                      07 02960
003605 005311 A     2961          DAR                                                                               07 02961
003606 001004 A     2962          JAN      ER3             ERROR 37 NOT INTEGER /                                   07 02962
003607 005470 R
003610 140472 A     2963          SUB      D15                                                                      07 02963
003611 001002 A     2964          JAP      ER3             ERROR 37 NOT INTEGER /                                   07 02964
003612 005470 R
                    2965          MOVBAB   ACC,TEMP        SAVE LEFT-JUSTIFIED INTEGER                              07 02965
003613 016003 A
003614 056164 A
                    2966          ZAB      ACC             CLEAR ACCUMULATOR ACC                                    07 02966
003615 005001 A
003616 056003 A
                    2967 **********************                                                                     07 02967
                    2968 * INTEGER SHIFT LOOP *                                                                     07 02968
                    2969 **********************                                                                     07 02969
003617 005024 A     2970          TBX                      USE X AS BASE REGISTER                                   07 02970
                    2971 PNIL1    DAX      BEXP            DECREMENT BINARY EXPONENT                                07 02971
003620 015024 A
003621 005311 A
003622 055024 A
003623 001004 A     2972          JAN      PNIL1X          EXIT ON FINISH                                           07 02972
003624 003634 R
003625 015003 A     2973          LDA      ACC,X                                                                    07 02973
003626 025164 A     2974          LDB      TEMP,X                                                                   07 02974
003627 004401 A     2975          LASL     1               SHIFT INTEGER INTO ACC                                   07 02975
003630 055003 A     2976          STA      ACC,X                                                                    07 02976
003631 065164 A     2977          STB      TEMP,X                                                                   07 02977
003632 001000 A     2978          JMP      PNIL1           CONTINUE TILL DONE                                       07 02978
003633 003620 R
003634 001026 A     2979 PNIL1X   JBNZ     ER3             ERROR 37 NOT INTEGER /                           V2      07 02979
003635 005470 R
003636 005042 A     2980          TXB                      RESTORE BASE REGISTER B                          V2      07 02980
                    2981          TZAB     SGFL,PNI50      IS SIGN NEGATIVE ?                                       07 02981
003637 016157 A
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003640 001010 A
003641 003770 R
003642 016003 A 2982          LDA     ACC,B       YES                                  07 02982
003643 005211 A 2983          CPA                 NEGATE INTEGER                       07 02983
003644 005111 A 2984          IAR                                                      07 02984
003645 056003 A 2985          STA     ACC,B                                            07 02985
003646 001000 A 2986          JMP     PNI50                                            07 02986
003647 003770 R
003650 130464 A 2987 PNI4     ERA     THREE                                            07 02987
003651 001010 A 2988          JAZ     PNI60       D.P. INTEGER                         07 02988
003652 004013 R
003653 140422 A 2989          SUB     TWO                                              07 02989
003654 001010 A 2990          JAZ     PNI8        D.P.                                 07 02990
003655 003712 R
               2991 ********************                                               07 02991
               2992 * CONSTRUCT REAL *                                                07 02992
               2993 ********************                                               07 02993
003656 016004 A 2994          LDA     ACC+1,B     GET 2ND MANTISSA WORD                07 02994
003657 120430 A 2995          ADD     BS7         ROUND UPWARD                         07 02995
003660 007400 A 2996          ROF                                                      07 02996
003661 001002 A 2997          JAP     *+4         OVERFLOW ?                           07 02997
003662 003665 R
003663 005001 A 2998          TZA                 YES. CLEAR WORD                      07 02998
003664 046003 A 2999          INR     ACC,B       BUMP WORD 0                          07 02999
003665 056004 A 3000          STA     ACC+1,B                                          07 03000
003666 001007 A 3001          JOFN    *+5         OVERFLOW ?                           07 03001
003667 003673 R
003670 046024 A 3002          INR     BEXP,B      YES. BUMP BINARY EXPONENT            07 03002
               3003          MOVPAB  BS14,ACC    SHIFT FIELD                          07 03003
003671 010437 A
003672 056003 A
003673 005024 A 3004          TBX                 LOAD X AS BASE REGISTER              07 03004
003674 015024 A 3005          LDA     BEXP,X      GET BINARY EXPONENT IN A             07 03005
003675 120430 A 3006          ADD     BXBIAS      ADD BINARY EXPONENT BIAS          V2 07 03006
003676 025003 A 3007          LDB     ACC,X       GET HIGH WORD OF MANTISSA IN B       07 03007
003677 004407 A 3008          LASL    7           POSITION AB TO MAKE 1ST WORD OF REAL 07 03008
003700 055164 A 3009          STA     TEMP,X      SAVE 1ST WORD OF REAL                07 03009
003701 015003 A 3010          LDA     ACC,X       GET 1ST MANTISSA WORD IN A           07 03010
003702 025004 A 3011          LDB     ACC+1,X     GET 2ND MANTISSA WORD IN B           07 03011
003703 004407 A 3012          LASL    7           POSITION AS 2ND WORD OF REAL         07 03012
003704 055004 A 3013          STA     ACC+1,X     STORE IN ACC                         07 03013
003705 005042 A 3014          TXB                 RESTORE BASE REGISTER B              07 03014
               3015          MOVBAB  TEMP,ACC    LOAD 1ST WORD OF REAL INTO ACC(0)    07 03015
003706 016164 A
003707 056003 A
003710 001000 A 3016          JMP     PNI19                                            07 03016
003711 003753 R
               3017 ****************************                                     07 03017
               3018 * CONSTRUCT DOUBLE PRECISION *                                    07 03018
               3019 ****************************                                     07 03019
003712 016006 A 3020 PNI8     LDA     ACC+3,B                                          07 03020
003713 004241 A 3021          LRLA    1                                                07 03021
003714 001002 A 3022          JAP     PNI18       OVERFLOW ?                           07 03022
003715 003741 R
003716 046005 A 3023          INR     ACC+2,B     YES. BUMP WORD 2                     07 03023
003717 016005 A 3024          LDA     ACC+2,B     GET WORD                             07 03024
003720 001002 A 3025          JAP     PNI18       OVERFLOW ?                           07 03025
003721 003741 R
003722 046004 A 3026          INR     ACC+1,B     YES. BUMP WORD 1                     07 03026
003723 005001 A 3027          TZA                                                      07 03027
003724 056005 A 3028          STA     ACC+2,B     CLEAR WORD 2                         07 03028
003725 016004 A 3029          LDA     ACC+1,B     GET WORD 1                           07 03029
003726 001002 A 3030          JAP     PNI18       OVERFLOW ?                           07 03030
003727 003741 R
003730 046003 A 3031          INR     ACC,B       YES. BUMP WORD 0                     07 03031
003731 005001 A 3032          TZA                                                      07 03032
003732 056004 A 3033          STA     ACC+1,B     CLEAR WORD 1                         07 03033
003733 016003 A 3034          LDA     ACC,B       GET WORD 0                           07 03034
003734 001002 A 3035          JAP     PNI18       OVERFLOW ?                           07 03035
003735 003741 R
003736 046024 A 3036          INR     BEXP,B      YES. BUMP BINARY EXPONENT            07 03036
003737 010437 A 3037          LDA     BS14        AND SHIFT OVERFLOW BIT               07 03037
003740 056003 A 3038          STA     ACC,B       STORE WORD 0                         07 03038
               3039 PNI18     MOVBAB  ACC+2,ACC+3 SHIFT FIELD                          07 03039
003741 016005 A
003742 056006 A
               3040          MOVBAB  ACC+1,ACC+2                                      07 03040
003743 016004 A
003744 056005 A
               3041          MOVBAB  ACC,ACC+1                                        07 03041
003745 016003 A
003746 056004 A
003747 016024 A 3042          LDA     BEXP,B      GET BINARY EXPONENT                  07 03042
003750 120430 A 3043          ADD     BXBIAS      ADD BINARY EXPONENT BIAS          V2 07 03043
003751 056003 A 3044          STA     ACC,B       STORE IN WORD 0                      07 03044
003752 005124 A 3045          INCR    C24         POINT X AT BASE+1                    07 03045
003753 016157 A 3046 PNI19    LDA     SGFL,B                                           07 03046
003754 001010 A 3047          JAZ     PNI20       IS SIGN FLAG SET ?                   07 03047
003755 003761 R
003756 015003 A 3048          LDA     ACC,X       YES                                  07 03048
003757 005211 A 3049          CPA                 NEGATE NUMBER                        07 03049
003760 055003 A 3050          STA     ACC,X                                            07 03050
               3051 ************************                                         07 03051
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                        3052 * CHECK EXPONENT RANGE *                                                    07 03052
                        3053 ************************                                                    07 03053
003761 016024 A 3054 PNI20  LDA     BEXP,B      GET BINARY EXPONENT                                      07 03054
003762 120430 A 3055        ADD     BXBIAS      ADD BINARY EXPONENT BIAS                          V2     07 03055
003763 001004 A 3056        JAN     ER3         ERROR 3/ UNDERFLOW /                                     07 03056
003764 005470 R
003765 150462 A 3057        ANA     LHW                                                                  07 03057
003766 001016 A 3058        JANZ    ER3         ERROR 3/ OVERFLOW /                                      07 03058
003767 005470 R
                        3059 ********************                                                        07 03059
                        3060 * LOAD LIST ITEM *                                                          07 03060
                        3061 ********************                                                        07 03061
                        3062 PNI50  ZAB     COUNT       CLEAR COUNTER                                    07 03062
003770 005001 A
003771 056052 A
                        3063        MOVBAB  AACC,TEMP   INITIALIZE ACC POINTER                           07 03063
003772 016001 A
003773 056164 A
                        3064        MOVBAB  ITEMAD,BEXP INITIALIZE LIST ITEM POINTER                     07 03064
003774 016113 A
003775 056024 A
003776 036164 A 3065 PNIL2  LDX     TEMP,B      POINT X AT ACC                                           07 03065
003777 015000 A 3066        LDA     0,X         GET WORD                                                 07 03066
004000 036024 A 3067        LDX     BEXP,B      POINT X AT LIST ITEM                                     07 03067
004001 055000 A 3068        STA     0,X         STORE DATA IN LIST ITEM                                  07 03068
004002 046164 A 3069        INR     TEMP,B      BUMP ACC POINTER                                         07 03069
004003 046024 A 3070        INR     BEXP,B      BUMP LIST ITEM POINTER                                   07 03070
004004 046052 A 3071        INR     COUNT,B     BUMP LOOP COUNT                                          07 03071
004005 016052 A 3072        LDA     COUNT,B                                                              07 03072
004006 146102 A 3073        SUB     IIWSZ,B                                                              07 03073
004007 001004 A 3074        JAN     PNIL2       LOOP TILL ITEM FILLED                                    07 03074
004010 003776 R
004011 001000 A 3075        JMP     FRS65       EXIT TO FRS                                              07 03075
004012 001067 R
                        3077 *      PROCESS DOUBLE PRECISION INTEGER                                 *   07 03077
004013 016005 A 3078 PNI60  LDA     ACC+2,B                                                              07 03078
004014 116006 A 3079        ORA     ACC+3,B                                                              07 03079
004015 001016 A 3080        JANZ    ER3         NOT INTEGER                                              07 03080
004016 005470 R
004017 016024 A 3081        LDA     BEXP,B                                                               07 03081
004020 005311 A 3082        DAR                                                                          07 03082
004021 001004 A 3083        JAN     ER3         NOT INTEGER                                              07 03083
004022 005470 R
004023 006140 A 3084        SUBI    30                                                                   07 03084
004024 000036 A
004025 001002 A 3085        JAP     ER3         NOT INTEGER                                              07 03085
004026 005470 R
004027 005024 A 3086        TBX                                                                          07 03086
004030 005111 A 3087 PNI62  IAR                 POSITION VALUE                                           07 03087
004031 001002 A 3088        JAP     PNI64       DONE                                                     07 03088
004032 004044 R
004033 055024 A 3089        STA     BEXP,X                                                               07 03089
004034 015003 A 3090        LDA     ACC,X                                                                07 03090
004035 025004 A 3091        LDB     ACC+1,X                                                              07 03091
004036 004501 A 3092        LASR    1                                                                    07 03092
004037 055003 A 3093        STA     ACC,X                                                                07 03093
004040 065004 A 3094        STB     ACC+1,X                                                              07 03094
004041 015024 A 3095        LDA     BEXP,X                                                               07 03095
004042 001000 A 3096        JMP     PNI62                                                                07 03096
004043 004030 R
004044 005042 A 3097 PNI64  TXB                 RESTORE BASE REGISTER B                                  07 03097
                        3098        TZAB    SGFL,PNI50  POSITIVE SIGN                                    07 03098
004045 016157 A
004046 001010 A
004047 003770 R
004050 015004 A 3099        LDA     ACC+1,X     NEGATE VALUE                                             07 03099
004051 025003 A 3100        LDB     ACC,X                                                                07 03100
004052 005211 A 3101        CPA                                                                          07 03101
004053 005222 A 3102        CPB                                                                          07 03102
004054 005111 A 3103        IAR                                                                          07 03103
004055 001002 A 3104        JAP     PNI66                                                                07 03104
004056 004061 R
004057 130440 A 3105        ERA     BS15                                                                 07 03105
004060 005122 A 3106        IBR                                                                          07 03106
004061 055004 A 3107 PNI66  STA     ACC+1,X                                                              07 03107
004062 065003 A 3108        STB     ACC,X                                                                07 03108
004063 005042 A 3109        TXB                                                                          07 03109
004064 001000 A 3110        JMP     PNI50                                                                07 03110
004065 003770 R
                        3111        EJEC                                                                 07 03111
                        3112 ********************************************************************************07 03112
                        3113 *                                                                          *   07 03113
                        3114 *                          P O P / J U M P ( P O J )                       *   07 03114
                        3115 *                                                                          *   07 03115
                        3116 * FUNCTION: TO PROVIDE A POP/JUMP CAPABILITY                             *   07 03116
                        3117 *                                                                          *   07 03117
                        3118 * ENTRY: OPSTKP = OP STACK POINTER                                       *   07 03118
                        3119 *                                                                          *   07 03119
                        3120 * EXIT : DIRECT TO ROUTINE SPECIFIED BY OP                               *   07 03120
                        3121 *         OPSTKP INCREMENTED                                               *   07 03121
                        3122 *                                                                          *   07 03122
                        3123 ********************************************************************************07 03123
004066 036000 A 3125 POJ    LDX     OPSTKP,B    POINT X AT OP                                            07 03125
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004067 035000 A 3126          LDX     0,X             GET OP IN X                                          FG 07 03126
004070 046000 A 3127          INR     OPSTKP,B        BUMP STACK POINTER                                   FG 07 03127
004071 006705 A 3128          IJMP    0,X             EXIT                                                    07 03128
004072 000000 A
                3129          EJEC                                                                         PD 07 03129
                3130 ********************************************************************************PD 07 03130
                3131 *                                                                              *PD 07 03131
                3132 *                  P R O C E S S   E N C O D E / D E C O D E                   *PD 07 03132
                3133 *                                                                              *PD 07 03133
                3134 * FUNCTION: TO PROCESS THE FORTRAN STATEMENTS                                   *PD 07 03134
                3135 *                           ENCODE(S,F,B,C)                                    *PD 07 03135
                3136 *                           DECODE(S,F,B,C)                                    *PD 07 03136
                3137 *                                                                              *PD 07 03137
                3138 * ENTRY:  DIRECT FROM RBE                                                       *PD 07 03138
                3139 *         RETURN = ADDRESS OF PARAMETER LIST                                   *PD 07 03139
                3140 *         UNIT = BUFFER SIZE                                                   *PD 07 03140
                3141 *         TEMP = OP = CDC DECODE                                               *PD 07 03141
                3142 *                    CEN ENCODE                                                *PD 07 03142
                3143 *                                                                              *PD 07 03143
                3144 * EXIT:  ENCODE - BUFFER BLANKED                                               *PD 07 03144
                3145 *         FRMT = ADDRESS OF FORMAT STRING                                      *PD 07 03145
                3146 *         XFFL = 1 PARAMETER XFER ENABLED                                      *PD 07 03146
                3147 *         ITEMWC = 0  COUNT OF WORDS REMAINING IN LIST ITEM                    *PD 07 03147
                3148 *         DIRECT TO FRS TO START FORMAT SCAN                                   *PD 07 03148
                3149 *                                                                              *PD 07 03149
                3150 ********************************************************************************PD 07 03150
004073 016164 A 3151 PRD      LDA     TEMP,B                                                         PD 07 03151
004074 006140 A 3152          SUBI    CDC                                                            PD 07 03152
004075 000020 A
004076 004250 A 3153          LRLA    8               POSITION READ/WRITE FLAG                       PD 07 03153
004077 056104 A 3154          STA     IOCONT,B                                                       PD 07 03154
004100 001010 A 3155          JAZ     *+3                                                            PD 07 03155
004101 004103 R
004102 010432 A 3156          LDA     WRS             SET WRITE BIT                                  PD 07 03156
004103 110431 A 3157          ORA     BFS             SET FILL FLAG                                  PD 07 03157
004104 006110 A 3158          ORAI    02000           SET ENCODE/DECODE BIT                          PD 07 03158
004105 002000 A
004106 056154 A 3159          STA     RWFL,B          INITIALIZE READ/WRITE FLAG WORD                PD 07 03159
004107 036151 A 3160          LDX     RETURN,B        POINT X TO PARAMETER LIST                      PD 07 03160
                3161          MOVXAB  5,FRMT          SAVE FORMAT STRING ADDRESS                     PD 07 03161
004110 015005 A
004111 056063 A
                3162          MOVXAB  6,APBF          BUFFER ADDRESS                                 PD 07 03162
004112 015006 A
004113 056020 A
004114 056027 A 3163          STA     ALBF,B                                                         PD 07 03163
004115 005311 A 3164          DAR                                                                       07 03164
004116 056025 A 3165          STA     BFWPT,B                                                        PD 07 03165
004117 015007 A 3166          LDA     7,X             CHARACTER-PROCESSED COUNT ADDRESS              PD 07 03166
004120 056152 A 3167          STA     RETURN+1,B                                                     PD 07 03167
004121 001010 A 3168          JAZ     PRD1            NO COUNT FIELD                                 PD 07 03168
004122 004127 R
004123 005014 A 3169          TAX                                                                    PD 07 03169
004124 005001 A 3170          TZA                                                                    PD 07 03170
004125 055000 A 3171          STA     0,X             INITIALIZE COUNT VARIABLE                      PD 07 03171
004126 036151 A 3172          LDX     RETURN,B                                                       PD 07 03172
004127 016167 A 3173 PRD1     LDA     UNIT,B          BUFFER SIZE                                    PD 07 03173
004130 005111 A 3174          IAR                                                                    PD 07 03174
004131 004301 A 3175          ASRA                    MAKE BUFFER COUNT WORDS                        PD 07 03175
004132 056143 A 3176          STA     PBSZ,B                                                         PD 07 03176
004133 056144 A 3177          STA     PBWC,B                                                         PD 07 03177
004134 056122 A 3178          STA     LRSZ,B                                                         PD 07 03178
004135 056123 A 3179          STA     LRWC,B                                                         PD 07 03179
004136 005001 A 3180          TZA                                                                    PD 07 03180
004137 056167 A 3181          STA     UNIT,B          SET NO UNIT                                    PD 07 03181
004140 035016 A 3182          LDX     ANRB,X          POINT X AT VSFORTIO DATA BLOCK                 PD 07 03182
004141 010435 A 3183          LDA     BS12            IOC MODE IS ASCII                              PD 07 03183
004142 115104 A 3184          ORA     IOCONT,X                                                       PD 07 03184
004143 055104 A 3185          STA     IOCONT,X                                                       PD 07 03185
                3186          MOVBAX  RWFL,RWFL                                                      PD 07 03186
004144 016154 A
004145 055154 A
                3187          IFF     NUC                                                            FG 07 03187
                3188          GOTO    NUC1                                                           FG 07 03188
                3189          IFT     VII                                                            FG 07 03189
                3190          GOTO    VII1                                                           FG 07 03190
                3191          TZAB    ALOC,PRD2       ALOC ENTRY FROM BACKGROUND                     PD 07 03191
                3192          LDA     APBF,X          YES                                            PD 07 03192
                3193          JSR     TBK,X           TEST BUFFER START ADDRESS                      PD 07 03193
                3194          ADD     PBSZ,B                                                         PD 07 03194
                3195          DAR                                                                    PD 07 03195
                3196          JSR     TBK,X           TEST BUFFER END ADDRESS                        PD 07 03196
                3197 VII1     CONT                                                                   FG 07 03197
                3198 NUC1     CONT                                                                   FG 07 03198
                3199 PRD2     ZAB     BFPT            CLEAR BUFFER CHARACTER POINTER                 PD 07 03199
004146 005001 A
004147 056026 A
                3200          TRAB    RWFL,WR,PRD4    WRITE?                                         PD 07 03200
004150 016154 A
004151 006451 A
004152 004157 R
                3201          PUSHJ   CLB             YES, CLEAR BUFFER                              PD 07 03201
004153 006010 A
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004154 000134 R
004155 006505 A
004156 004774 R
004157 046172 A 3202 PRD4    INR     XFFL,B          ENABLE PARAMETER XFER                          PD 07 03202
004160 001000 A 3203         JMP     FRS             TO FORMAT SCAN                                 PD 07 03203
004161 000431 R
                3204         EJEC                                                                      07 03204
                3205 ********************************************************************************* 07 03205
                3206 *                                                                               * 07 03206
                3207 *              P R O C E S S   U N I T   N U M B E R ( P R U )                   * 07 03207
                3208 *                                                                               * 07 03208
                3209 * FUNCTION: TO PROCESS A FORTRAN UNIT NUMBER U                                  * 07 03209
                3210 *                                                                               * 07 03210
                3211 * ENTRY: UNIT = FORTRAN UNIT NUMBER U                                           * 07 03211
                3212 *          RWFL(BF) = 1                                                      V2   07 03212
