```
000002 A     1 VORTEX SET    2               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$RERR IN NUCLEUS                                   * 07 00013
            14 *       BIT 2: SET IF WCS AVAILABLE                                       * 07 00014
            15 *                                                                         * 07 00015
            16 *                                                                         * 07 00016
            17 ************************************************************************** 07 00017
000000 A    19 WCS    SET    VORTEX/4        SET WCS=BIT 2 OF VORTEX                 FG 07 00019
000000 A    20 NUC    SET    WCS*4                                                   FG 07 00020
000002 A    21 VII    SET    VORTEX-NUC                                              FG 07 00021
000001 A    22 NUC    SET    VII/2           SET NUC=BIT 1 OF VORTEX                 FG 07 00022
000000 A    23 VII    SET    VII-NUC-NUC     SET VII=BIT 0 OF VORTEX                 FG 07 00023
            25        IFF    WCS                                                        07 00025
            26        TITLE  V$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$RERF EQU    *               FIRMWARE NAME                              07 00043
            45        IFT    NUC                                                     FG 07 00045
000001 A    46 V$RERN EQU    1               V$RERN = 1 IF V$RERR IN NUCLEUS         FG 07 00046
            47        IFF    NUC                                                     FG 07 00047
            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                                                    07 00103
000421  A  104 BS0     SET     MT+1                                              V2    07 00104
000422  A  105 BS1     SET     MT+2                                                     07 00105
000424  A  106 BS3     SET     MT+4                                                     07 00106
000425  A  107 BS4     SET     MT+5                                                     07 00107
000426  A  108 BS5     SET     MT+6                                                     07 00108
000425  A  109 D16     SET     BS4                                                      07 00109
000423  A  110 BS2     SET     MT+3                                                     07 00110
000430  A  111 BS7     SET     MT+8                                                     07 00111
000431  A  112 BS8     SET     MT+9                                                     07 00112
000432  A  113 BS9     SET     MT+10                                                    07 00113
000433  A  114 BS10    SET     MT+11                                                    07 00114
000434  A  115 BS11    SET     MT+12                                                    07 00115
000435  A  116 BS12    SET     MT+13                                                    07 00116
000437  A  117 BS14    SET     MT+15                                                    07 00117
000440  A  118 BS15    SET     MT+16                                                    07 00118
000451  A  119 BFR     SET     BR0+BF    RESET BF FLAG                           V2     07 00119
000431  A  120 BFS     SET     BS0+BF    SET BF FLAG                             V2     07 00120
000430  A  121 BXBIAS  SET     BS7       BINARY EXPONENT BIAS                    V2     07 00121
000472  A  122 D15     SET     BM17                                                     07 00122
000465  A  123 FIVE    SET     MT+37                                                    07 00123
000015  A  124 FLF     SET     SH+LF     FCB LF FLAG                             V2     07 00124
000423  A  125 FOUR    SET     MT+3                                                     07 00125
000016  A  126 FPD     SET     SH+FD     FCB PD FLAG                             V2     07 00126
000457  A  127 FPDR    SET     BR0+FPD   RESET FCB PD FLAG                       V2     07 00127
000437  A  128 FPDS    SET     BS0+FPD   SET FCB PD FLAG                         V2     07 00128
000017  A  129 FRB     SET     SH+RB     FCB RB FLAG                             V2     07 00129
000440  A  130 FRBS    SET     BS0+FRB   SET FCB RB FLAG                         V2     07 00130
000014  A  131 FRM     SET     SH+RM     FCB RM FLAG                             V2     07 00131
000430  A  132 GFS     SET     BS0+GF    SET GLOBAL FCB FLAG                     V2     07 00132
000424  A  133 EIGHT   EQU     MT+4                                                     07 00133
000447  A  134 INR     SET     BR0+IN    RESET IN BIT                            V2     07 00134
000427  A  135 INS     SET     BS0+IN    SET IN FLAG                             V2     07 00135
000422  A  136 LFS     SET     BS0+LF    SET LF FLAG                             V2     07 00136
000462  A  137 LHW     SET     MT+34                                                    07 00137
000470  A  138 NINE    SET     MT+40                                                    07 00138
000421  A  139 ONE     SET     MT+1                                                     07 00139
000443  A  140 PDR     SET     BR0+PD    RESET PD FLAG                           V2     07 00140
000423  A  141 PDS     SET     BS0+PD    SET PD FLAG                             V2     07 00141
000424  A  142 RBS     SET     BS0+RB    SET RB BIT                              V2     07 00142
000463  A  143 RHW     SET     MT+35                                                    07 00143
000446  A  144 SCR     SET     BR0+SC    RESET SC BIT                            V2     07 00144
000467  A  145 SEVEN   SET     MT+39                                                    07 00145
000466  A  146 SIX     SET     MT+38                                                    07 00146
000001  A  147 BR      SET     1         STACK B-REGISTER                        V2     07 00147
000003  A  148 PR      SET     3         STACK P-REGISTER                        V2     07 00148
000421  A  149 RMS     SET     BS0+RM    SET RM BIT                              V2     07 00149
000426  A  150 SCS     SET     BS0+SC    SET SC BIT                              V2     07 00150
000471  A  151 TEN     SET     MT+41                                                    07 00151
000464  A  152 THREE   SET     MT+36                                                    07 00152
000425  A  153 TRS     SET     BS0+TR    SET TR BIT                              V2     07 00153
000422  A  154 TWO     SET     MT+2                                                     07 00154
000414  A  155 V$BVN   SET     LC+76     BOTTOM OF VORTEX NUCLEUS                       07 00155
000301  A  156 V$CPL   SET     LC+1      CURRENT PRIORITY LEVEL                         07 00156
000302  A  157 V$CRS   SET     LC+2      POINTER TO REENTRANT STACK                     07 00157
000355  A  158 V$DSTB  SET     LC+45                                                    07 00158
000316  A  159 V$LUP   SET     LC+14     1ST WORD OF BACKGROUND                         07 00159
000317  A  160 V$LLUP  SET     LC+15     LAST WORD OF BACKGROUND                        07 00160
000400  A  161 V$LUT1  SET     LC+64                                                    07 00161
000401  A  162 V$LUT2  SET     LC+65                                                    07 00162
000402  A  163 V$LUT3  SET     LC+66                                                    07 00163
000334  A  164 V$ST0   SET     LC+28     EXEC STATE 0                            V2     07 00164
000335  A  165 V$ST1   SET     LC+29     EXEC STATE 1                            V2     07 00165
000336  A  166 V$ST2   SET     LC+30     EXEC STATE 2                            V2     07 00166
000337  A  167 V$ST3   SET     LC+31     EXEC STATE 3                            V2     07 00167
000452  A  168 WDR     SET     BR0+WR    RESET WR BIT                            V2     07 00168
000432  A  169 WRS     SET     BS0+WR    SET WR BIT                              V2     07 00169
000420  A  170 ZERO    EQU     MT                                                       07 00170
               172 **********************
               173 * CHARACTER TYPE FLAGS *
               174 **********************
000000  A  175 AL      SET     0         ALPHA CHAR BIT(EXCEPT P)                       07 00175
000001  A  176 BL      SET     1         BLANK CHAR BIT                                 07 00176
000002  A  177 CM      SET     2         ',' CHAR BIT                                   07 00177
000003  A  178 LP      SET     3         '(' CHAR BIT                                   07 00178
000004  A  179 MN      SET     4         '-' CHAR FLAG                                  07 00179
000005  A  180 NM      SET     5         NUMERIC CHAR BIT                               07 00180
000006  A  181 PL      SET     6         '+' CHAR BIT                                   07 00181
000007  A  182 PS      SET     7         'P' SCALE FACTOR                               07 00182
000010  A  183 PT      SET     8         '.' CHAR BIT                                   07 00183
000011  A  184 QT      SET     9         ' CHAR BIT                                     07 00184
000012  A  185 RP      SET     10        ')' CHAR BIT                                   07 00185
000013  A  186 SL      SET     11        '/' CHAR BIT                                   07 00186
               187 **********************                                             07 00187
               188 * READ/WRITE FLAGS *                                              07 00188
               189 **********************                                             07 00189
000000  A  190 RM      SET     0         RMD FLAG                                V2     07 00190
000001  A  191 LF      SET     1         LOGICAL FILE FLAG                       V2     07 00191
000002  A  192 PD      SET     2         BUFFER POSTING FLAG                     V2     07 00192
000003  A  193 RB      SET     3         READ BEFORE WRITE FLAG                  V2     07 00193
000014  A  194 SH      SET     15-RB     FCB CONTROL FLAG SHIFT                  V2     07 00194
000004  A  195 TR      SET     4         TERMINATE FLAG                          V2     07 00195
000005  A  196 SC      SET     5         SUPPRESS CLEAR                          V2     07 00196
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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
000013 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
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MOVPAX MAC                                        07 00300
       LDA     P(1)                               07 00301
       STA     P(2),X                             07 00302
       EMAC                                       07 00303
******************************                    07 00305
* MOVE X-REF TO B-REF THRU A *                    07 00306
******************************                    07 00307
MOVXAB MAC                                        07 00308
       LDA     P(1),X                             07 00309
       STA     P(2),B                             07 00310
       EMAC                                       07 00311
******************************                    07 00313
* MOVE X-REF TO X-REF THRU A *                    07 00314
******************************                    07 00315
MOVXAX MAC                                        07 00316
       LDA     P(1),X                             07 00317
       STA     P(2),X                             07 00318
       EMAC                                       07 00319
************                                   FG 07 00321
* POP/JUMP *                                   FG 07 00322
************                                   FG 07 00323
POPJ   MAC                                     FG 07 00325
       IFF     WCS                             FG 07 00326
       GOTO    WCS1                            FG 07 00327
       DATA    0105065                         FG 07 00328
       GOTO    WCS2                            FG 07 00329
WCS1   CONT                                    FG 07 00330
       JMP     POJ                             FG 07 00331
WCS2   CONT                                    FG 07 00332
       EMAC                                    FG 07 00333
***************                               V2  07 00335
* POP OP TO X *                               V2  07 00336
***************                               V2  07 00337
POPX   MAC                                        07 00338
       LDX     OPSTKP,B                           07 00339
       INR     OPSTKP,B                        FG 07 00340
       LDX     0,X                             FG 07 00341
       EMAC                                       07 00342
*************                                 V2  07 00344
* PUSH P(1) *                                 V2  07 00345
*************                                 V2  07 00346
PUSH   MAC                                        07 00347
       INR     OPSTKP,B                           07 00348
       LDX     OPSTKP,B                           07 00349
       LDA     P(1)                               07 00350
       STA     0,X                                07 00351
       EMAC                                       07 00352
*******************************                   07 00353
* PUSH OP ONTO V$FORTIO STACK *                   07 00354
*******************************                   07 00355
PUSHF  MAC                                        07 00357
       LDX     ANRB,B                             07 00358
       LDX     OPSTKP,X                           07 00359
       DXR                                     FG 07 00360
       STA     0,X                                07 00361
       TXA                                     FG 07 00362
       LDX     ANRB,B                          FG 07 00363
       STA     OPSTKP,X                        FG 07 00364
       EMAC                                       07 00365
**********************                            07 00367
* PUSH/JUMP TO P(1) *                         V2  07 00368
**********************                            07 00369
PUSHJ  MAC                                        07 00370
       IFF     WCS                             FG 07 00371
       GOTO    WCS1                            FG 07 00372
       DATA    0105025                         FG 07 00373
       DATA    P(1)                            FG 07 00374
       GOTO    WCS2                            FG 07 00375
WCS1   CONT                                    FG 07 00376
       LDAI    P(1)                           V2  07 00377
       JSR     PSJ,X                              07 00378
WCS2   CONT                                    FG 07 00379
       EMAC                                       07 00380
*******************************                   07 00382
* SUBTRACT B-REF MINUS B-REF *                    07 00383
*******************************                   07 00384
SUTBB  MAC                                        07 00385
       LDA     P(1),B                             07 00386
       SUB     P(2),B                             07 00387
       EMAC                                       07 00388
****************************************          07 00390
* SUBTRACT B-REF MINUS B-REF TO B-REF *           07 00391
****************************************          07 00392
SUTBBB MAC                                        07 00393
       LDA     P(1),B                             07 00394
       SUB     P(2),B                             07 00395
       STA     P(3),B                             07 00396
       EMAC                                       07 00397
****************************************          07 00399
* SUBTRACT B-REF MINUS P-REF TO B-REF *           07 00400
****************************************          07 00401
SUTBPB MAC                                        07 00402
       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                                                    V2  07 00507
000110 A  508 AIBUF   SET     ISCB+1    LIST ITEM ADDRESS                              V2  07 00508
000013 A  509 AISCB   SET     LOC       ADDRESS OF LIST ITEM SCB                       V2  07 00509
000014 A  510 LOC     SET     LOC+1                                                    V2  07 00510
000027 A  511 ALBF    SET     BSCB+1    ADDRESS OF LOGICAL BUFFER                      V2  07 00511
000014 A  512 ALOC    SET     LOC       ALOC ENTRY FLAG                                V2  07 00512
000015 A  513 LOC     SET     LOC+1                                                    V2  07 00513
000015 A  514 ANPOJ   SET     LOC       ADDRESS OF V$FORTIO POP/JUMP                   V2  07 00514
000016 A  515 LOC     SET     LOC+1                                                    V2  07 00515
000016 A  516 ANRB    SET     LOC       ADDRESS OF V$FORTIO DATA BLOCK                 V2  07 00516
000017 A  517 LOC     SET     LOC+1                                                    V2  07 00517
000017 A  518 AOPSTK  SET     LOC       ADDRESS OF OP STACK                            V2  07 00518
000020 A  519 LOC     SET     LOC+1                                                    V2  07 00519
000020 A  520 APBF    SET     LOC       ADDRESS OF PHYSICAL BUFFER                     V2  07 00520
000021 A  521 LOC     SET     LOC+1                                                    V2  07 00521
000021 A  522 ASCB    SET     LOC       SCAN BLOCK ADDRESS                             V2  07 00522
000022 A  523 LOC     SET     LOC+1                                                    V2  07 00523
000022 A  524 ASFL    SET     LOC       '*' FLAG                                       V2  07 00524
000023 A  525 LOC     SET     LOC+1                                                    V2  07 00525
000023 A  526 ASYSDC  SET     LOC       ADDRESS OF SYSTEM DCB                          V2  07 00526
000024 A  527 LOC     SET     LOC+1                                                    V2  07 00527
000030 A  528 BCHAR   SET     BSCB+2    BUFFER CHARACTER                               V2  07 00528
000031 A  529 BCODE   SET     BSCB+3    BUFFER CHARACTER CODE                          V2  07 00529
000024 A  530 BEXP    SET     LOC       BINARY EXPONENT                                V2  07 00530
000025 A  531 LOC     SET     LOC+1                                                    V2  07 00531
000026 A  532 BFPT    SET     BSCB      BUFFER CHARACTER POINTER                       V2  07 00532
000025 A  533 BFWPT   SET     LOC       BUFFER WORD POINTER                            V2  07 00533
000026 A  534 LOC     SET     LOC+1                                                    V2  07 00534
000026 A  535 BSCB    SET     LOC       BUFFER SCB                                     V2  07 00535
000032 A  536 LOC     SET     LOC+4                                                    V2  07 00536
000032 A  537 CHB     SET     LOC       DECIMAL DIGIT ARRAY                            V2  07 00537
000050 A  538 LOC     SET     LOC+14                                                   V2  07 00538
000050 A  539 CHBPT   SET     LOC       CHB ARRAY POINTER                              V2  07 00539
000051 A  540 LOC     SET     LOC+1                                                    V2  07 00540
000051 A  541 CHNHDR  SET     LOC       FCB CHAIN HEADER                               V2  07 00541
000052 A  542 LOC     SET     LOC+1                                                    V2  07 00542
000052 A  543 COUNT   SET     LOC       COUNTER                                        V2  07 00543
000053 A  544 LOC     SET     LOC+1                                                    V2  07 00544
000053 A  545 CVFL    SET     LOC       CHARACTER VALIDITY FLAGS                       V2  07 00545
000054 A  546 LOC     SET     LOC+1                                                    V2  07 00546
000054 A  547 D       SET     LOC       FRACTIONAL FIELD WIDTH                         V2  07 00547
000055 A  548 LOC     SET     LOC+1                                                    V2  07 00548
000055 A  549 DEXP    SET     LOC       DECIMAL EXPONENT                               V2  07 00549
000056 A  550 LOC     SET     LOC+1                                                    V2  07 00550
000056 A  551 DT      SET     LOC       WORKING FRACTIONAL FIELD WIDTH                 V2  07 00551
000057 A  552 LOC     SET     LOC+1                                                    V2  07 00552
000057 A  553 EDEXP   SET     LOC       EXPLICIT DECIMAL EXPONENT                      V2  07 00553
000060 A  554 LOC     SET     LOC+1                                                    V2  07 00554
000060 A  555 ERN     SET     LOC       ERROR NUMBER                                   V2  07 00555
000061 A  556 LOC     SET     LOC+1                                                    V2  07 00556
000064 A  557 FCHAR   SET     FSCB+2    FORMAT CHARACTER                               V2  07 00557
000065 A  558 FCODE   SET     FSCB+3    FORMAT CHARACTER CODE                          V2  07 00558
000061 A  559 FDLKEY  SET     LOC       FIELD DESCRIPTOR KEY                           V2  07 00559
000062 A  560 LOC     SET     LOC+1                                                    V2  07 00560
000062 A  561 FMPT    SET     FSCB      FORMAT STRING POINTER                          V2  07 00561
000063 A  562 FRMT    SET     FSCB+1    ADDRESS OF FORMAT STRING(0 IF NONE)            V2  07 00562
000062 A  563 FRPT    SET     FSCB      FORMAT STRING CURRENT POINTER                  V2  07 00563
000062 A  564 FSCB    SET     LOC       FORMAT STRING SCB                              V2  07 00564
000066 A  565 LOC     SET     LOC+4                                                    V2  07 00565
000066 A  566 GDRPC   SET     LOC       '(' GROUP DYNAMIC REPEAT COUNT                 V2  07 00566
000077 A  567 LOC     SET     LOC+9                                                    V2  07 00567
000071 A  568 GFRPT   SET     GDRPC+3   '(' GROUP FORMAT POINTER                       V2  07 00568
000074 A  569 GSRPC   SET     GDRPC+6   '(' GROUP STATIC REPEAT COUNT                  V2  07 00569
000111 A  570 ICHAR   SET     ISCB+2    LIST ITEM CHARACTER                            V2  07 00570
000077 A  571 IDEXP   SET     LOC       IMPLICIT DECIMAL EXPONENT                      V2  07 00571
000100 A  572 LOC     SET     LOC+1                                                    V2  07 00572
000100 A  573 IFW     SET     LOC       INTEGER FIELD WIDTH                            V2  07 00573
000101 A  574 LOC     SET     LOC+1                                                    V2  07 00574
000101 A  575 IIBSZ   SET     LOC       INDIVIDUAL ITEM BYTE SIZE                      V2  07 00575
000102 A  576 LOC     SET     LOC+1                                                    V2  07 00576
000102 A  577 IIWSZ   SET     LOC       INDIVIDUAL ITEM WORD SIZE                      V2  07 00577
000103 A  578 LOC     SET     LOC+1                                                    V2  07 00578
000102 A  579 INFL    SET     LOC       INITIAL ENTRY FLAG                             V2* 07 00579
000104 A  580 LOC     SET     LOC+1                                                    V2  07 00580
000104 A  581 IOCONT  SET     LOC       V$IOC CONTROL WORD                             V2  07 00581
000105 A  582 LOC     SET     LOC+1                                                    V2  07 00582
000105 A  583 IOLNK   SET     LOC       IOLINK CONTROL WORD                            V2  07 00583
000106 A  584 LOC     SET     LOC+1                                                    V2  07 00584
000106 A  585 IOSTAT  SET     LOC       I/O STATUS                                     V2  07 00585
000107 A  586 LOC     SET     LOC+1                                                    V2  07 00586
000107 A  587 ISCB    SET     LOC       ITEM SCB                                       V2  07 00587
000113 A  588 LOC     SET     LOC+4                                                    V2  07 00588
000113 A  589 ITEMAD  SET     LOC       ADDRESS OF LIST ITEM                           V2  07 00589
000114 A  590 LOC     SET     LOC+1                                                    V2  07 00590
000114 A  591 ITEMWC  SET     LOC       COUNT OF WORDS REMAINING IN ITEM               V2  07 00591
000115 A  592 LOC     SET     LOC+1                                                    V2  07 00592
000115 A  593 ITMINC  SET     LOC       LIST ITEM WORD INCREMENT                       V2  07 00593
000116 A  594 LOC     SET     LOC+1                                                    V2  07 00594
000116 A  595 ITMODE  SET     LOC       LIST ITEM MODE                                 V2  07 00595
000117 A  596 LOC     SET     LOC+1                                                    V2  07 00596
000123 A  597 LGOV    SET     LRWC      LOGICAL RECORD OVERLAP                         V2  07 00597
000117 A  598 LISTFL  SET     LOC       LIST DATA XFER FLAG                            V2  07 00598
000120 A  599 LOC     SET     LOC+1                                                    V2  07 00599
```

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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
```

```
                    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      704 AIN     EQU     *                                                                07 00704
 000000      R      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 005411 R
000013 006505 A
000014 005042 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 000115 R
000022 006505 A
000023 005042 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 003557 R
000032 006505 A
000033 005042 R
                    723         INZAB   WT,AIOL1            LOOP TILL FIELD WIDTH WT EXHAUSTED       07 00723
000034 016171 A
000035 001016 A
000036 000020 R
                    724         SUTBBB  IIBSZ,W,COUNT       GET COUNT OF EXCESS CHARS IN ITEM        07 00724
000037 016101 A
000040 146170 A
000041 056052 A
000042 005311 A     725         DAR                                                                  07 00725
000043 001004 A     726         JAN     FRS65           EXIT TO FRS IF LIST ITEM FILLED              07 00726
000044 001100 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     WRS             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 005411 R
000054 006505 A
000055 005042 R
000056 016154 A     732         LDA     RWFL,B                                                       07 00732
000057 150452 A     733         ANA     WRR             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 001100 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 001754 R
000067 006505 A
```

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000070 005042 R
                    741         MOVBAB  *CHAR,BCHAR         MOVE CHAR FROM LIST SCB TO BUFF SCB    07 00741
000071 016111 A
000072 056030 A
                    742         PUSHJ   WCB                 OUTPUT CHARACTER TO BUFFER/EXIT         V2  07 00742
000073 006010 A
000074 002646 R
000075 006505 A
000076 005042 R
000077 001000 A     743         JMP     AIDL2               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$FORTIO POP/JUMP            V2  07 00767
                    769         IFF     NUC                                                         FG  07 00769
                    770         GOTO    NUC1                                                        FG  07 00770
                    772         IFT     VII                                                         FG  07 00772
                    773         GOTO    NUC2                                                        FG  07 00773
000102 016014 A     775         LDA     ALOC,B              GET ALOC ENTRY FLAG                     FG  07 00775
000103 001016 A     776         JANZ    CAN1                TEST VORTEX BACKGROUND CALL TO NUCLEUS  FG  07 00776
000104 000107 R
                    778 ************************************                                            07 00778
                    779 * EXIT TO V$FORTIO VIA DIRECT JUMP *                                        FG  07 00779
                    780 ************************************                                            07 00780
                    782 NUC1    CONT                                                                FG  07 00782
000105 006705 A     783         IJMP    0,X                                                         FG  07 00783
000106 000000 A
                    784 NUC2    CONT                                                                FG  07 00784
                    786 ********************************                                            FG  07 00786
                    787 * EXIT TO V$FORTIO VIA DEALOC *                                            FG  07 00787
                    788 ********************************                                            FG  07 00788
        000107 R    790 CAN1    EQU     *                                                           FG  07 00790
                    792         IFF     NUC                                                         FG  07 00792
                    793         GOTO    NUC1                                                        FG  07 00793
                    795         IFT     VII                                                         FG  07 00795
                    796         OMB     MAP,V$ST2           SET EXEC STATE TO N0                     V2  07 00796
000107 005021 A     797         TBA                         SAVE B                                  V2  07 00797
000110 020302 A     798         LDB     V$CRS               POINT B AT ALOC STACK                   V2  07 00798
000111 076003 A     799         STX     PR,B                STORE POP/JUMP ADDR IN P-REG FIELD      V2  07 00799
                    801         IFF     VII                                                         FG  07 00801
                    802         GOTO    VII1                                                        FG  07 00802
                    803         SPAC                                                                FG  07 00803
                    804 ********************************                                            FG  07 00804
                    805 * V$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     TOPSTP,X            INITIALIZE COUNT TO -1                  V2  07 00811
                    812         LDX     TOPSTK,B                                                    V2  07 00812
                    813         SPAC                                                                FG  07 00813
                    814 ********************************************************************        FG  07 00814
                    815 * LOOP TO FIND TOP OF RETURN ADDRESSES IN V$FORTIO STACK *                   FG  07 00815
                    816 ********************************************************************        FG  07 00816
                    817         SPAC                                                                FG  07 00817
                    818         TXA                                                                 FG  07 00818
                    819 CANL1   SUB     ADPSTK,B                                                    FG  07 00819
                    820         JAP     CAN5                END OF STACK ?                          FG  07 00820
                    821         LDA     0,X                 NO. GET DP FROM STACK                   FG  07 00821
                    822         SUB     DEX                                                         V2  07 00822
                    823         JAZ     CAN5                DONT SAVE STACK WITH EXIT DP            V2  07 00823
                    824         LDA     0,Y                 LOAD DP                                 V2  07 00824
                    825         ERA     0                                                           V2  07 00825
                    826         JANZ    CAN2                EXIT ON ADDRESS DP                      V2  07 00826
                    827         INCR    DES                 BUMP POINTER                            FG  07 00827
                    828         JMP     CANL1               AND CONTINUE                            V2  07 00828
                    829         SPAC                                                                FG  07 00829
                    830 ********************************************************************        FG  07 00830
                    831 * TOP OF RETURN ADDRESS STACK FOUND - MOVE FROM V$FORTIO TO V$RERR *        FG  07 00831
                    832 ********************************************************************        FG  07 00832
                    833         SPAC                                                                FG  07 00833
                    834 CAN2    TXA                                                                 FG  07 00834
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                    835          SUB     ADPSTK,B                                                    V2  07 00835
                    836          CPA                                                                 FG  07 00836
                    837          LDXI    BASE                                                        V2  07 00837
                    838          STA     ROPSTP,X        STORE STACK ITEM COUNT-1                    FG  07 00838
                    839          CPA                                                                 FG  07 00839
                    840          INCR    014             SET X = -(STACK ITEM COUNT-1)               FG  07 00840
                    841          ADD     ANRB,B                                                      V2  07 00841
                    842          ADDI    APSTK+STKSZ                                                 FG  07 00842
                    843          TAB                     POINT B AT V$FORTIO 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          IBR                     BUMP POINTERS                               FG  07 00847
                    848          IXR                                                                 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
000112 006505 A
000113 000000 E
000114 000700 A
                    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
000115 036002 A     871 CBC      LDX     ABSCB,B                                                         07 00871
000116 076021 A     872          STX     ABSCB,B         SET SCB TO BUFFER                               07 00872
000117 015000 A     873          LDA     0,X             GET CURRENT CHAR COUNT                          07 00873
000120 006400 A     874          BT      ASET+B0,CBC4        ON WORD BOUNDARY ?                          07 00874
000121 000126 R
                    875          PUSHJ   GBA             YES. GET NEXT BUFFER ADDRESS                V2  07 00875
000122 006010 A
000123 001173 R
000124 006505 A
000125 005042 R
                    876 CBC4     DCB     WT              DECREMENT REMAINIG FIELD WIDTH                  07 00876
000126 016171 A
000127 005311 A
000130 056171 A
                    877          TRAB    RWFL,FC,CBC6    JUMP IF NOT ENCODE/DECODE                   PD  07 00877
000131 016154 A
000132 006452 A
000133 000140 R
000134 036152 A     878          LDX     RETURN+1,B                                                  PD  07 00878
000135 001040 A     879          JXZ     CBC6            NO COUNT ADDRESS                            PD  07 00879
000136 000140 R
000137 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
000140 016154 A
000141 006451 A
000142 001754 R
000143 001000 A     882          JMP     PCH             WRITE: EXIT TO PUT CHAR IN BUFFER               07 00882
000144 003557 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
000145 016123 A
000146 056165 A
000147 146144 A     901          SUB     PBWC,B                                                          07 00901
000150 001004 A     902          JAN     CLB4            SET COUNT = MINIMUM(LRWC,PBWC)                  07 00902
000151 000154 R
                    903          MOVBAB  PBWC,TEMP1                                                      07 00903
000152 016144 A
000153 056165 A
                    904 CLB4     TZAB    TEMP1,CLBX      EXIT IF COUNT=0                                 07 00904
000154 016165 A
```

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000155 001010 A
000156 000200 R
                    905          TSAB    RWFL,RB,CLBX  DONT CLEAR IF READ-BEFORE-WRITE FLAG SET   07 00905
000157 016154 A
000160 006403 A
000161 000200 R
                    906          TZAB    FRMT,CLB8     CLEAR TO ZEROS ON UNFORMATTED          V2  07 00906
000162 016063 A
000163 001010 A
000164 000166 R
000165 016203 A     907          LDA     BLNK2,B       CLEAR TO BLANKS ON FORMATTED           V2  07 00907
000166 056164 A     908 CLB8     STA     TEMP,B                                               V2  07 00908
000167 036025 A     909          LDX     BFWPT,B                                              V2  07 00909
                    910 **************                                                            07 00910
                    911 * FILL LOOP *                                                         07 00911
                    912 **************                                                        07 00912
        000170 R    913 CLBLP    EQU     *                                                    V2  07 00913
000170  005144 A    914          IXR                   LOAD X AS BUFFER POINTER               V2  07 00914
                    915          MOVBAX  TEMP,0        MOVE FILL WORD TO BUFFER               V2  07 00915
000171 016164 A
000172 055000 A
000173 005041 A     916          TXA                                                          V2  07 00916
000174 146025 A     917          SUB     BFWPT,B                                              V2  07 00917
000175 146165 A     918          SUB     TEMP1,B                                                  07 00918
000176 001004 A     919          JAN     CLBLP         LOOP TILL DONE                             07 00919
000177 000170 R
                    920 CLBX     POPJ                  EXIT                                   FG  07 00920
000200 001000 A
000201 004110 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
000202 010432 A     944 CLS      LDA     WRS           SET WRITE FLAG                         V2  07 00944
000203 056154 A     945          STA     $WFL,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
000204 006010 A
000205 006150 R
000206 006505 A
000207 005042 R
000210 001010 A     950          JAZ     ER4           ERROR 4/ FCB(U) NOT ON CHAIN /             07 00950
000211 005702 R
                    951          PUSHJ   FRU           PROCESS FORTRAN UNIT NUMBER U          V2  07 00951
000212 006010 A
000213 004216 R
000214 006505 A
000215 005042 R
000216 036016 A     952          LDX     ANR2,B                                               V2  07 00952
                    953          MOVBAX  UNIT,IOCONT   INITIALIZE IOC CONTROL WORD          V2  07 00953
000217 016167 A
000220 055104 A
000221 036010 A     954          LDX     ADFCB,B       POINT X AT FCB                             07 00954
000222 015014 A     955          LDA     12,X                                                     07 00955
000223 006455 A     956          BT      ARST+FLF,CLS20     TEST FOR LOGICAL FILE               V2  07 00956
000224 000252 R
000225 006454 A     957          BT      ARST+FRM,CLS20     AND RMD                             V2  07 00957
000226 000252 R
                    958 ************************                                             V2  07 00958
                    959 * U IS RMD LOGICAL FILE *                                         V2  07 00959
                    960 ************************                                             V2  07 00960
000227 006456 A     961          BT      ARST+FPD,CLS10     ANY UNPOSTED DATA ?                 V2  07 00961
000230 000240 R
                    962          MOVBAX  PBS7,0        YES. LOAD FCB(0) WITH PHYSICAL BUFF SIZE   07 00962
000231 016143 A
000232 055000 A
                    963          PUSHJ   PSB           AND POST BUFFER                        V2  07 00963
000233 006010 A
000234 005011 R
000235 006505 A
000236 005042 R
000237 036010 A     964          LDX     ADFCB,B       RESTORE X                                  07 00964
                    965 CLS10    MOVBAX  PD120,0       SET FCB(0) = 120 WORDS                 V2  07 00965
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000240 016201 A
000241 055000 A
                966          TZAB    LGOV,CLS15    LOGICAL RECORD OVERLAP ?                          07 00966
000242 016123 A
000243 001010 A
000244 000250 R
                967          ADBBB   PRECNO,PBRC,PRECNO      YES. BUMP PHYSICAL RECORD NUMBER    07 00967
000245 016145 A
000246 126142 A
000247 056145 A
                968 CLS15    MOVBAX  PRECNO,3       SET FCB(3) = PHYSICAL RECORD NUMBER          07 00968
000250 016145 A
000251 055003 A
                969 ****************************                                                  07 00969
                970 * CALL IOC TO CLOSE FILE *                                                    07 00970
                971 ****************************                                                  07 00971
000252 036151 A 972 CLS20    LDX     RETURN,B      POINT X AT CALL SEQUENCE                        07 00972
000253 035005 A 973          LDX     5,X           POINT X AT UPDATE/LEAVE PARAMETER               07 00973
000254 015000 A 974          LDA     0,X           GET UPDATE/LEAVE PARAMETER                      07 00974
000255 001010 A 975          JAZ     *+3                                                           07 00975
000256 000260 R
000257 010435 A 976          LDA     BS12          SET FLAG FOR UPDATE                             07 00976
000260 006110 A 977          ORAI    03400         MERGE IN IOC CLOSE SKELETON WORD          V2    07 00977
000261 003400 A
000262 116167 A 978          ORA     UNIT,B        OR IN LUN                                       07 00978
000263 036016 A 979          LDX     ANRB,B        POINT X AT V$FORTIO DATA BLOCK                  07 00979
000264 055104 A 980          STA     IOCONT,X      STORE IOC CONTROL WORD IN V$FORTIO              07 00980
                981          DAX     LNKCNT        DECREMENT LINK COUNT                            07 00981
000265 015120 A
000266 005311 A
000267 055120 A
000270 010464 A 982          LDA     CIO                                                     V2    07 00982
000271 006505 A 983          JSR     PSJ,X         CALL IOC                                  V2    07 00983
000272 005042 R
000273 036010 A 984          LDX     ADFCB,B       POINT X AT FCB                                  07 00984
                985          TRAB    RWFL,LF,CLS30      LOGICAL FILE ?                             07 00985
000274 016154 A
000275 006441 A
000276 000301 R
                986          MOVBAX  LRSZ,0        YES. RESTORE LOGICAL REC SIZE IN FCB(0)         07 00986
000277 016122 A
000300 055000 A
                987 ************************                                                      07 00987
                988 * TAKE FCB OFF CHAIN *                                                        07 00988
                989 ************************                                                      07 00989
000301 015012 A 990 CLS30    LDA     10,X          GET FORWARD LINK                                07 00990
000302 036146 A 991          LDX     PRLINK,B                                                      07 00991
000303 055012 A 992          STA     10,X          HOOK TO PREVIOUS LINK                           07 00992
                993 ********                                                                      07 00993
                994 * EXIT *                                                                      07 00994
                995 ********                                                                      07 00995
000304 010422 A 996          LDA     CEX                                                           07 00996
                997          PUSHF                 PUSH EXIT OF ONTO V$FORTIO STACK            07 00997
000305 036016 A
000306 035000 A
000307 005344 A
000310 055000 A
000311 005041 A
000312 036016 A
000313 055000 A
000314 001000 A 998          JMP     CAN           EXIT TO V$FORTIO                                07 00998
000315 000101 R
                999          EJEC                                                                  07 00999
               1000 ********************************************************************************* 07 01000
               1001 *                                                                               * 07 01001
               1002 *                4 - W O R D   D I V I D E   B Y   1 0 ( D 1 0 )                * 07 01002
               1003 *                                                                               * 07 01003
               1004 * FUNCTION: TO DIVIDE A 4-WORD NUMBER BY 10                                     * 07 01004
               1005 *                                                                               * 07 01005
               1006 * ENTRY: ACC = DIVIDEND                                                         * 07 01006
               1007 *                                                                               * 07 01007
               1008 * EXIT : ACC = ACC/10                                                          * 07 01008
               1009 *                                                                               * 07 01009
               1010 ********************************************************************************* 07 01010
000316 005024 A 1012 D10     TBX                   LOAD X AS BASE REGISTER                         07 01012
000317 005001 A 1013         TZA                   CLEAR HIGH-ORDER WORD OF DIVIDEND               07 01013
000320 025003 A 1014         LDB     ACC,X                                                         07 01014
000321 170471 A 1015         DIV     TEN           ACC(0)=ACC(0)/10                                07 01015
000322 065003 A 1016         STB     ACC,X                                                         07 01016
000323 025004 A 1017         LDB     ACC+1,X                                                       07 01017
000324 170471 A 1018         DIV     TEN           ACC(1)=(ACC(1)+REM(0))/10                       07 01018
000325 065004 A 1019         STB     ACC+1,X                                                       07 01019
000326 025005 A 1020         LDB     ACC+2,X                                                       07 01020
000327 170471 A 1021         DIV     TEN           ACC(2)=(ACC(2)+REM(1))/10                       07 01021
000330 065005 A 1022         STB     ACC+2,X                                                       07 01022
000331 025006 A 1023         LDB     ACC+3,X                                                       07 01023
000332 170471 A 1024         DIV     TEN           ACC(3)=(ACC(3)+REM(2))/10                       07 01024
000333 065006 A 1025         STB     ACC+3,X                                                       07 01025
000334 005042 A 1026         TXB                   RESTORE BASE REGISTER B                         07 01026
                1027         PUPJ                  AND EXIT                                  FG    07 01027
000335 001000 A
000336 004110 R
                1028         EJEC                                                                  07 01028
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                    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
000337 001004 A     1049 DEF    JAN     DEF4          IS A .GE. ZERO ?                                   07 01049
000340 000344 R
000341 056100 A     1050        STA     IFW,B         YES. STORE AS INTEGER FIELD WIDTH                  07 01050
000342 001000 A     1051        JMP     DEF8                                                             07 01051
000343 000347 R
000344 005211 A     1052 DEF4   CPA                   A NEGATIVE                                         07 01052
000345 005111 A     1053        IAR                                                                      07 01053
000346 056176 A     1054        STA     ZFW,B         LOAD LEADING ZERO FILL COUNT                       07 01054
000347 046147 A     1055 DEF8   INR     PTFL,B        D/E/F HAVE A '.'                                   07 01055
000350 001000 A     1056        JMP     ONF           EXIT TO OUTPUT NUMERIC FIELD                       07 01056
000351 002701 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 = 0 = EXPONENT FIELD WIDTH                                         * 07 01078
                    1079 *        IF S .GT. 0, DT = MAX(0,D1-S+1)                                        * 07 01079
                    1080 *                                                                               * 07 01080
                    1081 ********************************************************************************* 07 01081
000352 R            1083 DOUT   EQU     *                                                                07 01083
000352 R            1084 EOUT   EQU     *                                                                07 01084
                    1085        MOVBAB  D,COUNT       SET SIGNIFICANT DIGIT COUNT TO D                   07 01085
000352 016054 A
000353 056052 A
                    1086        TZAB    S,DEO10       EXIT IF NO SCALE FACTOR                            07 01086
000354 016155 A
000355 001010 A
000356 000374 R
000357 001004 A     1087        JAN     DEO5                                                             07 01087
000360 000372 R
000361 046052 A     1088        INR     COUNT,B       SCALE FACTOR IS +. BUMP COUNT TO D+1               07 01089
000362 146054 A     1089        SUB     D,B                                                              07 01090
000363 005311 A     1090        DAR                                                                      07 01091
000364 001004 A     1091        JAN     DEO10         OK IF D.GE.S                                       07 01092
000365 000374 R
                    1092        MOVBAB  S,COUNT       OTHERWISE, SET S SIGNIFICANT DIGITS                07 01093
000366 016155 A
000367 056052 A
000370 001000 A     1093        JMP     DEO10                                                            07 01094
000371 000374 R
000372 126056 A     1094 DEO5   ADD     DT,B          SCALE FACTOR IS -. SET COUNT TO DT-S               07 01095
000373 056052 A     1095        STA     COUNT,B                                                          07 01096
                    1096 DEO10  PUSHJ   RND           ROUND DECIMAL FIELD                          V2    07 01097
000374 006010 A
000375 006032 R
000376 006505 A
000377 005042 R
000400 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
000401 016055 A
000402 146155 A
000403 056055 A
                    1100        MOVPAB  FOUR,XFW      EXPONENT FIELD IS 4 CHARS WIDE                     07 01100
000404 010423 A
000405 056174 A
000406 016155 A     1101        LDA     S,B                                                              07 01101
000407 001004 A     1102        JAN     DEF           ;                                                  07 01102
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000410 000337 R
000411 001010 A 1103          JAZ     DEF             S .GT. 0 ?                                      07 01103
000412 000337 R
000413 016056 A 1104          LDA     DT,B            YES                                             07 01104
000414 146155 A 1105          SUB     S,B                                                             07 01105
000415 005111 A 1106          IAR                                                                     07 01106
000416 001002 A 1107          JAP     *+3             SET DT = MAX(0,DT-S+1)                          07 01107
000417 000421 R
000420 005001 A 1108          TZA                                                                     07 01108
000421 056056 A 1109          STA     DT,B                                                            07 01109
000422 016155 A 1110          LDA     S,B             EXIT WITH A = S                                 07 01110
000423 001000 A 1111          JMP     DEF             PROCESS S                                       07 01111
000424 000337 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 D 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
000425 R        1128 FOUT     EQU     *                                                             07 01128
000425 016155 A 1130          LDA     S,B             GET SCALE FACTOR                                07 01130
000426 126055 A 1131          ADD     DEXP,B          ADD DECIMAL EXPONENT                            07 01131
000427 126054 A 1132          ADD     D,B             ADD FRACTIONAL FIELD COUNT                      07 01132
000430 056052 A 1133          STA     COUNT,B         STORE AS SIGNIFICANT DIGIT COUNT                07 01133
                1134          PUSHJ   RND             ROUND TO SIGNIFICANT DIGIT COUNT        V2      07 01134
000431 006010 A
000432 006032 R
000433 006505 A
000434 005042 R
000435 016055 A 1135          LDA     DEXP,B                                                          07 01135
000436 126155 A 1136          ADD     S,B             BUMP EXPONENT BY S                              07 01136
000437 056055 A 1137          STA     DEXP,B                                                          07 01137
000440 001000 A 1138          JMP     DEF             EXIT WITH INTEGER FIELD WIDTH IN A              07 01138
000441 000337 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 ****************                                                               07 01157
                1158 * INITIAL ENTRY *                                                             07 01158
                1159 ****************                                                               07 01159
                1160 FRS      ZAB     FRPT            CLEAR FORMAT STRING POINTER                     07 01160
000442 005001 A
000443 056062 A
000444 056075 A 1161          STA     GSRPC+1,B       CLEAR LEVEL 2 GROUP REPEAT COUNT                07 01161
000445 056117 A 1162          STA     LISTFL,B        CLEAR LIST DATA XFER FLAG                       07 01162
000446 056141 A 1163          STA     PARLV,B         CLEAR '(' GROUP LEVEL COUNT                     07 01163
000447 056155 A 1164          STA     S,B             CLEAR SCALE FACTOR                              07 01164
000450 005101 A 1165          INCR    1                                                               07 01165
000451 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
000452 006010 A
000453 002113 R
000454 006505 A
000455 005042 R
000456 006443 A 1168          BT      ARST+LP,ER1     ERROR 1/ 1ST FORMAT CHAR NOT '(' /              07 01168
000457 005705 R
                1169 ****************                                                               07 01169
                1170 * '(' ENTRY *                                                                 07 01170
                1171 ****************                                                               07 01171
000460 046141 A 1172 FRS2     INR     PARLV,B         BUMP '(' LEVEL                                  07 01172
000461 016141 A 1173          LDA     PARLV,B                                                         07 01173
000462 140423 A 1174          SUB     FOUR                                                            07 01174
000463 001002 A 1175          JAP     ER1             ERROR 1/ MORE THAN 3 '(' LEVELS /               07 01175
000464 005705 R
000465 016012 A 1176          LDA     ASPAR,B                                                         07 01176
000466 126141 A 1177          ADD     PARLV,B                                                         07 01177
000467 005014 A 1178          TAX                     POINT X AT GROUP REPEAT COUNT                   07 01178
000470 016125 A 1179          LDA     R,B             GET REPEAT COUNT                                07 01179
000471 055000 A 1180          STA     0,X             STORE IN DYNAMIC GROUP REPEAT COUNT TABLE       07 01180
000472 055006 A 1181          STA     GSRPC-GDRPC,X   STORE IN STATIC GROUP REPEAT COUNT TABLE        07 01181
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000473 016062 A 1182          LDA     FRPT,B          GET FORMAT CHARACTER POINTER                    07 01182
000474 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
000475 006010 A 1191 FRS5     LDAI    07077                                                          V2 07 01191
000476 007077 A
000477 056053 A 1192          STA     CVFL,B                                                         V2 07 01192
000500 005101 A 1193          INCR    1                                                              07 01193
000501 056125 A 1194          STA     R,B             SET REPEAT COUNT TO 1                          07 01194
                1195          ZAB     SCF             CLEAR SCALE FACTOR FLAG                        07 01195
000502 005001 A
000503 056156 A
000504 056054 A 1196          STA     D,B             CLEAR FRACTIONAL FIELD WIDTH                   07 01196
000505 056022 A 1197          STA     ASFL,B          CLEAR '*' FLAG                                 07 01197
000506 056150 A 1198          STA     QFL,B           CLEAR QUOTE FLAG                               07 01198
                1199 FRS10    ZAB     SGFL            CLEAR SIGN FLAG                                07 01199
000507 005001 A
000510 056157 A
                1200          PUSHJ   INF             INPUT NON-BLANK FORMAT CHARACTER               V2 07 01200
000511 006010 A
000512 002113 R
000513 006505 A
000514 005042 R
000515 156053 A 1201          ANA     CVFL,B          CHECK VALIDITY OF CHAR                         07 01201
000516 001010 A 1202          JAZ     ER1             ERROR 1/ ILLEGAL FORMAT CHAR /                 07 01202
000517 005705 R
                1203 ************                                                                   07 01203
                1204 * TEST CHAR *                                                                  07 01204
                1205 ************                                                                   07 01205
000520 016065 A 1206          LDA     FCODE,B         RELOAD FORMAT CHARACTER CODE                   07 01206
000521 006402 A 1207          BT      ASET+CM,FRS10       TEST FOR ','                               07 01207
000522 000507 R
000523 006403 A 1208          BT      ASET+LP,FRS2    TEST FOR '('                                   07 01208
000524 000460 R
000525 006412 A 1209          BT      ASET+RP,FRS15   TEST FOR ')'                                   07 01209
000526 000547 R
000527 006404 A 1210          BT      ASET+MN,FRS20   TEST FOR '-'                                   07 01210
000530 000631 R
000531 006413 A 1211          BT      ASET+SL,FRS70   TEST FOR '/'                                   07 01211
000532 001107 R
000533 006405 A 1212          BT      ASET+NM,FRS25       TEST FOR NUMERIC                           07 01212
000534 000640 R
000535 006400 A 1213          BT      ASET+AL,FRS35       TEST FOR ALPHA                             07 01213
000536 000703 R
000537 046150 A 1214          INR     QFL,B           MUST BE QUOTE. SET FLAG                        07 01214
                1215          MOVPAB  DR15,N          SET FIELD WIDTH TO MAX INTEGER                 07 01215
000540 010460 A
000541 056125 A
000542 056171 A 1216          STA     WT,B                                                           V2 07 01216
                1217          MOVPAB  EIGHT,FDLKEY    LOAD 'H' DESCRIPTOR KEY                        07 01217
000543 010424 A
000544 056061 A
000545 001000 A 1218          JMP     FRS60           EXIT                                           07 01218
000546 001065 R
                1219 ************                                                                   07 01219
                1220 * ')' INPUT *                                                                  07 01220
                1221 ************                                                                   07 01221
000547 016012 A 1222 FRS15    LDA     AGPAR,B                                                        07 01222
000550 126141 A 1223          ADD     PARLV,S                                                        07 01223
000551 005014 A 1224          TAX                     POINT X AT '(' GROUP REPEAT COUNT              07 01224
                1225          DAX     0               DECREMENT DYNAMIC '(' REPEAT COUNT             07 01225
000552 015000 A
000553 005311 A
000554 055000 A
000555 001016 A 1226          JANZ    FRS19           IS '(' GROUP FINISHED ?                        07 01226
000556 000625 R
                1227          DAB     PARLV           YES. DECREMENT '(' LEVEL                       07 01227
000557 016141 A
000560 005311 A
000561 056141 A
000562 001016 A 1228          JANZ    FRS75           CONTINUE SCAN IF NOT LAST ')'                  07 01228
000563 001115 R
                1229 ************************                                                       07 01229
                1230 * PROCESS RIGHTMOST ')' *                                                      07 01230
                1231 ************************                                                       07 01231
                1232          ZAB     FDLKEY          DISABLE PXF MODE TEST                          07 01232
000564 005001 A
000565 056061 A
                1233          PUSHJ   GNL             GET ADDRESS OF NEXT LIST ITEM                  V2 07 01233
000566 006010 A
000567 001561 R
000570 006505 A
000571 005042 R
                1234          SUTBBB  ITEMAD,ITMINC,ITEMAD    REINITIALIZE LIST CONTROL              07 01234
000572 016113 A
000573 146115 A
000574 056113 A
                1235          ADBBB   ITEMWC,ITMINC,ITEMWC                                           07 01235
000575 016114 A
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000576 126115 A
000577 056114 A
                1236          PUSHJ   RCL             RECYCLE LOGICAL BUFFER                    V2  07 01236
000600 006010 A
000601 005464 R
000602 006505 A
000603 005042 R
000604 016117 A 1237          LDA     LISTFL,B                                                      07 01237
000605 001010 A 1238          JAZ     ER1             ERROR 1/ NO DATA XFER DESCRIPTORS /           07 01238
000606 005705 R
                1239          ZAB     LISTFL          CLEAR LIST DATA XFER FLAG                     07 01239
000607 005001 A
000610 056117 A
000611 036012 A 1240          LDX     AGPAR,B                                                       07 01240
000612 005144 A 1241  IXR     IXR                     POINT X AT '(' LEVEL 1                        07 01241
000613 046141 A 1242          INR     PARLV,B         ALSO LEVEL COUNTER                            07 01242
000614 015006 A 1243          LDA     GSRPC-GDRPC,X                                                 07 01243
000615 055000 A 1244          STA     0,X             RELOAD LEVEL 1 DYNAMIC REPEAT COUNT           07 01244
000616 015007 A 1245          LDA     GSRPC-GDRPC+1,X                                               07 01245
000617 001010 A 1246          JAZ     FRS19           IS THERE A 2ND LEVEL ?                        07 01246
000620 000625 R
000621 046141 A 1247          INR     PARLV,B         YES                                           07 01247
000622 005144 A 1248          IXR                     USE 2ND '(' LEVEL                             07 01248
000623 015006 A 1249          LDA     GSRPC-GDRPC,X       GET STATIC REPEAT COUNT                   07 01249
000624 055000 A 1250          STA     0,X             RELOAD DYNAMIC REPEAT COUNT                   07 01250
000625 015003 A 1251  FRS19   LDA     GFRPT-GDRPC,X                                                 07 01251
000626 056062 A 1252          STA     FRPT,B          BACK UP SCAN TO '('                           07 01252
000627 001000 A 1253          JMP     FRS5            RESUME SCAN AFTER CORRESPONDING '('           07 01253
000630 000475 R
                1254  ************
                1255  * '-' INPUT *                                                                 07 01254
                1256  ************                                                                  07 01255
                                                                                                    07 01256
000631 046157 A 1257  FRS20   INR     SGFL,B          SET SIGN FLAG                                 07 01257
                1258          PUSHJ   INF             INPUT NON-BLANK FOLLOWING '-'             V2  07 01258
000632 006010 A
000633 002113 R
000634 006505 A
000635 005042 R
000636 006445 A 1259          BT      ARST+NM,ER1     ERROR 1/ NOT NUMERIC /                        07 01259
000637 005705 R
                1260  **********************                                                        07 01260
                1261  * NUMERIC CHAR INPUT *                                                       07 01261
                1262  **********************                                                        07 01262
                1263  FRS25   PUSHJ   IFF             INPUT NUMERIC FORMAT FIELD                V2  07 01263
000640 006010 A
000641 002054 R
000642 006505 A
000643 005042 R
000644 006150 A 1264          ANAI    0211            ENABLE 'P'/'('/ALPHA                      V2  07 01264
000645 000211 A
000646 001010 A 1265          JAZ     ER1             ERROR 1/ ILLEGAL TERMINATOR /                 07 01265
000647 005705 R
000650 016065 A 1266          LDA     FCODE,B                                                       07 01266
000651 006447 A 1267          BT      ARST+PS,FRS90       TEST IF TERMINATOR IS 'P'                 07 01267
000652 000670 R
                1268  ****************************                                                  07 01268
                1269  * DESCRIPTOR HAS 'P' FIELD *                                                 07 01269
                1270  ****************************                                                  07 01270
000653 046156 A 1271          INR     SCF,B           SET SCALE FACTOR FLAG                         07 01271
000654 016126 A 1272          LDA     NFF,B           GET SCALE FACTOR ABS VALUE IN A               07 01272
000655 036157 A 1273          LDX     SGFL,B          GET SIGN FLAG IN X                            07 01273
000656 001040 A 1274          JXZ     *+4                                                           07 01274
000657 000662 R
000660 005211 A 1275          CPA                     NEGATE A IF SIGN FLAG SET                     07 01275
000661 005111 A 1276          IAR                                                                   07 01276
000662 056155 A 1277          STA     S,B             LOAD SCALE FACTOR S                           07 01277
000663 006010 A 1278          LDAI    041                                                       V2  07 01278
000664 000041 A
000665 056053 A 1279          STA     CVFL,B          ENABLE ONLY NUMERIC/ALPHA                 V2  07 01279
000666 001000 A 1280          JMP     FRS10                                                         07 01280
000667 000507 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
000670 016157 A
000671 001016 A
000672 005705 R
                1285          MOVBAB  NFF,R           LOAD REPEAT COUNT                             07 01285
000673 016126 A
000674 056125 A
000675 056171 A 1286          STA     WT,B            ALSO AS FIELD WIDTH FOR H/X                   07 01286
000676 016065 A 1287          LDA     FCODE,B                                                       07 01287
000677 006403 A 1288          BT      ?SET+LP,FRS2    TEST FOR '('                                  07 01288
000700 000460 R
000701 006440 A 1289          BT      ARST+AL,ER1     ERROR 1/ TERMINATOR NOT ALPHA /               07 01289
000702 005705 R
                1290  **************************                                                    07 01290
                1291  * ALPHABETIC CHAR INPUT *                                                    07 01291
                1292  **************************                                                    07 01292
000703 R        1293  FRS35   EQU     *                                                         V2  07 01293
000703 016064 A 1294          LDA     FCHAR,B         GET FORMAT DESCRIPTOR CHARACTER           V2  07 01294
                1295          IFF     NUC                                                       FG  07 01295
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                    1296           GOTO    NV2NUC                                                    FG 07 01296
                    1297           IFT     VII                                                       FG 07 01297
                    1298           OME     MAP,V$ST0       SET EXEC STATE TO 00                      V2 07 01298
                    1299 NV2NUC    CONT                                                              FG 07 01299
000704 006030 A     1300           LDXI    FRSJT-FRSCHT-1      GET TABLE COUNT IN X                  V2 07 01300
000705 000012 A
000706 006145 A     1301 FRSL1     SUBE    FRSCHT,X                                                  V2 07 01301
000707 001132 R
000710 001010 A     1302           JAZ     FRS40           MATCH ?                                      07 01302
000711 000717 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
000712 001040 A     1308           JXZ     ER1             ERROR 1/ ILLEGAL FORMAT CHAR /            V2 07 01308
000713 005705 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
000714 005344 A     1313           DXR                     DROP TABLE COUNT                          V2 07 01313
000715 001000 A     1314           JMP     FRSL1           AND CONTINUE COMPARISON                      07 01314
000716 000706 R
                    1315           IFF     NUC                                                       FG 07 01315
                    1316           GOTO    NV2NUC                                                    FG 07 01316
                    1317           IFT     VII                                                       FG 07 01317
                    1318           GOTO    NV2NUC                                                    FG 07 01318
                    1319 FRS39     OME     MAP,V$ST3       SET EXEC STATE TO NN                      V2 07 01319
                    1320           JMP     ER1                                                       V2 07 01320
                    1321 NV2NUC    CONT                                                              FG 07 01321
        000717 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           OME     MAP,V$ST3       SET EXEC STATE TO NN                      V2 07 01326
                    1327 NV2NUC    CONT                                                              FG 07 01327
000717 005041 A     1328           TXA     *                                                         V2 07 01328
000720 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
000721 016156 A
000722 001010 A
000723 000730 R
000724 016061 A     1334           LDA     FDLKEY,B        YES                                          07 01334
000725 140423 A     1335           SUB     FOUR                                                         07 01335
000726 001002 A     1336           JAP     ER1             ERROR 1/ ILLEGAL SCALE FACTOR /              07 01336
000727 005705 R
000730 016061 A     1337 FRS45     LDA     FDLKEY,B                                                     07 01337
000731 140424 A     1338           SUB     EIGHT                                                        07 01338
000732 001004 A     1339           JAN     FRS46                                                        07 01339
000733 000743 R
000734 140422 A     1340           SUB     TWO                                                          07 01340
000735 001016 A     1341           JANZ    FRS60           SCAN FINISHED FOR H/X                        07 01341
000736 001065 R
000737 016125 A     1342           LDA     R,B                                                          07 01342
000740 140422 A     1343           SUB     TWO                                                          07 01343
000741 001002 A     1344           JAP     ER1             ERROR 1/ 'T' DESCRIPTOR HAS REPEAT COUNT     07 01344
000742 005705 R
                    1345 FRS46     PUSHJ   INF             INPUT NON-BLANK FORMAT CHARACTER          V2 07 01345
000743 006010 A
000744 002113 R
000745 006505 A
000746 005042 R
000747 006445 A     1346           BT      ARST+NM,ER1     ERROR 1/ NON-NUM AFTER DESCRIPTOR LETTER /   07 01346
000750 005705 R
                    1347           PUSHJ   IFF             INPUT NUMERIC FIELD                       V2 07 01347
000751 006010 A
000752 002054 R
000753 006505 A
000754 005042 R
000755 016126 A     1348           LDA     NFF,B                                                        07 01348
000756 056170 A     1349           STA     W,X             LOAD FIELD WIDTH W                           07 01349
000757 001010 A     1350           JAZ     ER1             ERROR 1/ ZERO FIELD WIDTH /                  07 01350
000760 005705 R
000761 016061 A     1351           LDA     FDLKEY,B                                                     07 01351
000762 140423 A     1352           SUB     FOUR                                                         07 01352
000763 001004 A     1353           JAN     FRS47           CONTINUE SCAN FOR D/E/F/G                    07 01353
000764 000772 R
000765 140423 A     1354           SUB     FOUR                                                         07 01354
000766 001004 A     1355           JAN     FRS50           NO FRACTIONAL D FIELD FOR I/L/A           V2 07 01355
000767 001011 R
000770 001000 A     1356           JMP     FRS60           SCAN FINISHED FOR T                          07 01356
000771 001065 R
000772 016065 A     1357 FRS47     LDA     FCODE,B                                                      07 01357
000773 006450 A     1358           BT      ARST+PT,ER1     ERROR 1/ TERMINATOR NOT '.' /                07 01358
000774 005705 R
                    1359           PUSHJ   INF             INPUT NON-BLANK FORMAT CHARACTER          V2 07 01359
000775 006010 A
000776 002113 R
000777 006505 A
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001000 005042 R
001001 006445 A 1360          BT      ARST+NM,ER1   ERROR 1/ NON-NUMERIC AFTER LETTER /          07 01360
001002 005705 R
                1361          PUSHJ   IFF           INPUT NUMERIC FIELD                  V2      07 01361
001003 006010 A
001004 002054 R
001005 006505 A
001006 005042 R
001007 016126 A 1362          LDA     NFF,B                                                      07 01362
001010 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
001011 006010 A
001012 001561 R
001013 006505 A
001014 005042 R
001015 046117 A 1368          INR     LISTFL,B      SET LIST FLAG                                07 01368
                1369          MOVBAB  W,WT          SET WT=W                                     07 01369
001016 016170 A
001017 056171 A
                1370          MOVBAB  D,DT          SET DT=D                                     07 01370
001020 016054 A
001021 056056 A
                1371          ZAB     ACC           CLEAR ACCUMULATOR ACC                        07 01371
001022 005001 A
001023 056003 A
001024 056004 A 1372          STA     ACC+1,B                                                    07 01372
001025 056005 A 1373          STA     ACC+2,B                                                    07 01373
001026 056006 A 1374          STA     ACC+3,B                                                    07 01374
001027 056022 A 1375          STA     ASFL,B        CLEAR '*' FLAG                               07 01375
001030 056055 A 1376          STA     DEXP,B        CLEAR DECIMAL EXPONENT                       07 01376
001031 056100 A 1377          STA     IFW,B         CLEAR INTEGER FIELD WIDTH                    07 01377
001032 056147 A 1378          STA     PTFL,B        CLEAR '.' FLAG                               07 01378
001033 056157 A 1379          STA     SGFL,B        CLEAR SIGN FLAG                              07 01379
001034 056173 A 1380          STA     XFL,B         CLEAR EXPONENT FIELD FLAG                    07 01380
001035 056174 A 1381          STA     XFW,B         SET EXPONENT FIELD WIDTH TO ZERO             07 01381
001036 056176 A 1382          STA     ZFW,B         CLEAR ZERO FILL FIELD WIDTH                  07 01382
001037 056166 A 1383          STA     TERM,B        CLEAR TERMINATING DIGIT              V2      07 01383
                1384          MOVBAB  ABSCB,ASCB    SET SCB TO BUFFER                            07 01384
001040 016002 A
001041 056021 A
001042 016061 A 1385          LDA     FDLKEY,B                                                   07 01385
001043 140465 A 1386          SUB     FIVE                                                       07 01386
001044 001002 A 1387          JAP     FRS60         EXIT ON NON-NUMERIC DESCRIPTOR               07 01387
001045 001065 R
                1388 **************************                                               07 01388
                1389 * NUMERIC DESCRIPTOR *                                                   07 01389
                1390 **************************                                               07 01390
001046 005111 A 1391          IAR                                                              07 01391
001047 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
001050 016154 A
001051 006411 A
001052 001061 R
                1394 ********                                                                   07 01394
                1395 * READ *                                                                  07 01395
                1396 ********                                                                   07 01396
                1397          PUSHJ   IXN           INPUT EXTERNAL NUMERIC FIELD         V2      07 01397
001053 006010 A
001054 002137 R
001055 006505 A
001056 005042 R
001057 001000 A 1398          JMP     FRS60                                                      07 01398
001060 001065 R
                1399 *********                                                                  07 01399
                1400 * WRITE *                                                                 07 01400
                1401 *********                                                                  07 01401
                1402 FRS55    PUSHJ   GNI           GET NUMERIC LIST ITEM                V2      07 01402
001061 006010 A
001062 001253 R
001063 006505 A
001064 005042 R
                1403 ************************                                                 07 01403
                1404 * EXIT TO PROCESSOR *                                                    07 01404
                1405 ************************                                                 07 01405
001065 016061 A 1406 FRS60    LDA     FDLKEY,B                                                   07 01406
001066 004241 A 1407          LRLA    1                                                          07 01407
001067 005014 A 1408          TAX                   SET X = DESCRIPTOR READ KEY                  07 01408
001070 016154 A 1409          LDA     RWFL,B                                                     07 01409
001071 150432 A 1410          ANA     WRS                                                  V2      07 01410
001072 003016 A 1411          XANZ    IXR           BUMP KEY FOR WRITE                     V2      07 01411
001073 000612 R
                1412          IFF     NUC                                                    FG      07 01412
                1413          GOTO    NV2NUC                                                 FG      07 01413
                1414          IFT     V11                                                    FG      07 01414
                1415          ORE     MAP,VSSTO     SET EXEC STATE TO 00                     V2      07 01415
                1416 NV2NUC   CONT                                                           FG      07 01416
001074 006035 A 1417          LDXE    FRSJT,X       GET PROCESSOR ADDRESS FROM TABLE               07 01417
001075 001145 R
                1418          IFF     NUC                                                    FG      07 01418
                1419          GOTO    NV2NUC                                                 FG      07 01419
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                    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
001076 006705 A     1423          IJMP    0,X           EXIT TO PROCESSOR                             07 01423
001077 000000 A
                    1424 **********************                                                      07 01424
                    1425 * TEST REPEAT COUNT *                                                     07 01425
                    1426 **********************                                                      07 01426
                    1427 FRS65    DAB     R             DECREMENT REPEAT COUNT                        07 01427
001100 016125 A
001101 005311 A
001102 056125 A
001103 001016 A     1428          JANZ    FRS50         REPEAT DESCRIPTOR R TIMES                     07 01428
001104 001011 R
001105 001000 A     1429          JMP     FRS55         THEN RESUME SCAN                              07 01429
001106 001121 R
                    1430 ****************                                                           07 01430
                    1431 * PROCESS '/' *                                                          07 01431
                    1432 ****************                                                           07 01432
                    1433 FRS70    PUSHJ   RCL           RECYCLE LOGICAL BUFFER                   V2 07 01433
001107 006010 A
001110 005464 R
001111 006505 A
001112 005042 R
001113 001000 A     1434          JMP     FRS5          AND SCAN FORWARD FOR NEXT DESCRIPTOR          07 01434
001114 000475 R
                    1435 ****************************                                               07 01435
                    1436 * PROCESS FIELD SEPARATOR *                                              07 01436
                    1437 ****************************                                               07 01437
                    1438 FRS75    PUSHJ   INF           GET TERMINATING CHARACTER                V2 07 01438
001115 006010 A
001116 002113 R
001117 006505 A
001120 005042 R
001121 016065 A     1439 FRS85    LDA     FLODE,B       GET CHAR CODE                                 07 01439
001122 006402 A     1440          BT      ASET+CM,FRS5  TEST FOR ','                                  07 01440
001123 000475 R
001124 006413 A     1441          BT      ASET+SL,FRS70 TEST FOR '/'                                  07 01441
001125 001107 R
001126 006412 A     1442          BT      ASET+RP,FRS15       TEST FOR ')'                            07 01442
001127 000547 R
001130 001000 A     1443          JMP     ER1           ERROR 1/ ILLEGAL TERMINATOR /                 07 01443
001131 005705 R
                    1444 ************************************                                       07 01444
                    1445 * TABLE OF VALID FORMAT SPEC CHARS *                                      07 01445
                    1446 ************************************                                       07 01446
       001132 R     1447 FRSCHT   EQU     *                                                      V2 07 01447
001132 177777 A     1448          DATA    -1            SRDW.D                                   V2 07 01448
001133 177777 A     1449          DATA    -1            SRFW.D                                   V2 07 01449
001134 177777 A     1450          DATA    -1            SRFW.D                                   V2 07 01450
001135 177776 A     1451          DATA    -2            SRGW.D                                   V2 07 01451
001136 177757 A     1453          DATA    -021          RIW                                           07 01453
001137 000016 A     1455          DATA    016           RZW                                           07 01455
001140 000013 A     1456          DATA    013           RLW                                      V2 07 01456
001141 177771 A     1457          DATA    -7            RAW                                      V2 07 01457
001142 177760 A     1459          DATA    -020          NH...                                    V2 07 01459
001143 000004 A     1460          DATA    4             NX                                       V2 07 01460
001144 000324 A     1461          DATA    0324          TN                                       V2 07 01461
                    1463 **************                                                             07 01463
                    1464 * JUMP TABLE *                                                          07 01464
                    1465 **************                                                             07 01465
       001145 R     1466 FRSJT    EQU     *                                                          07 01466
001145 003607 R     1467          PZE     DIN                                                        07 01467
001146 000352 R     1468          PZE     DOUT                                                       07 01468
001147 003607 R     1469          PZE     EIN                                                        07 01469
001150 000352 R     1470          PZE     EOUT                                                       07 01470
001151 003607 R     1471          PZE     FIN                                                        07 01471
001152 000425 R     1472          PZE     FOUT                                                       07 01472
001153 003607 R     1473          PZE     GIN                                                        07 01473
001154 001615 R     1474          PZE     GOUT                                                       07 01474
001155 003607 R     1475          PZE     IIN                                                        07 01475
001156 002125 R     1476          PZE     IOUT                                                       07 01476
001157 006550 R     1477          PZE     ZIN                                                        07 01477
001160 006550 R     1478          PZE     ZOUT                                                       07 01478
001161 002443 R     1479          PZE     LIN                                                        07 01479
001162 002501 R     1480          PZE     LOUT                                                       07 01480
001163 000000 R     1481          PZE     AIN                                                        07 01481
001164 000000 R     1482          PZE     AOUT                                                       07 01482
001165 001647 R     1483          PZE     HIN                                                        07 01483
001166 001647 R     1484          PZE     HOUT                                                       07 01484
001167 006534 R     1485          PZE     XIN                                                        07 01485
001170 006534 R     1486          PZE     XOUT                                                       07 01486
001171 006310 R     1487          PZE     TIN                                                        07 01487
001172 006310 R     1488          PZE     TOUT                                                       07 01488
                    1490          $JEC                                                               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
                    1497 *                                                                           * 07 01497
                    1498 * ENTRY: PBWC = COUNT OF WORDS REMAINING IN PHYSICAL BUFFER                 * 07 01498
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                    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
001173 016144 A     1522 GBA     LDA      PBWC,B                                                        07 01522
001174 005311 A     1523          DAR                                                                   07 01523
001175 001002 A     1524          JAP      GBA50                                                        07 01524
001176 001206 R
                    1525          TSAB     RWFL,EC,GBA80                                             PD 07 01525
001177 016154 A
001200 006412 A
001201 001247 R
                    1526 ****************************                                                  07 01526
                    1527 * END OF PHYSICAL BUFFER *                                                  07 01527
                    1528 ****************************                                                  07 01528
                    1529          PUSHJ    RCP             RECYCLE PHYSICAL BUFFER                   V2 07 01529
001202 006010 A
001203 005526 R
001204 006505 A
001205 005042 R
                    1530 ************************************                                          07 01530
                    1531 * TEST FOR END OF LOGICAL RECORD *                                          07 01531
                    1532 ************************************                                          07 01532
001206 046025 A     1533 GBA50   INR      BFWPT,B         BUMP BUFFER WORD POINTER                    07 01533
001207 016123 A     1534          LDA      LRWC,B                                                      07 01534
001210 005311 A     1535          DAR                                                                  07 01535
001211 001002 A     1536          JAP      GBA70                                                       07 01536
001212 001237 R
                    1537 ************************                                                     07 01537
                    1538 * END OF LOGICAL RECORD *                                                   07 01538
                    1539 ************************                                                     07 01539
001213 046121 A     1540          INR      LRECNO,B        BUMP LOGICAL RECORD NUMBER                  07 01540
                    1541          MOVBAB   BFWPT,ALBF      UPDATE LOGICAL BUFFER ADDRESS               07 01541
001214 016025 A
001215 056027 A
                    1542 GBA55   MOVBAB   LRSZ,LRWC       RELOAD REMAINING WORD COUNT                PD 07 01542
001216 016122 A
001217 056123 A
                    1543          ZAB      BFPT            CLEAR BUFFER CHARACTER POINTER              07 01543
001220 005001 A
001221 056026 A
                    1544          TRAB     RWFL,WR,GBA70       WRITE ?                                 07 01544
001222 016154 A
001223 006451 A
001224 001237 R
001225 006404 A     1545          BT       ASET+TR,GBA70       YES, TERMINATE ?                        07 01545
001226 001237 R
       001227 R     1546 GBA60   EQU      *                                                         V2  07 01546
                    1547          DAB      BFWPT           NO, SET UP CLB                            V2  07 01547
001227 016025 A
001230 005311 A
001231 056025 A
                    1548          PUSHJ    CLB             CLEAR LOGICAL BUFFER                      V2  07 01548
001232 006010 A
001233 000145 R
001234 006505 A
001235 005042 R
001236 046025 A     1549          INR      BFWPT,B         RESTORE BFWPT                             V2  07 01549
                    1550 ********************************                                                07 01550
                    1551 * DECREMENT REMAINING WORD COUNTERS *                                          07 01551
                    1552 ********************************                                                07 01552
                    1553 GBA70   DAB      PBWC                                                          07 01553
001237 016144 A
001240 005311 A
001241 056144 A
                    1554          DAB      LRWC                                                          07 01554
001242 016123 A
001243 005311 A
001244 056123 A
                    1555          POPJ                     EXIT                                      FG 07 01555
001245 001000 A
001246 004110 R
                    1556 GBA80   MOVBAB   PBSZ,PBWC       RESET ENCODE/DECODE POINTERS              PD 07 01556
001247 016143 A
001250 056144 A
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                    1557          MOVBAB  AL BF,BFWPT                                                    PD 07 01557
001251 016027 A
001252 056025 A
001253 001000 A     1558          JMP     GBA55                                                           PD 07 01558
001254 001216 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
001255 036113 A     1584 GNI      LDX     ITEMAD,B        POINT X AT ITEM                                  07 01584
001256 015000 A     1585          LDA     0,X             GET 1ST WORD OF ITEM                             07 01585
001257 004317 A     1586          ASRA    15                                                               07 01586
001260 056157 A     1587          STA     SGFL,B          SAVE SIGN                                        07 01587
001261 016116 A     1588          LDA     ITMODE,B                                                         07 01588
001262 140422 A     1589          SUB     TWO                                                              07 01589
001263 001002 A     1590          JAP     GNI4            TEST FOR INTEGER LIST ITEM                       07 01590
001264 001301 R
                    1591 ****************                                                                   07 01591
                    1592 * INTEGER ITEM *                                                                 07 01592
                    1593 ****************                                                                   07 01593
001265 015000 A     1594          LDA     0,X             GET INTEGER                                      07 01594
001266 001002 A     1595          JAP     GNI2                                                    V2       07 01595
001267 001274 R
001270 005211 A     1596          CPA                                                                      07 01596
001271 005111 A     1597          IAR                                                                      07 01597
001272 001004 A     1598          JAN     ER3             ERROR 3/ INVALID INTEGER /                       07 01598
001273 005703 R
001274 056003 A     1599 GNI2     STA     ACC,B           STORE IN ACC                             V2      07 01599
                    1600          MOVPAB  D15,BEXP        LOAD INTEGER BIAS AS BINARY EXPONENT             07 01600
001275 010472 A
001276 056024 A
001277 001000 A     1601          JMP     GNI10                                                            07 01601
001300 001412 R
001301 005311 A     1602 GNI4     DAR                                                                      07 01602
001302 001010 A     1603          JAZ     GNI8            DOUBLE PRECISION #                               07 01603
001303 001335 R
001304 140422 A     1604          SUB     TWO             NO                                               07 01604
001305 001010 A     1605          JAZ     GNI9            TEST DP INTEGER                                  07 01605
001306 001360 R
                    1606 **************                                                                   07 01606
                    1607 * REAL ITEM *                                                                    07 01607
                    1608 **************                                                                   07 01608
001307 015000 A     1609          LDA     0,X             GET 1ST WORD OF REAL ITEM                        07 01609
001310 001002 A     1610          JAP     *+3             CONVERT TO ABS                                   07 01610
001311 001313 R
001312 005211 A     1611          CPA                                                                      07 01611
001313 056164 A     1612          STA     TEMP,B          SAVE                                             07 01612
001314 015001 A     1613          LDA     1,X             GET 2ND WORD OF REAL ITEM                        07 01613
001315 150460 A     1614          ANA     BR15            CLEAR B15                                D.1     07 01614
001316 005024 A     1615          TBX                     LOAD X AS BASE REGISTER                          07 01615
001317 005012 A     1616          TAB                     2ND WORD TO B-REG                                07 01616
001320 015164 A     1617          LDA     TEMP,X          1ST WORD TO A-REG                                07 01617
001321 065164 A     1618          STB     TEMP,X          SAVE 2ND WORD                                    07 01618
001322 004507 A     1619          LASR    7               GET BINARY EXPONENT                              07 01619
001323 140430 A     1620          SUB     BXBIAS          UNBIAS IT                                V2      07 01620
001324 055024 A     1621          STA     BEXP,X          SAVE                                             07 01621
001325 065003 A     1622          STB     ACC,X           STORE 1ST MANTISSA WORD                          07 01622
001326 015164 A     1623          LDA     TEMP,X          RESTORE 2ND WORD                                 07 01623
001327 005002 A     1624          TZB                     CLEAR B                                          07 01624
001330 004507 A     1625          LASR    7                                                                07 01625
001331 065004 A     1626          STB     ACC+1,X         SAVE                                             07 01626
001332 005042 A     1627          TXB                     RESTORE BASE REGISTER B                          07 01627
001333 001000 A     1628          JAP     GNI10                                                            07 01628
001334 001412 R
                    1629 ************************                                                         07 01629
                    1630 * DOUBLE PRECISION ITEM *                                                       07 01630
                    1631 ************************                                                         07 01631
001335 015001 A     1632 GNI8     LDA     1,X             GET 1ST MANTISSA WORD                            07 01632
001336 004317 A     1633          ASRA    15                                                               07 01633
001337 056157 A     1634          STA     SGFL,B          GET SIGN                                         07 01634
001340 015001 A     1635          LDA     1,X             RELOAD WORD 1                                    07 01635
001341 001002 A     1636          JAP     *+3             IS ITEM NEGATIVE ?                       V2      07 01636
001342 001344 R
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001343 005211 A 1637          CPA                     YES. GET ABS VALUE                                  07 01637
001344 056003 A 1638          STA       ACC,B         LOAD WORD 0 OF ACCUMULATOR                          07 01638
001345 015000 A 1639          LDA       0,X           GET BINARY EXPONENT                                 07 01639
001346 140430 A 1640          SUB       BXBIAS        UNBIAS IT                                 V2        07 01640
001347 056024 A 1641          STA       BEXP,B        SAVE                                                07 01641
001350 015002 A 1642          LDA       2,X           GET WORD 2                                D.1       07 01642
001351 150460 A 1643          ANA       BR15          CLEAR B15                                 D.1       07 01643
001352 056004 A 1644          STA       ACC+1,B                                                 D.1       07 01644
001353 015003 A 1645          LDA       3,X           GET WORD 3                                D.1       07 01645
001354 150460 A 1646          ANA       BR15          CLEAR B15                                 D.1       07 01646
001355 056005 A 1647          STA       ACC+2,B                                                 D.1       07 01647
001356 001000 A 1648          JMP       GNI10                                                             07 01648
001357 001412 R
                1649 ***************                                                                       07 01649
                1650 * DP INTEGER *                                                                       07 01650
                1651 ***************                                                                       07 01651
001360 006010 A 1652 GNI9     LDAI      30                                                                07 01652
001361 000036 A
001362 056024 A 1653          STA       BEXP,B        LOAD BIAS IN BINARY EXPONENT                        07 01653
001363 015001 A 1654          LDA       1,X           GET 2ND WORD                                        07 01654
001364 150460 A 1655          ANA       BR15          CLEAR HIGH BIT                                      07 01655
001365 050000 A 1656          STA                                                                         07 01656
001366 056004 A 1657          STA       ACC+1,B       STORE                                               07 01657
001367 015000 A 1658          LDA       0,X           GET 1ST WORD                                        07 01658
001370 056003 A 1659          STA       ACC,B         SAVE                                                07 01659
001371 001002 A 1660          JAP       GNI10         NEGATIVE #                                          07 01660
001372 001412 R
001373 005211 A 1661          CPA                     YES. TAKE 1-COMP                                    07 01661
001374 056003 A 1662          STA       ACC,B                                                             07 01662
001375 016004 A 1663          LDA       ACC+1,B                                                           07 01663
001376 007400 A 1664          ROF                                                                         07 01664
001377 001016 A 1665          JANZ      GNI9A         IS WORD 2 ZERO #                                    07 01665
001400 001406 R
001401 046003 A 1666          INR       ACC,B         YES. 2-COMP WORD 1                                  07 01666
001402 001001 A 1667          JOF       ER3           ERROR 3/INVALID NUMBER/                             07 01667
001403 005703 R
001404 001000 A 1668          JMP       GNI10                                                             07 01668
001405 001412 R
001406 005211 A 1669 GNI9A    CPA                     TAKE 2-COMP OF WORD 2                               07 01669
001407 005111 A 1670          IAR                                                                         07 01670
001410 150460 A 1671          ANA       BR15                                                              07 01671
001411 056004 A 1672          STA       ACC+1,B                                                           07 01672
                1673 ****************                                                                      07 01673
                1674 * TEST FOR ZERO *                                                                    07 01674
                1675 ****************                                                                      07 01675
001412 016003 A 1676 GNI10    LDA       ACC,B                                                             07 01676
001413 116004 A 1677          ORA       ACC+1,B                                                           07 01677
001414 116005 A 1678          ORA       ACC+2,B                                                           07 01678
001415 001016 A 1679          JANZ      GNIL1         IS ITEM = ZERO ?                                    07 01679
001416 001420 R
001417 005101 A 1680          INCR      1             YES                                                 07 01680
001420 056055 A 1681          STA       DEXP,B        YES. SET DECIMAL EXPONENT TO 1                      07 01681
001421 001000 A 1682          JMP       GNI50                                                             07 01682
001422 001540 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
001423 006010 A
001424 002575 R
001425 006505 A
001426 005042 R
001427 016024 A 1687          LDA       BEXP,B                                                            07 01687
001430 001010 A 1688          JAZ       GNI50         FINISHED IF BINARY EXPONENT = ZERO                  07 01688
001431 001540 R
001432 001004 A 1689          JAN       GNI20                                                             07 01689
001433 001443 R
                1690 ********************************                                                    07 01690
                1691 * (ACC,BEXP).GE.1 DIVIDE BY 10 *                                                    07 01691
                1692 ********************************                                                    07 01692
001434 046055 A 1693          INR       DEXP,B        BUMP DECIMAL EXPONENT                               07 01693
                1694          PUSHJ     D10           ACC = ACC/10                              V2        07 01694
001435 006010 A
001436 000316 R
001437 006505 A
001440 005042 R
001441 001000 A 1695          JMP       GNIL1         LOOP TILL DONE                                      07 01695
001442 001423 R
                1696 ********************************                                                    07 01696
                1697 * (ACC,BEXP).LT.1 TEST IF .GE. .1 *                                                  07 01697
                1698 ********************************                                                    07 01698
001443 120464 A 1699 GNI20    ADD       THREE                                                             07 01699
001444 001004 A 1700          JAN       GNI30         (ACC,BEXP) .LT. .1 IF BEXP .LT. -3                  07 01700
001445 001517 R
001446 001016 A 1701          JANZ      GNI25         (ACC,BEXP) .GT. .1 IF BEXP .GT. -3                  07 01701
001447 001506 R
001450 016055 A 1702          LDA       DEXP,B                                                            07 01702
001451 005311 A 1703          DAR                                                                         07 01703
001452 001002 A 1704          JAP       GNI25         DONT OSCILLATE                                      07 01704
001453 001506 R
001454 016003 A 1705          LDA       ACC,B                                                             07 01705
001455 006140 A 1706          SUBI      063146                                                    V2        07 01706
001456 063146 A
```

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001457 001004 A 1707          JAN     GNI30          TEST WORD 0.LT..1                          07 01707
001460 001517 R
001461 001016 A 1708          JANZ    GNI25                                                     07 01708
001462 001506 R
001463 016004 A 1709          LDA     ACC+1,B                                                   07 01709
001464 006140 A 1710          SUBI    031463                                             V2     07 01710
001465 031463 A
001466 001004 A 1711          JAN     GNI30          TEST WORD 1.LT..1                          07 01711
001467 001517 R
001470 001016 A 1712          JANZ    GNI25                                                     07 01712
001471 001506 R
001472 016005 A 1713          LDA     ACC+2,B                                                   07 01713
001473 006140 A 1714          SUBI    014631                                             V2     07 01714
001474 014631 A
001475 001004 A 1715          JAN     GNI30          TEST WORD 2.LT..1                          07 01715
001476 001517 R
001477 001016 A 1716          JANZ    GNI25                                                     07 01716
001500 001506 R
001501 016006 A 1717          LDA     ACC+3,B                                                   07 01717
001502 006140 A 1718          SUBI    046315                                             V2     07 01718
001503 046315 A
001504 001004 A 1719          JAN     GNI30          TEST WORD 3.LT..1                          07 01719
001505 001517 R
               1720 ********************************************************************       07 01720
               1721 * .1 .LE. (ACC,BEXP) .LT. 1 SHIFT ACC TO POSITION *                       07 01721
               1722 ********************************************************************       07 01722
001506 005001 A 1723 GNI25    TZA                                                               07 01723
001507 146024 A 1724          SUB     BEXP,B                                                    07 01724
001510 056052 A 1725          STA     COUNT,B        LOAD SHIFT COUNT                           07 01725
               1726          PUSHJ   SHA            SHIFT ACC TO POSITION               V2     07 01726
001511 006010 A
001512 006213 R
001513 006505 A
001514 005042 R
001515 001000 A 1727          JMP     GNI50                                                     07 01727
001516 001540 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
001517 010423 A
001520 056052 A
001521 126024 A 1732          ADD     BEXP,B         BUMP BINARY EXPONENT BY 4                  07 01732
001522 056024 A 1733          STA     BEXP,B                                                    07 01733
               1734          PUSHJ   SHA            SHIFT ACC RIGHT 4                   V2     07 01734
001523 006010 A
001524 006213 R
001525 006503 A
001526 005042 R
               1735          PUSHJ   M10            ACC = ACC*10                        V2     07 01735
001527 006010 A
001530 002530 R
001531 006505 A
001532 005042 R
               1736          DAB     BEXP           DROP DECIMAL EXPONENT                      07 01736
001533 016055 A
001534 005311 A
001535 056055 A
001536 001000 A 1737          JMP     GNIL1          LOOP TILL DONE                             07 01737
001537 001423 R
               1738 ********************************************************************       07 01738
               1739 * GENERATE DECIMAL DIGITS *                                               07 01739
               1740 ********************************************************************       07 01740
               1741 GNI50    MOVBAB  ACHB,CHBPT     INITIALIZE CHB POINTER                     07 01741
001540 016007 A
001541 056050 A
001542 046124 A 1742          INR     MOV,B          SET MULTIPLY OVERFLOW FLAG                 07 01742
               1743 GNIL2    PUSHJ   M10            ACC = ACC*10                        V2     07 01743
001543 006010 A
001544 002530 R
001545 006505 A
001546 005042 R
001547 036050 A 1744          LDX     CHBPT,B        POINT X AT ARRAY CHB                       07 01744
001550 055000 A 1745          STA     0,X            STORE DECIMAL DIGIT IN ARRAY CHB           07 01745
001551 005145 A 1746          INCR    045            BUMP ARRAY POINTER                         07 01746
001552 076050 A 1747          STX     CHBPT,B                                                   07 01747
001553 146007 A 1748          SUB     ACHB,B                                                    07 01748
001554 146200 A 1749          SUB     =D14,B                                             V2     07 01749
001555 001004 A 1750          JAN     GNIL2          LOOP TILL 14 DECIMAL DIGITS GENERATED      07 01750
001556 001543 R
               1751          PUPJ                   EXIT                                FG     07 01751
001557 001000 A
001560 004110 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
               1760 *         ITMINC = WORD INCREMENT BETWEEN ELEMENTS OF LIST ITEM      *       07 01760
               1761 *         ITEMWC = COUNT OF WORDS REMAINING IN LIST ITEM             *       07 01761
```

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                    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
001561 016113 A
001562 126115 A
001563 056113 A
001564 016114 A     1770         LDA     ITEMWC,B                                                          07 01770
001565 005311 A     1771         DAR                                                                       07 01771
001566 001002 A     1772         JAP     GNL2            LIST ITEM FINISHED ?                              07 01772
001567 001610 R
001570 006010 A     1773         LDAI    GNL2            YES                                       V2      07 01773
001571 001610 R
001572 036000 A     1774         LDX     OPSTKP,B                                                  V2      07 01774
001573 005344 A     1775         DXR                                                                FG      07 01775
001574 076000 A     1776         STX     OPSTKP,B                                                  FG      07 01776
001575 055000 A     1777         STA     0,X             PUSH RETURN ADDRESS GNL2                  V2      07 01777
001576 010422 A     1778         LDA     CEX                                                               07 01778
                    1779         PUSHF                   PUSH EXIT OP                                      07 01779
001577 036016 A
001600 035000 A
001601 005344 A
001602 055000 A
001603 005041 A
001604 036016 A
001605 055000 A
001606 001000 A     1780         JMP     CAN             EXIT TO V$FORTIO                                  07 01780
001607 000101 R
                    1781 GNL2    SUTBBB  ITEMWC,ITMINC,ITEMWC    DECREMENT LIST ITEM WORD COUNT            07 01781
001610 016114 A
001611 146115 A
001612 056114 A
                    1782         POPJ                    EXIT                                      FG      07 01782
001613 001000 A
001614 004110 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 ONF 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
001615 016055 A     1804 GOUT    LDA     DEXP,B          GET DECIMAL EXPONENT                              07 01804
001616 001004 A     1805         JAN     EOUT            PROCESS AS 'E' IF DEXP .LT. ZERO                  07 01805
001617 000352 R
001620 146054 A     1806         SUB     D,B                                                               07 01806
001621 005311 A     1807         DAR                                                                       07 01807
001622 001002 A     1808         JAP     EOUT            PROCESS AS 'E' IF DEXP .GE. D                     07 01808
001623 000352 R
                    1809         MOVBAB  DT,COUNT        LOAD SIGNIFICANT DIGIT COUNT                      07 01809
001624 016056 A
001625 056052 A
                    1810         PUSHJ   RND             ROUND DECIMAL DIGIT STRING                V2      07 01810
001626 006010 A
001627 006032 R
001630 006505 A
001631 005042 R
001632 016056 A     1811         LDA     DT,B                                                              07 01811
001633 146055 A     1812         SUB     DEXP,B          DECREMENT FRACTIONAL FIELD                        07 01812
001634 001004 A     1813         JAN     EOUT            PROCESS AS 'E' ON ROUNDING OVERFLOW               07 01813
001635 000352 R
001636 056056 A     1814         STA     DT,B                                                              07 01814
                    1815         MOVPAB  FOUR,XFW        SET EXPONENT FIELD WIDTH TO 4                     07 01815
001637 010423 A
001640 056174 A
                    1816         ZAB     XFL             SET FLAG TO BLANK OUT EXPONENT FIELD              07 01816
001641 005001 A
001642 056173 A
                    1817         MOVBAB  DEXP,IFW        LOAD INTEGER FIELD WIDTH                          07 01817
001643 016055 A
001644 056100 A
001645 001000 A     1818         JMP     DEF             PROCESS AS 'F' DESCRIPTOR                         07 01818
001646 000337 R
                    1819         EJEC                                                                      07 01819
                    1820 ***********************************************************************************  07 01820
                    1821 *                                                                                 * 07 01821
                    1822 *         P R O C E S S   H   D E S C R I P T O R ( H I D )                       * 07 01822
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                    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
001647 R            1839 HIN    EQU     *                                                                     07 01839
001647 R            1840 HOUT   EQU     *                                                                     07 01840
                    1842        TZAB    QFL,HI06        TEST IF H OR '...' DESCRIPTOR                         07 01842
001647 016150 A
001650 001010 A
001651 001710 R
                    1843 ********************                                                                07 01843
                    1844 * '...' SPECIFIER *                                                                07 01844
                    1845 ********************                                                                07 01845
001652 005311 A     1846        DAR                                                                         07 01846
001653 001010 A     1847        JAZ     HI02            QFL = 2 ?                                           07 01847
001654 001660 R
001655 056150 A     1848        STA     QFL,B           YES. SET QFL = 1                                    07 01848
001656 001000 A     1849        JMP     HI010            AND INPUT OVER 2ND QUOTE OF PAIR                   07 01849
001657 001720 R
                    1850 HI02   MOVBAB  AFSCB,ASCB      SET SCB TO FORMAT STRING                            07 01850
001660 016011 A
001661 056021 A
                    1851        PUSHJ   IOC             INPUT FORMAT CHARACTER                      V2      07 01851
001662 006010 A
001663 001754 R
001664 006505 A
001665 005042 R
001666 006451 A     1852        BT      ARST+QT,HI04        IS CHAR A QUOTE ?                               07 01852
001667 001705 R
                    1853        PUSHJ   IOC             YES. INPUT NEXT CHARACTER                   V2      07 01853
001670 006010 A
001671 001754 R
001672 006505 A
001673 005042 R
001674 006451 A     1854        BT      ARST+QT,FRS85 EXIT TO FORMAT SCAN ON SINGLE QUOTE                   07 01854
001675 001121 R
                    1855        DAB     FMPT            2 CONSECUTIVE QUOTES - BACK UP FORMAT PTR           07 01855
001676 016062 A
001677 005311 A
001700 056062 A
                    1856        TSAB    RWFL,WR,HI015   READ ?                                             07 01856
001701 016154 A
001702 006411 A
001703 001736 R
001704 046150 A     1857        INR     QFL,B           YES. SET QFL = 2                                    07 01857
                    1858 HI04   DAB     FMPT            BACK UP FORMAT POINTER                              07 01858
001705 016062 A
001706 005311 A
001707 056062 A
                    1859 ********************                                                                07 01859
                    1860 * NH.. SPECIFIER *                                                                07 01860
                    1861 ********************                                                                07 01861
                    1862 HI06   DAB     N               DECREMENT FIELD WIDTH N                             07 01862
001710 016125 A
001711 005311 A
001712 056125 A
001713 001004 A     1863        JAN     FRS5            EXIT WHEN FIELD EXHAUSTED                           07 01863
001714 000475 R
                    1864        TSAB    RWFL,WR,HI015                                               V2      07 01864
001715 016154 A
001716 006411 A
001717 001736 R
                    1865 *********                                                                          07 01865
                    1866 * INPUT *                                                                          07 01866
                    1867 *********                                                                          07 01867
                    1868 HI010  PUSHJ   IOC             INPUT BUFFER CHARACTER                      V2      07 01868
001720 006010 A
001721 000115 R
001722 006505 A
001723 005042 R
                    1869        MOVBAB  AFSCB,ASCB      SET SCB TO FORMAT STRING                            07 01869
001724 016011 A
001725 056021 A
                    1870        MOVBAB  BCHAR,FCHAR     MOVE CHAR FROM BUFFER SCB TO FORMAT SCB             07 01870
001726 016030 A
001727 056064 A
                    1871        PUSHJ   PCH             PUT CHARACTER IN FORMAT STRING              V2       07 01871
001730 006010 A
001731 003557 R
001732 006505 A
001733 005042 R
001734 001000 A     1872        JMP     HIN             PROCESS NEXT CHAR                                   07 01872
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001735 001647 R
                    1873 **********                                                                    07 01873
                    1874 * OUTPUT *                                                                    07 01874
                    1875 **********                                                                    07 01875
                    1876 HI015  MOVBAB  AFSCB,ASCB    SET SCB TO FORMAT STRING                         07 01876
001736 016011 A
001737 056021 A
                    1877        PUSHJ   ICC           INPUT FORMAT CHARACTER                    V2     07 01877
001740 006010 A
001741 001754 R
001742 006505 A
001743 005042 R
                    1878        MOVBAB  FCHAR,BCHAR   MOVE CHAR FROM FORMAT SCB TO BUFFER SCB          07 01878
001744 016064 A
001745 056030 A
                    1879        PUSHJ   OCB           OUTPUT FORMAT CHARACTER TO BUFFER          V2     07 01879
001746 006010 A
001747 002646 R
001750 006505 A
001751 005042 R
001752 001000 A 1880        JMP     HOUT          PROCESS NEXT CHAR                                    07 01880
001753 001647 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
001754 036021 A 1901 ICC     LDX     ASCB,B       POINT X AT SCB                                      07 01901
001755 015000 A 1902         LDA     0,X          GET CURRENT POINTER                                 07 01902
001756 045000 A 1903         INR     0,X          BUMP CURRENT POINTER                                07 01903
001757 007401 A 1904 SOF     SOF                                                                      07 01904
001760 004257 A 1905         LRLA    15           CONVERT BYTE TO WORD COUNT                          07 01905
001761 003004 A 1906         XAN     ROF          OVFL SET IF HIGH BYTE                               07 01906
001762 002351 R
001763 150460 A 1907         ANA     BR15         CLEAR SIGN BIT                                      07 01907
001764 125001 A 1908         ADD     1,X          ADD STRING START ADDRESS                            07 01908
001765 005014 A 1909         TAX                  POINT X AT WORD                                     07 01909
001766 015000 A 1910         LDA     0,X          GET WORD                                            07 01910
001767 003001 A 1911         XOF     LSRA8        RIGHT JUSTIFY BYTE                                  07 01911
001770 002053 R
001771 150463 A 1912         ANA     RHW          CLEAR HIGH BYTE                                     07 01912
001772 036021 A 1913         LDX     ASCB,B       POINT X AT SCB                                      07 01913
001773 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
001774 034011 A 1923         LDX     ICCCT                                                           07 01923
001775 005144 A 1924 ICCLP   IXR                  POINT X AT CLASSIFICATION TABLE                     07 01924
001776 145000 A 1925         SUB     0,X                                                             07 01925
001777 001002 A 1926         JAF     ICCLP                                                           07 01926
002000 001775 R
002001 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
002002 036021 A 1933         LDX     ASCB,B       POINT X AT SCB                                      07 01933
002003 055003 A 1934         STA     3,X          A = SCB(3) = CODE                                   07 01934
                    1935         POPJ                 EXIT                                       FG    07 01935
002004 001000 A
002005 004110 R
                    1936 ********************************                                            07 01936
                    1937 * CLASSIFICATION TABLE - CHARS *                                            07 01937
                    1938 ********************************                                            07 01938
002006 002006 R 1939 ICCCT   PZE     *                                                               07 01939
002007 000240 A 1940         DATA    0240         SPECIAL CHAR                                        07 01940
002010 000001 A 1941         DATA    0241-0240    BLANK                                               07 01941
002011 000006 A 1942         DATA    0247-0241    SPECIAL CHAR                                        07 01942
002012 000001 A 1943         DATA    0250-0247    ' QUOTE                                             07 01943
002013 000001 A 1944         DATA    0251-0250    '(' LEFT PAREN                                      07 01944
002014 000001 A 1945         DATA    0252-0251    ')' RIGHT PAREN                                     07 01945
002015 000001 A 1946         DATA    0253-0252    SPECIAL CHAR                                        07 01946
002016 000001 A 1947         DATA    0254-0253    '+' PLUS SIGN                                       07 01947
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002017 000001 A 1948          DATA    0255-0254       ',' COMMA                                07 01948
002020 000001 A 1949          DATA    0256-0255       '-' MINUS SIGN                           07 01949
002021 000001 A 1950          DATA    0257-0256       '.' PERIOD                               07 01950
002022 000001 A 1951          DATA    0260-0257       '/' SLASH                                07 01951
002023 000012 A 1952          DATA    0272-0260       NUMERIC                                  07 01952
002024 000007 A 1953          DATA    0301-0272       SPECIAL CHAR                             07 01953
002025 000017 A 1954          DATA    0320-0301       ALPHA                                    07 01954
002026 000001 A 1955          DATA    0321-0320       P                                        07 01955
002027 000012 A 1956          DATA    0333-0321       ALPHA                                    07 01956
002030 000045 A 1957          DATA    0400-0333       SPECIAL CHAR                             07 01957
                1959 ********************************                                       07 01959
                1960 * CLASSIFICATION TABLE - CODES *                                       07 01960
                1961 ********************************                                       07 01961
      002030 R  1962 ICCCT1 EQU     *-1                                                      07 01962
002031 000000 A 1963          DATA    0               SPECIAL CHAR                             07 01963
002032 000002 A 1964          DATA    2               BLANK                                    07 01964
002033 000000 A 1965          DATA    0               SPECIAL CHAR                             07 01965
002034 001000 A 1966          DATA    01000           ' QUOTE                                  07 01966
002035 000010 A 1967          DATA    010             '(' LEFT PAREN                           07 01967
002036 002000 A 1968          DATA    02000           ')' RIGHT PAREN                          07 01968
002037 000000 A 1969          DATA    0               SPECIAL CHAR                             07 01969
002040 000100 A 1970          DATA    0100            '+' PLUS SIGN                            07 01970
002041 000004 A 1971          DATA    4               ',' COMMA                                07 01971
002042 000020 A 1972          DATA    020             '-' MINUS SIGN                           07 01972
002043 000400 A 1973          DATA    0400            '.' PERIOD                               07 01973
002044 004000 A 1974          DATA    04000           '/' SLASH                                07 01974
002045 000040 A 1975          DATA    040             NUMERIC                                  07 01975
002046 000000 A 1976          DATA    0               SPECIAL CHAR                             07 01976
002047 000001 A 1977          DATA    1               ALPHA                                    07 01977
002050 000200 A 1978          DATA    0200            P                                        07 01978
002051 000001 A 1979          DATA    1               ALPHA                                    07 01979
002052 000000 A 1980          DATA    0               SPECIAL CHAR                             07 01980
002053 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 (IFF)         * 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
002054 005001 A
002055 056136 A
                1999 ********************                                                   07 01999
                2000 * INPUT/CONVERT LOOP *                                               07 02000
                2001 ********************                                               07 02001
                2002 IFFL     SUTBB   FCHAR,AZER,FCHAR  CONVERT ASCII DIGIT TO BINARY   V2 07 02002
002056 016064 A
002057 146177 A
002060 056064 A
002061 016126 A 2003          LDA     NFF,B           GET COUNTER                          07 02003
002062 006140 A 2004          SUBT    =277            TEST IF IT CAN BE MULTIPLIED BY 10   V2 07 02004
002063 006315 A
002064 001002 A 2005          JAP     ER1             ERROR 1/ NUMBER TOO LARGE /          07 02005
002065 005705 R
002066 016126 A 2006          LDA     NFF,B           RESTORE COUNTER IN A                 07 02006
002067 005024 A 2007          TBX                     SAVE BASE REGISTER IN X              07 02007
002070 004560 A 2008          LLSR    16                                                   07 02008
002071 160471 A 2009          MUL     TEN                                                  07 02009
002072 005021 A 2010          TBX                                                          07 02010
002073 005042 A 2011          TXB                     RESTORE BASE REGISTER B              07 02011
002074 007400 A 2012          ROF                     CLEAR OVFL                           07 02012
002075 126064 A 2013          ADD     FCHAR,B         ADD IN NEW DIGIT                     07 02013
002076 001001 A 2014          JOF     ER1             ERROR 1/ NUMBER TOO LARGE /          07 02014
002077 005705 R
002100 055126 A 2015          STA     NFF,X           UPDATE COUNTER                       07 02015
                2016 IFFL1    PUSHJ   TOC             INPUT NEXT FORMAT CHARACTER      V2  07 02016
002101 006010 A
002102 001754 R
002103 006505 A
002104 005042 R
002105 006405 A 2017          BT      ASET+NM,IFFL        LOOP ON NUMERIC                  07 02017
002106 002056 R
002107 006401 A 2018          BT      ASET+BL,IFFL1       IGNORE BLANKS                    07 02018
002110 002101 R
                2019          POPJ                    EXIT ON NON-NUMERIC              FG  07 02019
002111 001000 A
002112 004110 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 (INF)       * 07 02023
                2024 *                                                                      * 07 02024
                2025 * FUNCTION: TO SCAN THRU A FORMAT CHAR STRING TO A NON-BLANK          * 07 02025
                2026 *                                                                      * 07 02026
```

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                    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
002113 016011 A
002114 056021 A
                    2035 INFLP   PUSHJ   ICC            INPUT/CLASSIFY CHARACTER              V2    07 02035
002115 006010 A
002116 001754 R
002117 006505 A
002120 005042 R
002121 006401 A 2036         BT      ASET+BL,INFLP      LOOP TILL NON-BLANK INPUT                   07 02036
002122 002115 R
                    2037         POPJ                   EXIT                                  FG    07 02037
002123 001000 A
002124 004110 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 D 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 IDUT                                                * 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
002125 R            2058 IDUT    EQU     *                                                       07 02058
                    2060         MOVBAB  DEXP,COUNT                                              07 02060
002125 016055 A
002126 056052 A
                    2061         PUSHJ   RND            ROUND TO DEXP DIGITS                  V2    07 02061
002127 006010 A
002130 006032 R
002131 006505 A
002132 005042 R
                    2062         MOVBAB  DEXP,IFW       SET INTEGER COUNT TO DEXP                   07 02062
002133 016055 A
002134 056100 A
002135 001000 A 2063         JMP     DNF            OUTPUT NUMERIC FIELD                        07 02063
002136 002701 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
002137 005001 A
002140 056057 A
002141 056077 A 2090         STA     IDEXP,B        CLEAR IMPLICIT DECIMAL EXPONENT             07 02090
002142 056124 A 2091         STA     MDV,B          CLEAR MULTIPLY OVERFLOW FLAG                07 02091
002143 056175 A 2092         STA     XSG,B          CLEAR EXPONENT SIGN FLAG                    07 02092
002144 006010 A 2093         LDAI    60                                                   V2    07 02093
002145 000074 A
002146 056024 A 2094         STA     BEXP,B         BIAS ACC AS INTEGER ACCUMULATOR       V2    07 02094
                    2095 ************************************                                   07 02095
                    2096 * INPUT INTEGER AND FRACTIONAL PART *                                  07 02096
                    2097 ************************************                                   07 02097
002147 006010 A 2098         LDAI    0536           ENABLE BLANK/',','/'-'/NUMERIC/'+'/'.'  V2    07 02098
002150 000566 A
002151 056053 A 2099         STA     CVFL,B                                                     07 02099
                    2100 IXNL1   TZAB    WT,IXN50       EXIT IF FIELD EXHAUSTED                     07 02100
002152 016171 A
```

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002153 001010 A
002154 002342 R
                2101            PUSHJ   CBC             INPUT BUFFER CHARACTER                  V2  07 02101
002155 006010 A
002156 000115 R
002157 006505 A
002160 005042 R
002161 156053 A 2102            ANA     CVFL,B                                                      07 02102
002162 001010 A 2103            JAZ     ER3             ERROR 3/ ILLEGAL CHAR /                     07 02103
002163 005703 R
002164 016031 A 2104            LDA     RCODE,B         RELOAD CHARACTER CODE                       07 02104
002165 006402 A 2105            BT      ASET+CM,IXN50       STOP SCAN ON ','                        07 02105
002166 002342 R
002167 006409 A 2106            BT      ASET+AL,IXN15       TEST ALPHA                              07 02106
002170 002250 R
                2107 ************************                                                       07 02107
                2108 * PROCESS BLANK CHAR *                                                        07 02108
                2109 ************************                                                       07 02109
002171 006441 A 2110            BT      ARST+BL,IXN4        TEST FOR BLANK                          07 02110
002172 002177 R
                2111            MOVBAB  AZER,BCHAR      REPLACE ASCII BLANK WITH ASCII ZERO     V2  07 02111
002173 016177 A
002174 056030 A
002175 001000 R 2112            JMP     IXN10                                                       07 02112
002176 002237 R
002177 016053 A 2113 IXN4       LDA     CVFL,B          NON-BLANK INPUT                             07 02113
002200 150445 A 2114            ANA     BR4             DISABLE '-'                                 07 02114
002201 150447 A 2115            ANA     BR6             DISABLE '+'                                 07 02115
002202 056053 A 2116            STA     CVFL,B                                                      07 02116
                2117 ************************                                                       07 02117
                2118 * PROCESS '+' AND '-' *                                                       07 02118
                2119 ************************                                                       07 02119
002203 016031 A 2120            LDA     RCODE,B         RELOAD CHAR CODE                            07 02120
002204 006406 A 2121            BT      ASET+PL,IXN5        TEST '+'                                07 02121
002205 002216 R
002206 006444 A 2122            BT      ARST+MN,IXN6        TEST '-'                                07 02122
002207 002223 R
002210 016053 A 2123            LDA     CVFL,B                                                      07 02123
002211 006414 A 2124            BT      ASET+B12,IXN18      '-' IS EXPONENT IF BIT 12 SET           07 02124
002212 002306 R
002213 046157 A 2125            INR     SGFL,B          SET '-' FLAG                                07 02125
002214 001000 A 2126            JMP     IXNL1           CONTINUE SCAN                               07 02126
002215 002152 R
002216 016053 A 2127 IXN5       LDA     CVFL,B                                                      07 02127
002217 006414 A 2128            BT      ASET+B12,IXN18      '+' IS EXPONENT IF BIT 12 SET           07 02128
002220 002306 R
002221 001000 A 2129            JMP     IXNL1           CONTINUE SCAN                               07 02129
002222 002152 R
002223 006450 A 2130 IXN6       BT      ARST+PT,IXN9        TEST '.'                                07 02130
002224 002233 R
002225 046147 A 2131            INR     PTFL,B          '.' INPUT. SET FLAG                         07 02131
002226 016053 A 2132            LDA     CVFL,B                                                      07 02132
002227 150451 A 2133            ANA     BR9             DISABLE '.'                                 07 02133
002230 056053 A 2134            STA     CVFL,B                                                      07 02134
002231 001000 R 2135            JMP     IXNL1           CONTINUE SCAN                               07 02135
002232 002152 R
                2136 ************************                                                       07 02136
                2137 * PROCESS NUMERIC CHAR *                                                       07 02137
                2138 ************************                                                       07 02138
002233 016053 A 2139 IXN8       LDA     CVFL,B                                                      07 02139
002234 006110 A 2140            ORAI    B'0121          ENABLE ALPHA,+,-,EXPONENT SIGN          V2  07 02140
002235 010121 A
002236 056053 A 2141            STA     CVFL,B                                                      07 02141
002237 016030 A 2142 IXN10      LDA     BCHAR,B         GET INPUT NUMERIC CHAR                      07 02142
002240 146177 A 2143            SUB     AZER,B          CONVERT ASCII DIGIT TO BINARY           V2  07 02143
002241 056166 A 2144            STA     TERM,B                                                      07 02144
                2145            PUSHJ   MPY             ACC = ACC*10 + TERM                     V2  07 02145
002242 006010 A
002243 002530 R
002244 006505 A
002245 005042 R
002246 001000 A 2146            JMP     IXNL1           CONTINUE SCAN                               07 02146
002247 002152 R
                2147 ************************                                                       07 02147
                2148 * ALPHA CHAR INPUT *                                                          07 02148
                2149 ************************                                                       07 02149
002250 016030 A 2150 IXN15      LDA     BCHAR,B                                                     07 02150
002251 006140 A 2151            SUBI    B'0'                                                    V2  07 02151
002252 000304 A
002253 001004 A 2152            JAN     ER3             ERROR 3/ NOT 'D' OR 'E' /                   07 02152
002254 005703 R
002255 140422 A 2153            SUB     TWO                                                         07 02153
002256 001002 A 2154            JAP     ER3             ERROR 3/ NOT 'D' OR 'E' /                   07 02154
002257 005703 R
                2155 ************************                                                       07 02155
                2156 * PROCESS EXPONENT FIELD *                                                    07 02156
                2157 ************************                                                       07 02157
002260 006010 A 2158            LDAI    B'0100'                                                 V2  07 02158
002261 000166 A
002262 056053 A 2159            STA     CVFL,B          ENABLE BLANK/'+'/'-'/','/NUMERIC        V2  07 02159
                2160 IXNL2      TZOB    BT,IXN30        EXIT IF FIELD EXHAUSTED                     07 02160
002263 016171 A
002264 001010 A
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002265 002340 R
                2161            PUSHJ   CBC             INPUT BUFFER CHARACTER                  V2  07 02161
002266 006010 A
002267 000115 R
002270 006505 A
002271 005042 R
002272 156053 A 2162            ANA     CVFL,B                                                      07 02162
002273 001010 A 2163            JAZ     ER3             ERROR 3/ ILLEGAL CHAR /                     07 02163
002274 005703 R
002275 016031 A 2164            LDA     BCODE,B         RELOAD CHARACTER CODE                       07 02164
002276 006402 A 2165            BT      ASET+CM,IXN30       STOP SCAN ON ','                        07 02165
002277 002340 R
002300 006441 A 2166            BT      ARST+BL,IXN20       TEST FOR BLANK                          07 02166
002301 002311 R
                2167            MOVBAB  AZER,BCHAR      REPLACE BLANK WITH ZERO                 V2  07 02167
002302 016177 A
002303 056030 A
002304 001000 A 2168            JMP     IXN25                                                       07 02168
002305 002325 R
002306 006010 A 2169 IXN18      LDAI    0166                                                    V2  07 02169
002307 000166 A
002310 056053 A 2170            STA     CVFL,B          ENABLE BLANK/NUMERIC                    V2  07 02170
002311 016053 A 2171 IXN20      LDA     CVFL,B          NON-BLANK INPUT                             07 02171
002312 150445 A 2172            ANA     BR4             DISABLE '-'                                 07 02172
002313 150447 A 2173            ANA     BR6             DISABLE '+'                                 07 02173
002314 056053 A 2174            STA     CVFL,B                                                      07 02174
                2175 ************************************                                        07 02175
                2176 * PROCESS EXPONENT '+' OR '-' *                                             07 02176
                2177 ************************************                                        07 02177
002315 016031 A 2178            LDA     BCODE,B         RELOAD BUFFER CHARACTER CODE                07 02178
002316 006406 A 2179            BT      ASET+PL,IXNL2       CONTINUE SCAN ON '+'                    07 02179
002317 002263 R
002320 006444 A 2180            BT      ARST+MN,IXN25       TEST FOR '-'                            07 02180
002321 002325 R
002322 046175 A 2181            INR     XSG,B           SET '-' EXPONENT SIGN FLAG                  07 02181
002323 001000 A 2182            JMP     IXNL2           CONTINUE SCAN                               07 02182
002324 002263 R
                2183 ************************************                                        07 02183
                2184 * PROCESS NUMERIC EXPONENT DIGIT *                                         07 02184
                2185 ************************************                                        07 02185
002325 016030 A 2186 IXN25      LDA     BCHAR,B         GET ASCII DIGIT                             07 02186
002326 146177 A 2187            SUB     AZER,B          CONVERT TO BINARY                       V2  07 02187
002327 005024 A 2188            TBX                     SAVE BASE REGISTER SETTING IN X             07 02188
002330 025057 A 2189            LDB     EDEXP,X                                                     07 02189
002331 160471 A 2190            MUL     TEN                                                         07 02190
002332 065057 A 2191            STB     EDEXP,X         UPDATE EXPLICIT DECIMAL EXPONENT            07 02191
002333 005042 A 2192            TXB                     RESTORE BASE REGISTER B                     07 02192
002334 001016 A 2193            JANZ    ER3             ERROR 3/ EXPONENT TOO LARGE /               07 02193
002335 005703 R
002336 001000 A 2194            JMP     IXNL2           CONTINUE SCAN                               07 02194
002337 002263 R
                2195 IXN30      ZAB     SCF             DISABLE SCALE FACTOR IF EXTERNAL EXPONENT   07 02195
002340 005001 A
002341 056156 A
                2196 ************************************                                        07 02196
                2197 * CONVERT TO STANDARD FORM *                                               07 02197
                2198 ************************************                                        07 02198
002342 036001 A 2199 IXN50      LDX     AACC,B          POINT X AT ACC                              07 02199
002343 015000 A 2200            LDA     0,X                                                         07 02200
002344 115001 A 2201            ORA     1,X                                                         07 02201
002345 115002 A 2202            ORA     2,X                                                         07 02202
002346 115003 A 2203            ORA     3,X                                                         07 02203
002347 001010 A 2204            JAZ     IXN57           EXIT IF ACC=0                           FG  07 02204
002350 002407 R
002351 007400 A 2205 ROF        ROF                                                                 07 02205
                2206            TZAB    XSG,IXN52       IS EXPONENT SIGN FLAG SET ?             V2  07 02206
002352 016175 A
002353 001010 A
002354 002360 R
002355 005001 A 2207            TZA                     YES                                         07 02207
002356 146057 A 2208            SUB     EDEXP,B         NEGATE EXPLICIT DECIMAL EXPONENT            07 02208
002357 056057 A 2209            STA     EDEXP,B                                                     07 02209
                2210 IXN52      TNZAB   PTFL,IXN53      HAS A '.' BEEN INPUT ?                  V2  07 02210
002360 016147 A
002361 001016 A
002362 002366 R
                2211            SUTBBB  IDEXP,D,IDEXP       NO. DECREMENT EXPONENT BY D             07 02211
002363 016077 A
002364 146054 A
002365 056077 A
                2212 IXN53      TZAB    SCF,IXN55       IS SCALE FACTOR ENABLED ?               V2  07 02212
002366 016156 A
002367 001010 A
002370 002373 R
002371 005001 A 2213            TZA                     YES                                         07 02213
002372 146155 A 2214            SUB     S,B                                                         07 02214
002373 126077 A 2215 IXN55      ADD     IDEXP,B         ADD IMPLICIT DECIMAL EXPONENT           V2  07 02215
002374 126057 A 2216            ADD     EDEXP,B         ADD EXPLICIT DECIMAL EXPONENT               07 02216
002375 056055 A 2217            STA     DEXP,B          STORE IN DEXP                               07 02217
002376 001001 A 2218            JOF     ER3             ERROR 3/ EXPONENT TOO LARGE /               07 02218
002377 005703 R
                2219 IXNL3      PUSHJ   NRM             NORMALIZE ACC                           V2  07 02219
002400 006010 A
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002401 002575 R
002402 006505 A
002403 005042 R
                2220            TNZAB   DEXP,IXN58                                                      FG 07 02220
002404 016055 A
002405 001016 A
002406 002411 R
                2221 IXN57      PDPJ                    EXIT WHEN DEXP=0                                FG 07 02221
002407 001000 A
002410 004110 R
002411 001002 A 2222 IXN58      JAP     IXN60           TEST SIGN OF DEXP                               FG 07 02222
002412 002422 R
                2223 ***************************
                2224 * NEGATIVE DECIMAL EXPONENT *                                                        07 02223
                2225 ***************************                                                        07 02224
                2226            PUSHJ   D10             ACC = ACC/10                                    07 02225
002413 006010 A                                                                                 V2      07 02226
002414 000316 R
002415 006505 A
002416 005042 R
002417 046055 A 2227            IMP     DEXP,B          BUMP DEXP                                       07 02227
002420 001000 A 2228            JMP     IXNL3           CONTINUE CONVERSION                             07 02228
002421 002400 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
002422 010423 A
002423 056052 A
002424 126024 A 2233            ADD     BEXP,B          BUMP BINARY EXPONENT                            07 02233
002425 056024 A 2234            STA     BEXP,B                                                          07 02234
                2235            PUSHJ   SHA             SHIFT ACC RIGHT 4                       V2      07 02235
002426 006010 A
002427 006213 R
002430 006505 A
002431 005042 R
                2236            PUSHJ   M10             ACC = ACC*10                            V2      07 02236
002432 006010 A
002433 002530 R
002434 006505 A
002435 005042 R
                2237            DAB     DEXP            DROP DEXP                                       07 02237
002436 016055 A
002437 005311 A
002440 056055 A
002441 001000 A 2238            JMP     IXNL3           CONTINUE CONVERSION                             07 02238
002442 002400 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
002443 016171 A
002444 001010 A
002445 005703 R
                2259            PUSHJ   CBC             INPUT BUFFER CHARACTER                  V2      07 02259
002446 006010 A
002447 000115 R
002450 006505 A
002451 005042 R
002452 006401 A 2260            BT      ASET+BL,LIN     SLEW THRU BLANKS                                07 02260
002453 002443 R
002454 036113 A 2261            LDX     ITEMAD,B        POINT X AT LIST ITEM                            07 02261
002455 005301 A 2262            DECR    1                                                               07 02262
002456 055000 A 2263            STA     0,X             SET LIST ITEM TO .TRUE. (-1)                    07 02263
002457 016030 A 2264            LDA     BCHCR,B         GET INPUT CHAR                                  07 02264
002460 006140 A 2265            SUBI    'F'+4                                                   V2      07 02265
002461 000324 A
002462 001010 A 2266            JAZ     LINX            EXIT TO FORMAT SCAN IF 'T'                      07 02266
002463 002471 R
002464 045000 A 2267            INR     0,0             SET LIST ITEM TO .FALSE. (0)                    07 02267
002465 006120 A 2268            ADDI    016             TEST FOR 'F'                            V2      07 02268
002466 000016 A
002467 001016 A 2269            JANZ    CRC             ERROR 3/ 1ST CHAR NOT 'T' OR 'F' /              07 02269
002470 005703 R
                2270 LINX       MOVBAB  WT,COUNT        LOAD REMAINING FIELD WIDTH AS REPEAT COUNT      07 02270
002471 016171 A
002472 056052 A
                2271            PUSHJ   RCH             GOBBLE REST OF FIELD                    V2      07 02271
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002473 006010 A
002474 005411 R
002475 006505 A
002476 005042 R
002477 001000 A 2272          JMP     FRS65          EXIT TO FORMAT SCAN                                  07 02272
002500 001100 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
002501 016202 A
002502 056030 A
                2292          DABB    WT,COUNT          SET COUNT TO WT-1                             07 02292
002503 016171 A
002504 005311 A
002505 056052 A
                2293          PUSHJ   RCH               OUTPUT WT-1 LEADING BLANKS            V2      07 02293
002506 006010 A
002507 005411 R
002510 006505 A
002511 005042 R
002512 006010 A 2294          LDAI    0306                                                    V2      07 02294
002513 000306 A
002514 056030 A 2295          STA     BCHAR,B           LOAD 'F' AS OUTPUT CHARACTER          V2      07 02295
002515 036113 A 2296          LDX     ITEMAD,B          POINT X AT LIST ITEM                          07 02296
                2297          TZAX    0,LOU4            TEST LIST ITEM = 0 (FALSE)                    07 02297
002516 015000 A
002517 001010 A
002520 002524 R
002521 006010 A 2298          LDAI    0324              SET OUTPUT CHAR TO 'T' IF NOT         V2      07 02298
002522 000324 A
002523 056030 A 2299          STA     BCHAR,B                                                 V2      07 02299
                2300 LOU4     PUSHJ   OCB               OUTPUT 'T' OR 'F'/EXIT                V2      07 02300
002524 006010 A
002525 002646 R
002526 006505 A
002527 005042 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
002530 005024 A 2320 M10      IBX                       LOAD X AS BASE REGISTER                       07 02320
002531 015003 A 2321          LDA     ACC,X                                                           07 02321
002532 006140 A 2322          SUBI    8276                                                    V2      07 02322
002533 006314 A
002534 001004 A 2323          JAN     M104              CAN ACC BE MULTIPLIED BY 10 ?                 07 02323
002535 002547 R
002536 015124 A 2324          LDA     MOV,X             NO                                            07 02324
002537 001016 A 2325          JANZ    M104              MULTIPLY ANYWAY IF MOV SET                    07 02325
002540 002547 R
002541 015147 A 2326          LDA     PTFL,X                                                          07 02326
002542 001016 A 2327          JANZ    M10X              EXIT IF '.' PASSED                    FG      07 02327
002543 002573 R
002544 045077 A 2328          INR     IDEXP,X           OTHERWISE BUMP IMPLICIT DECIMAL EXPONENT      07 02328
                2329          POPJ                       AND EXIT                             FG      07 02329
002545 001000 A
002546 004110 R
002547 015166 A 2330 M104     LDA     TERM,X            LOAD I                                        07 02330
002550 025006 A 2331          LDB     ACC+3,X                                                         07 02331
002551 160471 A 2332          MUL     TEN               ACC(3)=ACC(3)*10 + I                          07 02332
002552 065006 A 2333          STB     ACC+3,X                                                         07 02333
002553 025005 A 2334          LDB     ACC+2,X                                                         07 02334
002554 160471 A 2335          MUL     TEN               ACC(2)=ACC(2)*10 + OVFL(3)                    07 02335
002555 065005 A 2336          STB     ACC+2,X                                                         07 02336
002556 025004 A 2337          LDB     ACC+1,X                                                         07 02337
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002557 160471 A 2338          MUL     TEN             ACC(1)=ACC(1)*10 + OVFL(2                    07 02338
002560 065004 A 2339          STB     ACC+1,X                                                      07 02339
002561 025003 A 2340          LDB     ACC,X                                                        07 02340
002562 160471 A 2341          MUL     TEN             ACC(0)=ACC(0)*10 + OVFL(1)                   07 02341
002563 065003 A 2342          STB     ACC,X                                                        07 02342
002564 005042 A 2343          TXB                     RESTORE BASE REGISTER B                      07 02343
002565 036147 A 2344          LDX     PTFL,B                                                       07 02344
002566 001040 A 2345          JXZ     M10X            HAS A '.' BEEN PASSED ?                  FG  07 02345
002567 002573 R
002570 036077 A 2346          LDX     IDEXP,B         YES
002571 005344 A 2347          DXR                     DECREMENT IMPLICIT DECIMAL EXPONENT          07 02347
002572 076077 A 2348          STX     IDEXP,B                                                      07 02348
               2349 M10X      POPJ                    EXIT                                     FG  07 02349
002573 001000 A
002574 004110 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
002575 005024 A 2364 NRM      TBX                     LOAD X AS BASE REGISTER                      07 02364
002576 015003 A 2365 NRML     LDA     ACC,X                                                        07 02365
002577 004241 A 2366          LRLA    1                                                            07 02366
002600 001004 A 2367          JAM     NRMX            EXIT WHEN NORMALIZED                         07 02367
002601 002643 R
002602 001016 A 2368          JANZ    NRM4            ACC(0) = 0 ?                                 07 02368
002603 002621 R
               2369           MOVXAX  ACC+1,ACC       YES. SHIFT 1 WORD                            07 02369
002604 015004 A
002605 055003 A
               2370           MOVXAX  ACC+2,ACC+1                                                  07 02370
002606 015005 A
002607 055004 A
               2371           MOVXAX  ACC+3,ACC+2                                                  07 02371
002610 015006 A
002611 055005 A
               2372           ZAX     ACC+3                                                        07 02372
002612 005001 A
002613 055006 A
002614 016024 A 2373          LDA     BEXP,B                                                       07 02373
002615 140472 A 2374          SUB     D15                                                          07 02374
002616 056024 A 2375          STS     BEXP,B                                                       07 02375
002617 001006 A 2376          JMP     NRML                                                         07 02376
002620 002576 R
002621 015003 A 2377 NRM4     LDA     ACC,X                                                        07 02377
002622 025004 A 2378          LDB     ACC+1,X                                                      07 02378
002623 004401 A 2379          LASL    1                                                            07 02379
002624 055003 A 2380          STA     ACC,X           SHIFT ACC(0) LEFT 1                          07 02380
002625 015004 A 2381          LDA     ACC+1,X                                                      07 02381
002626 025005 A 2382          LDB     ACC+2,X                                                      07 02382
002627 004401 A 2383          LASL    1                                                            07 02383
002630 055004 A 2384          STA     ACC+1,X         SHIFT ACC(1) LEFT 1                          07 02384
002631 015005 A 2385          LDA     ACC+2,X                                                      07 02385
002632 025006 A 2386          LDB     ACC+3,X                                                      07 02386
002633 004401 A 2387          LASL    1                                                            07 02387
002634 055005 A 2388          STA     ACC+2,X         SHIFT ACC(2) LEFT 1                          07 02388
002635 065006 A 2389          STB     ACC+3,X         SHIFT ACC(3) LEFT 1                          07 02389
002636 015024 A 2390          LDA     BEXP,X                                                       07 02390
002637 005311 A 2391          DAP                     DECREMENT BINARY EXPONENT BEXP               07 02391
002640 055024 A 2392          STA     BEXP,X                                                       07 02392
002641 001000 A 2393          JMP     NRML            CONTINUE NORMALIZE LOOP                      07 02393
002642 002576 R
002643 005042 A 2394 NRMX     TXB                     RESTORE BASE REGISTER B                      07 02394
               2395           POPJ                    EXIT                                     FG  07 02395
002644 001000 A
002645 004110 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: $CHAR = 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
002646 016022 A
002647 001010 A
002650 002660 R
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002651 016171 A 2413          LDA     WT,B            YES                                          07 02413
002652 005311 A 2414          DAR                                                                  07 02414
002653 001016 A 2415          JANZ    OCB4            WT = 1 ?                                     07 02415
002654 002660 R
002655 006010 A 2416          LDAI    0252                                                 V2      07 02416
002656 000252 A
002657 056030 A 2417          STA     BCHAR,B         YES. LOAD '*' AS OUTPUT CHARACTER    V2      07 02417
               2418 OCB4      PUSHJ   CBC             OUTPUT CHAR TO BUFFER                V2      07 02418
002660 006010 A
002661 000115 R
002662 006505 A
002663 005042 R
               2419           TZAB    WT,OCB6         FIELD EXHAUSTED ?                            FG 07 02419
002664 016171 A
002665 001010 A
002666 002671 R
               2420           POPJ                    NO. RETURN                                   FG 07 02420
002667 001000 A
002670 004110 R
               2421 OCB6      MOVBAB  OPSTK,OPSTKP    YES. CLEAR STACK                             FG 07 02421
002671 016017 A
002672 056000 A
002673 016061 A 2422          LDA     FDLKEY,B                                                     07 02422
002674 140424 A 2423          SUB     EIGHT                                                        07 02423
002675 001002 A 2424          JAP     FRS5            SCAN FOR NEXT FORMAT CHAR ON H/X             07 02424
002676 000475 R
002677 001000 A 2425          JMP     FRS65           RETURN TO FORMAT SCAN                        07 02425
002700 001100 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 OCB                                                        * 07 02451
               2452 *                                                                               * 07 02452
               2453 ********************************************************************************* 07 02453
               2455 ************************                                                       07 02455
               2456 * OUTPUT LEADING BLANKS *                                                       07 02456
               2457 ************************                                                       07 02457
002701 016171 A 2458 ONF      LDA     WT,B            GET FIELD WIDTH                              07 02458
002702 126157 A 2459          ADD     SGFL,B          SUBTRACT '-'                                 07 02459
002703 146100 A 2460          SUB     IFW,B           SUBTRACT WIDTH OF INTEGER FIELD              07 02460
002704 146147 A 2461          SUB     PTFL,B          SUBTRACT SPACE FOR '.'                       07 02461
002705 146056 A 2462          SUB     DT,B            SUBTRACT WIDTH OF FRACTIONAL FIELD           07 02462
002706 146174 A 2463          SUB     XFW,B           SUBTRACT WIDTH OF EXPONENT FIELD             07 02463
002707 056052 A 2464          STA     COUNT,B         STORE LEADING BLANK COUNT                    07 02464
002710 001002 A 2465          JAP     ONF5            TEST FOR FIELD OVERFLOW                      07 02465
002711 002731 R
               2466 ********************                                                           07 02466
               2467 * FIELD OVERFLOW *                                                           07 02467
               2468 ********************                                                           07 02468
002712 005311 A 2469          DAR                     ALLOW 1 SPACE FOR '*'                        07 02469
002713 056022 A 2470          STA     ASFL,B          SET '*' FLAG                                 07 02470
002714 126056 A 2471          ADD     DT,B                                                         07 02471
002715 056056 A 2472          STA     DT,B            REDUCE FRACTIONAL FIELD                      07 02472
002716 001002 A 2473          JAP     ONF5            DOES FIELD STILL OVERFLOW ?                  07 02473
002717 002731 R
002720 005004 A 2474          TZX                     YES                                          07 02474
002721 076056 A 2475          STX     DT,B            SET FRACTIONAL FIELD WIDTH = 0               07 02475
002722 126147 A 2476          ADD     PTFL,B          DELETE '.'                                   07 02476
002723 076147 A 2477          STX     PTFL,B                                                       07 02477
002724 126100 A 2478          ADD     IFW,B                                                        07 02478
002725 056100 A 2479          STA     IFW,B           REDUCE INTEGER FIELD WIDTH                   07 02479
002726 001002 A 2480          JAP     ONF5            DOES FIELD STILL OVERFLOW ?                  07 02480
002727 002731 R
002730 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
002731 016202 A
002732 056030 A
               2483           PUSHJ   RCH             OUTPUT COUNT BLANKS                  V2      07 02483
002733 006010 A
002734 005411 R
002735 006505 A
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002736 005042 R
                    2484 ****************                                                    07 02484
                    2485 * OUTPUT SIGN *                                                   07 02485
                    2486 ****************                                                   07 02486
                    2487          TZAB    SGFL,DNF20    DONT OUTPUT '+' SIGN               07 02487
002737 016157 A
002740 001010 A
002741 002751 R
002742 006010 A 2488          LDAI    0255                                          V2    07 02488
002743 000255 A
002744 056030 A 2489          STA     2CHAR,B                                       V2    07 02489
                    2490          PUSHJ   DCB           OUTPUT '-'                      V2 07 02490
002745 006010 A
002746 002646 R
002747 006505 A
002750 005042 R
                    2491 ************************                                            07 02491
                    2492 * OUTPUT INTEGER FIELD *                                         07 02492
                    2493 ************************                                         07 02493
                    2494 DNF20    MOVBAB  JFW,COUNT     LOAD LOOP COUNT                 07 02494
002751 016100 A
002752 056052 A
                    2495          MOVBAB  ACHB,CHBPT    INITIALIZE CHB ARRAY POINTER    07 02495
002753 016007 A
002754 056050 A
002755 016052 A 2496 UNFL1    LDA     COUNT,B                                             07 02496
002756 005311 A 2497          DAR                   DECREMENT COUNT                     07 02497
002757 001004 A 2498          JAN     DNF30         EXIT WHEN FINISHED                  07 02498
002760 003006 R
002761 056052 A 2499          STA     COUNT,B                                           07 02499
002762 036050 A 2500          LDX     CHBPT,B                                           07 02500
002763 046050 A 2501          INR     CHBPT,B       BUMP CHB POINTER                    07 02501
002764 015000 A 2502          LDA     0,X           GET DIGIT                           07 02502
002765 126177 A 2503          ADI     A2F8,B        CONVERT TO ASCII                V2  07 02503
002766 056030 A 2504          STA     BCHAR,B                                           07 02504
                    2505          PUSHJ   DCB           OUTPUT CHARACTER TO BUFFER      V2 07 02505
002767 006010 A
002770 002646 R
002771 006505 A
002772 005042 R
002773 016050 A 2506          LDA     CHBPT,B                                           07 02506
002774 146007 A 2507          SUB     ACHB,B                                            07 02507
002775 146200 A 2508          SUB     BB14,B                                        V2  07 02508
002776 001004 A 2509          JAN     DNFL1                                             07 02509
002777 002755 R
                    2510          MOVBAB  FZFR,BCHAR    LOAD '0' AS REPEAT CHARACTER    V2 07 02510
003000 016177 A
003001 056030 A
                    2511          PUSHJ   RCH           OUTPUT '0' FILL                 V2 07 02511
003002 006010 A
003003 005411 R
003004 006505 A
003005 005042 R
                    2512 ****************                                                07 02512
                    2513 * OUTPUT '.' *                                                 07 02513
                    2514 ****************                                               07 02514
                    2515 DNF30    TZAB    PIFL,DNF40    SKIP IF NO '.'                  07 02515
003006 016147 A
003007 001010 A
003010 003064 R
003011 006010 A 2516          LDAI    0256                                          V2  07 02516
003012 000256 A
003013 056030 A 2517          STA     BCHAR,B       LOAD '.' AS OUTPUT CHARACTER    V2 07 02517
                    2518          PUSHJ   DCB           OUTPUT '.'                      V2 07 02518
003014 006010 A
003015 002646 R
003016 006505 A
003017 005042 R
                    2519 ************************************************                07 02519
                    2520 * OUTPUT LEADING ZEROS IN FRACTIONAL FIELD *                    07 02520
                    2521 ************************************************               07 02521
                    2522          MOVBAB  JFW,COUNT     LOAD LEADING ZERO COUNT         07 02522
003020 016176 A
003021 056052 A
                    2523          MOVBAB  AZER,BCHAR    LOAD '0' AS REPEAT CHARACTER    V2 07 02523
003022 016177 A
003023 056030 A
                    2524          PUSHJ   RCH           OUTPUT LEADING ZEROS            V2 07 02524
003024 006010 A
003025 005411 R
003026 006505 A
003027 005042 R
                    2525 ************************                                        07 02525
                    2526 * OUTPUT FRACTIONAL PART *                                     07 02526
                    2527 ************************                                       07 02527
                    2528          SUTBBB  DT,ZFW,COUNT        LOAD COUNTER            07 02528
003030 016056 A
003031 146176 A
003032 056052 A
003033 016052 A 2529 DNFL2    LDA     COUNT,B                                           07 02529
003034 005311 A 2530          DAR                   DECREMENT COUNT                   07 02530
003035 001004 A 2531          JAN     DNF40         EXIT WHEN FINISHED                07 02531
003036 003064 R
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003037 056052 A 2532          STA     COUNT,B                                                    07 02532
003040 036050 A 2533          LDX     CHBPT,B         POINT X AT DIGIT                           07 02533
003041 046050 A 2534          INR     CHBPT,B         BUMP CHB POINTER                           07 02534
003042 015000 A 2535          LDA     0,X             GET DIGIT                                  07 02535
003043 126177 A 2536          ADD     AZER,B          CONVERT TO ASCII                  V2       07 02536
003044 056030 A 2537          STA     BCHAR,B                                                    07 02537
               2538          PUSHJ   OCB             OUTPUT CHAR TO BUFFER             V2       07 02538
003045 006010 A
003046 002646 R
003047 006505 A
003050 005042 R
003051 016050 A 2539          LDA     CHBPT,B                                                    07 02539
003052 146007 A 2540          SUB     ACHB,B                                                     07 02540
003053 146200 A 2541          SUB     BD14,B                                            V2       07 02541
003054 001004 A 2542          JAN     ONFL2                                                      07 02542
003055 003033 R
               2543          MOVBAB  AZER,BCHAR      LOAD '0' AS REPEAT CHARACTER      V2       07 02543
003056 016177 A
003057 056030 A
               2544          PUSHJ   RCH             OUTPUT '0' FILL                   V2       07 02544
003060 006010 A
003061 005411 R
003062 006505 A
003063 005042 R
               2545 ONF40    TNZAB   XFL,ONF50       TEST EXPONENT FLAG                V2       07 02545
003064 016173 A
003065 001016 A
003066 003077 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
003067 010423 A
003070 056052 A
               2550          MOVBAB  BLNK1,BCHAR                                       V2       07 02550
003071 016202 A
003072 056030 A
               2551          PUSHJ   RCH             OUTPUT 4 BLANKS AND EXIT          V2       07 02551
003073 006010 A
003074 005411 R
003075 006505 A
003076 005042 R
               2552 ************************                                                   07 02552
               2553 * OUTPUT EXPONENT FIELD *                                                 07 02553
               2554 ************************                                                   07 02554
003077 006010 A 2555 ONF50    LDAI    0303                                              V2       07 02555
003100 000303 A
003101 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
003102 016061 A
003103 001016 A
003104 003110 R
               2558          DAB     BCHAR           YES. LOAD 'D'                     V2       07 02558
003105 016030 A
003106 005311 A
003107 056030 A
               2559 ONF52    PUSHJ   OCB             OUTPUT 'D' OR 'E'                 V2       07 02559
003110 006010 A
003111 002646 R
003112 006505 A
003113 005042 R
               2560          MOVBAB  BLNK1,BCHAR     LOAD BLANK FOR PLUS               V2       07 02560
003114 016202 A
003115 056030 A
               2561          TPAB    DEXP,ONF55      IS EXPONENT NEGATIVE ?                     07 02561
003116 016055 A
003117 001002 A
003120 003127 R
003121 005211 A 2562          CPA                     YES                                        07 02562
003122 005111 A 2563          IAR                     CONVERT TO ABS                             07 02563
003123 056055 A 2564          STA     DEXP,B                                                     07 02564
003124 006010 A 2565          LDAI    0255                                              V2       07 02565
003125 000255 A
003126 056030 A 2566          STA     BCHAR,B         LOAD '-'                          V2       07 02566
               2567 ONF55     PUSHJ   OCB             OUTPUT EXPONENT SIGN              V2       07 02567
003127 006010 A
003130 002646 R
003131 006505 A
003132 005042 R
003133 005024 A 2568          TDX                     LOAD X AS BASE REGISTER                    07 02568
003134 005001 A 2569          TZA                                                                07 02569
003135 025055 A 2570          LDB     DEXP,X          GET EXPONENT                               07 02570
003136 170471 A 2571          DIV     TEN             GET DECIMAL DIGITS                         07 02571
003137 053055 A 2572          STA     DEXP,X                                                     07 02572
003140 005021 A 2573          TBA                     GET TENS DIGIT IN A                        07 02573
003141 005042 A 2574          TXB                     RESTORE BASE REGISTER B                    07 02574
003142 126177 A 2575          ADD     AZER,B          CONVERT TO ASCII                  V2       07 02575
003143 056030 A 2576          STA     BCHAR,B                                                    07 02576
               2577          PUSHJ   OCB             OUTPUT TENS DIGIT OF EXPONENT     V2       07 02577
003144 006010 A
003145 002646 R
003146 006505 A
003147 005042 R
```

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003150 016055 A 2578          LDA     DEXP,B          RESTORE UNITS DIGIT                              07 02578
003151 126177 A 2579          ADD     AZER,B          CONVERT TO ASCII                          V2     07 02579
003152 056030 A 2580          STA     BCHAR,B                                                          07 02580
                2581 ONF60    PUSHJ   OCB             OUTPUT UNITS DIGIT/ '*' / EXIT            V2     07 02581
003153 006010 A
003154 002640 R
003155 006505 A
003156 005042 R
003157 001006 A 2582          JMP     ONF60                                                            07 02582
003160 003153 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 RND 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(3) = 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
003161 016164 A 2629 OPN      LDA     TEMP,B          GET OP                                           V2    07 02629
003162 006140 A 2630          SUBI    OOPV            BIAS IT                                          V2    07 02630
003163 000016 A
003164 001010 A 2631          JAZ     *+3             LOGICAL FILE ?                                   V2    07 02631
003165 003167 R
003166 010422 A 2632          LDA     LFS             YES. SET FLAG                                    V2    07 02632
003167 110427 A 2633          ORA     INS             SET INITIALIZE FLAG                              V2    07 02633
003170 056154 A 2634          STA     RWFL,B          STORE FLAG WORD                                  V2    07 02634
003171 036016 A 2635          LDX     ANRB,B          POINT X AT V$FORTID DATA BLOCK                         07 02635
                2636          MOVXAB  SYSBF,SAVE+3        STORE =$BUF AS BUFFER ADDRESS                      07 02636
003172 015162 A
003173 056035 A
                2637 ********************************************************************************* 07 02637
                2638 * MOVE PARAMETERS FROM CALL SEQ TO DATA BLOCK *                                  07 02638
                2639 ********************************************************************************* 07 02639
003174 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
003175 015005 A
003176 056032 A
                2642          MOVXAB  6,SAVE+6        MOVE ADDRESS OF FCB ARRAY                 V2     07 02642
003177 015006 A
003200 056040 A
                2643          MOVXAB  7,SAVE+1        MOVE ADDRESS OF OPEN MODE PARAMETER              07 02643
003201 015007 A
003202 056033 A
                2644          TRAB    RWFL,LF,OPN4    LOGICAL FILE ?                            V2     07 02644
003203 016154 A
003204 006441 A
003205 003214 R
                2645          MOVXAB  8,SAVE+2        YES. MOVE ADDRESS OF LOGICAL RECORD SIZE         07 02645
003206 015010 A
003207 056034 A
                2646          MOVXAB  9,SAVE+3        MOVE BUFFER ADDRESS                              07 02646
003210 015011 A
003211 056035 A
                2647          MOVXAB  10,SAVE+4       SAVE ADDRESS OF READ BEFORE WRITE FLAG           07 02647
003212 015012 A
003213 056036 A
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                    2648 **********************                                                    07 02648
                    2649 * PROCESS PARAMETERS *                                                    07 02649
                    2650 **********************                                                    07 02650
          003214 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
003214 016014 A
003215 001010 A
003216 003225 R
003217 016040 A 2657         LDA     SAVE+6,B                                                     D.1 07 02657
003220 006505 A 2658         JSR     TBK,X        TEST FCB IN BACKGROUND                          V2 07 02658
003221 006262 R
003222 126200 A 2659         ADD     BD14,B                                                       V2 07 02659
003223 006505 A 2660         JSR     TBK,X                                                        V2 07 02660
003224 006262 R
          003225 R  2661 OPN5    EQU     *                                                       E.1 07 02661
                    2662 VII1    CONT                                                             FG 07 02662
                    2663 NUC1    CONT                                                             FG 07 02663
003225 036032 A 2664         LDX     SAVE,B       GET ADDRESS OF LOGICAL UNIT NUMBER L            V2 07 02664
                    2665         MOVXAB  0,SAVE       GET L                                           07 02665
003226 015000 A
003227 056032 A
                    2666         PUSHJ   PRU          PROCESS UNIT NUMBERS U,L                    V2 07 02666
003230 006010 A
003231 004216 R
003232 006505 A
003233 005042 R
003234 036033 A 2667         LDX     SAVE+1,B     POINT X AT OPEN MODE M(REWIND,LEAVE)            07 02667
003235 015000 A 2668         LDA     0,X          GET M                                           07 02668
003236 001010 A 2669         JAZ     *+3                                                          07 02669
003237 003241 R
003240 010435 A 2670         LDA     BS12         SET LEAVE BIT                                   07 02670
003241 116032 A 2671         ORA     SAVE,B       MERGE IN L                                      07 02671
003242 006110 A 2672         ORAI    03000        MERGE IN SKELETON OF IOC OPEN CONT WD       V2  07 02672
003243 003000 A
003244 036016 A 2673         LDX     ANRB,B       POINT X AT V$FORTIO                             07 02673
003245 055104 A 2674         STA     IOCONT,X     STORE I/O CONTROL WORD IN V$FORTIO              07 02674
                    2675         MOVBAB  SAVE+6,ADFCB GET FCB ADDRESS                         V2  07 02675
003246 016040 A
003247 056010 A
003250 055010 A 2676         STA     ADFCB,X      ALSO IN V$FORTIO                            V2  07 02676
003251 005014 A 2677         TAX                  POINT X AT FCB                                  07 02677
                    2678         MOVBAX  BD120,0      SET FCB(0) = 120 WORDS                  V2  07 02678
003252 016201 A
003253 055000 A
                    2679         MOVBAX  SAVE+3,1     LOAD BUFFER ADDRESS INTO FCB(1)             07 02679
003254 016035 A
003255 055001 A
003256 015002 A 2680         LDA     2,X          GET KEY WORD                                    07 02680
003257 150463 A 2681         ANA     RHW          CLEAR UPPER BYTE                                07 02681
003260 006110 A 2682         ORAI    01400        SET MODE TO SEQUENTIAL                      V2  07 02682
003261 001400 A
003262 055002 A 2683         STA     2,X                                                          07 02683
                    2684 **********************                                                   07 02684
                    2685 * MAKE IOC OPEN CALL *                                                   07 02685
                    2686 **********************                                                   07 02686
003263 010464 A 2687         LDA     CIO                                                      V2  07 02687
003264 006505 A 2688         JSR     PSJ,X        CALL V$FORTIO TO DO IOC OPEN                V2  07 02688
003265 005042 R
                    2689 **********************                                                   07 02689
                    2690 * LINK FCB ON CHAIN *                                                   07 02690
                    2691 **********************                                                   07 02691
003266 036146 A 2692         LDX     PRLINK,B     POINT X AT LAST LINK OF FCB CHAIN               07 02692
                    2693         MOVBAX  ADFCB,10     LINK FCB ON CHAIN                           07 02693
003267 016010 A
003270 055012 A
003271 036016 A 2694         LDX     ANRB,B       POINT X AT V$FORTIO DATA BLOCK                  07 02694
003272 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
003273 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
003274 016167 A
003275 055013 A
003276 016154 A 2701         LDA     RWFL,B       GET FLAG WORD                               V2  07 02701
003277 150447 A 2702         ANA     INR          CLEAR INITIALIZE FLAG                       V2  07 02702
003300 004254 A 2703         LRLA    SH           POSITION                                    V2  07 02703
003301 116032 A 2704         ORA     SAVE,B       MERGE IN LOGICAL UNIT NUMBER L              V2  07 02704
003302 055014 A 2705         STA     12,X         STORE IN FCB(12)                            V2  07 02705
003303 006455 A 2706         BT      ARST+FLF,OPN30       TEST IF LOGICAL FILE                V2  07 02706
003304 003344 R
                    2707 ************************************                                     07 02707
                    2708 * PROCESS LOGICAL FILE PARAMETERS *                                     07 02708
                    2709 ************************************                                     07 02709
003305 036034 A 2710         LDX     SAVE+2,B                                                     07 02710
                    2711         MOVXAB  0,SAVE+2     SAVE LOGICAL RECORD SIZE                    07 02711
003306 015000 A
003307 056034 A
003310 036010 A 2712         LDX     ADFCB,B      POINT X AT FCB                                  07 02712
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003311 055000 A 2713          STA     0,X             STORE LOGICAL RECORD SIZE IN FCB(0)          07 02713
               2714          TRAB    RWFL,RM,OPN30       EXIT IF NOT RMD                  V2    07 02714
003312 016154 A
003313 006440 A
003314 003344 R
003315 036036 A 2715          LDX     SAVE+4,B        POINT X AT ADDR OF READ BEFORE WRITE FLAG    07 02715
003316 015000 A 2716          LDA     0,X             GET FLAG                                     07 02716
003317 001010 A 2717          JAZ     *+3                                                          07 02717
003320 003322 R
003321 010440 A 2718          LDA     FRBS            SET READ BEFORE WRITE FLAG           V2      07 02718
003322 036010 A 2719          LDX     ADFCB,B         POINT X AT FCB                               07 02719
003323 115014 A 2720          ORA     12,X            MERGE WITH L                                 07 02720
003324 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
003325 005001 A
003326 055015 A
003327 015003 A 2723          LDA     3,X             GET CURRENT RECNO                            07 02723
003330 005311 A 2724          DAR                     CHANGE FROM BASE 1 TO BASE 0                 07 02724
003331 001010 A 2725          JAZ     OPN30           EXIT IF AT START OF FILE                     07 02725
003332 003344 R
               2726 ********************************************************                     07 02726
               2727 * CONVERT PHYSICAL RECNO TO LOGICAL RECNO IN FCB(3) *                        07 02727
               2728 ********************************************************                     07 02728
003333 005024 A 2729          TBX                     SAVE BASE REGISTER IN X                      07 02729
003334 004560 A 2730          LLSR    16                                                           07 02730
003335 165201 A 2731          MUL     BD120,X                                              V2      07 02731
003336 175034 A 2732          DIV     SAVE+2,X        CONVERT PHYSICAL POSITION TO LOGICAL         07 02732
003337 005021 A 2733          TBA                                                                  07 02733
003340 005042 A 2734          TXB                     RESTORE BASE REGISTER B                      07 02734
003341 036010 A 2735          LDX     ADFCB,B         POINT X AT FCB                               07 02735
003342 005111 A 2736          IAR                     CHANGE FROM BASE 0 TO BASE 1                 07 02736
003343 055003 A 2737          STA     3,X             STORE LOGICAL RECORD POSITION IN FCB(3)      07 02737
003344 010422 A 2738 OPN30    LDA     OEX                                                          07 02738
               2739          PUSHF                   PUSH EXIT OP ONTO VSFORTIO STACK             07 02739
003345 036016 A
003346 035000 A
003347 005344 A
003350 055000 A
003351 005041 A
003352 036016 A
003353 055000 A
003354 001000 A 2740          JMP     CAN             EXIT TO VSFORTIO                             07 02740
003355 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 VSFORTIO 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
003356 016164 A
003357 140467 A
003360 056033 A
               2764          ZAB     RWFL            CLEAR FLAG WORD                              07 02764
003361 005001 A
003362 056154 A
               2765          PUSHJ   PRU             PROCESS FORTRAN UNIT NUMBER U        V2      07 02765
003363 006010 A
003364 004216 R
003365 006505 A
003366 005042 R
               2766          TRAB    RWFL,RM,PAX50       TEST IF RMD                      V2      07 02766
003367 016154 A
003370 006440 A
003371 003517 R
               2767 ************                                                                   07 02767
               2768 * U IS RMD *                                                                  07 02768
               2769 ************                                                                   07 02769
               2770          TZAB    SAVE+1,PAX10    BACKSPACE                                    07 02770
003372 016033 A
003373 001010 A
003374 003402 R
003375 005311 A 2771          DAR                     NO                                           07 02771
003376 001010 A 2772          JAZ     PAX15           ENDFILE ?                                    07 02772
003377 003416 R
003400 001000 A 2773          JMP     PAX30           NO. REWIND                                   07 02773
003401 003503 R
               2774 ****************                                                               07 02774
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                    2775 * BACKSPACE RMD *                                                          07 02775
                    2776 ******************                                                         07 02776
                    2777 PAX10   TSAB    RWFL,GF,PAX50      CALL V$IOC BACKSPACE IF GLOBAL FCBV2    07 02777
003402 016154 A
003403 006407 A
003404 003517 R
                    2778 ************************************************                           07 02778
                    2779 * BACKSPACE BY SETTING FCB(3) = FCB(3)-1 *                                 07 02779
                    2780 ************************************************                           07 02780
003405 036010 A     2781         LDX     ADFCB,B        POINT X AT FCB                             07 02781
                    2782         DAX     3              DECREMENT CURRENT RECORD NUMBER IN FCB(3)  07 02782
003406 015003 A
003407 005311 A
003410 055003 A
003411 005311 A     2783         DAR                                                               07 02783
003412 001004 A     2784         JAN     PAX30          DO REWIND IF FCB(3).LT.1                   07 02784
003413 003503 R
003414 001000 A     2785         JMP     PAX70          EXIT                                       07 02785
003415 003527 R
                    2786 ****************                                                           07 02786
                    2787 * ENDFILE RMD *                                                           07 02787
                    2788 ****************                                                           07 02788
                    2789 PAX15   TRAB    RWFL,PD,PAX16  POST BIT SET ?                        V2    07 02789
003416 016154 A
003417 006442 A
003420 003425 R
                    2790         PUSHJ   PSB            YES. POST BUFFER                     V2    07 02790
003421 006010 A
003422 005011 R
003423 006505 A
003424 005042 R
003425 006010 A     2791 PAX16   LDAI    013400         GET SKELETON CLOSE/UPDATE CONTROL WD  V2    07 02791
003426 013400 A
003427 116167 A     2792         ORA     UNIT,B         MERGE IN LOGICAL UNIT NUMBER               07 02792
003430 036016 A     2793         LDX     ANRB,B         POINT X AT V$FORTIO DATA BLOCK             07 02793
003431 055104 A     2794         STA     IOCONT,X       STORE IOC CONTROL WORD IN V$FORTIO         07 02794
003432 016154 A     2795         LDA     RWFL,B                                                    07 02795
003433 006441 A     2796         BT      ARST+LF,PAX20      LOGICAL FILE ?                         07 02796
003434 003456 R
003435 036010 A     2797         LDX     ADFCB,B        YES. POINT X AT FCB                        07 02797
                    2798         MOVBAX  BD120,0        SET RECORD SIZE FCB(0) = 120 WORDS    V2    07 02798
003436 016201 A
003437 055000 A
003440 016121 A     2799         LDA     LRECNO,B                                                  07 02799
003441 005311 A     2800         DAR                    CONVERT FROM BASE 1 TO BASE 0              07 02800
003442 005024 A     2801         TBX                    SAVE BASE REGISTER IN X                    07 02801
003443 004560 A     2802         LLSR    16                                                        07 02802
003444 165122 A     2803         MUL     LRSZ,X         GET WORD COUNT                             07 02803
003445 175201 A     2804         DIV     BD120,X        CONVERT TO 120-WORD PHYSICAL REC CNT  V2    07 02804
003446 001010 A     2805         JAZ     *+3                                                       07 02805
003447 003451 R
003450 005122 A     2806         IBR                    BUMP 1 FOR PARTIAL RECORD                  07 02806
003451 005122 A     2807         IBR                    BUMP 1 TO CONVERT TO BASE 1                07 02807
003452 005021 A     2808         TBA                                                               07 02808
003453 005042 A     2809         TXB                    RESTORE BASE REGISTER B                    07 02809
003454 036010 A     2810         LDX     ADFCB,B        POINT X AT FCB                             07 02810
003455 055003 A     2811         STA     3,X            STORE CURRENT PHYSICAL RECNO IN FCB(3)     07 02811
003456 010464 A     2812 PAX20   LDA     CIO                                                   V2    07 02812
003457 006505 A     2813         JSR     PSJ,X          CALL V$IOC FOR CLOSE/UPDATE           V2    07 02813
003460 005042 R
003461 006010 A     2814         LDAI    013000         GET IOC OPEN/LEAVE SKELETON CONTROL WD V2    07 02814
003462 013000 A
003463 116167 A     2815         ORA     UNIT,B         MERGE IN LOGICAL UNIT NUMBER               07 02815
003464 036016 A     2816         LDX     ANRB,B         POINT X AT V$FORTIO                        07 02816
003465 055104 A     2817         STA     IOCONT,X       STORE IOC CONTROL WORD IN V$FORTIO         07 02817
003466 010464 A     2818         LDA     CIO                                                   V2    07 02818
003467 006505 A     2819         JSR     PSJ,X          CALL V$IOC FOR OPEN/LEAVE             V2    07 02819
003470 005042 R
                    2820         TRAB    RWFL,LF,PAX70      EXIT IF NOT LOGICAL FILE          V2    07 02820
003471 016154 A
003472 006441 A
003473 003527 R
003474 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
003475 016122 A
003476 055000 A
                    2823         MOVBAX  LRECNO,3       RESTORE CURR LOG RECORD NUMBER IN FCB(3)   07 02823
003477 016121 A
003500 055003 A
003501 001006 A     2824         JMP     PAX70          EXIT                                       07 02824
003502 003527 R
                    2825 ****************                                                           07 02825
                    2826 * REWIND RMD *                                                           07 02826
                    2827 ****************                                                           07 02827
                    2828 PAX30   TRAB    RWFL,GF,PAX33      GLOBAL FCB ?                      V2    07 02828
003503 016154 A
003504 006447 A
003505 003512 R
003506 006010 A     2829         LDAI    03000          YES. CALL V$IOC OPEN/REWIND           V2    07 02829
003507 003000 A
003510 001000 A     2830         JMP     PAX55                                                     07 02830
003511 003522 R
003512 036010 A     2831 PAX33   LDX     ADFCB,B        POINT X AT FCB                             07 02831
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003513 005101 A 2832          INCR    1
003514 055003 A 2833          STA     3,X             SET CURRENT RECORD NUMBER TO 1
003515 001000 A 2834          JMP     PAX70           EXIT
003516 003527 R
                2835 **************************
                2836 * CALL V$IOC TO DO OP *
                2837 **************************
003517 036033 A 2838 PAX50    LDX     SAVE+1,B        GET BIASED OP IN X
                2839          IFF     NUC
                2840          GOTO    NV2NUC
                2841          IFT     VII
                2842          OME     MAP,V$ST0       SET EXEC STATE TO 00
                2843 NV2NUC   CONT
003520 006015 A 2844          LDAE    PAXTAB,X        GET IOC CONTROL WORD MODEL
003521 003554 R
                2845          IFF     NUC
                2846          GOTO    NV2NUC
                2847          IFT     VII
                2848          OME     MAP,V$ST3       SET EXEC STATE TO NN
                2849 NV2NUC   CONT
003522 116167 A 2850 PAX55    ORA     UNIT,B          MERGE IN LOGICAL UNIT NUMBER
003523 036016 A 2851          LDX     ANRB,B
003524 055104 A 2852          STA     IOCONT,X        STORE AS IOC CONTROL WORD
003525 007400 A 2853          ROF
003526 001006 A 2854          DATA    01006
003527 007401 A 2855 PAX70    SOF
003530 010422 A 2856          LDA     CEX
                2857          PUSHF                   PUSH EXIT OP
003531 036016 A
003532 035000 A
003533 005344 A
003534 055000 A
003535 005041 A
003536 036016 A
003537 055000 A
003540 001001 A 2858          JOF     CAN             EXIT IF DONE
003541 000101 R
003542 010464 A 2859          LDA     CIO
                2860          PUSHF                   PUSH I/O OP
003543 036016 A
003544 035000 A
003545 005344 A
003546 055000 A
003547 005041 A
003550 036016 A
003551 055000 A
003552 001000 A 2861          JMP     CAN             EXIT
003553 000101 R
                2862 ********************************
                2863 * AUXILIARY I/O CONTROL WORD TABLE *
                2864 ********************************
003554 012000 A 2865 PAXTAB   DATA    012000          BACKSPACE
003555 001000 A 2866          DATA    01000           WRITE EOF
003556 001400 A 2867          DATA    01400           REWIND
                2868          EJCC
                2869 ********************************************************************************
                2870 *                                                                              *
                2871 *                    P U T   C H A R A C T E R ( P C H )                        *
                2872 *                                                                              *
                2873 * FUNCTION: TO STORE A CHARACTER                                               *
                2874 *                                                                              *
                2875 * ENTRY: ASCB = ADDRESS OF STRING CONTROL BLOCK SCB                            *
                2876 *                                                                              *
                2877 *                SCB(0): CURRENT CHARACTER COUNTER                             *
                2878 *                SCB(1): STRING START ADDRESS                                  *
                2879 *                SCB(2): CHARACTER TO BE STORED                                *
                2880 *                                                                              *
                2881 * EXIT : SCB(0) = SCB(0)+1                                                     *
                2882 *                                                                              *
                2883 ********************************************************************************
003557 036021 A 2885 PCH      LDX     ASCB,B          POINT X AT SCB
                2886          MOVXAB  2,TEMP          SAVE CHAR
003560 015002 A
003561 056164 A
003562 015000 A 2887          LDA     0,X             GET CURRENT POINTER
003563 045000 A 2888          INR     0,X             BUMP CURRENT POINTER
003564 007401 A 2889          SOF
003565 004257 A 2890          LRLA    15              CONVERT BYTE TO WORD COUNT
003566 003004 A 2891          XAN     ROF             OVFL SET IF HIGH BYTE
003567 002351 R
003570 150460 A 2892          ANA     BR15            CLEAR SIGN BIT
003571 125001 A 2893          ADD     1,X             ADD STRING START ADDRESS
003572 005014 A 2894          TAX                     POINT X AT WORD
003573 015000 A 2895          LDA     0,X             GET WORD
003574 001007 A 2896          JOFN    *+4             HIGH BYTE ?
003575 003600 R
003576 007401 A 2897          SOF                     YES
003577 004250 A 2898 LRLA8    LRLA    8               SWAP BYTES
003600 150462 A 2899          ANA     LHW             CLEAR UNWANTED BYTE
003601 116164 A 2900          ORA     TEMP,B          MERGE IN NEW CHARACTER
003602 003001 A 2901          XOF     LRLA8           SWAP BYTES IF HIGH BYTE
003603 003577 R
003604 055000 A 2902          STA     0,X             STORE IN MEMORY
```

```
                    2903          POPJ                  EXIT                                                    FG 07 02903
003605 001000 A
003606 004110 R
                    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 *                 $RDE.D                                                         *       07 02913
                    2914 *                 $REW.D                                                         *       07 02914
                    2915 *                 $RFW.D                                                         *       07 02915
                    2916 *                 $RGW.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
          003607 R  2937 DIN     EQU      *                                                                       07 02937
          003607 R  2938 EIN     EQU      *                                                                       07 02938
          003607 R  2939 FIN     EQU      *                                                                       07 02939
          003607 R  2940 GIN     EQU      *                                                                       07 02940
          003607 R  2941 IIN     EQU      *                                                                       07 02941
                    2943 ********************                                                                   07 02943
                    2944 * TEST FOR ZERO *                                                                     07 02944
                    2945 ********************                                                                   07 02945
003607 007401 A     2946          SOF                                                                           07 02946
003610 016004 A     2947          LDA      ACC+1,B                                                              07 02947
003611 116005 A     2948          ORA      ACC+2,B                                                              07 02948
003612 116006 A     2949          ORA      ACC+3,B                                                              07 02949
003613 003010 A     2950          XAZ      SOF              OVFL RESET IF ACC(1)=ACC(2)=ACC(3)=0                07 02950
003614 002351 R
003615 116003 A     2951          ORA      ACC,B                                                                07 02951
003616 001010 A     2952          JAZ      PNI50            EXIT IF ACC=0                                       07 02952
003617 004012 R
003620 016116 A     2953          LDA      ITMODE,B                                                             07 02953
003621 140422 A     2954          SUB      =W0                                                                  07 02954
003622 001002 A     2955          JAP      PNI4             TEST INTEGER LIST ITEM                              07 02955
003623 003672 R
                    2956 ************************                                                              07 02956
                    2957 * INTEGER LIST ITEM *                                                                07 02957
                    2958 ************************                                                              07 02958
003624 001001 A     2959          JDF      ER3              ERROR 3/ NOT INTEGER /                              07 02959
003625 005703 R
003626 016024 A     2960          LDA      BEXP,B           GET BINARY EXPONENT                                 07 02960
003627 005311 A     2961          DAR                                                                           07 02961
003630 001004 A     2962          JAN      ER3              ERROR 3/ NOT INTEGER /                              07 02962
003631 005703 R
003632 140472 A     2963          SUB      D13                                                                  07 02963
003633 001002 A     2964          JAP      ER3              ERROR 3/ NOT INTEGER /                              07 02964
003634 005703 R
                    2965          MOVBAB   ACC,TEMP         SAVE LEFT-JUSTIFIED INTEGER                         07 02965
003635 016003 A
003636 056164 A
                    2966          ZAB      ACC              CLEAR ACCUMULATOR ACC                               07 02966
003637 005001 A
003640 056003 A
                    2967 ************************                                                              07 02967
                    2968 * INTEGER SHIFT LOOP *                                                               07 02968
                    2969 ************************                                                              07 02969
003641 005024 A     2970          TBX                       USE X AS BASE REGISTER                              07 02970
                    2971 PNIL1    DAX      BEXP             DECREMENT BINARY EXPONENT                           07 02971
003642 015024 A
003643 005311 A
003644 055024 A
003645 001004 A     2972          JAN      PNIL1X           EXIT ON FINISH                                      07 02972
003646 003656 R
003647 015003 A     2973          LDA      ACC,X                                                                07 02973
003650 025164 A     2974          LDB      TEMP,X                                                               07 02974
003651 004401 A     2975          LASL     1                SHIFT INTEGER INTO ACC                              07 02975
003652 055003 A     2976          STA      ACC,X                                                                07 02976
003653 065164 A     2977          STB      TEMP,X                                                               07 02977
003654 001000 A     2978          JMP      PNIL1            CONTINUE TILL DONE                                  07 02978
003655 003642 R
003656 001026 A     2979 PNIL1X   JBNZ     ER3              ERROR 3/ NOT INTEGER /                        V2    07 02979
003657 005703 R
```