                3213 *          RWFL(IM) = 1 IF OPEN CALL                                         V2*  07 03213
                3214 *          FCB CHAIN ITEM XFCB HAS FORMAT:                                      * 07 03214
                3215 *               XFCB(12)(BITS 0-7) = L(XFCB)                                    * 07 03215
                3216 *               XFCB(12)(BIT 12) = 1 RMD FILE                               V2   07 03216
                3217 *                                  0 NOT RMD FILE                           V2   07 03217
                3218 *               XFCB(12)(BIT 13) = 1 LOGICAL FILE                           V2*  07 03218
                3219 *                                  0 NOT LOGICAL FILE                       V2*  07 03219
                3220 *               XFCB(12)(BIT 14) = 1 UNPOSTED DATA IN BUFFER                    * 07 03220
                3221 *                                  0 NO UNPOSTED DATA IN FILE                   * 07 03221
                3222 *               XFCB(12)(BIT 15) = 1 ENABLE READ BEFORE WRITE                   * 07 03222
                3223 *                                  0 DISABLE READ BEFORE WRITE                  * 07 03223
                3224 *               XFCB(13) = PHYSICAL RECORD NUMBER IN BUFFER(0 IF NONE)          * 07 03224
                3225 *                                                                               * 07 03225
                3226 * EXIT : ADFCB = ADDRESS OF DCB/FCB                                             * 07 03226
                3227 *          UNIT = LOGICAL UNIT NUMBER L                                         * 07 03227
                3228 *          LRSZ = FCB(0) = LOGICAL RECORD SIZE IN WORDS                         * 07 03228
                3229 *          APBF = ADDRESS OF PHYSICAL BUFFER                                    * 07 03229
                3230 *          ALBF = ADDRESS OF LOGICAL BUFFER                                     * 07 03230
                3231 *          PBSZ = PHYSICAL BUFFER SIZE IN WORDS                                 * 07 03231
                3232 *          RWFL(BIT RM) = FCB(12)(BIT 12) RMD FLAG                       V2   07 03232
                3233 *          RWFL(BIT LF) = FCB(12)(BIT 13) LOGICAL FILE FLAG              V2   07 03233
                3234 *          RWFL(BIT PO) = FCB(12)(BIT 14) POST FLAG                      V2   07 03234
                3235 *          RWFL(BIT RB) = FCB(12)(BIT 15) READ BEFORE WRITE FLAG         V2   07 03235
                3236 *          RWFL(BIT BF) = 0 IF READ IS TO RETURN I/O WORD COUNT          V2   07 03236
                3237 *                         1 IF READ IS TO RETURN FULL BUFF(BLANK FILL)    V2   07 03237
                3238 *          RWFL(BIT GF) = 1 IF GLOBAL FCB                                V2*  07 03238
                3239 *                                                                               * 07 03239
                3240 *          THE FOLLOWING APPLY ONLY TO LOGICAL FILES:                           * 07 03240
                3241 *                                                                               * 07 03241
                3242 *          LGOV = INCREMENT FROM START OF PHYSICAL TO START OF LOGICAL          * 07 03242
                3243 *          LRECNO = FCB(3) = LOGICAL RECORD NUMBER                              * 07 03243
                3244 *          PBRC = COUNT OF 120-WORD RECORDS IN PHYSICAL BUFFER                  * 07 03244
                3245 *                                                                               * 07 03245
                3246 * ERRORS:  ER4 IF U NOT IN RANGE 1-255                                          * 07 03246
                3247 *           ER4 IF L INVALID                                                    * 07 03247
                3248 *           ER4 IF FOREGROUND RMD NOT OPENED                                    * 07 03248
                3249 *           ER4 IF BACKGROUND RMD NOT OPENED NOR W/GLOBAL FCB                   * 07 03249
                3250 *           ER4 IF U ALREADY ON CHAIN FOR OPEN CALL                       V2*   07 03250
                3251 *                                                                               * 07 03251
                3252 ********************************************************************************* 07 03252
                3254 ********************                                                             07 03254
                3255 * TEST RANGE OF U *                                                             07 03255
                3256 ********************                                                             07 03256
004162 016167 A 3257 PRU     LDA     UNIT,B          GET U                                          07 03257
004163 150462 A 3258         ANA     =HFF00                                                         07 03258
004164 001016 A 3259         JAN7    ER4             ERROR 4/ U NOT IN (1,255) /                    07 03259
004165 005467 R
                3260 ****************************************                                         07 03260
                3261 * SEARCH FCB CHAIN FOR U ALREADY DEFINED *                                      07 03261
                3262 ****************************************                                         07 03262
                3263         TRAB    SUFL,DA,PRU0                                                   07 03263
004166 016154 A
004167 006453 A
004170 004175 R
004171 036151 A 3264         LDX     RETURN,B        DIRECT ACCESS                                  07 03264
004172 015011 A 3265         LDA     9,X             FCB ADDRESS                                    07 03265
004173 001000 A 3266         JMP     PRU05                                                          07 03266
004174 004203 R
                3267 PRU0    PUSHJ   SCH             SEARCH FCB CHAIN                               07 03267
004175 006010 A
004176 005735 R
004177 006503 A
004200 004774 R
004201 001010 A 3268         JAZ     PRU5                                                           07 03268
004202 004311 R
                3269 ************************                                                     07 03269
                3270 * U IS ON FCB CHAIN *                                                         07 03270
                3271 ************************                                                     07 03271
004203 056010 A 3272 PRU05   STA     ADFCB,B         STORE FCB ADDRESS                              07 03272
004204 036016 A 3273         LDX     ANRB,B                                                  E      07 03273
004205 055010 A 3274         STA     ADFCB,X         ALSO IN V$FORTIO                        E      07 03274
004206 005014 A 3275         TAX                     POINT X AT FCB                                 07 03275
                3276         TSAB    SWFL,IN,ER4     ERROR 4/ OPEN CALL FINDS U ON CHAIN /   V2     07 03276
004207 016154 A
004210 006406 A
004211 005467 R
                3277         MOVXAB  3,SVRECN        SAVE RECORD NO                                 07 03277
004212 015003 A
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004213 056160 A
                    3278          MOVXAB  0,LRSZ        SET LOGICAL RECORD SIZE = FCB(0)                  07 03278
004214 015000 A
004215 056122 A
004216 056143 A     3279          STA     PBSZ,B        ALSO PHYSICAL RECORD SIZE                         07 03279
                    3280          MOVXAB  1,APBF        SET PHYSICAL BUFFER ADDRESS = FCB(1)              07 03280
004217 015001 A
004220 056020 A
004221 056027 A     3281          STA     ALBF,B        ALSO LOGICAL BUFFER ADDRESS                       07 03281
004222 015014 A     3282          LDA     12,X          GET L                                             07 03282
004223 150463 A     3283          ANA     RHW                                                             07 03283
004224 056167 A     3284          STA     UNIT,B        STORE LOGICAL UNIT NUMBER L IN UNIT               07 03284
004225 015014 A     3285          LDA     12,X          GET FLAGS FROM FCB                                07 03285
004226 004354 A     3286          LSRA    SH            POSITION                                    V2    07 03286
004227 116154 A     3287          ORA     RWFL,B        MERGE INTO READ/WRITE FLAG                        07 03287
004230 056154 A     3288          STA     RWFL,B                                                          07 03288
004231 006441 A     3289          BT      ARST+LF,PRU50   EXIT ON NON-LOGICAL FILE                   FG    07 03289
004232 004561 R
004233 006400 A     3290          BT      ASET+RM,PRU1    RMD ?                                       V2    07 03290
004234 004241 R
004235 150451 A     3291          ANA     BFR           NO. CLEAR FILL FLAG                           V2    07 03291
004236 056154 A     3292          STA     RWFL,B                                                      V2    07 03292
                    3293          POPJ                  EXIT                                          FG    07 03293
004237 001000 A
004240 004066 R
                    3294 ***************************                                                   V2    07 03294
                    3295 * U IS AN RMD LOGICAL FILE *                                                   V2    07 03295
                    3296 ***************************                                                   V2    07 03296
       004241 R     3297 PRU1     EQU     *                                                             V2    07 03297
                    3298          MOVXAB  3,LRECNO      LOAD LOGICAL RECORD NUMBER                        07 03298
004241 015003 A
004242 056121 A
004243 016122 A     3299          LDA     LRSZ,B        GET LOGICAL RECORD SIZE                           07 03299
004244 005024 A     3300          TBX                   SAVE BASE POINTER IN X                            07 03300
004245 145201 A     3301          SUB     BD120,X                                                     V2    07 03301
004246 001002 A     3302          JAP     PRU2          IS LOGICAL RECORD SIZE .LT. 120 WORDS ?           07 03302
004247 004256 R
004250 015201 A     3303          LDA     BD120,X       YES                                           V2    07 03303
004251 004560 A     3304          LLSR    16                                                              07 03304
004252 175122 A     3305          DIV     LRSZ,X                                                          07 03305
004253 005102 A     3306          INCR    B             SET BUFFER SIZE TO 1 RECORD                       07 03306
004254 001000 A     3307          JMP     PRU3                                                            07 03307
004255 004265 R
004256 015122 A     3308 PRU2     LDA     LRSZ,X                                                          07 03308
004257 004560 A     3309          LLSR    16                                                              07 03309
004260 175201 A     3310          DIV     BD120,X       GET COUNT OF PHYSICAL RECS IN LOG REC         V2    07 03310
004261 001010 A     3311          JAZ     PRU4          ANY REMAINDER ?                                   07 03311
004262 004270 R
004263 005122 A     3312          IBR                   YES. BUMP ALLOCATION                              07 03312
004264 005311 A     3313          DAR                                                                     07 03313
004265 001010 A     3314 PRU3     JAZ     *+2                                                             07 03314
004266 004270 R
004267 005122 A     3315          IBR                   BUMP COUNT IF NOT FACTOR OR MULTIPLE              07 03315
004270 065142 A     3316 PRU4     STB     PBRC,X        STORE PHYSICAL RECORD COUNT                       07 03316
004271 005001 A     3317          TZA                                                                     07 03317
004272 165201 A     3318          MUL     BD120,X       GET PHYSICAL BUFFER SIZE                      V2    07 03318
004273 065143 A     3319          STB     PBSZ,X        STORE                                             07 03319
004274 015121 A     3320          LDA     LRECNO,X      GET LOGICAL RECORD NUMBER                         07 03320
004275 005311 A     3321          DAR                   CONVERT FROM BASE 1 TO BASE 0                     07 03321
004276 004560 A     3322          LLSR    16                                                              07 03322
004277 165122 A     3323          MUL     LRSZ,X        GET WORD COUNT TO START OF LRECNO                 07 03323
004300 175201 A     3324          DIV     BD120,X       GET PHYSICAL RECORD COUNT TO LRECNO           V2    07 03324
004301 005122 A     3325          IBR                   CONVERT FROM BASE 0 TO BASE 1                     07 03325
004302 065145 A     3326          STB     PRECNO,X      SAVE PHYSICAL RECORD NUMBER                       07 03326
004303 055123 A     3327          STA     LGOV,X        STORE OVERFLOW                                    07 03327
004304 125020 A     3328          ADD     APBF,X                                                          07 03328
004305 055027 A     3329          STA     ALBF,X        STORE ADDRESS OF LOGICAL BUFFER                   07 03329
004306 005042 A     3330          TXB                   RESTORE BASE REGISTER B                           07 03330
                    3331          POPJ                  EXIT                                        FG    07 03331
004307 001000 A
004310 004066 R
                    3332 *********************************                                             07 03332
                    3333 * U NOT ON FCB CHAIN - SET L=U *                                             07 03333
                    3334 *********************************                                             07 03334
004311 036016 A     3335 PRU5     LDX     ANRB,B        POINT X AT V$FORTIO DATA BLOCK                    07 03335
                    3336          MOVXAB  ASYSDC,ADFCB  USE V$FORTIO SYSTEM DCB                           07 03336
004312 015023 A
004313 056010 A
004314 055013 A     3337          STA     ADFCB,X                                                         07 03337
004315 005014 A     3338          TAX                                                                     07 03338
                    3339          MOVXAB  1,APBF        USE V$FORTIO SYSTEM BUFFER $BUF                   07 03339
004316 015001 A
004317 056020 A
004320 056027 A     3340          STA     ALBF,B                                                          07 03340
                    3341          MOVBAX  BD120,0       SET RECORD SIZE TO 120 WORDS                  V2    07 03341
004321 016201 A
004322 055000 A
004323 056143 A     3342          STA     PBSZ,B                                                          07 03342
004324 056122 A     3343          STA     LRSZ,B                                                          07 03343
                    3344 ***********************                                                       07 03344
                    3345 * TEST VALIDITY OF L *                                                       07 03345
                    3346 ***********************                                                       07 03346
004325 036032 A     3347          LDX     SAVE,B        L = SAVE ON OPEN CALL                         V2    07 03347
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                    3348          TSAB    RWFL,IN,PRU6  OPEN CALL ?                                    V2  07 03348
004326 016154 A
004327 006406 A
004330 004332 R
004331 036167 A 3349          LDX     UNIT,B        NO. L=UNIT                                     V2  07 03349
004332 005041 A 3350  PRU6    TXA                   GET L IN A                                     V2  07 03350
004333 001010 A 3351          JAZ     PRU50         EXIT IF L=0                                     FG 07 03351
004334 004561 R
004335 006030 A 3352          LDXI    V$LUT1        POINT X AT LUN POINTER TABLE                   V2  07 03352
004336 000400 A
004337 005311 A 3353          DAR                   1ST BLOCK BIASED BASE 1                          07 03353
004340 056164 A 3354          STA     TEMP,B        SAVE                                             07 03354
004341 005111 A 3355          IAR                   RESTORE L IN A                                 V2  07 03355
004342 006140 A 3356          SUBI    101                                                          V2  07 03356
004343 000145 A
004344 001004 A 3357          JAN     PRU10         IS L IN BLOCK 1(1-100) ?                         07 03357
004345 004356 R
004346 005144 A 3358          IXR                   NO. BUMP BLOCK POINTER                           07 03358
004347 056164 A 3359          STA     TEMP,B        SAVE BIASED LUN                                  07 03359
004350 006140 A 3360          SUBI    79                                                           V2  07 03360
004351 000117 A
004352 001004 A 3361          JAN     PRU10         IS L IN BLOCK 2(101-180) ?                       07 03361
004353 004356 R
004354 005144 A 3362          IXR                   NO. BUMP BLOCK POINTER                           07 03362
004355 056164 A 3363          STA     TEMP,B        SAVE BIASED L                                    07 03363
004356 016164 A 3364  PRU10   LDA     TEMP,B        GET BIASED L                                     07 03364
004357 035000 A 3365          LDX     0,X           POINT X AT BLOCK POINTER                         07 03365
004360 145000 A 3366          SUB     0,X           COMPARE BIASED L WITH BLOCK SIZE                 07 03366
004361 001002 A 3367          JAP     ER4           ERROR 4/ INVALID LUN /                           07 03367
004362 005467 R
                    3368  ****************                                                           07 03368
                    3369  * GET DST INFO *                                                         07 03369
                    3370  ****************                                                         07 03370
004363 005141 A 3371          INCR    041                                                          07 03371
004364 126164 A 3372          ADD     TEMP,B                                                       07 03372
004365 005014 A 3373          TAX                   POINT X AT LOGICAL UNIT TABLE ENTRY              07 03373
004366 015000 A 3374          LDA     0,X                                                          07 03374
004367 150463 A 3375          ANA     RHW           GET DST INCREMENT FROM LUT                       07 03375
004370 056037 A 3376          STA     SAVE+5,B      SAVE                                           V2  07 03376
004371 001010 A 3377          JAZ     PRU50         EXIT IF L=DUMMY                                 FG 07 03377
004372 004561 R
004373 005024 A 3378          TBX                   SAVE BASE POINTER IN X                           07 03378
004374 005312 A 3379          DECR    012           BIASED DST COUNT TO B                            07 03379
004375 010355 A 3380          LDA     V$DSTB        A = BASE OF DST TABLES                           07 03380
004376 160464 A 3381          MUL     THREE         B = DST ADDRESS                                  07 03381
004377 005041 A 3382          TXA                   A = BASE REGISTER                                07 03382
004400 005024 A 3383          TBX                   POINT X AT DST                                   07 03383
004401 005012 A 3384          TAB                   RESTORE BASE REGISTER B                          07 03384
                    3385  ********************************                                         07 03385
                    3386  * TEST IF L ASSIGNED TO RMD *                                           07 03386
                    3387  ********************************                                         07 03387
004402 015002 A 3388          LDA     2,X                                                          07 03388
004403 004346 A 3389          LSRA    6                                                            07 03389
004404 150473 A 3390          ANA     IM37                                                         07 03390
004405 001010 A 3391          JAZ     *+2                                                        V2  07 03391
004406 004410 R
004407 010421 A 3392          LDA     RMS           SET RMD FLAG                                   V2  07 03392
004410 116154 A 3393          ORA     RWFL,B                                                       V2  07 03393
004411 056154 A 3394          STA     RWFL,B                                                       V2  07 03394
004412 006406 A 3395          BT      ASET+IN,PRU50     EXIT ON OPEN CALL                           FG 07 03395
004413 004561 R
004414 006400 A 3396          BT      ASET+RM,PRU30                                                V2  07 03396
004415 004471 R
                    3397  ************                                                             07 03397
                    3398  * L NOT RMD *                                                           07 03398
                    3399  ************                                                             07 03399
                    3400          TZAB    FRMT,PRU15    FORMATTED I/O ?                          V2  07 03400
004416 016063 A
004417 001010 A
004420 004422 R
004421 015001 A 3401          LDA     1,X           YES. GET 1ST TWO CHARS OF NAME                 V2  07 03401
       004422 R 3402  PRU15   EQU     *                                                            V2  07 03402
004422 076032 A 3403          STX     SAVE,B        SAVE DST ADDR                                 E.1  07 03403
                    3404          IFF     NUC                                                       FG 07 03404
                    3405          GOTO    NV2NUC                                                    FG 07 03405
                    3406          LDT     V11                                                       FG 07 03406
                    3407          DME     MAP,V$ST0     SET EXEC STATE TO 00                       V2  07 03407
                    3408  NV2NUC  CONT                                                             FG 07 03408
004423 034151 A 3409          LDX     PRUDTB        POINT X AT DEVICE TABLE                          07 03409
                    3410  ********************************                                         07 03410
                    3411  * LOOP TO IDENTIFY DEVICE *                                             07 03411
                    3412  ********************************                                         07 03412
004424 005144 A 3413  PRUL1   IXR                   BUMP TABLE POINTER                               07 03413
004425 145000 A 3414          SUB     0,X                                                          V2  07 03414
004426 001010 A 3415          JAZ     PRU20         EXIT ON MATCH                                  V2  07 03415
004427 004434 R
004430 001002 A 3416          JAP     PRUL1         LOOP TILL DONE                                 V2  07 03416
004431 004424 R
004432 006030 A 3417          LDXI    PRUDTE        POINT X AT END IF NO FIND                      V2  07 03417
004433 004604 R
004434 015007 A 3418  PRU20   LDA     PRUDTE-PRUDTB,X   GET DEVICE PARAMS FROM TABLE                   07 03418
004435 001004 A 3419          JAN     PRU25         IF SPOOL UNIT                                 E.1  07 03419
004436 004460 R
```

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004437 005014 A 3420          TAX                                 SAVE                                  V2  07 03420
004440 001004 A 3421          JAN       PRU25                     IF SPOOL UNIT                         E.1 07 03421
004441 004460 R
               3422          IFF       NUC                                                               FG  07 03422
               3423          GOTO      NV2NUC                                                            FG  07 03423
               3424          IFT       VII                                                               FG  07 03424
               3425          OME       MAP,V$ST3                 SET EXEC STATE TO NN                    V2  07 03425
               3426 NV2NUC   CONT                                                                        FG  07 03426
004442 150431 A 3427          ANA       BFS                                                               V2  07 03427
004443 056164 A 3428          STA       TEMP,B                    SAVE                                        07 03428
004444 005041 A 3429          TXA                                 RESTORE A                             V2  07 03429
004445 036010 A 3430          LDX       ADFCB,B                   POINT X AT DCB                              07 03430
004446 150463 A 3431          ANA       RHW                       GET RECORD SIZE                             07 03431
004447 055000 A 3432          STA       0,X                       STORE IN DCB                                07 03432
004450 056143 A 3433          STA       PBSZ,B                    ALSO AS PHYSICAL BUFFER SIZE                07 03433
004451 056122 A 3434          STA       LRSZ,B                    ALSO LOGICAL BUFFER SIZE                    07 03434
004452 016154 A 3435          LDA       RWFL,B                                                            V2  07 03435
004453 150451 A 3436          ANA       BFR                                                               V2  07 03436
004454 116164 A 3437          ORA       TEMP,B                    MERGE FILL FLAG                         V2  07 03437
004455 056154 A 3438          STA       RWFL,B                    INTO READ/WRITE FLAGS                       07 03438
               3439          POPJ                                EXIT                                  FG  07 03439
004456 001000 A
004457 004066 R
               004460 R 3440 PRU25     EQU       *                                                         E.2 07 03440
               3441          IFF       NUC                                                               E.2 07 03441
               3442          GOTO      NV2NUC                                                            E.2 07 03442
               3443          IFT       VII                                                               E.2 07 03443
               3444          OME       MAP,V$ST3                 SET EXEC STATE TO NN                    E.2 07 03444
               3445 NV2NUC   CONT                                                                        E.2 07 03445
004460 036032 A 3446          LDX       SAVE,B                    DST ADDR                                E.2 07 03446
004461 015000 A 3447          LDA       0,X                       DSUNAM  (BITS 12-4)                     E.1 07 03447
004462 004352 A 3448          LSRA      10                        POSITION MSB                            E.1 07 03448
004463 150467 A 3449          ANA       SEVEN                                                             E.1 07 03449
004464 006120 A 3450          ADDI      180                       SET TO LUN 18N                          E.1 07 03450
004465 000264 A
004466 005014 A 3451          TAX                                                                       E.1 07 03451
004467 001000 A 3452          JMP       PRU6                                                            E.1 07 03452
004470 004332 R
               3453 ************                                                                              07 03453
               3454 * RMD FILE *                                                                              07 03454
               3455 ************                                                                              07 03455
004471 010301 A 3456 PRU30    LDA       V$CPL                     GET PRIORITY LEVEL                          07 03456
004472 140422 A 3457          SUB       TWO                                                                   07 03457
004473 001002 A 3458          JAP       ER4                       ERROR 47 FOREGROUND RMD FILE NOT OPEN /     07 03458
004474 005467 R
               3459 ********************************************                                              07 03459
               3460 * BACKGROUND PROGRAM - CHECK GLOBAL FCB'S *                                              07 03460
               3461 ********************************************                                              07 03461
004475 016167 A 3462          LDA       UNIT,B                    GET L                                       07 03462
004476 006110 A 3463          ORAI      01400                     MERGE IOLINK SKELETON CONTROL WORD     V2   07 03463
004477 001400 A
004500 056105 A 3464          STA       IOLNK,B                   IOLINK CONTROL WORD FOR L GLOBAL FCB        07 03464
004501 016167 A 3465          LDA       UNIT,B                    GET L                                       07 03465
004502 140422 A 3466          SUB       TWO                                                                   07 03466
004503 001004 A 3467          JAN       PRU35                     IGNORE L=1                                  07 03467
004504 004520 R
004505 140470 A 3468          SUB       NINE                                                                  07 03468
004506 001002 A 3469          JAP       PRU35                     NO GLOBAL FCB.GT.10                         07 03469
004507 004520 R
               3470          IFF       NUC                                                               FG  07 03470
               3471          GOTO      NV2NUC                                                            FG  07 03471
               3472          IFT       VII                                                               FG  07 03472
               3473          OME       MAP,V$ST0                 SET EXEC STATE TO 00                    V2  07 03473
               3474 NV2NUC   CONT                                                                            07 03474
004510 124063 A 3475          ADD       PRUGT                     ADD TABLE ADDRESS                           07 03475
004511 005014 A 3476          TAX                                 POINT X AT GLOBAL FCB TABLE                 07 03476
004512 035000 A 3477          LDX       0,X                       POINT X AT GLOBAL FCB                       07 03477
               3478          IFF       NUC                                                               FG  07 03478
               3479          GOTO      NV2NUC                                                            FG  07 03479
               3480          IFT       VII                                                               FG  07 03480
               3481          OME       MAP,V$ST3                     SET EXEC STATE TO NN                    07 03481
               3482 NV2NUC   CONT                                                                        FG  07 03482
004513 001040 A 3483          JXZ       PRU35                     'SD' HAS NO GLOBAL FCB                      07 03483
004514 004520 R
004515 015005 A 3484          LDA       5,X                       TEST GLOBAL FCB ENABLED                     07 03484
004516 001016 A 3485          JANZ      PRU40                                                                 07 03485
004517 004545 R
               3486 ********************************                                                          07 03486
               3487 * NO GLOBAL FCB - TEST U=SI *                                                            07 03487
               3488 ********************************                                                          07 03488
004520 030400 A 3489 PRU35    LDX       V$LUT1                                                                07 03489
004521 015002 A 3490          LDA       2,X                       GET SI ASSIGNMENT                           07 03490
004522 146037 A 3491          SUB       SAVE+5,B                  COMPARE WITH L ASSIGNMENT             V2    07 03491
004523 150463 A 3492          ANA       RHW                                                                   07 03492
004524 001013 A 3493          JANZ      ER4                       ERROR 47 RMD FILE NOT OPEN /                07 03493
004525 005467 R
004526 010422 A 3494          LDA       TWO                       L = SI                                      07 03494
004527 006110 A 3495          ORAI      01400                     MERGE IOLINK SKELETON CONTROL WORD     V2   07 03495
004530 001400 A
004531 056105 A 3496          STA       IOLNK,B                   IOLINK CONTROL WORD FOR SIFCB               07 03496
004532 006010 A 3497          LDAI      40                                                               V2   07 03497
004533 000050 A
004534 056143 A 3498          STA       PBSZ,B                    ALSO PHYSICAL BUFFER SIZE                   07 03498
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004535 056122 A 3499          STA     LRSZ,B      ALSO LOGICAL BUFFER SIZE                          07 03499
004536 036010 A 3500          LDX     ADFCB,B     POINT X AT V$FORTIO DATA BLOCK                    07 03500
004537 055000 A 3501          STA     0,X         SET RECORD SIZE DCB(0) = 40 WORDS                 07 03501
004540 006030 A 3502          LDXI    SIFCB       POINT X AS SI GLOBAL FCB                    V2    07 03502
004541 000000 E
004542 015005 A 3503          LDA     5,X                                                           07 03503
004543 001010 A 3504          JAZ     ER4         ERROR 4/ RMD NOT OPEN /                           07 03504
004544 005467 R
004545 005041 A 3505 PRU40    TXA                 GET FCB ADDRESS IN A                              07 03505
004546 056010 A 3506          STA     ADFCB,B     STORE                                             07 03506
004547 036016 A 3507          LDX     ANRB,B      POINT X AT V$FORTIO                               07 03507
004550 055010 A 3508          STA     ADFCB,X     STORE IN V$FORTIO                                 07 03508
               3509           MOVBAX  IOLNK,IOLNK MOVE IOLINK CONTROL WORD TO V$FORTIO              07 03509
004551 016105 A
004552 055105 A
004553 016154 A 3510          LDA     RWFL,B                                              V2        07 03510
004554 110430 A 3511          ORA     GFS         SET GLOBAL FCB FLAG                     V2        07 03511
004555 056154 A 3512          STA     RWFL,B                                              V2        07 03512
004556 010420 A 3513          LDA     CXC                                                 V2        07 03513
004557 006505 A 3514          JSR     PSJ,X       PUSH IOLINK OP                          V2        07 03514
004560 004774 R
               3515 PRU50     POPJ                EXIT                                      FG    07 03515
004561 001000 A
004562 004066 R
               3516 ************************                                                        07 03516
               3517 * GLOBAL FCB POINTERS *                                                         07 03517
               3518 ************************                                                        07 03518
004563 004541 E 3519 PRUASI   PZE     SIFCB       SI( 2) GLOBAL FCB                                 07 03519
004564 000000 A 3520          DATA    0           SO( 3) NO GLOBAL FCB                              07 03520
004565 000000 E 3521          PZE     PIFCB       PI( 4) GLOBAL FCB                                 07 03521
004566 000000 E 3522          PZE     LOFCB       LO( 5) GLOBAL FCB                                 07 03522
004567 000000 E 3523          PZE     BIFCB       BI( 6) GLOBAL FCB                                 07 03523
004570 000000 E 3524          PZE     BOFCB       BO( 7) GLOBAL FCB                                 07 03524
004571 000000 E 3525          PZE     SSFCB       SS( 8) GLOBAL FCB                                 07 03525
004572 000000 E 3526          PZE     GOFCB       GO( 9) GLOBAL FCB                                 07 03526
004573 000000 E 3527          PZE     POFCB       PO(10) GLOBAL FCB                                 07 03527
004574 004574 R 3528 PRUGT    PZE     *                                                             07 03528
               3529 ******************                                                              07 03529
               3530 * DEVICE TABLE *                                                               07 03530
               3531 ******************                                                              07 03531
004575 004575 R 3532 PRUDTB   PZE     *                                                             07 03532
004576 141720 A 3533          DATA    'CP'        1ST 2 CHARS OF DEVICE NAME                        07 03533
004577 000002 A 3534          DATA    2           'CR'                                    V2        07 03534
004600 000002 A 3535          DATA    2           'CT'                                    V2        07 03535
004601 004374 A 3536          DATA    04374       'LP'                                    V2        07 03536
004602 003400 A 3537          DATA    03400       :SP:                                    E.1       07 03537
004603 000411 A 3538          DATA    0411        :TY:                                    E.1       07 03538
004604 077777 A 3539          DATA    077777      TABLE END MARKER                        V2        07 03539
       004604 R 3540 PRUDTE   EQU     *-1                                                           07 03540
004605 000050 A 3541          DATA    40          CONSOLE FLAG/BUFFER SIZE                          07 03541
004606 000050 A 3542          DATA    40                                                            07 03542
004607 000450 A 3543          DATA    40+BFA                                              V2        07 03543
004610 000102 A 3544          DATA    66                                                            07 03544
004611 177777 A 3545          DATA    -1          SPOOL UNIT INDICATOR                    E.1       07 03545
004612 000450 A 3546          DATA    40+BFA                                              V2        07 03546
004613 000074 A 3547          DATA    60                                                            07 03547
               3548           SUBEC                                                                07 03548
               3549 ***********************************************************************       07 03549
               3550 *                                                                     *       07 03550
               3551 *            P R O C E S S   R E A D / W R I T E ( P R W )             *       07 03551
               3552 *                                                                     *       07 03552
               3553 * FUNCTION: TO PROCESS THE FORTRAN STATEMENTS:                        *       07 03553
               3554 *                                                                     *       07 03554
               3555 *               READ(U)                                               *       07 03555
               3556 *               READ(U,F)                                             *       07 03556
               3557 *               WRITE(U)                                              *       07 03557
               3558 *               WRITE(U,F)                                            *       07 03558
               3559 *                                                                     *       07 03559
               3560 *                                                                     *       07 03560
               3561 * ENTRY: DIRECT FROM RBE                                             *       07 03561
               3562 *        RETURN = ADDRESS OF PARAMETER LIST                           *       07 03562
               3563 *        RETURN(5) = 0 IF UNFORMATTED                                 *       07 03563
               3564 *        UNIT = FORTRAN UNIT NUMBER U                                 *       07 03564
               3565 *        TEMP = OP = CRD READ                                  V2     *       07 03565
               3566 *                   CWR WRITE                                  V2     *       07 03566
               3567 *                                                                     *       07 03567
               3568 * EXIT : READ : 1ST RECORD READ                                      *       07 03568
               3569 *        WRITE: BUFFER CLEARED                                        *       07 03569
               3570 *        FRMT = ADDRESS OF FORMAT STRING                              *       07 03570
               3571 *               0 IF UNFORMATTED                                      *       07 03571
               3572 *        XFFL = 1 PARAMETER XFER ENABLED                              *       07 03572
               3573 *        ITEMWC = 0 = COUNT OF WORDS REMAINING IN LIST ITEM           *       07 03573
               3574 *        UNFORMATTED: DIRECT TO UID                                   *       07 03574
               3575 *        FORMATTED  : DIRECT TO FRS TO START FORMAT SCAN              *       07 03575
               3576 *        IOCONT = IOC CONTROL WORD                                    *       07 03576
               3577 *                                                                     *       07 03577
               3578 ***********************************************************************       07 03578
004614 016164 A 3580 PRW      LDA     TEMP,B      GET OP                                            07 03580
004615 140471 A 3581          SUB     CRD                                             V2        07 03581
004616 004250 A 3582          LRLA    8           POSITION READ/WRITE FLAG                      07 03582
004617 056104 A 3583          STA     IOCONT,B     FOR IOC CALL CONTROL WORD                    07 03583
004620 001010 A 3584          JAZ     *+3                                             V2        07 03584
004621 004623 R
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004622 010432 A 3585          LDA     WRS             SET WRITE BIT                                  V2 07 03585
004623 110431 A 3586          ORA     BFS             SET FILL FLAG                                  V2 07 03586
004624 056154 A 3587          STA     RWFL,B          INITIALIZE READ/WRITE FLAG WORD                   07 03587
004625 036151 A 3588 PRW05    LDX     RETURN,B                                                          07 03588
004626 015003 A 3589          LDA     3,X             GET READ/WRITE PARAMETER COUNT                    07 03589
004627 140422 A 3590          SUB     TWO                                                               07 03590
004630 001016 A 3591          JANZ    PRW0            WAS PROGRAM COMPILED WITH 'G' COMPILER ?.         07 03591
004631 004636 R
004632 056152 A 3592          STA     RETURN+1,B      NO. CLEAR 'END' EXIT ADDRESS                      07 03592
004633 056153 A 3593          STA     RETURN+2,B      CLEAR 'ERR' EXIT ADDRESS                          07 03593
004634 001000 A 3594          JMP     PRW1                                                              07 03594
004635 004642 R
004636 015007 A 3595 PRW0     LDA     7,X             PROGRAM WAS COMPILED BY 'G' COMPILER              07 03595
004637 056152 A 3596          STA     RETURN+1,B      SAVE 'END' EXIT ADDRESS                           07 03596
004640 015010 A 3597          LDA     8,X             GET 'ERR' EXIT ADDRESS                            07 03597
004641 056153 A 3598          STA     RETURN+2,B      SAVE                                              07 03598
       004642 R 3599 PRW1     EQU     *                                                                 07 03599
                3600          MOVXAB  5,FRMT          SAVE FORMAT STRING ADDRESS(0 IF NONE)             07 03600
004642 015005 A
004643 056063 A
                3601          PUSHJ   PRU             PROCESS FORTRAN UNIT NUMBER                    V2 07 03601
004644 006010 A
004645 004162 R
004646 006505 A
004647 004774 R
                3602          TZAB    FRMT,PRW2       IOC MODE IS SYS BINARY FOR UNFORMATTED         V2 07 03602
004650 016063 A
004651 001010 A
004652 004654 R
004653 010435 A 3603          LDA     BS12            IOC MODE IS ASCII FOR FORMATTED                   07 03603
004654 036016 A 3604 PRW2     LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                 V2 07 03604
004655 116167 A 3605          ORA     UNIT,B          MERGE IN LOGICAL UNIT NUMBER L                    07 03605
004656 116104 A 3606          ORA     IOCONT,B        MERGE IN READ/WRITE BIT                           07 03606
004657 055104 A 3607          STA     IOCONT,X        STORE IN V$FORTIO                                 07 03607
                3608          MOVBAX  RWFL,RWFL       MOVE FLAG WORD TO V$FORTIO                        07 03608
004660 016154 A
004661 055154 A
004662 016152 A 3609          LDA     RETURN+1,B      MOVE RETURN ADDRESSES TO V$FORTIO              PD 07 03609
004663 055152 A 3610          STA     RETURN+1,X                                                     PD 07 03610
004664 016153 A 3611          LDA     RETURN+2,B                                                     PD 07 03611
004665 055153 A 3612          STA     RETURN+2,X                                                     PD 07 03612
                3613          IFF     NUC                                                            FG 07 03613
                3614          GOTO    NUC1                                                           FG 07 03614
                3615          IFT     VII                                                            FG 07 03615
                3616          GOTO    VII1                                                           FG 07 03616
                3617          TZAB    ALOC,PRW4       ALOC ENTRY FROM BACKGROUND ?                   V2 07 03617
                3618          LDA     APBF,B          YES                                               07 03618
                3619          JSR     TBK,X           TEST BUFFER START ADDRESS                         07 03619
                3620          ADD     PBSZ,B                                                            07 03620
                3621          DAR                                                                       07 03621
                3622          JSR     TBK,X           TEST BUFFER END ADDRESS                           07 03622
                3623 VII1     CONT                                                                   FG 07 03623
                3624 NUC1     CONT                                                                   FG 07 03624
                3625 PRW4     ZAB     BFPT            CLEAR BUFFER CHARACTER POINTER                    07 03625
004666 005001 A
004667 056026 A
                3626          TRAB    RWFL,LF,PRW6        LOGICAL FILE ?                                07 03626
004670 016154 A
004671 006441 A
004672 004676 R
004673 036010 A 3627          LDX     ADFCB,B         YES                                               07 03627
                3628          MOVBAX  PBSZ,0          SET FCB(0) = PHYSICAL BUFFER SIZE                 07 03628
004674 016143 A
004675 055000 A
                3629 PRW6     PUSHJ   RFL             REPOSITION FILE                                V2 07 03629
004676 006010 A
004677 005507 R
004700 006505 A
004701 004774 R
                3630          TRAB    RWFL,WR,PRW10       WRITE ?                                    V2 07 03630
004702 016154 A
004703 006451 A
004704 004712 R
                3631          PUSHJ   CLB             YES. CLEAR BUFFER                              V2 07 03631
004705 006010 A
004706 000134 R
004707 006505 A
004710 004774 R
004711 001006 A 3632          DATA    01006           SKIP                                              07 03632
004712 046121 A 3633 PRW10    INR     LRECNO,B        BUMP LOGICAL RECORD NUMBER ON READ                07 03633
                3634          MOVBAB  LRSZ,LRWC       UPDATE LRWC FOR SHORT RECORD                   V2 07 03634
004713 016122 A
004714 056123 A
004715 046172 A 3635          INR     XFFL,B          ENABLE PARAMETER XFER                             07 03635
                3636          TZAB    FRMT,UIO        PROCESS UNFORMATTED I/O IF FRMT=0                 07 03636
004716 016063 A
004717 001010 A
004720 006231 R
004721 001000 A 3637          JMP     FRS             EXIT TO FORMAT SCAN IF FORMATTED                  07 03637
004722 000431 R
                3638          EJEC                                                                      07 03638
                3639 **********************************************************************************07 03639
                3640 *                                                                               * 07 03640
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                    3641 *       P R O C E S S   D I R E C T   A C C E S S   ( P R X )                 * 07 03641
                    3642 *                                                                             * 07 03642
                    3643 ***********************************************************************************07 03643
004723 016164 A     3645 PRX     LDA     TEMP,B                                                        07 03645
004724 006140 A     3646         SUBI    CRA                                                           07 03646
004725 000022 A
004726 004250 A     3647         LRLA    8               POSITION READ/WRITE FLAG                      07 03647
004727 056104 A     3648         STA     IOCONT,B                                                      07 03648
004730 001010 A     3649         JAZ     *+3                                                           07 03649
004731 004733 R
004732 010432 A     3650         LDA     WRS                                                           07 03650
004733 110431 A     3651         ORA     BFS                                                           07 03651
004734 110434 A     3652         ORA     BS11            SET DIRECT ACCESS FLAG                        07 03652
004735 056154 A     3653         STA     RWFL,B                                                        07 03653
004736 016164 A     3654         LDA     TEMP,B                                                        07 03654
004737 140424 A     3655         SUB     EIGHT                                                         07 03655
004740 056164 A     3656         STA     TEMP,B          SET TO READ/WRITE                             07 03656
004741 001000 A     3657         JMP     PRW05                                                         07 03657
004742 004625 R
                    3658         EJEC                                                                  07 03658
                    3659 ***********************************************************************************07 03659
                    3660 *                                                                             * 07 03660
                    3661 *                    P O S T   B U F F E R ( P S B )                          * 07 03661
                    3662 *                                                                             * 07 03662
                    3663 * FUNCTION: TO WRITE OUT BUFFER TO RMD                                        * 07 03663
                    3664 *                                                                             * 07 03664
                    3665 * ENTRY: ADFCB = FCB ADDRESS                                                  * 07 03665
                    3666 *        FCB(13) = PHYSICAL RECORD NUMBER CORRESPONDING TO BUFFER             * 07 03666
                    3667 *                                                                             * 07 03667
                    3668 * EXIT : BUFFER WRITTEN OUT TO RMD                                           * 07 03668
                    3669 *        RWFL(BIT 1) = FCB(12)(BIT 14) = 0 = POST BITS                        * 07 03669
                    3670 *                                                                             * 07 03670
                    3671 ***********************************************************************************07 03671
004743 016154 A     3673 PSB     LDA     RWFL,B                                                        07 03673
004744 150443 A     3674         ANA     PDR             CLEAR POST BIT IN FLAG WORD           V2      07 03674
004745 056154 A     3675         STA     RWFL,B                                                        07 03675
004746 036010 A     3676         LDX     ADFCB,B                                                       07 03676
004747 015014 A     3677         LDA     12,X                                                          07 03677
004750 150457 A     3678         ANA     FPOR            CLEAR POST BIT IN FCB(12)             V2      07 03678
004751 055014 A     3679         STA     12,X                                                          07 03679
                    3680         MOVXAX  13,3            LOAD PHYSICAL RECORD NUMBER INTO FCB(3)       07 03680
004752 015015 A
004753 055003 A
004754 036016 A     3681         LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                07 03681
004755 015104 A     3682         LDA     IOCONT,X                                                      07 03682
004756 110431 A     3683         ORA     BS8             SET WRITE BIT IN V$IOC CONTROL WORD           07 03683
004757 055104 A     3684         STA     IOCONT,X                                                      07 03684
004760 010464 A     3685         LDA     CIO             PUSH I/O OP                           V2      07 03685
004761 006505 A     3686         JSR     PSJ,X           WRITE OUT BUFFER                      V2      07 03686
004762 004774 R
                    3687         TSAB    RWFL,WR,PSBX     EXIT ON WRITE                        FG      07 03687
004763 016154 A
004764 006411 A
004765 004772 R
004766 036016 A     3688         LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                07 03688
004767 015104 A     3689         LDA     IOCONT,X                                                      07 03689
004770 150451 A     3690         ANA     BR8             CLEAR WRITE BIT IN V$IOC CONTROL WORD         07 03690
004771 055104 A     3691         STA     IOCONT,X                                                      07 03691
                    3692 PSBX    POPJ                    EXIT                                  FG      07 03692
004772 001000 A
004773 004066 R
                    3693         EJEC                                                                  07 03693
                    3694 ***********************************************************************************07 03694
                    3695 *                                                                             * 07 03695
                    3696 *                    P U S H / J U M P   ( P S J )                            * 07 03696
                    3697 *                                                                             * 07 03697
                    3698 * FUNCTION: TO STACK RETURN ADDRESSES AND OPS, AND EXIT TO CALLED             * 07 03698
                    3699 *           ROUTINE                                                           * 07 03699
                    3700 *                                                                             * 07 03700
                    3701 * ENTRY: X = RETURN ADDRESS                                                   * 07 03701
                    3702 *        A = CALL ADDRESS OR OP                                               * 07 03702
                    3703 *                                                                             * 07 03703
                    3704 *            .GE. 0100 ADDRESS(WITHIN REENTRANT RUN-TIME)                     * 07 03704
                    3705 *            .LT. 0100 OP                                                     * 07 03705
                    3706 *                                                                             * 07 03706
                    3707 * EXIT : RETURN STACKED                                                       * 07 03707
                    3708 *        A = ADDRESS: DIRECT JUMP TO (A)                                      * 07 03708
                    3709 *        A = OP: STACK CRB OP, THEN CALLED OP, THEN EXIT TO V$FORTIO          * 07 03709