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003660 005042 A 2980          TXB                                RESTORE BASE REGISTER B                    V2  07 02980
                2981          TZAB      SGFL,PNI50               IS SIGN NEGATIVE ?                             07 02981
003661 016157 A
003662 001010 A
003663 004012 R
003664 016003 A 2982          LDA       ACC,B                    YES                                            07 02982
003665 005211 A 2983          CPA                                NEGATE INTEGER                                 07 02980
003666 005111 A 2984          IAR                                                                               07 02984
003667 056003 A 2985          STA       ACC,B                                                                   07 02985
003670 001000 A 2986          JMP       PNI50                                                                   07 02986
003671 004012 R
003672 130464 A 2987 PNI4     ERA       THREE                                                                   07 02987
003673 001010 A 2988          JAZ       PNI60                    D.P. INTEGER                                   07 02988
003674 004035 R
003675 140422 A 2989          SUB       TWO                                                                     07 02989
003676 001010 A 2990          JAZ       PNI8                     D.P.                                           07 02990
003677 003734 R
                2991 **********************                                                                    07 02991
                2992 * CONSTRUCT REAL *                                                                        07 02992
                2993 **********************                                                                    07 02993
003700 016004 A 2994          LDA       ACC+1,B                  GET 2ND MANTISSA WORD                          07 02994
003701 120430 A 2995          ADD       BS7                      ROUND UPWARD                                   07 02995
003702 007400 A 2996          ROF                                                                               07 02996
003703 001002 A 2997          JAP       *+4                      OVERFLOW ?                                     07 02997
003704 003707 R
003705 005001 A 2998          TZA                                YES. CLEAR WORD                                07 02998
003706 046003 A 2999          INR       ACC,B                    BUMP WORD 0                                    07 02999
003707 056004 A 3000          STA       ACC+1,B                                                                 07 03000
003710 001007 A 3001          JOFN      *+5                      OVERFLOW ?                                     07 03001
003711 003715 R
003712 046024 A 3002          INR       BEXP,B                   YES. BUMP BINARY EXPONENT                      07 03002
                3003          MOVPAB    BS14,ACC                 SHIFT FIELD                                    07 03003
003713 010437 A
003714 056003 A
003715 005024 A 3004          TBX                                LOAD X AS BASE REGISTER                        07 03004
003716 015024 A 3005          LDA       BEXP,X                   GET BINARY EXPONENT IN A                       07 03005
003717 120430 A 3006          ADD       BXBIAS                   ADD BINARY EXPONENT BIAS ,                 V2  07 03006
003720 025003 A 3007          LDB       ACC,X                    GET HIGH WORD OF MANTISSA IN B                 07 03007
003721 004407 A 3008          LASL      7                        POSITION AB TO MAKE 1ST WORD OF REAL           07 03008
003722 055164 A 3009          STA       TEMP,X                   SAVE 1ST WORD OF REAL                          07 03009
003723 015003 A 3010          LDA       ACC,X                    GET 1ST MANTISSA WORD IN A                     07 03010
003724 025004 A 3011          LDB       ACC+1,X                  GET 2ND MANTISSA WORD IN B                     07 03011
003725 004407 A 3012          LASL      7                        POSITION AS 2ND WORD OF REAL                   07 03012
003726 055004 A 3013          STA       ACC+1,X                  STORE IN ACC                                   07 03013
003727 005042 A 3014          TXB                                RESTORE BASE REGISTER B                        07 03014
                3015          MOVBAB    TEMP,ACC                 LOAD 1ST WORD OF REAL INTO ACC(0)              07 03015
003730 016164 A
003731 056003 A
003732 001000 A 3016          JMP       PNI19                                                                   07 03016
003733 003775 R
                3017 ******************************                                                            07 03017
                3018 * CONSTRUCT DOUBLE PRECISION *                                                            07 03018
                3019 ******************************                                                            07 03019
003734 016006 A 3020 PNI8     LDA       ACC+3,B                                                                 07 03020
003735 004241 A 3021          LRLA      1                                                                       07 03021
003736 001002 A 3022          JAP       PNI18                    OVERFLOW ?                                     07 03022
003737 003763 R
003740 046005 A 3023          INR       ACC+2,B                  YES. BUMP WORD 2                               07 03023
003741 016005 A 3024          LDA       ACC+2,B                  GET WORD                                       07 03024
003742 001002 A 3025          JAP       PNI18                    OVERFLOW ?                                     07 03025
003743 003763 R
003744 046004 A 3026          INR       ACC+1,B                  YES. BUMP WORD 1                               07 03026
003745 005001 A 3027          TZA                                                                               07 03027
003746 056005 A 3028          STA       ACC+2,B                  CLEAR WORD 2                                   07 03028
003747 016004 A 3029          LDA       ACC+1,B                  GET WORD 1                                     07 03029
003750 001002 A 3030          JAP       PNI18                    OVERFLOW ?                                     07 03030
003751 003763 R
003752 046003 A 3031          INR       ACC,B                    YES. BUMP WORD 0                               07 03031
003753 005001 A 3032          TZA                                                                               07 03032
003754 056004 A 3033          STA       ACC+1,B                  CLEAR WORD 1                                   07 03033
003755 016003 A 3034          LDA       ACC,B                    GET WORD 0                                     07 03034
003756 001002 A 3035          JAP       PNI18                    OVERFLOW ?                                     07 03035
003757 003763 R
003760 046024 A 3036          INR       BEXP,B                   YES. BUMP BINARY EXPONENT                      07 03036
003761 010437 A 3037          LDA       BS14                     AND SHIFT OVERFLOW BIT                         07 03037
003762 056003 A 3038          STA       ACC,B                    STORE WORD 0                                   07 03038
                3039 PNI18    MOVBAB    ACC+2,ACC+3              SHIFT FIELD                                    07 03039
003763 016005 A
003764 056006 A
                3040          MOVBAB    ACC+1,ACC+2                                                             07 03040
003765 016004 A
003766 056005 A
                3041          MOVBAB    ACC,ACC+1                                                               07 03041
003767 016003 A
003770 056004 A
003771 016024 A 3042          LDA       BEXP,B                   GET BINARY EXPONENT                            07 03042
003772 120430 A 3043          ADD       BXBIAS                   ADD BINARY EXPONENT BIAS                   V2  07 03043
003773 056003 A 3044          STA       ACC,B                    STORE IN WORD 0                                07 03044
003774 005124 A 3045          INCR      024                      POINT X AT BASE+1                              07 03045
003775 016157 A 3046 PNI19    LDA       SGFL,B                                                                  07 03046
003776 001010 A 3047          JAZ       PNI20                    IS SIGN FLAG SET ?                             07 03047
003777 004003 R
004000 015003 A 3048          LDA       ACC,X                    YES                                            07 03048
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004001 005211 A 3049          CPA                     NEGATE NUMBER                                    07 03049
004002 055003 A 3050          STA       ACC,X                                                          07 03050
                3051 **********************                                                           07 03051
                3052 * CHECK EXPONENT RANGE *                                                          07 03052
                3053 **********************                                                           07 03053
004003 016024 A 3054 PNI20    LDA       BEXP,B        GET BINARY EXPONENT                              07 03054
004004 120430 A 3055          ADD       =XDIAS        ADD BINARY EXPONENT BIAS                   V2    07 03055
004005 001004 A 3056          JAN       ER3           ERROR 3/ UNDERFLOW /                             07 03056
004006 005703 R
004007 150462 A 3057          ANA       LHW                                                            07 03057
004010 001016 A 3058          JANZ      ER3           ERROR 3/ OVERFLOW /                              07 03058
004011 005703 R
                3059 ********************                                                             07 03059
                3060 * LOAD LIST ITEM *                                                              07 03060
                3061 ********************                                                             07 03061
                3062 PNI50    ZAB       COUNT         CLEAR COUNTER                                    07 03062
004012 005001 A
004013 056052 A
                3063          MOVBAB    AACC,TEMP     INITIALIZE ACC POINTER                           07 03063
004014 016001 A
004015 056164 A
                3064          MOVBAB    ITEMAD,BEXP   INITIALIZE LIST ITEM POINTER                     07 03064
004016 016113 A
004017 056024 A
004020 036164 A 3065 PNIL2    LDX       TEMP,B        POINT X AT ACC                                   07 03065
004021 015000 A 3066          LDA       0,X           GET WORD                                         07 03066
004022 036024 A 3067          LDX       BEXP,B        POINT X AT LIST ITEM                             07 03067
004023 055000 A 3068          STA       0,X           STORE DATA IN LIST ITEM                          07 03068
004024 046164 A 3069          INR       TEMP,B        BUMP ACC POINTER                                 07 03069
004025 046024 A 3070          INR       BEXP,B        BUMP LIST ITEM POINTER                           07 03070
004026 046052 A 3071          INR       COUNT,B       BUMP LOOP COUNT                                  07 03071
004027 016052 A 3072          LDA       COUNT,B                                                        07 03072
004030 146102 A 3073          SUB       =IIWSZ,B                                                       07 03073
004031 001004 A 3074          JAN       PNIL2         LOOP TILL ITEM FILLED                            07 03074
004032 004020 R
004033 001000 A 3075          JMP       FRS65         EXIT TO FRS                                      07 03075
004034 001100 R
                3077 *        PROCESS DOUBLE PRECISION INTEGER                                     *   07 03077
004035 016005 A 3078 PNI60    LDA       ACC+2,B                                                        07 03078
004036 116006 A 3079          ORA       ACC+3,B                                                        07 03079
004037 001016 A 3080          JANZ      ER3           NOT INTEGER                                      07 03080
004040 005703 R
004041 016024 A 3081          LDA       BEXP,B                                                         07 03081
004042 005311 A 3082          DAR                                                                      07 03082
004043 001004 A 3083          JAN       ER3           NOT INTEGER                                      07 03083
004044 005703 R
004045 006140 A 3084          SUBI      30                                                             07 03084
004046 000036 A
004047 001002 A 3085          JAP       ER3           NOT INTEGER                                      07 03085
004050 005703 R
004051 005024 A 3086          TBX                                                                      07 03086
004052 005111 A 3087 PNI62    IAR                     POSITION VALUE                                   07 03087
004053 001002 A 3088          JAP       PNI64         DONE                                             07 03088
004054 004066 R
004055 055024 A 3089          STA       BEXP,X                                                         07 03089
004056 015003 A 3090          LDA       ACC,X                                                          07 03090
004057 025004 A 3091          LDB       ACC+1,X                                                        07 03091
004060 004501 A 3092          LASR      1                                                              07 03092
004061 055003 A 3093          STA       ACC,X                                                          07 03093
004062 065004 A 3094          STB       ACC+1,X                                                        07 03094
004063 015024 A 3095          LDA       BEXP,X                                                         07 03095
004064 001000 A 3096          JMP       PNI62                                                          07 03096
004065 004052 R
004066 005042 A 3097 PNI64    TXB                     RESTORE BASE REGISTER B                          07 03097
                3098          TZAB      SGFL,PNI50    POSITIVE SIGN                                    07 03098
004067 016157 A
004070 001010 A
004071 004012 R
004072 015004 A 3099          LDA       ACC+1,X       NEGATE VALUE                                     07 03099
004073 025003 A 3100          LDB       ACC,X                                                          07 03100
004074 005211 A 3101          CPA                                                                      07 03101
004075 005282 A 3102          CPB                                                                      07 03102
004076 005111 A 3103          IAR                                                                      07 03103
004077 001002 A 3104          JAP       PNI66                                                          07 03104
004100 004103 R
004101 130440 A 3105          ERA       =X15                                                           07 03105
004102 005122 A 3106          IBR                                                                      07 03106
004103 055004 A 3107 PNI66    STA       ACC+1,X                                                        07 03107
004104 065003 A 3108          STB       ACC,X                                                          07 03108
004105 005042 A 3109          TXB                                                                      07 03109
004106 001000 A 3110          JMP       PNI50                                                          07 03110
004107 004012 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
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                    3122 *                                                                                  *  07  03122
                    3123 ******************************************************************************** 07  03123
004110  036000  A 3125 POJ     LDX     OPSTKP,B        POINT X AT OP                                          07  03125
004111  035000  A 3126         LDX     0,X             GET OP IN X                                       FG   07  03126
004112  046000  A 3127         INR     OPSTKP,B        BUMP STACK POINTER                                FG   07  03127
004113  006705  A 3128         IJMP    0,X             EXIT                                                   07  03128
004114  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
004115  016164  A 3151 PRD     LDA     TEMP,B                                                                 PD  07  03151
004116  006140  A 3152         SUBI    CDC                                                                    PD  07  03152
004117  000020  A
004120  004250  A 3153         LRLA    8               POSITION READ/WRITE FLAG                               PD  07  03153
004121  056104  A 3154         STA     IOCONT,B                                                               PD  07  03154
004122  001010  A 3155         JAZ     *+3                                                                    PD  07  03155
004123  004125  R
004124  010432  A 3156         LDA     =RS             SET WRITE BIT                                          PD  07  03156
004125  110431  A 3157         ORA     =FS             SET FILL FLAG                                          PD  07  03157
004126  006110  A 3158         ORAI    02000           SET ENCODE/DECODE BIT                                  PD  07  03158
004127  002000  A
004130  056154  A 3159         STA     RWFL,B          INITIALIZE READ/WRITE FLAG WORD                        PD  07  03159
004131  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
004132  015005  A
004133  056063  A
                    3162         MOVXAB  6,APBF          BUFFER ADDRESS                                     PD  07  03162
004134  015006  A
004135  056020  A
004136  056027  A 3163         STA     ALBF,B                                                                 PD  07  03163
004137  005311  A 3164         DAR                                                                            07  03164
004140  056025  A 3165         STA     BFWPT,B                                                                PD  07  03165
004141  015007  A 3166         LDA     7,X             CHARACTER-PROCESSED COUNT ADDRESS                      PD  07  03166
004142  056152  A 3167         STA     RETURN+1,B                                                             PD  07  03167
004143  001010  A 3168         JAZ     PRD1            NO COUNT FIELD                                         PD  07  03168
004144  004151  R
004145  005014  A 3169         TAX                                                                            PD  07  03169
004146  005001  A 3170         TZA                                                                            PD  07  03170
004147  055000  A 3171         STA     0,X             INITIALIZE COUNT VARIABLE                              PD  07  03171
004150  036151  A 3172         LDX     RETURN,B                                                               PD  07  03172
004151  016167  A 3173 PRD1    LDA     UNIT,B          BUFFER SIZE                                            PD  07  03173
004152  005111  A 3174         IAR                                                                            PD  07  03174
004153  004301  A 3175         ASRA    1               MAKE BUFFER COUNT WORDS                                PD  07  03175
004154  056143  A 3176         STA     FRSZ,B                                                                 PD  07  03176
004155  056144  A 3177         STA     FBWC,B                                                                 PD  07  03177
004156  056122  A 3178         STA     LRSZ,B                                                                 PD  07  03178
004157  056123  A 3179         STA     LRWC,B                                                                 PD  07  03179
004160  005001  A 3180         TZA                                                                            PD  07  03180
004161  056167  A 3181         STA     UNIT,B          SET NO UNIT                                            PD  07  03181
004162  035016  A 3182         LDX     ANRB,X          POINT X AT V#FORTIO DATA BLOCK                         PD  07  03182
004163  010435  A 3183         LDA     BS12            IOC MODE IS ASCII                                      PD  07  03183
004164  115104  A 3184         ORA     *IOCONT,X                                                              PD  07  03184
004165  055104  A 3185         STA     IOCONT,X                                                               PD  07  03185
                    3186         MOVBAX  RWFL,RWFL                                                          PD  07  03186
004166  016154  A
004167  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
004170  016014  A
004171  001010  A
004172  004202  R
004173  015020  A 3192         LDA     APBF,X          YES                                                    PD  07  03192
004174  006505  A 3193         JSR     TBK,X           TEST BUFFER START ADDRESS                              PD  07  03193
004175  006262  R
004176  126143  A 3194         ADD     FRSZ,B                                                                 PD  07  03194
004177  005311  A 3195         DAR                                                                            PD  07  03195
004200  006505  A 3196         JSR     TBK,X           TEST BUFFER END ADDRESS                                PD  07  03196
004201  006262  R
                    3197 VII1    CONT                                                                       FG  07  03197
                    3198 NUC1    CONT                                                                       FG  07  03198
                    3199 PRD2    ZAB     BFPT            CLEAR BUFFER CHARACTER POINTER                     PD  07  03199
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004202 005001 A
004203 056026 A
                3200            TRAB    RWFL,WR,PRD4    WRITE?                                          PD 07 03200
004204 016154 A
004205 006451 A
004206 004213 R
                3201            PUSHJ   CLB             YES, CLEAR BUFFER                               PD 07 03201
004207 006010 A
004210 000145 R
004211 006505 A
004212 005042 R
004213 046172 A 3202 PRD4       INR     XFFL,B          ENABLE PARAMETER XFER                           PD 07 03202
004214 001000 A 3203            JMP     FRS             TO FORMAT SCAN                                  PD 07 03203
004215 000442 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(IN) = 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 03253
                3255 * TEST RANGE OF U *                                                            07 03254
                3256 ********************                                                          07 03255
004216 016167 A 3257 PRU        LDA     UNIT,B          GET U                                           07 03257
004217 150462 A 3258            ANA     =HFF00                                                          07 03258
004220 001016 A 3259            JANZ    ER4             ERROR 4/ U NOT IN (1,255) /                     07 03259
004221 005702 R
                3260 ********************************************************                      07 03260
                3261 * SEARCH FCB CHAIN FOR U ALREADY DEFINED *                                      07 03261
                3262 ********************************************                                  07 03262
                3263            TRAB    RWFL,DA,PRU0                                                    07 03263
004222 016154 A
004223 006453 A
004224 004231 R
004225 036151 A 3264            LDX     RETURN,B        DIRECT ACCESS                                   07 03264
004226 015011 A 3265            LDA     0,X             FCB ADDRESS                                     07 03265
004227 001000 A 3266            JMP     PRU05                                                           07 03266
004230 004237 R
                3267 PRU0       PUSHJ   SCH             SEARCH FCB CHAIN                                07 03267
004231 006010 A
004232 006150 R
004233 006505 A
004234 005042 R
004235 001010 A 3268            JAZ     PRU5                                                            07 03268
004236 004345 R
                3269 **********************                                                        07 03269
                3270 * U IS ON FCB CHAIN *                                                          07 03270
                3271 **********************                                                        07 03271
004237 056010 A 3272 PRU05      STA     ADFCB,B         STORE FCB ADDRESS                               07 03272
004240 036010 A 3273            LDX     ANRB,B                                                  E       07 03273
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004241 055010 A 3274          STA     ADFCB,X         ALSO IN V$FORTIO                        E   07 03274
004242 005014 A 3275          TAX                     POINT X AT FCB                              07 03275
                3276          TSAB    RWFL,IN,ER4     ERROR 4/ OPEN CALL FINDS U ON CHAIN /   V2  07 03276
004243 016154 A
004244 006406 A
004245 005702 R
                3277          MOVXAB  3,SVRECN        SAVE RECORD NO                              07 03277
004246 015003 A
004247 056160 A
                3278          MOVXAB  0,LRSZ          SET LOGICAL RECORD SIZE = FCB(0)            07 03278
004250 015000 A
004251 056122 A
004252 056143 A 3279          STA     PBSZ,B          ALSO PHYSICAL RECORD SIZE                   07 03279
                3280          MOVXAB  1,APBF          SET PHYSICAL BUFFER ADDRESS = FCB(1)        07 03280
004253 015001 A
004254 056020 A
004255 056027 A 3281          STA     ALBF,B          ALSO LOGICAL BUFFER ADDRESS                 07 03281
004256 015014 A 3282          LDA     12,X            GET L                                       07 03282
004257 150463 A 3283          ANA     RHW                                                         07 03283
004260 056167 A 3284          STA     UNIT,B          STORE LOGICAL UNIT NUMBER L IN UNIT         07 03284
004261 015014 A 3285          LDA     12,X            GET FLAGS FROM FCB                          07 03285
004262 004354 A 3286          LSRA    SH              POSITION                                V2  07 03286
004263 116154 A 3287          ORA     RWFL,B          MERGE INTO READ/WRITE FLAG                  07 03287
004264 056154 A 3288          STA     RWFL,B                                                      07 03288
004265 006441 A 3289          BT      ARST+LF,PRU50     EXIT ON NON-LOGICAL FILE                FG  07 03289
004266 004615 R
004267 006400 A 3290          BT      ASET+RM,PRU1      RMD ?                                   V2  07 03290
004270 004275 R
004271 150451 A 3291          ANA     BFR             NO. CLEAR FILL FLAG                     V2  07 03291
004272 056154 A 3292          STA     RWFL,B                                                  V2  07 03292
                3293          POPJ                    EXIT                                    FG  07 03293
004273 001000 A
004274 004110 R
                3294 ************************************                                      V2  07 03294
                3295 * U IS AN RMD LOGICAL FILE *                                             V2  07 03295
                3296 ************************************                                      V2  07 03296
        004275 R 3297 PRU1    EQU     *                                                       V2  07 03297
                3298          MOVXAB  3,LRECNO        LOAD LOGICAL RECORD NUMBER                  07 03298
004275 015003 A
004276 056121 A
004277 016122 A 3299          LDA     LRSZ,B          GET LOGICAL RECORD SIZE                     07 03299
004300 005024 A 3300          TBX                     SAVE BASE POINTER IN X                      07 03300
004301 145201 A 3301          SUB     BD120,X                                                 V2  07 03301
004302 001002 A 3302          JAP     PRU2            IS LOGICAL RECORD SIZE .LT. 120 WORDS ?     07 03302
004303 004312 R
004304 015201 A 3303          LDA     BD120,X         YES                                     V2  07 03303
004305 004560 A 3304          LLSR    16                                                          07 03304
004306 175122 A 3305          DIV     LRSZ,X                                                      07 03305
004307 005102 A 3306          INCR    3               SET BUFFER SIZE TO 1 RECORD                 07 03306
004310 001000 A 3307          JMP     PRU3                                                        07 03307
004311 004321 R
004312 015122 A 3308 PRU2     LDA     LRSZ,X                                                      07 03308
004313 004560 A 3309          LLSR    16                                                          07 03309
004314 175201 A 3310          DIV     BD120,X         GET COUNT OF PHYSICAL RECS IN LOG REC   V2  07 03310
004315 001010 A 3311          JAZ     PRU4            ANY REMAINDER ?                             07 03311
004316 004324 R
004317 005122 A 3312          IBR                     YES. BUMP ALLOCATION                        07 03312
004320 005311 A 3313          DAR                                                                 07 03313
004321 001010 A 3314 PRU3     JAZ     *+3                                                         07 03314
004322 004324 R
004323 005122 A 3315          IBR                     BUMP COUNT IF NOT FACTOR OR MULTIPLE        07 03315
004324 065142 A 3316 PRU4     STB     PBRC,X          STORE PHYSICAL RECORD COUNT                 07 03316
004325 005001 A 3317          TZA                                                                 07 03317
004326 165201 A 3318          MUL     BD120,X         GET PHYSICAL BUFFER SIZE                V2  07 03318
004327 065143 A 3319          STB     PBSZ,X          STORE                                       07 03319
004330 015121 A 3320          LDA     LRECNO,X        GET LOGICAL RECORD NUMBER                   07 03320
004331 005311 A 3321          DAR                     CONVERT FROM BASE 1 TO BASE 0               07 03321
004332 004560 A 3322          LLSR    16                                                          07 03322
004333 165122 A 3323          MUL     LRSZ,X          GET WORD COUNT TO START OF LRECNO            07 03323
004334 175201 A 3324          DIV     BD120,X         GET PHYSICAL RECORD COUNT TO LRECNO      V2 07 03324
004335 005122 A 3325          IBR                     CONVERT FROM BASE 0 TO BASE 1               07 03325
004336 065145 A 3326          STB     PRECNO,X        SAVE PHYSICAL RECORD NUMBER                 07 03326
004337 055123 A 3327          STA     LOOV,X          STORE OVERFLOW                              07 03327
004340 125020 A 3328          ADD     APBF,X                                                      07 03328
004341 055027 A 3329          STA     ALBF,X          STORE ADDRESS OF LOGICAL BUFFER             07 03329
004342 005042 A 3330          TXB                     RESTORE BASE REGISTER B                     07 03330
                3331          POPJ                    EXIT                                    FG  07 03331
004343 001000 A
004344 004110 R
                3332 ************************************                                      07 03332
                3333 * U NOT ON FCB CHAIN - SET L=U *                                          07 03333
                3334 ************************************                                      07 03334
004345 036016 A 3335 PRU5     LDX     A$RB,B          POINT X AT V$FORTIO DATA BLOCK              07 03335
                3336          MOVXAB  @SYSDC,ADFCB    USE V$FORTIO SYSTEM FCB                     07 03336
004346 015023 A
004347 056010 A
004350 055010 A 3337          STA     ADFCB,X                                                     07 03337
004351 005014 A 3338          TAX                                                                 07 03338
                3339          MOVXAB  1,APBF          USE V$FORTIO SYSTEM BUFFER $BUF             07 03339
004352 015001 A
004353 056020 A
004354 056027 A 3340          STA     ALBF,B                                                      07 03340
                3341          MOVBAX  BD120,0         SET RECORD SIZE TO 120 WORDS            V2  07 03341
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004355 016201 A
004356 055000 A
004357 056143 A 3342          STA     PBSZ,B                                                    07 03342
004360 056122 A 3343          STA     LRSZ,B                                                    07 03343
               3344 **********************                                                     07 03344
               3345 * TEST VALIDITY OF L *                                                     07 03345
               3346 **********************                                                     07 03346
004361 036032 A 3347          LDX     SAVE,B          L = SAVE ON OPEN CALL                V2   07 03347
               3348          TSAB    RWFL,IN,PRU6    OPEN CALL ?                          V2   07 03348
004362 016154 A
004363 006406 A
004364 004366 R
004365 036167 A 3349          LDX     UNIT,B          NO. L=UNIT                           V2   07 03349
004366 005041 A 3350 PRU6     TXA                     GET L IN A                           V2   07 03350
004367 001010 A 3351          JAZ     PRU50           EXIT IF L=0                           FG  07 03351
004370 004615 R
004371 006030 A 3352          LDXI    V$LUT1          POINT X AT LUN POINTER TABLE         V2   07 03352
004372 000400 A
004373 005311 A 3353          DAR                     1ST BLOCK BIASED BASE 1                   07 03353
004374 056164 A 3354          STA     TEMP,B          SAVE                                      07 03354
004375 005111 A 3355          IAR                     RESTURE L IN A                       V2   07 03355
004376 006140 A 3356          SUBI    101                                                  V2   07 03356
004377 000145 A
004400 001004 A 3357          JAN     PRU10           IS L IN BLOCK 1(1-100) ?                  07 03357
004401 004412 R
004402 005144 A 3358          IXR                     NO. BUMP BLOCK POINTER                    07 03358
004403 056164 A 3359          STA     TEMP,B          SAVE BIASED LUN                           07 03359
004404 006140 A 3360          SUBI    79                                                   V2   07 03360
004405 000117 A
004406 001004 A 3361          JAN     PRU10           IS L IN BLOCK 2(101-180) ?                07 03361
004407 004412 R
004410 005144 A 3362          IXR                     NO. BUMP BLOCK POINTER                    07 03362
004411 056164 A 3363          STA     TEMP,B          SAVE BIASED L                             07 03363
004412 016164 A 3364 PRU10    LDA     TEMP,B          GET BIASED L                              07 03364
004413 035000 A 3365          LDX     0,X             POINT X AT BLOCK POINTER                  07 03365
004414 145000 A 3366          SUB     0,X             COMPARE BIASED L WITH BLOCK SIZE          07 03366
004415 001002 A 3367          JAP     ER4             ERROR 4/ INVALID LUN /                    07 03367
004416 005702 R
               3368 ****************                                                           07 03368
               3369 * GET DST INFO *                                                          07 03369
               3370 ****************                                                           07 03370
004417 005141 A 3371          INCR    041                                                       07 03371
004420 126164 A 3372          ADD     TEMP,B                                                    07 03372
004421 005014 A 3373          TAX                     POINT X AT LOGICAL UNIT TABLE ENTRY       07 03373
004422 015000 A 3374          LDA     0,X                                                       07 03374
004423 150463 A 3375          ANA     RHW             GET DST INCREMENT FROM LUT                07 03375
004424 056037 A 3376          STA     SAVE+5,B        SAVE                                 V2   07 03376
004425 001010 A 3377          JAZ     PRU50           EXIT IF L=DUMMY                       FG  07 03377
004426 004615 R
004427 005024 A 3378          TBX                     SAVE BASE POINTER IN X                    07 03378
004430 005312 A 3379          DECR    012             BIASED DST COUNT TO 0                     07 03379
004431 010355 A 3380          LDA     V$DSTB          A = BASE OF DST TABLES                    07 03380
004432 160464 A 3381          MUL     THREE           B = DST ADDRESS                           07 03381
004433 005041 A 3382          TXA                     A = BASE REGISTER                         07 03382
004434 005024 A 3383          TBX                     POINT X AT DST                            07 03383
004435 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
004436 015002 A 3388          LDA     2,X                                                       07 03388
004437 004346 A 3389          LSRA    6                                                         07 03389
004440 150473 A 3390          ANA     BM37                                                      07 03390
004441 001010 A 3391          JAZ     *+3                                                  V2   07 03391
004442 004444 R
004443 010421 A 3392          LDA     RMS             SET RMD FLAG                         V2   07 03392
004444 116154 A 3393          ORA     RWFL,B                                               V2   07 03393
004445 056154 A 3394          STA     RWFL,B                                               V2   07 03394
004446 006406 A 3395          BT      ASET+IN,PRU50     EXIT ON OPEN CALL                   FG  07 03395
004447 004615 R
004450 006400 A 3396          BT      ASET+RM,PRU30                                        V2   07 03396
004451 004525 R
               3397 **************                                                             07 03397
               3398 * L NOT RMD *                                                            07 03398
               3399 **************                                                             07 03399
               3400          TZAB    FRMT,PRU15      FORMATTED I/O ?                      V2   07 03400
004452 016063 A
004453 001010 A
004454 004456 R
004455 015001 A 3401          LDA     1,X             YES. GET 1ST TWO CHARS OF NAME       V2   07 03401
       004456 R 3402 PRU15    EQU     *                                                    V2   07 03402
004456 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          IFT     VII                                                   FG  07 03406
               3407          OME     MAP,V$ST0       SET EXEC STATE TO 00                 V2   07 03407
               3408 NV2NUC   CONT                                                           FG  07 03408
004457 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
004460 005144 A 3413 PRUL1    IXR                     BUMP TABLE POINTER                        07 03413
004461 145000 A 3414          SUB     0,X                                                  V2   07 03414
004462 001010 A 3415          JAZ     PRU20           EXIT ON MATCH                        V2   07 03415
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004463 004470 R
004464 001002 A 3416          JAP     PRUL1           LOOP TILL DONE                                  V2  07 03416
004465 004460 R
004466 006030 A 3417          LDXI    PRUDTE          POINT X AT END IF NO FIND                       V2  07 03417
004467 004640 R
004470 015007 A 3418 PRU20    LDA     PRUDTE-PRUDTB,X    GET DEVICE PARAMS FROM TABLE                     07 03418
004471 001004 A 3419          JAN     PRU25           IF SPOOL UNIT                                E.1 07 03419
004472 004514 R
004473 005014 A 3420          TAX                     SAVE                                            V2  07 03420
004474 001004 A 3421          JAN     PRU25           IF SPOOL UNIT                                E.1 07 03421
004475 004514 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
004476 150431 A 3427          ANA     BFS                                                             V2  07 03427
004477 056164 A 3428          STA     TEMP,B          SAVE                                                07 03428
004500 005041 A 3429          TXA                     RESTORE A                                       V2  07 03429
004501 036010 A 3430          LDX     ADFCB,B         POINT X AT DCB                                      07 03430
004502 150463 A 3431          ANA     RHW             GET RECORD SIZE                                     07 03431
004503 055000 A 3432          STA     0,X             STORE IN DCB                                        07 03432
004504 056143 A 3433          STA     PBSZ,B          ALSO AS PHYSICAL BUFFER SIZE                        07 03433
004505 056122 A 3434          STA     LPSZ,B          ALSO LOGICAL BUFFER SIZE                            07 03434
004506 016154 A 3435          LDA     RWFL,B                                                          V2  07 03435
004507 150451 A 3436          ANA     BFR                                                             V2  07 03436
004510 116164 A 3437          ORA     TEMP,B          MERGE FILL FLAG                                 V2  07 03437
004511 056154 A 3438          STA     RWFL,B          INTO READ/WRITE FLAGS                               07 03438
               3439           POPJ                    EXIT                                             FG 07 03439
004512 001000 A
004513 004110 R
       004514 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
004514 036032 A 3446          LDX     SAVE,B          DST ADDR                                         E.2 07 03446
004515 015000 A 3447          LDA     0,X             DSUNAM  (BITS 12-4)                           E.1 07 03447
004516 004352 A 3448          LSRA    10              POSITION MSB                                  E.1 07 03448
004517 150467 A 3449          ANA     SEVEN                                                         E.1 07 03449
004520 006120 A 3450          ADDI    180             SET TO LUN 18N                                E.1 07 03450
004521 000264 A
004522 005014 A 3451          TAX                                                                   E.1 07 03451
004523 001000 A 3452          JMP     PRU6                                                          E.1 07 03450
004524 004366 R
               3453 ************                                                                          07 03453
               3454 * RMD FILE *                                                                          07 03454
               3455 ************                                                                          07 03455
004525 010301 A 3456 PRU30    LDA     V$CPL           GET PRIORITY LEVEL                                  07 03456
004526 140422 A 3457          SUB     TWO                                                                 07 03457
004527 001002 A 3458          JAP     ER4             ERROR 47 FOREGROUND RMD FILE NOT OPEN /             07 03458
004530 005702 R
               3459 ********************************************                                          07 03459
               3460 * BACKGROUND PROGRAM - CHECK GLOBAL FCB'S *                                          07 03460
               3461 ********************************************                                          07 03461
004531 016167 A 3462          LDA     UNIT,B          GET L                                               07 03462
004532 006110 A 3463          ORAI    01400           MERGE IDLINK SKELETON CONTROL WORD               V2 07 03463
004533 001400 A
004534 056105 A 3464          STA     IDLNK,B         IDLINK CONTROL WORD FOR L GLOBAL FCB                07 03464
004535 016167 A 3465          LDA     UNIT,B          GET L                                               07 03465
004536 140422 A 3466          SUB     TWO                                                                 07 03466
004537 001004 A 3467          JAN     PRU35           IGNORE L=1                                          07 03467
004540 004554 R
004541 140470 A 3468          SUB     NINE                                                                07 03460
004542 001002 A 3469          JAP     PRU35           NO GLOBAL FCB.GT.10                                 07 03469
004543 004554 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
004544 124063 A 3475          ADD     PRUGT           ADD TABLE ADDRESS                                   07 03475
004545 005014 A 3476          TAX                     POINT X AT GLOBAL FCB TABLE                         07 03476
004546 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$ST3          SET EXEC STATE TO NN                             07 03481
               3482 NV2NUC    CONT                                                                     FG 07 03482
004547 001040 A 3483          JXZ     PRU35           'SO' HAS NO GLOBAL FCB                              07 03480
004550 004554 R
004551 015005 A 3484          LDA     5,X             TEST GLOBAL FCB ENABLED                             07 03484
004552 001016 A 3485          JANZ    PRU40                                                               07 03485
004553 004601 R
               3486 ************************                                                              07 03486
               3487 * NO GLOBAL FCB - TEST U=SI *                                                        07 03487
               3488 ************************                                                              07 03488
004554 030400 A 3489 PRU35    LDX     V$LUT1                                                              07 03489
004555 015002 A 3490          LDA     2,X             GET SI ASSIGNMENT                                   07 03490
004556 146037 A 3491          SUB     SAVE+5,B        COMPARE WITH L ASSIGNMENT                        V2 07 03491
004557 150463 A 3492          ANA     RHW                                                                 07 03492
004560 001016 A 3493          JANZ    ER4             ERROR 47 RMD FILE NOT OPEN /                        07 03493
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004561 005702 R
004562 010422 A 3494          LDA     TWO             L = SI                                          07 03494
004563 006110 A 3495          ORAI    01400           MERGE IOLINK SKELETON CONTROL WORD      V2      07 03495
004564 001400 A
004565 056105 A 3496          STA     IOLNK,B         IOLINK CONTROL WORD FOR SIFCB                   07 03496
004566 006010 A 3497          LDAI    40                                                      V2      07 03497
004567 000050 A
004570 056143 A 3498          STA     PBSZ,B          ALSO PHYSICAL BUFFER SIZE                       07 03498
004571 056122 A 3499          STA     LRSZ,B          ALSO LOGICAL BUFFER SIZE                        07 03499
004572 036010 A 3500          LDX     ADFCB,B         POINT X AT V$FORTIO DATA BLOCK                  07 03500
004573 055000 A 3501          STA     0,X             SET RECORD SIZE DCB(0) = 40 WORDS               07 03501
004574 006030 A 3502          LDXI    SIFCB           POINT X AS SI GLOBAL FCB                V2      07 03502
004575 000000 E
004576 015005 A 3503          LDA     5,X                                                             07 03503
004577 001010 A 3504          JAZ     ER4             ERROR 4/ RMD NOT OPEN /                         07 03504
004600 005702 R
004601 005041 A 3505 PRU40    TXA                     GET FCB ADDRESS IN A                            07 03505
004602 056010 A 3506          STA     ADFCB,B         STORE                                           07 03506
004603 036016 A 3507          LDX     ANRB,B          POINT X AT V$FORTIO                             07 03507
004604 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
004605 016105 A
004606 055105 A
004607 016154 A 3510          LDA     RWFL,B                                                  V2      07 03510
004610 110430 A 3511          ORA     GFS             SET GLOBAL FCB FLAG                     V2      07 03511
004611 056154 A 3512          STA     RWFL,B                                                  V2      07 03512
004612 010420 A 3513          LDA     CXC                                                     V2      07 03513
004613 006505 A 3514          JSR     PSJ,X           PUSH IOLINK UP                          V2      07 03514
004614 005042 R
               3515 PRU50     POPJ                    EXIT                                    FG      07 03515
004615 001000 A
004616 004110 R
               3516 ************************                                                        07 03516
               3517 * GLOBAL FCB POINTERS *                                                        07 03517
               3518 ************************                                                        07 03518
004617 004575 E 3519 PRUASI   PZE     SIFCB           SI( 2) GLOBAL FCB                               07 03519
004620 000000 A 3520          DATA    0               SO( 3) NO GLOBAL FCB                            07 03520
004621 000000 E 3521          PZE     PIFCB           PI( 4) GLOBAL FCB                               07 03521
004622 000000 E 3522          PZE     LOFCB           LO( 5) GLOBAL FCB                               07 03522
004623 000000 E 3523          PZE     BIFCB           BI( 6) GLOBAL FCB                               07 03523
004624 000000 E 3524          PZE     BOFCB           BO( 7) GLOBAL FCB                               07 03524
004625 000000 E 3525          PZE     SSFCB           SS( 8) GLOBAL FCB                               07 03525
004626 000000 E 3526          PZE     GOFCB           GO( 9) GLOBAL FCB                               07 03526
004627 000000 E 3527          PZE     POFCB           PO(10) GLOBAL FCB                               07 03527
004630 004630 R 3528 PRUGT    PZE     *                                                               07 03528
               3529 ****************                                                                07 03529
               3530 * DEVICE TABLE *                                                                07 03530
               3531 ****************                                                                07 03531
004631 004631 R 3532 PRUDTB   PZE     *                                                               07 03532
004632 141720 A 3533          DATA    'CP'            1ST 2 CHARS OF DEVICE NAME                      07 03533
004633 000002 A 3534          DATA    2               'CR'                                    V2      07 03534
004634 000002 A 3535          DATA    2               'CT'                                    V2      07 03535
004635 004374 A 3536          DATA    04374           'LP'                                    V2      07 03536
004636 003400 A 3537          DATA    03400           :SP:                                    E.1     07 03537
004637 000411 A 3538          DATA    0411            :TY:                                    E.1     07 03538
004640 077777 A 3539          DATA    077777          TABLE END MARKER                        V2      07 03539
       004640 R 3540 PRUDTE   EQU     *-1                                                             07 03540
004641 000050 A 3541          DATA    40              CONSOLE FLAG/BUFFER SIZE                        07 03541
004642 000050 A 3542          DATA    40                                                              07 03542
004643 000450 A 3543          DATA    40+BFA                                                  V2      07 03543
004644 000102 A 3544          DATA    66                                                              07 03544
004645 177777 A 3545          DATA    -1              SPOOL UNIT INDICATOR                    E.1     07 03545
004646 000450 A 3546          DATA    40+BFA                                                  V2      07 03546
004647 000074 A 3547          DATA    60                                                              07 03547
               3548           FJEC                                                                    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 VIO                                            * 07 03574
               3575 *         FORMATTED  : DIRECT TO FRS TO START FORMAT SCAN                       * 07 03575
               3576 *         IOCONT = IOC CONTROL WORD                                             * 07 03576
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                    3577 *                                                                                *  07  03577
                    3578 ************************************************************************************  07  03579
004650  016164 A    3580 PRW     LDA      TEMP,B          GET OP                                              07  03580
004651  140471 A    3581         SUB      CRD                                                          V2     07  03581
004652  004250 A    3582         LRLA     8               POSITION READ/WRITE FLAG                            07  03582
004653  056104 A    3583         STA      IOCONT,B         FOR IOC CALL CONTROL WORD                          07  03583
004654  001010 A    3584         JAZ      *+3                                                          V2     07  03584
004655  004657 R
004656  010432 A    3585         LDA      WRS             SET WRITE BIT                                V2     07  03585
004657  110431 A    3586         ORA      BFS             SET FILL FLAG                                V2     07  03586
004660  056154 A    3587         STA      RWFL,B          INITIALIZE READ/WRITE FLAG WORD                     07  03587
004661  036151 A    3588 PRW05   LDX      RETURN,B                                                            07  03588
004662  015003 A    3589         LDA      3,X             GET READ/WRITE PARAMETER COUNT                      07  03589
004663  140422 A    3590         SUB      TWO                                                                 07  03590
004664  001016 A    3591         JANZ     PRW0            WAS PROGRAM COMPILED WITH 'G' COMPILER ?            07  03591
004665  004672 R
004666  056152 A    3592         STA      RETURN+1,B      NO. CLEAR 'END' EXIT ADDRESS                        07  03592
004667  056153 A    3593         STA      RETURN+2,B      CLEAR 'ERR' EXIT ADDRESS                            07  03593
004670  001000 A    3594         JMP      PRW1                                                                07  03594
004671  004676 R
004672  015007 A    3595 PRW0    LDA      7,X             PROGRAM WAS COMPILED BY 'G' COMPILER                07  03595
004673  056152 A    3596         STA      RETURN+1,B      SAVE 'END' EXIT ADDRESS                             07  03596
004674  015010 A    3597         LDA      8,X             GET 'ERR' EXIT ADDRESS                              07  03597
004675  056153 A    3598         STA      RETURN+2,B      SAVE                                                07  03598
        004676 R    3599 PRW1    EQU      *                                                                   07  03599
                    3600         MOVXAB   5,FRMT          SAVE FORMAT STRING ADDRESS(0 IF NONE)               07  03600
004676  015005 A
004677  056063 A
                    3601         PUSHJ    PRU             PROCESS FORTRAN UNIT NUMBER                  V2     07  03601
004700  006010 A
004701  004216 R
004702  006505 A
004703  005042 R
                    3602         TZAB     FRMT,PRW2       IOC MODE IS SYS BINARY FOR UNFORMATTED       V2     07  03602
004704  016063 A
004705  001010 A
004706  004710 R
004707  010435 A    3603         LDA      BS12            IOC MODE IS ASCII FOR FORMATTED                     07  03603
004710  036016 A    3604 PRW2    LDX      AMR3,B          POINT X AT V$FORTIO DATA BLOCK               V2     07  03604
004711  116167 A    3605         ORA      UNIT,B          MERGE IN LOGICAL UNIT NUMBER L                      07  03605
004712  116104 A    3606         ORA      IOCONT,B        MERGE IN READ/WRITE BIT                             07  03606
004713  056104 A    3607         STA      IOCONT,X        STORE IN V$FORTIO                                   07  03607
                    3608         MOVBAX   RWFL,RWFL       MOVE FLAG WORD TO V$FORTIO                          07  03608
004714  016154 A
004715  056154 A
004716  016152 A    3609         LDA      RETURN+1,B      MOVE RETURN ADDRESSES TO V$FORTIO                PD 07  03609
004717  056152 A    3610         STA      RETURN+1,X                                                       PD 07  03610
004720  016153 A    3611         LDA      RETURN+2,B                                                       PD 07  03611
004721  056153 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
004722  016014 A
004723  001010 A
004724  004734 R
004725  016020 A    3618         LDA      APBF,B          YES                                                 07  03618
004726  006505 A    3619         JSR      TBK,X           TEST BUFFER START ADDRESS                           07  03619
004727  006262 R
004730  126143 A    3620         ADD      PBS7,B                                                              07  03620
004731  005311 A    3621         DAR                                                                          07  03621
004732  006505 A    3622         JSR      TBK,X           TEST BUFFER END ADDRESS                             07  03622
004733  006262 R
                    3623 VII1    CONT                                                                 FG      07  03623
                    3624 NUC1    CONT                                                                 FG      07  03624
                    3625 PRW4    ZAB      BFPT            CLEAR BUFFER CHARACTER POINTER                      07  03625
004734  005001 A
004735  056026 A
                    3626         TRAB     RWFL,LF,PRW6        LOGICAL FILE ?                                  07  03626
004736  016154 A
004737  006441 A
004740  004744 R
004741  036010 A    3627         LDX      ADFCB,B         YES                                                 07  03627
                    3628         MOVBAX   FBSZ,0          SET FCB(0) = PHYSICAL BUFFER SIZE                   07  03628
004742  016143 A
004743  055000 A
                    3629 PRW6    PUSHJ    RFL             REPOSITION FILE                              V2     07  03629
004744  006010 A
004745  005722 R
004746  006505 A
004747  005042 R
                    3630         TRAB     RWFL,WR,PRW10       WRITE ?                                 V2     07  03630
004750  016154 A
004751  006451 A
004752  004760 R
                    3631         PUSHJ    CLB             YES. CLEAR BUFFER                            V2     07  03631
004753  006010 A
004754  000145 R
004755  006505 A
004756  005042 R
004757  001006 A    3632         DATA     01006           SKIP                                                07  03632
004760  046121 A    3633 PRW10   INR      LRECND,B        BUMP LOGICAL RECORD NUMBER ON READ                  07  03633
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                    3634          MOVBAB  LRSZ,LRWC     UPDATE LRWC FOR SHORT RECORD              V2  07 03634
004761 016122 A
004762 056123 A
004763 046172 A     3635          INR     XFFL,B        ENABLE PARAMETER XFER                         07 03635
                    3636          TZAB    FRMT,UID      PROCESS UNFORMATTED I/O IF FRMT=0             07 03636
004764 016063 A
004765 001010 A
004766 006505 R
004767 001000 A     3637          JMP     FRS           EXIT TO FORMAT SCAN IF FORMATTED              07 03637
004770 000442 R
                    3638          EJEC                                                                07 03638
                    3639 ********************************************************************************* 07 03639
                    3640 *                                                                               * 07 03640
                    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
004771 016164 A     3645 PRX      LDA     TEMP,B                                                        07 03645
004772 006140 A     3646          SUBI    CRA                                                           07 03646
004773 000022 A
004774 004250 A     3647          LRLA    8             POSITION READ/WRITE FLAG                        07 03647
004775 056104 A     3648          STA     IOCONT,B                                                      07 03648
004776 001010 A     3649          JAZ     *+3                                                           07 03649
004777 005001 R
005000 010432 A     3650          LDA     WRS                                                           07 03650
005001 110431 A     3651          ORA     BFS                                                           07 03651
005002 110434 A     3652          ORA     BS11          SET DIRECT ACCESS FLAG                          07 03652
005003 056154 A     3653          STA     RWFL,B                                                        07 03653
005004 016164 A     3654          LDA     TEMP,B                                                        07 03654
005005 140424 A     3655          SUB     EIGHT                                                         07 03655
005006 056164 A     3656          STA     TEMP,B        SET TO READ/WRITE                               07 03656
005007 001000 A     3657          JMP     PRW05                                                         07 03657
005010 004661 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
005011 016154 A     3673 PSB      LDA     RWFL,B                                                        07 03673
005012 150443 A     3674          AMA     PDR           CLEAR POST BIT IN FLAG WORD               V2  07 03674
005013 056154 A     3675          STA     RWFL,B                                                        07 03675
005014 036010 A     3676          LDX     ADFCB,B                                                       07 03676
005015 015014 A     3677          LDA     12,X                                                          07 03677
005016 150457 A     3678          AMA     FPDR          CLEAR POST BIT IN FCB(12)                 V2  07 03678
005017 055014 A     3679          STA     12,X                                                          07 03679
                    3680          MOVXAX  13,3          LOAD PHYSICAL RECORD NUMBER INTO FCB(3)       07 03680
005020 015015 A
005021 055003 A
005022 036016 A     3681          LDX     AMRB,B        POINT X AT V$FORTIO DATA BLOCK                  07 03681
005023 015104 A     3682          LDA     IOCONT,X                                                      07 03682
005024 110431 A     3683          ORA     BS8           SET WRITE BIT IN V$IOC CONTROL WORD             07 03683
005025 055104 A     3684          STA     IOCONT,X                                                      07 03684
005026 010464 A     3685          LDA     CIO           PUSH I/O OP                               V2  07 03685
005027 006505 A     3686          JSR     PSJ,X         WRITE OUT BUFFER                          V2  07 03686
005030 005042 R
                    3687          TSAB    RWFL,WR,PSBX  EXIT ON WRITE                             FG  07 03687
005031 016154 A
005032 006411 A
005033 005040 R
005034 036016 A     3688          LDX     AMRB,B        POINT X AT V$FORTIO DATA BLOCK                  07 03688
005035 015104 A     3689          LDA     IOCONT,X                                                      07 03689
005036 150451 A     3690          AMA     BR8           CLEAR WRITE BIT IN V$IOC CONTROL WORD           07 03690
005037 055104 A     3691          STA     IOCONT,X                                                      07 03691
                    3692 PSBX     PRPJ                  EXIT                                    FG  07 03692
005040 001000 A
005041 004110 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 ORB OP, THEN CALLED OP, THEN EXIT TO V$FORTIO          * 07 03709
                    3710 *                                                                               * 07 03710
                    3711 ********************************************************************************* 07 03711
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005042 056164 A 3713 PSJ     STA     TEMP,B      SAVE EXIT                                                    07 03713
005043 005041 A 3714         TXA                                                                              07 03714
005044 036000 A 3715         LDX     OPSTKP,B    POINT X AT STACK                                             07 03715
005045 005344 A 3716         DXR                 DROP STACK POINTER                                       FG  07 03716
005046 076000 A 3717         STX     OPSTKP,B                                                             FG  07 03717
005047 055000 A 3718         STA     0,X         PUSH RETURN                                                  07 03718
005050 016164 A 3719         LDA     TEMP,B      RESTORE A                                                    07 03719
005051 005014 A 3720         TAX                                                                              07 03720
005052 004346 A 3721         LSRA    6                                                                        07 03721
005053 001010 A 3722         JAZ     *+4         EXTERNAL REQUEST ?                                           07 03722
005054 005057 R
005055 006705 A 3723         IJMP    0,X         NO. JUMP DIRECTLY TO INTERNAL SUBROUTINE                     07 03723
005056 000000 A
005057 010423 A 3724         LDA     CRB                                                                      07 03724
               3725          PUSHF               PUSH RETURN TO V$RERR                                        07 03725
005060 036016 A
005061 035000 A
005062 005344 A
005063 055000 A
005064 005041 A
005065 036016 A
005066 055000 A
005067 016164 A 3726         LDA     TEMP,B      RESTORE CALLED OP                                            07 03726
               3727          PUSHF               PUSH V$FORTIO OP                                             07 03727
005070 036016 A
005071 035000 A
005072 005344 A
005073 055000 A
005074 005041 A
005075 036016 A
005076 055000 A
005077 001000 A 3728         JMP     CAN         EXIT TO V$FORTIO                                             07 03728
005100 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
005101 016172 A 3762 PXF     LDA     XFFL,B                                                                   07 03762
005102 001010 A 3763         JAZ     ER2         ERROR 2/ ILLEGAL CALL TO $IX /                               07 03763
005103 005704 R
005104 036016 A 3764         LDX     ANKB,B      POINT X AT V$FORTIO                                          07 03764
005105 015116 A 3765         LDA     ITMODE,X                                                                 07 03765
005106 056116 A 3766         STA     ITMODE,B    MOVE MODE FROM V$FORTIO TO V$RERR                            07 03766
005107 016063 A 3767         LDA     FRMT,B                                                                   07 03767
005110 005004 A 3768         IZX                 SET ITEM WORD SIZE TO 1                                      07 03768
005111 001010 A 3769         JAZ     PXF5        ITEM WORD SIZE = 1 FOR UNFORMATTED                           07 03769
005112 005114 R
005113 036116 A 3770         LDX     ITMODE,B                                                                 07 03770
        005114 R 3771 PXF5   ENU     *                                                                    V2  07 03771
               3772          IFF     NUC                                                                      FG  07 03772
               3773          GOTO    NV2NUC                                                                   FG  07 03773
               3774          IFT     VIJ                                                                      FG  07 03774
               3775          DMS     MAP,V$ST0   SET EXEC STATE TO 00                                     V2  07 03775
               3776 NV2NUC   COMT                                                                         FG  07 03776
005114 006015 A 3777         LDAE    PXFSZT,X    GET ITEM WORD SIZE FROM TABLE                            V2  07 03777
005115 005165 R
               3778          IFF     NUC                                                                      FG  07 03778
               3779          GOTO    NV2NUC                                                                   FG  07 03779
               3780          IFT     VIJ                                                                      FG  07 03780
               3781          DME     MAP,V$ST3   SET EXEC STATE TO NN                                     V2  07 03781
               3782 NV2NUC   COMT                                                                         FG  07 03782
005116 056102 A 3783         STA     IIWSZ,B     STORE
005117 056115 A 3784         STA     ITMINC,B    ALSO ITEM INCREMENT                                          07 03784
005120 004241 A 3785         LRLA    1           GET ITEM BYTE SIZE                                           07 03785
005121 056101 A 3786         STA     IIBSZ,B     STORE IN TABLE                                               07 03786
005122 005344 A 3787         DXR                                                                              07 03787
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005123 001046 A 3788          JXNZ    *+3             2-WORD INTEGER/LOGICAL ?                V2 07 03788
005124 005126 R
005125 046115 A 3789          INR     ITMINC,B        YES. SET INCREMENT TO 2                    07 03789
005126 016063 A 3790          LDA     FRMT,B                                                  V2 07 03790
005127 001010 A 3791          JAZ     PXF10           ALL MODES OK FOR UNFORMATTED            V2 07 03791
005130 005144 R
005131 016061 A 3792          LDA     FDLKEY,B                                                   07 03792
005132 140423 A 3793          SUB     FOUR                                                       07 03793
005133 001016 A 3794          JANZ    PXF10           I FORMAT DESCRIPTOR ?                      07 03794
005134 005144 R
005135 016116 A 3795          LDA     ITMODE,B        YES                                        07 03795
005136 140422 A 3796          SUB     TWO                                                        07 03796
005137 001004 A 3797          JAN     PXF10           INTEGER ITEM                               07 03797
005140 005144 R
005141 140464 A 3798          SUB     THREE                                                      07 03798
005142 001016 A 3799          JANZ    ER2             ERR 2/NON-INTEGER ITEM/                    07 03799
005143 005704 R
005144 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
005145 015004 A
005146 056114 A
                3802          MOVXAB  5,ITEMAD        SAVE LIST ITEM ADDRESS                     07 03802
005147 015005 A
005150 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          TZAB    ALOC,PXF20      EXIT IF NOT VORTEX BKGND CALLING NUC    FG 07 03807
005151 016014 A
005152 001010 A
005153 005163 R
005154 016113 A 3808          LDA     ITEMAD,B                                                   07 03808
005155 006505 A 3809          JSR     TBK,X           TEST START OF ITEM ADDRESS                 07 03809
005156 006262 R
005157 126114 A 3810          ADD     ITEMWC,B                                                   07 03810
005160 005311 A 3811          DAR                                                                07 03811
005161 006505 A 3812          JSR     TBK,X           TEST END OF ITEM ADDRESS                   07 03812
005162 006262 R
                3813 VII1     CONT                                                            FG 07 03813
                3814 NUC1     CONT                                                            FG 07 03814
                3815 PXF20    POPJ            EXIT                                            FG 07 03815
005163 001000 A
005164 004110 R
                3816 ********************************                                             07 03816
                3817 * TABLE OF ITEM SIZES IN WORDS *                                             07 03817
                3818 ********************************                                             07 03818
005165 000001 A 3819 PXFSZT   DATA    1               1-WORD INTEGER/LOGICAL                     07 03819
005166 000001 A 3820          DATA    1               2-WORD INTEGER/LOGICAL                     07 03820
005167 000002 A 3821          DATA    2               REAL                                       07 03821
005170 000004 A 3822          DATA    4               DOUBLE PRECISION                           07 03822
005171 000002 A 3823          DATA    2               COMPLEX                                    07 03823
005172 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 OP IS .GE. 0100(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
005173 R        3856 V$RERR   EQU     *               ALOC ENTRY                              V2 07 03856
                3857          IFF     NUC                                                     FG 07 03857
                3858          GOTO    NUC1                                                    FG 07 03858
005173 000005 A 3859          DATA    5                                                       V2 07 03859
                3860          IFF     VII                                                     FG 07 03860
                3861          GOTO    VII1                                                    FG 07 03861
                3862          CXC2    0500+MAP                                                V2 07 03862
                3863          DME     MAP,V$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
```

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                        3867 * VORTEX II CONTINUATION *                                                  V2  07 03867
                        3868 ************************                                                  V2  07 03868
                        3869         LDA     V$CPL                                                       V2  07 03869
                        3870         JPMZ    RBE4            TEST IF BACKGROUND                          V2  07 03870
                        3871 ********************************************************                  V2  07 03871
                        3872 * RESTORE STACK ADDRESSES FROM V$RERR TO V$FORTIO *                        V2  07 03872
                        3873 ********************************************************                  V2  07 03873
                        3874         LDA     ANRB,B                                                      V2  07 03874
                        3875         OME     MAP,V$ST1       SET EXEC STATE TO ON                        V2  07 03875
                        3876         ADDI    OPSTK+STKSZ-1                                                FG 07 03876
                        3877         LDXI    BASE            POINT X AT V$RERR STACK BASE                V2  07 03877
                        3878         SUB     RUPSTP,X                                                     FG 07 03878
                        3879         TAB                     POINT B AT V$FORTIO STACK                   V2  07 03879
                        3880         LDA     RUPSTP,X        GET COUNT                                    FG 07 03880
                        3881         JAN     RBEX            EXIT IF NO MOVE                             V2  07 03881
                        3882         CPA                                                                  FG 07 03882
                        3883         INCR    014             SET X = -(COUNT-1)                           FG 07 03883
                        3884 RBEL1   LDAE    BASE+STKSZ-1,X                                               FG 07 03884
                        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$CRS                                                       V2  07 03890
                        3891         LDB     BASE            RESTORE B                                   V2  07 03891
                        3892         OME     MAP,V$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
005174 R                3897 RBE1    EQU     *                                                           V2  07 03897
                        3898         IFT     VII                                                          FG 07 03898
                        3899         ZOB     INFL            CLEAR INITIAL ENTRY FLAG                    V2* 07 03899
                        3900         IFT     VII                                                          FG 07 03900
                        3901         GOTO    VII1                                                         FG 07 03901
005174  006030  A       3902         LDXI    BASE            POINT X AT V$RERR DATA BLOCK                V2  07 03902
005175  006727  R
005176  065016  A       3903         STB     ANRB,X          SAVE ADDRESS OF NON-REENTRANT BLOCK              07 03903
                        3904         ZAX     ERN             CLEAR ERROR COUNTER                              07 03904
005177  005001  A
005200  055060  A
                        3905 ****************************                                                    07 03905
                        3906 * TEST V$FORTIO STACK EMPTY *                                                 07 03906
                        3907 ****************************                                                    07 03907
005201  016000  A       3908         LDA     OPSTKP,B                                                        07 03908
005202  146017  A       3909         SUB     AOPSTK,B                                                        07 03909
005203  001016  A       3910         JANZ    RBE5                                                            07 03910
005204  005214  R
                        3911 ************************************************************************       07 03911
                        3912 * V$FORTIO STACK EMPTY - RESUME EXECUTION FROM V$RERR STACK *                  07 03912
                        3913 ************************************************************************       07 03913
005205  015000  A       3914         LDA     OPSTKP,X                                                        07 03914
005206  145017  A       3915         SUB     AOPSTK,X                                                        07 03915
005207  001010  A       3916         JAZ     RBE90           ERROR/ V$RERR STACK EMPTY /                     07 03916
005210  005366  R
005211  005042  A       3917         TXB                     LOAD BASE REGISTER B                            07 03917
                        3918         POPJ                    RESUME EXECUTION FROM V$RERR STACK          FG 07 03918
005212  001000  A
005213  004110  R
                        3919 ************************************************                               07 03919
                        3920 * V$FORTIO STACK HAS OP - TEST VALIDITY *                                     07 03920
                        3921 ************************************************                               07 03921
005214  036000  A       3922 RBE5    LDX     OPSTKP,B                                                        07 03922
005215  015000  A       3923         LDA     0,X             GET OP                                          07 03923
005216  006140  A       3924         SUBI    10                                                          PD  07 03924
005217  000015  A
005220  001004  A       3925         JAN     RBE90           ERROR/ ILLEGAL OP /                             07 03925
005221  005366  R
005222  006140  A       3926         SUBI    11                                                          V2  07 03926
005223  000013  A
005224  001002  A       3927         JAP     RBE90           ERROR/ ILLEGAL OP /                             07 03927
005225  005366  R
005226  120425  A       3928         ADD     D16             RESTORE OP                                      07 03928
005227  034160  A       3929         LDX     ABEB            POINT X AT V$RERR DATA BLOCK                    07 03929
005230  055164  A       3930         STA     TEMP,X          SAVE OP                                         07 03930
005231  140466  A       3931         SUB     CXF                                                         V2  07 03931
005232  001010  A       3932         JAZ     RBE10           PARAMETER XFER ?                                07 03932
005233  005236  R
005234  015017  A       3933         LDA     AOPSTK,X        NO. INITIALIZE V$RERR STACK                     07 03933
005235  001006  A       3934         DATA    01006           SKIP                                            07 03934
005236  015000  A       3935 RBE10   LDA     OPSTKP,X                                                        07 03935
005237  005311  A       3936         DAR                     PUSH V$RERR STACK                           FG  07 03936
005240  055000  A       3937         STA     OPSTKP,X                                                        07 03937
005241  005014  A       3938         TAX                                                                     07 03938
005242  024145  A       3939         LDB     BDEB            POINT B AT V$RERR DATA BLOCK                    07 03939
005243  016164  A       3940         LDA     TEMP,B          RELOAD OP                                       07 03940
005244  055000  A       3941         STA     0,X             PUSH OP ONTO V$RERR STACK                       07 03941
005245  026016  A       3942         LDB     ANRB,B          POINT B AT V$FORTIO DATA BLOCK                  07 03942
005246  034141  A       3943         LDX     RBEB            POINT X AT V$RERR DATA BLOCK                    07 03943
                        3945 ************************************************************                   07 03945
                        3946 * MOVE ADDRESSES FROM NON-REENTRANT MODULE TO REENTRANT *                      07 03946
                        3947 ************************************************************                   07 03947
005247  016151  A       3949         LDA     RETURN,B                                                        07 03949
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005250 055151 A 3950          STA     RETURN,X        MOVE CALL SEQ ADDRESS                                   07 03950
005251 006505 A 3951          JSR     TBK,X           TEST RETURN ADDRESS IN BACKGROUND                       07 03951
005252 006262 R
005253 120471 A 3952          ADD     TEN                                                                     07 03952
005254 006505 A 3953          JSR     TBK,X           TEST PARAMETER LIST IN BACKGROUND                       07 03953
005255 006262 R
005256 005021 A 3954          TBA                                                                             07 03954
005257 006505 A 3955          JSR     TBK,X           TEST 1ST WORD OF DATA BLOCK IN BACKGRND                 07 03955
005260 006262 R
005261 006120 A 3956          ADDI    /YY-1                                                           V2      07 03956
005262 000176 A
005263 006505 A 3957          JSR     TBK,X           TEST LAST WORD OF DATA BLOCK IN BACKGRND                07 03957
005264 006262 R
005265 034122 A 3958          LDX     RBEB                                                                    07 03958
005266 016015 A 3959          LDA     ANPOJ,B                                                                 07 03959
005267 055015 A 3960          STA     ANPOJ,X         MOVE NON-REENTRANT POP/JUMP ADDRESS                     07 03960
005270 006505 A 3961          JSR     TBK,X           TEST NON-REENTRANT POP/JUMP IN BACKGROUND               07 03961
005271 006262 R
005272 034115 A 3962          LDX     RBEB            POINT X AT REENTRANT BLOCK                              07 03962
005273 016000 A 3963          LDA     OPSTKP,B                                                                07 03963
005274 145016 A 3964          SUB     ANRB,X                                                                  07 03964
005275 006140 A 3965          SUBI    VOPSTK-BASE     COMPARE WITH BOTTOM OF STACK                    V2      07 03965
005276 000127 A
005277 001004 A 3966          JAN     RBE90           ERROR/ PROTECTION /                                     07 03966
005300 005366 R
005301 006140 A 3967          SUBI    STKSZ                                                           V2      07 03967
005302 000012 A
005303 001002 A 3968          JAP     RBE90           ERROR/ PROTECTION /                                     07 03968
005304 005366 R
005305 046000 A 3969          INR     OPSTKP,B        POP V$FORTIC STACK                              FG      07 03969
005306 024101 A 3970          LDB     RBEB            POINT B AT V$RERR DATA BLOCK                            07 03970
005307 016164 A 3971          LDA     TEMP,B          RELOAD OP                                               07 03971
005310 140466 A 3972          SUB     CXF                                                             V2      07 03972
005311 001016 A 3973          JANZ    RBE4            IS OP PARAMETER XFER ?                          V2      07 03973
005312 005316 R
005313 016172 A 3974          LDA     XFFL,B          YES. GET XFER ENABLE FLAG                               07 03974
005314 001010 A 3975          JAZ     RBE90           EXIT IF ILLEGAL OP                                      07 03975
005315 005366 R
               3976 VII1      CONT                                                                    FG      07 03976
        005316 R 3977 RBE4    EQU     *                                                               V2      07 03977
               3978           IFF     VORTEX-2                                                        V2      07 03978
005316 103046 A 3979          OMB     MAP,V$ST3       SET EXEC STATE TO NM                            V2      07 03979
005317 000337 A
005320 005101 A 3980          INCR    1               SET ALOC ENTRY FLAG                             V2      07 03980
005321 001006 A 3981          DATA    01006                                                           V2      07 03981
               3982 NUC1      CONT                                                                    FG      07 03982
               3983 **********************************                                                      07 03983
               3984 * REENTRANT MODULE CALLED BY DIRECT JUMP *                                                07 03984
               3985 **********************************                                                      07 03985
        005322 R 3986 V$RER1  EQU     *                                                                       07 03986
005322 005001 A 3987          TZA                     RESET ALOC ENTRY FLAG                           V2      07 03987
005323 056014 A 3988          STA     ALOC,B                                                          V2      07 03988
               3989 **********                                                                                07 03989
               3990 * TEST 07 *                                                                               07 03990
               3991 **********                                                                                07 03991
005324 036003 A 3992          LDX     OPSTKP,B                                                        V2      07 03992
005325 015000 A 3993          LDA     0,X             GET OP IN A                                             07 03993
005326 056164 A 3994          STA     TEMP,B          SAVE                                                    07 03994
005327 004346 A 3995          LSRA    6                                                                       07 03995
005330 001010 A 3996          JAZ     RBE15           IS OP RETURN ADDRESS ?                          FG      07 03996
005331 005334 R
               3997           POPJ                    YES. RETURN                                     FG      07 03997
005332 001000 A
005333 004110 R
005334 015000 A 3998 RBE15    LDA     0,X             RELOAD OP                                       FG      07 03998
005335 005144 A 3999          IXR     1               POP STACK                                       FG      07 03999
005336 076000 A 4000          STX     OPSTKP,B                                                                07 04000
005337 140465 A 4001          SUB     CTR                                                             V2      07 04001
005340 001004 A 4002          JAN     ER4             ERROR 4/ILLEGAL OP/                                     07 04002
005341 005702 R
005342 001010 A 4003          JAZ     RBE25           NO UNIT ASSOCIATED WITH TERMINATE CALL                  07 04003
005343 005357 R
005344 005311 A 4004          DAR                                                                     V2      07 04004
005345 001013 A 4005          JAZ     RBE30           NO UNIT ASSOCIATED WITH PARAM XFER CALL                 07 04005
005346 005361 R
005347 006140 A 4006          SUBI    RBEJTE-RBEJT-1                                                  V2      07 04006
005350 000016 A
005351 001002 A 4007          JAP     ER4             ERROR 4/ILLEGAL OP/                                     07 04007
005352 005702 R
005353 036151 A 4008          LDX     RETURN,B                                                                07 04008
005354 035004 A 4009          LDX     1,X             POINT X AT FORTRAN UNIT NUMBER                          07 04009
005355 015000 A 4010          LDA     0,X             GET FORTRAN UNIT NUMBER                                 07 04010
005356 056167 A 4011          STA     UNIT,B          STORE                                                   07 04011
005357 005001 A 4012 RBE25    TZA                                                                             07 04012
005360 056172 A 4013          STA     XFFL,B          DISABLE PARAMETER XFER                                  07 04013
005361 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           OMB     MAP,V$ST0       SET EXEC STATE TO 00                            V2      07 04018
               4019 NV2NUC    CONT                                                                    FG      07 04019
005362 006035 A 4020          LDXE    RBEJT-CTRV,X    GET PROCESSOR ADDRESS                           V2      07 04020
005363 005364 R
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                    4021          IFF     NUC                                                    FG 07 04021
                    4022          GOTO    NV2NUC                                                 FG 07 04022
                    4023          IFT     VII                                                    FG 07 04023
                    4024          UME     MAP,V$ST3       SET EXEC STATE TO NN                   V2 07 04024
                    4025 NV2NUC   CONT                                                           FG 07 04025
005364 006705 A     4026          IJMP    0,X             EXIT TO PROCESSOR                         07 04026
005365 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
005366 005001 A     4034 RBE90    TZA                                                               07 04034
005367 001000 A     4035          JMP     TBK             FORCE TBK ERROR                           07 04035
005370 006262 R
                    4036 VII1     CONT                                                           FG 07 04036
                    4037 NUC1     CONT                                                           FG 07 04037
                    4038 **********************                                                      07 04038
                    4039 * EXIT JUMP TABLE *                                                       07 04039
                    4040 **********************                                                      07 04040
005371 006413 R     4041 RBEJT    PZE     TRM             TERMINATE                                 07 04041
005372 005101 R     4042          PZE     PMP             PARAMETER XFER                         V2 07 04042
005373 003356 R     4043          PZE     PAX             BACKSPACE                                 07 04043
005374 003356 R     4044          PZE     PAX             WRITE EOF                                 07 04044
005375 003356 R     4045          PZE     PAX             REWIND                                    07 04045
005376 004650 R     4046          PZE     PRW             READ                                      07 04046
005377 004650 R     4047          PZE     PRW             WRITE                                     07 04047
005400 000202 R     4048          PZE     CLS             CLOSE RMD FILE                            07 04048
005401 000202 R     4049          PZE     CLS             CLOSE RMD FILE                            07 04049
005402 003161 R     4050          PZE     OPN             OPEN RMD FILE                             07 04050
005403 003161 R     4051          PZE     OPN             OPEN RMD FILE                             07 04051
005404 004115 R     4052          PZE     PRD             DECODE                                 PD 07 04052
005405 004115 R     4053          PZE     PRD             ENCODE                                 PD 07 04053
005406 004771 R     4054          PZE     PRX             READ - DIRECT ACCESS                      07 04054
005407 004771 R     4055          PZE     PRX             WRITE - DIRECT ACCESS                     07 04055
       005410 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
005410 006727 R     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 *          RCHAR = CHARACTER TO BE OUTPUT                               * 07 04072
                    4073 *                                                                        * 07 04073
                    4074 * EXIT :  NO SPECIAL CONDITIONS                                         * 07 04074
                    4075 *                                                                        * 07 04075
                    4076 ***********************************************************************  07 04076
005411 016052 A     4078 RCH      LDA     COUNT,B                                                  07 04078
005412 005311 R     4079          DAR                     DECREMENT COUNT                          07 04079
005413 001002 A     4080          JMP     RCH2                                                   FG 07 04080
005414 005417 R
                    4081          POPJ                    EXIT IF COUNT .LE. 0                   FG 07 04081
005415 001000 A
005416 004110 R
005417 056052 A     4082 RCH2     STA     COUNT,B                                                FG 07 04082
005420 016021 A     4083          LDA     ASCB,B                                                    07 04083
005421 146002 A     4084          SUB     =OSSCB,B                                                  07 04084
005422 007400 A     4085          SKP                                                            V2 07 04085
005423 003010 A     4086          XAZ     SCF             SET OVFL IF BUFFER SCB                 V2 07 04086
005424 001757 R
                    4087          TSAB    OVFL,UR,RCH10                                          V2 07 04087
005425 016154 A
005426 006411 A
005427 005446 R
                    4088 *********                                                                07 04088
                    4089 * INPUT *                                                               07 04089
                    4090 *********                                                                07 04090
005430 001001 A     4091          JMP     RCH5                                                   V2 07 04091
005431 005440 R
                    4092 ****************************                                             07 04092
                    4093 * INPUTTING FROM NON-BUFFER *                                           07 04093
                    4094 ****************************                                             07 04094
                    4095          PUSHJ   JCC             INPUT CHARACTER                        V2 07 04095
005432 006010 A
005433 001754 R
005434 006505 A
005435 005042 R
005436 001000 A     4096          JMP     RCH             LOOP TILL DONE                            07 04096
005437 005411 R
                    4097 ****************************                                             07 04097
                    4098 * INPUTTING FROM BUFFER *                                              07 04098
                    4099 ****************************                                             07 04099
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                    4100 RCH5   PUSHJ   CBC          INPUT CHARACTER FROM BUFFER              V2  07 04100
005440 006010 A
005441 000115 R
005442 006505 A
005443 005042 R
005444 001000 A     4101        JMP     RCH          LOOP TILL DONE                               07 04101
005445 005411 R
                    4102 **********                                                               07 04102
                    4103 * OUTPUT *                                                               07 04103
                    4104 **********                                                               07 04104
005446 001001 A     4105 RCH10  JDF     RCH15                                                     V2  07 04105
005447 005456 R
                    4106 ************************                                                 07 04106
                    4107 * OUTPUT TO NON-BUFFER *                                                 07 04107
                    4108 ************************                                                 07 04108
                    4109        PUSHJ   PCH          PUT CHARACTER                            V2  07 04109
005450 006010 A
005451 003557 R
005452 006505 A
005453 005042 R
005454 001000 A     4110        JMP     RCH          LOOP TILL DONE                               07 04110
005455 005411 R
                    4111 ********************                                                     07 04111
                    4112 * OUTPUT TO BUFFER *                                                     07 04112
                    4113 ********************                                                     07 04113
                    4114 RCH15  PUSHJ   OCP          OUTPUT CHARACTER TO BUFFER               V2  07 04114
005456 006010 A
005457 002646 R
005460 006505 A
005461 005042 R
005462 001000 A     4115        JMP     RCH          LOOP TILL DONE                               07 04115
005463 005411 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
                    4126 *                                                                      * 07 04126
                    4127 ************************************************************************ 07 04127
                    4129 RCL    TRAB    RWFL,LF,RCL5     LOGICAL FILE ?                          V2  07 04129
005464 016134 A
005465 006441 A
005466 005471 R
005467 006400 A     4130        BT      ASET+RM,RCL10    YES. RMD ?                              D.1 07 04130
005470 005476 R
                    4131 RCL5   ZAB     LRWC             NO. FORCE RECYCLE                       V2  07 04131
005471 005001 A
005472 056123 A
005473 056144 A     4132        STA     PBWC,B           CLEAR WORD COUNTS                            07 04132
005474 001000 A     4133        JMP     RCL15                                                    D.1 07 04133
005475 005506 R
005476 006444 A     4134 RCL10  BT      ARST+TR,RCL15    TERMINATE LOGICAL RMD ?                 D.1 07 04134
005477 005506 R
                    4135        TNZAB   LRWC,RCL15       YES. END OF LOGICAL RECORD ?            D.1 07 04135
005500 016123 A
005501 001016 A
005502 005506 R
005503 046121 A     4136        INR     LRECNO,B         YES. BUMP LOGICAL RECORD NUMBER         D.1 07 04136
                    4137        POPJ                     EXIT                                     FG 07 04137
005504 001000 A
005505 004110 R
                    4138 RCL15  PUSHJ   GBA              STEP THRU LOGICAL BUFFER                D.1 07 04138
005506 006010 A
005507 001173 R
005510 006505 A
005511 005042 R
005512 016123 A     4139        LDA     LRWC,B                                                       07 04139
005513 005111 A     4140        IAR                                                                  07 04140
005514 146122 A     4141        SUB     LRSZ,B                                                       07 04141
005515 001004 A     4142        JAN     RCL              LOOP TILL LOGICAL BOUNDARY PASSED       D.1 07 04142
005516 005464 R
005517 046123 A     4143        INR     LRWC,B           RESTORE WORD COUNTS                          07 04143
005520 046144 A     4144        INR     PBWC,B                                                       07 04144
                    4145        DAB     BFWPT            AND BUFFER POINTER                          07 04145
005521 016025 A
005522 005311 A
005523 056025 A
                    4146        POPJ                     EXIT                                     FG 07 04146
005524 001000 A
005525 004110 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
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                    4153 *          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
    005526 R        4171 RCP    EQU     *                                                                 V2   07 04171
                    4172        TRAB    RWFL,IN,RCP5  INITIALIZING ?                                      V2   07 04172
005526 016154 A
005527 006446 A
005530 005544 R
005531 006442 A 4173        BT      ARST+PO,RCP3        YES. ANY UNPOSTED DATA ?                             07 04173
005532 005540 R
                    4174        PUSHJ   PSB             YES. POST BUFFER                                  V2   07 04174
005533 006010 A
005534 005011 R
005535 006505 A
005536 005042 R
005537 016154 A 4175        LDA     RWFL,B          RESTORE FLAG WORD                                        07 04175
005540 006451 A 4176 RCP3   BT      ARST+WR,RCP15       READ ?                                            V2   07 04176
005541 005570 R
005542 001000 A 4177        JMP     RCP25           NO. WRITE                                                07 04177
005543 005617 R
                    4178 RCP5   MOVBAB  PBSZ,PBWC       RELOAD PHYSICAL WORD COUNT                           07 04178
005544 016143 A
005545 056144 A
005546 016027 A 4179        LDA     ALBF,B                                                               D.1  07 04179
005547 146025 A 4180        SUB     BFWPT,B                                                              D.1  07 04180
005550 005311 A 4181        DAR                                                                          D.1  07 04181
005551 126020 A 4182        AND     APBF,B                                                               D.1  07 04182
005552 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
005553 016020 A
005554 005311 A
005555 056025 A
                    4185        TSAB    RWFL,WR,RCP20       READ ?                                       V2   07 04185
005556 016154 A
005557 006411 A
005560 005610 R
005561 006442 A 4186        BT      ARST+PO,RCP15       YES. ANY UNPOSTED DATA ?                         C.1  07 04186
005562 005570 R
                    4187        PUSHJ   PSB             YES. POST BUFFER                                 V2   07 04187
005563 006010 A
005564 005011 R
005565 006505 A
005566 005042 R
005567 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
005570 006400 A 4192 RCP15  BT      ASET+RM,RCP20       RMD ?                                            V2   07 04192
005571 005610 R
                    4193        TZAB    UNIT,RCP20      NO. DONT CLEAR IF L=0                            D.1  07 04193
005572 016167 A
005573 001010 A
005574 005610 R
005575 036010 A 4194        LDX     =DFCB,B                                                              D.1  07 04194
                    4195        MOVBAB  LRWC,SAVE+2     SAVE LRWC                                            07 04195
005576 016123 A
005577 056034 A
                    4196        MOVXAB  0,LRWC          SET LOGICAL WORD COUNT = FCB(0)                      07 04196
005600 015000 A
005601 056123 A
                    4197        PUSHJ   CLR             CLEAR BUFFER                                     V2   07 04197
005602 006010 A
005603 000145 R
005604 006505 A
005605 005042 R
                    4198        MOVBAB  SAVE+2,LRWC     RESTORE LRWC                                         07 04198
005606 016034 A
005607 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
005610 006010 A
005611 006105 R
005612 006505 A
005613 005042 R
                    4203        TRAB    RWFL,WR,RCP30       READ ?                                       V2   07 04203
005614 016154 A
005615 006451 A
005616 005674 R
005617 006441 A 4204 RCP25  BT      ARST+LF,RCP40       NO, WRITE. LOGICAL FILE ?                        D.1  07 04204
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005620 005663 R
005621 036010 A 4205          LDX     ADFCB,B         YES. POINT X AT FCB                          V2  07 04205
005622 006440 A 4206          BT      ARST+RM,RCP40     RMD ?                                      D.1 07 04206
005623 005663 R
005624 110423 A 4207          ORA     POS             YES. SET POST FLAG                           D.1 07 04207
005625 056154 A 4208          STA     RWFL,B                                                           07 04208
005626 015014 A 4209          LDA     12,X                                                             07 04209
005627 110437 A 4210          ORA     FPOS            ALSO IN FCB(12)                              V2  07 04210
005630 055014 A 4211          STA     12,X                                                             07 04211
               4212           TRAB    RWFL,RB,RCP35       IS READ BEFORE WRITE ENABLED ?               07 04212
005631 016154 A
005632 006443 A
005633 005660 R
005634 036016 A 4213          LDX     ANRB,B          YES. POINT X AT V$FORTIO DATA BLOCK               07 04213
005635 015104 A 4214          LDA     IOCONT,X                                                         07 04214
005636 150451 A 4215          ANA     BR8             CLEAR WRITE BIT IN V$IOC CONTROL WORD            07 04215
005637 055104 A 4216          STA     IOCONT,X                                                         07 04216
               4217           PUSHJ   RPB             READ NEXT PHYSICAL RECORD                    V2  07 04217
005640 006010 A
005641 006105 R
005642 006505 A
005643 005042 R
               4218           SUTBBB  PRECNO,PBRC,PRECNO      RESTORE PHYSICAL RECORD NUMBER           07 04218
005644 016145 A
005645 146142 A
005646 056145 A
005647 036016 A 4219          LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                   07 04219
005650 015106 A 4220          LDA     IOSTAT,X        GET STATUS OF READ                               07 04220
005651 005311 A 4221          DAR                                                                      07 04221
005652 001004 A 4222          JAN     *+3             TEST FOR EOF                                     07 04222
005653 005655 R
005654 055106 A 4223          STA     IOSTAT,X        CLEAR EOF FLAG ON READ BEFORE WRITE              07 04223
005655 015104 A 4224          LDA     IOCONT,X                                                         07 04224
005656 110431 A 4225          ORA     BS8             RESTORE WRITE BIT IN V$IOC CONTROL WORD          07 04225
005657 055104 A 4226          STA     IOCONT,X                                                         07 04226
005660 036010 A 4227 RCP35    LDX     ADFCB,B                                                          07 04227
               4228           MOVBAX  PRECNO,13       UPDATE FCB(13)                                   07 04228
005661 016145 A
005662 055015 A
               4229 RCP40     TSAB    RWFL,IN,RCP50   EXIT ON INITIALIZE                           D.1 07 04229
005663 016154 A
005664 006406 A
005665 005674 R
005666 006405 A 4230          BT      ASET+SC,RCP50                                                D.1 07 04230
005667 005674 R
               4231           PUSHJ   CLB             CLEAR BUFFER AFTER WRITE                     D.1 07 04231
005670 006010 A
005671 000145 R
005672 006505 A
005673 005042 R
005674 016154 A 4232 RCP50    LDA     RWFL,B                                                       D.1 07 04232
005675 150446 A 4233          ANA     SCR             CLEAR CLEAR SUPPRESS FLAG                    D.1 07 04233
005676 150447 A 4234          ANA     INR             CLEAR INITIALIZE FLAG                        V2  07 04234
005677 056154 A 4235          STA     RWFL,B                                                           07 04235
               4236           POPJ                    EXIT                                          FG 07 04236
005700 001000 A
005701 004110 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$RERR                                        V2* 07 04242
               4243 *                                                                                * 07 04243
               4244 * ENTRY:  ER1 FORMAT                                                            * 07 04244
               4245 *          ER2 MODE                                                              * 07 04245
               4246 *          ER3 DATA                                                              * 07 04246
               4247 *          ER4 I/O ERROR                                                         * 07 04247
               4248 *                                                                                * 07 04248
               4249 * EXIT :  DIRECT TO CAN                                                         * 07 04249
               4250 *          ERN = ERROR NUMBER-1                                                  * 07 04250
               4251 *          ERROR OP PUSHED                                                   V2* 07 04251
               4252 *                                                                                * 07 04252
               4253 ********************************************************************************** 07 04253
005702 046060 A 4255 ER4      INR     ERN,B           I/O                                              07 04255
005703 046060 A 4256 ER3      INR     ERN,B           DATA                                             07 04256
005704 046060 A 4257 ER2      INR     ERN,B           MODE                                             07 04257
005705 036016 A 4258 ER1      LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                   07 04258
005706 016060 A 4259          LDA     ERN,B                                                            07 04259
005707 055060 A 4260          STA     ERN,X           MOVE ERROR NUMBER                                07 04260
005710 010421 A 4261          LDA     OER             GET ERROR OP                                     07 04261
               4262           PUSHF                                                                    07 04262
005711 036016 A
005712 035000 A
005713 005344 A
005714 055000 A
005715 005041 A
005716 036016 A
005717 055000 A
005720 001000 A 4263          JMP     CAN             EXIT TO V$FORTIO                                 07 04263
005721 000101 R
               4264           EJEC                                                                     07 04264
               4265 ********************************************************************************** 07 04265
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                    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
005722 016122 A
005723 056123 A
                    4285         DABB    ALBF,BFWPT     INITIALIZE BUFFER WORD POINTER                 V2    07 04285
005724 016027 A
005725 005311 A
005726 056025 A
                    4286         MOVBAB  PBSZ,PBWC      INITIALIZE PHYSICAL WORD COUNT                       07 04286
005727 016143 A
005730 056144 A
                    4287         TRAB    RWFL,LF,RFL5       LOGICAL FILE ?                             V2    07 04287
005731 016154 A
005732 006441 A
005733 005736 R
005734 006400 A 4288         BT      ASLT+RM,RFL10      YES. TEST IF RMD                               V2    07 04288
005735 005742 R
                    4289 ************************                                                       V2    07 04289
                    4290 * NOT LOGICAL RMD FILE *                                                       V2    07 04290
                    4291 ************************                                                       V2    07 04291
005736 006411 A 4292 RFL5    BT      ASLT+WR,RFL40      READ ?                                        FG    07 04292
005737 006023 R
005740 001000 A 4293         JMP     RCP            YES. RECYCLE PHYSICAL BUFFER                         07 04293
005741 005526 R
                    4294 ************************                                                       V2    07 04294
                    4295 * LOGICAL RMD FILE *                                                          V2    07 04295
                    4296 ************************                                                       V2    07 04296
005742 016020 A 4297 RFL10   LDA     ADFF,B                                                                  07 04297
005743 126143 A 4298         ADD     PBSZ,B                                                                  07 04298
005744 146027 A 4299         SUB     ALBF,B                                                                  07 04299
005745 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
005746 036010 A 4304         LDX     ADFCB,B                                                                 07 04304
005747 015015 A 4305         LDA     13,X                                                                    07 04305
005750 001010 A 4306         JAZ     RFL50          TEST IF BUFFER EMPTY                                     07 04306
005751 006025 R
005752 146145 A 4307         SUB     PRECNO,B       COMPARE BUFFER ADDRESS WITH PRECNO                       07 04307
005753 001010 A 4308         JAZ     RFL20          LRECNO RESIDENT IF EQUAL                                 07 04308
005754 006005 R
005755 001002 A 4309         JAP     RFL50                                                                   07 04309
005756 006025 R
005757 056164 A 4310         STA     TEMP,B         SAVE -(RECORD INCREMENT)                                 07 04310
005760 126142 A 4311         ADD     PBRC,B                                                                  07 04311
005761 005311 A 4312         DAR                                                                             07 04312
005762 001004 A 4313         JAN     RFL50                                                                   07 04313
005763 006025 R
                    4314 ************************                                                       07 04314
                    4315 * LRECNO IS RESIDENT *                                                          07 04315
                    4316 ************************                                                       07 04316
                    4317         MOVXAB  13,PRECNO      UPDATE PHYSICAL RECORD NUMBER                        07 04317
005764 015015 A
005765 056145 A
005766 005021 A 4318         TBX                    SAVE BASE REGISTER                                       07 04318
005767 005001 A 4319         TZA                                                                             07 04319
005770 146164 A 4320         SUB     TEMP,B         GET RECORD INCREMENT                                     07 04320
005771 004560 A 4321         LLSR    16                                                                      07 04321
005772 165201 A 4322         MUL     BD120,X        CONVERT TO WORD INCREMENT                          V2    07 04322
005773 065164 A 4323         STP     TEMP,X                                                                  07 04323
005774 005042 A 4324         TXB                    RESTORE BASE REGISTER B                                  07 04324
005775 016027 A 4325         LDA     ALBF,B                                                                  07 04325
005776 126164 A 4326         ADD     TEMP,B         BUMP LOGICAL BUFFER ADDRESS                              07 04326
005777 056027 A 4327         STA     ALBF,B                                                                  07 04327
006000 005311 A 4328         DAR                                                                             07 04328
006001 056025 A 4329         STA     BFWPT,B        ALSO BUFFER WORD POINTER                                 07 04329
006002 016144 A 4330         LDA     PBWC,B                                                                  07 04330
006003 146164 A 4331         SUB     TEMP,B         DECREMENT PHYSICAL WORD COUNT                            07 04331
006004 056144 A 4332         STA     PBWC,B                                                                  07 04332
                    4333 RFL20   ISSB    RWFL,WR,RFL30      READ ?                                     V2    07 04333
006005 016154 A
006006 006411 A
006007 006015 R
                    4334         ADBBB   PRECNO,PBRC,PRECNO     YES. BUMP PHYSICAL RECNO                V2    07 04334
006010 016145 A
006011 126142 A
006012 056145 A
```