                    3710 *                                                                             * 07 03710
                    3711 ***********************************************************************************07 03711
004774 056164 A     3713 PSJ     STA     TEMP,B          SAVE EXIT                                     07 03713
004775 005041 A     3714         TXA                                                                   07 03714
004776 036000 A     3715         LDX     OPSTKP,B        POINT X AT STACK                              07 03715
004777 005344 A     3716         DXR                     DROP STACK POINTER                    FG      07 03716
005000 076000 A     3717         STX     OPSTKP,B                                              FG      07 03717
005001 055000 A     3718         STA     0,X             PUSH RETURN                                   07 03718
005002 016164 A     3719         LDA     TEMP,B          RESTORE A                                     07 03719
005003 005014 A     3720         TAX                                                                   07 03720
005004 004346 A     3721         LSKA    6                                                             07 03721
005005 001010 A     3722         JAZ     *+4             EXTERNAL REQUEST ?                            07 03722
005006 005011 R
005007 006705 A     3723         IJMP    0,X             NO. JUMP DIRECTLY TO INTERNAL SUBROUTINE      07 03723
005010 000000 A
```

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005011 010423 A 3724          LDA     CRB                                                    07 03724
               3725          PUSHF                   PUSH RETURN TO V$RERR                  07 03725
005012 036016 A
005013 035000 A
005014 005344 A
005015 055000 A
005016 005041 A
005017 036016 A
005020 055000 A
005021 016164 A 3726          LDA     TEMP,B          RESTORE CALLED DP                      07 03726
               3727          PUSHF                   PUSH V$FORTIO DP                       07 03727
005022 036016 A
005023 035000 A
005024 005344 A
005025 055000 A
005026 005041 A
005027 036016 A
005030 055000 A
005031 001000 A 3728          JMP     CAN             EXIT TO V$FORTIO                       07 03728
005032 000101 R
               3729          EJEC                                                           07 03729
               3730 ********************************************************************** 07 03730
               3731 *                                                                      * 07 03731
               3732 *              P A R A M E T E R   T R A N S F E R ( P X F )            * 07 03732
               3733 *                                                                      * 07 03733
               3734 * FUNCTION: TO PROCESS ENTRIES TO XFER DATA TO/FROM AN I/O LIST        * 07 03734
               3735 *                                                                      * 07 03735
               3736 * ENTRY: ITMODE = 0 1-WORD INTEGER/LOGICAL                            * 07 03736
               3737 *                 = 1 2-WORD INTEGER/LOGICAL                           * 07 03737
               3738 *                 = 2 REAL                                             * 07 03738
               3739 *                 = 3 DOUBLE PRECISION                                 * 07 03739
               3740 *                 = 4 COMPLEX                                          * 07 03740
               3741 *                 = 5 DOUBLE PRECISION INTEGER                         * 07 03741
               3742 *                                                                      * 07 03742
               3743 * EXIT : IIWSZ = INDIVIDUAL ITEM WORD SIZE                            * 07 03743
               3744 *                = 1 FOR 1-WORD INTEGER/LOGICALS                       * 07 03744
               3745 *                = 2 FOR 2-WORD INTEGER/LOGICALS                       * 07 03745
               3746 *                = 2 FOR REALS                                         * 07 03746
               3747 *                = 4 FOR DOUBLE PRECISIONS                             * 07 03747
               3748 *                = 2 FOR COMPLEXES                                     * 07 03748
               3749 *                = 2 FOR DOUBLE PRECISION INTEGER                      * 07 03749
               3751 *        IIBSZ = 2*IIWSZ = INDIVIDUAL ITEM BYTE SIZE                   * 07 03751
               3752 *        ITMINC = INDIVIDUAL ITEM ALLOCATION IN WORDS                  * 07 03752
               3753 *                 = IIWSZ FOR ALL ITEMS EXCEPT 2-WORD INTEGER/LOGICALS * 07 03753
               3754 *                 = 2 FOR 2-WORD INTEGER/LOGICALS                      * 07 03754
               3755 *        ITEMAD = ADDRESS OF LIST ITEM                                 * 07 03755
               3756 *        ITEMWC = TOTAL WORD COUNT ALLOCATED TO LIST ITEM              * 07 03756
               3757 *                                                                      * 07 03757
               3758 * ERRORS: ER2 IF ILLEGAL CALL TO $I1,$I2,...                       V2* 07 03758
               3759 *                                                                      * 07 03759
               3760 ********************************************************************** 07 03760
005033 016172 A 3762 PXF      LDA     XFFL,B                                                 07 03762
005034 001010 A 3763          JAZ     ER2             ERROR 2/ ILLEGAL CALL TO $IX /         07 03763
005035 005471 R
005036 036016 A 3764          LDX     ANRB,B          POINT X AT V$FORTIO                    07 03764
005037 015116 A 3765          LDA     ITMODE,X                                               07 03765
005040 056116 A 3766          STA     ITMODE,B        MOVE MODE FROM V$FORTIO TO V$RERR      07 03766
005041 016063 A 3767          LDA     FRMT,B                                                 07 03767
005042 005004 A 3768          TZX                     SET ITEM WORD SIZE TO 1                07 03768
005043 001010 A 3769          JAZ     PXF5            ITEM WORD SIZE = 1 FOR UNFORMATTED     07 03769
005044 005046 R
005045 036116 A 3770          LDX     ITMODE,B                                               07 03770
       005046 R 3771 PXF5     EQU     *                                                  V2  07 03771
               3772          IFF     NUC                                                FG  07 03772
               3773          GOTO    NV2NUC                                             FG  07 03773
               3774          IFT     VII                                                FG  07 03774
               3775          OME     MAP,V$ST0       SET EXEC STATE TO 00               V2  07 03775
               3776 NV2NUC   CONT                                                       FG  07 03776
005046 006015 A 3777          LDAE    PXFSZT,X        GET ITEM WORD SIZE FROM TABLE      V2  07 03777
005047 005105 R
               3778          IFF     NUC                                                FG  07 03778
               3779          GOTO    NV2NUC                                             FG  07 03779
               3780          IFT     VII                                                FG  07 03780
               3781          OME     MAP,V$ST3       SET EXEC STATE TO NN               V2  07 03781
               3782 NV2NUC   CONT                                                       FG  07 03782
005050 056102 A 3783          STA     IIWSZ,B         STORE                                  07 03783
005051 056115 A 3784          STA     ITMINC,B        ALSO ITEM INCREMENT                    07 03784
005052 004241 A 3785          LRLA    1               GET ITEM BYTE SIZE                     07 03785
005053 056101 A 3786          STA     IIBSZ,B         STORE IN TABLE                         07 03786
005054 005344 A 3787          DXR                                                            07 03787
005055 001046 A 3788          JXNZ    *+3             2-WORD INTEGER/LOGICAL ?           V2  07 03788
005056 005060 R
005057 046115 A 3789          INR     ITMINC,B        YES. SET INCREMENT TO 2                07 03789
005060 016063 A 3790          LDA     FRMT,B                                             V2  07 03790
005061 001010 A 3791          JAZ     PXF10           ALL MODES OK FOR UNFORMATTED       V2  07 03791
005062 005076 R
005063 016061 A 3792          LDA     FDLKEY,B                                               07 03792
005064 140423 A 3793          SUB     FOUR                                                   07 03793
005065 001016 A 3794          JANZ    PXF10           I FORMAT DESCRIPTOR ?                  07 03794
005066 005076 R
005067 016116 A 3795          LDA     ITMODE,B        YES                                    07 03795
005070 140422 A 3796          SUB     TWO                                                    07 03796
005071 001004 A 3797          JAN     PXF10           INTEGER ITEM                           07 03797
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005072 005076 R
005073 140464 A 3798          SUB     THREE                                                    07 03798
005074 001016 A 3799          JANZ    ER2             ERR 2/NON-INTEGER ITEM/                  07 03799
005075 005471 R
005076 036151 A 3800 PXF10    LDX     RETURN,B        POINT X AT CALL SEQUENCE                 07 03800
                3801          MOVXAB  4,ITEMWC        SAVE LIST ITEM WORD COUNT                07 03801
005077 015004 A
005100 056114 A
                3802          MOVXAB  5,ITEMAD        SAVE LIST ITEM ADDRESS                   07 03802
005101 015005 A
005102 056113 A
                3803          IFF     NUC                                                   FG 07 03803
                3804          GOTO    NUC1                                                  FG 07 03804
                3805          IFT     VII                                                   FG 07 03805
                3806          GOTO    VII1                                                  FG 07 03806
                3807          IZAB    ALOC,PXF20      EXIT IF NOT VORTEX BKGND CALLING NUC  FG 07 03807
                3808          LDA     ITEMAD,B                                                 07 03808
                3809          JSR     TBK,X           TEST START OF ITEM ADDRESS               07 03809
                3810          ADD     ITEMWC,B                                                 07 03810
                3811          DAR                                                              07 03811
                3812          JSR     TBK,X           TEST END OF ITEM ADDRESS                 07 03812
                3813 VII1     CONT                                                          FG 07 03813
                3814 NUC1     CONT                                                          FG 07 03814
                3815 PXF20    POPJ            EXIT                                          FG 07 03815
005103 001000 A
005104 004066 R
                3816 ********************************                                         07 03816
                3817 * TABLE OF ITEM SIZES IN WORDS *                                         07 03817
                3818 ********************************                                         07 03818
005105 000001 A 3819 PXFSZT DATA    1               1-WORD INTEGER/LOGICAL                   07 03819
005106 000001 A 3820        DATA    1               2-WORD INTEGER/LOGICAL                   07 03820
005107 000002 A 3821        DATA    2               REAL                                     07 03821
005110 000004 A 3822        DATA    4               DOUBLE PRECISION                         07 03822
005111 000002 A 3823        DATA    2               COMPLEX                                  07 03823
005112 000002 A 3824        DATA    2               DOUBLE PRECISION INTEGER                 07 03824
                3825        EJEC                                                             07 03825
                3826 ********************************************************************** 07 03826
                3827 *                                                                      * 07 03827
                3828 *         R E E N T R A N T   B L O C K   E N T R Y ( R B E )          * 07 03828
                3829 *                                                                      * 07 03829
                3830 * FUNCTION: TO PROVIDE AN ENTRY INTO MODULE V$RERR                  V2* 07 03830
                3831 *                                                                      * 07 03831
                3832 * ENTRY:  B = V$FORTIO DATA BLOCK ADDRESS                            V2* 07 03832
                3833 *          INFL .NE. 0 ON INITIAL ENTRY                              V2* 07 03833
                3834 *               .EQ. 0 ON CONTINUATION ENTRY                         V2* 07 03834
                3835 *          TO LABEL V$RERR VIA ALOC IF:                              V2* 07 03835
                3836 *                                                                    V2* 07 03836
                3837 *               VORTEX: BACKGROUND CALLING NUCLEUS V$RERR             V2* 07 03837
                3838 *               VORTEX II: ANYBODY CALLING NUCLEUS V$RERR             V2* 07 03838
                3839 *                                                                    V2* 07 03839
                3840 *          TO LABEL V$RER1 VIA DIRECT JUMP OTHERWISE                 V2* 07 03840
                3841 *                                                                      * 07 03841
                3842 * EXIT :  TO POJ IF TOP OF IS .GE. 0'00(ADDRESS OPERAND)            V2* 07 03842
                3843 *          TO OP PROCESSOR OTHERWISE                                 V2* 07 03843
                3844 *          ALOC = 1 IF ENTRY THRU V$RERR                             V2* 07 03844
                3845 *               0 IF ENTRY THRU V$RER1                               V2* 07 03845
                3846 *          INFL = 0                                                  V2* 07 03846
                3847 *                                                                      * 07 03847
                3848 * ERRORS: ER4 IF ILLEGAL OP CODE                                      * 07 03848
                3849 *                                                                      * 07 03849
                3850 ********************************************************************** 07 03850
                3852 ********************************                                     07 03852
                3853 * REENTRANT MODULE CALLED BY ALOC *                                   07 03853
                3854 ********************************                                     07 03854
005113 R        3856 V$RERR EQU     *               ALOC ENTRY                           V2 07 03856
                3857        IFF     NUC                                                  FG 07 03857
                3858        GOTO    NUC1                                                 FG 07 03858
                3859        DATA    0                                                    V2 07 03859
                3860        IFF     VII                                                  FG 07 03860
                3861        GOTO    VII1                                                 FG 07 03861
                3862        EXC2    0500+MAP                                             V2 07 03862
                3863        ONE     MAP,V$ST3       SET EXEC STATE TO NN                 V2 07 03863
                3864        LDA     INFL,B                                               V2 07 03864
                3865        JANZ    RBE1                                                 V2 07 03865
                3866 ************************                                             V2 07 03866
                3867 * VORTEX II CONTINUATION *                                           V2 07 03867
                3868 ************************                                           V2 07 03868
                3869        LDA     V$CPL                                                V2 07 03869
                3870        JANZ    RBE4            TEST IF BACKGROUND                   V2 07 03870
                3871 ********************************************************************V2 07 03871
                3872 * RESTORE STACK ADDRESSES FROM V$RERR TO V$FORTIO *                  V2 07 03872
                3873 ********************************************************************V2 07 03873
                3874        LDA     ANRB,B                                               V2 07 03874
                3875        ONE     MAP,V$ST1       SET EXEC STATE TO 0N                 V2 07 03875
                3876        ADDI    OPSTK+STKSZ-1                                        FG 07 03876
                3877        LDXI    BASE            POINT X AT V$RERR STACK BASE         V2 07 03877
                3878        SUB     POPSTP,X                                             FG 07 03878
                3879        TAB                     POINT B AT V$FORTIO STACK            V2 07 03879
                3880        LDA     POPSTP,X        GET COUNT                            FG 07 03880
                3881        JAN     RBEX            EXIT IF NO MOVE                      V2 07 03881
                3882        CMA                                                          FG 07 03882
                3883        INCR    A,4             SET X = -(COUNT-1)                   FG 07 03883
                3884 RBEL1  LDAE    BASE+STKSZ-1,X                                       FG 07 03884
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3885          STA     0,B                                                  V2  07 03885
3886          JXZ     RBEX            EXIT WHEN DONE                       V2  07 03886
3887          IBR                     BUMP POINTERS                         FG 07 03887
3888          IXR                                                           FG 07 03888
3889          JMP     RBEL1                                                V2  07 03889
3890 RBEX     LDX     V$CRS                                                V2  07 03890
3891          LDB     BR,X            RESTORE B                            V2  07 03891
3892          OME     MAP,V$ST3       SET EXEC STATE TO NN                 V2  07 03892
3893 VII1     CONT                                                          FG 07 03893
3894 *****************                                                         07 03894
3895 * INITIALIZE *                                                        V2  07 03895
3896 *****************                                                     V2  07 03896
3897 RBE1     EQU     *                                                    V2  07 03897
3898          IFT     VII                                                   FG 07 03898
3899          ZAB     INFL            CLEAR INITIAL ENTRY FLAG             V2* 07 03899
3900          IFT     VII                                                   FG 07 03900
3901          GOTO    VII1                                                  FG 07 03901
3902          LDXI    BASE            POINT X AT V$RERR DATA BLOCK         V2  07 03902
3903          STB     ANRB,X          SAVE ADDRESS OF NON-REENTRANT BLOCK       07 03903
3904          ZAX     ERN             CLEAR ERROR COUNTER                       07 03904
3905 ********************************                                          07 03905
3906 * TEST V$FORTIO STACK EMPTY *                                            07 03906
3907 ********************************                                          07 03907
3908          LDA     UPSTKP,B                                                  07 03908
3909          SUB     ADPSTK,B                                                  07 03909
3910          JANZ    RBE5                                                      07 03910
3911 ************************************************************************  07 03911
3912 * V$FORTIO STACK EMPTY - RESUME EXECUTION FROM V$RERR STACK *              07 03912
3913 ************************************************************************  07 03913
3914          LDA     UPSTKP,X                                                  07 03914
3915          SUB     ADPSTK,X                                                  07 03915
3916          JAZ     RBE90           ERROR/ V$RERR STACK EMPTY /               07 03916
3917          TXB                     LOAD BASE REGISTER B                      07 03917
3918          POPJ                    RESUME EXECUTION FROM V$RERR STACK    FG  07 03918
3919 ************************************                                      07 03919
3920 * V$FORTIO STACK HAS OP - TEST VALIDITY *                                07 03920
3921 ************************************                                      07 03921
3922 RBE5     LDX     OPSTKP,B                                                  07 03922
3923          LDA     0,X             GET OP                                    07 03923
3924          SUBI    13                                                    PD  07 03924
3925          JAN     RBE90           ERROR/ ILLEGAL OP /                       07 03925
3926          SUBI    11                                                    V2  07 03926
3927          JAP     RBE90           ERROR/ ILLEGAL OP /                       07 03927
3928          ADD     D16             RESTORE OP                                07 03928
3929          LDX     RBEB            POINT X AT V$RERR DATA BLOCK              07 03929
3930          STA     TEMP,X          SAVE OP                                   07 03930
3931          SUB     CXF                                                   V2  07 03931
3932          JAZ     RBE10           PARAMETER XFER ?                          07 03932
3933          LDA     ADPSTK,X        NO. INITIALIZE V$RERR STACK               07 03933
3934          DATA    01006           SKIP                                      07 03934
3935 RBE10    LDA     OPSTKP,X                                                  07 03935
3936          DAR                     PUSH V$RERR STACK                     FG  07 03936
3937          STA     UPSTKP,X                                                  07 03937
3938          TAX                                                               07 03938
3939          LDB     RBEB            POINT B AT V$RERR DATA BLOCK              07 03939
3940          LDA     TEMP,B          RELOAD OP                                 07 03940
3941          STA     0,X             PUSH OP ONTO V$RERR STACK                 07 03941
3942          LDB     ANRB,B          POINT B AT V$FORTIO DATA BLOCK            07 03942
3943          LDX     RBE8            POINT X AT V$RERR DATA BLOCK              07 03943
3944          SPAC                                                              07 03944
3945 ************************************************************************  07 03945
3946 * MOVE ADDRESSES FROM NON-REENTRANT MODULE TO REENTRANT *                  07 03946
3947 ************************************************************************  07 03947
3948          SPAC                                                              07 03948
3949          LDA     RETURN,B                                                  07 03949
3950          STA     RETURN,X        MOVE CALL SEQ ADDRESS                     07 03950
3951          JSR     TBK,X           TEST RETURN ADDRESS IN BACKGROUND         07 03951
3952          ADD     TEN                                                       07 03952
3953          JSR     TBK,X           TEST PARAMETER LIST IN BACKGROUND         07 03953
3954          TBA                                                               07 03954
3955          JSR     TBK,X           TEST 1ST WORD OF DATA BLOCK IN BACKGRND   07 03955
3956          ADDI    YYY-1                                                 V2  07 03956
3957          JSR     TBK,X           TEST LAST WORD OF DATA BLOCK IN BACKGRND  07 03957
3958          LDX     RBE8                                                      07 03958
3959          LDA     ANPOJ,B                                                   07 03959
3960          STA     ANPOJ,X         MOVE NON-REENTRANT POP/JUMP ADDRESS       07 03960
3961          JSR     TBK,X           TEST NON-REENTRANT POP/JUMP IN BACKGROUND  07 03961
3962          LDX     RBE8            POINT X AT REENTRANT BLOCK                07 03962
3963          LDA     OPSTKP,B                                                  07 03963
3964          SUB     ANRB,X                                                    07 03964
3965          SUBI    VOPSTK-BASE     COMPARE WITH BOTTOM OF STACK          V2  07 03965
3966          JAN     RBE90           ERROR/ PROTECTION /                       07 03966
3967          SUBI    STKSZ                                                 V2  07 03967
3968          JAP     RBE90           ERROR/ PROTECTION /                       07 03968
3969          INR     OPSTKP,B        POP V$FORTIO STACK                    FG  07 03969
3970          LDX     RBEB            POINT B AT V$RERR DATA BLOCK              07 03970
3971          LDA     TEMP,B          RELOAD OP                                 07 03971
3972          SUB     CXF                                                   V2  07 03972
3973          JANZ    RBE4            IS OP PARAMETER XFER ?                V2  07 03973
3974          LDA     XFNL,B          YES. GET XFER ENABLE FLAG                 07 03974
3975          JAZ     RBE90           EXIT IF ILLEGAL OP                        07 03975
3976 VII1     CONT                                                          FG  07 03976
3977 RBE4     EQU     *                                                     V2  07 03977
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                     3978          IFF     VORTEX-2                                            V2  07 03978
                     3979          DME     MAP,V$ST3      SET EXEC STATE TO NN                 V2  07 03979
                     3980          INCR    1              SET ALOC ENTRY FLAG                  V2  07 03980
                     3981          DATA    01006                                               V2  07 03981
                     3982 NUC1     CONT                                                         FG 07 03982
                     3983 ***************************************                                  07 03983
                     3984 * REENTRANT MODULE CALLED BY DIRECT JUMP *                                07 03984
                     3985 ***************************************                                  07 03985
        005113 R     3986 V$RER1   EQU     *                                                       07 03986
005113  005001 A     3987          TZA                    RESET ALOC ENTRY FLAG                V2  07 03987
005114  056014 A     3988          STA     ALOC,B                                              V2  07 03988
                     3989 ***********                                                              07 03989
                     3990 * TEST OP *                                                              07 03990
                     3991 ***********                                                              07 03991
005115  036000 A     3992          LDX     OPSTKP,B                                            V2  07 03992
005116  015000 A     3993          LDA     0,X            GET OP IN A                              07 03993
005117  056164 A     3994          STA     TEMP,B         SAVE                                     07 03994
005120  004346 A     3995          LSRA    6                                                       07 03995
005121  001010 A     3996          JAZ     RBE15          IS OP RETURN ADDRESS ?                FG 07 03996
005122  005125 R
                     3997          POPJ                   YES. RETURN                           FG 07 03997
005123  001000 A
005124  004066 R
005125  015000 A     3998 RBE15    LDA     0,X            RELOAD OP                             FG 07 03998
005126  005144 A     3999          IXR                    POP STACK                             FG 07 03999
005127  076000 A     4000          STX     OPSTKP,B                                                07 04000
005130  140465 A     4001          SUB     CTR                                                 V2  07 04001
005131  001004 A     4002          JAN     ER4            ERROR 4/ILLEGAL OP/                      07 04002
005132  005467 R
005133  001010 A     4003          JAZ     RBE25          NO UNIT ASSOCIATED WITH TERMINATE CALL   07 04003
005134  005150 R
005135  005311 A     4004          DAR                                                         V2  07 04004
005136  001010 A     4005          JAZ     RBE30          NO UNIT ASSOCIATED WITH PARAM XFER CALL  07 04005
005137  005152 R
005140  006140 A     4006          SUBI    RBEJTE-RBEJT-1                                      V2  07 04006
005141  000016 A
005142  001002 A     4007          JAP     ER4            ERROR 4/ILLEGAL OP/                      07 04007
005143  005467 R
005144  036151 A     4008          LDX     RETURN,B                                                07 04008
005145  035004 A     4009          LDX     4,X            POINT X AT FORTRAN UNIT NUMBER           07 04009
005146  015000 A     4010          LDA     0,X            GET FORTRAN UNIT NUMBER                  07 04010
005147  056167 A     4011          STA     UNIT,B         STORE                                    07 04011
005150  005001 A     4012 RBE25    TZA                                                             07 04012
005151  056172 A     4013          STA     XFFL,B         DISABLE PARAMETER XFER                   07 04013
005152  036164 A     4014 RBE30    LDX     TEMP,B         LOAD OP AS JUMP TABLE INDEX          V2  07 04014
                     4015          IFF     NUC                                                  FG 07 04015
                     4016          GOTO    NV2NUC                                               FG 07 04016
                     4017          IFT     VII                                                  FG 07 04017
                     4018          DME     MAP,V$ST0      SET EXEC STATE TO 00                 V2  07 04018
                     4019 NV2NUC   CONT                                                         FG 07 04019
005153  006035 A     4020          LDXE    RBEJT-CTRV,X    GET PROCESSOR ADDRESS               V2  07 04020
005154  005152 R
                     4021          IFF     NUC                                                  FG 07 04021
                     4022          GOTO    NV2NUC                                               FG 07 04022
                     4023          IFT     VII                                                  FG 07 04023
                     4024          DME     MAP,V$ST3      SET EXEC STATE TO NN                 V2  07 04024
                     4025 NV2NUC   CONT                                                         FG 07 04025
005155  006705 A     4026          IJMP    0,X            EXIT TO PROCESSOR                        07 04026
005156  000000 A
                     4027 ********************                                                     07 04027
                     4028 * PROTECTION ERROR *                                                     07 04028
                     4029 ********************                                                     07 04029
                     4030          IFF     NUC                                                  FG 07 04030
                     4031          GOTO    NUC1                                                 FG 07 04031
                     4032          IFT     VII                                                  FG 07 04032
                     4033          GOTO    VII1                                                 FG 07 04033
                     4034 RBE90    TZA                                                             07 04034
                     4035          JMP     TBK            FORCE TBK ERROR                          07 04035
                     4036 VII1     CONT                                                         FG 07 04036
                     4037 NUC1     CONT                                                         FG 07 04037
                     4038 ********************                                                     07 04038
                     4039 * EXIT JUMP TABLE *                                                      07 04039
                     4040 ********************                                                     07 04040
005157  006137 R     4041 RBEJT    PZE     TRM            TERMINATE                                07 04041
005160  005033 R     4042          PZE     PXF            PARAMETER XFER                       V2  07 04042
005161  003334 R     4043          PZE     PAX            BACKSPACE                                07 04043
005162  003334 R     4044          PZE     PAX            WRITE EOF                                07 04044
005163  003334 R     4045          PZE     PAX            REWIND                                   07 04045
005164  004614 R     4046          PZE     PRW            READ                                     07 04046
005165  004614 R     4047          PZE     PRW            WRITE                                    07 04047
005166  000171 R     4048          PZE     CLS            CLOSE RMD FILE                           07 04048
005167  000171 R     4049          PZE     CLS            CLOSE RMD FILE                           07 04049
005170  003150 R     4050          PZE     OPN            OPEN RMD FILE                            07 04050
005171  003150 R     4051          PZE     OPN            OPEN RMD FILE                            07 04051
005172  004073 R     4052          PZE     PRD            DECODE                                PD 07 04052
005173  004073 R     4053          PZE     PRD            ENCODE                                PD 07 04053
005174  004723 R     4054          PZE     PRX            READ - DIRECT ACCESS                     07 04054
005175  004723 R     4055          PZE     PRX            WRITE - DIRECT ACCESS                    07 04055
        005176 R     4056 RBEJTE   EQU     *                                                   V2  07 04056
                     4057          IFT     VII                                                  FG 07 04057
                     4058          GOTO    VII1                                                 FG 07 04058
                     4059          IFF     NUC                                                  FG 07 04059
                     4060          GOTO    NUC1                                                 FG 07 04060
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                    4061 RBEB   DATA    BASE                                                    V2  07 04061
                    4062 NUC1   CONT                                                            FG  07 04062
                    4063 VII1   CONT                                                            FG  07 04063
                    4064        EJEC                                                                07 04064
                    4065 ***********************************************************************  07 04065
                    4066 *                                                                     *  07 04066
                    4067 *          R E P E A T   C H A R A C T E R   I / O ( R C H )          *  07 04067
                    4068 *                                                                     *  07 04068
                    4069 * FUNCTION: TO REPEAT A CHARACTER I/O OPERATION N TIMES               *  07 04069
                    4070 *                                                                     *  07 04070
                    4071 * ENTRY: COUNT = N                                                    *  07 04071
                    4072 *         BCHAR = CHARACTER TO BE OUTPUT                              *  07 04072
                    4073 *                                                                     *  07 04073
                    4074 * EXIT : NO SPECIAL CONDITIONS                                       *  07 04074
                    4075 *                                                                     *  07 04075
                    4076 ***********************************************************************  07 04076
005176 016052 A     4078 RCH    LDA     COUNT,B                                                     07 04078
005177 005311 A     4079        DAR                 DECREMENT COUNT                                 07 04079
005200 001002 A     4080        JAP     RCH2                                                    FG  07 04080
005201 005204 R
                    4081        POPJ                EXIT IF COUNT .LE. 0                        FG  07 04081
005202 001000 A
005203 004066 R
005204 056052 A     4082 RCH2   STA     COUNT,B                                                 FG  07 04082
005205 016021 A     4083        LDA     ASCB,B                                                      07 04083
005206 146002 A     4084        SUB     ABSCB,B                                                     07 04084
005207 007400 A     4085        RDF                                                             V2  07 04085
005210 003010 A     4086        XAZ     SDF         SET OVFL IF BUFFER SCB                      V2  07 04086
005211 001746 R
                    4087        TSAB    RWFL,WR,RCH10                                           V2  07 04087
005212 016154 A
005213 006411 A
005214 005233 R
                    4088 *********                                                                  07 04088
                    4089 * INPUT *                                                                 07 04089
                    4090 *********                                                                  07 04090
005215 001001 A     4091        JOF     RCH5                                                    V2  07 04091
005216 005225 R
                    4092 ******************************                                             07 04092
                    4093 * INPUTTING FROM NON-BUFFER *                                             07 04093
                    4094 ******************************                                             07 04094
                    4095        PUSHJ   ICC         INPUT CHARACTER                             V2  07 04095
005217 006010 A
005220 001743 R
005221 006505 A
005222 004774 R
005223 001000 A     4096        JMP     RCH         LOOP TILL DONE                                  07 04096
005224 005176 R
                    4097 ************************                                                   07 04097
                    4098 * INPUTTING FROM BUFFER *                                                 07 04098
                    4099 ************************                                                   07 04099
                    4100 RCH5   PUSHJ   CBC         INPUT CHARACTER FROM BUFFER                 V2  07 04100
005225 006010 A
005226 000104 R
005227 006505 A
005230 004774 R
005231 001000 A     4101        JMP     RCH         LOOP TILL DONE                                  07 04101
005232 005176 R
                    4102 **********                                                                 07 04102
                    4103 * OUTPUT *                                                                07 04103
                    4104 **********                                                                 07 04104
005233 001001 A     4105 RCH10  JOF     RCH15                                                   V2  07 04105
005234 005243 R
                    4106 ***************************                                            07 04106
                    4107 * OUTPUT TO NON-BUFFER *                                               07 04107
                    4108 ***************************                                            07 04108
                    4109        PUSHJ   PCH         PUT CHARACTER                               V2  07 04109
005235 006010 A
005236 003535 R
005237 006505 A
005240 004774 R
005241 001000 A     4110        JMP     RCH         LOOP TILL DONE                                  07 04110
005242 005176 R
                    4111 ********************                                                       07 04111
                    4112 * OUTPUT TO BUFFER *                                                     07 04112
                    4113 ********************                                                       07 04113
                    4114 RCH15  PUSHJ   OCB         OUTPUT CHARACTER TO BUFFER                  V2  07 04114
005243 006010 A
005244 002635 R
005245 006505 A
005246 004774 R
005247 001000 A     4115        JMP     RCH         LOOP TILL DONE                                  07 04115
005250 005176 R
                    4116        EJEC                                                                07 04116
                    4117 ***********************************************************************  07 04117
                    4118 *                                                                     *  07 04118
                    4119 *       R E C Y C L E   L O G I C A L   B U F F E R ( R C L )         *  07 04119
                    4120 *                                                                     *  07 04120
                    4121 * FUNCTION: TO MOVE FORWARD TO NEXT LOGICAL RECORD                   *  07 04121
                    4122 *                                                                     *  07 04122
                    4123 * ENTRY: LRWC = COUNT OF WORDS REMAINING IN LOGICAL RECORD           *  07 04123
                    4124 *                                                                     *  07 04124
                    4125 * EXIT : LRWC = LRSZ                                                 *  07 04125
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                    4126 *                                                                                  *  07 04126
                    4127 ******************************************************************************** 07 04127
                    4129 RCL     TRAB    RWFL,LF,RCL5      LOGICAL FILE ?                                V2  07 04129
005251 016154 A
005252 006441 A
005253 005256 R
005254 006400 A 4130         BT      ASET+RM,RCL10   YES. RMD ?                                        D.1 07 04130
005255 005263 R
                    4131 RCL5    ZAB     LRWC            NO. FORCE RECYCLE                             V2  07 04131
005256 005001 A
005257 056123 A
005260 056144 A 4132         STA     PBWC,B          CLEAR WORD COUNTS                                     07 04132
005261 001000 A 4133         JMP     RCL15                                                             D.1 07 04133
005262 005273 R
005263 006444 A 4134 RCL10   BT      ARST+TR,RCL15   TERMINATE LOGICAL RMD ?                            D.1 07 04134
005264 005273 R
                    4135         TNZAB   LRWC,RCL15      YES. END OF LOGICAL RECORD ?                  D.1 07 04135
005265 016123 A
005266 001016 A
005267 005273 R
005270 046121 A 4136         INR     LRECNO,B        YES. BUMP LOGICAL RECORD NUMBER                   D.1 07 04136
                4137         POPJ                    EXIT                                               FG 07 04137
005271 001000 A
005272 004066 R
                4138 RCL15   PUSHJ   GBA             STEP THRU LOGICAL BUFFER                          D.1 07 04138
005273 006010 A
005274 001162 R
005275 006505 A
005276 004774 R
005277 016123 A 4139         LDA     LRWC,B                                                                07 04139
005300 005111 A 4140         IAR                                                                           07 04140
005301 146122 A 4141         SUB     LRSZ,B                                                                07 04141
005302 001004 A 4142         JAN     RCL             LOOP TILL LOGICAL BOUNDARY PASSED                 D.1 07 04142
005303 005251 R
005304 046123 A 4143         INR     LRWC,B          RESTORE WORD COUNTS                                   07 04143
005305 046144 A 4144         INR     PBWC,B                                                                07 04144
                4145         DAB     BFWPT           AND BUFFER POINTER                                    07 04145
005306 016025 A
005307 005311 A
005310 056025 A
                4146         POPJ                    EXIT                                               FG 07 04146
005311 001000 A
005312 004066 R
                4147         EJEC                                                                          07 04147
                4148 ******************************************************************************** 07 04148
                4149 *                                                                                  *  07 04149
                4150 *       R E C Y C L E   P H Y S I C A L   B U F F E R ( R C P )                     *  07 04150
                4151 *                                                                                  *  07 04151
                4152 * FUNCTION: TO RECYLE A PHYSICAL BUFFER                                            *  07 04152
                4153 *                                                                                  *  07 04153
                4154 * ENTRY:  PBSZ = PHYSICAL BUFFER SIZE IN WORDS                                     *  07 04154
                4155 *         APBF = PHYSICAL BUFFER START ADDRESS                                     *  07 04155
                4156 *         IN = 1 IF INITIALIZING                                                V2*  07 04156
                4157 *         PO = 1 IF BUFFER MUST BE POSTED                                       V2*  07 04157
                4158 *                                                                                  *  07 04158
                4159 * EXIT :  IN = 1                                                                  V2*  07 04159
                4160 *                                                                                V2*  07 04160
                4161 *           BUFFER POSTED IF PO SET                                              V2*  07 04161
                4162 *           I/O SUPPRESSED                                                       V2*  07 04162
                4163 *                                                                                V2*  07 04163
                4164 *         IN = 0                                                                 V2*  07 04164
                4165 *                                                                                V2*  07 04165
                4166 *           PBWC = PBSZ                                                          V2*  07 04166
                4167 *           BUFFER CLEARED BEFORE NON-RMD READ                                   V2*  07 04167
                4168 *                                                                                  *  07 04168
                4169 ******************************************************************************** 07 04169
005313          4171 RCP     EQU     *                                                                 V2  07 04171
                4172         TRAB    RWFL,IN,RCP5    INITIALIZING ?                                    V2  07 04172
005313 016154 A
005314 006446 A
005315 005331 R
005316 006442 A 4173         BT      ARST+PO,RCP3          YES. ANY UNPOSTED DATA ?                        07 04173
005317 005325 R
                4174         PUSHJ   PSB             YES. POST BUFFER                                  V2  07 04174
005320 006010 A
005321 004743 R
005322 006505 A
005323 004774 R
005324 016154 A 4175         LDA     RWFL,B          RESTORE FLAG WORD                                     07 04175
005325 006451 A 4176 RCP3    BT      ARST+WR,RCP15         READ ?                                      V2  07 04176
005326 005355 R
005327 001000 A 4177         JMP     RCP25           NO. WRITE                                             07 04177
005330 005404 R
                4178 RCP5    MOVBAB  PBSZ,PBWC       RELOAD PHYSICAL WORD COUNT                            07 04178
005331 016143 A
005332 056144 A
005333 016027 A 4179         LDA     ALBF,B                                                            D.1 07 04179
005334 146025 A 4180         SUB     BFWPT,B                                                           D.1 07 04180
005335 005311 A 4181         DAR                                                                       D.1 07 04181
005336 126020 A 4182         ADD     APBF,B                                                            D.1 07 04182
005337 056027 A 4183         STA     ALBF,B          UPDATE ADDRESS OF LOGICAL BUFFER                  D.1 07 04183
                4184         DABB    APBF,BFWPT      INITIALIZE BUFFER POINTER                         D.1 07 04184
005340 016020 A
```

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005341 005311 A
005342 056025 A
                4185            TSAB    RWFL,WR,RCP20       READ ?                                  V2  07 04185
005343 016154 A
005344 006411 A
005345 005375 R
005346 006442 A 4186            BT      ARST+PD,RCP15       YES. ANY UNPOSTED DATA ?                C.1 07 04186
005347 005355 R
                4187            PUSHJ   PSB                 YES. POST BUFFER                        V2  07 04187
005350 006010 A
005351 004743 R
005352 006505 A
005353 004774 R
005354 016154 A 4188            LDA     RWFL,B              RESTORE FLAG WORD                       V2  07 04188
                4189 ********************************                                                V2  07 04189
                4190 * CLEAR BUFFER ON NON-RMD READ *                                                V2  07 04190
                4191 ********************************                                                    07 04191
005355 006400 A 4192 RCP15      BT      ASET+RM,RCP20        RMD ?                                  V2  07 04192
005356 005375 R
                4193            TZAB    UNIT,RCP20          NO. DONT CLEAR IF L=0                   D.1 07 04193
005357 016167 A
005360 001010 A
005361 005375 R
005362 036010 A 4194            LDX     ADFCB,B                                                     D.1 07 04194
                4195            MOVBAB  LRWC,SAVE+2         SAVE LRWC                                   07 04195
005363 016123 A
005364 056034 A
                4196            MOVXAB  0,LRWC              SET LOGICAL WORD COUNT = FCB(0)             07 04196
005365 015000 A
005366 056123 A
                4197            PUSHJ   CLB                 CLEAR BUFFER                            V2  07 04197
005367 006010 A
005370 000134 R
005371 006505 A
005372 004774 R
                4198            MOVBAB  SAVE+2,LRWC         RESTORE LRWC                                07 04198
005373 016034 A
005374 056123 A
                4199 ********************************                                                V2  07 04199
                4200 * READ/WRITE PHYSICAL RECORD *                                                V2  07 04200
                4201 ********************************                                                V2  07 04201
                4202 RCP20      PUSHJ   RPB                 REFRESH PHYSICAL BUFFER                 V2  07 04202
005375 006010 A
005376 005672 R
005377 006505 A
005400 004774 R
                4203            TRAB    RWFL,WR,RCP50        READ ?                                 V2  07 04203
005401 016154 A
005402 006451 A
005403 005461 R
005404 006441 A 4204 RCP25      BT      ARST+LF,RCP40       NO, WRITE. LOGICAL FILE ?               D.1 07 04204
005405 005450 R
005406 036010 A 4205            LDX     ADFCB,B             YES. POINT X AT FCB                     V2  07 04205
005407 006440 A 4206            BT      ARST+RM,RCP40       RMD ?                                   D.1 07 04206
005410 005450 R
005411 110423 A 4207            ORA     PDS                 YES. SET POST FLAG                      D.1 07 04207
005412 056154 A 4208            STA     RWFL,B                                                          07 04208
005413 015014 A 4209            LDA     12,X                                                            07 04209
005414 110437 A 4210            ORA     FPDS                ALSO IN FCB(12)                         V2  07 04210
005415 056014 A 4211            STA     12,X                                                            07 04211
                4212            TRAB    RWFL,RB,RCP35        IS READ BEFORE WRITE ENABLED ?             07 04212
005416 016154 A
005417 006443 A
005420 005445 R
005421 036016 A 4213            LDX     ANRB,B              YES. POINT X AT V$FORTIO DATA BLOCK         07 04213
005422 015104 A 4214            LDA     IOCONT,X                                                        07 04214
005423 150451 A 4215            ANA     BR0                 CLEAR WRITE BIT IN V$IOC CONTROL WORD       07 04215
005424 056104 A 4216            STA     IOCONT,X                                                        07 04216
                4217            PUSHJ   RPB                 READ NEXT PHYSICAL RECORD               V2  07 04217
005425 006010 A
005426 005672 R
005427 006505 A
005430 004774 R
                4218            SUTBBB  PRECND,PBRC,PRECND      RESTORE PHYSICAL RECORD NUMBER          07 04218
005431 016145 A
005432 146142 A
005433 056145 A
005434 036016 A 4219            LDX     ANRB,B              POINT X AT V$FORTIO DATA BLOCK              07 04219
005435 015106 A 4220            LDA     IOSTAT,X            GET STATUS OF READ                          07 04220
005436 005311 A 4221            DAR                                                                     07 04221
005437 001004 A 4222            JAN     *+3                 TEST FOR EOF                                07 04222
005440 005442 R
005441 056106 A 4223            STA     IOSTAT,X            CLEAR EOF FLAG ON READ BEFORE WRITE         07 04223
005442 015104 A 4224            LDA     IOCONT,X                                                        07 04224
005443 110431 A 4225            ORA     BS8                 RESTORE WRITE BIT IN V$IOC CONTROL WORD     07 04225
005444 056104 A 4226            STA     IOCONT,X                                                        07 04226
005445 036010 A 4227 RCP35      LDX     ADFCB,B                                                         07 04227
                4228            MOVBAX  PRECND,13           UPDATE FCB(13)                              07 04228
005446 016145 A
005447 056015 A
                4229 RCP40      TSAB    RWFL,IN,RCP50       EXIT ON INITIALIZE                      D.1 07 04229
005450 016154 A
005451 006406 A
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005452 005461 R
005453 006405 A 4230          BT      PSET+SC,RCP50                                          D.1 07 04230
005454 005461 R
                4231          PUSHJ   CLB             CLEAR BUFFER AFTER WRITE               D.1 07 04231
005455 006010 A
005456 000134 R
005457 006505 A
005460 004774 R
005461 016154 A 4232 RCP50    LDA     RWFL,B                                                 D.1 07 04232
005462 150446 A 4233          ANA     SCR             CLEAR CLEAR SUPPRESS FLAG              D.1 07 04233
005463 150447 A 4234          ANA     INR             CLEAR INITIALIZE FLAG                  V2  07 04234
005464 056154 A 4235          STA     RWFL,B                                                     07 04235
                4236          POPJ                    EXIT                                    FG 07 04236
005465 001000 A
005466 004066 R
                4237          EJEC                                                               07 04237
                4238 ********************************************************************** 07 04238
                4239 *                                                                      * 07 04239
                4240 *     R E E N T R A N T   E R R O R   P R O C E S S O R ( R E R )      * 07 04240
                4241 *                                                                      * 07 04241
                4242 * FUNCTION: TO PROCESS ERRORS IN V$RERR                               V2* 07 04242
                4243 *                                                                      * 07 04243
                4244 * ENTRY:  ER1 FORMAT                                                   * 07 04244