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                    4335          POPJ                    AND EXIT                                  FG 07 04335
006013 001000 A
006014 004110 R
006015 110423 A     4336 RFL30    ORA     POS             SET POST FLAG ON WRITE                    V2 07 04336
006016 056154 A     4337          STA     RWFL,B                                                    V2 07 04337
006017 036010 A     4338          LDX     ADFCB,B         POINT X AT FCB                            V2 07 04338
006020 015014 A     4339          LDA     12,X                                                      V2 07 04339
006021 110437 A     4340          ORA     FPOS            ALSO IN FCB                               V2 07 04340
006022 055014 A     4341          STA     12,X                                                      V2 07 04341
                    4342 RFL40    POPJ                    AND EXIT                                  FG 07 04342
006023 001000 A
006024 004110 R
                    4343 ************************                                                        07 04343
                    4344 * LRECNO NOT IN BUFFER *                                                      07 04344
                    4345 ************************                                                        07 04345
006025 016154 A     4346 RFL50    LDA     RWFL,B                                                        07 04346
006026 110427 A     4347          ORA     INS             SET INITIALIZE FLAG                       V2 07 04347
006027 056154 A     4348          STA     RWFL,B                                                        07 04348
006030 001000 A     4349          JMP     RCP             RECYCLE PHYSICAL BUFFER                       07 04349
006031 005526 R
                    4350          EJEC                                                                  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
006032 R            4367 RNA      EQU     *                                                             07 04367
006032 016052 A     4368 RND      LDA     COUNT,B                                                       07 04368
006033 001004 A     4369          JAN     RNDX            EXIT IF COUNT NEGATIVE                    FG 07 04369
006034 006103 R
006035 146200 A     4370          SUB     BD14,B                                                    V2 07 04370
006036 001004 A     4371          JAN     RND5            IS COUNT .GE. 14 ?                            07 04371
006037 006051 R
006040 016007 A     4372          LDA     ACHB,B          YES                                           07 04372
006041 126200 A     4373          ADD     BD14,B                                                    V2 07 04373
006042 005314 A     4374          DECR    014             POINT X AT LAST DIGIT                         07 04374
006043 016003 A     4375          LDA     ACC,B                                                         07 04375
006044 004241 A     4376          LRLA    1                                                             07 04376
006045 001002 A     4377          JAP     RNDX            EXIT IF NO BUMP                           FG 07 04377
006046 006103 R
006047 001000 A     4378          JMP     RNDL            OTHERWISE PROPAGATE CARRY                     07 04378
006050 006065 R
006051 016007 A     4379 RND5     LDA     ACHB,B                                                        07 04379
006052 126052 A     4380          ADD     COUNT,B                                                       07 04380
006053 005314 A     4381          DECR    014             POINT X AT ROUND POSITION-1                   07 04381
006054 015001 A     4382          LDA     1,X             GET DECIMAL DIGIT                             07 04382
006055 140465 A     4383          SUB     FIVE                                                          07 04383
006056 001004 A     4384          JAN     RNDX            EXIT IF NO CARRY                          FG 07 04384
006057 006103 R
                    4385          TZAB    COUNT,RND10     TEST COUNT=0                                  07 04385
006060 016052 A
006061 001010 A
006062 006100 R
                    4386          ZAX     1               CLEAR LAST DIGIT IN CASE OF OVERFLOW          07 04386
006063 005001 A
006064 055001 A
                    4387 ************************                                                        07 04387
                    4388 * LOOP TO PROPAGATE CARRIES *                                                  07 04388
                    4389 ************************                                                        07 04389
006065 045000 A     4390 RNDL     INR     0,X             BUMP PRECEDING DIGIT                          07 04390
006066 015000 A     4391          LDA     0,X                                                           07 04391
006067 140471 A     4392          SUB     TEN                                                           07 04392
006070 001004 A     4393          JAN     RNDX            EXIT IF NO CARRY                          FG 07 04393
006071 006103 R
006072 005001 A     4394          TZA                                                                   07 04394
006073 055000 A     4395          STA     0,X             CLEAR DIGIT                                   07 04395
006074 005345 A     4396          DECR    043             DECREMENT CHB ARRAY POINTER                   07 04396
006075 146007 A     4397          SUB     ACHB,B                                                        07 04397
006076 001002 A     4398          JAP     RNDL            IS CARRY PROPAGATED OUT OF CHB ?              07 04398
006077 006065 R
006100 046055 A     4399 RND10    INR     DEXP,B          YES. BUMP DECIMAL EXPONENT                    07 04399
006101 005101 A     4400          INCR    1                                                             07 04400
006102 055001 A     4401          STA     1,X             SHIFT CHB RIGHT 1                             07 04401
                    4402 RNDX     POPJ                    EXIT                                      FG 07 04402
006103 001000 A
006104 004110 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
```

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                    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
006105 016154 A
006106 006441 A
006107 006114 R
                    4423 ***************************                                                            07 04423
                    4424 * LOGICAL FILE - SET UP FCB *                                                          07 04424
                    4425 ***************************                                                            07 04425
006110 036010 A     4426         LDX     ADFCB,B        POINT X AT FCB                                          07 04426
                    4427         MOVBAX  PRECNO,3       MOVE PHYSICAL RECNO TO FCB(3)                           07 04427
006111 016145 A
006112 055003 A
006113 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
006114 010464 A     4432 RPB10   LDA     CIO            CALL V$IOC TO DO I/O                              V2    07 04432
006115 006505 A     4433         JSR     PS:,X                                                            V2    07 04433
006116 005042 R
                    4434         TRAB    RWFL,IN,RPB11    INITIALIZING ?                                  E.1   07 04434
006117 016154 A
006120 006446 A
006121 006127 R
006122 016020 A     4435         LDA     APCF,B         YES                                               E.1   07 04435
006123 126143 A     4436         ADD     PBSZ,B                                                           E.1   07 04436
006124 146027 A     4437         SUB     ALOF,B         COMPUTE REMAINING PHYSICAL WORD COUNT              E.1   07 04437
006125 001000 A     4438         JMP     RPB12                                                            E.1   07 04438
006126 006131 R
006127 036016 A     4439 RPB11   LDX     ANRP,B         NOT INITIALIZING                                  E.1   07 04439
006130 015144 A     4440         LDA     PBWC,X         XFER I/O WORD COUNT FROM V$IORTIO                 E.1   07 04440
006131 056144 A     4441 RPB12   STA     PBWC,B                                                           E.1   07 04441
                    4442         TRAB    RWFL,LF,RPB15     LOGICAL FILE ?                                 V2    07 04442
006132 016154 A
006133 006441 A
006134 006137 R
006135 006400 A     4443         BT      ASET+RM,RPB20     YES. RMS ?                                     V2    07 04443
006136 006143 R
                    4444 RPB15   MOVBAB  PBWC,LRSZ      NO. UPDATE LOGICAL WORD COUNT                     V2    07 04444
006137 016144 A
006140 056122 A
                    4445         POPJ                   EXIT                                                FG 07 04445
006141 001000 A
006142 004110 R
                    4446 RPB20   MIRBB   PRECNO,PBRC,PRECNO      RELOAD PHYSICAL RECORD NUMBER                07 04446
006143 016145 A
006144 126142 A
006145 056145 A
                    4447         POPJ                   EXIT                                                FG 07 04447
006146 001000 A
006147 004110 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 IN 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
006150 036016 A     4471 SCH     LDX     ANRB,B                                                                 07 04471
006151 005041 A     4472         TXA                     GET DATA BLOCK ADDRESS                                 07 04472
006152 006120 A     4473         ADDI    DMYHDR-10       ADD BIAS                                          V2   07 04473
006153 000037 A
006154 056146 A     4474         STA     PRLINK,B        POINT PREVIOUS LINK AT CHAIN HEADER                    07 04474
006155 015120 A     4475         LDA     LNKCNT,X        GET LINK COUNT                                         07 04475
006156 056052 A     4476         STA     COUNT,D         STORE AS LOOP COUNT                                    07 04476
006157 035051 A     4477         LDX     DMYHDR,X        POINT X AT HEAD OF CHAIN                               07 04477
                    4478 ***************                                                                        07 04478
                    4479 * SEARCH LOOP *                                                                       07 04479
                    4480 ***************                                                                        07 04480
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006160 016052 A 4481 SCHLP   LDA     COUNT,B                                                  07 04481
006161 001010 A 4482         JAZ     SCHY        FLAG NO FIND BY EXIT WITH A=0             FG 07 04482
006162 006211 R
006163 005311 A 4483         DAR                 DECREMENT COUNT                           07 04483
006164 056052 A 4484         STA     COUNT,B                                               07 04484
               4485         IFF     NUC                                                   FG 07 04485
               4486         GOTO    NUC1                                                  FG 07 04486
               4487         IF1     VII                                                   FG 07 04487
               4488         GOTO    VII1                                                  FG 07 04488
               4489         TZAB    ALOC,SCH5   VORTEX BKGND CALLING NUCLEUS ?          V2   07 04489
006165 016014 A
006166 001010 A
006167 006200 R
006170 076164 A 4490         STX     TEMP,B      YES. SAVE X                               07 04490
006171 005041 A 4491         TXA                                                           07 04491
006172 006505 A 4492         JSR     TBK,X       TEST FCB(0) IN BACKGROUND                 07 04492
006173 006262 R
006174 120472 A 4493         ADD     D15                                                   07 04493
006175 006505 A 4494         JSR     TBK,X       TEST FCB(14) IN BACKGROUND                07 04494
006176 006262 R
006177 036164 A 4495         LDX     TEMP,B      RESTORE X                                 07 04495
               4496 NUC1     CONT                                                          FG 07 04496
               4497 VII1     CONT                                                          FG 07 04497
006200 015013 A 4498 SCH5    LDA     11,X                                                  07 04498
006201 146167 A 4499         SUB     UNIT,B      COMPARE WITH U                            07 04499
006202 001010 A 4500         JAZ     SCHX        EXIT ON FIND WITH X=FCB ADDRESS           07 04500
006203 006210 R
006204 076146 A 4501         STX     PRLINK,B    UPDATE PREVIOUS LINK                      07 04501
006205 035012 A 4502         LDX     10,X        POINT X AT NEXT LINK                      07 04502
006206 001000 A 4503         JMP     SCHLP       LOOP TILL CHAIN EXHAUSTED                 07 04503
006207 006160 R
006210 005041 A 4504 SCHX    TXA                 FLAG FIND BY A.NE.0 (FCB ADDRESS)         07 04504
               4505 SCHY     POPJ                EXIT                                      FG 07 04505
006211 001000 A
006212 004110 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
               4518 ********************************************************************** 07 04518
006213 005024 A 4520 SHA     TBX                 LOAD X AS BASE POINTER                    07 04520
               4521 SHAL     TMAX    COUNT,SHA50 TEST DIRECTION OF SHIFT                  V2   07 04521
006214 015052 A
006215 001004 A
006216 006242 R
006217 001010 A 4522         JAZ     SHAX        EXIT WHEN FINISHED                        07 04522
006220 006257 R
006221 005311 A 4523         DAR                 DECREMENT SHIFT COUNT                     07 04523
006222 055052 A 4524         STA     COUNT,X                                               07 04524
               4525 ***************                                                       07 04525
               4526 * RIGHT SHIFT *                                                       07 04526
               4527 ***************                                                       07 04527
006223 025006 A 4528         LDB     ACC+3,X                                               07 04528
006224 015005 A 4529         LDA     ACC+2,X                                               07 04529
006225 004501 A 4530         LASR    1                                                     07 04530
006226 065006 A 4531         STB     ACC+3,X     SHIFT ACC(3)                              07 04531
006227 025005 A 4532         LDB     ACC+2,X                                               07 04532
006230 015004 A 4533         LDA     ACC+1,X                                               07 04533
006231 004501 A 4534         LASR    1                                                     07 04534
006232 065005 A 4535         STB     ACC+2,X     SHIFT ACC(2)                              07 04535
006233 025004 A 4536         LDB     ACC+1,X                                               07 04536
006234 015003 A 4537         LDA     ACC,X                                                 07 04537
006235 004501 A 4538         LASR    1                                                     07 04538
006236 065004 A 4539         STB     ACC+1,X     SHIFT ACC(1)                              07 04539
006237 055003 A 4540         STA     ACC,X       SHIFT ACC(0)                              07 04540
006240 001000 A 4541         JMP     SHAL        LOOP TILL DONE                            07 04541
006241 006214 R
               4542 ***************                                                       07 04542
               4543 * LEFT SHIFT *                                                       07 04543
               4544 ***************                                                       07 04544
006242 015003 A 4545 SHA50   LDA     ACC,X                                                 07 04545
006243 025004 A 4546         LDB     ACC+1,X                                               07 04546
006244 004401 A 4547         LASL    1                                                     07 04547
006245 055003 A 4548         STA     ACC,X       SHIFT ACC(0)                              07 04548
006246 015004 A 4549         LDA     ACC+1,X                                               07 04549
006247 025005 A 4550         LDB     ACC+2,X                                               07 04550
006250 004401 A 4551         LASL    1                                                     07 04551
006251 055004 A 4552         STA     ACC+1,X     SHIFT ACC(1)                              07 04552
006252 015005 A 4553         LDA     ACC+2,X                                               07 04553
006253 025006 A 4554         LDB     ACC+3,X                                               07 04554
006254 004401 A 4555         LASL    1                                                     07 04555
006255 055005 A 4556         STA     ACC+2,X     SHIFT ACC(2)                              07 04556
006256 065006 A 4557         STB     ACC+3,X     SHIFT ACC(3)                              07 04557
006257 005042 A 4558 SHAX    TXB                 RESTORE BASE REGISTER B                   07 04558
               4559          POPJ                EXIT                                      FG 07 04559
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006260 001000 A
006261 004110 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
006262 140316 A 4580 TBK     SUB     V$LUP                                                           07 04580
006263 001004 A 4581         JAN     TBK10           ERROR IF A.LT.V$LUP                             07 04581
006264 006276 R
006265 120316 A 4582         ADD     V$LUP           RESTORE A                                       07 04582
006266 140317 A 4583         SUB     V$LLUP                                                          07 04583
006267 001010 A 4584         JAZ     *+4                                                             07 04584
006270 006273 R
006271 001002 A 4585         JAP     TBK10           ERROR IF A.GT.V$LLUP                            07 04585
006272 006276 R
006273 120317 A 4586         ADD     V$LLUP          RESTORE A                                       07 04586
006274 006705 A 4587         IJMP    0,X             RETURN IF OK                                    07 04587
006275 000000 A
                4588 ************************************                                            07 04588
                4589 * ERROR - CONSTRUCT MEMORY PROTECT VIOLATION *                                   07 04589
                4590 ************************************                                            07 04590
006276 030316 A 4591 TBK10   LDX     V$LUP           POINT X AT 1ST BACKGROUND WORD                  07 04591
006277 010432 A 4592         LDA     TBKJMP                                                          07 04592
006300 055000 A 4593         STA     0,X                                                             07 04593
006301 005001 A 4594         TZA                                                                     07 04594
006302 055001 A 4595         STA     1,X             STORE 'JMP 0' IN BACKGROUND                     07 04595
006303 020302 A 4596         LDB     V$CRS           POINT B AT STACK                                07 04596
006304 076003 A 4597         STX     PR,B            SET DEALOC ADDRESS TO 1ST BACKGROUND WORD       07 04597
                4598         DEALOC                                                                  07 04598
006305 006505 A
006306 000113 E
006307 000700 A
       000432 A 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
                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 BACKWARD      07 04616
                4617 *                                                                               * 07 04617
                4618 * ERRORS: ER1 IF W OUTSIDE LOGICAL RECORD                                       * 07 04618
                4619 *                                                                               * 07 04619
                4620 ********************************************************************************* 07 04620
       006310 R 4622 TIN     EQU     *                                                               07 04622
       006310 R 4623 TOUT    EQU     *                                                               07 04623
                4625          MOVBAB  BFPT,SAVE       SAVE CURRENT VALUE OF BUFFER CHAR PTR           07 04625
006310 016026 A
006311 056032 A
006312 016170 A 4626          LDA     W,B             GET W                                           07 04626
006313 005311 A 4627          DAR                     CONVERT FROM BASE 1 TO BASE 0                   07 04627
006314 056026 A 4628          STA     BFPT,B          STORE AS BUFFER CHARACTER POINTER               07 04628
006315 146032 A 4629          SUB     SAVE,B                                                          07 04629
006316 001004 A 4630          JAN     TIO10           TEST DIRECTION OF REPOSITION                 V2 07 04630
006317 006327 R
                4631 ********************                                                         V2 07 04631
                4632 * POSITION FORWARD *                                                        V2 07 04632
                4633 ********************                                                         V2 07 04633
006320 016122 A 4634          LDA     LRSZ,B          YES                                             07 04634
006321 004241 A 4635          LRLA    1               GET LOGICAL RECORD BYTE COUNT                   07 04635
006322 146170 A 4636          SUB     W,B                                                             07 04636
006323 001004 A 4637          JAN     ER1             ERROR IF W OUTSIDE RECORD /                     07 04637
006324 005705 R
006325 001000 A 4638          JMP     TIOLP                                                           07 04638
006326 006374 R
                4639 ********************                                                         V2 07 04639
                4640 * POSITION BACKWARD *                                                        V2 07 04640
                4641 ********************                                                         V2 07 04641
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006327 016026 A 4642 TI010   LDA     BFPT,B                                                  07 04642
006330 004341 A 4643         LSRA    1              GET WORD POSITION                        07 04643
006331 126027 A 4644         ADD     ALBF,B         GET ADDRESS                              07 04644
006332 146020 A 4645         SUB     APBF,B         COMPARE WITH BUFFER START ADDRESS        07 04645
006333 001002 A 4646         JAP     TI020          EXIT IF STILL IN BUFFER                  07 04646
006334 006361 R
                4647 **********************                                                  07 04647
                4648 * REPOSITION BUFFER *                                                  07 04648
                4649 **********************                                                  07 04649
006335 036010 A 4650         LDX     ADFCB,B                                                 07 04650
006336 013015 A 4651         LDA     13,X           GET BUFFER RECORD NUMBER                 07 04651
006337 146142 A 4652         SUB     PBRC,B                                                  07 04652
006340 056145 A 4653         STA     PRECNO,B       BACK UP FILE                             07 04653
                4654         ADBBB   ALBF,PBSZ,ALBF      BUMP LOGICAL BUFFER ADDRESS         07 04654
006341 016027 A
006342 126143 A
006343 056027 A
                4655         MOVBAB  RWFL,SAVE+1    SAVE FLAG WORD                           07 04655
006344 016154 A
006345 056033 A
006346 006451 A 4656         BT      ARST+WR,TI015       WRITE ?                        V2   07 04656
006347 006352 R
006350 110424 A 4657         ORA     RBS            YES. SET READ BEFORE WRITE FLAG          07 04657
006351 056154 A 4658         STA     RWFL,B                                                  07 04658
                4659 TI015   PUSHJ    RFL            REPOSITION FILE                          07 04659
006352 006010 A
006353 005722 R
006354 006505 A
006355 005042 R
006356 016033 A 4660         LDA     SAVE+1,B       RESTORE FLAG WORD                        07 04660
006357 110426 A 4661         ORA     SCS            SET CLEAR SUPPRESS FLAG                  07 04661
006360 056154 A 4662         STA     RWFL,B                                                  07 04662
                4663 TI020   DABB    ALBF,BFWPT     INITIALIZE BUFFER WORD POINTER           07 04663
006361 016027 A
006362 005311 A
006363 056025 A
006364 016020 A 4664         LDA     APBF,B                                                  07 04664
006365 126143 A 4665         ADD     PBSZ,B                                                  07 04665
006366 146027 A 4666         SUB     ALBF,B                                                  07 04666
006367 056144 A 4667         STA     PBWC,B         REINITIALIZE PHYSICAL WORD COUNT         07 04667
                4668         MOVBAB  LRSZ,LRWC      ALSO LOGICAL WORD COUNT                  07 04668
006370 016122 A
006371 056123 A
                4669         ZAB     SAVE           ALSO CHAR COUNTER                        07 04669
006372 005001 A
006373 056032 A
                4670 ******************                                                      07 04670
                4671 * POSITION LOOP *                                                      07 04671
                4672 ******************                                                      07 04672
006374 016026 A 4673 TIOLP   LDA     BFPT,B                                                  07 04673
006375 146032 A 4674         SUB     SAVE,B                                                  07 04674
006376 001010 A 4675         JAZ     FRS85          EXIT TO FORMAT SCAN WHEN DONE            07 04675
006377 001121 R
006400 016032 A 4676         LDA     SAVE,B                                                  07 04676
006401 046032 A 4677         INR     SAVE,B         BUMP CHAR COUNTER                        07 04677
006402 004257 A 4678         LRLA    15                                                      07 04678
006403 001004 A 4679         JAN     TIOLP          WORD BOUNDARY ?                          07 04679
006404 006374 R
                4680         PUSHJ   GBA            YES. GET NEXT BUFFER ADDRESS       V2   07 04680
006405 006010 A
006406 001173 R
006407 006505 A
006410 005042 R
006411 001000 A 4681         JMP     TIOLP          LOOP TILL DONE                           07 04681
006412 006374 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 04694
                4695 ***************************************************************************07 04695
006413 016154 A 4697 TRM     LDA     RWFL,B                                             V2   07 04697
006414 110425 A 4698         ORA     TRS            SET TERMINATE FLAG                  V2   07 04698
006415 056154 A 4699         STA     RWFL,B                                             V2   07 04699
006416 006441 A 4700         BT      ARST+LF,TRM20       TEST LOGICAL FILE              V2   07 04700
006417 006445 R
                4701 ****************                                                        07 04701
                4702 * LOGICAL FILE *                                                        07 04702
                4703 ****************                                                        07 04703
006420 006440 A 4704         BT      ARST+RM,TRM20       RMD ?                          V2   07 04704
006421 006445 R
006422 006451 A 4705         BT      ARST+WR,TRM10       YES. WRITE ?                   V2   07 04705
006423 006431 R
006424 056154 A 4706         STA     RWFL,B                                                  07 04706
                4707         PUSHJ   RCL            YES. RECYCLE LOGICAL BUFFER        V2   07 04707
```

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006425 006010 A
006426 005464 R
006427 006505 A
006430 005042 R
006431 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
006432 016122 A
006433 055000 A
006434 015002 A 4710         LDA     2,X           GET ACCESS MODE FROM FCB                07 04710
006435 007401 A 4711         SOF                                                           07 04711
006436 006410 A 4712         BT      ASET+8,*+3    SET OVFL IF SEQUENTIAL                  07 04712
006437 006441 R
006440 007400 A 4713         ROF                                                           07 04713
006441 016160 A 4714         LDA     SVRECN,B      RESTORE RECORD NUMBER IF DIRECT         07 04714
006442 003001 A 4715         XOF     TRMI          OTHERWISE UPDATE                        07 04715
006443 006504 R
006444 055003 A 4716         STA     3,X           STORE IN FCB                            07 04716
006445 010422 A 4717 TRM20   LDA     CEX                                                   07 04717
                4718         PUSHF                 PUSH EXIT OP                            07 04718
006446 036016 A
006447 035000 A
006450 005344 A
006451 055000 A
006452 005041 A
006453 036016 A
006454 055000 A
                4719         TRAB    RWFL,LF,TRM30     LOGICAL ?                       V2 07 04719
006455 016154 A
006456 006441 A
006457 006465 R
006460 006400 A 4720         BT      ASET+RM,CAN       YES. EXIT IF RMD                V2 07 04720
006461 000101 R
006462 036010 A 4721         LDX     ADFCB,B                                           V2 07 04721
                4722         MOVBAX  PBSZ,0        IF NON-RMD, SET FCB(0) = PBSZ       V2 07 04722
006463 016143 A
006464 055000 A
                4723 TRM30   TRAB    RWFL,WR,CAN   EXIT ON READ                        D.1 07 04723
006465 016154 A
006466 006451 A
006467 000101 R
006470 006412 A 4724         BT      EC,CAN        EXIT FOR ENCODE/DECODE              PD 07 04724
006471 000101 R
006472 010464 A 4725         LDA     CIO                                               07 04725
                4726         PUSHF                 WRITE LAST NON-LOGICAL RECORD       07 04726
006473 036016 A
006474 035000 A
006475 005344 A
006476 055000 A
006477 005041 A
006500 036016 A
006501 055000 A
006502 001000 A 4727         JMP     CAN           EXIT TO V*FORTIO                    07 04727
006503 000101 R
006504 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
006505 006010 A
006506 001561 R
006507 006505 A
006510 005042 R
                4747         PUSHJ   GBA           GET BUFFER ADDRESS                  V2 07 04747
006511 006010 A
006512 001173 R
006513 006505 A
006514 005042 R
                4748         TSAB    RWFL,WR,UIO4  TEST INPUT OR OUTPUT                V2 07 04748
006515 016154 A
006516 006411 A
006517 006520 R
                4749 *********                                                         07 04749
                4750 * INPUT *                                                        07 04750
                4751 *********                                                         07 04751
006520 036025 A 4752         LDX     BFWPT,B       POINT X AT DATA WORD IN BUFFER      07 04752
006521 015000 A 4753         LDA     0,X           GET DATA WORD                       07 04753
006522 036113 A 4754         LDX     ITEMAD,B      POINT X AT LIST ITEM                07 04754
006523 055000 A 4755         STA     0,X           STORE INPUT DATA WORD IN LIST ITEM  07 04755
006524 001000 A 4756         JMP     UIO           LOOP UNTIL DONE                     07 04756
006525 006505 R
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                    4757 ***********                                                                    07 04757
                    4758 * OUTPUT *                                                                    07 04758
                    4759 ***********                                                                    07 04759
006526 036113 A     4760 UI04   LDX     ITEMAD,B     POINT X AT LIST ITEM                              07 04760
006527 015000 A     4761        LDA     0,X          GET DATA WORD                                     07 04761
006530 036025 A     4762        LDX     BFWPT,B      POINT X AT DATA WORD IN BUFFER                    07 04762
006531 055000 A     4763        STA     0,X          STORE DATA WORD IN OUTPUT BUFFER                  07 04763
006532 001000 A     4764        JMP     UIO          LOOP UNTIL DONE                                   07 04764
006533 006505 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
006534 R            4779 XIN    EQU     *                                                              07 04779
006534 R            4780 XOUT   EQU     *                                                              07 04780
                    4782        MOVBAB  BLNK1,BCHAR  LOAD BLANK AS REPEAT CHARACTER            V2    07 04782
006534 016202 A
006535 056030 A
                    4783        MOVBAB  N,COUNT      SET REPEAT COUNT TO N                             07 04783
006536 016125 A
006537 056052 A
                    4784        MOVBAB  ABSCB,ASCB   SET SCB TO BUFFER                                 07 04784
006540 016002 A
006541 056021 A
                    4785        PUSHJ   RCH          REPEAT CHARACTER I/O N TIMES                  V2    07 04785
006542 006010 A
006543 005411 R
006544 006505 A
006545 005042 R
006546 001000 A     4786        JMP     FRS5         RESUME FORMAT SCAN                                07 04786
006547 000475 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
                    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
006550 R            4806 ZIN    EQU     *                                                              07 04806
006550 R            4807 ZOUT   EQU     *                                                              07 04807
                    4809        ZAB     AIBUF-1      SET LIST ITEM SCB(0)=0 (BYTE COUNT)               07 04809
006550 003001 A
006551 056107 A
                    4810        MOVBAB  ITEMAD,AIBUF SET LIST ITEM SCB(1)=ITEM ADDRESS                 07 04810
006552 016113 A
006553 056110 A
006554 016171 A     4811        LDA     W1,B                                                           07 04811
006555 005111 A     4812        JAZ                                                                    07 04812
006556 004301 A     4813        ASRA    1            (A)=BYTES TO PROCESS                              07 04813
006557 146101 A     4814        SUB     IIBSZ,B                                                        07 04814
006560 056052 A     4815        STA     COUNT,B      EXCESS BYTES                                      07 04815
                    4816        MOVBAB  BLNK1,BCHAR  SLEW THRU W/2-IIBSZ CHAR                          07 04816
006561 016202 A
006562 056030 A
                    4817        PUSHJ   RCH                                                            07 04817
006563 006010 A
006564 005411 R
006565 006505 A
006566 005042 R
                    4818        TSAB    RWFL,WR,ZIO4 I/O TEST                                          07 04819
006567 016154 A
006570 006411 A
006571 006636 R
                    4820 *      INPUT                                                                  07 04820
                    4821 ZIO1   PUSHJ   CBC          GET BUFFER CHARACTER                              07 04821
006572 006010 A
006573 006115 R
006574 006505 A
006575 005042 R
                    4822        PUSHJ   ZIO6         INPUT CHARACTER TEST                              07 04822
006576 006010 A
006577 006667 R
006600 006505 A
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006601 003042 R
                    4823        MOVBAB  BCHAR,ICHAR                                    07 04823
006602 016030 A
006603 056111 A
                    4824        TZAB    WT,ZI02         FIELD WIDTH EXHAUSTED           07 04824
006604 016171 A
006605 001010 A
006606 006623 R
                    4825        PUSHJ   CBC             GET NEXT CHARACTER              07 04825
006607 006010 A
006610 000115 R
006611 006505 A
006612 005042 R
                    4826        PUSHJ   ZI06            INPUT CHARACTER TEST            07 04826
006613 006010 A
006614 006667 R
006615 006505 A
006616 005042 R
006617 016111 A 4827            LDA     ICHAR,B         APPEND RT HALF                  07 04827
006620 004204 A 4828            ASLA    4                                               07 04828
006621 126030 A 4829            ADD     BCHAR,B                                         07 04829
006622 056111 A 4830            STA     ICHAR,B                                         07 04830
                    4831 ZI02   MOVBAB  AISCB,ASCB      SET SCB TO LIST ITEM            07 04831
006623 016013 A
006624 056021 A
                    4832        PUSHJ   PCH             PUT CHARACTER IN ITEM           07 04832
006625 006010 A
006626 003557 R
006627 006505 A
006630 005042 R
                    4833        TNZAB   WT,ZI01         LOOP UNTILL FIELD WIDTH EXHAUSTED 07 04833
006631 016171 A
006632 001016 A
006633 006572 R
006634 001000 A 4834            JMP     FRS65           TO FORMAT SCAN                  07 04834
006635 001100 R
                    4836 *      OUTPUT                                                  07 04836
                    4837 ZI04   MOVBAB  AISCB,ASCB      SET SCB TO LIST ITEM            07 04837
006636 016013 A
006637 056021 A
                    4838        PUSHJ   ICC             INPUT CHARACTER FROM LIST ITEM  07 04838
006640 006010 A
006641 001754 R
006642 006505 A
006643 005042 R
                    4839        PUSHJ   ZI03            OUTPUT CHARACTER                07 04839
006644 006010 A
006645 006713 R
006646 006505 A
006647 005042 R
006650 016111 A 4840            LDA     ICHAR,B                                         07 04840
006651 004304 A 4841            ASRA    4                                               07 04841
006652 016111 A 4842            LDA     ICHAR,B                                         07 04842
006653 006150 A 4843            ANAI    0177            GET RT HALF                     07 04843
006654 000177 A
                    4844        PUSHJ   ZI08            OUTPUT CHARACTER                07 04844
006655 006010 A
006656 006713 R
006657 006505 A
006660 005042 R
                    4845        PUSHJ   OCB             OUTPUT CHARACTER TO BUFFER      07 04845
006661 006010 A
006662 002646 R
006663 006505 A
006664 005042 R
006665 001000 A 4846            JMP     ZI04            LOOP UNTILL DONE                07 04846
006666 006636 R
                    4848 *      TEST INPUT CHARACTER                                    07 04848
006667 016030 A 4849 ZI06       LDA     BCHAR,B                                         07 04849
006670 006140 A 4850            SUBI    '0'                                             07 04850
006671 000260 A
006672 001004 A 4851            JAM     ER3                                             07 04851
006673 005703 R
006674 056030 A 4852            STA     BCHAR,B                                         07 04852
006675 140471 A 4853            SUB     TEN                                             07 04853
006676 001004 A 4854            JAN     ZI07            0-9                             07 04851
006677 006711 R
006700 140467 A 4855            SUB     SEVEN                                           07 04855
006701 001004 A 4856            JAN     ER3                                             07 04856
006702 005703 R
006703 140467 A 4857            SUB     SEVEN                                           07 04857
006704 001002 A 4858            JAP     ER3                                             07 04858
006705 005703 R
006706 006120 A 4859            ADDI    '0'                                             07 04859
006707 000020 A
006710 056030 A 4860            STA     BCHAR,B                                         07 04860
                    4861 ZI07   POPJ                    EXIT                            07 04861
006711 001000 A
006712 004110 R
                    4863 *      GENERATE CHARACTER                                      07 04863
006713 016111 A 4864 ZI08       LDA     ICHAR,B                                         07 04864
006714 006120 A 4865            ADDI    '0'                                             07 04865
006715 000260 A
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006716 056111 A 4866          STA     ICHAR,B                                                    07 04866
006717 006140 A 4867          SUBI    0272                                                       07 04867
006720 000272 A
006721 001004 A 4868          JAN     ZIO9                                                       07 04868
006722 006725 R
006723 120467 A 4869          ADD     SEVEN                                                      07 04869
006724 056111 A 4870          STA     ICHAR,B                                                    07 04870
                4871 ZIO9     POPJ                    EXIT                                       07 04871
006725 001000 A
006726 004110 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
     006727 R   4879 BASE    EQU     *               BASE ADDRESS OF DATA BLOCK                 07 04879
                4880          IFF     NUC                                                        07 04880
                4881          GOTO    NUC1                                                   FG  07 04881
                4882          IFT     VII                                                    FG  07 04882
                4883          GOTO    VIII                                                   FG  07 04883
006727          4884 VOPSTP   BSS     1               OP STACK POINTER                       FG  07 04884
006730 006732 R 4885 VAACC    PZE     VACC            ADDRESS OF ACCUMULATOR ACC                 07 04885
006731 006755 R 4886 VABSCB   PZE     VBSCB           ADDRESS OF BUFFER SCB                      07 04886
006732          4887 VACC     BSS     4               4-WORD ACCUMULATOR                         07 04887
006736 006761 R 4888 VACHB    PZE     VCHB            ADDRESS OF DECIMAL DIGIT ARRAY             07 04888
006737          4889 VADFCB   BSS     1               DCB/FCB ADDRESS                            07 04889
006740 007011 R 4890 VAFSCB   PZE     VFSCB           ADDRESS OF FORMAT SCB                      07 04890
006741 007014 R 4891 VAGPAR   PZE     VGDRP-1         ADDRESS OF '(' GROUP BLOCK                 07 04891
006742 007036 R 4892 VAISCB   PZE     VISCB           ADDRESS OF LIST ITEM SCB                   07 04892
006743          4893 VALOC    BSS     1               ALOC ENTRY FLAG                        V2  07 04893
006744 000000 A 4894 VANPOJ   DATA    0               ADDRESS OF V$FORTID PUP/JUMP           V2  07 04894
006745          4895 VANRB    BSS     1               ADDRESS OF V$FORTID DATA BLOCK         V2  07 04895
006746 007070 R 4896 VAOPST   PZE     VOPSTK+STKSZ    ADDRESS OF OP STACK                     FG  07 04896
006747          4897 VAPBF    BSS     1               ADDRESS OF PHYSICAL BUFFER                 07 04897
006750          4898 VASCB    BSS     1               SCAN BLOCK ADDRESS                         07 04898
006751          4899 VASFL    BSS     1               '*' FLAG                                   07 04899
006752 007106 R 4900 VASYSD   PZE     VSYSDC          ADDRESS OF SYSTEM DCB                      07 04900
006753          4901 VBEXP    BSS     1               BINARY EXPONENT                            07 04901
006754          4902 VBFWPT   BSS     1               BUFFER WORD POINTER                        07 04902
006755          4903 VBSCB    BSS     4               BUFFER SCB                                 07 04903
006761          4904 VCHB     BSS     14              DECIMAL DIGIT ARRAY                        07 04904
006777          4905 VCHBPT   BSS     1               CHB ARRAY POINTER                          07 04905
007000          4906 VCHNHD   BSS     1               FCB CHAIN HEADER                           07 04906
007001          4907 VCOUN    BSS     1               COUNTER                                    07 04907
007002          4908 VCVFL    BSS     1               CHARACTER VALIDITY FLAGS                   07 04908
007003          4909 VD       BSS     1               FRACTIONAL FIELD WIDTH                     07 04909
007004          4910 VDEXP    BSS     1               DECIMAL EXPONENT                           07 04910
007005          4911 VDT      BSS     1               WORKING FRACTIONAL FIELD WIDTH             07 04911
007006          4912 VEDEXP   BSS     1               EXPLICIT DECIMAL EXPONENT                  07 04912
007007 000000 A 4913 VERN     DATA    0               ERROR NUMBER                               07 04913
007010          4914 VFDLKY   BSS     1               FIELD DESCRIPTOR LETTER KEY                07 04914
007011          4915 VFSCB    BSS     4               FORMAT STRING SCB                          07 04915
007015          4916 VGDRP    BSS     9               '(' GROUP DYNAMIC REPEAT COUNT             07 04916
007026          4917 VIDEXP   BSS     1               IMPLICIT DECIMAL EXPONENT                  07 04917
007027          4918 VIFW     BSS     1               INTEGER FIELD WIDTH                        07 04918
007030          4919 VIIBSZ   BSS     1               INDIVIDUAL ITEM BYTE SIZE                  07 04919
007031 000001 A 4920 VIIWSZ   DATA    1               INDIVIDUAL ITEM WORD SIZE                  07 04920
007032          4921 VINFL    BSS     1               INITIAL ENTRY FLAG                     V2  07 04921
007033          4922 VIOCON   BSS     1               I/O CONTROL WORD                           07 04922
007034          4923 VIOLNK   BSS     1               IOLINK CONTROL WORD                        07 04923
007035 000000 A 4924 VIOSTA   DATA    0               I/O STATUS                                 07 04924
007036          4925 VISCB    BSS     4               LIST ITEM SCB                              07 04925
007042          4926 VITEMA   BSS     1               ADDRESS OF LIST ITEM                       07 04926
007043          4927 VITEMW   BSS     1               COUNT OF WORDS REMAINING IN ITEM           07 04927
007044          4928 VITMIN   BSS     1               LIST ITEM WORD INCREMENT                   07 04928
007045          4929 VITMOD   BSS     1               LIST ITEM MODE                             07 04929
007046          4930 VLISTF   BSS     1               LIST DATA XFER FLAG                        07 04930
007047          4931 VLNKCN   BSS     1               FCB CHAIN LINK COUNT                       07 04931
007050          4932 VLRECN   BSS     1               LOGICAL RECORD NUMBER                      07 04932
007051          4933 VLRSZ    BSS     1               LOGICAL RECORD SIZE                        07 04933
007052          4934 VLRWC    BSS     1               LOCICAL RECORD REMAINING WORD COUNT        07 04934
007053          4935 VMOV     BSS     1               MULTIPLY OVERFLOW SWITCH                   07 04935
007054          4936 VN       BSS     1               H/T/X FIELD WIDTH                          07 04936
007055          4937 VNFF     BSS     1               NUMERIC FORMAT FIELD                       07 04937
                4938 VIII     CONT                                                           FG  07 04938
007056          4939 VOPSTK   BSS     STKSZ           OP STACK                                   07 04939
007070          4940 VPARLV   BSS     1               FORMAT '(' GROUP LEVEL COUNT           FG  07 04940
                4941          IFT     VII                                                    FG  07 04941
                4942          GOTO    VIII                                                   FG  07 04942
007071          4943 VPBRC    BSS     1               PHYSICAL BUFFER RECORD COUNT               07 04943
007072          4944 VPBSZ    BSS     1               PHYSICAL BUFFER SIZE                       07 04944
007073          4945 VPBWC    BSS     1               PHYSICAL BUFFER REMAINING WORD COUNT       07 04945
007074          4946 VPRECN   BSS     1               PHYSICAL RECORD NUMBER                     07 04946
007075          4947 VPRLIN   BSS     1               PREVIOUS LINK OF FCB CHAIN                 07 04947
007076          4948 VPTFL    BSS     1               '.' POINT FLAG                             07 04948
007077          4949 VQFL     BSS     1               QUOTE FLAG                                 07 04949
007100          4950 VRETUR   BSS     1               RETURN ADDRESS                             07 04950
007101          4951 VRWFL    BSS     1               FLAG WORD                              V2  07 04951
007102          4952 VS       BSS     1               SCALE FACTOR                               07 04952
007103          4953 VSCF     BSS     1               SCALE FACTOR FLAG                          07 04953
007104          4954 VSGFL    BSS     1               '-' SIGN FLAG                              07 04954
007105          4955 VSVREC   BSS     1               SAVE RECORD NO                             07 04955
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007106 000000 A 4956 VSYSDC DATA     0,1,0          SYSTEM DCB                                        07 04956
007107 000000 A
007110 000000 A
007111          4957 VTEMP   BSS      1              TEMP STORE                                        07 04957
007112          4958 VTEMP1  BSS      1              TEMP STORE                                        07 04958
007113          4959 VTERM   BSS      1              PRODUCT TERM                                      07 04959
007114          4960 VUNIT   BSS      1              I/O UNIT NUMBER                                   07 04960
007115          4961 VW      BSS      1              FIELD WIDTH                                       07 04961
007116          4962 VWT     BSS      1              WORKING VALUE OF W                                07 04962
007117 000000 A 4963 VXFFL   DATA     0              PARAMTER XFER ENABLE FLAG                         07 04963
007120          4964 VXFL    BSS      1              EXPONENT FIELD NON-BLANK FLAG                     07 04964
007121          4965 VXFW    BSS      1              EXPONENT FIELD WIDTH                              07 04965
007122          4966 VXSG    BSS      1              EXPONENT SIGN FLAG                                07 04966
007123          4967 VZFW    BSS      1              LEADING ZERO FIELD WIDTH                          07 04967
007124 000260 A 4968         DATA     0260           ASCII ZERO                                  V2    07 04968
007125 000016 A 4969         DATA     14             DECIMAL 14                                  V2    07 04969
007126 000170 A 4970         DATA     120            DECIMAL 120                                 V2    07 04970
007127 000240 A 4971         DATA     0240           ASCII BLANK                                 V2    07 04971
007130 120240 A 4972         DATA     '  '           ASCII BLANK WORD                            V2    07 04972
                4973 VII1    CONT                                                                FG    07 04973
                4974 NUC1    CONT                                                                FG    07 04974
       007131 R 4975 VZZZ    EQU      *              END OF DATA BLOCK                                 07 04975
                4976         END                                                                      07 04976
ENTRY NAMES
005322 R V$RER1  000001 A V$RERN  005173 R V$RERR  000000 R V$RERS
EXTERNAL NAMES
004623 E BIFCB   004624 E BOFCB   004626 E GOFCB   004622 E LOFCB
004621 E PIFCB   004627 E POFCB   004617 E SIFCB   004625 E SSFCB
006306 E V$EXEC
SYMBOLS
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 R AIOL1   000060 R AIOL2   000013 A AJSCB
000000 A AL      000027 A ALBF    000014 A ALOC    000015 A ANPOJ
000016 A ANRB    000017 A AOPSTK  000000 R AOUT    000020 A APB7
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      006727 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    000451 A BFR
000431 A BFS     000025 A BFWPT   004623 E BIFCB   000001 A BL
000202 A BLNK1   000203 A BLNK2   000472 A BM17    000473 A BM37
000474 A BM77    004624 E BOFCB   000001 A BR      000441 A BR0
000442 A BR1     000454 A BR11    000455 A BR12    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
000421 A BS0     000422 A BS1     000433 A BS10    000434 A BS11
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
000101 R CAN     000107 R CAN1    000112 R CAN5    000115 R CBC
000126 R CBC4    000140 R CBC6    000467 A CBK     000020 A CDC
000424 A CEF     000021 A CEN     000421 A CER     000422 A CEX
000032 A CHB     000050 A CHBPT   000051 A CHNHDR  000464 A CIO
000145 R CLB     000154 R CLB4    000166 R CLB8    000170 R CLBLP
000200 R CLBX    000202 R CLS     000240 R CLS10   000250 R CLS15
000252 R CLS20   000301 R CLS30   000002 A CM      000016 A COPY
000052 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       000316 R D10
000472 A D15     000425 A D16     000013 A DA      000337 R DEF
000344 R DEF4    000347 R DEF8    000374 R DEC10   000372 R DEC5
000055 A DEXP    003607 R DIN     000352 R DOUT    000056 A DT
000012 A EC      000057 A EDEXP   000424 A EIGHT   003607 R EIN
000352 R EOUT    005705 R ER1     005704 R ER2     005703 R ER3
005702 R ER4     000060 A ERN     000064 A FCHAR   000065 A FCODE
000061 A FDLKEY  003607 R FIN     000465 A FIVE    000015 A FLF
000062 A FMPT    000423 A FOUR    000425 R FOUT    000016 A FPD
000457 A FPOR    000437 A FPOS    000017 A FRB     000470 A FREG
000014 A FRM     000063 A FRMT    000062 A FRPT    000442 R FRS
000507 R FRS10   000547 R FRS15   000625 R FRS19   000460 R FRS2
000631 R FRS20   000640 R FRS25   000670 R FRS30   000700 R FRS35
000717 R FRS40   000730 R FRS45   000743 R FRS46   000772 R FRS47
000475 R FRS5    001011 R FRS50   001061 R FRS55   001065 R FRS60
001100 R FRS65   001107 R FRS70   001115 R FRS75   001121 R FRS80
001132 R FRSCHT  001145 R FRSJT   000706 R FRSL1   000062 A FSCB
001173 R GBA     001206 R GBA50   001216 R GBA55   001227 R GBA60
001237 R GBA70   001247 R GBA80   000066 A GDRPC   000007 A GF
000071 A GFRPT   000430 A GFS     003607 R GIN     001255 R GNI
001412 R GNI10   001274 R GNI2    001443 R GNI20   001506 R GNI25
001517 R GNI30   001301 R GNI4    001540 R GNI50   001335 R GNI8
001360 R GNI9    001406 R GNI9A   001423 R GNIL1   001543 R GNIL2
001561 R GNL     001610 R GNL2    004626 E GOFCB   001615 R GOUT
000074 A GSRPC   001647 R HIN     001720 R HIO10   001736 R HIO15
001660 R HIO2    001705 R HIO4    001719 R HIO6    001647 R HOUT
001754 R ICC     002006 R ICCCT   002030 R ICCCT1  001775 R ICCL9
000111 A ICHAR   000077 A IDEXP   002054 R IFF     002056 R IFF1
002101 R IFFL1   000100 A IFW     000101 A IIBSZ   003607 R IIN
000102 A IIWSZ   000006 A IN      002113 R INF     000103 A INFL
002115 R INFLP   000447 A INR     000427 A INS     000104 A IOCONT
000105 A IOLNK   000106 A IOSTAT  002125 R IOUT    000107 A ISCB
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000113 A ITEMAD  000114 A ITEMWC  000115 A ITMINC  000116 A ITMODE
002137 R IXN     002237 R IXN10   002250 R IXN15   002306 R IXN18
002311 R IXN20   002325 R IXN25   002340 R IXN30   002177 R IXN4
002316 R IXN5    002342 R IXN50   002360 R IXN52   002366 R IXN53
002373 R IXN55   002407 R IXN57   002411 R IXN58   002223 R IXN6
002422 R IXN60   002233 R IXN8    002152 R IXNL1   002263 R IXNL2
002400 R IXNL3   000612 R IXR     000300 A LC      000001 A LF
000422 A LFS     000123 A LGOV    000462 A LHW     002443 R LIN
002471 R LINX    000117 A LISTFL  000120 A LNKCNT  000204 A LOC
004622 E LOFCB   002524 R LOU4    002501 R LOUT    000003 A LP
000121 A LRECNO  003577 R LRLAS   000122 A LRSZ    000123 A LRWC
002053 R LSRAS   002530 R M10     002547 R M104    002573 R M10X
000046 A MAP     000004 A MN      000124 A MOV     000420 A MT
000125 A N       000126 A NFF     000470 A NINE    000005 A NM
002575 R NRM     002621 R NRM4    002576 R NRML    002643 R NRMX
000001 A NUC     002646 R OCB     002660 R OCB4    002671 R OCB6
000421 A ONE     002701 R ONF     002751 R ONF20   003006 R ONF30
003064 R ONF40   002731 R ONF5    003077 R ONF50   003110 R ONF52
003127 R ONF55   003153 R ONF60   002755 R ONFL1   003033 R ONFL2
003161 R OPN     003344 R OPN30   003214 R OPN4    003225 R OPN5
000127 A OPSTK   000000 A OPSTKP  000141 A PARLV   003356 R PAX
003402 R PAX10   003416 R PAX15   003425 R PAX16   003456 R PAX20
003503 R PAX30   003512 R PAX33   003517 R PAX50   003522 R PAX55
003527 R PAX70   003554 R PAXTAB  000142 A PBRC    000143 A PBSZ
000144 A PBWC    003557 R PCH     004621 E PIFCB   000006 A PL
003763 R PNI18   003775 R PNI19   004003 R PNI20   003672 R PNI4
004012 R PNI50   004035 R PNI60   004052 R PNI62   004066 R PNI64
004103 R PNI66   003734 R PNI8    003642 R PNIL1   003656 R PNIL1X
004020 R PNIL2   000002 A PO      004627 E POFCB   004110 R POJ
000443 A POR     000423 A POS     000003 A PR      004115 R PRD
004151 R PRD1    004202 R PRD2    004213 R PRD4    000145 A PRECNO
000146 A PRLINK  004216 R PRU     004231 R PRU0    004237 R PRU05
004275 R PRU1    004412 R PRU10   004456 R PRU15   004312 R PRU2
004470 R PRU20   004514 R PRU25   004321 R PRU3    004525 R PRU30
004554 R PRU35   004324 R PRU4    004601 R PRU40   004345 R PRU5
004615 R PRU50   004366 R PRU6    004617 R PRUASI  004631 R PRUDTB
004640 R PRUDTE  004630 R PRUGT   004460 R PRUL1   004650 R PRW
004672 R PRW0    004661 R PRW05   004676 R PRW1    004760 R PRW10
004710 R PRW2    004734 R PRW4    004744 R PRW6    004771 R PRX
000007 A PS      005011 R PSB     005040 R PSBX    005042 R PSJ
000010 A PT      000147 A PTFL    005101 R PXF     005144 R PXF10
005163 R PXF20   005114 R PXF5    005165 R PXFSZT  000150 A QFL
000011 A QT      000125 A R       000003 A RB      005174 R RBE1
005236 R RBE10   005334 R RBE15   005357 R RBE25   005361 R RBE30
005316 R RBE4    005214 R RBE5    005366 R RBE90   005410 R RBEB
005371 R RBEJT   005410 R RBEJTE  000424 A RBS     005411 R RCH
005446 R RCH10   005456 R RCH15   005417 R RCH2    005440 R RCH3
005464 R RCL     005476 R RCL10   005506 R RCL15   005471 R RCL5
005526 R RCP     005570 R RCP15   005610 R RCP20   005617 R RCP25
005540 R RCP3    005660 R RCP35   005663 R RCP40   005544 R RCP5
005674 R RCP50   000151 A RETURN  005722 R RFL     005742 R RFL10
006005 R RFL20   006015 R RFL30   006023 R RFL40   005736 R RFL5
006025 R RFL50   000463 A RHW     000000 A RM      000421 A RMS
006032 R RNA     006032 R RND     006100 R RND10   006051 R RND5
006065 R RNDL    006103 R RNDX    002351 R ROF     000016 A ROPSTP
000012 A RP      006105 R RPB     006114 R RPB10   006127 R RPB11
006131 R RPB12   006137 R RPB15   006143 R RPB20   000154 A RWFL
000155 A S       000032 A SAVE    000005 A SC      000156 A SCF
006150 R SCH     006200 R SCH5    006160 R SCHLP   006210 R SCHX
006211 R SCHY    000446 A SCR     000426 A SCS     000467 A SEVEN
000157 A SGFL    000014 A SH      006213 R SHA     006242 R SHA50
006214 R SHAL    006257 R SHAX    004617 E SIFCB   000466 A SIX
000013 A SL      001787 R SOF     004625 E SSFCB   000012 A STKSZ
000160 A SVRECN  000162 A SYSBF   000161 A SYSDCB  006262 R TBK
006276 R TBK10   000432 A TBKJMP  000164 A TEMP    000165 A TEMP1
000471 A TEN     000166 A TERM    000464 A THREE   006310 R TIN
006327 R TIO10   006352 R TIO15   006361 R TIO20   006374 R TIOLP
006310 R TOUT    000004 A TR      006413 R TRM     006431 R TRM10
006445 R TRM20   006465 R TRM30   006504 R TRMI    000425 A TRS
000422 A TWO     006505 R UIO     006526 R UIO4    000167 A UNIT
000414 A V$BVN   000301 A V$CPL   000302 A V$CRS   000355 A V$DSTB
006306 E V$EXEC  000317 A V$LLUP  000316 A V$LUP   000400 A V$LUT1
000401 A V$LUT2  000402 A V$LUT3  005322 R V$RER1  000000 R V$RERF
000001 A V$RERN  005173 R V$RERR  000000 R V$RERS  000334 A V$ST0
000335 A V$ST1   000336 A V$ST2   000337 A V$ST3   006730 R VAACC
006731 R VABSCB  006732 R VACC    006736 R VACHB   006737 R VADDCB
006740 R VAFSCB  006741 R VAGPAR  006712 R VAISCB  006743 R VALOC
006744 R VANPOJ  006745 R VANRB   006746 R VAOPST  006747 R VAPBF
006750 R VASCB   006751 R VASFL   006752 R VASYSD  006753 R VBEXP
006754 R VBFWPT  006755 R VBSCB   006761 R VCHB    006777 R VCHBPT
007000 R VCHNHD  007001 R VCOUN   007002 R VCVFL   007003 R VD
007004 R VDEXP   007005 R VDT     007006 R VEDEXP  007007 R VERN
007010 R VFDLKY  007011 R VFSCB   007015 R VGDRP   007026 R VIDEXP
007027 R VIFW    000000 A VII     007030 R VIIBSZ  007031 R VIIWSZ
007032 R VINFL   007033 R VIOCON  007034 R VIOLNK  007035 R VIOSTA
007036 R VISCB   007042 R VITEMA  007043 R VITEMW  007044 R VITMIN
007045 R VITMOD  007046 R VLISTF  007047 R VLNKCN  007050 R VLRECN
007051 R VLRSZ   007052 R VLRWC   007053 R VMOV    007054 R VN
007055 R VNFE    007056 R VOPSTK  006727 R VOPSTP  000002 A VORTEX
007070 R VPARLV  007071 R VPBRC   007072 R VPBSZ   007073 R VPBWC
007074 R VPRECN  007075 R VPRLIN  007076 R VPTFL   007077 R VQFL
007100 R VRETUR  007101 R VRWFL   007102 R VS      007103 R VSOF
007104 R VSGFL   007105 R VSVREC  007106 R VSYSDC  007111 R VTEMP
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007112 R VTEMP1  007113 R VTERM   007114 R VUNIT   007115 R VW
007116 R VWT     007117 R VXFFL   007120 R VXFL    007121 R VXFW
007122 R VXSG    007123 R VZFW    007131 R VZZZ    000170 A W
000000 A WCS     000011 A WR      000452 A WRR     000432 A WRS
000171 A WT      000001 A X       000172 A XFFL    000173 A XFL
000174 A XFW     006534 R XIN     006534 R XOUT    000175 A XSG
000177 A YYY     000420 A ZERO    000176 A ZFW     006550 R ZIN
006572 R ZIO1    006623 R ZIO2    006636 R ZIO4    006667 R ZIO6
006711 R ZIO7    006713 R ZIO8    006725 R ZIO9    006550 R ZOUT
000204 A ZZZ
  0 ERRORS ASSEMBLY COMPLETE