                4245 *         ER2 MODE                                                     * 07 04245
                4246 *         ER3 DATA                                                     * 07 04246
                4247 *         ER4 I/O ERROR                                                * 07 04247
                4248 *                                                                      * 07 04248
                4249 * EXIT :  DIRECT TO CAN                                                * 07 04249
                4250 *          ERN = ERROR NUMBER-1                                        * 07 04250
                4251 *          ERROR OP PUSHED                                          V2* 07 04251
                4252 *                                                                      * 07 04252
                4253 ********************************************************************** 07 04253
005467 046060 A 4255 ER4      INR     ERN,B           I/O                                        07 04255
005470 046060 A 4256 ER3      INR     ERN,B           DATA                                       07 04256
005471 046060 A 4257 ER2      INR     ERN,B           MODE                                       07 04257
005472 036016 A 4258 ER1      LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK             07 04258
005473 016060 A 4259          LDA     ERN,B                                                      07 04259
005474 055060 A 4260          STA     ERN,X           MOVE ERROR NUMBER                          07 04260
005475 010421 A 4261          LDA     OER             GET ERROR OP                               07 04261
                4262          PUSHF                                                              07 04262
005476 036016 A
005477 035000 A
005500 005344 A
005501 055000 A
005502 005041 A
005503 036016 A
005504 055000 A
005505 001000 A 4263          JMP     CAN             EXIT TO V$FORTIO                           07 04263
005506 000101 R
                4264          EJEC                                                               07 04264
                4265 ********************************************************************** 07 04265
                4266 *                                                                      * 07 04266
                4267 *                R E P O S I T I O N   F I L E ( R F L )               * 07 04267
                4268 *                                                                      * 07 04268
                4269 * FUNCTION: TO REPOSITION A FILE AT START OF A READ OR WRITE, OR IF   * 07 04269
                4270 *           A T FORMAT SPECIFIER REQUIRES A PHYSICAL BACKSPACE         * 07 04270
                4271 *                                                                      * 07 04271
                4272 * ENTRY:  ADFCB = ADDRESS OF DCB/FCB                                  * 07 04272
                4273 *         APBF = ADDRESS OF PHYSICAL BUFFER                            * 07 04273
                4274 *         ALBF = ADDRESS OF LOGICAL BUFFER                             * 07 04274
                4275 *         PBSZ = PHYSICAL BUFFER SIZE IN WORDS                         * 07 04275
                4276 *         LRSZ = LOGICAL RECORD SIZE IN WORDS                          * 07 04276
                4277 *         PRECNO = PHYSICAL RECORD NUMBER                              * 07 04277
                4278 *                                                                      * 07 04278
                4279 * EXIT :  READ : 1ST RECORD IN BUFFER                                  * 07 04279
                4280 *          WRITE: BUFFER CLEARED                                       * 07 04280
                4281 *                                                                      * 07 04281
                4282 ********************************************************************** 07 04282
                4284 RFL      MOVBAB  LRSZ,LRWC       INITIALIZE LOGICAL WORD COUNT              07 04284
005507 016122 A
005510 056123 A
                4285          LABB    ALBF,BFWPT      INITIALIZE BUFFER WORD POINTER          V2 07 04285
005511 016027 A
005512 005311 A
005513 056025 A
                4286          MOVBAB  PBSZ,PBWC       INITIALIZE PHYSICAL WORD COUNT             07 04286
005514 016143 A
005515 056144 A
                4287          TRAB    RWFL,LF,RFL5      LOGICAL FILE ?                        V2 07 04287
005516 016154 A
005517 006441 A
005520 005523 R
005521 006400 A 4288          BT      ASET+RM,RFL10     YES. TEST IF RMD                      V2 07 04288
005522 005527 R
                4289 ************************                                               V2 07 04289
                4290 * NOT LOGICAL RMD FILE *                                               V2 07 04290
                4291 ************************                                               V2 07 04291
005523 006411 A 4292 RFL5     BT      ASET+WR,RFL40     READ ?                                FG 07 04292
005524 005610 R
005525 001000 A 4293          JMP     RCP             YES. RECYCLE PHYSICAL BUFFER               07 04293
005526 005313 R
                4294 ********************                                                   V2 07 04294
                4295 * LOGICAL RMD FILE *                                                   V2 07 04295
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                      4296 **********************                                                  V2  07 04296
005527 016020 A       4297 RFL10   LDA      APBF,B                                                    07 04297
005530 126143 A       4298         ADD      PBSZ,B                                                    07 04298
005531 146027 A       4299         SUB      ALBF,B                                                    07 04299
005532 056144 A       4300         STA      PBWC,B          INITIALIZE PHYSICAL WORD COUNT            07 04300
                      4301 ****************************************                                  07 04301
                      4302 * TEST IF LRECNO IN BUFFER *                                             07 04302
                      4303 ****************************************                                  07 04303
005533 036010 A       4304         LDX      ADFCB,B                                                   07 04304
005534 015015 A       4305         LDA      13,X                                                      07 04305
005535 001010 A       4306         JAZ      RFL50           TEST IF BUFFER EMPTY                      07 04306
005536 005612 R
005537 146145 A       4307         SUB      PRECNO,B        COMPARE BUFFER ADDRESS WITH PRECNO        07 04307
005540 001010 A       4308         JAZ      RFL20           LRECNO RESIDENT IF EQUAL                  07 04308
005541 005572 R
005542 001002 A       4309         JAP      RFL50                                                     07 04309
005543 005612 R
005544 056164 A       4310         STA      TEMP,B          SAVE -(RECORD INCREMENT)                  07 04310
005545 126142 A       4311         ADD      PBRC,B                                                    07 04311
005546 005311 A       4312         DAR                                                                07 04312
005547 001004 A       4313         JAN      RFL50                                                     07 04313
005550 005612 R
                      4314 **********************                                                  07 04314
                      4315 * LRECNO IS RESIDENT *                                                  07 04315
                      4316 **********************                                                  07 04316
                      4317         MOVXAB   13,PRECNO       UPDATE PHYSICAL RECORD NUMBER             07 04317
005551 015015 A
005552 056145 A
005553 005024 A       4318         TBX                      SAVE BASE REGISTER                        07 04318
005554 005001 A       4319         TZA                                                                07 04319
005555 146164 A       4320         SUB      TEMP,B          GET RECORD INCREMENT                      07 04320
005556 004560 A       4321         LLSR     16                                                        07 04321
005557 165201 A       4322         MUL      BD120,X         CONVERT TO WORD INCREMENT           V2    07 04322
005560 065164 A       4323         STB      TEMP,X                                                    07 04323
005561 005042 A       4324         TXB                      RESTORE BASE REGISTER B                   07 04324
005562 016027 A       4325         LDA      ALBF,B                                                    07 04325
005563 126164 A       4326         ADD      TEMP,B          BUMP LOGICAL BUFFER ADDRESS               07 04326
005564 056027 A       4327         STA      ALBF,B                                                    07 04327
005565 005311 A       4328         DAR                                                                07 04328
005566 056025 A       4329         STA      PFWPT,B         ALSO BUFFER WORD POINTER                  07 04329
005567 016144 A       4330         LDA      PBWC,B                                                    07 04330
005570 146164 A       4331         SUB      TEMP,B          DECREMENT PHYSICAL WORD COUNT             07 04331
005571 056144 A       4332         STA      PBWC,B                                                    07 04332
                      4333 RFL20   TSAB     RWFL,WR,RFL30       READ ?                          V2    07 04333
005572 016154 A
005573 006411 A
005574 005602 R
                      4334         ADBBB    PRECNO,PBRC,PRECNO      YES. BUMP PHYSICAL RECNO        V2    07 04334
005575 016145 A
005576 126142 A
005577 056145 A
                      4335         POPJ                     AND EXIT                                  FG 07 04335
005600 001000 A
005601 004066 R
005602 110423 A       4336 RFL30   ORA      POS             SET POST FLAG ON WRITE                V2  07 04336
005603 056154 A       4337         STA      RWFL,B                                                V2  07 04337
005604 036010 A       4338         LDX      ADFCB,B         POINT X AT FCB                        V2  07 04338
005605 015014 A       4339         LDA      12,X                                                  V2  07 04339
005606 110437 A       4340         ORA      PPOS            ALSO IN FCB                           V2  07 04340
005607 055014 A       4341         STA      12,X                                                  V2  07 04341
                      4342 RFL40   POPJ                     AND EXIT                                  FG 07 04342
005610 001000 A
005611 004066 R
                      4343 **********************                                                  07 04343
                      4344 * LRECNO NOT IN BUFFER *                                              07 04344
                      4345 **********************                                                  07 04345
005612 016154 A       4346 RFL50   LDA      RWFL,B                                                    07 04346
005613 110427 A       4347         ORA      INS             SET INITIALIZE FLAG                   V2  07 04347
005614 056154 A       4348         STA      RWFL,B                                                    07 04348
005615 001000 A       4349         JMP      RCP             RECYCLE PHYSICAL BUFFER                   07 04349
005616 005313 R
                      4350         EJSC                                                               07 04350
                      4351 ********************************************************************** 07 04351
                      4352 *                                                                    * 07 04352
                      4353 *          R O U N D   D E C I M A L   A R R A Y ( R N D )           * 07 04353
                      4354 *                                                                    * 07 04354
                      4355 * FUNCTION: TO ROUND DECIMAL DIGIT STRING IN ARRAY CHB, PROPAGATING * 07 04355
                      4356 *           CARRIES FORWARD                                          * 07 04356
                      4357 *                                                                    * 07 04357
                      4358 * ENTRY: ARRAY CHB CONTAINS BINARY EQUIVALENTS OF DECIMAL DIGITS    * 07 04358
                      4359 *        COUNT = ROUND POSITION                                      * 07 04359
                      4360 *        DEXP = DECIMAL EXPONENT                                     * 07 04360
                      4361 *        ACC = BINARY FRACTION REMAINING AFTER 14 DIGITS         V2* 07 04361
                      4362 *                                                                    * 07 04362
                      4363 * EXIT : DEXP = DEXP+1 ON FIELD OVERFLOW                           * 07 04363
                      4364 *                                                                    * 07 04364
                      4365 ********************************************************************** 07 04365
005617 R              4367 RNA     EQU      *                                                         07 04367
005617 016052 A       4368 RND     LDA      COUNT,B                                                   07 04368
005620 001004 A       4369         JAN      RNDX            EXIT IF COUNT NEGATIVE                FG  07 04369
005621 005670 R
005622 146200 A       4370         SUB      BD14,B                                                V2  07 04370
005623 001004 A       4371         JAN      RNDS            IS COUNT .GE. 14 ?                        07 04371
```

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005624 005636 R
005625 016007 A 4372          LDA     ACHB,B          YES                                                    07 04372
005626 126200 A 4373          ADD     BD14,B                                                  V2             07 04373
005627 005314 A 4374          DECR    014             POINT X AT LAST DIGIT                                  07 04374
005630 016003 A 4375          LDA     ACC,B                                                                  07 04375
005631 004241 A 4376          LRLA    1                                                                      07 04376
005632 001002 A 4377          JAP     RNDX            EXIT IF NO BUMP                                 FG     07 04377
005633 005670 R
005634 001000 A 4378          JMP     RNDL            OTHERWISE PROPAGATE CARRY                              07 04378
005635 005652 R
005636 016007 A 4379 RND5     LDA     ACHB,B                                                                 07 04379
005637 126052 A 4380          ADD     COUNT,B                                                                07 04380
005640 005314 A 4381          DECR    014             POINT X AT ROUND POSITION-1                            07 04381
005641 015001 A 4382          LDA     1,X             GET DECIMAL DIGIT                                      07 04382
005642 140465 A 4383          SUB     FIVE                                                                   07 04383
005643 001004 A 4384          JAN     RNDX            EXIT IF NO CARRY                                FG     07 04384
005644 005670 R
               4385          TZAB    COUNT,RND10     TEST COUNT=0                                           07 04385
005645 016052 A
005646 001010 A
005647 005665 R
               4386          ZAX     1               CLEAR LAST DIGIT IN CASE OF OVERFLOW                   07 04386
005650 005001 A
005651 055001 A
               4387 ********************************                                                       07 04387
               4388 * LOOP TO PROPAGATE CARRIES *                                                           07 04388
               4389 ********************************                                                       07 04389
005652 045000 A 4390 RNDL     INR     0,X             BUMP PRECEDING DIGIT                                   07 04390
005653 015000 A 4391          LDA     0,X                                                                    07 04391
005654 140471 A 4392          SUB     TEN                                                                    07 04392
005655 001004 A 4393          JAN     RNDX            EXIT IF NO CARRY                                FG     07 04393
005656 005670 R
005657 005001 A 4394          TZA                                                                            07 04394
005660 055000 A 4395          STA     0,X             CLEAR DIGIT                                            07 04395
005661 005345 A 4396          DECR    045             DECREMENT CHB ARRAY POINTER                            07 04396
005662 146007 A 4397          SUB     ACHB,B                                                                 07 04397
005663 001002 A 4398          JAP     RNDL            IS CARRY PROPAGATED OUT OF CHB ?                       07 04398
005664 005652 R
005665 046055 A 4399 RND10    INR     DEXP,B          YES. BUMP DECIMAL EXPONENT                             07 04399
005666 005101 A 4400          INCR    1                                                                      07 04400
005667 055001 A 4401          STA     1,X             SHIFT CHB RIGHT 1                                      07 04401
               4402 RNDX     POPJ                    EXIT                                            FG     07 04402
005670 001000 A
005671 004066 R
               4403          EJEC                                                                           07 04403
               4404 ********************************************************************************       07 04404
               4405 *                                                                              *       07 04405
               4406 *       R E F R E S H   P H Y S I C A L   B U F F E R ( R P B )                 *       07 04406
               4407 *                                                                              *       07 04407
               4408 * FUNCTION: TO READ OR WRITE A PHYSICAL BUFFER                                 *       07 04408
               4409 *                                                                              *       07 04409
               4410 * ENTRY: ADFCB = ADDRESS OF DCB/FCB                                            *       07 04410
               4411 *                                                                              *       07 04411
               4412 *        LOGICAL FILES ONLY:                                                   *       07 04412
               4413 *                                                                              *       07 04413
               4414 *             PRECNO = CURRENT PHYSICAL RECORD NUMBER                          *       07 04414
               4415 *             PBRC = COUNT OF 120-WORD RECORDS IN PHYSICAL BUFFER              *       07 04415
               4416 *                                                                              *       07 04416
               4417 * EXIT : PBWC = PHYSICAL WORD COUNT                                            *       07 04417
               4418 *        PRECNO = PRECNO + PBRC                                                *       07 04418
               4419 *                                                                              *       07 04419
               4420 ********************************************************************************       07 04420
               4422 RPB      TRAB    RWFL,LF,RPB10       TEST IF LOGICAL FILE                           07 04422
005672 016154 A
005673 006441 A
005674 005701 R
               4423 ********************************                                                       07 04423
               4424 * LOGICAL FILE - SET UP FCB *                                                         07 04424
               4425 ********************************                                                       07 04425
005675 036010 A 4426          LDX     ADFCB,B         POINT X AT FCB                                         07 04426
               4427          MOVBAX  PRECNO,3        MOVE PHYSICAL RECNO TO FCB(3)                          07 04427
005676 016145 A
005677 055003 A
005700 055015 A 4428          STA     13,X            ALSO FCB(13)                                           07 04428
               4429 ********************************                                                       07 04429
               4430 * CALL IOC TO DO I/O *                                                               07 04430
               4431 ********************************                                                       07 04431
005701 010464 A 4432 RPB10    LDA     CIO             CALL V$IOC TO DO I/O                            V2     07 04432
005702 006505 A 4433          JSR     PSJ,X                                                           V2     07 04433
005703 004774 R
               4434          TRAB    RWFL,IN,RPB11     INITIALIZING ?                                E.1    07 04434
005704 016154 A
005705 006446 A
005706 005714 R
005707 016020 A 4435          LDA     APBT,B          YES                                            E.1    07 04435
005710 126143 A 4436          ADD     PBSZ,B                                                         E.1    07 04436
005711 146027 A 4437          SUB     ALBS,B          COMPUTE REMAINING PHYSICAL WORD COUNT          E.1    07 04437
005712 001000 A 4438          JMP     RPB12                                                          E.1    07 04438
005713 005716 R
005714 036016 A 4439 RPB11    LDX     ANRB,B          NOT INITIALIZING                               E.1    07 04439
005715 015144 A 4440          LDA     PBWC,X          XFER I/O WORD COUNT FROM V$PORTIO              E.1    07 04440
005716 056144 A 4441 RPB12    STA     PBWC,B                                                         E.1    07 04441
               4442          TRAB    RWFL,LF,RPB15     LOGICAL FILE ?                               V2     07 04442
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005717 016154 A
005720 006441 A
005721 005724 R
005722 006400 A 4443          BT      ASET+RM,RPB20     YES. RMD ?                                  V2  07 04443
005723 005730 R
                4444 RPB15    MOVBAB  PBWC,LRSZ     NO. UPDATE LOGICAL WORD COUNT                  V2  07 04444
005724 016144 A
005725 056122 A
                4445          POPJ                EXIT                                             FG  07 04445
005726 001000 A
005727 004066 R
                4446 RPB20    ADBRB   PRECNO,PBRC,PRECNO      BUMP PHYSICAL RECORD NUMBER             07 04446
005730 016145 A
005731 126142 A
005732 056145 A
                4447          POPJ                EXIT                                             FG  07 04447
005733 001000 A
005734 004066 R
                4448          .EJEC                                                                    07 04448
                4449 ********************************************************************************* 07 04449
                4450 *                                                                               * 07 04450
                4451 *                S E A R C H   F C B   C H A I N ( S C H )                       * 07 04451
                4452 *                                                                               * 07 04452
                4453 * FUNCTION: TO SEARCH AN FCB CHAIN FOR A GIVEN FORTRAN UNIT NUMBER U            * 07 04453
                4454 *                                                                               * 07 04454
                4455 * ENTRY: UNIT = U                                                               * 07 04455
                4456 *        LNKCNT = COUNT OF FCB'S ON CHAIN                                    V2  07 04456
                4457 *        EACH CHAIN ITEM XFCB HAS FORMAT:                                      * 07 04457
                4458 *              XFCB(10) = ADDRESS OF NEXT FCB ON CHAIN                         * 07 04458
                4459 *              XFCB(11) = U(XFCB)                                              * 07 04459
                4460 *        ALOC .NE. 0 IF V$RERR ENTERED BY ALOC                               V2  07 04460
                4461 *                                                                               * 07 04461
                4462 * EXIT : A = ADDRESS OF FCB ARRAY, IF U ON CHAIN                               * 07 04462
                4463 *          = 0 IF U NOT ON CHAIN                                               * 07 04463
                4464 *        PRLINK = ADDRESS OF PREVIOUS CHAIN LINK                               * 07 04464
                4465 *                                                                               * 07 04465
                4466 ********************************************************************************* 07 04466
                4468 ***************************                                                     07 04468
                4469 * INITIALIZE SEARCH LOOP *                                                     07 04469
                4470 ***************************                                                     07 04470
005735 036016 A 4471 SCH      LDX     ANRB,B                                                         07 04471
005736 005041 A 4472          TXA                 GET DATA BLOCK ADDRESS                           07 04472
005737 006120 A 4473          ADDI    CHNHDR-10   ADD BIAS                                       V2  07 04473
005740 000037 A
005741 056146 A 4474          STA     PRLINK,B    POINT PREVIOUS LINK AT CHAIN HEADER                07 04474
005742 015120 A 4475          LDA     LNKCNT,X    GET LINK COUNT                                     07 04475
005743 056052 A 4476          STA     COUNT,B     STORE AS LOOP COUNT                                07 04476
005744 035051 A 4477          LDX     CHNHDR,X    POINT X AT HEAD OF CHAIN                           07 04477
                4478 ***************                                                                 07 04478
                4479 * SEARCH LOOP *                                                                07 04479
                4480 ***************                                                                 07 04480
005745 016052 A 4481 SCHLP    LDA     COUNT,B                                                        07 04481
005746 001010 A 4482          JAZ     SCHY        FLAG NO FIND BY EXIT WITH A=0                    FG  07 04482
005747 005763 R
005750 005311 A 4483          DAR                 DECREMENT COUNT                                    07 04483
005751 056052 A 4484          STA     COUNT,B                                                        07 04484
                4485          IFF     NUC                                                          FG  07 04485
                4486          GOTO    NUC1                                                         FG  07 04486
                4487          IFT     VII                                                          FG  07 04487
                4488          GOTO    VII1                                                         FG  07 04488
                4489          TZAB    ALOC,SCH5   VORTEX BKGND CALLING NUCLEUS ?                 V2  07 04489
                4490          STX     TEMP,B      YES. SAVE X                                        07 04490
                4491          TXA                                                                    07 04491
                4492          JSR     TBK,X       TEST FCB(0) IN BACKGROUND                          07 04492
                4493          ADD     D15                                                            07 04493
                4494          JSR     TBK,X       TEST FCB(14) IN BACKGROUND                         07 04494
                4495          LDX     TEMP,B      RESTORE X                                          07 04495
                4496 NUC1     CONT                                                               FG  07 04496
                4497 VII1     CONT                                                               FG  07 04497
005752 015013 A 4498 SCH5     LDA     11,X                                                           07 04498