494   AACC     2199  3063
496   ABSCB     871  1384  4084  4784
498   ACC      1014  1016  1017  1019  1020  1022  1023  1025  1371
               1372  1373  1374  1590  1622  1626  1638  1644  1647
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               4545  4546  4548  4549  4550  4552  4553  4554  4556
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500   ACHB     1741  1748  2495  2507  2540  4372  4379  4397
502   ADFCB     954   964   984  2670  2676  2693  2712  2719  2735
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               3430  3500  3506  3508  3627  3676  4104  4205  4227
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504   AFSCB    1850  1869  1876  2034
506   AGPAR    1176  1282  1240
508   AIBUF     707   708  4809  4810
704   AIN      1481
719   AIOL1     723
739   AIOL2     715   743
509   AISCB     721   739  4831  4837
175   AL       1213  1289  2106
511   ALBF     1541  1557  3163  3281  3329  3340  4179  4183  4285
               4299  4325  4327  4437  4644  4654  4654  4663  4686
512   ALOC      775  2656  3191  3617  3807  3988  4489
514   ANPOJ     767  3959  3960
516   ANRB      358   363   841   952   979  2635  2673  2694  2793
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               4471
518   AOPSTK    819   835  2421  3909  3915  3933
705   AOUT     1482
520   APBF     3162  3192  3280  3328  3339  3618  4162  4184  4297
               4435  4645  4671
 66   ARST      445   956   957   961  1168  1259  1267  1289  1346
               1358  1360  1852  1854  2110  2122  2130  2166  2180
               2706  2796  3289  4134  4173  4176  4186  4204  4206
               4656  4700  4704  4705
522   ASCB      721   739   872  1384  1850  1869  1876  1901  1913
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 67   ASET      453   874  1207  1208  1209  1210  1211  1212  1213
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524   ASFL     1197  1375  2412  2470
526   ASYSDC   3336
674   AZER     2002  2111  2143  2167  2187  2503  2510  2523  2536
               2543  2575  2579
 68   B         241   242   243   250   252   259   261   277   278
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               767   775   799   812   819   835   841   844   971
               872   878   901   902   908   909   917   918   945
               952   954   964   970   978   979   984   991  1050
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 601   QFL      1198  1814  1842  1848  1857
 184   QT       1852  1854
 633   R        1166  1179  1194  1285  1342  1427
 193   RB        129   142   194   905  4212
3897   RBE1     3865
3935   RBE10    3932
3998   RBE15    3996
4012   RBE25    4003
4014   RBE30    4005
3977   RBE4     3870  3973
3922   RBE5     3910
4034   RBE90    3916  3925  3927  3966  3968  3975
4061   RBEB     3929  3939  3943  3958  3962  3970
4041   RBEJT    4006  4020
4056   RBEJTE   4006
3884   RBEL1    3889
3890   RBEX     3881  3886
 142   RBS      4657
4078   RCH       714   731  2271  2293  2483  2511  2524  2544  2551
                4096  4101  4110  4115  4785  4817
4105   RCH10    4087
4114   RCH15    4105
4082   RCH2     4080
4100   RCH5     4091
4129   RCL      1236  1433  4142  4707
4134   RCL10    4130
4138   RCL15    4133  4134  4135
4131   RCL5     4129
4171   RCP      1529  4293  4349
4192   RCP15    4176  4186
4202   RCP20    4185  4192  4199
4204   RCP25    4177
4176   RCP3     4173
4227   RCP35    4212
4229   RCP40    4204  4206
4178   RCP5     4172
4232   RCP50    4203  4229  4230
 635   RETURN    878   972  2640  3160  3167  3172  3264  3588  3592
                3593  3596  3598  3609  3610  3611  3612  3800  3949
                3950  4008
4284   RFL      3629  4659
4297   RFL10    4288
4333   RFL20    4308
4336   RFL30    4333
4342   RFL40    4292
4292   RFL5     4287
4346   RFL50    4306  4309  4313
 143   RHW      1912  2681  3283  3375  3431  3492
 190   RM        131   149  2714  2766  3290  3396  4130  4192  4206
                4288  4443  4704  4720
 149   RMS      3392
4368   RND      1096  1134  1810  2061
4399   RND10    4385
4379   RND5     4371
4390   RNDL     4378  4398
4402   RNDX     4369  4377  4384  4393
2205   ROF      1906  2891  2950
 634   ROPSTP    811   838  3878  3880
 185   RP       1209  1442
4422   RPB      4202  4217
4432   RPB10    4422
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4439   RPB11    4434
4441   RPB12    4438
4444   RPB15    4442
4446   RPB20    4443
 637   RWFL      715   728   730   732   734   877   881   905   945
                 985  1393  1409  1525  1544  1856  1864  2634  2644
                2701  2714  2764  2766  2777  2789  2795  2820  2828
                3159  3186  3186  3200  3263  3276  3287  3288  3292
                3348  3393  3394  3435  3438  3510  3512  3587  3608
                3608  3626  3630  3653  3673  3675  3687  4087  4129
                4172  4175  4185  4188  4203  4208  4212  4229  4232
                4235  4287  4333  4337  4346  4348  4422  4434  4442
                4655  4658  4662  4697  4699  4706  4719  4723  4748
                4818
 639   S        1086  1092  1099  1101  1105  1110  1130  1136  1164
                1277  2214
 641   SAVE     2636  2641  2642  2643  2645  2646  2647  2657  2664
                2665  2667  2671  2675  2679  2704  2710  2711  2715
                2732  2763  2770  2838  3347  3376  3403  3446  3491
                4195  4198  4625  4629  4655  4660  4669  4674  4676
                4677
 196   SC        144   150  4230
 642   SCF      1195  1271  1333  1392  2195  2212
4471   SCH       949  3267
4498   SCH5     4489
4481   SCHLP    4503
4504   SCHX     4500
4505   SCHY     4482
 144   SCR      4233
 150   SCS      4661
 145   SEVEN     218  3449  4855  4857  4869
 644   SGFL     1199  1257  1273  1284  1379  1587  1634  2125  2459
                2487  2981  3046  3098
 194   SH        124   126   129   131  2703  3286
4520   SHA      1726  1734  2235
4545   SHA50    4521
4521   SHAL     4541
4558   SHAX     4522
   0   SIFCB      53  3502  3519
 146   SIX       217
 186   SL       1211  1441
1904   SOF      4086
   0   SSFCB.     58  3525
 209   STKSZ     615   634   842   845  3876  3884  3967  4896  4939
 646   SVRECN   3277  4714
 648   SYSBF    2636
 649   SYSDCB    648
4580   TBK      2658  2660  3193  3196  3619  3622  3809  3812  3951
                3953  3955  3957  3961  4035  4492  4494
4591   TBK10    4581  4585
4599   TBKJMP   4592
 651   TEMP      908   915  1612  1617  1618  1623  2629  2763  2886
                2900  2965  2974  2977  3009  3015  3063  3065  3069
                3151  3354  3359  3363  3364  3372  3428  3437  3580
                3645  3654  3656  3713  3719  3726  3930  3940  3971
                3994  4014  4310  4320  4323  4326  4331  4490  4495
 653   TEMP1     900   903   904   918
 151   TEN       221  1015  1018  1021  1024  2009  2190  2332  2335
                2338  2341  2571  3952  4392  4853
 655   TERM     1383  2144  2330
 152   THREE     213  1699  2987  3381  3798
4622   TIN      1487
4642   TIO10    4630
4659   TIO15    4656
4663   TIO20    4646
4673   TIOLP    4638  4679  4681
4623   TOUT     1488
 195   TR        153  1545  4134
4697   TRM      4041
4708   TRM10    4705
4717   TRM20    4700  4704
4723   TRM30    4719
4728   TRMI     4715
 153   TRS      4698
 154   TWO       212  1340  1343  1589  1604  2153  2954  2989  3457
                3466  3494  3590  3796
4746   UIO      3636  4756  4764
4760   UIO4     4748
 657   UNIT      953   978  2700  2798  2815  2850  3173  3181  3257
                3284  3349  3462  3463  3605  4011  4193  4499
 156   V$CPL    3456  3869
 157   V$CRS     798  3890  4596
 158   V$DSTB   3380
   0   V$EXEC     61
 160   V$LLUP   4583  4586
 159   V$LUP    4580  4582  4591
 161   V$LUT1   3352  3489
3986   V$RER1     34
  43   V$RERF     28    40
  46   V$RERN     35
3856   V$RERR     33
  42   V$RERS     26    38
 164   V$ST0    1298  1415  1921  2842  3407  3473  3775  4018
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165	V$ST1	3875								
166	V$ST2	796								
167	V$ST3	1319	1326	1421	1931	2848	3425	3444	3481	3781
		3863	3892	3979	4024					
4887	VACC	4885								
4903	VBSCB	4886								
4904	VCHB	4888								
4915	VFSCB	4890								
4916	VGDRP	4891								
21	VII	22	23	772	795	801	1297	1305	1317	1325
		1414	1420	1920	1930	2654	2841	2847	3189	3406
		3424	3443	3472	3480	3615	3774	3780	3805	3860
		3898	3900	4017	4023	4032	4057	4487	4563	4882
		4941								
850	VII1	802	2655	3190	3616	3806	3861	3901	4033	4058
		4488	4564	4883	4942					
1310	VIINUC	1306								
4925	VISCB	4892								
4939	VOPSTK	3965	4896							
1	VORTEX	19	21	3978						
4956	VSYSDC	4900								
659	W	724	1349	1369	4636	4636				
19	WCS	20	25	27	37	39	326	571		
330	WCS1	327	372							
332	WCS2	329	375							
201	WR	168	169	715	881	1393	1544	1856	1864	3200
		3630	3687	4087	4170	4185	4203	4292	4333	4656
		4705	4723	4748	4810					
168	WRR	733								
169	WR$	729	944	1410	3156	3585	3650			
661	WT	709	723	876	1216	1286	1369	2100	2160	2258
		2270	2292	2413	2419	2458	4811	4824	4833	
81	X	268	270	286	302	309	317	318	341	351
		359	361	364	378	420	468	484	782	811
		821	824	838	845	873	880	955	973	974
		980	983	990	992	1014	1016	1017	1019	1020
		1022	1023	1025	1180	1181	1183	1243	1244	1245
		1249	1250	1251	1301	1417	1423	1585	1594	1609
		1613	1617	1618	1621	1622	1623	1626	1632	1635
		1639	1642	1645	1654	1658	1745	1777	1902	1903
		1908	1910	1914	1925	1927	1934	2015	2189	2191
		2200	2201	2202	2203	2263	2267	2321	2324	2326
		2328	2330	2331	2333	2334	2336	2337	2339	2340
		2342	2365	2377	2378	2380	2381	2382	2384	2385
		2386	2388	2389	2390	2392	2502	2515	2570	2572
		2658	2660	2668	2674	2676	2680	2683	2688	2695
		2705	2713	2716	2720	2721	2723	2731	2732	2737
		2794	2803	2804	2811	2813	2817	2819	2833	2844
		2852	2887	2888	2893	2895	2902	2973	2974	2976
		2977	3005	3007	3009	3010	3011	3017	3048	3050
		3066	3068	3089	3090	3091	3093	3094	3095	3099
		3100	3107	3108	3126	3128	3166	3171	3182	3184
		3185	3192	3193	3196	3265	3274	3282	3285	3301
		3303	3305	3308	3310	3316	3318	3319	3320	3323
		3324	3326	3327	3328	3329	3337	3365	3366	3374
		3388	3401	3414	3418	3432	3447	3477	3484	3490
		3501	3503	3508	3514	3589	3595	3597	3607	3610
		3612	3619	3620	3677	3679	3682	3684	3686	3689
		3691	3718	3723	3765	3777	3809	3812	3878	3880
		3884	3891	3903	3914	3915	3923	3930	3933	3935
		3937	3941	3950	3951	3953	3955	3957	3960	3961
		3964	3993	3998	4009	4010	4020	4026	4209	4211
		4214	4216	4220	4223	4224	4226	4260	4303	4322
		4323	4339	4341	4382	4390	4391	4395	4401	4428
		4433	4440	4475	4477	4492	4494	4498	4502	4524
		4528	4529	4531	4532	4533	4535	4536	4537	4539
		4540	4545	4546	4548	4549	4550	4552	4553	4554
		4556	4557	4582	4593	4595	4651	4710	4717	4753
		4755	4761	4763						
663	XFFL	3202	3635	3762	3974	4013				
665	XFL	1098	1380	1816	2545					
667	XFW	1100	1381	1819	2463					
4779	XIN	1485								
4780	XOUT	1486								
669	XSG	2092	2181	2206						
673	YYY	3956								
170	ZERO	210								
671	ZFW	1054	1382	2522	2528					
4806	ZIN	1477								
4821	ZIO1	4833								
4831	ZIO2	4824								
4837	ZIO4	4818	4846							
4849	ZIO6	4822	4826							
4861	ZIO7	4854								
4864	ZIO8	4839	4844							
4871	ZIO9	4868								
4807	ZOUT	1478								

```
000004 A     1 VORTEX SET     4              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$RERR IN NUCLEUS                                   *        07 00013
            14 *       BIT 2: SET IF WCS AVAILABLE                                       *        07 00014
            15 *                                                                         *        07 00015
            16 *                                                                         *        07 00016
            17 ***************************************************************************      07 00017
000001 A    19 WCS     SET     VORTEX/4       SET WCS=BIT 2 OF VORTEX                   FG     07 00019
000004 A    20 NUC     SET     WCS*4                                                    FG     07 00020
000000 A    21 VII     SET     VORTEX-NUC                                               FG     07 00021
000000 A    22 NUC     SET     VII/2          SET NUC=BIT 1 OF VORTEX                   FG     07 00022
000000 A    23 VII     SET     VII-NUC-NUC    SET VII=BIT 0 OF VORTEX                   FG     07 00023
            25         IFF     WCS                                                             07 00025
            26         TITLE   V$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$RERR IN DM               FG     07 00048
            50 **************                                                                   07 00050
            51 * EXTERNALS *                                                                    07 00051
            52 **************                                                                   07 00052
            53         EXT     SIFCB                                                           07 00053
            54         EXT     PIFCB                                                           07 00054
            55         EXT     LDFCB                                                           07 00055
            56         EXT     B1FCB                                                           07 00056
            57         EXT     B0FCB                                                           07 00057
            58         EXT     SSFCB                                                           07 00058
            59         EXT     GDFCB                                                           07 00059
            60         EXT     PDFCB                                                           07 00060
            61         EXT     V$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                                                    07  00103
000421  A   104  BS0      SET      MT+1                                                  V2 07  00104
000422  A   105  BS1      SET      MT+2                                                     07  00105
000424  A   106  BS3      SET      MT+4                                                     07  00106
000425  A   107  BS4      SET      MT+5                                                     07  00107
000426  A   108  BS5      SET      MT+6                                                     07  00108
000425  A   109  D16      SET      BS4                                                      07  00109
000423  A   110  BS2      SET      MT+3                                                     07  00110
000430  A   111  BS7      SET      MT+8                                                     07  00111
000431  A   112  BS8      SET      MT+9                                                     07  00112
000432  A   113  BS9      SET      MT+10                                                    07  00113
000433  A   114  BS10     SET      MT+11                                                    07  00114
000434  A   115  BS11     SET      MT+12                                                    07  00115
000435  A   116  BS12     SET      MT+13                                                    07  00116
000437  A   117  BS14     SET      MT+15                                                    07  00117
000440  A   118  BS15     SET      MT+16                                                    07  00118
000451  A   119  BFR      SET      BR0+BF    RESET BF FLAG                               V2 07  00119
000431  A   120  BFS      SET      BS0+BF    SET BF FLAG                                 V2 07  00120
000430  A   121  BXBIAS   SET      BS7       BINARY EXPONENT BIAS                        V2 07  00121
000472  A   122  D15      SET      2M17                                                     07  00122
000465  A   123  FIVE     SET      MT+37                                                    07  00123
000015  A   124  FLF      SET      SH+LF     FCB LF FLAG                                 V2 07  00124
000423  A   125  FOUR     SET      MT+3                                                     07  00125
000016  A   126  FPD      SET      SH+PD     FCB PD FLAG                                 V2 07  00126
000457  A   127  FPDR     SET      BR0+FPD   RESET FCB PD FLAG                           V2 07  00127
000437  A   128  FPDS     SET      BS0+FPD   SET FCB PD FLAG                             V2 07  00128
000017  A   129  FRB      SET      SH+RB     FCB RB FLAG                                 V2 07  00129
000440  A   130  FRBS     SET      BS0+FRB   SET FCB RB FLAG                             V2 07  00130
000014  A   131  FRM      SET      SH+RM     FCB RM FLAG                                 V2 07  00131
000430  A   132  GFS      SET      BS0+GF    SET GLOBAL FCB FLAG                         V2 07  00132
000424  A   133  EIGHT    EQU      MT+4                                                     07  00133
000447  A   134  INR      SET      BR0+IN    RESET IN BIT                                V2 07  00134
000427  A   135  INS      SET      BS0+IN    SET IN FLAG                                 V2 07  00135
000422  A   136  LFS      SET      BS0+LF    SET LF FLAG                                 V2 07  00136
000462  A   137  LHW      SET      MT+34                                                    07  00137
000470  A   138  NINE     SET      MT+40                                                    07  00138
000421  A   139  ONE      SET      MT+1                                                     07  00139
000443  A   140  PDR      SET      BR0+PD    RESET PD FLAG                               V2 07  00140
000423  A   141  PDS      SET      BS0+PD    SET PD FLAG                                 V2 07  00141
000424  A   142  RBS      SET      BS0+RB    SET RB BIT                                  V2 07  00142
000463  A   143  RHW      SET      MT+35                                                    07  00143
000446  A   144  SCR      SET      BR0+SC    RESET SC BIT                                V2 07  00144
000467  A   145  SEVEN    SET      MT+39                                                    07  00145
000466  A   146  SIX      SET      MT+38                                                    07  00146
000001  A   147  BR       SET      1         STACK B-REGISTER                            V2 07  00147
000003  A   148  PR       SET      3         STACK P-REGISTER                            V2 07  00148
000421  A   149  RMS      SET      BS0+RM    SET RM BIT                                  V2 07  00149
000426  A   150  SCS      SET      BS0+SC    SET SC BIT                                  V2 07  00150
000471  A   151  TEN      SET      MT+41                                                    07  00151
000464  A   152  THREE    SET      MT+36                                                    07  00152
000425  A   153  TRS      SET      BS0+TR    SET TR BIT                                  V2 07  00153
000422  A   154  TWO      SET      MT+2                                                     07  00154
000414  A   155  V$BVN    SET      LC+76     BOTTOM OF VORTEX NUCLEUS                    V2 07  00155
000301  A   156  V$CPL    SET      LC+1      CURRENT PRIORITY LEVEL                      V2 07  00156
000302  A   157  V$CRS    SET      LC+2      POINTER TO REENTRANT STACK                  V2 07  00157
000355  A   158  V$DSTB   SET      LC+45                                                    07  00158
000316  A   159  V$LUP    SET      LC+14     1ST WORD OF BACKGROUND                      V2 07  00159
000317  A   160  V$LLUP   SET      LC+15     LAST WORD OF BACKGROUND                     V2 07  00160
000400  A   161  V$LUT1   SET      LC+64                                                    07  00161
000401  A   162  V$LUT2   SET      LC+65                                                    07  00162
000402  A   163  V$LUT3   SET      LC+66                                                    07  00163
000334  A   164  V$ST0    SET      LC+28     EXEC STATE 0                                V2 07  00164
000335  A   165  V$ST1    SET      LC+29     EXEC STATE 1                                V2 07  00165
000336  A   166  V$ST2    SET      LC+30     EXEC STATE 2                                V2 07  00166
000337  A   167  V$ST3    SET      LC+31     EXEC STATE 3                                V2 07  00167
000452  A   168  WRR      SET      BR0+WR    RESET WR BIT                                V2 07  00168
000432  A   169  WRS      SET      BS0+WR    SET WR BIT                                  V2 07  00169
000420  A   170  ZERO     EQU      MT                                                       07  00170
            171  ********************                                                     07  00171
            172  * CHARACTER TYPE FLAGS *                                               07  00172
            173  ********************                                                     07  00173
            174                                                                          07  00174
000000  A   175  AL       SET      0         ALPHA CHAR BIT(EXCEPT P)                    07  00175
000001  A   176  BL       SET      1         BLANK CHAR BIT                              07  00176
000002  A   177  CM       SET      2         ',' CHAR BIT                                07  00177
000003  A   178  LP       SET      3         '(' CHAR BIT                                07  00178
000004  A   179  MN       SET      4         '-' CHAR FLAG                               07  00179
000005  A   180  NM       SET      5         NUMERIC CHAR BIT                            07  00180
000006  A   181  PL       SET      6         '+' CHAR BIT                                07  00181
000007  A   182  PS       SET      7         'P' SCALE FACTOR                            07  00182
000010  A   183  PT       SET      8         '.' CHAR BIT                                07  00183
000011  A   184  QT       SET      9         ' CHAR BIT                                  07  00184
000012  A   185  RP       SET      10        ')' CHAR BIT                                07  00185
000013  A   186  SL       SET      11        '/' CHAR BIT                                07  00186
            187  ********************                                                     07  00187
            188  * READ/WRITE FLAGS *                                                   07  00188
            189  ********************                                                     07  00189
000000  A   190  RM       SET      0         RMD FLAG                                 V2 07  00190
000001  A   191  LF       SET      1         LOGICAL FILE FLAG                        V2 07  00191
000002  A   192  PD       SET      2         BUFFER POSTING FLAG                      V2 07  00192
000003  A   193  RB       SET      3         READ BEFORE WRITE FLAG                   V2 07  00193
000014  A   194  SH       SET      15-RB     FCB CONTROL FLAG SHIFT                   V2 07  00194
000004  A   195  TR       SET      4         TERMINATE FLAG                           V2 07  00195
000005  A   196  SC       SET      5         SUPPRESS CLEAR                           V2 07  00196
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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     OPSTKP,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 V$FORTID STACK *                                07 00354
355 ********************************                               07 00355
357 PUSHF   MAC                                                    07 00357
358         LDX     ANRB,B                                         07 00358
359         LDX     OPSTKP,X                                       07 00359
360         DXR                                                    FG 07 00360
361         STA     0,X                                            07 00361
362         TXO                                                    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     PSJ,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
```

```
                    404          SUB     P(2)
                    405          STA     P(3),B
                    406          EMAC
                    408 ********************************
                    409 * TEST NEGATIVE/IN A/B-REF *
                    410 ********************************
                    411 TNAB     MAC
                    412          LDA     P(1),B
                    413          JAN     P(2)
                    414          EMAC
                    416 ********************************
                    417 * TEST NEGATIVE/IN A/X-REF *
                    418 ********************************
                    419 TNAX     MAC
                    420          LDA     P(1),X
                    421          JAN     P(2)
                    422          EMAC
                    424 ********************************
                    425 * TEST NOT ZERO/IN A/B-REF *
                    426 ********************************
                    427 TNZAB    MAC
                    428          LDA     P(1),B
                    429          JANZ    P(2)
                    430          EMAC
                    432 ********************************
                    433 * TEST POSITIVE/IN A/B-REF *
                    434 ********************************
                    435 TPAB     MAC
                    436          LDA     P(1),B
                    437          JAP     P(2)
                    438          EMAC
                    440 ********************************
                    441 * TEST BIT/RESET/IN A/B-REF *
                    442 ********************************
                    443 TRAB     MAC
                    444          LDA     P(1),B
                    445          BT      ARST+P(2),P(3)
                    446          EMAC
                    448 ********************************
                    449 * TEST BIT/SET/IN A/B-REF *
                    450 ********************************
                    451 TSAB     MAC
                    452          LDA     P(1),B
                    453          BT      ASET+P(2),P(3)
                    454          EMAC
                    456 ********************************
                    457 * TEST ZERO/ IN A / B-REF *
                    458 ********************************
                    459 TZAB     MAC
                    460          LDA     P(1),B
                    461          JAZ     P(2)
                    462          EMAC
                    464 ********************************
                    465 * TEST ZERO/IN A/X-REF *
                    466 ********************************
                    467 TZAX     MAC
                    468          LDA     P(1),X
                    469          JAZ     P(2)
                    470          EMAC
                    472 ********************************
                    473 * ZERO THRU A/B-REF *
                    474 ********************************
                    475 ZAB      MAC
                    476          TZA
                    477          STA     P(1),B
                    478          EMAC
                    479 ********************************
                    480 * ZERO X-REF THRU A *
                    481 ********************************
                    482 ZAX      MAC
                    483          TZA
                    484          STA     P(1),X
                    485          EMAC
                    486          EJEC
                    487 ********************************************************************************
                    488 *                                                                              *
                    489 *                B A S E - R E L A T I V E   S Y M B O L S                     *
                    490 *                                                                              *
                    491 ********************************************************************************
000001  A           493 LOC      SET     1
000001  A           494 AACC     SET     LOC             ADDRESS OF ACCUMULATOR ACC                   V2
000002  A           495 LOC      SET     LOC+1                                                        V2
000002  A           496 ABSCB    SET     LOC             ADDRESS OF BUFFER SCB                        V2
000003  A           497 LOC      SET     LOC+1                                                        V2
000003  A           498 ACC      SET     LOC             4-WORD ACCUMULATOR                           V2
000007  A           499 LOC      SET     LOC+4                                                        V2
000007  A           500 ACHB     SET     LOC             ADDRESS OF DECIMAL DIGIT ARRAY               V2
000010  A           501 LOC      SET     LOC+1                                                        V2
000010  A           502 ADFCB    SET     LOC             DCB/FCB ADDRESS                              V2
000011  A           503 LOC      SET     LOC+1                                                        V2
000011  A           504 AFSCB    SET     LOC             ADDRESS OF FORMAT SCB                        V2
000012  A           505 LOC      SET     LOC+1                                                        V2
000012  A           506 AGPAR    SET     LOC             ADDRESS OF '(' GROUP BLOCK                   V2
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07 00404
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V2 07 00495
V2 07 00496
V2 07 00497
V2 07 00498
V2 07 00499
V2 07 00500
V2 07 00501
V2 07 00502
V2 07 00503
V2 07 00504
V2 07 00505
V2 07 00506
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000013 A  507 LOC     SET   LOC+1,                                          V2  07 00507
000110 A  508 AIBUF   SET   ISCB+1          LIST ITEM ADDRESS               V2  07 00508
000013 A  509 AISCB   SET   LOC             ADDRESS OF LIST ITEM SCB        V2  07 00509
000014 A  510 LOC     SET   LOC+1                                           V2  07 00510
000027 A  511 ALBF    SET   BSCB+1          ADDRESS OF LOGICAL BUFFER       V2  07 00511
000014 A  512 ALOC    SET   LOC             ALOC ENTRY FLAG                 V2  07 00512
000015 A  513 LOC     SET   LOC+1                                           V2  07 00513
000015 A  514 ANPOJ   SET   LOC             ADDRESS OF V$FORTIO POP/JUMP    V2  07 00514
000016 A  515 LOC     SET   LOC+1                                           V2  07 00515
000016 A  516 ANRB    SET   LOC             ADDRESS OF V$FORTIO DATA BLOCK  V2  07 00516
000017 A  517 LOC     SET   LOC+1                                           V2  07 00517
000017 A  518 AOPSTK  SET   LOC             ADDRESS OF OP STACK             V2  07 00518
000020 A  519 LOC     SET   LOC+1                                           V2  07 00519
000020 A  520 APBF    SET   LOC             ADDRESS OF PHYSICAL BUFFER      V2  07 00520
000021 A  521 LOC     SET   LOC+1                                           V2  07 00521
000021 A  522 ASCB    SET   LOC             SCAN BLOCK ADDRESS              V2  07 00522
000022 A  523 LOC     SET   LOC+1                                           V2  07 00523
000022 A  524 ASFL    SET   LOC             '*' FLAG                        V2  07 00524
000023 A  525 LOC     SET   LOC+1                                           V2  07 00525
000023 A  526 ASYSDC  SET   LOC             ADDRESS OF SYSTEM DCB           V2  07 00526
000024 A  527 LOC     SET   LOC+1                                           V2  07 00527
000030 A  528 BCHAR   SET   BSCB+2          BUFFER CHARACTER                V2  07 00528
000031 A  529 BCODE   SET   BSCB+3          BUFFER CHARACTER CODE           V2  07 00529
000024 A  530 BEXP    SET   LOC             BINARY EXPONENT                 V2  07 00530
000025 A  531 LOC     SET   LOC+1                                           V2  07 00531
000026 A  532 BFPT    SET   BSCB            BUFFER CHARACTER POINTER        V2  07 00532
000025 A  533 BFWPT   SET   LOC             BUFFER WORD POINTER             V2  07 00533
000026 A  534 LOC     SET   LOC+1                                           V2  07 00534
000026 A  535 BSCB    SET   LOC             BUFFER SCB                      V2  07 00535
000032 A  536 LOC     SET   LOC+4                                           V2  07 00536
000032 A  537 CHB     SET   LOC             DECIMAL DIGIT ARRAY             V2  07 00537
000050 A  538 LOC     SET   LOC+14                                          V2  07 00538
000050 A  539 CHBPT   SET   LOC             CHB ARRAY POINTER               V2  07 00539
000051 A  540 LOC     SET   LOC+1                                           V2  07 00540
000051 A  541 CHNHDR  SET   LOC             FCB CHAIN HEADER                V2  07 00541
000052 A  542 LOC     SET   LOC+1                                           V2  07 00542
000052 A  543 COUNT   SET   LOC             COUNTER                         V2  07 00543
000053 A  544 LOC     SET   LOC+1                                           V2  07 00544
000053 A  545 CVFL    SET   LOC             CHARACTER VALIDITY FLAGS        V2  07 00545
000054 A  546 LOC     SET   LOC+1                                           V2  07 00546
000054 A  547 D       SET   LOC             FRACTIONAL FIELD WIDTH          V2  07 00547
000055 A  548 LOC     SET   LOC+1                                           V2  07 00548
000055 A  549 DEXP    SET   LOC             DECIMAL EXPONENT                V2  07 00549
000056 A  550 LOC     SET   LOC+1                                           V2  07 00550
000056 A  551 DT      SET   LOC             WORKING FRACTIONAL FIELD WIDTH  V2  07 00551
000057 A  552 LOC     SET   LOC+1                                           V2  07 00552
000057 A  553 EDEXP   SET   LOC             EXPLICIT DECIMAL EXPONENT       V2  07 00553
000060 A  554 LOC     SET   LOC+1                                           V2  07 00554
000060 A  555 ERN     SET   LOC             ERROR NUMBER                    V2  07 00555
000061 A  556 LOC     SET   LOC+1                                           V2  07 00556
000064 A  557 FCHAR   SET   FSCB+2          FORMAT CHARACTER                V2  07 00557
000065 A  558 FCODE   SET   FSCB+3          FORMAT CHARACTER CODE           V2  07 00558
000061 A  559 FDLKEY  SET   LOC             FIELD DESCRIPTOR KEY            V2  07 00559
000062 A  560 LOC     SET   LOC+1                                           V2  07 00560
000062 A  561 FMPT    SET   FSCB            FORMAT STRING POINTER           V2  07 00561
000063 A  562 FRMT    SET   FSCB+1          ADDRESS OF FORMAT STRING(0 IF NONE) V2 07 00562
000062 A  563 FRPT    SET   FSCB            FORMAT STRING CURRENT POINTER   V2  07 00563
000062 A  564 FSCB    SET   LOC             FORMAT STRING SCB               V2  07 00564
000066 A  565 LOC     SET   LOC+4                                           V2  07 00565
000066 A  566 GDRPC   SET   LOC             '(' GROUP DYNAMIC REPEAT COUNT  V2  07 00566
000077 A  567 LOC     SET   LOC+9                                           V2  07 00567
000071 A  568 GFRPT   SET   GDRPC+3         '(' GROUP FORMAT POINTER        V2  07 00568
000074 A  569 GSRPC   SET   GDRPC+6         '(' GROUP STATIC REPEAT COUNT   V2  07 00569
000111 A  570 ICHAR   SET   ISCB+2          LIST ITEM CHARACTER             V2  07 00570
000077 A  571 IDEXP   SET   LOC             IMPLICIT DECIMAL EXPONENT       V2  07 00571
000100 A  572 LOC     SET   LOC+1                                           V2  07 00572
000100 A  573 IFW     SET   LOC             INTEGER FIELD WIDTH             V2  07 00573
000101 A  574 LOC     SET   LOC+1                                           V2  07 00574
000101 A  575 IIBSZ   SET   LOC             INDIVIDUAL ITEM BYTE SIZE       V2  07 00575
000102 A  576 LOC     SET   LOC+1                                           V2  07 00576
000102 A  577 IIWSZ   SET   LOC             INDIVIDUAL ITEM WORD SIZE       V2  07 00577
000103 A  578 LOC     SET   LOC+1                                           V2  07 00578
000103 A  579 INFL    SET   LOC             INITIAL ENTRY FLAG              V2* 07 00579
000104 A  580 LOC     SET   LOC+1                                           V2  07 00580
000104 A  581 IOCONT  SET   LOC             V$IOC CONTROL WORD              V2  07 00581
000105 A  582 LOC     SET   LOC+1                                           V2  07 00582
000105 A  583 IOLINK  SET   LOC             IOLINK CONTROL WORD             V2  07 00583
000106 A  584 LOC     SET   LOC+1                                           V2  07 00584
000106 A  585 IOSTAT  SET   LOC             I/O STATUS                      V2  07 00585
000107 A  586 LOC     SET   LOC+1                                           V2  07 00586
000107 A  587 ISCB    SET   LOC             ITEM SCB                        V2  07 00587
000113 A  588 LOC     SET   LOC+4                                           V2  07 00588
000113 A  589 ITCMAD  SET   LOC             ADDRESS OF LIST ITEM            V2  07 00589
000114 A  590 LOC     SET   LOC+1                                           V2  07 00590
000114 A  591 ITCMWC  SET   LOC             COUNT OF WORDS REMAINING IN ITEM V2 07 00591
000115 A  592 LOC     SET   LOC+1                                           V2  07 00592
000115 A  593 ITMINC  SET   LOC             LIST ITEM WORD INCREMENT        V2  07 00593
000116 A  594 LOC     SET   LOC+1                                           V2  07 00594
000116 A  595 ITMODE  SET   LOC             LIST ITEM MODE                  V2  07 00595
000117 A  596 LOC     SET   LOC+1                                           V2  07 00596
000123 A  597 LGOV    SET   LPWC            LOGICAL RECORD OVERLAP          V2  07 00597
000117 A  598 LISTFL  SET   LOC             LIST DATA MODE FLAG             V2  07 00598
000120 A  599 LOC     SET   LOC+1                                           V2  07 00599
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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                704 AIN     EQU     *                                                                       07 00704
000000 R                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         MOVZAB  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 105025 A
000012 004715 R
                        715         TSNB    RWFL,WR,AIOL2       TEST IF INPUT OR OUTPUT                         07 00715
000013 016154 A
000014 006411 A
000015 000053 R
                        716 **********                                                                              07 00716
                        717 * INPUT *                                                                               07 00717
                        718 **********                                                                              07 00718
                        719 AIOL1   PUSHJ   OBC             INPUT BUFFER CHARACTER                  V2          07 00719
000016 105025 A
000017 000070 R
                        720         MOVBAB  BCHAR,ICHAR         MOVE CHAR FROM BUFF SCB TO ITEM SCB             07 00720
000020 016030 A
000021 056111 A
                        721         MOVBAB  AISCB,ASCB          SET SCB TO LIST ITEM                            07 00721
000022 016013 A
000023 056021 A
                        722         PUSHJ   PCH             PUT CHARACTER IN ITEM                   V2          07 00722
000024 105025 A
000025 003276 R
                        723         TNZAB   WT,AIOL1            LOOP TILL FIELD WIDTH WT EXHAUSTED              07 00723
000026 016171 A
000027 001016 A
000030 000016 R
                        724         SUTBBB  IIBSZ,W,COUNT       GET COUNT OF EXCESS CHARS IN ITEM               07 00724
000031 016101 A
000032 146170 A
000033 056052 A
000034 005311 A         725         DAR                                                                         07 00725
000035 001004 A         726         JAN     FRS65           EXIT TO FRS IF LIST ITEM FILLED                     07 00726
000036 001003 R
                        727         MOVBAB  BLNK1,ICHAR     LOAD BLANK AS FILL CHARACTER            V2          07 00727
000037 016202 A
000040 056111 A
000041 016154 A         728         LDA     RWFL,B                                                              07 00728
000042 110432 A         729         ORA     WR              SET WRITE FLAG                          V2          07 00729
000043 056154 A         730         STA     RWFL,B                                                              07 00730
                        731         PUSHJ   RCH             FILL OUT ITEM WITH BLANKS               V2          07 00731
000044 105025 A
000045 004715 R
000046 016154 A         732         LDA     RWFL,B                                                              07 00732
000047 150452 A         733         ANA     WRR             RESTORE I/O MODE TO READ                V2          07 00733
000050 056154 A         734         STA     RWFL,B                                                              07 00734
000051 001000 A         735         JMP     FRS65           AND RETURN TO FORMAT SCAN                           07 00735
000052 001003 R
                        736 **********                                                                              07 00736
                        737 * OUTPUT *                                                                              07 00737
                        738 **********                                                                              07 00738
                        739 AIOL2   MOVBAB  AISCB,ASCB          SET SCB TO LIST ITEM                            07 00739
000053 016013 A
000054 056021 A
                        740         PUSHJ   ICC             INPUT CHARACTER FROM LIST ITEM          V2          07 00740
000055 105025 A
000056 001612 R
                        741         MOVBAB  ICHAR,BCHAR         MOVE CHAR FROM LIST SCB TO BUFF SCB             07 00741
000057 016111 A
000060 056030 A
                        742         PUSHJ   OCB             OUTPUT CHARACTER TO BUFFER/EXIT         V2          07 00742
000061 105025 A
000062 002441 R
000063 001000 A         743         JMP     AIOL2           LOOP TILL DONE                                      07 00743
000064 000053 R
                        744         EJEC                                                                        07 00744
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                    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$RERR IF        * 07 00762
                    763 *      VORTEX II CALL FROM BACKGROUND TO NUCLEUS.                   * 07 00763
                    764 *                                                                    * 07 00764
                    765 ********************************************************************** 07 00765
000065 036015 A     767 CAN     LDX     ANPOJ,B         POINT X AT V$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$FORTIO VIA DIRECT JUMP *                               FG 07 00779
                    780 ************************************                                  07 00780
                    781         SPAC                                                       FG 07 00781
                    782 NUC1    CONT                                                       FG 07 00782
000066 005703 A     783         IJMP    0,X                                                FG 07 00783
000067 000000 A
                    784 NUC2    CONT                                                       FG 07 00784
                    786 ************************************                                  FG 07 00786
                    787 * EXIT TO V$FORTIO VIA DEALOC *                                    FG 07 00787
                    788 ************************************                                  FG 07 00788
000070 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         OME     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     ROPSTK,B                                           FG 07 00819
                    820         JAP     CAN3            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     CAN3            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
                    829         JMP     CAN1            AND CONTINUE                    V2  07 00829
                    829         SPAC                                                       FG 07 00829
                    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         SPAC                                                       FG 07 00833
                    834 CAN2    TXA                                                        FG 07 00834
                    835         SUB     ROPSTK,B                                        V2  07 00835
                    836         CPA                                                        FG 07 00836
                    837         LDXI    BASE                                            V2  07 00837
                    838         STA     ROPSTP,X        STORE STACK ITEM COUNT-1           FG 07 00838
                    839         CPA                                                        FG 07 00839
                    840         INCR    014             SET X = -(STACK ITEM COUNT-1)      FG 07 00840
                    841         ADD     ANKB,B                                          V2  07 00841
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                    842           ADDI    OPSTK+STKSZ                                                    FG 07 00842
                    843           TAB                     POINT B AT V$FORTIO STACK                      V2 07 00843
                    844 CANL2     LDA     0,C             MOVE STACK ADDRESSES                           V2 07 00844
                    845           STAE    BASE+STKSZ-1,X                                                 FG 07 00845
                    846           JXZ     CAN5            EXIT AT END                                    V2 07 00846
                    847           IBR                     BUMP POINTERS                                  FG 07 00847
                    848           IXR                                                                    FG 07 00848
                    849           JMP     CANL2           LOOP TILL DONE                                 V2 07 00849
                    850 VII1      CONT                                                                   FG 07 00850
                    851 CAN5      DEALOC                  RETURN TO V$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
000070 036002 A     871 CBC       LDX     ABSCB,B                                                           07 00871
000071 076021 A     872           STX     ASCB,B          SET SCB TO BUFFER                                 07 00872
000072 015000 A     873           LDA     0,X             GET CURRENT CHAR COUNT                            07 00873
000073 006400 A     874           BT      ASET+B0,CBC4          ON WORD BOUNDARY ?                          07 00874
000074 000077 R
                    875           PUSHJ   GBA             YES. GET NEXT BUFFER ADDRESS                   V2 07 00875
000075 105025 A
000076 001072 R
                    876 CBC4      DAB     WT              DECREMENT REMAINIG FIELD WIDTH                    07 00876
000077 016171 A
000100 005311 A
000101 056171 A
                    877           TRAB    RWFL,EC,CBC6    JUMP IF NOT ENCODE/DECODE                      PD 07 00877
000102 016154 A
000103 006452 A
000104 000111 R
000105 036152 A     878           LDX     RETURN+1,B                                                     PD 07 00878
000106 001040 A     879           JXZ     CBC6            NO COUNT ADDRESS                               PD 07 00879
000107 000111 R
000110 045000 A     880           INR     0,X             BUMP CHARACTER-PROCESSED COUNT                 PD 07 00880
                    881 CBC6      TRPP    RWFL,WR,ICC     READ: EXIT TO INPUT CHAR FROM BUFFER           PD 07 00881
000111 016154 A
000112 006451 A
000113 001612 R
000114 001000 A     882           JMP     PCH             WRITE: EXIT TO PUT CHAR IN BUFFER                 07 00882
000115 003276 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
000116 016123 A
000117 056165 A
000120 146144 A     901           SUB     PBWC,B                                                            07 00901
000121 001004 A     902           JAN     CLB4            SET COUNT = MINIMUM(LRWC,PBWC)                    07 00902
000122 000125 R
                    903           MOVBAB  PBWC,TEMP1                                                        07 00903
000123 016144 A
000124 056165 A
                    904 CLB4      TZAB    TEMP1,CLBX      EXIT IF COUNT=0                                   07 00904
000125 016165 A
000126 001010 A
000127 000151 R
                    905           TSAB    RWFL,RB,CLBX    DONT CLEAR IF READ-BEFORE-WRITE FLAG SET          07 00905
000130 016154 A
000131 006403 A
000132 000151 R
                    906           TZAB    FRMT,CLB8       CLEAR TO ZEROS ON UNFORMATTED                  V2 07 00906
000133 016063 A
000134 001010 A
000135 000137 R
000136 016203 A     907           LDA     BLNK2,B         CLEAR TO BLANKS ON FORMATTED                   V2 07 00907
000137 056164 A     908 CLB8      STP     TEMP,B                                                         V2 07 00908
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000140 036025 A  909          LDX     BFWPT,B                                          V2  07 00909
                 910 ***************
                 911 * FILL LOOP *
                 912 ***************
       000141 R  913 CLBLP    EQU     *                                                V2  07 00913
000141 005144 A  914          IXR                 LOAD X AS BUFFER POINTER            V2  07 00914
                 915          MOVBAX  TEMP,0      MOVE FILL WORD TO BUFFER            V2  07 00915
000142 016164 A
000143 055000 A
000144 005041 A  916          TXA                                                      V2  07 00916
000145 146025 A  917          SUB     BFWPT,B                                          V2  07 00917
000146 146165 A  918          SUB     TEMP1,B                                              07 00918
000147 001004 A  919          JAN     CLBLP       LOOP TILL DONE                           07 00919
000150 000141 R
                 920 CLBX     POPJ                EXIT                                FG  07 00920
000151 105065 A
                 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 = CP = 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
000152 010432 A  944 CLS      LDA     WRS                 SET WRITE FLAG              V2  07 00944
000153 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
000154 105025 A
000155 005415 R
000156 001010 A  950          JAZ     ER4                 ERROR 4/ FCB(U) NOT ON CHAIN /   07 00950
000157 005154 R
                 951          PUSHJ   PRU                 PROCESS FORTRAN UNIT NUMBER U    V2  07 00951
000160 105025 A
000161 003720 R
000162 036016 A  952          LDX     ANRB,B                                           V2  07 00952
                 953          MOVBAX  UNIT,IOCONT         INITIALIZE IOC CONTROL WORD  V2  07 00953
000163 016167 A
000164 055104 A
000165 036010 A  954          LDX     ADFCB,B             POINT X AT FCB                   07 00954
000166 015014 A  955          LDA     12,X                                                 07 00955
000167 006453 A  956          BT      ARST+FLF,CLS20          TEST FOR LOGICAL FILE    V2  07 00956
000170 000214 R
000171 006454 A  957          BT      ARST+FRM,CLS20      AND RMD                      V2  07 00957
000172 000214 R
                 958 ************************                                         V2  07 00958
                 959 * U IS RMD LOGICAL FILE *                                       V2  07 00959
                 960 ************************                                         V2  07 00960
000173 006456 A  961          BT      ARST+FPO,CLS10      ANY UNPOSTED DATA ?          V2  07 00961
000174 000202 R
                 962          MOVBAX  PBSZ,0          YES. LOAD FCB(0) WITH PHYSICAL BUFF SIZE 07 00962
000175 016143 A
000176 055000 A
                 963          PUSHJ   PSB             AND POST BUFFER                  V2  07 00963
000177 105025 A
000200 004465 R
000201 036010 A  964          LDX     ADFCB,B         RESTORE X                            07 00964
                 965 CLS10    MOVBAX  =0120,0         SET FCB(0) = 120 WORDS           V2  07 00965
000202 016201 A
000203 055000 A
                 966          TZAB    LGOV,CLS15      LOGICAL RECORD OVERLAP ?             07 00966
000204 016123 A
000205 001010 A
000206 000212 R
                 967          ADBBB   PRECND,PBRC,PRECND      YES. BUMP PHYSICAL RECORD NUMBER 07 00967
000207 016145 A
000210 126142 A
000211 056145 A
                 968 CLS15    MOVBAX  PRECND,3        SET FCB(3) = PHYSICAL RECORD NUMBER  07 00968
000212 016145 A
000213 055003 A
                 969 ****************************                                     07 00969
                 970 * CALL IOC TO CLOSE FILE *                                     07 00970
                 971 ****************************                                     07 00971
000214 036151 A  972 CLS20    LDX     RETURN,B        POINT X AT CALL SEQUENCE         07 00972
000215 035005 A  973          LDX     5,X             POINT X AT UPDATE/LEAVE PARAMETER 07 00973
000216 015000 A  974          LDA     0,X             GET UPDATE/LEAVE PARAMETER       07 00974
```

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000217 001010 A   975          JAZ     *+3                                                    07 00975
000220 000222 R
000221 010435 A   976          LDA     BS12        SET FLAG FOR UPDATE                        07 00976
000222 006110 A   977          ORAI    03400       MERGE IN IOC CLOSE SKELETON WORD       V2  07 00977
000223 003400 A
000224 116167 A   978          ORA     UNIT,B      OR IN LUN                                  07 00978
000225 036016 A   979          LDX     ANRB,B      POINT X AT V$FORTIO DATA BLOCK             07 00979
000226 055104 A   980          STA     IOCONT,X    STORE IOC CONTROL WORD IN V$FORTIO         07 00980
                  981          DAX     LINKCNT     DECREMENT LINK COUNT                       07 00981
000227 015120 A
000230 005311 A
000231 055120 A
000232 010464 A   982          LDA     CIO                                                V2  07 00982
000233 006505 A   983          JSR     PSJ,X       CALL IOC                               V2  07 00983
000234 004515 R
000235 036010 A   984          LDX     #DFCB,B     POINT X AT FCB                             07 00984
                  985          TRAB    RWFL,LF,CLS30    LOGICAL FILE ?                        07 00985
000236 016154 A
000237 006441 A
000240 000243 R
                  986          MOVBAX  LRSZ,0      YES. RESTORE LOGICAL REC SIZE IN FCB(0)    07 00986
000241 016123 A
000242 055000 A
                  987 ********************                                                   07 00987
                  988 * TAKE FCB OFF CHAIN *                                               07 00988
                  989 ********************                                                   07 00989
000243 015012 A   990 CLS30  LDA     10,X        GET FORWARD LINK                           07 00990
000244 036146 A   991        LDX     PRLINK,B                                               07 00991
000245 055012 A   992        STA     10,X        HOOK TO PREVIOUS LINK                      07 00992
                  993 ********                                                             07 00993
                  994 * EXIT *                                                             07 00994
                  995 ********                                                             07 00995
000246 010422 A   996        LDA     JEX                                                    07 00996
                  997        PUSHF               PUSH EXIT OP ONTO V$FORTIO STACK           07 00997
000247 036016 A
000250 035000 A
000251 005344 A
000252 055000 A
000253 005041 A
000254 036016 A
000255 055000 A
000256 001000 A   998        JMP     CAN         EXIT TO V$FORTIO                           07 00998
000257 000065 R
                  999        EJEC                                                           07 00999
                 1000 ********************************************************************* 07 01000
                 1001 *                                                                   * 07 01001
                 1002 *            4 - W O R D   D I V I D E   B Y   1 0 ( D 1 0 )        * 07 01002
                 1003 *                                                                   * 07 01003
                 1004 * FUNCTION: TO DIVIDE A 4-WORD NUMBER BY 10                         * 07 01004
                 1005 *                                                                   * 07 01005
                 1006 * ENTRY: ACC = DIVIDEND                                            * 07 01006
                 1007 *                                                                   * 07 01007
                 1008 * EXIT : ACC = ACC/10                                               * 07 01008
                 1009 *                                                                   * 07 01009
                 1010 ********************************************************************* 07 01010
000260 005024 A  1012 D10    TBM                 LOAD X AS BASE REGISTER                    07 01012
000261 003001 A  1013        TZA                 CLEAR HIGH-ORDER WORD OF DIVIDEND          07 01013
000262 025003 A  1014        LDB     ACC,X                                                  07 01014
000263 170471 A  1015        DIV     TEN         ACC(0)=ACC(0)/10                           07 01015
000264 065003 A  1016        STB     ACC,X                                                  07 01016
000265 025004 A  1017        LDB     ACC+1,X                                                07 01017
000266 170471 A  1018        DIV     TEN         ACC(1)=(ACC(1)+REM(0))/10                  07 01018
000267 065004 A  1019        STB     ACC+1,X                                                07 01019
000270 025005 A  1020        LDB     ACC+2,X                                                07 01020
000271 170471 A  1021        DIV     TEN         ACC(2)=(ACC(2)+REM(1))/10                  07 01021
000272 065005 A  1022        STB     ACC+2,X                                                07 01022
000273 025006 A  1023        LDB     ACC+3,X                                                07 01023
000274 170471 A  1024        DIV     TEN         ACC(3)=(ACC(3)+REM(2))/10                  07 01024
000275 065006 A  1025        STB     ACC+3,X                                                07 01025
000276 005042 A  1026        TXB                 RESTORE BASE REGISTER B                    07 01026
                 1027        POPJ                AND EXIT                               FG  07 01027
000277 105065 A
                 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   F O R M A T S         * 07 01031
                 1032 *                                                                   * 07 01032
                 1033 *                        ( D E F )                                  * 07 01033
                 1034 *                                                                   * 07 01034
                 1035 * FUNCTION: TO PROCESS OUTPUT UNDER THE FORMAT DESCRIPTORS: SPDN.D   * 07 01035
                 1036 *                                                      SREW.D       * 07 01036
                 1037 *                                                      SPEW.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
000300 001004 A  1049 DEF    JAM     DEF4        IS A .GE. ZERO ?                           07 01049
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000301 000305 R
000302 056100 A 1050          STA     IFW,B           YES. STORE AS INTEGER FIELD WIDTH                07 01050
000303 001000 A 1051          JMP     DEF8                                                             07 01051
000304 000310 R
000305 005211 A 1052 DEF4     CPA                     A NEGATIVE                                       07 01052
000306 005111 A 1053          IAR                                                                      07 01053
000307 056176 A 1054          STA     ZFW,B           LOAD LEADING ZERO FILL COUNT                     07 01054
000310 046147 A 1055 DEF8     INR     PTFL,B          D/E/F HAVE A '.'                                 07 01055
000311 001000 A 1056          JMP     DNF             EXIT TO OUTPUT NUMERIC FIELD                     07 01056
000312 002471 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
000313 R        1083 DOUT     EQU     *                                                              07 01083
000313 R        1084 EOUT     EQU     *                                                              07 01084
                1085          MOVBAB  D,COUNT         SET SIGNIFICANT DIGIT COUNT TO D               07 01085
000313 016054 A
000314 056052 A
                1086          IZAB    S,DEO10         EXIT IF NO SCALE FACTOR                        07 01086
000315 016155 A
000316 001010 A
000317 000335 R
000320 001004 A 1087          JAN     DEO5                                                           07 01087
000321 000333 R
000322 046052 A 1088          INR     COUNT,B         SCALE FACTOR IS +. BUMP COUNT TO D+1           07 01088
000323 146054 A 1089          SUB     D,B                                                            07 01089
000324 005311 A 1090          PAR                                                                    07 01090
000325 001004 A 1091          JAN     DEO10           OK IF D.GE.S                                   07 01091
000326 000335 R
                1092          MOVBAB  S,COUNT         OTHERWISE, GET S SIGNIFICANT DIGITS            07 01092
000327 016155 A
000330 056052 A
000331 001000 A 1093          JMP     DEO10                                                          07 01093
000332 000335 R
000333 126056 A 1094 DEO5     ADD     DT,B            SCALE FACTOR IS -. SET COUNT TO DT-S           07 01094
000334 056052 A 1095          STA     COUNT,B                                                        07 01095
                1096 DEO10    PUSHJ   RND             ROUND DECIMAL FIELD                      V2    07 01096
000335 105025 A
000336 005302 R
000337 046173 A 1098          INR     XFL,B           'D' AND 'E' BOTH HAVE EXPONENT FIELDS          07 01098
                1099          SUBBBB  DEXP,S,DEXP     SET DEXP = DEXP - S                            07 01099
000340 016055 A
000341 146155 A
000342 056055 A
                1100          MOVPAB  FOUR,XFW        EXPONENT FIELD IS 4 CHARS WIDE                 07 01100
000343 010423 A
000344 056174 A
000345 016155 A 1101          LDA     S,B                                                            07 01101
000346 001004 A 1102          JAN     DEF                                                            07 01102
000347 000300 R
000350 001010 A 1103          JAZ     DEF             S .GT. 0 ?                                     07 01103
000351 000300 R
000352 016056 A 1104          LDA     DT,B            YES                                            07 01104
000353 146155 A 1105          SUB     S,B                                                            07 01105
000354 005111 A 1106          IAR                                                                    07 01106
000355 001002 A 1107          JAP     *+3             SET DT = MAX(0,DT-S+1)                         07 01107
000356 000360 R
000357 005001 A 1108          TZA                                                                    07 01108
000360 056056 A 1109          STA     DT,B                                                           07 01109
000361 016155 A 1110          LDA     S,B             EXIT WITH A = S                                07 01110
000362 001000 A 1111          JMP     DEF             PROCESS S                                      07 01111
000363 000300 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
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                    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
          000364 R  1128 FOUT    EQU     *                                                             07 01128
000364 016155 A     1130         LDA     S,B             GET SCALE FACTOR                            07 01130
000365 126055 A     1131         ADD     DEXP,B          ADD DECIMAL EXPONENT                        07 01131
000366 126054 A     1132         ADD     D,B             ADD FRACTIONAL FIELD COUNT                  07 01132
000367 056052 A     1133         STA     COUNT,B         STORE AS SIGNIFICANT DIGIT COUNT            07 01133
                    1134         PUSHJ   RND             ROUND TO SIGNIFICANT DIGIT COUNT      V2    07 01134
000370 105025 A
000371 005302 R
000372 016055 A     1135         LDA     DEXP,B                                                      07 01135
000373 126155 A     1136         ADD     S,B             BUMP EXPONENT BY S                          07 01136
000374 056055 A     1137         STA     DEXP,B                                                      07 01137
000375 001000 A     1138         JMP     DEF             EXIT WITH INTEGER FIELD WIDTH IN A          07 01138
000376 000300 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 ****************                                                            07 01157
                    1158 * INITIAL ENTRY *                                                           07 01158
                    1159 ****************                                                            07 01159
                    1160 FRS     ZAB     FRPT            CLEAR FORMAT STRING POINTER                 07 01160
000377 005001 A
000400 056062 A
000401 056075 A     1161         STA     GSRPC+1,B       CLEAR LEVEL 2 GROUP REPEAT COUNT            07 01161
000402 056117 A     1162         STA     LISTFL,B        CLEAR LIST DATA XFER FLAG                   07 01162
000403 056141 A     1163         STA     PARLV,B         CLEAR '(' GROUP LEVEL COUNT                 07 01163
000404 056155 A     1164         STA     S,B             CLEAR SCALE FACTOR                          07 01164
000405 005101 A     1165         INCR    1                                                           07 01165
000406 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
000407 105025 A
000410 001745 R
000411 006443 A     1168         BT      ARST+LP,ER1     ERROR 1/ 1ST FORMAT CHAR NOT '(' /          07 01168
000412 005157 R
                    1169 ************                                                                07 01169
                    1170 * '(' ENTRY *                                                             07 01170
                    1171 ************                                                                07 01171
000413 046141 A     1172 FRS2    INR     PARLV,B         BUMP '(' LEVEL                              07 01172
000414 016141 A     1173         LDA     PARLV,B                                                     07 01173
000415 140423 A     1174         SUB     FOUR                                                        07 01174
000416 001002 A     1175         JAP     ER1             ERROR 1/ MORE THAN 3 '(' LEVELS /           07 01175
000417 005157 R
000420 016012 A     1176         LDA     AGPAR,B                                                     07 01176
000421 126141 A     1177         ADD     PARLV,B                                                     07 01177
000422 005014 A     1178         TAX                     POINT X AT GROUP REPEAT COUNT               07 01178
000423 016125 A     1179         LDA     R,B             GET REPEAT COUNT                            07 01179
000424 055000 A     1180         STA     0,X             STORE IN DYNAMIC GROUP REPEAT COUNT TABLE   07 01180
000425 055006 A     1181         STA     GSRPC-GDRPC,X   STORE IN STATIC GROUP REPEAT COUNT TABLE    07 01181
000426 016062 A     1182         LDA     FRPT,B          GET FORMAT CHARACTER POINTER                07 01182
000427 055003 A     1183         STA     GFRPT-GDRPC,X   SAVE IN GROUP TABLE                         07 01183
                    1184 ********************                                                        07 01184
                    1185 * INPUT NEXT FIELD *                                                       07 01185
                    1186 * DESCRIPTOR        *                                                       07 01186
                    1188 ********************************************************************* V2 07 01188
                    1189 * ENABLE ALF/BLANK/NUM/',','/'(','/'-','/'.','/')','/'/' *           V2 07 01189
                    1190 ********************************************************************* V2 07 01190
000430 006010 A     1191 FRS5    LDAI    07077                                                  V2 07 01191
000431 007077 A
000432 056053 A     1192         STA     CVFL,B                                                 V2 07 01192
000433 005101 A     1193         INCR    1                                                           07 01193
000434 056125 A     1194         STA     R,B             SET REPEAT COUNT TO 1                       07 01194
                    1195         ZAB     SCF             CLEAR SCALE FACTOR FLAG                     07 01195
000435 005001 A
000436 056156 A
000437 056054 A     1196         STA     D,B             CLEAR FRACTIONAL FIELD WIDTH                07 01196
000440 056022 A     1197         STA     ASFL,B          CLEAR '*' FLAG                              07 01197
000441 056150 A     1198         STA     QFL,B           CLEAR QUOTE FLAG                            07 01198
                    1199 FRS10   ZAB     SGFL            CLEAR SIGN FLAG                             07 01199
000442 005001 A
000443 056157 A
                    1200         PUSHJ   INF             INPUT NON-BLANK FORMAT CHARACTER      V2    07 01200
000444 105025 A
000445 001745 R
000446 156053 A     1201         ANA     CVFL,B          CHECK VALIDITY OF CHAR                      07 01201
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000447 001010 A 1202          JAZ     ER1             ERROR 1/ ILLEGAL FORMAT CHAR /                07 01202
000450 005157 R
                1203 **************                                                                  07 01203
                1204 * TEST CHAR *                                                                  07 01204
                1205 **************                                                                  07 01205
000451 016065 A 1206          LDA     FCODE,B         RELOAD FORMAT CHARACTER CODE                  07 01206
000452 006402 A 1207          BT      ASET+CM,FRS10         TEST FOR ','                            07 01207
000453 000442 R
000454 006403 A 1208          BT      ASET+LP,FRS2    TEST FOR '('                                  07 01208
000455 000413 R
000456 006412 A 1209          BT      ASET+RP,FRS15   TEST FOR ')'                                  07 01209
000457 000500 R
000460 006404 A 1210          BT      ASET+MN,FRS20   TEST FOR '-'                                  07 01210
000461 000556 R
000462 006413 A 1211          BT      ASET+SL,FRS70   TEST FOR '/'                                  07 01211
000463 001012 R
000464 006405 A 1212          BT      ASET+NM,FRS25         TEST FOR NUMERIC                        07 01212
000465 000563 R
000466 006400 A 1213          BT      ASET+AL,FRS35         TEST FOR ALPHA                          07 01213
000467 000624 R
000470 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
000471 010460 A
000472 056125 A
000473 056171 A 1216          STA     WT,B                                                  V2      07 01216
                1217          MOVPAB  EIGHT,FDLKEY    LOAD 'H' DESCRIPTOR KEY                       07 01217
000474 010424 A
000475 056061 A
000476 001000 A 1218          JMP     FRS60           EXIT                                          07 01218
000477 000770 R
                1219 **************                                                                  07 01219
                1220 * ')' INPUT *                                                                  07 01220
                1221 **************                                                                  07 01221
000500 016012 A 1222 FRS15    LDA     AGPAR,B                                                       07 01222
000501 126141 A 1223          ADD     PARLV,B                                                       07 01223
000502 005014 A 1224          TAX                     POINT X AT '(' GROUP REPEAT COUNT             07 01224
                1225          DAX     0               DECREMENT DYNAMIC '(' REPEAT COUNT            07 01225
000503 015000 A
000504 005311 A
000505 055000 A
000506 001016 A 1226          JANZ    FRS19           IS '(' GROUP FINISHED ?                       07 01226
000507 000552 R
                1227          DAB     PARLV           YES. DECREMENT '(' LEVEL                      07 01227
000510 016141 A
000511 005311 A
000512 056141 A
000513 001016 A 1228          JANZ    FRS75           CONTINUE SCAN IF NOT LAST ')'                 07 01228
000514 001016 R
                1229 **************************                                                    07 01229
                1230 * PROCESS RIGHTMOST ')' *                                                    07 01230
                1231 **************************                                                    07 01231
                1232          ZAB     FDLKEY          DISABLE PXF MODE TEST                         07 01232
000515 005001 A
000516 056061 A
                1233          PUSHJ   GNL             GET ADDRESS OF NEXT LIST ITEM         V2      07 01233
000517 105025 A
000520 001436 R
                1234          SUTBBB  ITEMAD,ITMINC,ITEMAD    REINITIALIZE LIST CONTROL             07 01234
000521 016113 A
000522 146115 A
000523 056113 A
                1235          ADBBB   ITEMWC,ITMINC,ITEMWC                                           07 01235
000524 016114 A
000525 126115 A
000526 056114 A
                1236          PUSHJ   RCL             RECYCLE LOGICAL BUFFER                V2      07 01236
000527 105025 A
000530 004757 R
000531 016117 A 1237          LDA     LISTFL,B                                                      07 01237
000532 001010 A 1238          JAZ     ER1             ERROR 1/ NO DATA XFER DESCRIPTORS /           07 01238
000533 005157 R
                1239          ZAB     LISTFL          CLEAR LIST DATA XFER FLAG                     07 01239
000534 005001 A
000535 056117 A
000536 036012 A 1240          LDX     AGPAR,B                                                       07 01240
000537 005144 A 1241 IXR      IXR                     POINT X AT '(' LEVEL 1                        07 01241
000540 046141 A 1242          INR     PARLV,B         ALSO LEVEL COUNTER                            07 01242
000541 015006 A 1243          LDA     GSRPC-GDRPC,X                                                 07 01243
000542 055000 A 1244          STA     0,X             RELOAD LEVEL 1 DYNAMIC REPEAT COUNT           07 01244
000543 015007 A 1245          LDA     GSRPC-GDRPC+1,X                                               07 01245
000544 001010 A 1246          JAZ     FRS19           IS THERE A 2ND LEVEL ?                        07 01246
000545 000552 R
000546 046141 A 1247          INR     PARLV,B         YES                                           07 01247
000547 005144 A 1248          IXR                     USE 2ND '(' LEVEL                             07 01248
000550 015006 A 1249          LDA     GSRPC-GDRPC,X         GET STATIC REPEAT COUNT                 07 01249
000551 055000 A 1250          STA     0,X             RELOAD DYNAMIC REPEAT COUNT                   07 01250
000552 015003 A 1251 FRS19    LDA     GFRPT-GDRPC,X                                                 07 01251
000553 056062 A 1252          STA     FRPT,B          BACK UP SCAN TO '('                           07 01252
000554 001000 A 1253          JMP     FRS5            RESUME SCAN AFTER CORRESPONDING '('           07 01253
000555 000430 R
                1254 **************                                                                  07 01254
                1255 * '-' INPUT *                                                                  07 01255
                1256 **************                                                                  07 01256
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000556 040157 A 1257 FRS20   INR     SGFL,B          SET SIGN FLAG                                  07 01257
                1258         PUSHJ   INF             INPUT NON-BLANK FOLLOWING '-'          V2      07 01258
000557 105025 A
000560 001745 R
000561 006445 A 1259         BT      ARST+NM,ER1     ERROR 1/ NOT NUMERIC /                         07 01259
000562 005157 R
                1260 **********************                                                         07 01260
                1261 * NUMERIC CHAR INPUT *                                                        07 01261
                1262 **********************                                                         07 01262
                1263 FRS25   PUSHJ   IFF             INPUT NUMERIC FORMAT FIELD             V2      07 01263
000563 105025 A
000564 001711 R
000565 006150 A 1264         ANAI    0211            ENABLE 'P'/'('/ALPHA                   V2      07 01264
000566 000211 A
000567 001010 A 1265         JAZ     ER1             ERROR 1/ ILLEGAL TERMINATOR /                  07 01265
000570 005157 R
000571 016065 A 1266         LDA     FCODE,B                                                        07 01266
000572 006447 A 1267         BT      ARST+PS,FRS30       TEST IF TERMINATOR IS 'P'                  07 01267
000573 000611 R
                1268 **********************************                                           07 01268
                1269 * DESCRIPTOR HAS 'P' FIELD *                                                  07 01269
                1270 **********************************                                           07 01270
000574 046156 A 1271         INR     SCF,B           SET SCALE FACTOR FLAG                          07 01271
000575 016126 A 1272         LDA     NFF,B           GET SCALE FACTOR ABS VALUE IN A                07 01272
000576 036157 A 1273         LDX     SGFL,B          GET SIGN FLAG IN X                             07 01273
000577 001040 A 1274         JXZ     *+4                                                            07 01274
000600 000603 R
000601 005211 A 1275         CPA                     NEGATE A IF SIGN FLAG SET                      07 01275
000602 005111 A 1276         IAR                                                                    07 01276
000603 056155 A 1277         STA     S,B             LOAD SCALE FACTOR S                            07 01277
000604 006010 A 1278         LDAI    041                                                    V2      07 01278
000605 000041 A
000606 056053 A 1279         STA     CVFL,B          ENABLE ONLY NUMERIC/ALPHA              V2      07 01279
000607 001000 A 1280         JMP     FRS10                                                          07 01280
000610 000442 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
000611 016157 A
000612 001016 A
000613 005157 R
                1285         MOVBAB  NFF,R           LOAD REPEAT COUNT                              07 01285
000614 016126 A
000615 056125 A
000616 056171 A 1286         STA     W1,B            ALSO AS FIELD WIDTH FOR H/X                    07 01286
000617 016065 A 1287         LDA     FCODE,B                                                        07 01287
000620 006403 A 1288         BT      ASET+LP,FRS2    TEST FOR '('                                   07 01288
000621 000413 R
000622 006440 A 1289         BT      ARST+AL,ER1     ERROR 1/ TERMINATOR NOT ALPHA /                07 01289
000623 005157 R
                1290 **********************                                                         07 01290
                1291 * ALPHABETIC CHAR INPUT *                                                     07 01291
                1292 **********************                                                         07 01292
000624 R        1293 FRS35   EQU     *                                                      V2      07 01293
000624 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         OMC     MAP,V$ST0       SET EXEC STATE TO 00                   V2      07 01298
                1299 NV2NUC  CONT                                                             FG    07 01299
000625 006030 A 1300         LDXI    FRSJT-FRSCHT-1      GET TABLE COUNT IN X               V2      07 01300
000626 000012 A
000627 006145 A 1301 FRSL1   SURE    FRSCHT,X                                               V2      07 01301
000630 001031 R
000631 001010 A 1302         JAZ     FRS40           MATCH ?                                        07 01302
000632 000640 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
000633 001040 A 1308         JXZ     ER1             ERROR 1/ ILLEGAL FORMAT CHAR /         V2      07 01308
000634 005157 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
000635 005344 A 1313         DXR                     DROP TABLE COUNT                       V2      07 01313
000636 001000 A 1314         JMP     FRSL1           AND CONTINUE COMPARISON                        07 01314
000637 000627 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   OMC     MAP,V$ST3       SET EXEC STATE TO 11                   V2      07 01319
                1320         JMP     ER1                                                    V2      07 01320
                1321 NV2NUC  CONT                                                             FG    07 01321
000640 R        1322 FRS40   EQU     *                                                      V2      07 01322
                1323         IFF     NUC                                                      FG    07 01323
                1324         GOTO    NV2NUC                                                   FG    07 01324
                1325         IFT     VII                                                      FG    07 01325
                1326         OMC     MAP,V$ST3       SET EXEC STATE TO 11                   V2      07 01326
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                    1327 NV2NUC CONT                                                                FG 07 01327
000640 005041 A     1328        TXA                                                                 V2 07 01328
000641 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
000642 016156 A
000643 001010 A
000644 000651 R
000645 016061 A     1334        LDA     FDLKEY,B        YES                                        07 01334
000646 140423 A     1335        SUB     FOUR                                                       07 01335
000647 001002 A     1336        JAP     ER1             ERROR 1/ ILLEGAL SCALE FACTOR /            07 01336
000650 005157 R
000651 016061 A     1337 FRS45  LDA     FDLKEY,B                                                   07 01337
000652 140424 A     1338        SUB     EIGHT                                                      07 01338
000653 001004 A     1339        JAN     FRS46                                                      07 01339
000654 000664 R
000655 140422 A     1340        SUB     TWO                                                        07 01340
000656 001016 A     1341        JANZ    FRS60           SCAN FINISHED FOR H/X                      07 01341
000657 000770 R
000660 016125 A     1342        LDA     R,B                                                        07 01342
000661 140422 A     1343        SUB     TWO                                                        07 01343
000662 001002 A     1344        JAP     ER1             ERROR 1/ 'T' DESCRIPTOR HAS REPEAT COUNT   07 01344
000663 005157 R
                    1345 FRS46  PUSHJ   INF             INPUT NON-BLANK FORMAT CHARACTER       V2  07 01345
000664 105025 A
000665 001745 R
000666 006445 A     1346        BT      ARST+NM,ER1     ERROR 1/ NON-NUM AFTER DESCRIPTOR LETTER / 07 01346
000667 005157 R
                    1347        PUSHJ   IFF             INPUT NUMERIC FIELD                    V2  07 01347
000670 105025 A
000671 001711 R
000672 016126 A     1348        LDA     NFF,B                                                      07 01348
000673 056170 A     1349        STA     W,B             LOAD FIELD WIDTH W                         07 01349
000674 001010 A     1350        JAZ     ER1             ERROR 1/ ZERO FIELD WIDTH /                07 01350
000675 005157 R
000676 016061 A     1351        LDA     FDLKEY,B                                                   07 01351
000677 140423 A     1352        SUB     FOUR                                                       07 01352
000700 001004 A     1353        JAN     FRS47           CONTINUE SCAN FOR D/E/F/G                  07 01353
000701 000707 R
000702 140423 A     1354        SUB     FOUR                                                       07 01354
000703 001004 A     1355        JAN     FRS50           NO FRACTIONAL D FIELD FOR I/L/A        V2  07 01355
000704 000722 R
000705 001000 A     1356        JMP     FRS60           SCAN FINISHED FOR T                        07 01356
000706 000770 R
000707 016065 A     1357 FRS47  LDA     FCODE,B                                                    07 01357
000710 006450 A     1358        BT      ARST+PT,ER1     ERROR 1/ TERMINATOR NOT '.' /              07 01358
000711 005157 R
                    1359        PUSHJ   INF             INPUT NON-BLANK FORMAT CHARACTER       V2  07 01359
000712 105025 A
000713 001745 R
000714 006445 A     1360        BT      ARST+NM,ER1     ERROR 1/ NON-NUMERIC AFTER LETTER /        07 01360
000715 005157 R
                    1361        PUSHJ   IFF             INPUT NUMERIC FIELD                    V2  07 01361
000716 105025 A
000717 001711 R
000720 016126 A     1362        LDA     NFF,B                                                      07 01362
000721 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
000722 105025 A
000723 001436 R
000724 046117 A     1368        INR     LISTFL,B        SET LIST FLAG                              07 01368
                    1369        MOVBAB  W,WT            SET WT=W                                   07 01369
000725 016170 A
000726 056171 A
                    1370        MOVBAB  D,DT            SET DT=D                                   07 01370
000727 016054 A
000730 056056 A
                    1371        ZAB     ACC             CLEAR ACCUMULATOR ACC                      07 01371
000731 005001 A
000732 056003 A
000733 056004 A     1372        STA     ACC+1,B                                                    07 01372
000734 056005 A     1373        STA     ACC+2,B                                                    07 01373
000735 056006 A     1374        STA     ACC+3,B                                                    07 01374
000736 056022 A     1375        STA     ASFL,B          CLEAR '*' FLAG                             07 01375
000737 056055 A     1376        STA     DEXP,B          CLEAR DECIMAL EXPONENT                     07 01376
000740 056100 A     1377        STA     IFW,B           CLEAR INTEGER FIELD WIDTH                  07 01377
000741 056147 A     1378        STA     PTFL,B          CLEAR '.' FLAG                             07 01378
000742 056157 A     1379        STA     SGFL,B          CLEAR SIGN FLAG                            07 01379
000743 056173 A     1380        STA     XFL,B           CLEAR EXPONENT FIELD FLAG                  07 01380
000744 056174 A     1381        STA     XFW,B           SET EXPONENT FIELD WIDTH TO ZERO           07 01381
000745 056176 A     1382        STA     ZFW,B           CLEAR ZERO FILL FIELD WIDTH                07 01382
000746 056166 A     1383        STA     TERM,B          CLEAR TERMINATING DIGIT                V2  07 01383
                    1384        MOVBAB  ASCB,ASCB       SET SCB TO BUFFER                          07 01384
000747 016002 A
000750 056021 A
000751 016061 A     1385        LDA     FDLKEY,B                                                   07 01385
000752 140465 A     1386        SUB     FIVE                                                       07 01385
000753 001002 A     1387        JAP     FRS60           EXIT ON NON-NUMERIC DESCRIPTOR             07 01387
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000754 000770 R
                    1388 **************************                                                                07 01388
                    1389 * NUMERIC DESCRIPTOR *                                                                   07 01389
                    1390 **************************                                                                07 01390
000755 005111 A     1391          IAR                                                                             07 01391
000756 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
000757 016154 A
000760 006411 A
000761 000766 R
                    1394 ********                                                                                 07 01394
                    1395 * READ *                                                                                 07 01395
                    1396 ********                                                                                 07 01396
                    1397          PUSHJ   IXN             INPUT EXTERNAL NUMERIC FIELD                    V2    07 01397
000762 105025 A
000763 001764 R
000764 001000 A     1398          JMP     FRS60                                                                   07 01398
000765 000770 R
                    1399 *********                                                                                07 01399
                    1400 * WRITE *                                                                                07 01400
                    1401 *********                                                                                07 01401
                    1402 FRS55    PUSHJ   GNI             GET NUMERIC LIST ITEM                           V2    07 01402
000766 105025 A
000767 001147 R
                    1403 **************************                                                                07 01403
                    1404 * EXIT TO PROCESSOR *                                                                   07 01404
                    1405 **************************                                                                07 01405
000770 016061 A     1406 FRS60    LDA     FDLKEY,B                                                                07 01406
000771 004241 A     1407          LRLA    1                                                                       07 01407
000772 005014 A     1408          TAX                     SET X = DESCRIPTOR READ KEY                             07 01408
000773 016154 A     1409          LDA     RWFL,B                                                                  07 01409
000774 150432 A     1410          ANA     WRS                                                             V2    07 01410
000775 003017 A     1411          XMNZ    IXR             BUMP KEY FOR WRITE                              V2    07 01411
000776 000532 R
                    1412          IFF     NUC                                                             FG    07 01412
                    1413          GOTO    NV2NUC                                                          FG    07 01413
                    1414          IFT     VII                                                             FG    07 01414
                    1415          OME     MAP,VSST0       SET EXEC STATE TO 00                            V2    07 01415
                    1416 NV2NUC   CONT                                                                    FG    07 01416
000777 006035 A     1417          LDXE    FRSJT,X         GET PROCESSOR ADDRESS FROM TABLE                      07 01417
001000 001044 R
                    1418          IFF     NUC                                                             FG    07 01418
                    1419          GOTO    NV2NUC                                                          FG    07 01419
                    1420          IFT     VII                                                             FG    07 01420
                    1421          OME     MAP,VSST3       SET EXEC STATE TO NN                            V2    07 01421
                    1422 NV2NUC   CONT                                                                    FG    07 01422
001001 006705 A     1423          IJMP    0,X             EXIT TO PROCESSOR                                     07 01423
001002 000000 H
                    1424 **************************                                                                07 01424
                    1425 * TEST REPEAT COUNT *                                                                   07 01425
                    1426 **************************                                                                07 01426
                    1427 FRS65    DAB     R               DECREMENT REPEAT COUNT                                  07 01427
001003 016125 A
001004 005311 A
001005 056125 A
001006 001016 A     1428          JANZ    FRS50           REPEAT DESCRIPTOR R TIMES                               07 01428
001007 000722 R
001010 001000 A     1429          JMP     FRS85           THEN RESUME SCAN                                        07 01429
001011 001020 R
                    1430 ******************                                                                        07 01430
                    1431 * PROCESS '/' *                                                                         07 01431
                    1432 ******************                                                                        07 01432
                    1433 FRS70    PUSHJ   RCL             RECYCLE LOGICAL BUFFER                          V2    07 01433
001012 105025 A
001013 004757 R
001014 001000 A     1434          JMP     FRS5            AND SCAN FORWARD FOR NEXT DESCRIPTOR                    07 01434
001015 000430 R
                    1435 ******************************                                                            07 01435
                    1436 * PROCESS FIELD SEPARATOR *                                                             07 01436
                    1437 ******************************                                                            07 01437
                    1438 FRS75    PUSHJ   INF             GET TERMINATING CHARACTER                       V2    07 01438
001016 105025 A
001017 001745 R
001020 016065 A     1439 FRS85    LDA     FCODE,B         GET CHAR CODE                                           07 01439
001021 006402 A     1440          BT      A1ET+CM,FRS5    TEST FOR ','                                            07 01440
001022 000430 R
001023 006413 A     1441          BT      A1ET+SL,FRS70   TEST FOR '/'                                            07 01441
001024 001012 R
001025 006412 A     1442          BT      A1ET+RP,FRS15       TEST FOR ')'                                        07 01442
001026 000500 R
001027 001000 A     1443          JMP     FP1             ERROR 1/ ILLEGAL TERMINATOR /                           07 01443
001030 005157 R
                    1444 ******************************************                                                07 01444
                    1445 * TABLE OF VALID FORMAT SPEC CHARS *                                                     07 01445
                    1446 ******************************************                                              07 01446
       001031 R     1447 FRSCHT   EQU     *                                                               V2    07 01447
001031 177777 A     1448          DATA    -1              SRSW.D                                          V2    07 01448
001032 177777 A     1449          DATA    -1              SRSW.T                                          V2    07 01449
001033 177777 A     1450          DATA    -1              SRFW.B                                          V2    07 01450
001034 177776 A     1451          DATA    -2              SRCW.B                                          V2    07 01451
001035 177757 A     1453          DATA    -21             RIW                                                   07 01453
001036 000016 A     1455          DATA    016             R2W                                                   07 01455
001037 000013 A     1456          DATA    013             RLW                                             V2    07 01456
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001040 177771 A 1457          DATA    -7                RAW                                  V2 07 01457
001041 177760 A 1459          DATA    -020              NH...                                V2 07 01459
001042 000004 A 1460          DATA    4                 NX                                   V2 07 01460
001043 000324 A 1461          DATA    0324              TN                                   V2 07 01461
                1463 ****************                                                             07 01463
                1464 * JUMP TABLE *                                                             07 01464
                1465 ****************                                                             07 01465
       001044 R 1466 FRSJT    EQU     *                                                        07 01466
001044 003325 R 1467          PZE     DIN                                                      07 01467
001045 000313 R 1468          PZE     DOUT                                                     07 01468
001046 003325 R 1469          PZE     EIN                                                      07 01469
001047 000313 R 1470          PZE     EOUT                                                     07 01470
001050 003325 R 1471          PZE     FIN                                                      07 01471
001051 000364 R 1472          PZE     FOUT                                                     07 01472
001052 003325 R 1473          PZE     GIN                                                      07 01473
001053 001471 R 1474          PZE     GOUT                                                     07 01474
001054 003325 R 1475          PZE     IIN                                                      07 01475
001055 001754 R 1476          PZE     IOUT                                                     07 01476
001056 005736 R 1477          PZE     ZIN                                                      07 01477
001057 005736 R 1478          PZE     ZOUT                                                     07 01478
001060 002251 R 1479          PZE     LIN                                                      07 01479
001061 002303 R 1480          PZE     LOUT                                                     07 01480
001062 000000 R 1481          PZE     AIN                                                      07 01481
001063 000000 R 1482          PZE     AOUT                                                     07 01482
001064 001521 R 1483          PZE     HIN                                                      07 01483
001065 001521 R 1484          PZE     HOUT                                                     07 01484
001066 005724 R 1485          PZE     XIN                                                      07 01485
001067 005724 R 1486          PZE     XOUT                                                     07 01486
001070 005512 R 1487          PZE     TIN                                                      07 01487
001071 005512 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
                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
001072 016144 A 1522 GBA      LDA     PBWC,B                                                   07 01522
001073 005311 A 1523          DAR                                                              07 01523
001074 001002 A 1524          JAP     GBA50                                                    07 01524
001075 001103 R
                1525          TSAB    RWFL+EC,GBA80                                    PD      07 01525
001076 016154 A
001077 006412 A
001100 001141 R
                1526 ****************************                                             07 01526
                1527 * END OF PHYSICAL BUFFER *                                              07 01527
                1528 ****************************                                             07 01528
                1529          PUSHJ   RCP             RECYCLE PHYSICAL BUFFER          V2     07 01529
001101 105025 A
001102 005015 R
                1530 ********************************                                         07 01530
                1531 * TEST FOR END OF LOGICAL RECORD *                                       07 01531
                1532 ********************************                                         07 01532
001103 046025 A 1533 GBA50    INR     BFWPT,B         BUMP BUFFER WORD POINTER                 07 01533
001104 016123 A 1534          LDA     LRWC,B                                                   07 01534
001105 005311 A 1535          DAR                                                              07 01535
001106 001002 A 1536          JAP     GBA70                                                    07 01536
001107 001132 R
                1537 ************************                                                 07 01537
                1538 * END OF LOGICAL RECORD *                                               07 01538
                1539 ************************                                                 07 01539
001110 046121 A 1540          INR     LRECNO,B        BUMP LOGICAL RECORD NUMBER               07 01540
                1541          MOVBAB  BFWPT,ALBF      UPDATE LOGICAL BUFFER ADDRESS            07 01541
001111 016025 A
001112 056027 A
                1542 GBA55    MOVBAB  LRSZ,LRWC       RELOAD REMAINING WORD COUNT      PD      07 01542
001113 016122 A
001114 056123 A
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                      1543          ZAB     BFPT          CLEAR BUFFER CHARACTER POINTER                    07 01543
001115 005001 A
001116 056026 A
                      1544          TRAB    RWFL,WR,GBA70       WRITE ?                                   07 01544
001117 016154 A
001120 006451 A
001121 001132 R
001122 006404 A 1545          BT      ASET+TR,GBA70       YES. TERMINATE ?                                  07 01545
001123 001132 R
        001124 R 1546 GBA60   EQU     *                                                               V2  07 01546
                      1547          DAB     BFWPT         NO. SET UP CLB                            V2  07 01547
001124 016025 A
001125 005311 A
001126 056025 A
                      1548          PUSHJ   CLB           CLEAR LOGICAL BUFFER                      V2  07 01548
001127 105025 A
001130 000116 R
001131 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    SAB     PUSC                                                      07 01553
001132 016144 A
001133 005311 A
001134 056144 A
                      1554          DAB     LRWC                                                      07 01554
001135 016123 A
001136 005311 A
001137 056123 A
                      1555          POPJ                  EXIT                                  FG  07 01555
001140 105065 A
                      1556 GBA80    MOVBAB  PBSZ,PBWC     RESET ENCODE/DECODE POINTERS              PD  07 01556
001141 016143 A
001142 056144 A
                      1557          MOVBAB  ALBF,BFWPT                                            PD  07 01557
001143 016027 A
001144 056025 A
001145 001000 A 1558          JMP     GBA55                                                         PD  07 01558
001146 001113 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
001147 036113 A 1584 GNI      LDX     ITEMAD,B      POINT X AT ITEM                                   07 01584
001150 015000 A 1585          LDA     0,X           GET 1ST WORD OF ITEM                              07 01585
001151 004317 A 1586          LSRA    15                                                              07 01586
001152 056157 A 1587          STA     SGFL,B        SAVE SIGN                                         07 01587
001153 016116 A 1588          LDA     ITMODE,B                                                        07 01588
001154 140422 A 1589          SUB     TWO                                                             07 01589
001155 001002 A 1590          JAP     GNI4          TEST FOR INTEGER LIST ITEM                        07 01590
001156 001173 R
                      1591 **********                                                                07 01591
                      1592 * INTEGER ITEM *                                                         07 01592
                      1593 **********                                                                07 01593
001157 015000 A 1594          LDA     0,X           GET INTEGER                                       07 01594
001160 001002 A 1595          JAP     GNI2                                                    V2  07 01595
001161 001166 R
001162 005211 A 1596          CMA                                                                     07 01596
001163 005111 A 1597          IAR                                                                     07 01597
001164 001004 A 1598          JAN     ER3           ERROR 3/ INVALID INTEGER /                        07 01598
001165 005155 R
001166 056003 A 1599 GNI2     STA     ACC,B         STORE IN ACC                              V2      07 01599
                      1600          MOVPAB  BIAS,BEXP     LOAD INTEGER BIAS AS BINARY EXPONENT            07 01600
001167 010472 A
001170 056024 A
001171 001000 A 1601          JMP     GNI10                                                           07 01601
001172 001304 R
001173 005311 A 1602 GNI4     DAR                                                                     07 01602
001174 001010 A 1603          JAZ     GNI8          DOUBLE PRECISION #                                07 01603
001175 001227 R
001176 140422 A 1604          SUB     TWO           NO
001177 001010 A 1605          JAZ     GNI9          TEST DP INTEGER                                   07 01605
001200 001252 R
```

```
                    1606 ***************
                    1607 * REAL ITEM *
                    1608 ***************
001201 015000 A     1609          LDA     0,X         GET 1ST WORD OF REAL ITEM                    07 01609
001202 001002 A     1610          JAP     *+3         CONVERT TO ABS                               07 01610
001203 001205 R
001204 005211 A     1611          CPA                                                              07 01611
001205 056164 A     1612          STA     TEMP,B      SAVE                                         07 01612
001206 015001 A     1613          LDA     1,X         GET 2ND WORD OF REAL ITEM                    07 01613
001207 150460 A     1614          ANA     BR15        CLEAR B15                              D.1   07 01614
001210 005024 A     1615          TBX                 LOAD X AS BASE REGISTER                      07 01615
001211 005012 A     1616          TAB                 2ND WORD TO B-REG                            07 01616
001212 015164 A     1617          LDA     TEMP,X      1ST WORD TO A-REG                            07 01617
001213 065164 A     1618          STB     TEMP,X      SAVE 2ND WORD                                07 01618
001214 004507 A     1619          LASR    7           GET BINARY EXPONENT                          07 01619
001215 140430 A     1620          SUB     BXBIAS      UNBIAS IT                              V2    07 01620
001216 055024 A     1621          STA     BEXP,X      SAVE                                         07 01621
001217 065003 A     1622          STB     ACC,X       STORE 1ST MANTISSA WORD                      07 01622
001220 015164 A     1623          LDA     TEMP,X      RESTORE 2ND WORD                             07 01623
001221 005002 A     1624          TZB                 CLEAR B                                      07 01624
001222 004507 A     1625          LASR    7                                                        07 01625
001223 065004 A     1626          STB     ACC+1,X     SAVE                                         07 01626
001224 005042 A     1627          TXB                 RESTORE BASE REGISTER B                      07 01627
001225 001000 A     1628          JMP     GNI10                                                    07 01628
001226 001304 R
                    1629 ************************
                    1630 * DOUBLE PRECISION ITEM *
                    1631 ************************                                                 07 01629
001227 015001 A     1632 GNI8     LDA     1,X         GET 1ST MANTISSA WORD                        07 01632
001230 004317 A     1633          ASRA    15                                                       07 01633
001231 056157 A     1634          STA     SGFL,B      GET SIGN                                     07 01634
001232 015001 A     1635          LDA     1,X         RELOAD WORD 1                                07 01635
001233 001002 A     1636          JAP     *+3         IS ITEM NEGATIVE ?                     V2    07 01636
001234 001236 R
001235 005211 A     1637          CPA                 YES. GET ABS VALUE                           07 01637
001236 056003 A     1638          STA     ACC,B       LOAD WORD 0 OF ACCUMULATOR                   07 01638
001237 015000 A     1639          LDA     0,X         GET BINARY EXPONENT                          07 01639
001240 140430 A     1640          SUB     BXBIAS      UNBIAS IT                              V2    07 01640
001241 056024 A     1641          STA     BEXP,B      SAVE                                         07 01641
001242 015002 A     1642          LDA     2,X         GET WORD 2                             D.1   07 01642
001243 150460 A     1643          ANA     BR15        CLEAR B15                              D.1   07 01643
001244 056004 A     1644          STA     ACC+1,B                                            D.1   07 01644
001245 015003 A     1645          LDA     3,X         GET WORD 3                             D.1   07 01645
001246 150460 A     1646          ANA     BR15        CLEAR B15                              D.1   07 01646
001247 056005 A     1647          STA     ACC+2,B                                            D.1   07 01647
001250 001000 A     1648          JMP     GNI10                                                    07 01648
001251 001304 R
                    1649 *************                                                            07 01649
                    1650 * DP INTEGER *                                                          07 01650
                    1651 *************                                                            07 01651
001252 006010 A     1652 GNI9     LDAI    30                                                       07 01652
001253 000036 A
001254 056024 A     1653          STA     BEXP,B      LOAD BIAS IN BINARY EXPONENT                 07 01653
001255 015001 A     1654          LDA     1,X         GET 2ND WORD                                 07 01654
001256 150460 A     1655          ANA     BR15        CLEAR HIGH BIT                               07 01655
001257 050000 A     1656          STA                                                              07 01656
001260 056004 A     1657          STA     ACC+1,B     STORE                                        07 01657
001261 015000 A     1658          LDA     0,X         GET 1ST WORD                                 07 01658
001262 056003 A     1659          STA     ACC,B       SAVE                                         07 01659
001263 001002 A     1660          JAP     GNI10       NEGATIVE #                                   07 01660
001264 001304 R
001265 005211 A     1661          CPA                 YES. TAKE 1-COMP                             07 01661
001266 056003 A     1662          STA     ACC,B                                                    07 01662
001267 016004 A     1663          LDA     ACC+1,B                                                  07 01663
001270 007400 A     1664          RDF                                                              07 01664
001271 001016 A     1665          JANZ    GNI9A       IS WORD 2 ZERO #                             07 01665
001272 001300 R
001273 046003 A     1666          INR     ACC,B       YES. 2-COMP WORD 1                           07 01666
001274 001001 A     1667          JDF     ER3         ERROR 3/INVALID NUMBER/                      07 01667
001275 005155 R
001276 001000 A     1668          JMP     GNI10                                                    07 01668
001277 001304 R
001300 005211 A     1669 GNI9A    CPA                 TAKE 2-COMP OF WORD 2                        07 01669
001301 005111 A     1670          IAR                                                              07 01670
001302 150460 A     1671          ANA     BR15                                                     07 01671
001303 056004 A     1672          STA     ACC+1,B                                                  07 01672
                    1673 ******************                                                       07 01673
                    1674 * TEST FOR ZERO *                                                       07 01674
                    1675 ******************                                                       07 01675
001304 016003 A     1676 GNI10    LDA     ACC,B                                                    07 01676
001305 116004 A     1677          ORA     ACC+1,B                                                  07 01677
001306 116005 A     1678          ORA     ACC+2,B                                                  07 01678
001307 001016 A     1679          JANZ    GNIL1       IS ITEM = ZERO ?                             07 01679
001310 001315 R
001311 005101 A     1680        * INCR    1           YES                                          07 01680
001312 056055 A     1681          STA     DEXP,B      YES. SET DECIMAL EXPONENT TO 1               07 01681
001313 001000 A     1682          JMP     GNI50                                                    07 01682
001314 001420 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
001315 105025 A
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001316 002371 R
001317 016024 A 1687          LDA     BEXP,B                                                  07 01687
001320 001010 A 1688          JAZ     GNI50           FINISHED IF BINARY EXPONENT = ZERO      07 01688
001321 001420 R
001322 001004 A 1689          JAN     GNI20                                                   07 01689
001323 001331 R
                1690 ********************************************                              07 01690
                1691 * (ACC,BEXP).GE.1 DIVIDE BY 10 *                                         07 01691
                1692 ********************************************                              07 01692
001324 046053 A 1693          INP     BEXP,B          BUMP DECIMAL EXPONENT                   07 01693
                1694          PUSHJ   D10             ACC = ACC/10                        V2  07 01694
001325 105025 A
001326 000260 R
001327 001000 A 1695          JMP     GNIL1           LOOP TILL DONE                          07 01695
001330 001313 R
                1696 ********************************************                              07 01696
                1697 * (ACC,BEXP).LT.1 TEST IF .GE. .1 *                                       07 01697
                1698 ********************************************                              07 01698
001331 120461 A 1699 GNI20    ADD     THREE                                                   07 01699
001332 001004 A 1700          JAN     GNI30           (ACC,BEXP) .LT. .1 IF BEXP .LT. -3      07 01700
001333 001403 R
001334 001016 A 1701          JANZ    GNI25           (ACC,BEXP) .GT. .1 IF BEXP .GT. -3      07 01701
001335 001371 R
001336 016055 A 1702          LDA     BEXP,B                                                  07 01702
001337 005311 A 1703          TSC                                                             07 01703
001340 001002 A 1704          JAP     GNI25           DONT OSCILLATE                          07 01704
001341 001374 R
001342 016003 A 1705          LDA     ACC,B                                                   07 01705
001343 006140 A 1706          SUBI    063146                                              V2  07 01706
001344 063146 A
001345 001004 A 1707          JAN     GNI30           TEST WORD 0.LT..1                       07 01707
001346 001403 R
001347 001016 A 1708          JANZ    GNI25                                                   07 01708
001350 001374 R
001351 016004 A 1709          LDA     ACC+1,B                                                 07 01709
001352 006140 A 1710          SUBI    031463                                              V2  07 01710
001353 031463 A
001354 001004 A 1711          JAN     GNI30           TEST WORD 1.LT..1                       07 01711
001355 001403 R
001356 001016 A 1712          JANZ    GNI25                                                   07 01712
001357 001374 R
001360 016005 A 1713          LDA     ACC+2,B                                                 07 01713
001361 006140 A 1714          SUBI    014631                                              V2  07 01714
001362 014631 A
001363 001004 A 1715          JAN     GNI30           TEST WORD 2.LT..1                       07 01715
001364 001403 R
001365 001016 A 1716          JANZ    GNI25                                                   07 01716
001366 001374 R
001367 016006 A 1717          LDA     ACC+3,B                                                 07 01717
001370 006140 A 1718          SUBI    016015                                              V2  07 01715
001371 046315 A
001372 001004 A 1719          JAN     GNI30           TEST WORD 3.LT..1                       07 01719
001373 001403 R
                1720 ********************************************                              07 01720
                1721 * .1 .LE. (ACC,BEXP) .LT. 1 SHIFT ACC TO POSITION *                       07 01721
                1722 ********************************************                              07 01722
001374 005031 A 1723 GNI25    TCA                                                             07 01723
001375 146024 A 1724          SUB     BEXP,B                                                  07 01724
001376 056052 A 1725          STA     COUNT,B         LOAD SHIFT COUNT                        07 01725
                1726          PUSHJ   SRA             SHIFT ACC TO POSITION               V2  07 01726
001377 105025 A
001400 005444 A
001401 001000 A 1727          JMP     GNI50                                                   07 01727
001402 001420 R
                1728 ********************************************                              07 01728
                1729 * (ACC,BEXP) .LT. .1 MULTIPLY BY 10 *                                     07 01729
                1730 ********************************************                              07 01730
                1731 GNI30    MOVPAB  ACC,COUNT       SET SHIFT COUNT TO 4                    07 01731
001403 010423 A
001404 056052 A
001405 126024 A 1732          ADD     BEXP,B          BUMP BINARY EXPONENT BY 4               07 01732
001406 056024 A 1733          STA     BEXP,B                                                  07 01733
                1734          PUSHJ   SRA             SHIFT ACC RIGHT 4                   V2  07 01734
001407 105025 A
001410 005444 A
                1735          PUSHJ   D10             ACC = ACC*10                        V2  07 01735
001411 105025 A
001412 002326 R
                1736          DAR     BEXP            DROP DECIMAL EXPONENT                   07 01736
001413 016055 A
001414 005311 A
001415 056055 A
001416 001000 A 1737          JMP     GNIL1           LOOP TILL DONE                          07 01737
001417 001315 R
                1738 ********************************************                              07 01738
                1739 * GENERATE DECIMAL DIGITS *                                              07 01739
                1740 ********************************************                              07 01740
                1741 GNI50    MOVBAB  ACC,CHRPT       INITIALIZE CHR POINTER                  07 01741
001420 016007 A
001421 056050 A
001422 046124 A 1742          IAR     MOV,B           SET MULTIPLY OVERFLOW FLAG              07 01742
                1743 GNIL2    PUSHJ   D10             ACC = ACC*10                        V2  07 01743
001423 105025 A
```

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001424 002326 R
001425 036050 A 1744          LDX     CHBPT,B         POINT X AT ARRAY CHB                                07 01744
001426 055000 A 1745          STA     0,X             STORE DECIMAL DIGIT IN ARRAY CHB                    07 01745
001427 005145 A 1746          INCR    045             BUMP ARRAY POINTER                                  07 01746
001430 076050 A 1747          STX     CHBPT,B                                                             07 01747
001431 146007 A 1748          SUB     ACHB,B                                                              07 01748
001432 146200 A 1749          SUB     BD14,B                                                        V2    07 01749
001433 001004 A 1750          JAN     GNIL2           LOOP TILL 14 DECIMAL DIGITS GENERATED               07 01750
001434 001423 R
                1751          POPJ                    EXIT                                          FG    07 01751
001435 105065 A
                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
                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
001436 016113 A
001437 126113 A
001440 056113 A
001441 016114 A 1770          LDA     ITEMWC,B                                                            07 01770
001442 005311 A 1771          DAR                                                                         07 01771
001443 001002 A 1772          JAP     GNL2            LIST ITEM FINISHED ?                                07 01772
001444 001465 R
001445 006010 A 1773          LDAI    GNL2            YES                                           V2    07 01773
001446 001465 R
001447 036000 A 1774          LDX     OPSTKP,B                                                      V2    07 01774
001450 005344 A 1775          DXR                                                                     FG    07 01775
001451 076000 A 1776          STX     OPSTKP,B                                                      FG    07 01776
001452 055000 A 1777          STA     0,X             PUSH RETURN ADDRESS GNL2                      V2    07 01777
001453 010422 A 1778          LDA     CEX                                                                 07 01778
                1779          PUSHF                   PUSH EXIT OP                                        07 01779
001454 036016 A
001455 035000 A
001456 005344 A
001457 055000 A
001460 005041 A
001461 036016 A
001462 055000 A
001463 001000 A 1780          JMP     CAN             EXIT TO VSFORTIO                                    07 01780
001464 000065 R
                1781 GNL2     SUTBBB  ITEMWC,ITMINC,ITEMWC    DECREMENT LIST ITEM WORD COUNT              07 01781
001465 016114 A
001466 146113 A
001467 056114 A
                1782          POPJ                    EXIT                                          FG    07 01782
001470 105065 A
                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 ONF 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
001471 016055 A 1804 GOUT     LDA     DEXP,B          GET DECIMAL EXPONENT                                07 01804
001472 001004 A 1805          JAN     EOUT            PROCESS AS 'E' IF DEXP .LT. ZERO                    07 01805
001473 000313 R
001474 146054 A 1806          SUB     D,B                                                                 07 01806
001475 005311 A 1807          DAR                                                                         07 01807
001476 001002 A 1808          JAP     EOUT            PROCESS AS 'E' IF DEXP .GE. D                       07 01808
001477 000313 R
                1809          MOVBAB  DT,COUNT        LOAD SIGNIFICANT DIGIT COUNT                        07 01809
001500 016056 A
001501 056052 A
                1810          PUSHJ   RND             ROUND DECIMAL DIGIT STRING                    V2    07 01810
001502 105025 A
001503 005302 R
001504 016056 A 1811          LDA     DT,B                                                                07 01811
001505 146055 A 1812          SUB     DEXP,B          DECREMENT FRACTIONAL FIELD                          07 01812
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001506 001004 A 1813          JAN     EOUT            PROCESS AS 'E' ON ROUNDING OVERFLOW                07 01813
001507 000013 R
001510 056056 A 1814          SIA     PT,B                                                               07 01814
                1815          MOVPAB  FOUR,XFW        SET EXPONENT FIELD WIDTH TO 4                      07 01815
001511 010423 A
001512 056174 A
                1816          ZAB     MFL             SET FLAG TO BLANK OUT EXPONENT FIELD               07 01816
001513 005001 A
001514 056170 A
                1817          MOVRAB  DEXP,IFW        LOAD INTEGER FIELD WIDTH                           07 01817
001515 010057 A
001516 056170 A
001517 001000 A 1818          JMP     DEF             PROCESS AS 'F' DESCRIPTOR                          07 01818
001520 000000 R
                1819          EJEC                                                                       07 01819
                1820 ********************************************************************************** 07 01820
                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 FORM:' DESCRIPTORS                                      * 07 01824
                1825 *                                                                                  * 07 01825
                1826 *                  NN..                                                            * 07 01826
                1827 *                  '...'                                                           * 07 01827
                1828 *                                                                                  * 07 01828
                1829 * ENTRY: N = FIELD WIDTH( = 2**15-1 FOR '...' DESCRIPTOR)                          * 07 01829
                1830 *          MIN  : INPUT ENTRY                                                      * 07 01830
                1831 *          MOUT : OUTPUT ENTRY                                                     * 07 01831
                1832 *          QFL  = 0 NN.. SPECIFIER                                                 * 07 01832
                1833 *               = 1 '...' SPECIFIER                                                * 07 01833
                1834 *                                                                                  * 07 01834
                1835 * EXIT : DIRECT TO FRS                                                             * 07 01835
                1836 *                                                                                  * 07 01836
                1837 ********************************************************************************** 07 01837
001521 R        1838 MIN     EQU     %                                                                  07 01838
001521 R        1839 MOUT    EQU     *                                                                  07 01839
                1840          TZAB    QFL,HI06        TEST IF H OR '...' DESCRIPTOR                      07 01840
001521 016150 A
001522 001010 A
001523 001556 R
                1841 ********************
                1842 * '...' SPECIFIER *                                                               07 01841
                1843 ********************                                                               07 01842
001524 005311 A 1844          DAR                                                                        07 01843
001525 001010 A 1845          JAZ     HI03            QFL = 2 ?                                          07 01844
001526 001532 R
001527 056150 A 1846          STA     QFL,B           YES, SET QFL = 1                                   07 01845
001530 001000 A 1847          JMP     HI010            AND INPUT OVER 2ND QUOTE OF PAIR                  07 01846
001531 001566 R
                1848 HI02     MOVRAB  AFSCB,ASCB      SET SCB TO FORMAT STRING                           07 01847
001532 016011 A
001533 056021 A
                1849          PUSHJ   ICC             INPUT FORMAT CHARACTER                      V2     07 01848
001534 105025 A
001535 001612 R
001536 006451 A 1850          BT      APST+0T,HI04          IS CHAR A QUOTE ?                            07 01849
001537 001553 R
                1851          PUSHJ   ICC             YES. INPUT NEXT CHARACTER                   V2     07 01850
001540 105025 A
001541 001612 R
001542 006451 A 1852          BT      APST+0T,FRS05 EXIT TO FORMAT SCAN ON SINGLE QUOTE                  07 01851
001543 001020 R
                1853          DAZ     FMPT            2 CONSECUTIVE QUOTES - BACK UP FORMAT PTR          07 01852
001544 016062 A
001545 005311 A
001546 056062 A
                1854          TSAB    RWFL,WR,HI015   READ ?                                            07 01853
001547 016154 A
001550 006411 A
001551 001600 R
001552 046150 A 1855          INR     QFL,B           YES. SET QFL = 2                                   07 01854
                1856 HI04     DAR     FMPT            BACK UP FORMAT POINTER                             07 01855
001553 016062 A
001554 005311 A
001555 056062 A
                1857 ********************
                1858 * NN.. SPECIFIER *                                                                07 01856
                1859 ********************                                                               07 01857
                1860 HI06     DAR     N               DECREMENT FIELD WIDTH N                            07 01858
001556 016125 A
001557 005311 A
001560 056125 A
001561 001004 A 1861          JAN     PASS            EXIT WHEN FIELD EXHAUSTED                          07 01859
001562 000430 R
                1862          TSAB    RWFL,WR,HI015                                               V2     07 01860
001563 016154 A
001564 006411 A
001565 001600 R
                1863 *********
                1864 * INPUT *                                                                          07 01861
                1865 *********                                                                          07 01862
                1866 HI010    PUSHJ   ICC             INPUT BUFFER CHARACTER                      V2     07 01863
001566 105025 A
001567 000070 R
```

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                    1869          MOVBAB  AFSCB,ASCB    SET SCB TO FORMAT STRING                        07 01869
001570 016011 A
001571 056021 A
                    1870          MOVBAB  BCHAR,FCHAR   MOVE CHAR FROM BUFFER SCB TO FORMAT SCB         07 01870
001572 016030 A
001573 056064 A
                    1871          PUSHJ   PCH           PUT CHARACTER IN FORMAT STRING          V2       07 01871
001574 105025 A
001575 003276 R
001576 001000 A     1872          JMP     HIN           PROCESS NEXT CHAR                               07 01872
001577 001521 R
                    1873 **********                                                                      07 01873
                    1874 * OUTPUT *                                                                     07 01874
                    1875 **********                                                                      07 01875
                    1876 HI015    MOVBAB  AFSCB,ASCB    SET SCB TO FORMAT STRING                        07 01876
001600 016011 A
001601 056021 A
                    1877          PUSHJ   ICC           INPUT FORMAT CHARACTER                  V2       07 01877
001602 105025 A
001603 001612 R
                    1878          MOVBAB  FCHAR,BCHAR   MOVE CHAR FROM FORMAT SCB TO BUFFER SCB         07 01878
001604 016064 A
001605 056030 A
                    1879          PUSHJ   OCB           OUTPUT FORMAT CHARACTER TO BUFFER        V2     07 01879
001606 105025 A
001607 002441 R
001610 001000 A     1880          JMP     HOUT          PROCESS NEXT CHAR                               07 01880
001611 001521 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
001612 036021 A     1901 ICC      LDX     ASCB,B        POINT X AT SCB                                  07 01901
001613 015000 A     1902          LDA     0,X           GET CURRENT POINTER                             07 01902
001614 045000 A     1903          INR     0,X           BUMP CURRENT POINTER                            07 01903
001615 007401 A     1904 SDF      SUF                                                                   07 01904
001616 004257 A     1905          LRLA    15            CONVERT BYTE TO WORD COUNT                      07 01905
001617 003004 A     1906          XON     RDF           OVFL SET IF HIGH BYTE                           07 01906
001620 002170 R
001621 150460 A     1907          ANA     BR15          CLEAR SIGN BIT                                  07 01907
001622 125001 A     1908          ADD     1,X           ADD STRING START ADDRESS                        07 01908
001623 005014 A     1909          TAX                   POINT X AT WORD                                 07 01909
001624 015000 A     1910          LDA     0,X           GET WORD                                        07 01910
001625 003001 A     1911          XOF     LSRA8         RIGHT JUSTIFY BYTE                              07 01911
001626 001710 R
001627 150463 A     1912          ANA     RHW           CLEAR HIGH BYTE                                 07 01912
001630 036021 A     1913          LDX     ASCB,B        POINT X AT SCB                                  07 01913
001631 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$ST0     SET EXEC STATE TO 00                      V2    07 01921
                    1922 NV2NUC   CONT                                                            FG    07 01922
001632 034010 A     1923          LDX     ICCCT                                                         07 01923
001633 005144 A     1924 ICCLP    IXR                   POINT X AT CLASSIFICATION TABLE                 07 01924
001634 145000 A     1925          SUB     0,X                                                           07 01925
001635 001002 A     1926          JAP     ICCLP                                                         07 01926
001636 001633 R
001637 015022 A     1927          LDA     ICCCT1-ICCCT,X     GET CHARACTER CLASSIFICATION CODE          07 01927
                    1928          IFF     NUC                                                     FG    07 01928
                    1929          GOTO    NV2NUC                                                  FG    07 01929
                    1930          IFT     VII                                                     FG    07 01930
                    1931          OME     MAP,V$ST3     SET EXEC MODE TO NN                       V2    07 01931
                    1932 NV2NUC   CONT                                                            FG    07 01932
001640 036021 A     1933          LDX     ASCB,B        POINT X AT SCB                                  07 01933
001641 055003 A     1934          STA     3,X           A = SCB(3) = CODE                               07 01934
                    1935          POPJ                  EXIT                                    FG    07 01935
001642 105065 A
                    1936 ********************************                                              07 01936
                    1937 * CLASSIFICATION TABLE - CHARS *                                              07 01937
                    1938 ********************************                                              07 01938
001643 001643 R     1939 ICCCT    PZE     *                                                             07 01939
001644 000240 A     1940          DATA    0240          SPECIAL CHAR                                    07 01940
001645 000001 A     1941          DATA    0241-0240     BLANK                                           07 01941
001646 000006 A     1942          DATA    0247-0241     SPECIAL CHAR                                    07 01942
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001647 000001 A 1943          DATA    0250-0247       ' QUOTE                                                  07 01943
001650 000001 A 1944          DATA    0251-0250       '(' LEFT PAREN                                           07 01944
001651 000001 A 1945          DATA    0252-0251       ')' RIGHT PAREN                                          07 01945
001652 000001 A 1946          DATA    0253-0252       SPECIAL CHAR                                             07 01946
001653 000001 A 1947          DATA    0254-0253       '+' PLUS SIGN                                            07 01947
001654 000001 A 1948          DATA    0255-0254       ',' COMMA                                                07 01948
001655 000001 A 1949          DATA    0256-0255       '-' MINUS SIGN                                           07 01949
001656 000001 A 1950          DATA    0257-0256       '.' PERIOD                                               07 01950
001657 000001 A 1951          DATA    0260-0257       '/' SLASH                                                07 01951
001660 000012 A 1952          DATA    0272-0260       NUMERIC                                                  07 01952
001661 000007 A 1953          DATA    0301-0272       SPECIAL CHAR                                             07 01953
001662 000017 A 1954          DATA    0320-0301       ALPHA                                                    07 01954
001663 000001 A 1955          DATA    0321-0320       P                                                        07 01955
001664 000012 A 1956          DATA    0333-0321       ALPHA                                                    07 01956
001665 000045 A 1957          DATA    0400-0333       SPECIAL CHAR                                             07 01957
                1959 ********************************                                                       07 01959
                1960 * CLASSIFICATION TABLE - CODES *                                                       07 01960
                1961 ********************************                                                       07 01961
        001665 R 1962 ICCCT1  EQU     *-1                                                                    07 01962
001666 000030 A 1963          DATA    0               SPECIAL CHAR                                             07 01963
001667 000002 A 1964          DATA    2               BLANK                                                    07 01964
001670 000000 A 1965          DATA    0               SPECIAL CHAR                                             07 01965
001671 001000 A 1966          DATA    01000           ' QUOTE                                                  07 01966
001672 000010 A 1967          DATA    010             '(' LEFT PAREN                                           07 01967
001673 002000 A 1968          DATA    02000           ')' RIGHT PAREN                                          07 01968
001674 000000 A 1969          DATA    0               SPECIAL CHAR                                             07 01969
001675 000100 A 1970          DATA    0100            '+' PLUS SIGN                                            07 01970
001676 000004 A 1971          DATA    4               ',' COMMA                                                07 01971
001677 000020 A 1972          DATA    020             '-' MINUS SIGN                                           07 01972
001700 000400 A 1973          DATA    0400            '.' PERIOD                                               07 01973
001701 004000 A 1974          DATA    04000           '/' SLASH                                                07 01974
001702 000040 A 1975          DATA    040             NUMERIC                                                  07 01975
001703 000000 A 1976          DATA    0               SPECIAL CHAR                                             07 01976
001704 000001 A 1977          DATA    1               ALPHA                                                    07 01977
001705 000200 A 1978          DATA    0200            P                                                        07 01978
001706 000001 A 1979          DATA    1               ALPHA                                                    07 01979
001707 000000 A 1980          DATA    0               SPECIAL CHAR                                             07 01980
001710 004350 A 1981 LSRA8    LSRA    8                                                                        07 01981
                1982          EJECT                                                                          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
001711 005001 A
001712 056126 A
                1999 ************************                                                               07 01999
                2000 * INPUT/CONVERT LOOP *                                                               07 02000
                2001 ************************                                                               07 02001
                2002 IFFL     SUBBB     FCHAR,AZER,FCHAR  CONVERT ASCII DIGIT TO BINARY      V2          07 02002
001713 016064 A
001714 146177 A
001715 056064 A
001716 016126 A 2003          LDA       NFF,B           GET COUNTER                                          07 02003
001717 006140 A 2004          SUBI      3277            TEST IF IT CAN BE MULTIPLIED BY 10       V2          07 02004
001720 006315 A
001721 001002 A 2005          JAP       ER1             ERROR 1/ NUMBER TOO LARGE /                          07 02005
001722 005157 R
001723 016126 A 2006          LDA       NFF,B           RESTORE COUNTER IN A                                 07 02006
001724 005024 A 2007          TBX                       SAVE BASE REGISTER IN X                              07 02007
001725 004560 A 2008          LLSR      16                                                                   07 02008
001726 160471 A 2009          MUL       TEN                                                                  07 02009
001727 005021 A 2010          TBA                                                                            07 02010
001730 005042 A 2011          TXB                       RESTORE BASE REGISTER B                              07 02011
001731 007400 A 2012          RCB                       CLEAR OVFL                                           07 02012
001732 126064 A 2013          ADD       FCHAR,B         ADD IN NEW DIGIT                                     07 02013
001733 001001 A 2014          JOF       ER1             ERROR 1/ NUMBER TOO LARGE /                          07 02014
001734 005157 R
001735 055126 A 2015          STA       NFF,X           UPDATE COUNTER                                       07 02015
                2016 IFFL1    PUSHJ     TOS             INPUT NEXT FORMAT CHARACTER              V2  F       07 02016
001736 105025 A
001737 001612 R
001740 006405 A 2017          AT        ASET+NM,IFFL        LOOP ON NUMERIC                                  07 02017
001741 001717 R
001742 006401 A 2018          BT        ASET+BL,IFFL1       IGNORE BLANKS                                    07 02018
001743 001736 R
                2019          POPJ                      EXIT ON NON-NUMERIC                      FG  07 02019
001744 105065 A
                2020          EJECT                                                                          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
001745 016011 A
001746 056021 A
                    2035 INFLP   PUSHJ   ICC            INPUT/CLASSIFY CHARACTER              V2   07 02035
001747 105025 A
001750 001612 R
001751 006401 A     2036         BT      ASET+BL,INFLP  LOOP TILL NON-BLANK INPUT                  07 02036
001752 001747 R
                    2037         POPJ                   EXIT                                  FG   07 02037
001753 105063 A
                    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
001754 R            2058 IOUT    EQU     *                                                           07 02058
                    2060         MOVBAB  DEXP,COUNT                                                 07 02060
001754 016055 A
001755 056052 A
                    2061         PUSHJ   RND            ROUND TO DEXP DIGITS                  V2   07 02061
001756 105025 A
001757 005302 R
                    2062         MOVBAB  DEXP,IFW       SET INTEGER COUNT TO DEXP                   07 02062
001760 016055 A
001761 056100 A
001762 001000 A     2063         JMP     DNF            OUTPUT NUMERIC FIELD                        07 02063
001763 002471 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
001764 005001 A
001765 056057 A
001766 056077 A     2090         STA     IDEXP,B        CLEAR IMPLICIT DECIMAL EXPONENT             07 02090
001767 056124 A     2091         STA     MOV,B          CLEAR MULTIPLY OVERFLOW FLAG                07 02091
001770 056175 A     2092         STA     XSG,B          CLEAR EXPONENT SIGN FLAG                    07 02092
001771 006010 A     2093         LDAI    60                                                   V2   07 02093
001772 000074 A
001773 056024 A     2094         STA     BEXP,B         BIAS ACC AS INTEGER ACCUMULATOR       V2   07 02094
                    2095 ************************                                                  07 02095
                    2096 * INPUT INTEGER AND FRACTIONAL PART *                                     07 02096
                    2097 ************************                                                  07 02097
001774 006010 A     2098         LDAI    0506           ENABLE BLANK/',','/'-'/NUMERIC/'+'/'.'  V2   07 02098
001775 000566 A
001776 056053 A     2099         STA     CVTL,B                                                     07 02099
                    2100 IXNL1   TZAB    WT,IXN50       EXIT IF FIELD EXHAUSTED                     07 02100
001777 016171 A
002000 001010 A
002001 002161 R
                    2101         PUSHJ   C3C            INPUT BUFFER CHARACTER                V2   07 02101
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002002 105025 A
002003 000070 R
002004 156053 A 2102          ANA     CVFL,B                                                    07 02102
002005 001010 A 2103          JAZ     ER3             ERROR 3/ ILLEGAL CHAR /                   07 02103
002006 005155 R
002007 016031 A 2104          LDA     BCODE,B         RELOAD CHARACTER CODE                     07 02104
002010 006402 A 2105          BT      ASET+CM,IXN50       STOP SCAN ON ','                      07 02105
002011 002161 R
002012 006400 A 2106          BT      ASET+AL,IXN15       TEST ALPHA                            07 02106
002013 002071 R
                2107 ************************                                                   07 02107
                2108 * PROCESS BLANK CHAR *                                                     07 02108
                2109 ************************                                                   07 02109
002014 006441 A 2110          BT      ARST+BL,IXN4        TEST FOR BLANK                        07 02110
002015 002022 R
                2111          MOVBAB  AZER,BCHAR      REPLACE ASCII BLANK WITH ASCII ZERO   V2  07 02111
002016 016177 A
002017 056030 A
002020 001000 A 2112          JMP     IXN10                                                     07 02112
002021 002062 R
002022 016053 A 2113 IXN4     LDA     CVFL,B          NON-BLANK INPUT                           07 02113
002023 150445 A 2114          ANA     BR4             DISABLE '-'                               07 02114
002024 150447 A 2115          ANA     BR6             DISABLE '+'                               07 02115
002025 056053 A 2116          STA     CVFL,B                                                    07 02116
                2117 ************************                                                   07 02117
                2118 * PROCESS '+' AND '-' *                                                    07 02118
                2119 ************************                                                   07 02119
002026 016031 A 2120          LDA     BCODE,B         RELOAD CHAR CODE                          07 02120
002027 006406 A 2121          BT      ASET+PL,IXN5        TEST '+'                              07 02121
002030 002041 R
002031 006444 A 2122          BT      ARST+MN,IXN6        TEST '-'                              07 02122
002032 002046 R
002033 016053 A 2123          LDA     CVFL,B                                                    07 02123
002034 006414 A 2124          BT      ASET+B12,IXN18      '-' IS EXPONENT IF BIT 12 SET         07 02124
002035 002125 R
002036 046157 A 2125          INR     SGFL,B          SET '-' FLAG                              07 02125
002037 001000 A 2126          JMP     IXNL1           CONTINUE SCAN                             07 02126
002040 001777 R
002041 016053 A 2127 IXN5     LDA     CVFL,B                                                    07 02127
002042 006414 A 2128          BT      ASET+B12,IXN18      '+' IS EXPONENT IF BIT 12 SET         07 02128
002043 002125 R
002044 001000 A 2129          JMP     IXNL1           CONTINUE SCAN                             07 02129
002045 001777 R
002046 006450 A 2130 IXN6     BT      ARST+PT,IXN8        TEST '.'                              07 02130
002047 002056 R
002050 046147 A 2131          INR     DTFL,B          '.' INPUT. SET FLAG                       07 02131
002051 016053 A 2132          LDA     CVFL,B                                                    07 02132
002052 150451 A 2133          ANA     BR8             DISABLE '.'                               07 02133
002053 056053 A 2134          STA     CVFL,B                                                    07 02134
002054 001000 A 2135          JMP     IXNL1           CONTINUE SCAN                             07 02135
002055 001777 R
                2136 ************************                                                   07 02136
                2137 * PROCESS NUMERIC CHAR *                                                   07 02137
                2138 ************************                                                   07 02138
002056 016053 A 2139 IXN8     LDA     CVFL,B                                                    07 02139
002057 006110 A 2140          SBAI    B10121          ENABLE ALPHA/EXPONENT SIGN            V2  07 02140
002060 010121 R
002061 056053 A 2141          STA     CVFL,B                                                    07 02141
002062 016030 A 2142 IXN10    LDA     BCHAR,B         GET INPUT NUMERIC CHAR                    07 02142
002063 146177 A 2143          SUB     AZER,B          CONVERT ASCII DIGIT TO BINARY         V2  07 02143
002064 056166 A 2144          STA     TEMP,B                                                    07 02144
                2145          PUSHJ   $10             ACC = ACC*10 + TEMP                   V2  07 02145
002065 105025 A
002066 002326 R
002067 001000 A 2146          JMP     IXNL1           CONTINUE SCAN                             07 02146
002070 001777 R
                2147 ************************                                                   07 02147
                2148 * ALPHA CHAR INPUT *                                                       07 02148
                2149 ************************                                                   07 02149
002071 016030 A 2150 IXN15    LDA     BCHAR,B                                                   07 02150
002072 006140 A 2151          SUBI    'D'                                                   V2  07 02151
002073 000304 A
002074 001004 A 2152          JAN     ER3             ERROR 3/ NOT 'D' OR 'E' /                 07 02152
002075 005155 R
002076 140422 A 2153          SUB     TWO                                                       07 02153
002077 001002 A 2154          JAP     ER3             ERROR 3/ NOT 'D' OR 'E' /                 07 02154
002100 005155 R
                2155 ************************                                                   07 02155
                2156 * PROCESS EXPONENT FIELD *                                                07 02156
                2157 ************************                                                   07 02157
002101 006010 A 2158          SBAI    B166                                                  V2  07 02158
002102 000166 A
002103 056053 A 2159          STR     CVFL,B          ENABLE BLANK/'+'/'-'/','/NUMERIC      V2  07 02159
                2160 IXNL2    FLPS    BT.IXN30        EXIT IF FIELD EXHAUSTED                   07 02160
002104 016171 A
002105 001010 A
002106 002157 R
                2161          PUSHJ   $30             INPUT BUFFER CHARACTER                V2  07 02161
002107 105025 A
002110 000070 R
002111 156053 A 2162          ANA     CVFL,B                                                    07 02162
002112 001010 A 2163          JAZ     ER3             ERROR 3/ ILLEGAL CHAR /                   07 02163
002113 005155 R
```

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002114 016031 A 2164          LDA     BCODE,B         RELOAD CHARACTER CODE                          07 02164
002115 006402 A 2165          BT      ASET+CM,IXN30       STOP SCAN ON ','                           07 02165
002116 002157 R
002117 006441 A 2166          BT      ARST+BL,IXN20       TEST FOR BLANK                             07 02166
002120 002130 R
               2167          MOVBAB  AZER,BCHAR      REPLACE BLANK WITH ZERO                    V2  07 02167
002121 016177 A
002122 056030 A
002123 001000 A 2168          JMP     IXN25                                                          07 02168
002124 002144 R
002125 006010 A 2169 IXN18    LDAI    0166                                                       V2  07 02169
002126 000166 A
002127 056053 A 2170          STA     CVFL,B          ENABLE BLANK/NUMERIC                       V2  07 02170
002130 016053 A 2171 IXN20    LDA     CVFL,B          NON-BLANK INPUT                                07 02171
002131 150445 A 2172          ANA     BR4             DISABLE '-'                                    07 02172
002132 150447 A 2173          ANA     BR6             DISABLE '+'                                    07 02173
002133 056053 A 2174          STA     CVFL,B                                                         07 02174
               2175 ********************************                                                07 02175
               2176 * PROCESS EXPONENT '+' OR '-' *                                                07 02176
               2177 ********************************                                                07 02177
002134 016031 A 2178          LDA     BCODE,B         RELOAD BUFFER CHARACTER CODE                   07 02178
002135 006406 A 2179          BT      ASET+PL,IXNL2       CONTINUE SCAN ON '+'                       07 02179
002136 002104 R
002137 006444 A 2180          BT      ARST+MN,IXN25       TEST FOR '-'                               07 02180
002140 002144 R
002141 046175 A 2181          INR     XSG,B           SET '-' EXPONENT SIGN FLAG                     07 02181
002142 001000 A 2182          JMP     IXNL2           CONTINUE SCAN                                  07 02182
002143 002104 R
               2183 ********************************                                                07 02183
               2184 * PROCESS NUMERIC EXPONENT DIGIT *                                               07 02184
               2185 ********************************                                                07 02185
002144 016030 A 2186 IXN25    LDA     BCHAR,B         GET ASCII DIGIT                                07 02186
002145 146177 A 2187          SUB     AZER,B          CONVERT TO BINARY                          V2  07 02187
002146 005024 A 2188          TBX                     SAVE BASE REGISTER SETTING IN X                07 02188
002147 025057 A 2189          LDB     EDEXP,X                                                        07 02189
002150 160471 A 2190          MUL     TEN                                                            07 02190
002151 065057 A 2191          STB     EDEXP,X         UPDATE EXPLICIT DECIMAL EXPONENT               07 02191
002152 005042 A 2192          XAB                     RESTORE BASE REGISTER B                        07 02192
002153 001016 A 2193          JANZ    ER3             ERROR 3/ EXPONENT TOO LARGE /                  07 02193
002154 005155 R
002155 001000 A 2194          JMP     IXNL2           CONTINUE SCAN                                  07 02194
002156 002104 R
               2195 IXN30     ZAB     SCF             DISABLE SCALE FACTOR IF EXTERNAL EXPONENT      07 02195
002157 005001 A
002160 056156 A
               2196 ********************************                                                07 02196
               2197 * CONVERT TO STANDARD FORM *                                                     07 02197
               2198 ********************************                                                07 02198
002161 036001 A 2199 IXN50    LDX     AACC,B          POINT X AT ACC                                 07 02199
002162 015000 A 2200          LDA     0,X                                                            07 02200
002163 115001 A 2201          ORA     1,X                                                            07 02201
002164 115002 A 2202          ORA     2,X                                                            07 02202
002165 115003 A 2203          ORA     3,X                                                            07 02203
002166 001010 A 2204          JAZ     IXN57           EXIT IF ACC=0                              FG  07 02204
002167 002224 R
002170 007400 A 2205 RDF      RDF                                                                    07 02205
               2206          TZAB    XSG,IXN52       IS EXPONENT SIGN FLAG SET ?                V2  07 02206
002171 016175 A
002172 001010 A
002173 002177 R
002174 005001 A 2207          TZA                     YES                                            07 02207
002175 146057 A 2208          SUB     EDEXP,B         NEGATE EXPLICIT DECIMAL EXPONENT               07 02208
002176 056057 A 2209          STA     EDEXP,B                                                        07 02209
               2210 IXN52     TNZAB   PTFL,IXN53      HAS A '.' BEEN INPUT ?                     V2  07 02210
002177 016147 A
002200 001016 A
002201 002205 R
               2211          SUTBBB  IDEXP,D,IDEXP       NO. DECREMENT EXPONENT BY D                07 02211
002202 016077 A
002203 146054 A
002204 056077 A
               2212 IXN53     TZAB    SCF,IXN55       IS SCALE FACTOR ENABLED ?                  V2  07 02212
002205 016156 A
002206 001010 A
002207 002212 R
002210 005001 A 2213          TZA                     YES                                            07 02213
002211 146155 A 2214          SUB     S,B                                                            07 02214
002212 126077 A 2215 IXN55    ADD     IDEXP,B         ADD IMPLICIT DECIMAL EXPONENT              V2  07 02215
002213 126057 A 2216          ADD     EDEXP,B         ADD EXPLICIT DECIMAL EXPONENT                  07 02216
002214 056055 A 2217          STA     DEXP,B          STORE IN DEXP                                  07 02217
002215 001001 A 2218          JOF     ER3             ERROR 3/ EXPONENT TOO LARGE /                  07 02218
002216 005155 R
               2219 IXNL3     PUSHJ   NRM             NORMALIZE ACC                              V2  07 02219
002217 105025 A
002220 002371 R
               2220          TNZAB   DEXP,IXN58                                                 FG  07 02220
 02221 016055 A
 02222 001016 A
 02223 002225 R
               2221 IXN57     POPJ                    EXIT WHEN DEXP=0                           FG  07 02221
 02224 105065 A
 02225 001002 A 2222 IXN58     JAP     IXN60           TEST SIGN OF DEXP                          FG  07 02222
 02226 002234 R
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                    2223 ********************************                                                07 02223
                    2224 * NEGATIVE DECIMAL EXPONENT *                                                07 02224
                    2225 ********************************                                                07 02225
                    2226          PUSHJ   D10             ACC = ACC/10                          V2    07 02226
002227 105025 A
002230 000260 R
002231 046055 A     2227          INR     DEXP,B          BUMP DEXP                                   07 02227
002232 001000 A     2228          JMP     IXNL3           CONTINUE CONVERSION                         07 02228
002233 002217 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
002234 010423 A
002235 056052 A
002236 126024 A     2233          ADD     BEXP,B          BUMP BINARY EXPONENT                        07 02233
002237 056024 A     2234          STA     BEXP,B                                                      07 02234
                    2235          PUSHJ   SH4             SHIFT ACC RIGHT 4                     V2    07 02235
002240 105025 A
002241 005444 R
                    2236          PUSHJ   M10             ACC = ACC*10                          V2    07 02236
002242 105025 A
002243 002326 R
                    2237          DAB     DEXP            DROP DEXP                                   07 02237
002244 016055 A
002245 005311 A
002246 056055 A
002247 001000 A     2238          JMP     IXNL3           CONTINUE CONVERSION                         07 02238
002250 002217 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
                    2257 LIN      TZAB    WT,ER3          ERROR 3/ BLANK FIELD /                      07 02257
002251 016171 A
002252 001010 A
002253 005155 R
                    2259          PUSHJ   GBC             INPUT BUFFER CHARACTER                V2    07 02259
002254 105025 A
002255 000070 R
002256 006401 A     2260          BT      ASCII+BL,LIN    SLOW THRU BLANKS                            07 02260
002257 002251 R
002260 036113 A     2261          LDX     ITEMAD,B        POINT X AT LIST ITEM                        07 02261
002261 005301 A     2262          DECR    1                                                           07 02262
002262 055000 A     2263          STA     0,X             SET LIST ITEM TO .TRUE. (-1)                07 02263
002263 016030 A     2264          LDA     BCHAR,B         GET INPUT CHAR                              07 02264
002264 006140 A     2265          SUBI    'F',A                                                 V2    07 02265
002265 000324 A
002266 001010 A     2266          JAZ     LINX            EXIT TO FORMAT SCAN IF 'T'                  07 02266
002267 002275 R
002270 045000 A     2267          INR     0,X             SET LIST ITEM TO .FALSE. (0)                07 02267
002271 006120 A     2268          SUBI    'T',A           TEST FOR 'F'                          V2    07 02268
002272 000016 A
002273 001016 A     2269          JANZ    ER3             ERROR 3/ 1ST CHAR NOT 'T' OR 'F' /          07 02269
002274 005155 R
                    2270 LINX     MOVRAB  WT,COUNT        LOAD REMAINING FIELD WIDTH AS REPEAT COUNT  07 02270
002275 016171 A
002276 056052 A
                    2271          PUSHJ   RCH             GOBBLE REST OF FIELD                  V2    07 02271
002277 105025 A
002300 004715 R
002301 001000 A     2272          JMP     FR065           EXIT TO FORMAT SCAN                         07 02272
002302 001003 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
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                    2289 ********************************************************************************* 07 02289
                    2291 LOUT   MOVBAB  BLNK1,BCHAR       LOAD BLANK AS FILL CHARACTER            V2  07 02291
002303 016202 A
002304 056030 A
                    2292        DABB    WT,COUNT        SET COUNT TO WT-1                               07 02292
002305 016171 A
002306 005311 A
002307 056052 A
                    2293        PUSHJ   RCH             OUTPUT WT-1 LEADING BLANKS              V2  07 02293
002310 105025 A
002311 004715 R
002312 006010 A 2294        LDAI    0306                                                    V2  07 02294
002313 000306 A
002314 056030 A 2295        STA     BCHAR,B         LOAD 'F' AS OUTPUT CHARACTER            V2  07 02295
002315 036113 A 2296        LDX     ITEMAD,B        POINT X AT LIST ITEM                        07 02296
                    2297        TZAX    0,LOU4          TEST LIST ITEM = 0 (FALSE)                  07 02297
002316 015000 A
002317 001010 A
002320 002324 R
002321 006010 A 2298        LDAI    0324            SET OUTPUT CHAR TO 'T' IF NOT           V2  07 02298
002322 000324 A
002323 056030 A 2299        STA     BCHAR,B                                                 V2  07 02299
                    2300 LOU4   PUSHJ   OCB             OUTPUT 'T' OR 'F'/EXIT                  V2  07 02300
002324 105025 A
002325 002441 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
002326 005024 A 2320 M10     TBX                    LOAD X AS BASE REGISTER                         07 02320
002327 015003 A 2321         LDA     ACC,X                                                          07 02321
002330 006140 A 2322         SUBI    3276                                                    V2  07 02322
002331 006314 A
002332 001004 A 2323         JAN     M104           CAN ACC BE MULTIPLIED BY 10 ?                   07 02323
002333 002344 R
002334 015124 A 2324         LDA     MOV,X          NO                                              07 02324
002335 001016 A 2325         JANZ    M104           MULTIPLY ANYWAY IF MOV SET                      07 02325
002336 002344 R
002337 015147 A 2326         LDA     PTFL,X                                                         07 02326
002340 001016 A 2327         JANZ    M10X           EXIT IF '.' PASSED                      FG  07 02327
002341 002370 R
002342 045077 A 2328         INR     IDEXP,X        OTHERWISE BUMP IMPLICIT DECIMAL EXPONENT        07 02328
                    2329         POPJ                    AND EXIT                            FG  07 02329
002343 105065 A
002344 015166 A 2330 M104    LDA     TERM,X         LOAD I                                          07 02330
002345 025006 A 2331         LDB     ACC+3,X                                                        07 02331
002346 160471 A 2332         MUL     TEN            ACC(3)=ACC(3)*10 + I                            07 02332
002347 065006 A 2333         STB     ACC+3,X                                                        07 02333
002350 025005 A 2334         LDB     ACC+2,X                                                        07 02334
002351 160471 A 2335         MUL     TEN            ACC(2)=ACC(2)*10 + OVFL(3)                      07 02335
002352 065005 A 2336         STB     ACC+2,X                                                        07 02336
002353 025004 A 2337         LDB     ACC+1,X                                                        07 02337
002354 160471 A 2338         MUL     TEN            ACC(1)=ACC(1)*10 + OVFL(2                       07 02338
002355 065004 A 2339         STB     ACC+1,X                                                        07 02339
002356 025003 A 2340         LDB     ACC,X                                                          07 02340
002357 160471 A 2341         MUL     TEN            ACC(0)=ACC(0)*10 + OVFL(1)                      07 02341
002360 065003 A 2342         STB     ACC,X                                                          07 02342
002361 005042 A 2343         TXB                    RESTORE BASE REGISTER B                         07 02343
002362 036147 A 2344         LDX     PTFL,B                                                         07 02344
002363 001040 A 2345         JXZ     M10X           HAS A '.' BEEN PASSED ?                 FG  07 02345
002364 002370 R
002365 036077 A 2346         LDX     IDEXP,B        YES                                             07 02346
002366 005344 A 2347         DXR                    DECREMENT IMPLICIT DECIMAL EXPONENT             07 02347
002367 076077 A 2348         STX     IDEXP,B                                                        07 02348
                    2349 M10X    POPJ                   EXIT                                FG  07 02349
002370 105065 A
                    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
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002371 005024 A 2364 NRM     TBX                    LOAD X AS BASE REGISTER                    07 02364
002372 015003 A 2365 NRML    LDA     ACC,X                                                     07 02365
002373 004241 A 2366         LRLA    1                                                         07 02366
002374 001004 A 2367         JAN     NRMX           EXIT WHEN NORMALIZED                       07 02367
002375 002437 R
002376 001016 A 2368         JANZ    NRM4           ACC(0) = 0 ?                               07 02368
002377 002415 R
                2369         MOVXAX  ACC+1,ACC      YES. SHIFT 1 WORD                          07 02369
002400 015004 A
002401 055003 A
                2370         MOVXAX  ACC+2,ACC+1                                               07 02370
002402 015005 A
002403 055004 A
                2371         MOVXAX  ACC+3,ACC+2                                               07 02371
002404 015006 A
002405 055005 A
                2372         ZAX     ACC+3                                                     07 02372
002406 005001 A
002407 055006 A
002410 016024 A 2373         LDA     BEXP,B                                                    07 02373
002411 140472 A 2374         SUB     015                                                       07 02374
002412 056024 A 2375         STA     BEXP,B                                                    07 02375
002413 001000 A 2376         JMP     NRML                                                      07 02376
002414 002372 R
002415 015003 A 2377 NRM4    LDA     ACC,X                                                     07 02377
002416 025004 A 2378         LDB     ACC+1,X                                                   07 02378
002417 004401 A 2379         LASL    1                                                         07 02379
002420 055003 A 2380         STA     ACC,X          SHIFT ACC(0) LEFT 1                        07 02380
002421 015004 A 2381         LDA     ACC+1,X                                                   07 02381
002422 025005 A 2382         LDB     ACC+2,X                                                   07 02382
002423 004401 A 2383         LASL    1                                                         07 02383
002424 055004 A 2384         STA     ACC+1,X        SHIFT ACC(1) LEFT 1                        07 02384
002425 015003 A 2385         LDA     ACC+2,X                                                   07 02385
002426 025006 A 2386         LDB     ACC+3,X                                                   07 02386
002427 004401 A 2387         LASL    1                                                         07 02387
002430 055005 A 2388         STA     ACC+2,X        SHIFT ACC(2) LEFT 1                        07 02388
002431 065006 A 2389         STB     ACC+3,X        SHIFT ACC(3) LEFT 1                        07 02389
002432 015024 A 2390         LDA     BEXP,X                                                    07 02390
002433 005311 A 2391         DAR                    DECREMENT BINARY EXPONENT BEXP             07 02391
002434 055024 A 2392         STA     BEXP,X                                                    07 02392
002435 001000 A 2393         JMP     NRML           CONTINUE NORMALIZE LOOP                    07 02393
002436 002372 R
002437 005042 A 2394 NRMX    TXB                    RESTORE BASE REGISTER B                    07 02394
                2395         POPJ                   EXIT                                  FG   07 02395
002440 105065 A
                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
002441 016022 A
002442 001010 A
002443 002453 R
002444 016171 A 2413         LDA     WT,B           YES                                        07 02413
002445 005311 A 2414         DAR                                                               07 02414
002446 001016 A 2415         JANZ    OCB4           WT = 1 ?                                   07 02415
002447 002453 R
002450 006010 A 2416         LDAI    0252                                              V2   07 02416
002451 000252 A
002452 056030 A 2417         STA     BCHAR,B        YES. LOAD '*' AS OUTPUT CHARACTER  V2   07 02417
                2418 OCB4    PUSHJ   PC             OUTPUT CHAR TO BUFFER              V2   07 02418
002453 105025 A
002454 000070 R
                2419         TZAB    WT,OCB6        FIELD EXHAUSTED ?                  FG   07 02419
002455 016171 A
002456 001010 A
002457 002461 R
                2420         POPJ                   NO. RETURN                         FG   07 02420
002460 105065 A
                2421 OCB6    MOVBAB  APSTK,OPSTKP   YES. CLEAR STACK                   FG   07 02421
002461 016017 A
002462 056000 A
002463 016061 A 2422         LDA     FDLKEY,B                                                  07 02422
002464 140424 A 2423         SUB     EIGHT                                                     07 02423
002465 001002 A 2424         JAP     OPCF           SCAN FOR NEXT FORMAT CHAR ON N/X           07 02424
002466 000430 R
002467 001009 A 2425         JMP     FD065          RETURN TO FORMAT SCAN                      07 02425
002470 001000 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
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002553 105025 A
002554 002441 R
002555 016050 A 2506          LDA     CHBPT,B                                                  07 02506
002556 146007 A 2507          SUB     ACHB,B                                                   07 02507
002557 146200 A 2508          SUB     BD14,B                                           V2      07 02508
002560 001004 A 2509          JAN     DNFL1                                                    07 02509
002561 002341 R
                2510          MOVBAB  AZER,BCHAR    LOAD '0' AS REPEAT CHARACTER       V2      07 02510
002562 016177 A
002563 056030 A
                2511          PUSHJ   RCH           OUTPUT '0' FILL                    V2      07 02511
002564 105025 A
002565 004715 R
                2512 ***************                                                            07 02512
                2513 * OUTPUT '.' *                                                            07 02513
                2514 ***************                                                            07 02514
                2515 DNF30    TZAB    PTFL,DNF40    SKIP IF NO '.'                             07 02515
002566 016147 A
002567 001010 A
002570 002634 R
002571 006010 A 2516          LDAI    0256                                             V2      07 02516
002572 000256 A
002573 056030 A 2517          STA     BCHAR,B       LOAD '.' AS OUTPUT CHARACTER       V2      07 02517
                2518          PUSHJ   RCB           OUTPUT '.'                         V2      07 02518
002574 105025 A
002575 002441 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
002576 016176 A
002577 056052 A
                2523          MOVBAB  AZER,BCHAR    LOAD '0' AS REPEAT CHARACTER       V2      07 02523
002600 016177 A
002601 056030 A
                2524          PUSHJ   RCH           OUTPUT LEADING ZEROS               V2      07 02524
002602 105025 A
002603 004715 R
                2525 ***********************                                                    07 02525
                2526 * OUTPUT FRACTIONAL PART *                                               07 02526
                2527 ***********************                                                    07 02527
                2528          SUTBBB  PT,ZFW,COUNT        LOAD COUNTER                       07 02528
002604 016056 A
002605 146176 A
002606 056052 A
002607 016052 A 2529 DNFL2    LDB     COUNT,B                                                  07 02529
002610 005311 A 2530          DAR                   DECREMENT COUNT                          07 02530
002611 001004 A 2531          JAN     DNF40         EXIT WHEN FINISHED                       07 02531
002612 002634 R
002613 056052 A 2532          STA     COUNT,B                                                  07 02532
002614 036050 A 2533          LDX     CHBPT,B       POINT X AT DIGIT                           07 02533
002615 046050 A 2534          INR     CHBPT,B       BUMP CHB POINTER                           07 02534
002616 015000 A 2535          LDA     0,X           GET DIGIT                                  07 02535
002617 126177 A 2536          ADD     =ZERO,B       CONVERT TO ASCII                   V2      07 02536
002620 056030 A 2537          STA     BCHAR,B                                                  07 02537
                2538          PUSHJ   RCB           OUTPUT CHAR TO BUFFER              V2      07 02538
002621 105025 A
002622 002441 R
002623 016050 A 2539          LDA     CHBPT,B                                                  07 02539
002624 146007 A 2540          SUB     ACHB,B                                                   07 02540
002625 146200 A 2541          SUB     BD14,B                                           V2      07 02541
002626 001004 A 2542          JAN     DNFL2                                                    07 02542
002627 002607 R
                2543          MOVBAB  AZER,BCHAR    LOAD '0' AS REPEAT CHARACTER       V2      07 02543
002630 016177 A
002631 056030 A
                2544          PUSHJ   RCH           OUTPUT '0' FILL                    V2      07 02544
002632 105025 A
002633 004715 R
                2545 DNF40    TNZAB   XFL,DNF50      TEST EXPONENT FLAG                 V2      07 02545
002634 016173 A
002635 001016 A
002636 002645 R
                2546 ***********************************                                    07 02546
                2547 * OUTPUT BLANK EXPONENT FIELD *                                          07 02547
                2548 ***********************************                                    07 02548
                2549          MOVPAB  FLDR,COUNT    SET BLANK COUNT TO 4                       07 02549
002637 010423 A
002640 056052 A
                2550          MOVBAB  BLNK1,BCHAR                                      V2      07 02550
002641 016202 A
002642 056030 A
                2551          PUSHJ   RCH           OUTPUT 4 BLANKS AND EXIT           V2      07 02551
002643 105025 A
002644 004715 R
                2552 ***********************************                                    07 02552
                2553 * OUTPUT EXPONENT FIELD *                                               07 02553
                2554 ***********************************                                    07 02554
002645 006010 A 2555 DNF50    LDAI    0303                                             V2      07 02555
002646 000303 A
002647 056030 A 2556          STA     BCHAR,B       SET EXPONENT CHARACTER TO 'E'      V2      07 02556
                2557          TNZAB   FMLKEY,DNF52  IS FORMAT DESCRIPTOR 'D' ?         V2      07 02557
002650 016061 A
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002651 001016 A
002652 002656 R
                2558            DAB     BCHAR           YES. LOAD 'D'                                   V2  07 02558
002653 016030 A
002654 005311 A
002655 056030 A
                2559 ONF52      PUSHJ   OCB             OUTPUT 'D' OR 'E'                               V2  07 02559
002656 105025 A
002657 002441 R
                2560            MOVBAB  BLNK1,BCHAR     LOAD BLANK FOR PLUS                             V2  07 02560
002660 016202 A
002661 056030 A
                2561            TPAB    DEXP,ONF55      IS EXPONENT NEGATIVE ?                              07 02561
002662 016055 A
002663 001002 A
002664 002673 R
002665 005211 A 2562            CPA                     YES                                                 07 02562
002666 005111 A 2563            IAR                     CONVERT TO ABS                                      07 02563
002667 056055 A 2564            STA     DEXP,B                                                              07 02564
002670 006010 A 2565            LDAI    0255                                                            V2  07 02565
002671 000255 A
002672 056030 A 2566            STA     BCHAR,B         LOAD '-'                                        V2  07 02566
                2567 ONF55      PUSHJ   OCB             OUTPUT EXPONENT SIGN                            V2  07 02567
002673 105025 A
002674 002441 R
002675 005024 A 2568            TBX                     LOAD X AS BASE REGISTER                             07 02568
002676 005001 A 2569            TZA                                                                         07 02569
002677 025055 A 2570            LDB     DEXP,X          GET EXPONENT                                        07 02570
002700 170471 A 2571            DIV     TEN             GET DECIMAL DIGITS                                  07 02571
002701 055055 A 2572            STA     DEXP,X                                                              07 02572
002702 005021 A 2573            TBA                     GET TENS DIGIT IN A                                 07 02573
002703 005042 A 2574            TXB                     RESTORE BASE REGISTER B                             07 02574
002704 126177 A 2575            ADD     AZER,B          CONVERT TO ASCII                                V2  07 02575
002705 056030 A 2576            STA     BCHAR,B                                                             07 02576
                2577            PUSHJ   OCB             OUTPUT TENS DIGIT OF EXPONENT                   V2  07 02577
002706 105025 A
002707 002441 R
002710 016055 A 2578            LDA     DEXP,B          RESTORE UNITS DIGIT                                 07 02578
002711 126177 A 2579            ADD     AZER,B          CONVERT TO ASCII                                V2  07 02579
002712 056030 A 2580            STA     BCHAR,B                                                             07 02580
                2581 ONF60      PUSHJ   OCB             OUTPUT UNITS DIGIT/ '*' / EXIT                  V2  07 02581
002713 105025 A
002714 002441 R
002715 001000 A 2582            JMP     ONF60                                                               07 02582
002716 002713 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(3) = 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
002717 016164 A 2629 OPN        LDA     TEMP,B          GET OP                                  V2      07 02629
002720 006140 A 2630            SUBI    COPY            BIAS IT                                 V2      07 02630
002721 000016 A
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002722 001010 A 2631          JAZ     *+3             LOGICAL FILE ?                                  V2  07 02631
002723 002725 R
002724 010422 A 2632          LDA     LFS             YES. SET FLAG                                   V2  07 02632
002725 110427 A 2633          ORA     INS             SET INITIALIZE FLAG                             V2  07 02633
002726 056154 A 2634          STA     RW,L,B          STORE FLAG WORD                                 V2  07 02634
002727 036016 A 2635          LDX     ANRB,B          POINT X AT VSFORTIO DATA BLOCK                      07 02635
                2636          MOVXAB  SYSBF,SAVE+3        STORE =FSUF AS BUFFER ADDRESS                   07 02636
002730 015162 A
002731 056035 A
                2637 ********************************************************                            07 02637
                2638 * MOVE PARAMETERS FROM CALL SEQ TO DATA BLOCK *                                     07 02638
                2639 ********************************************************                            07 02639
002732 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
002733 015003 A
002734 056032 A
                2642          MOVXAB  6,SAVE+6        MOVE ADDRESS OF FCB ARRAY                       V2  07 02642
002735 015006 A
002736 056040 A
                2643          MOVXAB  7,SAVE+1        MOVE ADDRESS OF OPEN MODE PARAMETER                 07 02643
002737 015007 A
002740 056033 A
                2644          LDA     BUFL,LF,OPN4    LOGICAL FILE ?                                  V2  07 02644
002741 016154 A
002742 006441 R
002743 002752 R
                2645          MOVXAB  2,SAVE+2        YES. MOVE ADDRESS OF LOGICAL RECORD SIZE            07 02645
002744 015010 A
002745 056034 A
                2646          MOVXAB  9,SAVE+3        MOVE BUFFER ADDRESS                                 07 02646
002746 015011 A
002747 056035 A
                2647          MOVXAB  10,SAVE+4       SAVE ADDRESS OF READ BEFORE WRITE FLAG              07 02647
002750 015012 A
002751 056036 A
                2648 ********************                                                                07 02648
                2649 * PROCESS PARAMETERS *                                                             07 02649
                2650 ********************                                                                07 02650
002752 R        2651 OPN4     EQU     *                                                               V2  07 02651
                2652          LFS     NUC                                                               FG  07 02652
                2653          CMI     NUC1                                                              FG  07 02653
                2654          AFT     VII                                                               FG  07 02654
                2655          CMI     VII1                                                              FG  07 02655
                2656          TZAP    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     =D14,B                                                          V2  07 02659
                2660          JAZ     TBK,X                                                           V2  07 02660
                2661 OPN5     EQU     *                                                               E.1  07 02661
                2662 VII1     CONT                                                                      FG  07 02662
                2663 NUC1     CONT                                                                      FG  07 02663
002752 036032 A 2664          LDX     SAVE,B          GET ADDRESS OF LOGICAL UNIT NUMBER L            V2  07 02664
                2665          MOVXAB  0,SAVE          GET L                                               07 02665
002753 015000 A
002754 056032 A
                2666          PUSHJ   FCU             PROCESS UNIT NUMBERS U,L                        V2  07 02666
002755 105025 A
002756 003720 R
002757 036033 A 2667          LDX     SAVE+1,B        POINT X AT OPEN MODE W(REWIND,LEAVE)                07 02667
002760 015000 A 2668          LDA     1,X             GET M                                               07 02668
002761 001010 A 2669          JAZ     *+2                                                                 07 02669
002762 002764 R
002763 010435 A 2670          LDA     XS12            SET LEAVE BIT                                       07 02670
002764 116032 A 2671          ORA     SAVE,B          MERGE IN L                                          07 02671
002765 006110 A 2672          SHFT    0,0,0           MERGE IN SPECIFICATION OF IOC OPEN CONT WD       V2  07 02672
002766 003000 R
002767 036016 A 2673          LDX     ANRB,B          POINT X AT VSFORTIO                                 07 02673
002770 055104 A 2674          STA     IOCONT,X        STORE I/O CONTROL WORD IN VSFORTIO                  07 02674
                2675          MOVBAB  SAVE+0,ADFCB    GET FCB ADDRESS                                 V2  07 02675
002771 016040 A
002772 056010 A
002773 055010 A 2676          STA     ADFCB,X         ALSO IN VSFLUTIO                                V2  07 02676
002774 005014 A 2677          TAX                     POINT X AT FCB                                      07 02677
                2678          MOVBAX  =D120,0         SET FCB(0) = 120 WORDS                          V2  07 02678
002775 016201 A
002776 055000 R
                2679          MOVBAX  SAVE+3,1        LOAD BUFFER ADDRESS INTO FCB(1)                     07 02679
002777 016035 A
003000 055001 A
003001 015002 A 2680          LDA     0,X             GET KEY WORD                                        07 02680
003002 150463 A 2681          ANA     =XFF00          CLEAR UPPER BYTE                                    07 02681
003003 006110 A 2682          SHFT    0,0,0           SET MODE TO SEQUENTIAL                          V2  07 02682
003004 001400 A
003005 055002 A 2683          STA     2,X                                                                 07 02683
                2684 ********************                                                                07 02684
                2685 * MAKE JSR OPEN CALL *                                                             07 02685
                2686 ********************                                                                07 02686
003006 010464 A 2687          LDA     FCB             GET FCB ADDRESS                                 V2  07 02687
003007 006505 A 2688          JSR     =XIO,X          CALL VSFORTIO TO DO IOC OPEN                    V2  07 02688
003010 004515 R
                2689 ********************                                                                07 02689
                2690 * LINK FOR ON CHAIN *                                                             07 02690
                2691 ********************                                                                07 02691
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003011 036146 A 2692          LDX     PRLINK,B        POINT X AT LAST LINK OF FCB CHAIN                07 02692
               2693          MOVBAX  ADFCB,10        LINK FCB ON CHAIN                                07 02693
003012 016010 A
003013 055012 A
003014 036016 A 2694          LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                   07 02694
003015 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
003016 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
003017 016167 A
003020 055013 A
003021 016154 A 2701          LDA     RWFL,B          GET FLAG WORD                              V2    07 02701
003022 150447 A 2702          ANA     INR             CLEAR INITIALIZE FLAG                      V2    07 02702
003023 004254 A 2703          LRLA    8H              POSITION                                   V2    07 02703
003024 116032 A 2704          ORA     SAVE,B          MERGE IN LOGICAL UNIT NUMBER L             V2    07 02704
003025 055014 A 2705          STA     12,X            STORE IN FCB(12)                           V2    07 02705
003026 006455 A 2706          BT      ARST+FLF,OPN30      TEST IF LOGICAL FILE                   V2    07 02706
003027 003067 R
               2707 ************************************                                               07 02707
               2708 * PROCESS LOGICAL FILE PARAMETERS *                                               07 02708
               2709 ************************************                                               07 02709
003030 036034 A 2710          LDX     SAVE+2,B                                                         07 02710
               2711          MOVXAB  0,SAVE+2        SAVE LOGICAL RECORD SIZE                         07 02711
003031 015000 A
003032 056034 A
003033 036010 A 2712          LDX     ADFCB,B         POINT X AT FCB                                   07 02712
003034 055000 A 2713          STA     0,X             STORE LOGICAL RECORD SIZE IN FCB(0)              07 02713
               2714          TRAB    RWFL,RM,OPN30       EXIT IF NOT RND                        V2    07 02714
003035 016154 A
003036 006440 A
003037 003067 R
003040 036036 A 2715          LDX     SAVE+4,B        POINT X AT ADDR OF READ BEFORE WRITE FLAG        07 02715
003041 015000 A 2716          LDA     0,X             GET FLAG                                         07 02716
003042 001010 A 2717          JAZ     *+3                                                              07 02717
003043 003045 R
003044 010440 A 2718          LDA     FRBS.           SET READ BEFORE WRITE FLAG                 V2    07 02718
003045 036010 A 2719          LDX     ADFCB,B         POINT X AT FCB                                   07 02719
003046 115014 A 2720          ORA     12,X            MERGE WITH L                                     07 02720
003047 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
003050 005001 A
003051 055015 A
003052 015003 A 2723          LDA     3,X             GET CURRENT RECNO                                07 02723
003053 005311 A 2724          DAR                     CHANGE FROM BASE 1 TO BASE 0                     07 02724
003054 001010 A 2725          JAZ     OPN30           EXIT IF AT START OF FILE                         07 02725
003055 003067 R
               2726 ************************************                                               07 02726
               2727 * CONVERT PHYSICAL RECNO TO LOGICAL RECNO IN FCB(3) *                             07 02727
               2728 ************************************                                               07 02728
003056 005024 A 2729          TBX                     SAVE BASE REGISTER IN X                          07 02729
003057 004560 A 2730          LLSR    16                                                               07 02730
003060 165201 A 2731          MUL     B0120,X                                                    V2    07 02731
003061 175034 A 2732          DIV     SAVE+2,X        CONVERT PHYSICAL POSITION TO LOGICAL             07 02732
003062 005021 A 2733          TBA                                                                      07 02733
003063 005042 A 2734          TXB                     RESTORE BASE REGISTER B                          07 02734
003064 036010 A 2735          LDX     ADFCB,B         POINT X AT FCB                                   07 02735
003065 005111 A 2736          IAR                     CHANGE FROM BASE 0 TO BASE 1                     07 02736
003066 055003 A 2737          STA     3,X             STORE LOGICAL RECORD POSITION IN FCB(3)          07 02737
003067 010422 A 2738 OPN30    LDA     CEX                                                              07 02738
               2739          PUSHF                   PUSH EXIT OP ONTO V$FORTIO STACK                 07 02739
003070 036016 A
003071 035000 A
003072 005344 A
003073 055000 A
003074 005041 A
003075 036016 A
003076 055000 A
003077 001000 A 2740          JMP     CAN             EXIT TO V$FORTIO                                 07 02740
003100 000065 R
               2741          EJEC                                                                     07 02741
               2742 ************************************************************************       07 02742
               2743 *                                                                      *       07 02743
               2744 *          P R O C E S S   A U X I L I A R Y   I / O  ( P A X )        *       07 02744
               2745 *                                                                      *       07 02745
               2746 * FUNCTION: TO PROCESS THE FORTRAN AUXILIARY I/O STATEMENTS:          *       07 02746
               2747 *                                                                      *       07 02747
               2748 *                 BACKSPACE U                                          *       07 02748
               2749 *                 ENDFILE U                                            *       07 02749
               2750 *                 REWIND U                                             *       07 02750
               2751 *                                                                      *       07 02751
               2752 * ENTRY: DIRECT FROM RBE                                              *       07 02752
               2753 *         UNIT = FORTRAN UNIT NUMBER U                                 *       07 02753
               2754 *         TEMP = OP = 6 BACKSPACE                                      *       07 02754
               2755 *                  = 7 ENDFILE                                         *       07 02755
               2756 *                  = 8 REWIND                                          *       07 02756
               2757 *                                                                      *       07 02757
               2758 * EXIT : TO V$FORTIO WITH EXIT OP STACKED                             *       07 02758
               2759 *         I/O AND EXIT OPS STACKED                                     *       07 02759
               2760 *                                                                      *       07 02760
               2761 ************************************************************************       07 02761
               2763 PAX      SUIBP,B   TEMP,CBK,SAVE+1     GET BIASED OP                    V2    07 02763
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003101 016164 A
003102 140467 A
003103 056033 A
                2764            ZAB     RWFL            CLEAR FLAG WORD                                 07 02764
003104 005001 A
003105 056154 R
                2765            PUSHJ   PRU             PROCESS FORTRAN UNIT NUMBER U           V2      07 02765
003106 105025 A
003107 003720 R
                2766            TRAB    RWFL,RM,PAX50       TEST IF RMD                         V2      07 02766
003110 016154 A
003111 006440 A
003112 003236 R
                2767 ************
                2768 * U IS RMD *                                                                       07 02767
                2769 ************                                                                       07 02768
                2770            TZAB    SAVE+1,PAX10    BACKSPACE                                       07 02769
003113 016033 A                                                                                         07 02770
003114 001010 A
003115 003123 R
003116 005311 A 2771            DAR             NO                                                      07 02771
003117 001010 A 2772            JAZ     PAX15   ENDFILE ?                                               07 02772
003120 003137 R
003121 001000 A 2773            JMP     PAX30   NO. REWIND                                              07 02773
003122 003222 R
                2774 ******************
                2775 * BACKSPACE RMD *                                                                  07 02774
                2776 ******************                                                                 07 02775
                2777 PAX10      TSAB    RWFL,GF,PAX50       CALL V$IOC BACKSPACE IF GLOBAL FCB  V2      07 02776
003123 016154 A                                                                                         07 02777
003124 006407 A
003125 003236 R
                2778 ************************************************                                   07 02778
                2779 * BACKSPACE BY SETTING FCB(3) = FCB(3)-1 *                                        07 02779
                2780 ************************************************                                   07 02780
003126 036010 A 2781            LDX     ADFCB,B         POINT X AT FCB                                  07 02781
                2782            DAX     3               DECREMENT CURRENT RECORD NUMBER IN FCB(3)       07 02782
003127 015003 A
003130 005311 A
003131 055003 A
003132 005311 A 2783            DAR                                                                     07 02783
003133 001004 A 2784            JAN     PAX30           DO REWIND IF FCB(3).LT.1                        07 02784
003134 003222 R
003135 001000 A 2785            JMP     PAX70           EXIT                                            07 02785
003136 003246 R
                2786 ***************                                                                    07 02786
                2787 * ENDFILE RMD *                                                                   07 02787
                2788 ***************                                                                    07 02788
                2789 PAX15      TRAB    RWFL,FD,PAX16   POST BIT SET ?                         V2      07 02789
003137 016154 A
003140 006442 A
003141 003144 R
                2790            PUSHJ   PSB             YES. POST BUFFER                        V2      07 02790
003142 105025 A
003143 004465 R
003144 006010 A 2791 PAX16      LDAI    013400          GET SKELETON CLOSE/UPDATE CONTROL WD    V2      07 02791
003145 013400 A
003146 116167 A 2792            ORA     UNIT,B          MERGE IN LOGICAL UNIT NUMBER                    07 02792
003147 036016 A 2793            LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                  07 02793
003150 055104 A 2794            STA     IOCONT,X        STORE IOC CONTROL WORD IN V$FORTIO              07 02794
003151 016154 A 2795            LDA     RWFL,B                                                          07 02795
003152 006441 A 2796            BT      ARST+LF,PAX20       LOGICAL FILE ?                              07 02796
003153 003175 R
003154 036010 A 2797            LDX     ADFCB,B         YES. POINT X AT FCB                             07 02797
                2798            MOVBAX  RB120,0         SET RECORD SIZE FCB(0) = 120 WORDS       V2     07 02798
003155 016201 A
003156 055000 A
003157 016121 A 2799            LDA     LRECNO,B                                                        07 02799
003160 005311 A 2800            DAR                     CONVERT FROM BASE 1 TO BASE 0                   07 02800
003161 005024 A 2801            TBX                     SAVE BASE REGISTER IN X                         07 02801
003162 004560 A 2802            LLSR    16                                                              07 02802
003163 165122 A 2803            MUL     LRSZ,X          GET WORD COUNT                                  07 02803
003164 175201 A 2804            DIV     TD120,X         CONVERT TO 120-WORD PHYSICAL REC CNT    V2      07 02804
003165 001010 A 2805            JAZ     *+3                                                             07 02805
003166 003170 R
003167 005122 A 2806            IBR                     BUMP 1 FOR PARTIAL RECORD                       07 02806
003170 005122 A 2807            IBR                     BUMP 1 TO CONVERT TO BASE 1                     07 02807
003171 005021 A 2808            TBA                                                                     07 02808
003172 005042 A 2809            TXB                     RESTORE BASE REGISTER B                         07 02809
003173 036010 A 2810            LDX     ADFCB,B         POINT X AT FCB                                  07 02810
003174 055003 A 2811            STA     3,X             STORE CURRENT PHYSICAL RECNO IN FCB(3)          07 02811
003175 010464 A 2812 PAX20      LDQ     CIO                                                     V2      07 02812
003176 006505 A 2813            JSR     PSJ,X           CALL V$IOC FOR CLOSE/UPDATE             V2      07 02813
003177 004515 R
003200 006010 A 2814            LDAI    013000          GET IOC OPEN/LEAVE SKELETON CONTROL WD   V2      07 02814
003201 013000 A
003202 116167 A 2815            ORA     UNIT,B          MERGE IN LOGICAL UNIT NUMBER                    07 02815
003203 036016 A 2816            LDX     ANRB,B          POINT X AT V$FORTIO                             07 02816
003204 055104 A 2817            STA     IOCONT,X        STORE IOC CONTROL WORD IN V$FORTIO              07 02817
003205 010464 A 2818            LDQ     CIO                                                     V2      07 02818
003206 006505 A 2819            JSR     PSJ,X           CALL V$IOC FOR OPEN/LEAVE               V2      07 02819
003207 004515 R
                2820            TRAB    RWFL,LF,PAX70       EXIT IF NOT LOGICAL FILE            V2      07 02820
```