005753 146167 A 4499          SUB     UNIT,B      COMPARE WITH U                                     07 04499
005754 001010 A 4500          JAZ     SCHX        EXIT ON FIND WITH X=FCB ADDRESS                    07 04500
005755 005762 R
005756 076146 A 4501          STX     PRLINK,B    UPDATE PREVIOUS LINK                               07 04501
005757 035012 A 4502          LDX     10,X        POINT X AT NEXT LINK                               07 04502
005760 001000 A 4503          JMP     SCHLP       LOOP TILL CHAIN EXHAUSTED                          07 04503
005761 005745 R
005762 005041 A 4504 SCHX     TXA                 FLAG FIND BY A.NE.0 (FCB ADDRESS)                  07 04504
                4505 SCHY     POPJ                EXIT                                             FG  07 04505
005763 001000 A
005764 004066 R
                4506          EJEC                                                                   07 04506
                4507 ********************************************************************************* 07 04507
                4508 *                                                                               * 07 04508
                4509 *          S H I F T   A C C U M U L A T O R   A C C ( S H A )                   * 07 04509
                4510 *                                                                               * 07 04510
                4511 * FUNCTION: TO SHIFT THE 4-WORD ACCUMULATOR ACC                                 * 07 04511
                4512 *                                                                               * 07 04512
                4513 * ENTRY: COUNT = + SHIFT RIGHT COUNT                                           * 07 04513
                4514 *                = - SHIFT LEFT 1                                              * 07 04514
                4515 *                                                                               * 07 04515
                4516 * EXIT : NO SPECIAL CONDITIONS                                                  * 07 04516
                4517 *                                                                               * 07 04517
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                   4518 ******************************************************************** 07 04518
005765 005024 A 4520 SHA     TBX                  LOAD X AS BASE POINTER                   07 04520
                4521 SHAL    TNAX    COUNT,SHA50  TEST DIRECTION OF SHIFT              V2  07 04521
005766 015052 A
005767 001004 A
005770 006014 R
005771 001010 A 4522         JAZ     SHAX         EXIT WHEN FINISHED                       07 04522
005772 006031 R
005773 005311 A 4523         DAR                  DECREMENT SHIFT COUNT                    07 04523
005774 055052 A 4524         STA     COUNT,X                                               07 04524
                4525 ***************                                                       07 04525
                4526 * RIGHT SHIFT *                                                       07 04526
                4527 ***************                                                       07 04527
005775 025006 A 4528         LDB     ACC+3,X                                               07 04528
005776 015005 A 4529         LDA     ACC+2,X                                               07 04529
005777 004501 A 4530         LASR    1                                                     07 04530
006000 065006 A 4531         STB     ACC+3,X      SHIFT ACC(3)                             07 04531
006001 025005 A 4532         LDB     ACC+2,X                                               07 04532
006002 015004 A 4533         LDA     ACC+1,X                                               07 04533
006003 004501 A 4534         LASR    1                                                     07 04534
006004 065005 A 4535         STB     ACC+2,X      SHIFT ACC(2)                             07 04535
006005 025004 A 4536         LDB     ACC+1,X                                               07 04536
006006 015003 A 4537         LDA     ACC,X                                                 07 04537
006007 004501 A 4538         LASR    1                                                     07 04538
006010 065004 A 4539         STB     ACC+1,X      SHIFT ACC(1)                             07 04539
006011 055003 A 4540         STA     ACC,X        SHIFT ACC(0)                             07 04540
006012 001000 A 4541         JMP     SHAL         LOOP TILL DONE                           07 04541
006013 005766 R
                4542 **************                                                        07 04542
                4543 * LEFT SHIFT *                                                        07 04543
                4544 **************                                                        07 04544
006014 015003 A 4545 SHA50   LDA     ACC,X                                                 07 04545
006015 025004 A 4546         LDB     ACC+1,X                                               07 04546
006016 004401 A 4547         LASL    1                                                     07 04547
006017 055003 A 4548         STA     ACC,X        SHIFT ACC(0)                             07 04548
006020 015004 A 4549         LDA     ACC+1,X                                               07 04549
006021 025005 A 4550         LDB     ACC+2,X                                               07 04550
006022 004401 A 4551         LASL    1                                                     07 04551
006023 055004 A 4552         STA     ACC+1,X      SHIFT ACC(1)                             07 04552
006024 015005 A 4553         LDA     ACC+2,X                                               07 04553
006025 025006 A 4554         LDB     ACC+3,X                                               07 04554
006026 004401 A 4555         LASL    1                                                     07 04555
006027 055005 A 4556         STA     ACC+2,X      SHIFT ACC(2)                             07 04556
006030 065006 A 4557         STB     ACC+3,X      SHIFT ACC(3)                             07 04557
006031 005042 A 4558 SHAX    TXB                  RESTORE BASE REGISTER B                  07 04558
                4559         POPJ                 EXIT                                  FG 07 04559
006032 001000 A
006033 004066 R
                4560         EJEC                                                          07 04560
                4561         IFF     NUC                                                FG 07 04561
                4562         GOTO    NUC1                                               FG 07 04562
                4563         IFT     VII                                                FG 07 04563
                4564         GOTO    VII1                                               FG 07 04564
                4565 *******************************************************************  07 04565
                4566 *                                                                 *  07 04566
                4567 *       T E S T   B A C K G R O U N D   A D D R E S S ( T B K )   *  07 04567
                4568 *                                                                 *  07 04568
                4569 * FUNCTION: TO TEST IF AN ADDRESS IS IN THE BACKGROUND            *  07 04569
                4570 *                                                                 *  07 04570
                4571 * ENTRY: A = TEST ADDRESS                                         *  07 04571
                4572 *                                                                 *  07 04572
                4573 * CALLING SEQUENCE: JSR TBK,X                                     *  07 04573
                4574 *                                                                 *  07 04574
                4575 * EXIT : IF OK, RETURN WITH A UNCHANGED                           *  07 04575
                4576 *        OTHERWISE, SET UP A MEMORY PROTECT ERROR                 *  07 04576
                4577 *                                                                 *  07 04577
                4578 *******************************************************************  07 04578
                4579         SPAC                                                          07 04579
                4580 TBK     SUB     V$LUP                                                 07 04580
                4581         JAN     TBK10        ERROR IF A.LT.V$LUP                      07 04581
                4582         ADD     V$LUP        RESTURE A                                07 04582
                4583         SUB     V$LLUP                                                07 04583
                4584         JAZ     *+4                                                   07 04584
                4585         JAP     TBK10        ERROR IF A.GT.V$LLUP                     07 04585
                4586         ADD     V$LLUP       RESTORE A                                07 04586
                4587         IJMP    0,X          RETURN IF OK                             07 04587
                4588 ******************************************                            07 04588
                4589 * ERROR - CONSTRUCT MEMORY PROTECT VIOLATION *                        07 04589
                4590 ******************************************                            07 04590
                4591 TBK10   LDX     V$LUP        POINT X AT 1ST BACKGROUND WORD           07 04591
                4592         LDA     TBKJMP                                                07 04592
                4593         STA     0,X                                                   07 04593
                4594         TZA                                                           07 04594
                4595         STA     1,X          STORE 'JMP 0' IN BACKGROUND              07 04595
                4596         LDB     V$CRS        POINT B AT STACK                         07 04596
                4597         STX     PR,B         SET DEALOC ADDRESS TO 1ST BACKGROUND WORD 07 04597
                4598         DEALOC                                                        07 04598
                4599 TBKJMP  SET     BS9                                                   07 04599
                4600 VII1    CONT                                                       FG 07 04600
                4601 NUC1    CONT                                                       FG 07 04601
                4602         EJEC                                                          07 04602
                4603 *******************************************************************  07 04603
                4604 *                                                                 *  07 04604
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                    4605 *   P R O C E S S   T   F O R M A T   D E S C R I P T O R ( T I O )   * 07 04605
                    4606 *                                                                     * 07 04606
                    4607 * FUNCTION: TO PROCESS THE FORMAT DESCRIPTOR: TW                       * 07 04607
                    4608 *                                                                     * 07 04608
                    4609 * ENTRY: DIRECT FROM FRS                                              * 07 04609
                    4610 *        BFPT = CURRENT BUFFER CHARACTER POSITION(BASE 0)             * 07 04610
                    4611 *        W = SPECIFIED BUFFER CHARACTER POSITION(BASE 1)              * 07 04611
                    4612 *                                                                     * 07 04612
                    4613 * EXIT : DIRECT TO FRS                                               * 07 04613
                    4614 *        BFPT = W-1                                                   * 07 04614
                    4615 *        BFWPT = ALBF + BFPT/2                                        * 07 04615
                    4616 *        RWFL(BIT SC) = 1 IF LOGICAL FILE PHYSICALLY POSITIONED BACKV2 07 04616
                    4617 *                                                                     * 07 04617
                    4618 * ERRORS: ER1 IF W OUTSIDE LOGICAL RECORD                            * 07 04618
                    4619 *                                                                     * 07 04619
                    4620 ***************************************************************************** 07 04620
    006034 R        4622 TIN    EQU     *                                                      07 04622
    006034 R        4623 TOUT   EQU     *                                                      07 04623
                    4625        MOVBAB  BFPT,SAVE     SAVE CURRENT VALUE OF BUFFER CHAR PTR    07 04625
006034 016026 A
006035 056032 A
006036 016170 A     4626        LDA     W,B           GET W                                    07 04626
006037 005311 A     4627        DAR                   CONVERT FROM BASE 1 TO BASE 0            07 04627
006040 056026 A     4628        STA     BFPT,B        STORE AS BUFFER CHARACTER POINTER        07 04628
006041 146032 A     4629        SUB     SAVE,B                                                 07 04629
006042 001004 A     4630        JAN     TIO10         TEST DIRECTION OF REPOSITION         V2  07 04630
006043 006053 R
                    4631 ********************                                               V2  07 04631
                    4632 * POSITION FORWARD *                                               V2  07 04632
                    4633 ********************                                               V2  07 04633
006044 016122 A     4634        LDA     LRSZ,B        YES                                      07 04634
006045 004241 A     4635        LRLA    1             GET LOGICAL RECORD BYTE COUNT            07 04635
006046 146170 A     4636        SUB     W,B                                                    07 04636
006047 001004 A     4637        JAN     ER1           ERROR 1/ W OUTSIDE RECORD /              07 04637
006050 005472 R
006051 001000 A     4638        JMP     TIOLP                                                  07 04638
006052 006120 R
                    4639 ************************                                           V2  07 04639
                    4640 * POSITION BACKWARD *                                           V2  07 04640
                    4641 ************************                                           V2  07 04641
006053 016026 A     4642 TIO10  LDA     BFPT,B                                                 07 04642
006054 004341 A     4643        LSRA    1             GET WORD POSITION                        07 04643
006055 126027 A     4644        ADD     ALBF,B        GET ADDRESS                              07 04644
006056 146020 A     4645        SUB     APBF,B        COMPARE WITH BUFFER START ADDRESS        07 04645
006057 001002 A     4646        JAP     TIO20         EXIT IF STILL IN BUFFER                  07 04646
006060 006105 R
                    4647 ************************                                               07 04647
                    4648 * REPOSITION BUFFER *                                               07 04648
                    4649 ************************                                               07 04649
006061 036010 A     4650        LDX     ADFCB,B                                                07 04650
006062 015015 A     4651        LDA     13,X          GET BUFFER RECORD NUMBER                 07 04651
006063 146142 A     4652        SUB     PBRC,B                                                 07 04652
006064 056145 A     4653        STA     PRECNO,B      BACK UP FILE                             07 04653
                    4654        ADBBB   ALBF,PBSZ,ALBF      BUMP LOGICAL BUFFER ADDRESS      07 04654
006065 016027 A
006066 126143 A
006067 056027 A
                    4655        MOVBAB  RWFL,SAVE+1   SAVE FLAG WORD                           07 04655
006070 016154 A
006071 056033 A
006072 006451 A     4656        BT      ARST+WR,TIO15       WRITE ?                      V2  07 04656
006073 006076 R
006074 110424 A     4657        ORA     RBS           YES. SET READ BEFORE WRITE FLAG      V2  07 04657
006075 056154 A     4658        STA     RWFL,B                                                 07 04659
                    4659 TIO15  PUSHJ   RFL           REPOSITION FILE                      V2  07 04659
006076 006010 A
006077 005507 R
006100 006505 A
006101 004774 R
006102 016033 A     4660        LDA     SAVE+1,B      RESTORE FLAG WORD                        07 04660
006103 110426 A     4661        ORA     SCS           SET CLEAR SUPPRESS FLAG              V2  07 04661
006104 056154 A     4662        STA     RWFL,B                                                 07 04662
                    4663 TIO20  DABB    ALBF,BFWPT    INITIALIZE BUFFER WORD POINTER           07 04663
006105 016027 A
006106 005311 A
006107 056025 A
006110 016020 A     4664        LDA     APBF,B                                                 07 04664
006111 126143 A     4665        ADD     PBSZ,B                                                 07 04665
006112 146027 A     4666        SUB     ALBF,B                                                 07 04666
006113 056144 A     4667        STA     PBWC,B        REINITIALIZE PHYSICAL WORD COUNT         07 04667
                    4668        MOVBAB  LRSZ,LRWC     ALSO LOGICAL WORD COUNT                  07 04668
006114 016122 A
006115 056123 A
                    4669        ZAB     SAVE          ALSO CHAR COUNTER                        07 04669
006116 005001 A
006117 056032 A
                    4670 ********************                                               07 04670
                    4671 * POSITION LOOP *                                               07 04671
                    4672 ********************                                               07 04672
006120 016026 A     4673 TIOLP  LDA     BFPT,B                                                 07 04673
006121 146032 A     4674        SUB     SAVE,B                                                 07 04674
006122 010010 A     4675        JAZ     FRS85         EXIT TO FORMAT SCAN WHEN DONE            07 04675
006123 001110 R
```

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006124 016032 A 4676          LDA     SAVE,B                                                    07 04676
006125 046032 A 4677          INR     SAVE,B          BUMP CHAR COUNTER                         07 04677
006126 004257 A 4678          LRLA    15                                                        07 04678
006127 001004 A 4679          JAN     TIOLP           WORD BOUNDARY ?                           07 04679
006130 006120 R
                4680          PUSHJ   GBA             YES. GET NEXT BUFFER ADDRESS          V2  07 04680
006131 006010 A
006132 001162 R
006133 006505 A
006134 004774 R
006135 001000 A 4681          JMP     TIOLP           LOOP TILL DONE                            07 04681
006136 006120 R
                4682          EJEC                                                              07 04682
                4683 ********************************************************************** 07 04683
                4684 *                                                                      * 07 04684
                4685 *                      T E R M I N A T E ( T R M )                     * 07 04685
                4686 *                                                                      * 07 04686
                4687 * FUNCTION: TO PROCESS A TERMINATE($ND) CALL                           * 07 04687
                4688 *                                                                      * 07 04688
                4689 * ENTRY: NO SPECIAL CONDITIONS                                         * 07 04689
                4690 *                                                                      * 07 04690
                4691 * EXIT : LOGICAL BUFFER RECYCLED ON WRITE                              * 07 04691
                4692 *        EXIT OP PUSHED                                              V2* 07 04692
                4693 *        I/O OP PUSHED ON TERMINATE WRITE NON-LOGICAL                 V2* 07 04693
                4694 *                                                                      * 07 04691
                4695 ********************************************************************** 07 01695
006137 016154 A 4697 TRM      LDA     RWFL,B                                                V2  07 04697
006140 110425 A 4698          ORA     TRS             SET TERMINATE FLAG                    V2  07 04698
006141 056154 A 4699          STA     RWFL,B                                                V2  07 04699
006142 006441 A 4700          BT      ARST+LF,TRM20       TEST LOGICAL FILE                 V2  07 04700
006143 006171 R
                4701 ****************
                4702 * LOGICAL FILE *                                                          07 04702
                4703 ****************                                                          07 04703
006144 006440 A 4704          BT      ARST+RM,TRM20       RMD ?                             V2  07 04704
006145 006171 R
006146 006451 A 4705          BT      ARST+WR,TRM10       YES. WRITE ?                      V2  07 04705
006147 006155 R
006150 056154 A 4706          STA     RWFL,B                                                    07 04706
                4707          PUSHJ   RCL             YES. RECYCLE LOGICAL BUFFER           V2  07 04707
006151 006010 A
006152 005251 R
006153 006505 A
006154 004774 R
006155 036010 A 4708 TRM10    LDX     ADFCB,B         POINT X AT FCB                            07 04708
                4709          MOVBAX  LRSZ,0          LOAD FCB(0) WITH LOGICAL RECORD SIZE      07 04709
006156 016122 A
006157 055000 A
006160 015002 A 4710          LDA     2,X             GET ACCESS MODE FROM FCB                  07 04710
006161 007401 A 4711          SOF                                                               07 04711
006162 006410 A 4712          BT      ASET+8,*+3      SET OVFL IF SEQUENTIAL                    07 04712
006163 006165 R
006164 007400 A 4713          ROF                                                               07 04713
006165 016160 A 4714          LDA     SVRECN,B        RESTORE RECORD NUMBER IF DIRECT           07 04714
006166 003001 A 4715          XOF     TRMI            OTHERWISE UPDATE                          07 04715
006167 006230 R
006170 055003 A 4716          STA     3,X             STORE IN FCB                              07 04716
006171 010422 A 4717 TRM20    LDA     CEX                                                       07 04717
                4718          PUSHF                   PUSH EXIT OP                              07 04718
006172 036016 A
006173 035000 A
006174 005344 A
006175 055000 A
006176 005041 A
006177 036016 A
006200 055000 A
                4719          TRAB    RWFL,LF,TRM30       LOGICAL ?                         V2  07 04719
006201 016154 A
006202 006441 A
006203 006211 R
006204 006400 A 4720          BT      ASET+RM,CAN         YES. EXIT IF RMD                  V2  07 04720
006205 000101 R
006206 036010 A 4721          LDX     ADFCB,B                                               V2  07 04721
                4722          MOVBAX  PBSZ,0          IF NON-RMD, SET FCB(0) = PBSZ         V2  07 04722
006207 016143 A
006210 055000 A
                4723 TRM30    TRAB    RWFL,WR,CAN     EXIT ON READ                          D.1 07 04723
006211 016154 A
006212 006451 A
006213 000101 R
006214 006412 A 4724          BT      EC,CAN          EXIT FOR ENCODE/DECODE                PD  07 04724
006215 000101 R
006216 010464 A 4725          LDA     CIU                                                       07 04725
                4726          PUSHF                   WRITE LAST NON-LOGICAL RECORD             07 04726
006217 036016 A
006220 035000 A
006221 005344 A
006222 055000 A
006223 005041 A
006224 036016 A
006225 055000 A
006226 001000 A 4727          JMP     CAN             EXIT TO V$FORTIO                          07 04727
006227 000101 R
```

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006230 016121 A 4728 TRMI   LDA     LRECNO,B                                                07 04728
                4729        EJEC                                                            07 04729
                4730 ***********************************************************************07 04730
                4731 *                                                                     * 07 04731
                4732 *      U N F O R M A T T E D   I N P U T / O U T P U T ( U I O )      * 07 04732
                4733 *                                                                     * 07 04733
                4734 * FUNCTION: TO PROCESS UNFORMATTED I/O CALLS                          * 07 04734
                4735 *                                                                     * 07 04735
                4736 * ENTRY: ITEMAD = LIST ITEM ADDRESS                                  * 07 04736
                4737 *         BFWPT = ADDRESS OF DATA WORD IN BUFFER                      * 07 04737
                4738 *                                                                     * 07 04738
                4739 * EXIT : TO VSFORTIO THRU GNL                                        * 07 04739
                4740 *                                                                     * 07 04740
                4741 ***********************************************************************07 04741
                4743 ******************                                                  07 04743
                4744 * TRANSFER LOOP *                                                    07 04744
                4745 ******************                                                  07 04745
                4746 UIO    PUSHJ   GNL             GET NEXT LIST ITEM ADDRESS/EXIT     V2  07 04746
006231 006010 A
006232 001550 R
006233 006505 A
006234 004774 R
                4747        PUSHJ   GBA             GET BUFFER ADDRESS                  V2  07 04747
006235 006010 A
006236 001162 R
006237 006505 A
006240 004774 R
                4748        TSAB    RWFL,WR,UIO4    TEST INPUT OR OUTPUT                V2  07 04748
006241 016154 A
006242 006411 A
006243 006252 R
                4749 *********                                                           07 04749
                4750 * INPUT *                                                          07 04750
                4751 *********                                                           07 04751
006244 036025 A 4752        LDX     BFWPT,B         POINT X AT DATA WORD IN BUFFER      07 04752
006245 015000 A 4753        LDA     0,X             GET DATA WORD                       07 04753
006246 036113 A 4754        LDX     ITEMAD,B        POINT X AT LIST ITEM                07 04754
006247 055000 A 4755        STA     0,X             STORE INPUT DATA WORD IN LIST ITEM  07 04755
006250 001000 A 4756        JMP     UIO             LOOP UNTIL DONE                     07 04756
006251 006231 R
                4757 **********                                                          07 04757
                4758 * OUTPUT *                                                         07 04758
                4759 **********                                                          07 04759
006252 036113 A 4760 UIO4   LDX     ITEMAD,B        POINT X AT LIST ITEM                07 04760
006253 015000 A 4761        LDA     0,X             GET DATA WORD                       07 04761
006254 036025 A 4762        LDX     BFWPT,B         POINT X AT DATA WORD IN BUFFER      07 04762
006255 055000 A 4763        STA     0,X             STORE DATA WORD IN OUTPUT BUFFER    07 04763
006256 001000 A 4764        JMP     UIO             LOOP UNTIL DONE                     07 04764
006257 006231 R
                4765        EJEC                                                        07 04765
                4766 ***********************************************************************07 04766
                4767 *                                                                     * 07 04767
                4768 *   P R O C E S S   X   F O R M A T   D E S C R I P T O R ( X I O )   * 07 04768
                4769 *                                                                     * 07 04769