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003210 016154 A
003211 006441 A
003212 003246 R
003213 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
003214 016122 A
003215 055000 A
               2823          MOVBAX  LRECNO,3        RESTORE CURR LOG RECORD NUMBER IN FCB(3)        07 02823
003216 016121 A
003217 055003 A
003220 001000 A 2824          JMP     PAX70           EXIT                                            07 02824
003221 003246 R
               2825 ***************
               2826 * REWIND RMD *                                                                    07 02825
               2827 ***************                                                                    07 02826
               2828 PAX30    TRAB    RWFL,GF,PAX33       GLOBAL FCB ?                          V2    07 02827
003222 016154 A                                                                                       07 02828
003223 006447 A
003224 003231 R
003225 006010 A 2829          LDAI    03000           YES. CALL V$IOC OPEN/REWIND                   V2  07 02829
003226 003000 A
003227 001000 A 2830          JMP     PAX55                                                           07 02830
003230 003241 R
003231 036010 A 2831 PAX33    LDX     ADFCB,B         POINT X AT FCB                                  07 02831
003232 005101 A 2832          INCR    1                                                               07 02832
003233 055003 A 2833          STA     3,X             SET CURRENT RECORD NUMBER TO 1                  07 02833
003234 001000 A 2834          JMP     PAX70           EXIT                                            07 02834
003235 003246 R
               2835 ***********************                                                          07 02835
               2836 * CALL V$IOC TO DO OP *                                                      V2  07 02836
               2837 ***********************                                                          07 02837
003236 036033 A 2838 PAX50    LDX     SAVE+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$ST0       SET EXEC STATE TO 00                        V2  07 02842
               2843 NV2NUC   CONT                                                                FG  07 02843
003237 006015 A 2844          LDAE    PAXTAB,X        GET IOC CONTROL WORD MODEL                      07 02844
003240 003273 R
               2845          IFF     NUC                                                         FG  07 02845
               2846          GOTO    NV2NUC                                                      FG  07 02846
               2847          IFT     VII                                                         FG  07 02847
               2848          OME     MAP,V$ST3       SET EXEC STATE TO NN                        V2  07 02848
               2849 NV2NUC   CONT                                                                FG  07 02849
003241 116167 A 2850 PAX55    CRA     UNIT,B          MERGE IN LOGICAL UNIT NUMBER                    07 02850
003242 036016 A 2851          LDX     ANRB,B                                                          07 02851
003243 055104 A 2852          STA     IOCONT,X        STORE AS IOC CONTROL WORD                       07 02852
003244 007400 A 2853          ROF                                                                     07 02853
003245 001006 A 2854          DATA    01006                                                           07 02854
003246 007401 A 2855 PAX70    SOF                                                                     07 02855
003247 010422 A 2856          LDA     CEX                                                             07 02856
               2857          PUSHF                   PUSH EXIT OP                                    07 02857
003250 036016 A
003251 035000 A
003252 005344 A
003253 055000 A
003254 005041 A
003255 036016 A
003256 055000 A
003257 001001 A 2858          JOF     CAN             EXIT IF DONE                                    07 02858
003260 000065 R
003261 010464 A 2859          LDA     CIO                                                             07 02859
               2860          PUSHF                   PUSH I/O OP                                     07 02860
003262 036016 A
003263 035000 A
003264 005344 A
003265 055000 A
003266 005041 A
003267 036016 A
003270 055000 A
003271 001000 A 2861          JMP     CAN             EXIT                                            07 02861
003272 000065 R
               2862 ************************************                                             07 02862
               2863 * AUXILIARY I/O CONTROL WORD TABLE *                                             07 02863
               2864 ************************************                                             07 02864
003273 012000 A 2865 PAXTAB   DATA    012000          BACKSPACE                                       07 02865
003274 001000 A 2866          DATA    01000           WRITE EOF                                       07 02866
003275 001400 A 2867          DATA    01400           REWIND                                          07 02867
               2868          EJEC                                                                    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
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                    2883 ********************************************************************************  07 02883
003276 036021 A     2885 PCH    LDX     ASCB,B          POINT X AT SCB                                    07 02885
                    2886        MDVXAB  2,TEMP          SAVE CHAR                                         07 02886
003277 015002 H
003300 056164 A
003301 015000 A     2887        LDA     0,X             GET CURRENT POINTER                               07 02887
003302 045000 A     2888        INR     0,X             BUMP CURRENT POINTER                              07 02888
003303 007401 A     2889        SOF                                                                       07 02889
003304 004257 A     2890        LRLA    15              CONVERT BYTE TO WORD COUNT                        07 02890
003305 003004 A     2891        XAN     ROF             OVFL SET IF HIGH BYTE                             07 02891
003306 002170 R
003307 150460 A     2892        ANA     BR15            CLEAR SIGN BIT                                    07 02892
003310 125001 A     2893        ADD     1,X             ADD STRING START ADDRESS                          07 02893
003311 005014 A     2894        TAX                     POINT X AT WORD                                   07 02894
003312 015000 A     2895        LDA     0,X             GET WORD                                          07 02895
003313 001007 A     2896        JOFN    *+4             HIGH BYTE ?                                       07 02896
003314 003317 R
003315 007401 A     2897        SOF                     YES                                               07 02897
003316 004250 A     2898 LRLA8  LRLA    8               SWAP BYTES                                        07 02898
003317 150462 A     2899        ANA     LHW             CLEAR UNWANTED BYTE                               07 02899
003320 116164 A     2900        ORA     TEMP,B          MERGE IN NEW CHARACTER                            07 02900
003321 003001 A     2901        XOF     LRLA8           SWAP BYTES IF HIGH BYTE                           07 02901
003322 003316 R
003323 055000 A     2902        STA     0,X             STORE IN MEMORY                                   07 02902
                    2903        POPJ                    EXIT                                          FG  07 02903
003324 105065 A
                    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 *               SRFN.D                                                         *  07 02915
                    2916 *               SRGW.D                                                         *  07 02916
                    2917 *               KIW                                                            *  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
003325 R            2937 DIN    EQU     *                                                                 07 02937
003325 R            2938 EIN    EQU     *                                                                 07 02938
003325 R            2939 FIN    EQU     *                                                                 07 02939
003325 R            2940 GIN    EQU     *                                                                 07 02940
003325 R            2941 IIN    EQU     *                                                                 07 02941
                    2943 ****************                                                                07 02943
                    2944 * TEST FOR ZERO *                                                               07 02944
                    2945 ****************                                                                07 02945
003325 007401 A     2946        SOF                                                                       07 02946
003326 016004 A     2947        LDA     ACC+1,B                                                           07 02947
003327 116005 A     2948        ORA     ACC+2,B                                                           07 02948
003330 116006 A     2949        ORA     ACC+3,B                                                           07 02949
003331 003010 A     2950        XAZ     ROF             OVFL RESET IF ACC(1)=ACC(2)=ACC(3)=0              07 02950
003332 002170 R
003333 116003 A     2951        ORA     ACC,B                                                             07 02951
003334 001010 A     2952        JAZ     PNI50           EXIT IF ACC=0                                     07 02952
003335 003530 R
003336 016116 A     2953        LDA     ITMODE,B                                                          07 02953
003337 140422 A     2954        SUB     TWO                                                               07 02954
003340 001002 A     2955        JAP     PNI4            TEST INTEGER LIST ITEM                            07 02955
003341 003410 R
                    2956 ********************                                                            07 02956
                    2957 * INTEGER LIST ITEM *                                                           07 02957
                    2958 ********************                                                            07 02958
003342 001001 A     2959        JOF     ER3             ERROR 37 NOT INTEGER /                            07 02959
003343 005155 R
003344 016024 A     2960        LDA     BEXP,B          GET BINARY EXPONENT                               07 02960
003345 005311 A     2961        DAR                                                                       07 02961
003346 001004 A     2962        JAN     ER3             ERROR 37 NOT INTEGER /                            07 02962
003347 005155 R
003350 140472 A     2963        SUB     D15                                                               07 02963
003351 001002 A     2964        JAP     ER3             ERROR 37 NOT INTEGER /                            07 02964
003352 005155 R
                    2965        MDVBAB  ACC,TEMP        SAVE LEFT-JUSTIFIED INTEGER                       07 02965
003353 016003 A
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003354 056164 A
                2966            ZAB     ACC             CLEAR ACCUMULATOR ACC                                   07 02966
003355 005001 A
003356 056003 A
                2967 ************************
                2968 * INTEGER SHIFT LOOP *                                                                    07 02967
                2969 ************************                                                                07 02968
                                                                                                                07 02969
003357 005024 A 2970            TBX                     USE X AS BASE REGISTER                                  07 02970
                2971 PNIL1      DAX     BEXP            DECREMENT BINARY EXPONENT                               07 02971
003360 015024 A
003361 005311 A
003362 055024 A
003363 001004 A 2972            JAN     PNIL1X          EXIT ON FINISH                                          07 02972
003364 003374 R
003365 015003 A 2973            LDA     ACC,X                                                                   07 02973
003366 025164 A 2974            LDB     TEMP,X                                                                  07 02974
003367 004401 A 2975            LASL    1               SHIFT INTEGER INTO ACC                                  07 02975
003370 055003 A 2976            STA     ACC,X                                                                   07 02976
003371 065164 A 2977            STB     TEMP,X                                                                  07 02977
003372 001000 A 2978            JMP     PNIL1           CONTINUE TILL DONE                                      07 02978
003373 003360 R
003374 001026 A 2979 PNIL1X     JBNZ    ER3             ERROR 3/ NOT INTEGER /                          V2      07 02979
003375 005155 R
003376 005042 A 2980            TXB                     RESTORE BASE REGISTER B                         V2      07 02980
                2981            TZAB    SGFL,PNI50      IS SIGN NEGATIVE ?                                      07 02981
003377 016157 A
003400 001010 A
003401 003530 R
003402 016003 A 2982            LDA     ACC,B           YES                                                     07 02982
003403 005211 A 2983            CPA                     NEGATE INTEGER                                          07 02983
003404 005111 A 2984            IAR                                                                             07 02984
003405 056003 A 2985            STA     ACC,B                                                                   07 02985
003406 001000 A 2986            JMP     PNI50                                                                   07 02986
003407 003530 R
003410 130464 A 2987 PNI4       ERA     THREE                                                                   07 02987
003411 001010 A 2988            JAZ     PNI60           D.P. INTEGER                                            07 02988
003412 003553 R
003413 140422 A 2989            SUB     TWO                                                                     07 02989
003414 001010 A 2990            JAZ     PNI8            D.P.                                                    07 02990
003415 003452 R
                2991 ********************                                                                    07 02991
                2992 * CONSTRUCT REAL *                                                                        07 02992
                2993 ********************                                                                    07 02993
003416 016004 A 2994            LDA     ACC+1,B         GET 2ND MANTISSA WORD                                   07 02994
003417 120430 A 2995            ADD     BS7             ROUND UPWARD                                            07 02995
003420 007400 A 2996            ROF                                                                             07 02996
003421 001002 A 2997            JAP     *+4             OVERFLOW ?                                              07 02997
003422 003425 R
003423 005001 A 2998            TZA                     YES. CLEAR WORD                                         07 02998
003424 046003 A 2999            INR     ACC,B           BUMP WORD 0                                             07 02999
003425 056004 A 3000            STA     ACC+1,B                                                                 07 03000
003426 001007 A 3001            JOFN    *+5             OVERFLOW ?                                              07 03001
003427 003433 R
003430 046024 A 3002            INR     BEXP,B          YES. BUMP BINARY EXPONENT                               07 03002
                3003            MOVPAB  BS14,ACC        SHIFT FIELD                                             07 03003
003431 010437 A
003432 056003 A
003433 005024 A 3004            TBX                     LOAD X AS BASE REGISTER                                 07 03004
003434 015024 A 3005            LDA     BEXP,X          GET BINARY EXPONENT IN A                                07 03005
003435 120430 A 3006            ADD     BXBIAS          ADD BINARY EXPONENT BIAS                        V2      07 03006
003436 025003 A 3007            LDB     ACC,X           GET HIGH WORD OF MANTISSA IN B                          07 03007
003437 004407 A 3008            LASL    7               POSITION AB TO MAKE 1ST WORD OF REAL                    07 03008
003440 055164 A 3009            STA     TEMP,X          SAVE 1ST WORD OF REAL                                   07 03009
003441 015003 A 3010            LDA     ACC,X           GET 1ST MANTISSA WORD IN A                              07 03010
003442 025004 A 3011            LDB     ACC+1,X         GET 2ND MANTISSA WORD IN B                              07 03011
003443 004407 A 3012            LASL    7               POSITION AS 2ND WORD OF REAL                            07 03012
003444 055004 A 3013            STA     ACC+1,X         STORE IN ACC                                            07 03013
003445 005042 A 3014            TXB                     RESTORE BASE REGISTER B                                 07 03014
                3015            MOVBAB  TEMP,ACC        LOAD 1ST WORD OF REAL INTO ACC(0)                       07 03015
003446 016164 A
003447 056003 A
003450 001000 A 3016            JMP     PNI19                                                                   07 03016
003451 003513 R
                3017 ****************************                                                            07 03017
                3018 * CONSTRUCT DOUBLE PRECISION *                                                            07 03018
                3019 ****************************                                                            07 03019
003452 016006 A 3020 PNI8       LDA     ACC+3,B                                                                 07 03020
003453 004241 A 3021            LRLA    1                                                                       07 03021
003454 001002 A 3022            JAP     PNI18           OVERFLOW ?                                              07 03022
003455 003501 R
003456 046005 A 3023            INR     ACC+2,B         YES. BUMP WORD 2                                        07 03023
003457 016005 A 3024            LDA     ACC+2,B         GET WORD                                                07 03024
003460 001002 A 3025            JAP     PNI18           OVERFLOW ?                                              07 03025
003461 003501 R
003462 046004 A 3026            INR     ACC+1,B         YES. BUMP WORD 1                                        07 03026
003463 005001 A 3027            TZA                                                                             07 03027
003464 056005 A 3028            STA     ACC+2,B         CLEAR WORD 2                                            07 03028
003465 016004 A 3029            LDA     ACC+1,B         GET WORD 1                                              07 03029
003466 001002 A 3030            JAP     PNI18           OVERFLOW ?                                              07 03030
003467 003501 R
003470 046003 A 3031            INR     ACC,B           YES. BUMP WORD 0                                        07 03031
003471 005001 A 3032            TZA                                                                             07 03032
003472 056004 A 3033            STA     ACC+1,B         CLEAR WORD 1                                            07 03033
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003473 016003 A 3034          LDA     ACC,B          GET WORD 0                                    07 03034
003474 001002 A 3035          JAP     PNI18          OVERFLOW ?                                    07 03035
003475 003501 R
003476 046024 A 3036          INR     BEXP,B         YES. BUMP BINARY EXPONENT                     07 03036
003477 010437 A 3037          LDA     BS14           AND SHIFT OVERFLOW BIT                        07 03037
003500 056003 A 3038          STA     ACC,B          STORE WORD 0                                  07 03038
               3039 PNI18     MOVBAB  ACC+2,ACC+3    SHIFT FIELD                                   07 03039
003501 016005 A
003502 056006 A
               3040           MOVBAB  ACC+1,ACC+2                                                  07 03040
003503 016004 A
003504 056003 A
               3041           MOVBAB  ACC,ACC+1                                                    07 03041
003505 016003 A
003506 056004 A
003507 016024 A 3042          LDA     BEXP,B         GET BINARY EXPONENT                           07 03042
003510 120430 A 3043          ADD     BXBIAS         ADD BINARY EXPONENT BIAS                  V2  07 03043
003511 056003 A 3044          STA     ACC,B          STORE IN WORD 0                               07 03044
003512 005124 A 3045          INCR    024            POINT X AT BASE+1                             07 03045
003513 016157 A 3046 PNI19    LDA     SGFL,B                                                       07 03046
003514 001010 A 3047          JAZ     PNI20          IS SIGN FLAG SET ?                            07 03047
003515 003521 R
003516 015003 A 3048          LDA     ACC,X          YES                                           07 03048
003517 005211 A 3049          CPA                    NEGATE NUMBER                                 07 03049
003520 055003 A 3050          STA     ACC,X                                                        07 03050
               3051 **********************                                                        07 03051
               3052 * CHECK EXPONENT RANGE *                                                       07 03052
               3053 **********************                                                        07 03053
003521 016024 A 3054 PNI20    LDA     BEXP,B         GET BINARY EXPONENT                           07 03054
003522 120430 A 3055          ADD     BXBIAS         ADD BINARY EXPONENT BIAS                  V2  07 03055
003523 001004 A 3056          JAN     ER3            ERROR 3/ UNDERFLOW /                          07 03056
003524 005155 R
003525 150462 A 3057          ANA     LHW                                                          07 03057
003526 001016 A 3058          JANZ    ER3            ERROR 3/ OVERFLOW /                           07 03058
003527 005155 R
               3059 ******************                                                            07 03059
               3060 * LOAD LIST ITEM *                                                            07 03060
               3061 ******************                                                            07 03061
               3062 PNI50    ZAB     COUNT          CLEAR COUNTER                                 07 03062
003530 005001 A
003531 056052 A
               3063           MOVBAB  AACC,TEMP      INITIALIZE ACC POINTER                        07 03063
003532 016001 A
003533 056164 A
               3064           MOVBAB  ITEMAD,BEXP    INITIALIZE LIST ITEM POINTER                  07 03064
003534 016113 A
003535 056024 A
003536 036164 A 3065 PNIL2    LDX     TEMP,B         POINT X AT ACC                                07 03065
003537 015000 A 3066          LDA     0,X            GET WORD                                      07 03066
003540 036024 A 3067          LDX     BEXP,B         POINT X AT LIST ITEM                          07 03067
003541 055000 A 3068          STA     0,X            STORE DATA IN LIST ITEM                       07 03068
003542 046164 A 3069          INR     TEMP,B         BUMP ACC POINTER                              07 03069
003543 046024 A 3070          INR     BEXP,B         BUMP LIST ITEM POINTER                        07 03070
003544 046052 A 3071          INR     COUNT,B        BUMP LOOP COUNT                               07 03071
003545 016052 A 3072          LDA     COUNT,B                                                      07 03072
003546 146102 A 3073          SUB     IIWSZ,B                                                      07 03073
003547 001004 A 3074          JAN     PNIL2          LOOP TILL ITEM FILLED                         07 03074
003550 003536 R
003551 001000 A 3075          JMP     FRS65          EXIT TO FRS                                   07 03075
003552 001003 R
               3077 *         PROCESS DOUBLE PRECISION INTEGER                                  * 07 03077
003553 016005 A 3078 PNI60    LDA     ACC+2,B                                                      07 03078
003554 116006 A 3079          ORA     ACC+3,B                                                      07 03079
003555 001016 A 3080          JANZ    ER3            NOT INTEGER                                   07 03080
003556 005155 R
003557 016024 A 3081          LDA     BEXP,B                                                       07 03081
003560 005311 A 3082          DAR                                                                  07 03082
003561 001004 A 3083          JAN     ER3            NOT INTEGER                                   07 03083
003562 005155 R
003563 006140 A 3084          SUBI    30                                                           07 03084
003564 000036 A
003565 001002 A 3085          JAP     ER3            NOT INTEGER                                   07 03085
003566 005155 R
003567 005024 A 3086          TSX                                                                  07 03086
003570 005111 A 3087 PNI62    IAR                    POSITION VALUE                                07 03087
003571 001002 A 3088          JAP     PNI64          DONE                                          07 03088
003572 003604 R
003573 055024 A 3089          STA     BEXP,X                                                       07 03089
003574 015003 A 3090          LDA     ACC,X                                                        07 03090
003575 025004 A 3091          LDB     ACC+1,X                                                      07 03091
003576 004501 A 3092          LASR    1                                                            07 03092
003577 055003 A 3093          STA     ACC,X                                                        07 03093
003600 065004 A 3094          STB     ACC+1,X                                                      07 03094
003601 015024 A 3095          LDA     BEXP,X                                                       07 03095
003602 001000 A 3096          JMP     PNI62                                                        07 03096
003603 003570 R
003604 005042 A 3097 PNI64    TXB                    RESTORE BASE REGISTER B                       07 03097
               3098           TZAB    SGFL,PNI50     POSITIVE SIGN                                 07 03098
003605 016157 A
003606 001010 A
003607 003530 R
003610 015004 A 3099          LDA     ACC+1,X        NEGATE VALUE                                  07 03099
003611 025003 A 3100          LDB     ACC,X                                                        07 03100
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003612 005211 A 3101          CPA                                                    07 03101
003613 005222 A 3102          CPB                                                    07 03102
003614 005111 A 3103          IAR                                                    07 03103
003615 001002 A 3104          JAP     PNI66                                          07 03104
003616 003621 R
003617 130440 A 3105          ERA     B$15                                           07 03105
003620 005122 A 3106          IBR                                                    07 03106
003621 055004 A 3107 PNI66    STA     ACC+1,X                                        07 03107
003622 065003 A 3108          STB     ACC,X                                          07 03108
003623 005042 A 3109          TXB                                                    07 03109
003624 001000 A 3110          JMP     PNI50                                          07 03110
003625 003530 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
003626 036000 A 3125 POJ      LDX     OPSTKP,B      POINT X AT OP                    07 03125
003627 035000 A 3126          LDX     0,X           GET OP IN X                      FG 07 03126
003630 046000 A 3127          INR     OPSTKP,B      BUMP STACK POINTER               FG 07 03127
003631 006705 A 3128          IJMP    0,X           EXIT                               07 03128
003632 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
003633 016164 A 3151 PRD      LDA     TEMP,B                                         PD 07 03151
003634 006140 A 3152          SUBI    CDC                                            PD 07 03152
003635 000020 A
003636 004250 A 3153          LRLA    8             POSITION READ/WRITE FLAG         PD 07 03153
003637 056104 A 3154          STA     IOCONT,B                                       PD 07 03154
003640 001010 A 3155          JAZ     *+3                                            PD 07 03155
003641 003643 R
003642 010432 A 3156          LDA     WRS           SET WRITE BIT                    PD 07 03156
003643 110431 A 3157          ORA     BFS           SET FILL FLAG                    PD 07 03157
003644 006110 A 3158          ORAI    02000         SET ENCODE/DECODE BIT            PD 07 03158
003645 002000 A
003646 056154 A 3159          STA     RWFL,B        INITIALIZE READ/WRITE FLAG WORD  PD 07 03159
003647 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
003650 015005 A
003651 056063 A
               3162           MOVXAB  6,OPBF        BUFFER ADDRESS                   PD 07 03162
003652 015006 A
003653 056020 A
003654 056027 A 3163          STA     ALBF,B                                         PD 07 03163
003655 005311 A 3164          DAR                                                      07 03164
003656 056025 A 3165          STA     BFWPT,B                                        PD 07 03165
003657 015007 A 3166          LDA     7,X           CHARACTER-PROCESSED COUNT ADDRESS PD 07 03166
003660 056152 A 3167          STA     RETURN+1,B                                     PD 07 03167
003661 001010 A 3168          JAZ     PRD1          NO COUNT FIELD                   PD 07 03168
003662 003667 R
003663 005014 A 3169          TAX                                                    PD 07 03169
003664 005001 A 3170          TZA                                                    PD 07 03170
003665 055000 A 3171          STA     0,X           INITIALIZE COUNT VARIABLE        PD 07 03171
003666 036151 A 3172          LDX     RETURN,B                                       PD 07 03172
003667 016167 A 3173 PRD1     LDA     UNIT,B        BUFFER SIZE                      PD 07 03173
003670 005111 A 3174          IAR                                                    PD 07 03174
003671 004301 A 3175          ASRA    1             MAKE BUFFER COUNT WORDS          PD 07 03175
003672 056143 A 3176          STA     PBSZ,B                                         PD 07 03176
003673 056144 A 3177          STA     PBWC,B                                         PD 07 03177
003674 056122 A 3178          STA     LRSZ,B                                         PD 07 03178
003675 056123 A 3179          STA     LRWC,B                                         PD 07 03179
003676 005001 A 3180          TZA                                                    PD 07 03180
003677 056167 A 3181          STA     UNIT,B        SET NO UNIT                      PD 07 03181
003700 035016 A 3182          LDX     V$FB,X        POINT X AT V$FORTIO DATA BLOCK   PD 07 03182
003701 010435 A 3183          LDA     BS12          IOC MODE IS ASCII                PD 07 03183
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003702 115104 A 3184          ORA     IOCONT,X                                                  PD 07 03184
003703 055104 A 3185          STA     IOCONT,X                                                  PD 07 03185
               3186           MOVBAX  RWFL,RWFL                                                 PD 07 03186
003704 016154 A
003705 055154 R
               3187           IFF     NUC                                                       FG 07 03187
               3188           GOTO    NUC1                                                      FG 07 03188
               3189           IFT     VII                                                       FG 07 03189
               3190           GOTO    VIII                                                      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
003706 005001 A
003707 056026 A
               3200           TRAB    RWFL,WR,PRD4    WRITE?                                    PD 07 03200
003710 016154 A
003711 006451 A
003712 003715 R
               3201           PUSHJ   CLR             YES, CLEAR BUFFER                         PD 07 03201
003713 105025 A
003714 000116 R
003715 046172 A 3202 PRD4      INR     XFFL,B          ENABLE PARAMETER XFER                     PD 07 03202
003716 001000 A 3203           JMP     FRS             TO FORMAT SCAN                            PD 07 03203
003717 000377 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(IN) = 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 PD) = 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
003720 016167 A 3257 PRU       LDA     UNIT,B          GET L                                     07 03257
003721 150462 A 3258           ANA     L4W                                                       07 03258
003722 001016 A 3259           JANZ    ER4             ERROR 4/ U NOT IN (1,255) /               07 03259
003723 005154 R
               3260 ********************************************                              07 03260
               3261 * SEARCH FCB CHAIN FOR U ALREADY DEFINED *                              07 03261
               3262 ********************************************                              07 03262
               3263           TRAB    RWFL,DA,PRU0                                              07 03263
003724 016154 A
003725 006453 A
003726 003733 R
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003727 036151 A 3264          LDX     RETURN,B        DIRECT ACCESS                                          07 03264
003730 015011 A 3265          LDA     0,X             FCB ADDRESS                                            07 03265
003731 001000 A 3266          JMP     PRU05                                                                  07 03266
003732 003737 R
                3267 PRU0     PUSHJ   SCH             SEARCH FCB CHAIN                                       07 03267
003733 105025 A
003734 005415 R
003735 001010 A 3268          JAZ     PRU5                                                                   07 03268
003736 004043 R
                3269 **********************                                                               07 03269
                3270 * U IS ON FCB CHAIN *                                                                 07 03270
                3271 **********************                                                               07 03271
003737 056010 A 3272 PRU05    STA     ADFCB,B         STORE FCB ADDRESS                                      07 03272
003740 036016 A 3273          LDX     ANRB,B                                                          E      07 03273
003741 055010 A 3274          STA     ADFCB,X         ALSO IN V$FORTIO                                E      07 03274
003742 005014 A 3275          TAX                     POINT X AT FCB                                         07 03275
                3276          TSFB    RWFL,IN,ER4     ERROR 4/ OPEN CALL FINDS U ON CHAIN /           V2     07 03276
003743 016154 A
003744 006406 A
003745 005154 R
                3277          MOVXAB  0,SVRECN        SAVE RECORD NO                                         07 03277
003746 015003 A
003747 056160 A
                3278          MOVXAB  0,LRSZ          SET LOGICAL RECORD SIZE = FCB(0)                       07 03278
003750 015000 A
003751 056122 A
003752 056143 A 3279          STA     PBSZ,B          ALSO PHYSICAL RECORD SIZE                              07 03279
                3280          MOVXAB  1,APBF          SET PHYSICAL BUFFER ADDRESS = FCB(1)                   07 03280
003753 015001 A
003754 056020 A
003755 056027 A 3281          STA     ALBF,B          ALSO LOGICAL BUFFER ADDRESS                            07 03281
003756 015014 A 3282          LDA     12,X            GET L                                                  07 03282
003757 150463 A 3283          ANA     RHW                                                                    07 03283
003760 056167 A 3284          STA     UNIT,B          STORE LOGICAL UNIT NUMBER L IN UNIT                    07 03284
003761 015014 A 3285          LDA     12,X            GET FLAGS FROM FCB                                     07 03285
003762 004354 A 3286          LSRA    8H              POSITION                                        V2     07 03286
003763 116154 A 3287          ORA     RWFL,B          MERGE INTO READ/WRITE FLAG                             07 03287
003764 056154 A 3288          STA     RWFL,B                                                                 07 03288
003765 006441 A 3289          BT      ARST+LF,PRU50     EXIT ON NON-LOGICAL FILE                      FG     07 03289
003766 004312 R
003767 006400 A 3290          BT      ASET+RM,PRU1      RMD ?                                         V2     07 03290
003770 003774 R
003771 150451 A 3291          ANA     BFR             NO. CLEAR FILL FLAG                             V2     07 03291
003772 056154 A 3292          STA     RWFL,B                                                          V2     07 03292
                3293          POPJ                    EXIT                                            FG     07 03293
003773 105065 A
                3294 ****************************                                                         V2     07 03294
                3295 * U IS ON RMD LOGICAL FILE *                                                         V2     07 03295
                3296 ****************************                                                         V2     07 03296
     003774 R   3297 PRU1     EQU     *                                                                       V2     07 03297
                3298          MOVXAB  3,LRECNO        LOAD LOGICAL RECORD NUMBER                             07 03298
003774 015003 A
003775 056121 A
003776 016122 A 3299          LDA     LRSZ,B          GET LOGICAL RECORD SIZE                                07 03299
003777 005024 A 3300          TBX                     SAVE BASE POINTER IN X                                 07 03300
004000 145201 A 3301          SUB     BD120,X                                                         V2     07 03301
004001 001002 A 3302          JAP     PRU2            IS LOGICAL RECORD SIZE .LT. 120 WORDS ?                07 03302
004002 004011 R
004003 015201 A 3303          LDA     BD120,X         YES                                             V2     07 03303
004004 004560 A 3304          LLSR    16                                                                     07 03304
004005 175122 A 3305          DIV     LRSZ,X                                                                 07 03305
004006 005102 A 3306          INCR    B               SET BUFFER SIZE TO 1 RECORD                            07 03306
004007 001000 A 3307          JMP     PRU3                                                                   07 03307
004010 004020 R
004011 015122 A 3308 PRU2     LDA     LRSZ,X                                                                 07 03308
004012 004560 A 3309          LLSR    16                                                                     07 03309
004013 175201 A 3310          DIV     BD120,X         GET COUNT OF PHYSICAL RECS IN LOG REC           V2     07 03310
004014 001010 A 3311          JAZ     PRU4            ANY REMAINDER ?                                        07 03311
004015 004023 R
004016 005122 A 3312          IBR                     YES. BUMP ALLOCATION                                   07 03312
004017 005311 A 3313          DAR                                                                            07 03313
004020 001010 A 3314 PRU3     JAZ     *+3                                                                    07 03314
004021 004023 R
004022 005122 A 3315          IBR                     BUMP COUNT IF NOT FACTOR OR MULTIPLE                   07 03315
004023 065142 A 3316 PRU4     STB     PBRC,X          STORE PHYSICAL RECORD COUNT                            07 03316
004024 005001 A 3317          TZA                                                                            07 03317
004025 165201 A 3318          MUL     BD120,X         GET PHYSICAL BUFFER SIZE                        V2     07 03318
004026 065143 A 3319          STB     PBSZ,X          STORE                                                  07 03319
004027 015121 A 3320          LDA     LRECNO,X        GET LOGICAL RECORD NUMBER                              07 03320
004030 005311 A 3321          DAR                     CONVERT FROM BASE 1 TO BASE 0                          07 03321
004031 004560 A 3322          LLSR    16                                                                     07 03322
004032 165122 A 3323          MUL     LRSZ,X          GET WORD COUNT TO START OF LRECNO                       07 03323
004033 175201 A 3324          DIV     BD120,X         GET PHYSICAL RECORD COUNT TO LRECNO             V2     07 03324
004034 005122 A 3325          IBR                     CONVERT FROM BASE 0 TO BASE 1                          07 03325
004035 065145 A 3326          STB     PRECNO,X        SAVE PHYSICAL RECORD NUMBER                            07 03326
004036 055123 A 3327          STA     LOOV,X          STORE OVERFLOW                                         07 03327
004037 125020 A 3328          ADD     APBF,X                                                                 07 03328
004040 055027 A 3329          STA     ALBF,X          STORE ADDRESS OF LOGICAL BUFFER                        07 03329
004041 005042 A 3330          IXB                     RESTORE BASE REGISTER B                                07 03330
                3331          POPJ                    EXIT                                            FG     07 03331
004042 105065 A
                3332 ************************************                                                 07 03332
                3333 * U NOT ON FCB CHAIN - SET L=U *                                                       07 03333
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                        3334 ********************************                                                07 03334
004043 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
004044 015023 A
004045 056010 A
004046 055010 A         3337         STA     ADFCB,X                                                        07 03337
004047 005014 A         3338         TAX                                                                    07 03338
                        3339         MOVXAB  1,APBF          USE V$FORTIO SYSTEM BUFFER $BUF                07 03339
004050 015001 A
004051 056020 A
004052 056027 A         3340         STA     ALBF,B                                                         07 03340
                        3341         MOVBAX  BL120,0         SET RECORD SIZE TO 120 WORDS           V2      07 03341
004053 016201 A
004054 055000 A
004055 056143 A         3342         STA     PBSZ,B                                                         07 03342
004056 056122 A         3343         STA     LRSZ,B                                                         07 03343
                        3344 ************************                                                       07 03344
                        3345 * TEST VALIDITY OF L *                                                        07 03345
                        3346 ************************                                                       07 03346
004057 036032 A         3347         LDX     SAVE,B          L = SAVE ON OPEN CALL                  V2      07 03347
                        3348         TSAB    RWFL,IN,PRU6    OPEN CALL ?                            V2      07 03348
004060 016154 A
004061 006406 A
004062 004064 R
004063 036167 A         3349         LDX     UNIT,B          NO. L=UNIT                             V2      07 03349
004064 005041 A         3350 PRU6    TXA                     GET L IN A                             V2      07 03350
004065 001010 A         3351         JAZ     PRU30           EXIT IF L=0                            FG      07 03351
004066 004312 R
004067 006030 A         3352         LDXI    V$LUT1          POINT X AT LUN POINTER TABLE           V2      07 03352
004070 000400 A
004071 005311 A         3353         DAR                     1ST BLOCK BIASED BASE 1                        07 03353
004072 056164 A         3354         STA     TEMP,B          SAVE                                           07 03354
004073 005111 A         3355         IAK                     RESTORE L IN A                         V2      07 03355
004074 006140 A         3356         SUBI    101                                                    V2      07 03356
004075 000145 A
004076 001004 A         3357         JAN     PRU10           IS L IN BLOCK 1(1-100) ?                       07 03357
004077 004110 R
004100 005144 A         3358         IXR                     NO. BUMP BLOCK POINTER                         07 03358
004101 056164 A         3359         STA     TEMP,B          SAVE BIASED LUN                                07 03359
004102 006140 A         3360         SUBI    79                                                     V2      07 03360
004103 000117 A
004104 001004 A         3361         JAN     PRU10           IS L IN BLOCK 2(101-180) ?                     07 03361
004105 004110 R
004106 005144 A         3362         IXR                     NO. BUMP BLOCK POINTER                         07 03362
004107 056164 A         3363         STA     TEMP,B          SAVE BIASED L                                  07 03363
004110 016164 A         3364 PRU10   LDA     TEMP,B          GET BIASED L                                   07 03364
004111 035000 A         3365         LDX     0,X             POINT X AT BLOCK POINTER                       07 03365
004112 145000 A         3366         SUB     0,X             COMPARE BIASED L WITH BLOCK SIZE               07 03366
004113 001002 A         3367         JAP     ERR4            ERROR 47 INVALID LUN /                         07 03367
004114 005154 R
                        3368 ************************                                                       07 03368
                        3369 * GET DST INFO *                                                              07 03369
                        3370 ************************                                                       07 03370
004115 005141 A         3371         INCR    041                                                            07 03371
004116 126164 A         3372         ALD     TEMP,B                                                         07 03372
004117 005014 A         3373         TAX                     POINT X AT LOGICAL UNIT TABLE ENTRY            07 03373
004120 010000 A         3374         LDA     0,X                                                            07 03374
004121 150463 A         3375         ANA     K3FF            GET DST INCREMENT FROM LUT                     07 03375
004122 056037 A         3376         STA     SAVE+5,B        SAVE                                   V2      07 03376
004123 001010 A         3377         JAZ     PRU30           EXIT IF L=DUMMY                        FG      07 03377
004124 004312 R
004125 005024 A         3378         TBX                     SAVE BASE POINTER IN X                         07 03378
004126 005312 A         3379         DECR    012             BIASED DST COUNT TO B                          07 03379
004127 010355 A         3380         LDA     V$DSTB          A = BASE OF DST TABLES                         07 03380
004130 160464 A         3381         MUL     THREE           B = DST ADDRESS                                07 03381
004131 005041 A         3382         TXA                     A = BASE REGISTER                              07 03382
004132 005024 A         3383         TBX                     POINT X AT DST                                 07 03383
004133 005012 A         3384         TAI                     RESTORE BASE REGISTER B                        07 03384
                        3385 ************************                                                       07 03385
                        3386 * TEST IF L ASSIGNED TO RMD *                                                 07 03386
                        3387 ************************                                                       07 03387
004134 015002 A         3388         LDA     2,X                                                            07 03388
004135 004346 A         3389         LSRA    6                                                              07 03389
004136 150473 A         3390         ANA     RM37                                                           07 03390
004137 001010 A         3391         JAZ     *+2                                                    V2      07 03391
004140 004142 R
004141 010421 A         3392         LDA     RMS             SET RMD FLAG                           V2      07 03392
004142 116154 A         3393         ORA     RWFL,B                                                 V2      07 03393
004143 056154 A         3394         STA     RWFL,B                                                 V2      07 03394
004144 006406 A         3395         AT      ADLT+IN,PRU50     EXIT ON OPEN CALL                    FG      07 03395
004145 004312 R
004146 006400 A         3396         PT      ASGT+RM,PRU30                                          V2      07 03396
004147 004222 R
                        3397 ************************                                                       07 03397
                        3398 * L NOT RMD *                                                                07 03398
                        3399 ************************                                                       07 03399
                        3400         TFR     FMT,PRU15       FORMATTED I/O ?                        V2      07 03400
004150 016063 A
004151 001010 A
004152 004154 R
004153 015001 A         3401         LDA     1,X             YES. GET 1ST TWO CHARS OF NAME         V2      07 03401
       004154 R         3402 PRU15   SBU     *                                                      V2      07 03402
004154 076032 A         3403         STX     SAVE,B          SAVE DST ADDR                          E.1     07 03403
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                    3404           IFF     NUC                                                          FG 07 03404
                    3405           GOTO    NV2NUC                                                       FG 07 03405
                    3406           IFT     VII                                                          FG 07 03406
                    3407           OME     MAP,V$ST0       SET EXEC STATE TO 00                         V2 07 03407
                    3408 NV2NUC    CONT                                                                 FG 07 03408
004155 034147 A     3409           LDX     PRUDTB          POINT X AT DEVICE TABLE                         07 03409
                    3410 ***********************                                                            07 03410
                    3411 * LOOP TO IDENTIFY DEVICE *                                                       07 03411
                    3412 ***********************                                                            07 03412
004156 005144 A     3413 PRUL1     IXR                     BUMP TABLE POINTER                              07 03413
004157 145000 A     3414           SUB     0,X                                                          V2 07 03414
004160 001010 A     3415           JAZ     PRU20           EXIT ON MATCH                                V2 07 03415
004161 004166 R
004162 001002 A     3416           JAP     PRUL1           LOOP TILL DONE                               V2 07 03416
004163 004156 R
004164 006030 A     3417           LDXI    PRUDTE          POINT X AT END IF NO FIND                    V2 07 03417
004165 004334 R
004166 015007 A     3418 PRU20     LDA     PRUDTE-PRUDTB,X    GET DEVICE PARAMS FROM TABLE                 07 03418
004167 001004 A     3419           JAN     PRU25           IF SPOOL UNIT                             E.1 07 03419
004170 004211 R
004171 005014 A     3420           TAX                     SAVE                                         V2 07 03420
004172 001004 A     3421           JAN     PRU25           IF SPOOL UNIT                             E.1 07 03421
004173 004211 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
004174 150431 A     3427           ANA     BFS                                                          V2 07 03427
004175 056164 A     3428           STA     TEMP,B          SAVE                                            07 03428
004176 005041 A     3429           TXA                     RESTORE A                                    V2 07 03429
004177 036010 A     3430           LDX     ADFCB,B         POINT X AT DCB                                  07 03430
004200 150463 A     3431           ANA     RHW             GET RECORD SIZE                                 07 03431
004201 055000 A     3432           STA     0,X             STORE IN DCB                                    07 03432
004202 056143 A     3433           STA     PBSZ,B          ALSO AS PHYSICAL BUFFER SIZE                    07 03433
004203 056122 A     3434           STA     LRSZ,B          ALSO LOGICAL BUFFER SIZE                        07 03434
004204 016154 A     3435           LDA     RWFL,B                                                       V2 07 03435
004205 150451 A     3436           ANA     BFR                                                          V2 07 03436
004206 116164 A     3437           ORA     TEMP,B          MERGE FILL FLAG                              V2 07 03437
004207 056154 A     3438           STA     RWFL,B          INTO READ/WRITE FLAGS                           07 03438
                    3439           POPJ                    EXIT                                         FG 07 03439
004210 105065 A
       004211 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
004211 036032 A     3446           LDX     SAVE,B          DST ADDR                                     E.2 07 03446
004212 015000 A     3447           LDA     0,X             DSUNAM  (BITS 12-4)                       E.1 07 03447
004213 004352 A     3448           LSRA    10              POSITION MSB                              E.1 07 03448
004214 150467 A     3449           ANA     SEVEN                                                     E.1 07 03449
004215 006120 A     3450           ADDI    180             SET TO LUN 18N                            E.1 07 03450
004216 000264 A
004217 005014 A     3451           TAX                                                               E.1 07 03451
004220 001000 A     3452           JMP     PRU6                                                      E.1 07 03452
004221 004064 R
                    3453 ***********                                                                        07 03453
                    3454 * RMD FILE *                                                                      07 03454
                    3455 ***********                                                                        07 03455
004222 010301 A     3456 PRU30     LDA     V$CPL           GET PRIORITY LEVEL                              07 03456
004223 140422 A     3457           SUB     TWO                                                             07 03457
004224 001002 A     3458           JAP     ER4             ERROR 47 FOREGROUND RMD FILE NOT OPEN /         07 03458
004225 005154 R
                    3459 ***************************************                                            07 03459
                    3460 * BACKGROUND PROGRAM - CHECK GLOBAL FCB'S *                                       07 03460
                    3461 ***************************************                                            07 03461
004226 016167 A     3462           LDA     UNIT,B          GET L                                           07 03462
004227 006110 A     3463           ORAI    01400           MERGE IOLINK SKELETON CONTROL WORD            V2 07 03463
004230 001400 A
004231 056105 A     3464           STA     IOLNK,B         IOLINK CONTROL WORD FOR L GLOBAL FCB            07 03464
004232 016167 A     3465           LDA     UNIT,B          GET L                                           07 03465
004233 140422 A     3466           SUB     TWO                                                             07 03466
004234 001004 A     3467           JAN     PRU35           IGNORE L=1                                      07 03467
004235 004251 R
004236 140470 A     3468           SUB     NINE                                                            07 03468
004237 001002 A     3469           JAP     PRU35           NO GLOBAL FCB.GT.10                             07 03469
004240 004251 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
004241 124062 A     3475           ADD     PRUGT           ADD TABLE ADDRESS                               07 03475
004242 005014 A     3476           TAX                     POINT X AT GLOBAL FCB TABLE                     07 03476
004243 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$ST3          SET EXEC STATE TO NN                         07 03481
                    3482 NV2NUC    CONT                                                                 FG 07 03482
004244 001040 A     3483           JXZ     PRU35           'SO' HAS NO GLOBAL FCB                          07 03483
004245 004251 R
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004246 015005 A 3484          LDA     5,X             TEST GLOBAL FCB ENABLED                          07 03484
004247 001016 A 3485          JANZ    PRU40                                                            07 03485
004250 004276 R
                    3486 ***************************                                                    07 03486
                    3487 * NO GLOBAL FCB - TEST U=SI *                                                  07 03487
                    3488 ***************************                                                    07 03488
004251 030400 A 3489 PRU35    LDX     V$LUT1                                                           07 03489
004252 015002 A 3490          LDA     2,X             GET SI ASSIGNMENT                                07 03490
004253 146037 A 3491          SUB     SAVE+5,B        COMPARE WITH L ASSIGNMENT                  V2    07 03491
004254 150463 A 3492          ANA     RHW                                                              07 03492
004255 001016 A 3493          JANZ    ER4             ERROR 4/ RMD FILE NOT OPEN /                     07 03493
004256 005154 R
004257 010422 A 3494          LDA     TPS             L = SI                                           07 03494
004260 006110 A 3495          ORAI    01400           MERGE IOLINK SKELETON CONTROL WORD          V2   07 03495
004261 001400 A
004262 056105 A 3496          STA     IOLNK,B         IOLINK CONTROL WORD FOR SIFCB                    07 03496
004263 006010 A 3497          LDAI    40                                                          V2   07 03497
004264 000050 A
004265 056143 A 3498          STA     IBSZ,B          ALSO PHYSICAL BUFFER SIZE                        07 03498
004266 056122 A 3499          STA     LRSZ,B          ALSO LOGICAL BUFFER SIZE                         07 03499
004267 036010 A 3500          LDX     =0FCB,B         POINT X AT V$FORTIO DATA BLOCK                   07 03500
004270 055000 A 3501          STA     0,X             SET RECORD SIZE DCB(0) = 40 WORDS                07 03501
004271 006030 A 3502          LDXI    SIFCB           POINT X AS SI GLOBAL FCB                    V2   07 03502
004272 000000 E
004273 015005 A 3503          LDA     5,X                                                              07 03503
004274 001010 A 3504          JAZ     ER4             ERROR 4/ RMD NOT OPEN /                          07 03504
004275 005154 R
004276 005041 A 3505 PRU40    TXA                     GET FCB ADDRESS IN A                             07 03505
004277 056010 A 3506          STA     ADFCB,B         STORE                                            07 03506
004300 036016 A 3507          LDX     ANRB,B          POINT X AT V$FORTIO                              07 03507
004301 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
004302 016105 A
004303 055105 A
004304 016154 A 3510          LDA     RWFL,B                                                      V2   07 03510
004305 110430 A 3511          ORA     GFS             SET GLOBAL FCB FLAG                         V2   07 03511
004306 056154 A 3512          STA     RWFL,B                                                      V2   07 03512
004307 010420 A 3513          LDA     SXC                                                         V2   07 03513
004310 006505 A 3514          JSR     PSJ,X           PUSH IOLINK OP                              V2   07 03514
004311 004515 R
                    3515 PRU50    POPJ                    EXIT                                    FG   07 03515
004312 105065 A
                    3516 ************************                                                       07 03516
                    3517 * GLOBAL FCB POINTERS *                                                       07 03517
                    3518 ************************                                                       07 03518
004313 004272 E 3519 PRUASI   PZE     SIFCB           SI( 2) GLOBAL FCB                                07 03519
004314 000000 A 3520          DATA    0               SO( 3) NO GLOBAL FCB                             07 03520
004315 000000 E 3521          PZE     PIFCB           PI( 4) GLOBAL FCB                                07 03521
004316 000000 E 3522          PZE     LOFCB           LO( 5) GLOBAL FCB                                07 03522
004317 000000 E 3523          PZE     BIFCB           BI( 6) GLOBAL FCB                                07 03523
004320 000000 E 3524          PZE     BOFCB           BO( 7) GLOBAL FCB                                07 03524
004321 000000 E 3525          PZE     SSFCB           SS( 8) GLOBAL FCB                                07 03525
004322 000000 E 3526          PZE     GOFCB           GO( 9) GLOBAL FCB                                07 03526
004323 000000 E 3527          PZE     POFCB           PO(10) GLOBAL FCB                                07 03527
004324 004324 R 3528 PRUGT    PZE     *                                                                07 03528
                    3529 ******************                                                             07 03529
                    3530 * DEVICE TABLE *                                                             07 03530
                    3531 ******************                                                             07 03531
004325 004325 R 3532 PRUDTB   PZE     *                                                                07 03532
004326 141720 A 3533          DATA    'CR'            1ST 2 CHARS OF DEVICE NAME                       07 03533
004327 000002 A 3534          DATA    2               'CR'                                        V2   07 03534
004330 000002 A 3535          DATA    2               'CT'                                        V2   07 03535
004331 004374 A 3536          DATA    04374           'LP'                                        V2   07 03536
004332 003400 A 3537          DATA    03400           :SP:                                        E.1  07 03537
004333 000411 A 3538          DATA    0411            :TY:                                        E.1  07 03538
004334 177777 A 3539          DATA    177777          TABLE END MARKER                            V2   07 03539
       004334 R 3540 PRUDTE   EQU     *-1                                                              07 03540
004335 000050 A 3541          DATA    40              CONSOLE FLAG/BUFFER SIZE                         07 03541
004336 000050 A 3542          DATA    40                                                               07 03542
004337 000450 A 3543          DATA    40*3FA                                                      V2   07 03543
004340 000102 A 3544          DATA    66                                                               07 03544
004341 177777 A 3545          DATA    -1              SPOOL UNIT INDICATOR                        E.1  07 03545
004342 000450 A 3546          DATA    40*DFA                                                      V2   07 03546
004343 000074 A 3547          DATA    60                                                               07 03547
                    3548          END                                                              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
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                    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 UIO                                              *  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
004344 016164 A     3580 PRW     LDA     TEMP,B          GET DP                                             07 03580
004345 140471 A     3581         SUB     CRD                                                          V2    07 03581
004346 004250 A     3582         LRLP    8               POSITION READ/WRITE FLAG                           07 03582
004347 056104 A     3583         STA     IOCONT,B         FOR IOC CALL CONTROL WORD                         07 03583
004350 001010 A     3584         JAZ     *+3                                                          V2    07 03584
004351 004353 R
004352 010432 A     3585         LDA     WRS             SET WRITE BIT                                V2    07 03585
004353 110431 A     3586         ORA     BFS             SET FILL FLAG                                V2    07 03586
004354 056154 A     3587         STA     RWFL,B          INITIALIZE READ/WRITE FLAG WORD                    07 03587
004355 036151 A     3588 PRW05   LDX     RETURN,B                                                           07 03588
004356 015003 A     3589         LDA     3,X             GET READ/WRITE PARAMETER COUNT                     07 03589
004357 140422 A     3590         SUB     TWO                                                                07 03590
004360 001016 A     3591         JANZ    PRW0            WAS PROGRAM COMPILED WITH 'G' COMPILER ?           07 03591
004361 004366 R
004362 056152 A     3592         STA     RETURN+1,B      NO. CLEAR 'END' EXIT ADDRESS                       07 03592
004363 056153 A     3593         STA     RETURN+2,B      CLEAR 'ERR' EXIT ADDRESS                           07 03593
004364 001000 A     3594         JMP     PRW1                                                               07 03594
004365 004372 R
004366 015007 A     3595 PRW0    LDA     7,X             PROGRAM WAS COMPILED BY 'G' COMPILER               07 03595
004367 056152 A     3596         STA     RETURN+1,B      SAVE 'END' EXIT ADDRESS                            07 03596
004370 015010 A     3597         LDA     8,X             GET 'ERR' EXIT ADDRESS                             07 03597
004371 056153 A     3598         STA     RETURN+2,B      SAVE                                               07 03598
       004372 R     3599 PRW1    EQU     *                                                                  07 03599
                    3600         MOVXAB  5,FRMT          SAVE FORMAT STRING ADDRESS(0 IF NONE)              07 03600
004372 015005 A
004373 056063 A
                    3601         PUSHJ   PRU             PROCESS FORTRAN UNIT NUMBER                  V2    07 03601
004374 105025 A
004375 003720 R
                    3602         TZAB    FRMT,PRW2       IOC MODE IS SYS BINARY FOR UNFORMATTED       V2    07 03602
004376 016063 A
004377 001010 A
004400 004402 R
004401 010435 A     3603         LDA     BS12            IOC MODE IS ASCII FOR FORMATTED                    07 03603
004402 036016 A     3604 PRW2    LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK               V2    07 03604
004403 116167 A     3605         ORA     UNIT,B          MERGE IN LOGICAL UNIT NUMBER L                     07 03605
004404 116104 A     3606         ORA     IOCONT,B        MERGE IN READ/WRITE BIT                            07 03606
004405 055104 A     3607         STA     IOCONT,X        STORE IN V$FORTIO                                  07 03607
                    3608         MOVBAX  RWFL,RWFL       MOVE FLAG WORD TO V$FORTIO                         07 03608
004406 016154 A
004407 055154 A
004410 016152 A     3609         LDA     RETURN+1,B      MOVE RETURN ADDRESSES TO V$FORTIO            PD    07 03609
004411 055152 A     3610         STA     RETURN+1,X                                                   PD    07 03610
004412 016153 A     3611         LDA     RETURN+2,B                                                   PD    07 03611
004413 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     FBSZ,B                                                             07 03620
                    3621         IAR                                                                        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     RFPT            CLEAR BUFFER CHARACTER POINTER                     07 03625
004414 005001 A
004415 056026 A
                    3626         TRAB    RWFL,LF,PRW6        LOGICAL FILE ?                                 07 03626
004416 016154 A
004417 006441 A
004420 004424 R
004421 036010 A     3627         LDX     ADFCB,B         YES                                                07 03627
                    3628         MOVBAX  FBSZ,0          SET FCB(0) = PHYSICAL BUFFER SIZE                  07 03628
004422 016143 A
004423 055000 A
                    3629 PRW6    PUSHJ   RFL             REPOSITION FILE                              V2    07 03629
004424 105025 A
004425 005174 R
                    3630         TRAB    RWFL,WR,PRW10       WRITE ?                                  V2    07 03630
004426 016154 A
004427 006451 A
004430 004434 R
                    3631         PUSHJ   CLB             YES. CLEAR BUFFER                            V2    07 03631
004431 105025 A
004432 000116 R
004433 001006 A     3632         DATA    01006           SKIP                                               07 03632
004434 046121 A     3633 PRW10   INR     LRECNO,B        BUMP LOGICAL RECORD NUMBER ON READ                 07 03633
                    3634         MOVBAB  LRS2,LRWC       UPDATE LRWC FOR SHORT RECORD                 V2    07 03634
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004435 016122 A
004436 016123 A
004437 046172 A 3635          INR     XFFL,B          ENABLE PARAMETER XFER                          07 03635
                3636          TZAB    FRMT,UIO        PROCESS UNFORMATTED I/O IF FRMT=0              07 03636
004440 016063 A
004441 001010 A
004442 005701 R
004443 001000 A 3637          JMP     FRS             EXIT TO FORMAT SCAN IF FORMATTED               07 03637
004444 000377 R
                3638          EJEC                                                                   07 03638
                3639 ********************************************************************************* 07 03639
                3640 *                                                                               * 07 03640
                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
004445 016164 A 3645 PRX      LDA     TEMP,B                                                         07 03645
004446 006140 A 3646          SUBI    ORA                                                            07 03646
004447 000022 A
004450 004250 A 3647          LRLA    8               POSITION READ/WRITE FLAG                       07 03647
004451 056104 A 3648          STA     IOCONT,B                                                       07 03648
004452 001010 A 3649          JAZ     *+3                                                            07 03649
004453 004455 R
004454 010432 A 3650          LDA     WRS                                                            07 03650
004455 110431 A 3651          ORA     BFS                                                            07 03651
004456 110434 A 3652          ORA     BS11            SET DIRECT ACCESS FLAG                         07 03652
004457 056154 A 3653          STA     RWFL,B                                                         07 03653
004460 016164 A 3654          LDA     TEMP,B                                                         07 03654
004461 140424 A 3655          SUB     EIGHT                                                          07 03655
004462 056164 A 3656          STA     TEMP,B          SET TO READ/WRITE                              07 03656
004463 001000 A 3657          JMP     PRW05                                                          07 03657
004464 004355 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
004465 016154 A 3673 PSB      LDA     RWFL,B                                                         07 03673
004466 150443 A 3674          ANA     POR             CLEAR POST BIT IN FLAG WORD            V2      07 03674
004467 056154 A 3675          STA     RWFL,B                                                         07 03675
004470 036010 A 3676          LDX     ADFCB,B                                                        07 03676
004471 015014 A 3677          LDA     12,X                                                           07 03677
004472 150457 A 3678          ANA     FPOR            CLEAR POST BIT IN FCB(12)              V2      07 03678
004473 055014 A 3679          STA     12,X                                                           07 03679
                3680          MOVXAX  13,3            LOAD PHYSICAL RECORD NUMBER INTO FCB(3)        07 03680
004474 015015 A
004475 055003 A
004476 036016 A 3681          LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                 07 03681
004477 015104 A 3682          LDA     IOCONT,X                                                       07 03682
004500 110431 A 3683          ORA     BS8             SET WRITE BIT IN V$IOC CONTROL WORD            07 03683
004501 055104 A 3684          STA     IOCONT,X                                                       07 03684
004502 010464 A 3685          LDA     CIO             PUSH I/O OP                            V2      07 03685
004503 006505 A 3686          JSP     PSJ,X           WRITE OUT BUFFER                       V2      07 03686
004504 004515 R
                3687          TSAB    RWFL,WR,PSBX    EXIT ON WRITE                          FG      07 03687
004505 016154 A
004506 006411 A
004507 004514 R
004510 036016 A 3688          LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                 07 03688
004511 015104 A 3689          LDA     IOCONT,X                                                       07 03689
004512 150451 A 3690          ANA     CR8             CLEAR WRITE BIT IN V$IOC CONTROL WORD          07 03690
004513 055104 A 3691          STA     IOCONT,X                                                       07 03691
                3692 PSBX     PUPJ                    EXIT                                   FG      07 03692
004514 105065 A
                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$FORTIO          * 07 03709
                3710 *                                                                               * 07 03710
                3711 ********************************************************************************* 07 03711
004515 056164 A 3713 PSJ      STA     TEMP,B          SAVE EXIT                                      07 03713
004516 005041 A 3714          TXA                                                                    07 03714
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004517 036000 A 3715          LDX     UPSTKP,B        POINT X AT STACK                                07 03715
004520 005344 A 3716          DXR                     DROP STACK POINTER                          FG  07 03716
004521 076000 A 3717          STX     UPSTKP,B                                                    FG  07 03717
004522 055000 A 3718          STA     0,X             PUSH RETURN                                     07 03718
004523 016164 A 3719          LDA     TEMP,B          RESTORE A                                       07 03719
004524 005014 A 3720          TAX                                                                     07 03720
004525 004346 A 3721          LSRA    6                                                               07 03721
004526 001010 A 3722          JAZ     *+4             EXTERNAL REQUEST ?                              07 03722
004527 004532 R
004530 006705 A 3723          IJMP    0,X             NO. JUMP DIRECTLY TO INTERNAL SUBROUTINE        07 03723
004531 000000 A
004532 010423 A 3724          LDA     CRB                                                             07 03724
                3725          PUSHF                   PUSH RETURN TO V$RERR                           07 03725
004533 036016 A
004534 035000 A
004535 005344 A
004536 055000 A
004537 005041 A
004540 036016 A
004541 055000 A
004542 016164 A 3726          LDA     TEMP,B          RESTORE CALLED DP                               07 03726
                3727          PUSHF                   PUSH V$FORTIO DP                                07 03727
004543 036016 A
004544 035000 A
004545 005344 A
004546 055000 A
004547 005041 A
004550 036016 A
004551 055000 A
004552 001000 A 3728          JMP     CAN             EXIT TO V$FORTIO                                07 03728
004553 000065 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
004554 016172 A 3762 PXF      LDA     XFFL,B                                                          07 03762
004555 001010 A 3763          JAZ     ER2             ERROR 2/ ILLEGAL CALL TO $IX /                  07 03763
004556 005156 R
004557 036016 A 3764          LDX     ANRB,B          POINT X AT V$FORTIO                             07 03764
004560 015116 A 3765          LDA     ITMODE,X                                                        07 03765
004561 056116 A 3766          STA     ITMODE,B        MOVE MODE FROM V$FORTIO TO V$RERR               07 03766
004562 016063 A 3767          LDA     FRMT,B                                                          07 03767
004563 005004 A 3768          TZX                     SET ITEM WORD SIZE TO 1                         07 03768
004564 001010 A 3769          JAZ     PXF5            ITEM WORD SIZE = 1 FOR UNFORMATTED              07 03769
004565 004567 R
004566 036116 A 3770          LDX     ITMODE,B                                                        07 03770
        004567 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$ST0       SET EXEC STATE TO 00                        V2  07 03775
                  3776 NV2NUC CONT                                                                FG  07 03776
004567 006015 A 3777          LDAE    PXFSZT,X        GET ITEM WORD SIZE FROM TABLE               V2  07 03777
004570 004625 R
                  3778        IFF     NUC                                                         FG  07 03778
                  3779        GOTO    NV2NUC                                                      FG  07 03779
                  3780        IFT     VII                                                         FG  07 03780
                  3781        OME     MAP,V$ST3       SET EXEC STATE TO NN                        V2  07 03781
                  3782 NV2NUC CONT                                                                FG  07 03782
004571 056102 A 3783          STA     IIWSZ,B         STORE                                           07 03783
004572 056115 A 3784          STA     ITMINC,B        ALSO ITEM INCREMENT                             07 03784
004573 004241 A 3785          LRLA    1               GET ITEM BYTE SIZE                              07 03785
004574 056101 A 3786          STA     IIBSZ,B         STORE IN TABLE                                  07 03786
004575 005344 A 3787          DXR                                                                     07 03787
004576 001046 A 3788          JXNZ    *+3             2-WORD INTEGER/LOGICAL ?                    V2  07 03788
004577 004601 R
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004600 046115 A 3789          INR     ITMINC,B        YES. SET INCREMENT TO 2                    07 03789
004601 016063 A 3790          LDA     FRMT,B                                          V2         07 03790
004602 001010 A 3791          JAZ     PXF10           ALL MODES OK FOR UNFORMATTED    V2         07 03791
004603 004617 R
004604 016061 A 3792          LDA     FDLKEY,B                                                   07 03792
004605 140423 A 3793          SUB     FOUR                                                       07 03793
004606 001016 A 3794          JANZ    PXF10           I FORMAT DESCRIPTOR ?                      07 03794
004607 004617 R
004610 016116 A 3795          LDA     ITMODE,B        YES                                        07 03795
004611 140422 A 3796          SUB     TWO                                                        07 03796
004612 001004 A 3797          JAN     PXF10           INTEGER ITEM                               07 03797
004613 004617 R
004614 140464 A 3798          SUB     THREE                                                      07 03798
004615 001016 A 3799          JANZ    ER2             ERR 2/NON-INTEGER ITEM/                    07 03799
004616 005156 R
004617 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
004620 015004 A
004621 056114 A
                3802          MOVXAB  5,ITEMAD        SAVE LIST ITEM ADDRESS                     07 03802
004622 015005 A
004623 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          TZAB    ALOC,PXF20      EXIT IF NOT VORTEX BKGND CALLING NUC       07 03807
                3808          LDA     ITEMAD,B                                                   07 03808
                3809          JSR     IBK,X           TEST START OF ITEM ADDRESS                 07 03809
                3810          ADD     ITEMWC,B                                                   07 03810
                3811          DAR                                                                07 03811
                3812          JSR     IBK,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
004624 105065 A
                3816 ********************************                                         07 03816
                3817 * TABLE OF ITEM SIZES IN WORDS *                                         07 03817
                3818 ********************************                                         07 03818
004625 000001 A 3819 PXFSZT   DATA    1               1-WORD INTEGER/LOGICAL                     07 03819
004626 000001 A 3820          DATA    1               2-WORD INTEGER/LOGICAL                     07 03820
004627 000002 A 3821          DATA    2               REAL                                       07 03821
004630 000004 A 3822          DATA    4               DOUBLE PRECISION                           07 03822
004631 000002 A 3823          DATA    2               COMPLEX                                    07 03823
004632 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$RERR                    V2*  07 03830
                3831 *                                                                      *  07 03831
                3832 * ENTRY:  B = VSFORTIO DATA BLOCK ADDRESS                             V2*  07 03832
                3833 *         INFL .NE. 0 ON INITIAL ENTRY                                V2*  07 03833
                3834 *              .EQ. 0 ON CONTINUATION ENTRY                           V2*  07 03834
                3835 *         TO LABEL V$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$RER1 VIA DIRECT JUMP OTHERWISE                   V2*  07 03840
                3841 *                                                                      *  07 03841
                3842 * EXIT :  TO POJ IF TOP OP IS .GE. 0100(ADDRESS OPERAND)             V2*  07 03842
                3843 *         TO OP PROCESSOR OTHERWISE                                   V2*  07 03843
                3844 *         ALOC = 1 IF ENTRY THRU V$RERR                               V2*  07 03844
                3845 *                0 IF ENTRY THRU V$RER1                               V2*  07 03845
                3846 *         INFL = 0                                                     V2*  07 03846
                3847 *                                                                      *  07 03847
                3848 * ERRORS: ER4 IF ILLEGAL OP CODE                                      *  07 03848
                3849 *                                                                      *  07 03849
                3850 ********************************************************************** 07 03850
                3852 ********************************                                         07 03852
                3853 * REENTRANT MODULE CALLED BY ALOC *                                     07 03853
                3854 ********************************                                         07 03854
004633 R        3856 V$RERR   EQU     *               ALOC ENTRY                          V2   07 03856
                3857          IFF     NUC                                                 FG   07 03857
                3858          GOTO    NLC1                                                FG   07 03858
                3859          DATA    0                                                   V2   07 03859
                3860          IFT     VII                                                 FG   07 03860
                3861          GOTO    VII1                                                FG   07 03861
                3862          EXEC    0500+MAP                                            V2   07 03862
                3863          OMB     4,P,V$ST3       SET EXEC STATE TO NN                V2   07 03863
                3864          LDA     INFL,B                                              V2   07 03864
                3865          JANZ    RBE1                                                V2   07 03865
                3866 ********************************                                     V2   07 03866
                3867 * VORTEX II CONTINUATION *                                           V2   07 03867
                3868 ********************************                                     V2   07 03868
                3869          LDA     VSCPL                                               V2   07 03869
                3870          JANZ    RBE4            TEST IF BACKGROUND                  V2   07 03870
                3871 ********************************************************************** V2   07 03871
                3872 * RESTORE STACK ADDRESSES FROM V$PERR TO V$FORTIO *                    V2   07 03872
                3873 ********************************************************************** V2   07 03873
                3874          LDA     AN+3,B                                              V2   07 03874
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3875          DME     MAP,V$ST1       SET EXEC STATE TO ON                    V2  07 03875
3876          ADDI    OPSTK+STKSZ-1                                             FG 07 03876
3877          LDXI    BASE            POINT X AT V$RERR STACK BASE            V2  07 03877
3878          SUB     ROPSTP,X                                                  FG 07 03878
3879          TAB                     POINT B AT V$FORTIO STACK               V2  07 03879
3880          LDA     ROPSTP,X        GET COUNT                                 FG 07 03880
3881          JAN     RBEX            EXIT IF NO MOVE                         V2  07 03881
3882          CPA                                                               FG 07 03882
3883          INCR    014             SET X = -(COUNT-1)                        FG 07 03883
3884 RBEL1    LDAE    BASE+STKSZ-1,X                                            FG 07 03884
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$CRS                                                   V2  07 03890
3891          LDB     BR,X            RESTORE B                               V2  07 03891
3892          DME     MAP,V$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     OPSTKP,B                                                  07 03908
3909          SUB     AOPSTK,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     OPSTKP,X                                                  07 03914
3915          SUB     AOPSTK,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$FORTIO STACK HAS OP - TEST VALIDITY *                                  07 03920
3921 ************************************                                        07 03921
3922 RBE5     LDX     OPSTKP,B                                                  07 03922
3923          LDA     0,X             GET OP                                    07 03923
3924          SUBI    13                                                      PD  07 03924
3925          JAN     RBE90           ERROR/ ILLEGAL OP /                       07 03925
3926          SUBI    11                                                      V2  07 03926
3927          JAP     RBE90           ERROR/ ILLEGAL OP /                       07 03927
3928          PDV     D16             RESTORE OP                                07 03928
3929          LDX     BASE            POINT X AT V$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     AOPSTK,X        NO. INITIALIZE V$RERR STACK               07 03933
3934          DATA    0100B           SKIP                                      07 03934
3935 RBE10    LDA     OPSTKP,X                                                  07 03935
3936          DAR                     PUSH V$RERR STACK                         FG 07 03936
3937          STA     OPSTKP,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$FORTIO DATA BLOCK            07 03942
3943          LDX     RBEB            POINT X AT V$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     TPK,X           TEST PARAMETER LIST IN BACKGROUND         07 03953
3954          TPA                                                               07 03954
3955          JSR     TDK,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     RBCB                                                      07 03958
3959          LDA     ANRBJ,B                                                   07 03959
3960          STA     RNRBJ,X         MOVE NON-REENTRANT POP/JUMP ADDRESS       07 03960
3961          JSR     TBK,X           TEST NON-REENTRANT POP/JUMP IN BACKGROUND  07 03961
3962          LDX     RBEB            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
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                    3968           JAP     RBE90          ERROR/ PROTECTION /                       07 03968
                    3969           INR     OPSTKP,B       POP V$FORTIO STACK                     FG 07 03969
                    3970           LDB     RBEB           POINT B AT V$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     XFFL,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
                    3978           IFF     VORTEX-2                                              V2 07 03978
                    3979           OME     MAP,V$ST3      SET EXEC STATE TO NN                   V2 07 03979
                    3980           INCR    1              SET ALOC ENTRY FLAG                    V2 07 03980
                    3981           DATA    01006                                                 V2 07 03981
                    3982 NUC1      CONT                                                          FG 07 03982
                    3983 ****************************************                                   07 03983
                    3984 * REENTRANT MODULE CALLED BY DIRECT JUMP *                                 07 03984
                    3985 ****************************************                                   07 03985
       004633 R     3986 V$RER1    EQU     *                                                        07 03986
004633 005001 A     3987           TZA                    RESET ALOC ENTRY FLAG                  V2 07 03987
004634 056014 A     3988           STA     ALOC,B                                                V2 07 03988
                    3989 ***********                                                                07 03989
                    3990 * TEST OP *                                                                07 03990
                    3991 ***********                                                                07 03991
004635 036000 A     3992           LDX     OPSTKP,B                                              V2 07 03992
004636 015000 A     3993           LDA     0,X            GET OP IN A                               07 03993
004637 056164 A     3994           STA     TEMP,B         SAVE                                      07 03994
004640 004346 A     3995           LSRA    6                                                        07 03995
004641 001010 A     3996           JAZ     RBE15          IS OP RETURN ADDRESS ?                 FG 07 03996
004642 004644 R
                    3997           POPJ                   YES. RETURN                            FG 07 03997
004643 105065 A
004644 015000 A     3998 RBE15     LDA     0,X            RELOAD OP                              FG 07 03998
004645 005144 A     3999           IXR                    POP STACK                              FG 07 03999
004646 076000 A     4000           STX     OPSTKP,B                                                 07 04000
004647 140465 A     4001           SUB     CTR                                                   V2 07 04001
004650 001004 A     4002           JAN     ER4            ERROR 4/ILLEGAL OP/                       07 04002
004651 005154 R
004652 001010 A     4003           JAZ     RBE25          NO UNIT ASSOCIATED WITH TERMINATE CALL    07 04003
004653 004667 R
004654 005311 A     4004           DAR                                                           V2 07 04004
004655 001010 A     4005           JAZ     RBE30          NO UNIT ASSOCIATED WITH PARAM XFER CALL   07 04005
004656 004671 R
004657 006140 A     4006           SUBI    RBEJTE-RBEJT-1                                        V2 07 04006
004660 000016 A
004661 001002 A     4007           JAP     ER4            ERROR 4/ILLEGAL OP/                       07 04007
004662 005154 R
004663 036151 A     4008           LDX     RETURN,B                                                 07 04008
004664 035004 A     4009           LDX     4,X            POINT X AT FORTRAN UNIT NUMBER            07 04009
004665 015000 A     4010           LDA     0,X            GET FORTRAN UNIT NUMBER                   07 04010
004666 056167 A     4011           STA     UNIT,B         STORE                                     07 04011
004667 005001 A     4012 RBE25     TZA                                                              07 04012
004670 056172 A     4013           STA     XFFL,B         DISABLE PARAMETER XFER                    07 04013
004671 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           OME     MAP,V$ST0      SET EXEC STATE TO 00                   V2 07 04018
                    4019 NV2NUC    CONT                                                          FG 07 04019
004672 006035 A     4020           LDXE    RBEJT-CTRV,X     GET PROCESSOR ADDRESS                V2 07 04020
004673 004671 R
                    4021           IFF     NUC                                                   FG 07 04021
                    4022           GOTO    NV2NUC                                                FG 07 04022
                    4023           IFT     VII                                                   FG 07 04023
                    4024           OME     MAP,V$ST3      SET EXEC STATE TO NN                   V2 07 04024
                    4025 NV2NUC    CONT                                                          FG 07 04025
004674 006705 A     4026           IJMP    0,X            EXIT TO PROCESSOR                         07 04026
004675 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
004676 005611 R     4041 RBEJT     PZE     TRM            TERMINATE                                 07 04041
004677 004554 R     4042           PZE     PXF            PARAMETER XFER                         V2 07 04042
004700 003101 R     4043           PZE     PAX            BACKSPACE                                 07 04043
004701 003101 R     4044           PZE     PAX            WRITE EOF                                 07 04044
004702 003101 R     4045           PZE     PAX            REWIND                                    07 04045
004703 004344 R     4046           PZE     PRW            READ                                      07 04046
004704 004344 R     4047           PZE     PRW            WRITE                                     07 04047
004705 000152 R     4048           PZE     CLS            CLOSE RMD FILE                            07 04048
004706 000152 R     4049           PZE     CLS            CLOSE RMD FILE                            07 04049
004707 002717 R     4050           PZE     OPN            OPEN RMD FILE                             07 04050
004710 002717 R     4051           PZE     OPN            OPEN RMD FILE                             07 04051
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004711 003633 R 4052          PZE     PRD          DECODE                                  PD 07 04052
004712 003633 R 4053          PZE     PRD          ENCODE                                  PD 07 04053
004713 004445 R 4054          PZE     PRX          READ - DIRECT ACCESS                       07 04054
004714 004445 R 4055          PZE     PRX          WRITE - DIRECT ACCESS                      07 04055
       004715 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
                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
004715 016052 A 4078 RCH      LDA     COUNT,B                                                 07 04078
004716 005311 A 4079          DAR     B            DECREMENT COUNT                            07 04079
004717 001002 A 4080          JAP     RCH2                                                 FG 07 04080
004720 004722 R
                4081          POPJ                 EXIT IF COUNT .LE. 0                    FG 07 04081
004721 105065 A
004722 056052 A 4082 RCH2     STA     COUNT,B                                              FG 07 04082
004723 016021 A 4083          LDA     ASCB,B                                                  07 04083
004724 146002 A 4084          SUB     ABSCB,B                                                 07 04084
004725 007400 A 4085          ROF                                                          V2 07 04085
004726 003010 A 4086          XAZ     SOF          SET OVFL IF BUFFER SCB                  V2 07 04086
004727 001615 R
                4087          TSAB    RWFL,WR,RCH10                                        V2 07 04087
004730 016154 A
004731 006411 A
004732 004745 R
                4088 *********                                                               07 04088
                4089 * INPUT *                                                               07 04089
                4090 *********                                                               07 04090
004733 001001 A 4091          JOF     RCH5                                                 V2 07 04091
004734 004741 R
                4092 ****************************                                          07 04092
                4093 * INPUTTING FROM NON-BUFFER *                                          07 04093
                4094 ****************************                                          07 04094
                4095          PUSHJ   TCC          INPUT CHARACTER                         V2 07 04095
004735 105025 A
004736 001612 R
004737 001000 A 4096          JMP     RCH          LOOP TILL DONE                             07 04096
004740 004715 R
                4097 ************************                                              07 04097
                4098 * INPUTTING FROM BUFFER *                                              07 04098
                4099 ************************                                              07 04099
                4100 RCH5     PUSHJ   CBC          INPUT CHARACTER FROM BUFFER             V2 07 04100
004741 105025 A
004742 000070 R
004743 001000 A 4101          JMP     RCH          LOOP TILL DONE                             07 04101
004744 004715 R
                4102 **********                                                              07 04102
                4103 * OUTPUT *                                                              07 04103
                4104 **********                                                              07 04104
004745 001001 A 4105 RCH10    JOF     RCH15                                                V2 07 04105
004746 004753 R
                4106 ************************                                              07 04106
                4107 * OUTPUT TO NON-BUFFER *                                              07 04107
                4108 ************************                                              07 04108
                4109          PUSHJ   PCH          PUT CHARACTER                           V2 07 04109
004747 105025 A
004750 003276 R
004751 001000 A 4110          JMP     RCH          LOOP TILL DONE                             07 04110
004752 004715 R
                4111 ********************                                                  07 04111
                4112 * OUTPUT TO BUFFER *                                                  07 04112
                4113 ********************                                                  07 04113
                4114 RCH15    PUSHJ   OCB          OUTPUT CHARACTER TO BUFFER              V2 07 04114
004753 105025 A
004754 002441 R
004755 001000 A 4115          JMP     RCH          LOOP TILL DONE                             07 04115
004756 004715 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
004757 016154 A
004760 006441 A
004761 004764 R
004762 006400 A     4130         BT      ASET+RM,RCL10     YES. RMD ?                              D.1 07 04130
004763 004771 R
                    4131 RCL5    ZAB     LRWC              NO. FORCE RECYCLE                       V2  07 04131
004764 005001 A
004765 056123 A
004766 056144 A     4132         STA     PBWC,B            CLEAR WORD COUNTS                           07 04132
004767 001000 A     4133         JMP     RCL15                                                     D.1 07 04133
004770 005000 R
004771 006444 A     4134 RCL10   BT      ARST+TR,RCL15     TERMINATE LOGICAL RMD ?                 D.1 07 04134
004772 005000 R
                    4135         TNZAB   LRWC,RCL15        YES. END OF LOGICAL RECORD ?            D.1 07 04135
004773 016123 A
004774 001016 A
004775 005000 R
004776 046121 A     4136         INR     LRECNO,B          YES. BUMP LOGICAL RECORD NUMBER         D.1 07 04136
                    4137         POPJ                      EXIT                                     FG 07 04137
004777 105065 A
                    4138 RCL15   PUSHJ   GBA               STEP THRU LOGICAL BUFFER                D.1 07 04138
005000 105025 A
005001 001072 R
005002 016123 A     4139         LDA     LRWC,B                                                        07 04139
005003 005111 A     4140         IAR                                                                   07 04140
005004 146122 A     4141         SUB     LRSZ,B                                                        07 04141
005005 001004 A     4142         JAN     RCL               LOOP TILL LOGICAL BOUNDARY PASSED       D.1 07 04142
005006 004757 R
005007 046123 A     4143         INR     LRWC,B            RESTORE WORD COUNTS                         07 04143
005010 046144 A     4144         INR     PBWC,B                                                        07 04144
                    4145         DAB     BFWPT             AND BUFFER POINTER                          07 04145
005011 016025 A
005012 005311 A
005013 056025 A
                    4146         POPJ                      EXIT                                     FG 07 04146
005014 105065 A
                    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
005015 R            4171 RCP     EQU     *                                                           V2  07 04171
                    4172         TRAB    RWFL,IN,RCP5      INITIALIZING ?                          V2  07 04172
005015 016154 A
005016 006446 A
005017 005031 R
005020 006442 A     4173         BT      ARST+PO,RCP3          YES. ANY UNPOSTED DATA ?                07 04173
005021 005025 R
                    4174         PUSHJ   PSB               YES. POST BUFFER                        V2  07 04174
005022 105025 A
005023 004465 R
005024 016154 A     4175         LDA     RWFL,B            RESTORE FLAG WORD                           07 04175
005025 006451 A     4176 RCP3    BT      ARST+WR,RCP15         READ ?                              V2  07 04176
005026 005053 R
005027 001000 A     4177         JMP     RCP25             NO. WRITE                                   07 04177
005030 005076 R
                    4178 RCP5    MOVBAB  PBSZ,PBWC         RELOAD PHYSICAL WORD COUNT                  07 04178
005031 016143 A
005032 056144 A
005033 016027 A     4179         LDA     ALBF,B                                                    D.1 07 04179
005034 146025 A     4180         SUB     BFWPT,B                                                   D.1 07 04180
005035 005311 A     4181         DAR                                                               D.1 07 04181
005036 126020 A     4182         ADD     APBF,B                                                    D.1 07 04182
005037 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
005040 016020 A
005041 005311 A
005042 056025 A
                    4185         TSAB    RWFL,WR,RCP20         READ ?                              V2  07 04185
005043 016154 A
005044 006411 A
005045 005071 R
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005046 006442 A 4186          BT      ARST+PD,RCP15     YES. ANY UNPOSTED DATA ?              C.1 07 04186
005047 005053 R
               4187          PUSHJ   PSB               YES. POST BUFFER                      V2  07 04187
005030 105025 A
005051 004465 R
005052 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
005053 006400 A 4192 RCP15    BT      ASET+RM,RCP20       RMD ?                             V2  07 04192
005054 005071 R
               4193          TZAB    UNIT,RCP20        NO. DONT CLEAR IF L=0                 D.1 07 04193
005055 016167 A
005056 001010 A
005057 005071 R
005060 036010 A 4194          LDX     ADFCB,B                                               D.1 07 04194
               4195          MOVBAB  LRWC,SAVE+2       SAVE LRWC                               07 04195
005061 016123 A
005062 056034 A
               4196          MOVXAB  0,LRWC            SET LOGICAL WORD COUNT = FCB(0)         07 04196
005063 015000 A
005064 056123 A
               4197          PUSHJ   CLB               CLEAR BUFFER                          V2  07 04197
005065 105025 A
005066 000116 R
               4198          MOVBAB  SAVE+2,LRWC       RESTORE LRWC                            07 04198
005067 016034 A
005070 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
005071 105025 A
005072 005354 R
               4203          TRAB    RWFL,WR,RCP50       READ ?                              V2  07 04203
005073 016154 A
005074 006451 A
005075 005147 R
005076 006441 A 4204 RCP25    BT      ARST+LF,RCP40     NO, WRITE. LOGICAL FILE ?             D.1 07 04204
005077 005140 R
005100 036010 A 4205          LDX     ADFCB,B           YES. POINT X AT FCB                   V2  07 04205
005101 006440 A 4206          BT      ARST+RM,RCP40     RMD ?                               D.1 07 04206
005102 005140 R
005103 110423 A 4207          ORA     POS               YES. SET POST FLAG                    D.1 07 04207
005104 056154 A 4208          STA     RWFL,B                                                  07 04208
005105 015014 A 4209          LDA     12,X                                                    07 04209
005106 110437 A 4210          ORA     FPOS              ALSO IN FCB(12)                       V2  07 04210
005107 055014 A 4211          STA     12,X                                                    07 04211
               4212          TRAB    RWFL,RB,RCP35       IS READ BEFORE WRITE ENABLED ?        07 04212
005110 016154 A
005111 006443 A
005112 005135 R
005113 036016 A 4213          LDX     ANRB,B            YES. POINT X AT V$FORTIO DATA BLOCK     07 04213
005114 015104 A 4214          LDA     IOCONT,X                                                07 04214
005115 150451 A 4215          ANA     BRS               CLEAR WRITE BIT IN V$IOC CONTROL WORD 07 04215
005116 055104 A 4216          STA     IOCONT,X                                                07 04216
               4217          PUSHJ   RPB               READ NEXT PHYSICAL RECORD             V2  07 04217
005117 105025 A
005120 005354 R
               4218          SUTBBB  PRECND,PBRC,PRECND      RESTORE PHYSICAL RECORD NUMBER    07 04218
005121 016145 A
005122 146142 A
005123 056145 A
005124 036016 A 4219          LDX     ANRB,B            POINT X AT V$FORTIO DATA BLOCK          07 04219
005125 015106 A 4220          LDA     IOSTAT,X          GET STATUS OF READ                      07 04220
005126 005311 A 4221          DAR                                                             07 04221
005127 001004 A 4222          JAN     *+3               TEST FOR EOF                          07 04222
005130 005132 R
005131 055106 A 4223          STA     IOSTAT,X          CLEAR EOF FLAG ON READ BEFORE WRITE   07 04223
005132 015104 A 4224          LDA     IOCONT,X                                                07 04224
005133 110431 A 4225          ORA     BSS               RESTORE WRITE BIT IN V$IOC CONTROL WORD 07 04225
005134 055104 A 4226          STA     IOCONT,X                                                07 04226
005135 036010 A 4227 RCP35    LDX     ADFCB,B                                                 07 04227
               4228          MOVBAX  PRECND,13         UPDATE FCB(13)                        07 04228
005136 016145 A
005137 055015 A
               4229 RCP40    TSAB    RWFL,IN,RCP50     EXIT ON INITIALIZE                  D.1 07 04229
005140 016154 A
005141 006406 A
005142 005147 R
005143 006405 A 4230          BT      ASET+SC,RCP50                                         D.1 07 04230
005144 005147 R
               4231          PUSHJ   CLB               CLEAR BUFFER AFTER WRITE              D.1 07 04231
005145 105025 A
005146 000116 R
005147 016154 A 4232 RCP50    LDA     RWFL,B                                                D.1 07 04232
005150 150446 A 4233          ANA     SCR               CLEAR CLEAR SUPPRESS FLAG             D.1 07 04233
005151 150447 A 4234          ANA     INR               CLEAR INITIALIZE FLAG                 V2  07 04234
005152 056154 A 4235          STA     RWFL,B                                                  07 04235
               4236          PUPJ                      EXIT                                FG  07 04236
005153 105065 A
               4237          EJEC                                                            07 04237
               4238 **********************************************************************  07 04238
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                    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$RERR                               V2* 07 04242
                    4243 *                                                                      * 07 04243
                    4244 * ENTRY: ER1 FORMAT                                                    * 07 04244
                    4245 *         ER2 MODE                                                     * 07 04245
                    4246 *         ER3 DATA                                                     * 07 04246
                    4247 *         ER4 I/O ERROR                                                * 07 04247
                    4248 *                                                                      * 07 04248
                    4249 * EXIT : DIRECT TO CAN                                                 * 07 04249
                    4250 *         ERN = ERROR NUMBER-1                                         * 07 04250
                    4251 *         ERROR OP PUSHED                                           V2* 07 04251
                    4252 *                                                                      * 07 04252
                    4253 ****************************************************************************** 07 04253
005154 046060 A     4255 ER4     INR     ERN,B          I/O                                        07 04255
005155 046060 A     4256 ER3     INR     ERN,B          DATA                                       07 04256
005156 046060 A     4257 ER2     INR     ERN,B          MODE                                       07 04257
005157 036016 A     4258 ER1     LDX     ANRB,B         POINT X AT V$FORTIO DATA BLOCK             07 04258
005160 016060 A     4259         LDA     ERN,B                                                     07 04259
005161 055060 A     4260         STA     ERN,X          MOVE ERROR NUMBER                          07 04260
005162 010421 A     4261         LDA     CER            GET ERROR OP                               07 04261
                    4262         PUSHF                                                             07 04262
005163 036016 A
005164 035000 A
005165 005344 A
005166 055000 A
005167 005041 A
005170 036016 A
005171 055000 A
005172 001000 A     4263         JMP     CAN            EXIT TO V$FORTIO                           07 04263
005173 000065 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 *         PRECND = 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
005174 016122 A
005175 056123 A
                    4285         DABB    ALBF,BFWPT     INITIALIZE BUFFER WORD POINTER          V2 07 04285
005176 016027 A
005177 005311 A
005200 056025 A
                    4286         MOVBAB  PBSZ,PBWC      INITIALIZE PHYSICAL WORD COUNT             07 04286
005201 016143 A
005202 056144 A
                    4287         TRAB    RWFL,LF,RFL5       LOGICAL FILE ?                      V2 07 04287
005203 016154 A
005204 006441 A
005205 005210 R
005206 006400 A     4288         BT      ASET+RM,RFL10      YES. TEST IF RMD                    V2 07 04288
005207 005214 R
                    4289 ************************                                               V2 07 04289
                    4290 * NOT LOGICAL RMD FILE *                                             V2 07 04290
                    4291 ************************                                             V2 07 04291
005210 006411 A     4292 RFL5    BT      ASET+WR,RFL40      READ ?                              FG 07 04292
005211 005274 R
005212 001000 A     4293         JMP     RCP            YES. RECYCLE PHYSICAL BUFFER               07 04293
005213 005015 R
                    4294 ************************                                               V2 07 04294
                    4295 * LOGICAL RMD FILE *                                                 V2 07 04295
                    4296 ************************                                             V2 07 04296
005214 016020 A     4297 RFL10   LDA     APBF,B                                                    07 04297
005215 126143 A     4298         ADD     PBSZ,B                                                    07 04298
005216 146027 A     4299         SUB     ALBF,B                                                    07 04299
005217 056144 A     4300         STA     PBWC,B         INITIALIZE PHYSICAL WORD COUNT             07 04300
                    4301 ************************************                                      07 04301
                    4302 * TEST IF LRECND IN BUFFER *                                          07 04302
                    4303 ************************************                                    07 04303
005220 036010 A     4304         LDX     ADFCB,B                                                   07 04304
005221 015015 A     4305         LDA     13,X                                                      07 04305
005222 001010 A     4306         JAZ     RFL50          TEST IF BUFFER EMPTY                       07 04306
005223 005275 R
005224 146145 A     4307         SUB     PRECND,B       COMPARE BUFFER ADDRESS WITH PRECND          07 04307
005225 001010 A     4308         JAZ     RFL20          LRECND RESIDENT IF EQUAL                    07 04308
005226 005257 R
005227 001002 A     4309         JAP     RFL50                                                     07 04309
005230 005275 R
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005231 056164 A 4310          STA     TEMP,B      SAVE -(RECORD INCREMENT)                    07 04310
005232 126142 A 4311          ADD     PBRC,B                                                  07 04311
005233 005311 A 4312          DAR                                                             07 04312
005234 001004 A 4313          JAN     RFL50                                                   07 04313
005235 005275 R
                4314 **********************                                                    07 04314
                4315 * LRECNO IS RESIDENT *                                                    07 04315
                4316 **********************                                                    07 04316
                4317          MOVXAB  13,PRECNO   UPDATE PHYSICAL RECORD NUMBER               07 04317
005236 015015 A
005237 056145 A
005240 005024 A 4318          TBX                 SAVE BASE REGISTER                          07 04318
005241 005001 A 4319          TZA                                                             07 04319
005242 146164 A 4320          SUB     TEMP,B      GET RECORD INCREMENT                        07 04320
005243 004560 A 4321          LLSR    16                                                      07 04321
005244 165201 A 4322          MUL     BD120,X     CONVERT TO WORD INCREMENT             V2    07 04322
005245 065164 A 4323          STB     TEMP,X                                                  07 04323
005246 005042 A 4324          TXB                 RESTORE BASE REGISTER B                     07 04324
005247 016027 A 4325          LDA     ALBF,B                                                  07 04325
005250 126164 A 4326          ADD     TEMP,B      BUMP LOGICAL BUFFER ADDRESS                 07 04326
005251 056027 A 4327          STA     ALBF,B                                                  07 04327
005252 005311 A 4328          DAR                                                             07 04328
005253 056025 A 4329          STA     BFWPT,B     ALSO BUFFER WORD POINTER                    07 04329
005254 016144 A 4330          LDA     PBWC,B                                                  07 04330
005255 146164 A 4331          SUB     TEMP,B      DECREMENT PHYSICAL WORD COUNT               07 04331
005256 056144 A 4332          STA     PBWC,B                                                  07 04332
                4333 RFL20    TSAB    RWFL,WR,RFL30     READ ?                          V2    07 04333
005257 016154 A
005260 006411 A
005261 005266 R
                4334          ADBBB   PRECNO,PBRC,PRECNO    YES. BUMP PHYSICAL RECNO     V2    07 04334
005262 016145 A
005263 126142 A
005264 056145 A
                4335          POPJ                AND EXIT                                FG    07 04335
005265 105065 A
005266 110423 A 4336 RFL30    ORA     POS         SET POST FLAG ON WRITE                  V2    07 04336
005267 056154 A 4337          STA     RWFL,B                                              V2    07 04337
005270 036010 A 4338          LDX     ADFCB,B     POINT X AT FCB                          V2    07 04338
005271 015014 A 4339          LDA     12,X                                                V2    07 04339
005272 110437 A 4340          ORA     FPOS        ALSO IN FCB                             V2    07 04340
005273 055014 A 4341          STA     12,X                                                V2    07 04341
                4342 RFL40    POPJ                AND EXIT                                FG    07 04342
005274 105065 A
                4343 **********************                                                    07 04343
                4344 * LRECNO NOT IN BUFFER *                                                07 04344
                4345 **********************                                                    07 04345
005275 016154 A 4346 RFL50    LDA     RWFL,B                                                  07 04346
005276 110427 A 4347          ORA     INS         SET INITIALIZE FLAG                     V2    07 04347
005277 056154 A 4348          STA     RWFL,B                                                  07 04348
005300 001000 A 4349          JMP     RCP         RECYCLE PHYSICAL BUFFER                     07 04349
005301 005015 R
                4350          EJEC                                                            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
     005302 R   4367 RNA     EQU     *                                                       07 04367
005302 016052 A 4368 RND     LDA     COUNT,B                                                 07 04368
005303 001004 A 4369         JAN     RNDX        EXIT IF COUNT NEGATIVE                  FG    07 04369
005304 005353 R
005305 146200 A 4370         SUB     BD14,B                                              V2    07 04370
005306 001004 A 4371         JAN     RND5        IS COUNT .GE. 14 ?                          07 04371
005307 005321 R
005310 016007 A 4372         LDA     ACHB,B      YES                                         07 04372
005311 126200 A 4373         ADD     BD14,B                                              V2    07 04373
005312 005314 A 4374         DECR    014         POINT X AT LAST DIGIT                       07 04374
005313 016003 A 4375         LDA     ACC,B                                                   07 04375
005314 004241 A 4376         LRLA    1                                                       07 04376
005315 001002 A 4377         JAP     RNDX        EXIT IF NO BUMP                         FG    07 04377
005316 005353 R
005317 001000 A 4378         JMP     RNDL        OTHERWISE PROPAGATE CARRY                   07 04378
005320 005335 R
005321 016007 A 4379 RND5    LDA     ACHB,B                                                  07 04379
005322 126052 A 4380         ADD     COUNT,B                                                 07 04380
005323 005314 A 4381         DECR    014         POINT X AT ROUND POSITION-1                 07 04381
005324 015001 A 4382         LDA     1,X         GET DECIMAL DIGIT                           07 04382
005325 140465 A 4383         SUB     FIVE                                                    07 04383
005326 001004 A 4384         JAN     RNDX        EXIT IF NO CARRY                        FG    07 04384
005327 005353 R
                4385         TZAB    COUNT,RND10 TEST COUNT=0                                07 04385
005330 016052 A
```

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005331 001010 A
005332 005350 R
                    4386          ZAX     1               CLEAR LAST DIGIT IN CASE OF OVERFLOW          07 04386
005333 005001 A
005334 055001 A
                    4387 ******************************                                                07 04387
                    4388 * LOOP TO PROPAGATE CARRIES *                                                07 04388
                    4389 ******************************                                                07 04389
005335 045000 A     4390 RNDL     INR     0,X             BUMP PRECEDING DIGIT                          07 04390
005336 015000 A     4391          LDA     0,X                                                           07 04391
005337 140471 A     4392          SUB     TEN                                                           07 04392
005340 001004 A     4393          JAN     RNDX            EXIT IF NO CARRY                        FG 07 04393
005341 005353 R
005342 005001 A     4394          TZA                                                                   07 04394
005343 055000 A     4395          STA     0,X             CLEAR DIGIT                                   07 04395
005344 005345 A     4396          DECR    045             DECREMENT CHB ARRAY POINTER                   07 04396
005345 146007 A     4397          SUB     ACHB,B                                                        07 04397
005346 001002 A     4398          JAP     RNDL            IS CARRY PROPAGATED OUT OF CHB ?              07 04398
005347 005335 R
005350 046055 A     4399 RND10    INR     DEXP,B          YES. BUMP DECIMAL EXPONENT                    07 04399
005351 005101 A     4400          INCR    1                                                             07 04400
005352 055001 A     4401          STA     1,X             SHIFT CHB RIGHT 1                             07 04401
                    4402 RNDX     POPJ                    EXIT                                    FG 07 04402
005353 105065 A
                    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
005354 016154 A     4422 RPB      TRAB    RWFL,LF,RPB10       TEST IF LOGICAL FILE                      07 04422
005355 006441 A
005356 005363 R
                    4423 ******************************                                                07 04423
                    4424 * LOGICAL FILE - SET UP FCB *                                                07 04424
                    4425 ******************************                                                07 04425
005357 036010 A     4426          LDX     ADFCB,B         POINT X AT FCB                                07 04426
                    4427          MOVBAX  PRECNO,3        MOVE PHYSICAL RECNO TO FCB(3)                 07 04427
005360 016145 A
005361 055003 A
005362 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
005363 010464 A     4432 RPB10    LDA     CIO             CALL V$IOC TO DO I/O                    V2    07 04432
005364 006505 A     4433          JSR     PSJ,X                                                   V2    07 04433
005365 004515 R
                    4434          TRAB    RWFL,IN,RPB11     INITIALIZING (                        E.1   07 04434
005366 016154 A
005367 006446 A
005370 005376 R
005371 016020 A     4435          LDA     APBF,B          YES                                           E.1   07 04435
005372 126143 A     4436          ADD     PBSZ,B                                                        E.1   07 04436
005373 146027 A     4437          SUB     PLOF,B          COMPUTE REMAINING PHYSICAL WORD COUNT          E.1   07 04437
005374 001000 A     4438          JMP     RPB12                                                         E.1   07 04438
005375 005400 R
005376 036016 A     4439 RPB11    LDX     ANRB,B          NOT INITIALIZING                              E.1   07 04439
005377 015144 A     4440          LDA     PBWC,X          XFER I/O WORD COUNT FROM V$FORTIO             E.1   07 04440
005400 056144 A     4441 RPB12    STA     PBWC,B                                                        E.1   07 04441
                    4442          TRAB    RWFL,LF,RPB15     LOGICAL FILE ?                          V2    07 04442
005401 016154 A
005402 006441 A
005403 005406 R
005404 006400 A     4443          BT      ASET+RM,RPB20     YES. RMD ?                              V2    07 04443
005405 005411 R
                    4444 RPB15    MOVBAB  PBWC,LRSZ       NO. UPDATE LOGICAL WORD COUNT             V2    07 04444
005406 016144 A
005407 056121 A
                    4445          POPJ                    EXIT                                    FG    07 04445
005410 105065 A
                    4446 RPB20    ADDBB   PRECNO,PBRC,PRECNO      BUMP PHYSICAL RECORD NUMBER             07 04446
005411 016145 A
005412 126142 A
005413 056145 A
                    4447          POPJ                    EXIT                                    FG    07 04447
005414 105065 A
                    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
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                 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
005415 036016 A 4471 SCH     LDX     ANRB,B                                               07 04471
005416 005041 A 4472         TXA                     GET DATA BLOCK ADDRESS               07 04472
005417 006120 A 4473         ADDI    CHNHDR-10       ADD BIAS                         V2  07 04473
005420 000037 A
005421 056146 A 4474         STA     PRLINK,B        POINT PREVIOUS LINK AT CHAIN HEADER  07 04474
005422 015120 A 4475         LDA     LNKCNT,X        GET LINK COUNT                       07 04475
005423 056052 A 4476         STA     COUNT,B         STORE AS LOOP COUNT                  07 04476
005424 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
005425 016052 A 4481 SCHLP   LDA     COUNT,B                                              07 04481
005426 001010 A 4482         JAZ     SCHY            FLAG NO FIND BY EXIT WITH A=0     FG 07 04482
005427 005443 R
005430 005311 A 4483         DAR                     DECREMENT COUNT                      07 04483
005431 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
005432 015013 A 4498 SCH5    LDA     11,X                                                 07 04498
005433 146167 A 4499         SUB     UNIT,B          COMPARE WITH U                       07 04499
005434 001010 A 4500         JAZ     SCHX            EXIT ON FIND WITH X=FCB ADDRESS      07 04500
005435 005442 R
005436 076146 A 4501         STX     PRLINK,B        UPDATE PREVIOUS LINK                 07 04501
005437 035012 A 4502         LDX     10,X            POINT X AT NEXT LINK                 07 04502
005440 001000 A 4503         JMP     SCHLP           LOOP TILL CHAIN EXHAUSTED            07 04503
005441 005425 R
005442 005041 A 4504 SCHX    TXA                     FLAG FIND BY A.NE.0 (FCB ADDRESS)    07 04504
                 4505 SCHY    POPJ                    EXIT                             FG 07 04505
005443 105065 A
                 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
                 4518 ******************************************************************* 07 04518
005444 005024 A 4520 SHA     TBX                     LOAD X AS BASE POINTER               07 04520
                 4521 SHAL    TNAX    COUNT,SHA50     TEST DIRECTION OF SHIFT          V2  07 04521
005445 015052 A
005446 001004 A
005447 005473 R
005450 001010 A 4522         JAZ     SHAX            EXIT WHEN FINISHED                   07 04522
005451 005510 R
005452 005311 A 4523         DAR                     DECREMENT SHIFT COUNT                07 04523
005453 055052 A 4524         STA     COUNT,X                                              07 04524
                 4525 ***************                                                     07 04525
                 4526 * RIGHT SHIFT *                                                     07 04526
                 4527 ***************                                                     07 04527
005454 025006 A 4528         LDB     ACC+3,X                                              07 04528
005455 015005 A 4529         LDA     ACC+2,X                                              07 04529
005456 004501 A 4530         LASR    1                                                    07 04530
005457 065006 A 4531         STB     ACC+3,X         SHIFT ACC(3)                         07 04531
005460 025005 A 4532         LDB     ACC+2,X                                              07 04532
005461 015004 A 4533         LDA     ACC+1,X                                              07 04533
005462 004501 A 4534         LASR    1                                                    07 04534
005463 065005 A 4535         STB     ACC+2,X         SHIFT ACC(2)                         07 04535
005464 025004 A 4536         LDB     ACC+1,X                                              07 04536
005465 015003 A 4537         LDA     ACC,X                                                07 04537
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005466 004501 A 4538          LASR    1                                                    07 04538
005467 065004 A 4539          STB     ACC+1,X     SHIFT ACC(1)                             07 04539
005470 055003 A 4540          STA     ACC,X       SHIFT ACC(0)                             07 04540
005471 001000 A 4541          JMP     SHAL        LOOP TILL DONE                           07 04541
005472 005445 R
                4542 ****************                                                       07 04542
                4543 * LEFT SHIFT *                                                       07 04543
                4544 ****************                                                       07 04544
005473 015003 A 4545 SHA50    LDA     ACC,X                                                07 04545
005474 025004 A 4546          LDB     ACC+1,X                                              07 04546
005475 004401 A 4547          LASL    1                                                    07 04547
005476 055003 A 4548          STA     ACC,X       SHIFT ACC(0)                             07 04548
005477 015004 A 4549          LDA     ACC+1,X                                              07 04549
005500 025005 A 4550          LDB     ACC+2,X                                              07 04550
005501 004401 A 4551          LASL    1                                                    07 04551
005502 055004 A 4552          STA     ACC+1,X     SHIFT ACC(1)                             07 04552
005503 015005 A 4553          LDA     ACC+2,X                                              07 04553
005504 025006 A 4554          LDB     ACC+3,X                                              07 04554
005505 004401 A 4555          LASL    1                                                    07 04555
005506 055005 A 4556          STA     ACC+2,X     SHIFT ACC(2)                             07 04556
005507 065006 A 4557          STB     ACC+3,X     SHIFT ACC(3)                             07 04557
005510 005042 A 4558 SHAX     TXB                 RESTORE BASE REGISTER B                  07 04558
                4559          POPJ                EXIT                                 FG  07 04559
005511 105065 A
                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       RESTORE 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
                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 D )  *  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 = BLBF + BFPT/2                                      *  07 04615
                4616 *        BUFL(BIT 5C) = 1 IF LOGICAL FILE PHYSICALLY POSITIONED BACKWARD 07 04616
                4617 *                                                                   *  07 04617
                4618 * ERRORS: ER1 IF W OUTSIDE LOGICAL RECORD                          *  07 04618
                4619 *                                                                   *  07 04619
                4620 ********************************************************************* 07 04620
        005512 R 4622 TIN      EQU     *                                                    07 04622
        005512 R 4623 TOUT     EQU     *                                                    07 04623
                4625          MOVBAB  BFPT,SAVE   SAVE CURRENT VALUE OF BUFFER CHAR PTR    07 04625
005512 016026 A
005513 056032 A
005514 016170 A 4626          LDA     W,B         GET W                                    07 04626
005515 005311 A 4627          DAR                 CONVERT FROM BASE 1 TO BASE 0            07 04627
005516 056026 A 4628          STA     BFPT,B      STORE AS BUFFER CHARACTER POINTER        07 04628
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005517 146032 A 4629          SUB     SAVE,B                                          07 04629
005520 001004 A 4630          JAN     TI010     TEST DIRECTION OF REPOSITION      V2  07 04630
005521 005531 R
                4631 **********************                                        V2  07 04631
                4632 * POSITION FORWARD *                                         V2  07 04632
                4633 **********************                                        V2  07 04633
005522 016122 A 4634          LDA     LRSZ,B    YES                                   07 04634
005523 004241 A 4635          LRLA    1         GET LOGICAL RECORD BYTE COUNT         07 04635
005524 146170 A 4636          SUB     W,B                                             07 04636
005525 001004 A 4637          JAN     ER1       ERROR 1/ W OUTSIDE RECORD /           07 04637
005526 005157 R
005527 001000 A 4638          JMP     TIOLP                                           07 04638
005530 005574 R
                4639 **********************                                        V2  07 04639
                4640 * POSITION BACKWARD *                                        V2  07 04640
                4641 **********************                                        V2  07 04641
005531 016026 A 4642 TI010    LDA     BFPT,B                                          07 04642
005532 004341 A 4643          LSRA    1         GET WORD POSITION                     07 04643
005533 126027 A 4644          ADD     ALBF,B    GET ADDRESS                           07 04644
005534 146020 A 4645          SUB     APBF,B    COMPARE WITH BUFFER START ADDRESS     07 04645
005535 001002 A 4646          JAP     TI020     EXIT IF STILL IN BUFFER               07 04646
005536 005561 R
                4647 **********************                                        07 04647
                4648 * REPOSITION BUFFER *                                        07 04648
                4649 **********************                                        07 04649
005537 036010 A 4650          LDX     ADFCB,B                                         07 04650
005540 015015 A 4651          LDA     13,X      GET BUFFER RECORD NUMBER              07 04651
005541 146142 A 4652          SUB     PBRC,B                                          07 04652
005542 056145 A 4653          STA     PRECNO,B  BACK UP FILE                          07 04653
                4654          ADBBB   ALBF,PBSZ,ALBF    BUMP LOGICAL BUFFER ADDRESS   07 04654
005543 016027 A
005544 126143 A
005545 056027 A
                4655          MOVBAB  RWFL,SAVE+1   SAVE FLAG WORD                    07 04655
005546 016154 A
005547 056033 A
005550 006451 A 4656          BT      ARST+WR,TI015     WRITE ?                   V2  07 04656
005551 005554 R
005552 110424 A 4657          ORA     RBS       YES. SET READ BEFORE WRITE FLAG     V2  07 04657
005553 056154 A 4658          STA     RWFL,B                                            07 04658
                4659 TI015    PUSHJ   RFL       REPOSITION FILE                   V2  07 04659
005554 105025 A
005555 005174 R
005556 016033 A 4660          LDA     SAVE+1,B  RESTORE FLAG WORD                       07 04660
005557 110426 A 4661          ORA     SCS       SET CLEAR SUPPRESS FLAG           V2  07 04661
005560 056154 A 4662          STA     RWFL,B                                            07 04662
                4663 TI020    DABB    ALBF,BFWPT    INITIALIZE BUFFER WORD POINTER      07 04663
005561 016027 A
005562 005311 A
005563 056025 A
005564 016020 A 4664          LDA     APBF,B                                          07 04664
005565 126143 A 4665          ADD     PBSZ,B                                          07 04665
005566 146027 A 4666          SUB     ALBF,B                                          07 04666
005567 056144 A 4667          STA     PBWC,B    REINITIALIZE PHYSICAL WORD COUNT      07 04667
                4668          MOVBAB  LRSZ,LRWC     ALSO LOGICAL WORD COUNT           07 04668
005570 016122 A
005571 056123 A
                4669          ZAB     SAVE      ALSO CHAR COUNTER                     07 04669
005572 005001 A
005573 056032 A
                4670 ********************                                          07 04670
                4671 * POSITION LOOP *                                           07 04671
                4672 ********************                                          07 04672
005574 016026 A 4673 TIOLP    LDA     BFPT,B                                          07 04673
005575 146032 A 4674          SUB     SAVE,B                                          07 04674
005576 001010 A 4675          JAZ     FRS85     EXIT TO FORMAT SCAN WHEN DONE         07 04675
005577 001020 R
005600 016032 A 4676          LDA     SAVE,B                                          07 04676
005601 046032 A 4677          INR     SAVE,B    BUMP CHAR COUNTER                     07 04677
005602 004257 A 4678          LRLA    15                                              07 04678
005603 001004 A 4679          JAN     TIOLP     WORD BOUNDARY ?                       07 04679
005604 005574 R
                4680          PUSHJ   GBA       YES. GET NEXT BUFFER ADDRESS      V2  07 04680
005605 105025 A
005606 001072 R
005607 001000 A 4681          JMP     TIOLP     LOOP TILL DONE                        07 04681
005610 005574 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(END) 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 04694
                4695 ********************************************************************** 07 04695
005611 016154 A 4697 TRM      LDA     RWFL,B                                      V2  07 04697
005612 110425 A 4698          ORA     TRS       SET TERMINATE FLAG                V2  07 04698
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005613 056154 A 4699          STA     RWFL,B
005614 006441 A 4700          BT      ARST+LF,TRM20     TEST LOGICAL FILE                    V2 07 04699
005615 005641 R                                                                              V2 07 04700
                4701 ****************
                4702 * LOGICAL FILE *                                                        07 04701
                4703 ****************                                                        07 04702
                                                                                            07 04703
005616 006440 A 4704          BT      ARST+RM,TRM20     RMD ?                                V2 07 04704
005617 005641 R
005620 006451 A 4705          BT      ARST+WR,TRM10     YES. WRITE ?                         V2 07 04705
005621 005625 R
005622 056154 A 4706          STA     RWFL,B                                                 07 04706
                4707          PUSHJ   RCL               YES. RECYCLE LOGICAL BUFFER          V2 07 04707
005623 105025 A
005624 004757 R
005625 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
005626 016122 A
005627 055000 A
005630 015002 A 4710          LDA     2,X               GET ACCESS MODE FROM FCB             07 04710
005631 007401 A 4711          SOF                                                            07 04711
005632 006410 A 4712          BT      ASET+8,*+3        SET OVFL IF SEQUENTIAL               07 04712
005633 005635 R
005634 007400 A 4713          ROF                                                            07 04713
005635 016160 A 4714          LDA     SVRECN,B          RESTORE RECORD NUMBER IF DIRECT      07 04714
005636 003001 A 4715          XOF     TRMI              OTHERWISE UPDATE                     07 04715
005637 005700 R
005640 055003 A 4716          STA     3,X               STORE IN FCB                         07 04716
005641 010422 A 4717 TRM20    LDA     CEX                                                    07 04717
                4718          PUSHF                     PUSH EXIT OF                         07 04718
005642 036016 A
005643 035000 A
005644 005344 A
005645 055000 A
005646 005041 A
005647 036016 A
005650 055000 A
                4719          TRAB    RWFL,LF,TRM30     LOGICAL ?                            V2 07 04719
005651 016154 A
005652 006441 A
005653 005661 R
005654 006400 A 4720          BT      ASET+RM,CAN       YES. EXIT IF RMD                     V2 07 04720
005655 000065 R
005656 036010 A 4721          LDX     ADFCB,B                                                V2 07 04721
                4722          MOVBAX  PBSZ,0            IF NON-RMD, SET FCB(0) = PBSZ        V2 07 04722
005657 016143 A
005660 055000 A
                4723 TRM30    TRAB    RWFL,WR,CAN       EXIT ON READ                         D.1 07 04723
005661 016154 A
005662 006431 A
005663 000065 R
005664 006412 A 4724          BT      EC,CAN            EXIT FOR ENCODE/DECODE                PD 07 04724
005665 000065 R
005666 010464 A 4725          LDA     CIO                                                    07 04725
                4726          PUSHF                     WRITE LAST NON-LOGICAL RECORD        07 04726
005667 036016 A
005670 035000 A
005671 005344 A
005672 055000 A
005673 005041 A
005674 036016 A
005675 055000 A
005676 001000 A 4727          JMP     CAN               EXIT TO V$FORTIO                     07 04727
005677 000065 R
005700 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 V$FORTIO 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
005701 105025 A
005702 001436 R
                4747          PUSHJ   GBA               GET BUFFER ADDRESS                   V2 07 04747
005703 105025 A
005704 001072 R
                4748          TSAB    RWFL,WR,UIO4      TEST INPUT OR OUTPUT                 V2 07 04748
005705 016154 A
005706 006411 A
005707 005716 R
                4749 *********                                                              07 04749
                4750 * INPUT *                                                            07 04750
                4751 *********                                                              07 04751
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005710 036025 A 4752          LDX     BFWPT,B     POINT X AT DATA WORD IN BUFFER                07 04752
005711 015000 A 4753          LDA     0,X         GET DATA WORD                                 07 04753
005712 036113 A 4754          LDX     ITEMAD,B    POINT X AT LIST ITEM                          07 04754
005713 055000 A 4755          STA     0,X         STORE INPUT DATA WORD IN LIST ITEM            07 04755
005714 001000 A 4756          JMP     UIO         LOOP UNTIL DONE                               07 04756
005715 005701 R
                4757 **********                                                                  07 04757
                4758 * OUTPUT *                                                                  07 04758
                4759 **********                                                                  07 04759
005716 036113 A 4760 UIO4     LDX     ITEMAD,B    POINT X AT LIST ITEM                          07 04760
005717 015000 A 4761          LDA     0,X         GET DATA WORD                                 07 04761
005720 036025 A 4762          LDX     BFWPT,B     POINT X AT DATA WORD IN BUFFER                07 04762
005721 055000 A 4763          STA     0,X         STORE DATA WORD IN OUTPUT BUFFER              07 04763
005722 001000 A 4764          JMP     UIO         LOOP UNTIL DONE                               07 04764
005723 005701 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
       005724 R 4779 XIN      EQU     *                                                         07 04779
       005724 R 4780 XOUT     EQU     *                                                         07 04780
                4782          MOVBAB  BLNK1,BCHAR LOAD BLANK AS REPEAT CHARACTER          V2    07 04782
005724 016202 A
005725 056030 A
                4783          MOVBAB  N,COUNT     SET REPEAT COUNT TO N                         07 04783
005726 016125 A
005727 056052 A
                4784          MOVBAB  ABSCB,ASCB  SET SCB TO BUFFER                             07 04784
005730 016002 A
005731 056021 A
                4785          PUSHJ   RCH         REPEAT CHARACTER I/O N TIMES            V2    07 04785
005732 105025 A
005733 004715 R
005734 001000 A 4786          JMP     FRS5        RESUME FORMAT SCAN                            07 04786
005735 000430 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
                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
       005736 R 4806 ZIN      EQU     *                                                         07 04806
       005736 R 4807 ZOUT     EQU     *                                                         07 04807
                4809          ZAB     AIBUF-1     SET LIST ITEM SCB(0)=0 (BYTE COUNT)           07 04809
005736 005001 A
005737 056107 A
                4810          MOVBAB  ITEMAD,AIBUF SET LIST ITEM SCB(1)=ITEM ADDRESS            07 04810
005740 016113 A
005741 056110 A
005742 016171 A 4811          LDA     WT,B                                                      07 04811
005743 005111 A 4812          JAR                                                               07 04812
005744 004301 A 4813          ASRA    1           (A)=BYTES TO PROCESS                          07 04813
005745 146101 A 4814          SUB     IIBSZ,B                                                   07 04814
005746 056052 A 4815          STA     COUNT,B     EXCESS BYTES                                  07 04815
                4816          MOVBAB  BLNK1,BCHAR SLEW THRU W/2-IIBSZ CHAR                      07 04816
005747 016202 A
005750 056030 A
                4817          PUSHJ   RCH                                                       07 04817
005751 105025 A
005752 004715 R
                4818          TSAB    RWFL,WR,ZIO4 I/O TEST                                     07 04818
005753 016154 A
005754 006411 A
005755 006010 R
                4820 *        INPUT.                                                            07 04820
                4821 ZIO1     PUSHJ   CBC         GET BUFFER CHARACTER                          07 04821
005756 105025 A
005757 000070 R
                4822          PUSHJ   ZIO6        INPUT CHARACTER TEST                          07 04822
005760 105025 A
005761 006031 R
                4823          MOVBAB  BCHAR,ICHAR                                               07 04823
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005762 016030 A
005763 056111 A
                4824            TZAB    WT,ZI02         FIELD WIDTH EXHAUSTED                   07 04824
005764 016171 A
005765 001010 A
005766 005777 R
                4825            PUSHJ   CBC             GET NEXT CHARACTER                      07 04825
005767 105025 A
005770 000070 R
                4826            PUSHJ   ZI06            INPUT CHARACTER TEST                    07 04826
005771 105025 A
005772 006031 R
005773 016111 A 4827            LDA     ICHAR,B         APPEND RT HALF                          07 04827
005774 004204 A 4828            ASLA    4                                                       07 04828
005775 126030 A 4829            ADD     BCHAR,B                                                 07 04829
005776 056111 A 4830            STA     ICHAR,B                                                 07 04830
                4831 ZI02       MOVBAB  AISCB,ASCB      SET SCB TO LIST ITEM                    07 04831
005777 016013 A
006000 056021 A
                4832            PUSHJ   PCH             PUT CHARACTER IN ITEM                   07 04832
006001 105025 A
006002 003276 R
                4833            TNZAB   WT,ZI01         LOOP UNTILL FIELD WIDTH EXHAUSTED       07 04833
006003 016171 A
006004 001016 A
006005 005756 R
006006 001000 A 4834            JMP     FRS65           TO FORMAT SCAN                          07 04834
006007 001003 R
                4836 *          OUTPUT                                                          07 04836
                4837 ZI04       MOVBAB  AISCB,ASCB      SET SCB TO LIST ITEM                    07 04837
006010 016013 A
006011 056021 A
                4838            PUSHJ   ICC             INPUT CHARACTER FROM LIST ITEM          07 04838
006012 105025 A
006013 001612 R
                4839            PUSHJ   ZI08            OUTPUT CHARACTER                        07 04839
006014 105025 A
006015 006054 R
006016 016111 A 4840            LDA     ICHAR,B                                                 07 04840
006017 004304 A 4841            ASRA    4                                                       07 04841
006020 016111 A 4842            LDA     ICHAR,B                                                 07 04842
006021 006150 A 4843            ANAI    0177            GET RT HALF                             07 04843
006022 000177 A
                4844            PUSHJ   ZI08            OUTPUT CHARACTER                        07 04844
006023 105025 A
006024 006054 R
                4845            PUSHJ   OCB             OUTPUT CHARACTER TO BUFFER              07 04845
006025 105025 A
006026 002441 R
006027 001000 A 4846            JMP     ZI04            LOOP UNTILL DONE                        07 04846
006030 006010 R
                4848 *          TEST INPUT CHARACTER                                            07 04848
006031 016030 A 4849 ZI06       LDA     BCHAR,B                                                 07 04849
006032 006140 A 4850            SUBI    '0'                                                     07 04850
006033 000260 A
006034 001004 A 4851            JAN     ER3                                                     07 04851
006035 005155 R
006036 056030 A 4852            STA     BCHAR,B                                                 07 04852
006037 140471 A 4853            SUB     TEN                                                     07 04853
006040 001004 A 4854            JAN     ZI07            0-9                                     07 04854
006041 006053 R
006042 140467 A 4855            SUB     SEVEN                                                   07 04855
006043 001004 A 4856            JAN     ER3                                                     07 04856
006044 005155 R
006045 140467 A 4857            SUB     SEVEN                                                   07 04857
006046 001002 A 4858            JAP     ER3                                                     07 04858
006047 005155 R
006050 006120 A 4859            ADDI    '0'                                                     07 04859
006051 000020 A
006052 056030 A 4860            STA     BCHAR,B                                                 07 04860
                4861 ZI07       POPJ                    EXIT                                    07 04861
006053 105065 A
                4863 *          GENERATE CHARACTER                                              07 04863
006054 016111 A 4864 ZI08       LDA     ICHAR,B                                                 07 04864
006055 006120 A 4865            ADDI    '0'                                                     07 04865
006056 000260 A
006057 056111 A 4866            STA     ICHAR,B                                                 07 04866
006060 006140 A 4867            SUBI    0272                                                    07 04867
006061 000272 A
006062 001004 A 4868            JAN     ZI09                                                    07 04868
006063 006066 R
006064 120467 A 4869            ADD     SEVEN                                                   07 04869
006065 056111 A 4870            STA     ICHAR,B                                                 07 04870
                4871 ZI09       POPJ                    EXIT                                    07 04871
006066 105065 A
                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
006067 R        4879 BASE       EQU     *               BASE ADDRESS OF DATA BLOCK              07 04879
                4880            IFF     NUC                                                FG   07 04880
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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 04887
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     V$YSDC      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 VCHNHD   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
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 VPRECN   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 XFER 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 VII1     CONT                                                         FG    07 04973
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                 4974 NUC1    CONT                                                    FG 07 04974
          006067 R 4975 VZZZ    EQU     *               END OF DATA BLOCK                 07 04975
                 4976          END                                                       07 04976
ENTRY NAMES
004633 R V$RER1  000000 R V$RERF  000000 A V$RERN  004633 R V$RERR
EXTERNAL NAMES
004317 E BIFCB   004320 E BOFCB   004322 E GOFCB   004316 E LOFCB
004315 E PIFCB   004323 E POFCB   004313 E SIFCB   004321 E SSFCB
000000 E V$EXEC
SYMBOLS
000001 A AACC    000002 A ABSCD   000003 A ACC     000007 A ACHB
000010 A ADFCB   000011 A AFSCB   000012 A AGPAR   000110 A AIBUF
000000 R AIN     000016 R AIOL1   000053 R AIOL2   000013 A AISCB
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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
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000017 A B15     000002 A B2      000003 A B3      000004 A B4
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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
000065 R CAN     000070 R CAN1    000070 R CBC     000077 R CBC4
000111 R CBC6    000467 A CBK     000020 A CDC     000424 A CEF
000021 A CEN     000421 A CER     000422 A CEX     000032 A CHB
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000125 R CLB4    000137 R CLB8    000141 R CLBLP   000151 R CLBX
000152 R CLS     000202 R CLS10   000212 R CLS15   000214 R CLS20
000243 R CLS30   000002 A CM      000016 A COPY    000052 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       000200 R D10     000472 A D15
000425 A D16     000013 A DA      000300 R DEF     000305 R DEF4
000310 R DEF8    000335 R DEO10   000333 R DEO5    000055 A DEXP
003325 R DIN     000313 R DOUT    000036 A DT      000012 A EC
000057 A EDEXP   000424 A EIGHT   003325 R EIN     000313 R EOUT
005157 R ER1     005156 R ER2     005155 R ER3     005154 R ER4
000060 A ERN     000064 A FCHAR   000065 A FCODE   000061 A FDLKEY
003325 R FIN     000465 A FIVE    000015 A FLF     000062 A FMPT
000423 A FOUR    000364 R FOUT    000016 A FPD     000457 A FPDR
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001521 R HIN     001566 R HIO10   001636 R HIO15   001532 R HIO2
001553 R HIO4    001556 R HIO6    001521 R HOUT    001612 R ICC
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005025 R RCP3    005135 R RCP35   005140 R RCP40   005031 R RCP5
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  504   AFSCB    1850  1869  1876  2034
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  719   AIOL1     723
  739   AIOL2     715   743
  509   AISCB     721   739  4831  4837
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511 ALBF 1541 1557 3163 3281 3329 3340 4179 4183 4285
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512 ALOC 775 2656 3191 3617 3807 3988 4489
514 ANPOJ 767 3959 3960
516 ANRB 358 363 841 958 979 2635 2673 2694 2793
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532	BFPT	1543	3199	3625	4625	4628	4642	4673		
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120	BFS	3157	3427	3586	3651					
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97	BR6	2115	2173							
99	BR8	2133	3690	4215						
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118	BS15	3105								
107	BS4	109								
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113	BS9	4599								
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851	CAN5	820	823	846						
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844	CANL2	849								
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881	CBC6	877	879							
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229	CDC	3152								
211	CER	4261								
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944	CLS	4048	4049							
965	CLS10	961								
968	CLS15	966								
972	CLS20	956	957							
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164	V$ST0	1298	1415	1921	2842	3407	3473	3775	4018	
165	V$ST1	3875								
166	V$ST2	796								
167	V$ST3	1319	1326	1421	1931	2848	3425	3444	3481	3781
		3863	3892	3979	4024					
4887	VACC	4885								
4903	VBSCB	4886								
4904	VCHB	4888								
4915	VFSCB	4890								
4916	VGDRP	4891								
21	VII	22	23	772	795	801	1297	1305	1317	1325
		1414	1420	1920	1930	2654	2841	2847	3189	3406
		3424	3443	3472	3480	3615	3774	3780	3805	3860
		3898	3900	4017	4023	4032	4057	4487	4563	4882
		4941								
850	VII1	802	2655	3190	3616	3806	3861	3901	4033	4058
		4488	4564	4883	4942					
1310	VIINUC	1306								
4925	VISCB	4892								
4939	VOPSTK	3965	4896							
1	VORTEX	19	21	3978						
4956	VSYSDC	4900								
659	W	724	1349	1369	4626	4636				
19	WCS	20	25	27	37	39	326	371		
330	WCS1	327	372							
332	WCS2	329	375							
201	WR	168	169	715	881	1393	1544	1806	1864	3200
		3630	3687	4087	4176	4185	4203	4282	4333	4656
		4705	4723	4748	4818					
168	WRR	733								
169	WRS	729	944	1410	3156	3585	3650			
661	WT	709	723	876	1216	1286	1369	2190	2160	2258
		2270	2292	2413	2419	2458	4811	4824	4833	
81	X	268	270	286	302	309	317	318	341	351
		359	361	364	378	420	468	484	780	811
		821	824	838	845	873	880	955	973	974
		980	983	990	992	1014	1016	1017	1019	1020
		1022	1023	1025	1180	1181	1183	1243	1244	1245
		1249	1250	1251	1301	1417	1423	1585	1594	1609
		1613	1617	1618	1621	1622	1623	1626	1632	1635
		1639	1642	1645	1654	1658	1745	1777	1902	1903
		1908	1910	1914	1925	1927	1934	2015	2189	2191
		2200	2201	2202	2203	2263	2267	2321	2324	2326

2328 2330 2331 2333 2334 2336 2337 2339 2340
2342 2365 2377 2378 2380 2381 2382 2384 2385
2386 2388 2389 2390 2392 2502 2535 2570 2572
2658 2660 2665 2674 2676 2680 2683 2688 2695
2705 2713 2716 2720 2721 2723 2731 2732 2737
2794 2803 2804 2811 2813 2817 2819 2833 2844
2852 2887 2888 2893 2895 2902 2973 2974 2976
2977 3005 3007 3009 3010 3011 3013 3048 3050
3066 3068 3089 3090 3091 3093 3094 3095 3099
3100 3107 3108 3126 3128 3166 3171 3182 3184
3185 3192 3193 3196 3265 3274 3282 3285 3301
3303 3305 3308 3310 3316 3318 3319 3320 3323
3324 3326 3327 3328 3329 3337 3365 3366 3374
3388 3401 3414 3418 3432 3447 3477 3484 3490
3501 3503 3508 3514 3589 3595 3597 3607 3610
3612 3619 3622 3677 3679 3682 3684 3686 3689
3691 3718 3723 3765 3777 3809 3812 3878 3880
3884 3891 3903 3914 3915 3923 3930 3933 3935
3937 3941 3950 3951 3953 3955 3957 3960 3961
3964 3993 3998 4009 4010 4020 4026 4209 4211
4214 4216 4220 4223 4224 4226 4260 4305 4322
4323 4339 4341 4382 4390 4391 4395 4401 4428
4433 4440 4475 4477 4492 4494 4498 4502 4524
4528 4529 4531 4532 4533 4535 4536 4537 4539
4540 4545 4546 4548 4549 4550 4552 4553 4554
4556 4557 4587 4593 4595 4651 4710 4716 4753
4755 4761 4763

663 XFFL 3202 3635 3762 3974 4013
665 XFL 1098 1380 1816 2545
667 XFW 1100 1381 1815 2463
4779 XIN 1485
4780 XOUT 1486
669 XSG 2092 2181 2206
673 YYY 3956
170 ZERO 210
671 ZFW 1054 1382 2522 2529
4806 ZIN 1477
4821 ZI01 4833
4831 ZI02 4824
4837 ZI04 4818 4846
4849 ZI06 4822 4826
4861 ZI07 4854
4864 ZI08 4839 4844
4871 ZI09 4968
4807 ZOUT 1478