                4770 * FUNCTION: TO PROCESS THE FORMAT DESCRIPTOR: NX                      * 07 04770
                4771 *                                                                     * 07 04771
                4772 * ENTRY: DIRECT FROM FRS                                             * 07 04772
                4773 *         N = FIELD WIDTH                                             * 07 04773
                4774 *                                                                     * 07 04774
                4775 * EXIT : TO FRS                                                      * 07 04775
                4776 *                                                                     * 07 04776
                4777 ***********************************************************************07 04777
        006260 R 4779 XIN   EQU     *                                                   07 04779
        006260 R 4780 XOUT  EQU     *                                                   07 04780
                4782        MOVBAB  BLNK1,BCHAR     LOAD BLANK AS REPEAT CHARACTER      V2  07 04782
006260 016202 A
006261 056030 A
                4783        MOVBAB  N,COUNT         SET REPEAT COUNT TO N               07 04783
006262 016125 A
006263 056052 A
                4784        MOVBAB  ABSCB,ASCB      SET SCB TO BUFFER                   07 04784
006264 016002 A
006265 056021 A
                4785        PUSHJ   RCH             REPEAT CHARACTER I/O N TIMES        V2  07 04785
006266 006010 A
006267 005176 R
006270 006505 A
006271 004774 R
006272 001000 A 4786        JMP     FRS5            RESUME FORMAT SCAN                  07 04786
006273 000464 R
                4787        EJEC                                                        07 04787
                4788 ***********************************************************************07 04788
                4789 *                                                                     * 07 04789
                4790 *   P R O C E S S   Z   D E S C R I P T O R   ( Z I N / Z O U T )     * 07 04790
                4791 *                                                                     * 07 04791
                4792 * FUNCTION: TO PROCESS THE Z FORMAT DESCRIPTOR: RZW                   * 07 04792
                4793 *                                                                     * 07 04793
                4794 * ENTRY: DIRECT FROM FRS                                             * 07 04794
                4795 *          WT = W TOTAL FIELD WIDTH                                   * 07 04795
                4796 *          IIBSZ = BYTE COUNT OF SINGLE LIST ITEM                     * 07 04796
                4797 *          ITEMAD = ADDRESS OF LIST, ITEM                             * 07 04797
                4798 *          RWFL(BIT WR) = 0 READ                                      * 07 04798
                4799 *                       = 1 WRITE                                     * 07 04799
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                        4800 *                                                                                  * 07 04800
                        4801 * EXIT: INPUT : DIRECT TO FRS                                                      * 07 04801
                        4802 *       OUTPUT: DIRECT TO FRS THRU OBC                                             * 07 04802
                        4803 *                                                                                  * 07 04803
                        4804 ************************************************************************************** 07 04804
      006274 R          4806 ZIN    EQU     *                                                                     07 04806
      006274 R          4807 ZOUT   EQU     *                                                                     07 04807
                        4809        ZAB     AIBUF-1         SET LIST ITEM SCB(0)=0 (BYTE COUNT)                   07 04809
006274 005001 A
006275 056107 A
                        4810        MOVBAB  ITEMAD,AIBUF    SET LIST ITEM SCB(1)=ITEM ADDRESS                     07 04810
006276 016113 A
006277 056110 A
006300 016171 A 4811    LDA     WT,B                                                                            07 04811
006301 005111 A 4812    IAR                                                                                     07 04812
006302 004301 A 4813    ASRA    1               (A)=BYTES TO PROCESS                                            07 04813
006303 146101 A 4814    SUB     IIBSZ,B                                                                         07 04814
006304 056052 A 4815    STA     COUNT,B         EXCESS BYTES                                                    07 04815
                        4816        MOVBAB  BLNK1,BCHAR     SLEW THRU W/2-IIBSZ CHAR                              07 04816
006305 016202 A
006306 056030 A
                        4817        PUSHJ   RCH                                                                     07 04817
006307 006010 A
006310 005176 R
006311 006505 A
006312 004774 R
                        4818        TSAB    RWFL,WR,ZIO4    I/O TEST                                              07 04818
006313 016154 A
006314 006411 A
006315 006362 R
                        4820 *      INPUT                                                                           07 04820
                        4821 ZIO1   PUSHJ   CBC             GET BUFFER CHARACTER                                  07 04821
006316 006010 A
006317 000104 R
006320 006505 A
006321 004774 R
                        4822        PUSHJ   ZIO6            INPUT CHARACTER TEST                                  07 04822
006322 006010 A
006323 006413 R
006324 006505 A
006325 004774 R
                        4823        MOVBAB  BCHAR,ICHAR                                                           07 04823
006326 016030 A
006327 056111 A
                        4824        TZAB    WT,ZIO2         FIELD WIDTH EXHAUSTED                                 07 04824
006330 016171 A
006331 001010 A
006332 006347 R
                        4825        PUSHJ   CBC             GET NEXT CHARACTER                                    07 04825
006333 006010 A
006334 000104 R
006335 006505 A
006336 004774 R
                        4826        PUSHJ   ZIO6            INPUT CHARACTER TEST                                  07 04826
006337 006010 A
006340 006413 R
006341 006505 A
006342 004774 R
006343 016111 A 4827    LDA     ICHAR,B         APPEND RT HALF                                                  07 04827
006344 004204 A 4828    ASLA    4                                                                               07 04828
006345 126030 A 4829    ADD     BCHAR,B                                                                         07 04829
006346 056111 A 4830    STA     ICHAR,B                                                                         07 04830
                        4831 ZIO2   MOVBAB  AISCB,ASCB      SET SCB TO LIST ITEM                                  07 04831
006347 016013 A
006350 056021 A
                        4832        PUSHJ   PCH             PUT CHARACTER IN ITEM                                 07 04832
006351 006010 A
006352 003535 R
006353 006505 A
006354 004774 R
                        4833        TNZAB   WT,ZIO1         LOOP UNTILL FIELD WIDTH EXHAUSTED                     07 04833
006355 016171 A
006356 001016 A
006357 006316 R
006360 001000 A 4834    JMP     FRS65           TO FORMAT SCAN                                                  07 04834
006361 001067 R
                        4836 *      OUTPUT                                                                      07 04836
                        4837 ZIO4   MOVBAB  AISCB,ASCB      SET SCB TO LIST ITEM                                  07 04837
006362 016013 A
006363 056021 A
                        4838        PUSHJ   ILC             INPUT CHARACTER FROM LIST ITEM                        07 04838
006364 006010 A
006365 001743 R
006366 006505 A
006367 004774 R
                        4839        PUSHJ   ZIO8            OUTPUT CHARACTER                                      07 04839
006370 006010 A
006371 006437 R
006372 006505 A
006373 004774 R
006374 016111 A 4840    LDA     ICHAR,B                                                                         07 04840
006375 004304 A 4841    ASRA    4                                                                               07 04841
006376 016111 A 4842    LDA     ICHAR,B                                                                         07 04842
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006377 006150 A 4843          ANAI    0177          GET RT HALF                                    07 04843
006400 000177 A
                4844          PUSHJ   ZI08          OUTPUT CHARACTER                               07 04844
006401 006010 A
006402 006437 R
006403 006505 A
006404 004774 R
                4845          PUSHJ   OCB           OUTPUT CHARACTER TO BUFFER                     07 04845
006405 006010 A
006406 002635 R
006407 006505 A
006410 004774 R
006411 001000 A 4846          JMP     ZI04          LOOP UNTILL DONE                               07 04846
006412 006362 R
                4848 *        TEST INPUT CHARACTER                                                 07 04848
006413 016030 A 4849 ZI06     LDA     BCHAR,B                                                      07 04849
006414 006140 A 4850          SUBI    '0'                                                          07 04850
006415 000260 A
006416 001004 A 4851          JAN     ER3                                                          07 04851
006417 005470 R
006420 056030 A 4852          STA     BCHAR,B                                                      07 04852
006421 140471 A 4853          SUB     TEN                                                          07 04853
006422 001004 A 4854          JAN     ZI07          0-9                                            07 04854
006423 006435 R
006424 140467 A 4855          SUB     SEVEN                                                        07 04855
006425 001004 A 4856          JAN     ER3                                                          07 04856
006426 005470 R
006427 140467 A 4857          SUB     SEVEN                                                        07 04857
006430 001002 A 4858          JAP     ER3                                                          07 04858
006431 005470 R
006432 006120 A 4859          ADDI    020                                                          07 04859
006433 000020 A
006434 056030 A 4860          STA     BCHAR,B                                                      07 04860
                4861 ZI07     POPJ                  EXIT                                           07 04861
006435 001000 A
006436 004066 R
                4863 *        GENERATE CHARACTER                                                   07 04863
006437 016111 A 4864 ZI08     LDA     ICHAR,B                                                      07 04864
006440 006120 A 4865          ADDI    '0'                                                          07 04865
006441 000260 A
006442 056111 A 4866          STA     ICHAR,B                                                      07 04866
006443 006140 A 4867          SUBI    0272                                                         07 04867
006444 000272 A
006445 001004 A 4868          JAN     ZI09                                                         07 04868
006446 006451 R
006447 120467 A 4869          ADD     SEVEN                                                        07 04869
006450 056111 A 4870          STA     ICHAR,B                                                      07 04870
                4871 ZI09     POPJ                  EXIT                                           07 04871
006451 001000 A
006452 004066 R
                4872          EJEC                                                                 07 04872
                4873 **********************************************************************       07 04873
                4874 *                                                                    *       07 04874
                4875 *                  V $ R E R R   D A T A   B L O C K                 V2*     07 04875
                4876 *                                                                    *       07 04876
                4877 **********************************************************************       07 04877
      006453 R  4879 BASE   EQU     *             BASE ADDRESS OF DATA BLOCK                     07 04879
                4880        IFF     NUC                                                  FG      07 04880
                4881        GOTO    NUC1                                                 FG      07 04881
                4882        IFT     VII                                                  FG      07 04882
                4883        GOTO    VII1                                                 FG      07 04883
                4884 VOPSTP BSS     1             OP STACK POINTER                       FG      07 04884
                4885 VAACC  PZE     VACC          ADDRESS OF ACCUMULATOR ACC                     07 04885
                4886 VABSCB PZE     VBSCB         ADDRESS OF BUFFER SCB                          07 04886
                4887 VACC   BSS     4             4-WORD ACCUMULATOR                             07 04888
                4888 VACHB  PZE     VCHB          ADDRESS OF DECIMAL DIGIT ARRAY                 07 04888
                4889 VADFCB BSS     1             DCB/FCB ADDRESS                                07 04889
                4890 VAFSCB PZE     VFSCB         ADDRESS OF FORMAT SCB                          07 04890
                4891 VAGPAR PZE     VGDRP-1       ADDRESS OF '(' GROUP BLOCK                     07 04891
                4892 VAISCB PZE     VISCB         ADDRESS OF LIST ITEM SCB                       07 04892
                4893 VALOC  BSS     1             ALOC ENTRY FLAG                        V2      07 04893
                4894 VANPOJ DATA    0             ADDRESS OF V$FORTIO POP/JUMP           V2      07 04894
                4895 VANRB  BSS     1             ADDRESS OF V$FORTIO DATA BLOCK         V2      07 04895
                4896 VAOPST PZE     VOPSTK+STKSZ  ADDRESS OF OP STACK                      FG      07 04896
                4897 VAPBF  BSS     1             ADDRESS OF PHYSICAL BUFFER                     07 04897
                4898 VASCB  BSS     1             SCAN BLOCK ADDRESS                             07 04898
                4899 VASFL  BSS     1             '*' FLAG                                       07 04899
                4900 VASYSD PZE     VSYSDC        ADDRESS OF SYSTEM DCB                          07 04900
                4901 VBEXP  BSS     1             BINARY EXPONENT                                07 04901
                4902 VBFWPT BSS     1             BUFFER WORD POINTER                            07 04902
                4903 VBSCB  BSS     4             BUFFER SCB                                     07 04903
                4904 VCHB   BSS     14            DECIMAL DIGIT ARRAY                            07 04904
                4905 VCHBPT BSS     1             CHB ARRAY POINTER                              07 04905
                4906 VCHHD  BSS     1             FCB CHAIN HEADER                               07 04906
                4907 VCOUN  BSS     1             COUNTER                                        07 04907
                4908 VCVFL  BSS     1             CHARACTER VALIDITY FLAGS                       07 04908
                4909 VD     BSS     1             FRACTIONAL FIELD WIDTH                         07 04909
                4910 VDEXP  BSS     1             DECIMAL EXPONENT                               07 04910
                4911 VDT    BSS     1             WORKING FRACTIONAL FIELD WIDTH                 07 04911
                4912 VEDEXP BSS     1             EXPLICIT DECIMAL EXPONENT                      07 04912
                4913 VERN   DATA    0             ERROR NUMBER                                   07 04913
                4914 VFDLKY BSS     1             FIELD DESCRIPTOR LETTER KEY                    07 04914
                4915 VFSCB  BSS     4             FORMAT STRING SCB                              07 04915
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                    4916 VGDRP   BSS     9          '(' GROUP DYNAMIC REPEAT COUNT                    07 04916
                    4917 VIDEXP  BSS     1          IMPLICIT DECIMAL EXPONENT                         07 04917
                    4918 VIFW    BSS     1          INTEGER FIELD WIDTH                               07 04918
                    4919 VIIBSZ  BSS     1          INDIVIDUAL ITEM BYTE SIZE                         07 04919
                    4920 VIIWSZ  DATA    1          INDIVIDUAL ITEM WORD SIZE                         07 04920
                    4921 VINFL   BSS     1          INITIAL ENTRY FLAG                          V2    07 04921
                    4922 VIOCON  BSS     1          I/O CONTROL WORD                                  07 04922
                    4923 VIOLNK  BSS     1          IOLINK CONTROL WORD                               07 04923
                    4924 VIOSTA  DATA    0          I/O STATUS                                        07 04924
                    4925 VISCB   BSS     4          LIST ITEM SCB                                     07 04925
                    4926 VITEMA  BSS     1          ADDRESS OF LIST ITEM                              07 04926
                    4927 VITEMW  BSS     1          COUNT OF WORDS REMAINING IN ITEM                  07 04927
                    4928 VITMIN  BSS     1          LIST ITEM WORD INCREMENT                          07 04928
                    4929 VITMOD  BSS     1          LIST ITEM MODE                                    07 04929
                    4930 VLISTF  BSS     1          LIST DATA XFER FLAG                               07 04930
                    4931 VLNKCN  BSS     1          FCB CHAIN LINK COUNT                              07 04931
                    4932 VLRECN  BSS     1          LOGICAL RECORD NUMBER                             07 04932
                    4933 VLRSZ   BSS     1          LOGICAL RECORD SIZE                               07 04933
                    4934 VLRWC   BSS     1          LOGICAL RECORD REMAINING WORD COUNT               07 04934
                    4935 VMOV    BSS     1          MULTIPLY OVERFLOW SWITCH                          07 04935
                    4936 VN      BSS     1          H/T/X FIELD WIDTH                                 07 04936
                    4937 VNFF    BSS     1          NUMERIC FORMAT FIELD                              07 04937
                    4938 VII1    CONT                                                           FG    07 04938
                    4939 VOPSTK  BSS     STKSZ      OP STACK                                          07 04939
                    4940 VPARLV  BSS     1          FORMAT '(' GROUP LEVEL COUNT                FG    07 04940
                    4941         IFT     VII                                                    FG    07 04941
                    4942         GOTO    VII1                                                   FG    07 04942
                    4943 VPBRC   BSS     1          PHYSICAL BUFFER RECORD COUNT                      07 04943
                    4944 VPBSZ   BSS     1          PHYSICAL BUFFER SIZE                              07 04944
                    4945 VPBWC   BSS     1          PHYSICAL BUFFER REMAINING WORD COUNT              07 04945
                    4946 VPRECM  BSS     1          PHYSICAL RECORD NUMBER                            07 04946
                    4947 VPRLIN  BSS     1          PREVIOUS LINK OF FCB CHAIN                        07 04947
                    4948 VPTFL   BSS     1          '.' POINT FLAG                                    07 04948
                    4949 VQFL    BSS     1          QUOTE FLAG                                        07 04949
                    4950 VRETUR  BSS     1          RETURN ADDRESS                                    07 04950
                    4951 VRWFL   BSS     1          FLAG WORD                                   V2    07 04951
                    4952 VS      BSS     1          SCALE FACTOR                                      07 04952
                    4953 VSCF    BSS     1          SCALE FACTOR FLAG                                 07 04953
                    4954 VSGFL   BSS     1          '-' SIGN FLAG                                     07 04954
                    4955 VSVREC  BSS     1          SAVE RECORD NO                                    07 04955
                    4956 VSYSDC  DATA    0,0,0      SYSTEM DCB                                        07 04956
                    4957 VTEMP   BSS     1          TEMP STORE                                        07 04957
                    4958 VTEMP1  BSS     1          TEMP STORE                                        07 04958
                    4959 VTERM   BSS     1          PRODUCT TERM                                      07 04959
                    4960 VUNIT   BSS     1          I/O UNIT NUMBER                                   07 04960
                    4961 VW      BSS     1          FIELD WIDTH                                       07 04961
                    4962 VWT     BSS     1          WORKING VALUE OF W                                07 04962
                    4963 VXFFL   DATA    0          PARAMTER X,E,F ENABLE FLAG                        07 04963
                    4964 VXFL    BSS     1          EXPONENT FIELD NON-BLANK FLAG                     07 04964
                    4965 VXFW    BSS     1          EXPONENT FIELD WIDTH                              07 04965
                    4966 VXSG    BSS     1          EXPONENT SIGN FLAG                                07 04966
                    4967 VZFW    BSS     1          LEADING ZERO FIELD WIDTH                          07 04967
                    4968         DATA    0260       ASCII ZERO                                  V2    07 04968
                    4969         DATA    14         DECIMAL 14                                  V2    07 04969
                    4970         DATA    120        DECIMAL 120                                 V2    07 04970
                    4971         DATA    0240       ASCII BLANK                                 V2    07 04971
                    4972         DATA    '  '       ASCII BLANK WORD                            V2    07 04972
                    4973 VLII    CONT                                                           FG    07 04973
                    4974 NUC1    CONT                                                           FG    07 04974
006453 R            4975 VZZZ    EQU     *          END OF DATA BLOCK                                 07 04975
                    4976         END                                                                  07 04976

ENTRY NAMES
005113 R VSRER1  000000 A VSREPN  005113 R VSRERR  000000 R VSRERS
EXTERNAL NAMES
004567 E BIFCB   004570 E BOFCB   004572 E GOFCB   004566 E LOFCB
004565 E PIFCB   004573 E POFCB   004563 E SIFCB   004571 E SSFCB
000000 E V$EXEC
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000001 A AACC    000002 A ABSCB   000003 A ACC     000007 A ACHB
000010 A ADFCB   000011 A AFSCB   000012 A AGPAR   000110 A AIBUF
000000 R AIN     000020 A AIOL1   000063 R AIOL2   000013 A AISCB
000000 A AL      000027 A ALBF    000014 A ALOC    000015 A AMPOJ
000016 A ANRB    000017 A AOPSTK  000000 R AOUT    000020 A APBF
000040 A ARST    000021 A ASCB    000000 A ASET    000022 A ASFL
000023 A ASYSDC  000177 A AZER    000002 A B       000000 A B0
000001 A B1      000014 A B12     000015 A B13     000016 A B14
000017 A B15     000002 A B2      000003 A B3      000004 A B4
000005 A B5      000006 A B6      006453 R BASE    000030 A BCHAR
000031 A BCODE   000201 A BD120   000200 A BD14    000024 A BEXP
000010 A BF      000400 A BFA     000026 A BFPT    000431 A BFR
000431 A BFS     000025 A BFWFT   004567 E BIFCB   000001 A BL
000202 A BLNK1   000203 A BLNK2   000472 A BM17    000473 A BM37
000474 A BM77    004570 E BOFCB   000001 A BR      000441 A BR0
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000435 A BS12    000437 A BS14    000440 A BS15    000423 A BS2
000424 A BS3     000425 A BS4     000426 A BS5     000430 A BS7
000431 A BS8     000432 A BS9     000026 A BSCB    000430 A BXBIAS
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000270 R CLS30   000002 A CM     000016 A COPY    000032 A COUNT
000022 A CRA     000423 A CRB    000471 A CRD     000470 A CRW
000465 A CTR     000005 A CTRV   000053 A CVFL    000420 A CXC
000466 A CXF     000054 A D      000305 R D10     000472 A D15
000425 A D16     000013 A DA     000326 R DEF     000333 R DEF4
000336 R DEF8    000363 R DEC10  000361 R DEC5    000055 A DEXP
003565 R DIN     000341 R DOUT   000056 A DT      000012 A EC
000057 A EDEXP   000424 A EIGHT  003565 R EIN     000341 R EOUT
005472 R ER1     005471 R ER2    005470 R ER3     005467 R ER4
000060 A ERN     000064 A FCHAR  000065 A FCODE   000061 A FDLKEY
003565 R FIN     000465 A FIVE   000015 A FLF     000062 A FMPT
000423 A FOUR    000414 R FOUT   000016 A FPD     000457 A FPDR
000437 A FPDS    000017 A FRB    000440 A FRBS    000014 A FRM
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001270 R GNI4    001527 R GNI50  001324 R GNI8   001347 R GNI9
001375 R GNI9A   001412 R GNIL1  001532 R GNIL2  001550 R GNL
001577 R GNL2    004572 E GOFCB  001604 R GOUT   000074 A GSRPC
001636 R HIN     001707 R HIO10  001725 R HIO15  001647 R HIO2
001674 R HIO4    001677 R HIO6   001636 R HOUT   001743 R ICC
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000006 A IN      002102 R INF    000103 A INFL   002104 R INFLP
000447 A INR     000427 A INS    000104 A IOCONT 000105 A IOLNK
000106 A IOSTAT  002114 R IOUT   000107 A ISCB   000113 A ITEMAD
000114 A ITEMWC  000115 A ITMINC 000116 A ITMODE 002126 R IXN
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002376 R IXN57   002400 R IXN58  002212 R IXN6   002411 R IXN60
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000123 A LGOV    000462 A LHW    002432 R LIN    002460 R LINX
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002513 R LOU4    002470 R LOUT   000003 A LP     000121 A LRECNO
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000004 A MN      000124 A MOV    000420 A MT     000125 A N
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004030 R PNI62   004044 R PNI64  004061 R PNI66  003712 R PNI8
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004573 E POFCB   004065 R POJ    000443 A POR    000423 A POS
000003 A PR      004073 R PRD    004127 R PRD1   004146 R PRD2
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504 AFSCB 1850 1869 1876 2034

506 AGPAR 1176 1222 1240

508 AIBUF 707 708 4809 4810

704 AIN 1481

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739 AIOL2 715 743

509 AISCB 721 739 4831 4837

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514 ANFOJ 767 3959 3960

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526 ASYSDC 3336

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147 BR 3891

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97	BR6	2115	2173							
99	BR8	2133	3690	4215						
104	BS0	120	128	130	132	135	136	141	142	149
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115	BS11	3652								
116	BS12	976	2670	3183	3603					
117	BS14	3003	3037							
118	BS15	3105								
107	BS4	109								
111	BS7	121	2995							
112	BS8	3683	4225							
113	BS9	4599								
535	BSCB	511	528	529	532					
121	BXBIAS	1620	1640	3006	3043	3055				
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834	CAN2	826								
851	CAN5	820	823	846						
819	CANL1	828								
844	CANL2	849								
871	CBC	719	1868	2101	2161	2259	2418	4100	4821	4825
876	CBC4	874								
881	CBC6	877	879							
218	CBK	2763								
228	CDC	3152								
211	CER	4261								
212	CEX	822	996	1778	2738	2856	4717			
537	CHB	641								
539	CHBPT	1741	1744	1747	2495	2500	2501	2506	2533	2534
		2539								
541	CHNHDR	4473	4477							
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908	CLB8	906								
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920	CLBX	904	905							
944	CLS	4048	4049							
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968	CLS15	966								
972	CLS20	956	957							
990	CLS30	985								
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