```
000006 A     1 VORTEX SET     6              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$RERR IN NUCLEUS                                     * 07 00013
            14 *       BIT 2: SET IF WCS AVAILABLE                                         * 07 00014
            15 *                                                                           * 07 00015
            16 *                                                                           * 07 00016
            17 ***************************************************************************** 07 00017
000001 A    19 WCS     SET     VORTEX/4       SET WCS=BIT 2 OF VORTEX                  FG 07 00019
000004 A    20 NUC     SET     WCS*4                                                   FG 07 00020
000002 A    21 VII     SET     VORTEX-NUC                                              FG 07 00021
000001 A    22 NUC     SET     VII/2          SET NUC=BIT 1 OF VORTEX                  FG 07 00022
000000 A    23 VII     SET     VII-NUC-NUC    SET VII=BIT 0 OF VORTEX                  FG 07 00023
            25         IFF     WCS                                                        07 00025
            26         TITLE   V$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$RERF  EQU     *              FIRMWARE NAME                               07 00043
            45         IFT     NUC                                                    FG 07 00045
000001 A    46 V$RERN  EQU     1              V$RERN = 1 IF V$RERR IN NUCLEUS         FG 07 00046
            47         IFF     NUC                                                    FG 07 00047
            48 V$RERN  EQU     0              V$RERN = 0 IF V$RERR IN OM              FG 07 00048
            50 *************                                                              07 00050
            51 * EXTERNALS *                                                             07 00051
            52 *************                                                              07 00052
            53         EXT     SIFCB                                                      07 00053
            54         EXT     PIFCB                                                      07 00054
            55         EXT     LDFCB                                                      07 00055
            56         EXT     LIFCB                                                      07 00056
            57         EXT     BDFCB                                                      07 00057
            58         EXT     SSFCB                                                      07 00058
            59         EXT     GDFCB                                                      07 00059
            60         EXT     PDFCB                                                      07 00060
            61         EXT     V$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                                                    07 00103
000421 A  104 BS0     SET     MT+1                                              V2    07 00104
000422 A  105 BS1     SET     MT+2                                                     07 00105
000424 A  106 BS3     SET     MT+4                                                     07 00106
000425 A  107 BS4     SET     MT+5                                                     07 00107
000426 A  108 BS5     SET     MT+6                                                     07 00108
000425 A  109 D16     SET     PS4                                                      07 00109
000423 A  110 BS2     SET     MT+3                                                     07 00110
000430 A  111 BS7     SET     MT+8                                                     07 00111
000431 A  112 BS8     SET     MT+9                                                     07 00112
000432 A  113 BS9     SET     MT+10                                                    07 00113
000433 A  114 BS10    SET     MT+11                                                    07 00114
000434 A  115 BS11    SET     MT+12                                                    07 00115
000435 A  116 BS12    SET     MT+13                                                    07 00116
000437 A  117 BS14    SET     MT+15                                                    07 00117
000440 A  118 BS15    SET     MT+16                                                    07 00118
000451 A  119 BFR     SET     BR0+BF    RESET BF FLAG                           V2    07 00119
000431 A  120 BFS     SET     BS0+BF    SET BF FLAG                             V2    07 00120
000430 A  121 BXBIAS  SET     BS7       BINARY EXPONENT BIAS                    V2    07 00121
000472 A  122 D15     SET     PM17                                                     07 00122
000465 A  123 FIVE    SET     MT+37                                                    07 00123
000015 A  124 FLF     SET     SH+LF     FCB LF FLAG                             V2    07 00124
000423 A  125 FOUR    SET     MT+3                                                     07 00125
000016 A  126 FPD     SET     SH+PD     FCB PD FLAG                             V2    07 00126
000457 A  127 FPDR    SET     BR0+FPD   RESET FCB PD FLAG                       V2    07 00127
000437 A  128 FPDS    SET     BS0+FPD   SET FCB PD FLAG                         V2    07 00128
000017 A  129 FRB     SET     SH+RB     FCB RB FLAG                             V2    07 00129
000440 A  130 FRBS    SET     BS0+FRB   SET FCB RB FLAG                         V2    07 00130
000014 A  131 FRM     SET     SH+RM     FCB RM FLAG                             V2    07 00131
000430 A  132 GFS     SET     BS0+GF    SET GLOBAL FCB FLAG                     V2    07 00132
000424 A  133 EIGHT   EQU     MT+4                                                     07 00133
000447 A  134 INR     SET     BR0+IN    RESET IN BIT                            V2    07 00134
000427 A  135 INS     SET     BS0+IN    SET IN FLAG                             V2    07 00135
000422 A  136 LFS     SET     BS0+LF    SET LF FLAG                             V2    07 00136
000462 A  137 LHW     SET     MT+34                                                    07 00137
000470 A  138 NINE    SET     MT+40                                                    07 00138
000421 A  139 ONE     SET     MT+1                                                     07 00139
000443 A  140 PDR     SET     BR0+PD    RESET PD FLAG                           V2    07 00140
000423 A  141 PDS     SET     BS0+PD    SET PD FLAG                             V2    07 00141
000424 A  142 RBS     SET     BS0+RB    SET RB BIT                              V2    07 00142
000463 A  143 RHW     SET     MT+35                                                    07 00143
000446 A  144 SCR     SET     BR0+SC    RESET SC BIT                            V2    07 00144
000467 A  145 SEVEN   SET     MT+39                                                    07 00145
000466 A  146 SIX     SET     MT+38                                                    07 00146
000001 A  147 BR      SET     1         STACK B-REGISTER                        V2    07 00147
000003 A  148 PR      SET     3         STACK P-REGISTER                        V2    07 00148
000421 A  149 RMS     SET     BS0+RM    SET RM BIT                              V2    07 00149
000426 A  150 SCS     SET     BS0+SC    SET SC BIT                              V2    07 00150
000471 A  151 TEN     SET     MT+41                                                    07 00151
000464 A  152 THREE   SET     MT+36                                                    07 00152
000425 A  153 TRS     SET     BS0+TR    SET TR BIT                              V2    07 00153
000422 A  154 TWO     SET     MT+2                                                     07 00154
000414 A  155 V$BVN   SET     LC+76     BOTTOM OF VORTEX NUCLEUS                       07 00155
000301 A  156 V$CPL   SET     LC+1      CURRENT PRIORITY LEVEL                         07 00156
000302 A  157 V$CRS   SET     LC+2      POINTER TO REENTRANT STACK                     07 00157
000355 A  158 V$DSTB  SET     LC+45                                                    07 00158
000316 A  159 V$LUP   SET     LC+14     1ST WORD OF BACKGROUND                         07 00159
000317 A  160 V$LLUP  SET     LC+15     LAST WORD OF BACKGROUND                        07 00160
000400 A  161 V$LUT1  SET     LC+64                                                    07 00161
000401 A  162 V$LUT2  SET     LC+65                                                    07 00162
000402 A  163 V$LUT3  SET     LC+66                                                    07 00163
000334 A  164 V$ST0   SET     LC+28     EXEC STATE 0                            V2    07 00164
000335 A  165 V$ST1   SET     LC+29     EXEC STATE 1                            V2    07 00165
000336 A  166 V$ST2   SET     LC+30     EXEC STATE 2                            V2    07 00166
000337 A  167 V$ST3   SET     LC+31     EXEC STATE 3                            V2    07 00167
000452 A  168 WRR     SET     BR0+WR    RESET WR BIT                            V2    07 00168
000432 A  169 WRS     SET     BS0+WR    SET WR BIT                              V2    07 00169
000420 A  170 ZERO    EQU     MT                                                       07 00170
          172 ***********************                                                07 00172
          173 * CHARACTER TYPE FLAGS *                                               07 00173
          174 ***********************                                                07 00174
000000 A  175 AL      SET     0         ALPHA CHAR BIT(EXCEPT P)                       07 00175
000001 A  176 BL      SET     1         BLANK CHAR BIT                                 07 00176
000002 A  177 CM      SET     2         ',' CHAR BIT                                   07 00177
000003 A  178 LP      SET     3         '(' CHAR BIT                                   07 00178
000004 A  179 MN      SET     4         '-' CHAR FLAG                                  07 00179
000005 A  180 NM      SET     5         NUMERIC CHAR BIT                               07 00180
000006 A  181 PL      SET     6         '+' CHAR BIT                                   07 00181
000007 A  182 PS      SET     7         'P' SCALE FACTOR                               07 00182
000010 A  183 PT      SET     8         '.' CHAR BIT                                   07 00183
000011 A  184 QT      SET     9         ' CHAR BIT                                     07 00184
000012 A  185 RP      SET     10        ')' CHAR BIT                                   07 00185
000013 A  186 SL      SET     11        '/' CHAR BIT                                   07 00186
          187 ***********************                                                07 00187
          188 * READ/WRITE FLAGS *                                                   07 00188
          189 ***********************                                                07 00189
000000 A  190 RM      SET     0         RMD FLAG                                V2    07 00190
000001 A  191 LF      SET     1         LOGICAL FILE FLAG                       V2    07 00191
000002 A  192 PD      SET     2         BUFFER POSTING FLAG                     V2    07 00192
000003 A  193 RB      SET     3         READ BEFORE WRITE FLAG                  V2    07 00193
000014 A  194 SH      SET     15-RB     FCB CONTROL FLAG SHIFT                  V2    07 00194
000004 A  195 TR      SET     4         TERMINATE FLAG                          V2    07 00195
000005 A  196 SC      SET     5         SUPPRESS CLEAR                          V2    07 00196
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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 ADDBB  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
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                    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     OPSTKP,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 V$FORTIO STACK *                                         07 00354
                    355 ************************************                                      07 00355
                    357 PUSHF   MAC                                                               07 00357
                    358         LDX     ANRB,B                                                    07 00358
                    359         LDX     OPSTKP,X                                                  07 00359
                    360         DXR                                                   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         LDA!    P(1)                                          V2          07 00377
                    378         JSR     PSJ,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
```

```
         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                                                    V2  07 00507
000110 A  508 AIBUF   SET     ISCB+1    LIST ITEM ADDRESS                              V2  07 00508
000013 A  509 AISCB   SET     LOC       ADDRESS OF LIST ITEM SCB                       V2  07 00509
000014 A  510 LOC     SET     LOC+1                                                    V2  07 00510
000027 A  511 ALBF    SET     BSCB+1    ADDRESS OF LOGICAL BUFFER                      V2  07 00511
000014 A  512 ALOC    SET     LOC       ALOC ENTRY FLAG                                V2  07 00512
000015 A  513 LOC     SET     LOC+1                                                    V2  07 00513
000015 A  514 ANPOJ   SET     LOC       ADDRESS OF V$FORTIO POP/JUMP                   V2  07 00514
000016 A  515 LOC     SET     LOC+1                                                    V2  07 00515
000016 A  516 ANRB    SET     LOC       ADDRESS OF V$FORTIO DATA BLOCK                 V2  07 00516
000017 A  517 LOC     SET     LOC+1                                                    V2  07 00517
000017 A  518 AOPSTK  SET     LOC       ADDRESS OF OP STACK                            V2  07 00518
000020 A  519 LOC     SET     LOC+1                                                    V2  07 00519
000020 A  520 APBF    SET     LOC       ADDRESS OF PHYSICAL BUFFER                     V2  07 00520
000021 A  521 LOC     SET     LOC+1                                                    V2  07 00521
000021 A  522 ASCB    SET     LOC       SCAN BLOCK ADDRESS                             V2  07 00522
000022 A  523 LOC     SET     LOC+1                                                    V2  07 00523
000022 A  524 ASFL    SET     LOC       '*' FLAG                                       V2  07 00524
000023 A  525 LOC     SET     LOC+1                                                    V2  07 00525
000023 A  526 ASYSDC  SET     LOC       ADDRESS OF SYSTEM DCB                          V2  07 00526
000024 A  527 LOC     SET     LOC+1                                                    V2  07 00527
000030 A  528 BCHAR   SET     BSCB+2    BUFFER CHARACTER                               V2  07 00528
000031 A  529 BCODE   SET     BSCB+3    BUFFER CHARACTER CODE                          V2  07 00529
000024 A  530 BEXP    SET     LOC       BINARY EXPONENT                                V2  07 00530
000025 A  531 LOC     SET     LOC+1                                                    V2  07 00531
000026 A  532 BFWPT   SET     BSCB      BUFFER CHARACTER POINTER                       V2  07 00532
000025 A  533 BFWPT   SET     LOC       BUFFER WORD POINTER                            V2  07 00533
000026 A  534 LOC     SET     LOC+1                                                    V2  07 00534
000026 A  535 BSCB    SET     LOC       BUFFER SCB                                     V2  07 00535
000032 A  536 LOC     SET     LOC+4                                                    V2  07 00536
000032 A  537 CHB     SET     LOC       DECIMAL DIGIT ARRAY                            V2  07 00537
000050 A  538 LOC     SET     LOC+14                                                   V2  07 00538
000050 A  539 CHBPT   SET     LOC       CHB ARRAY POINTER                              V2  07 00539
000051 A  540 LOC     SET     LOC+1                                                    V2  07 00540
000051 A  541 CHNHDR  SET     LOC       FCB CHAIN HEADER                               V2  07 00541
000052 A  542 LOC     SET     LOC+1                                                    V2  07 00542
000052 A  543 COUNT   SET     LOC       COUNTER                                        V2  07 00543
000053 A  544 LOC     SET     LOC+1                                                    V2  07 00544
000053 A  545 CVFL    SET     LOC       CHARACTER VALIDITY FLAGS                       V2  07 00545
000054 A  546 LOC     SET     LOC+1                                                    V2  07 00546
000054 A  547 D       SET     LOC       FRACTIONAL FIELD WIDTH                         V2  07 00547
000055 A  548 LOC     SET     LOC+1                                                    V2  07 00548
000055 A  549 DEXP    SET     LOC       DECIMAL EXPONENT                               V2  07 00549
000056 A  550 LOC     SET     LOC+1                                                    V2  07 00550
000056 A  551 DT      SET     LOC       WORKING FRACTIONAL FIELD WIDTH                 V2  07 00551
000057 A  552 LOC     SET     LOC+1                                                    V2  07 00552
000057 A  553 EDEXP   SET     LOC       EXPLICIT DECIMAL EXPONENT                      V2  07 00553
000060 A  554 LOC     SET     LOC+1                                                    V2  07 00554
000060 A  555 ERN     SET     LOC       ERROR NUMBER                                   V2  07 00555
000061 A  556 LOC     SET     LOC+1                                                    V2  07 00556
000064 A  557 FCHAR   SET     FSCB+2    FORMAT CHARACTER                               V2  07 00557
000065 A  558 FCODE   SET     FSCB+3    FORMAT CHARACTER CODE                          V2  07 00558
000061 A  559 FDLKEY  SET     LOC       FIELD DESCRIPTOR KEY                           V2  07 00559
000062 A  560 LOC     SET     LOC+1                                                    V2  07 00560
000062 A  561 FMPT    SET     FSCB      FORMAT STRING POINTER                          V2  07 00561
000063 A  562 FRMT    SET     FSCB+1    ADDRESS OF FORMAT STRING(0 IF NONE)            V2  07 00562
000062 A  563 FRPT    SET     FSCB      FORMAT STRING CURRENT POINTER                  V2  07 00563
000062 A  564 FSCB    SET     LOC       FORMAT STRING SCB                              V2  07 00564
000066 A  565 LOC     SET     LOC+4                                                    V2  07 00565
000066 A  566 GDRPC   SET     LOC       '(' GROUP DYNAMIC REPEAT COUNT                 V2  07 00566
000077 A  567 LOC     SET     LOC+9                                                    V2  07 00567
000071 A  568 GFRPT   SET     GDRPC+3   '(' GROUP FORMAT POINTER                       V2  07 00568
000074 A  569 GSRPC   SET     GDRPC+6   '(' GROUP STATIC REPEAT COUNT                  V2  07 00569
000111 A  570 ICHAR   SET     ISCB+2    LIST ITEM CHARACTER                            V2  07 00570
000077 A  571 IDEXP   SET     LOC       IMPLICIT DECIMAL EXPONENT                      V2  07 00571
000100 A  572 LOC     SET     LOC+1                                                    V2  07 00572
000100 A  573 IFW     SET     LOC       INTEGER FIELD WIDTH                            V2  07 00573
000101 A  574 LOC     SET     LOC+1                                                    V2  07 00574
000101 A  575 IISZ    SET     LOC       INDIVIDUAL ITEM BYTE SIZE                      V2  07 00575
000102 A  576 LOC     SET     LOC+1                                                    V2  07 00576
000102 A  577 IIWSZ   SET     LOC       INDIVIDUAL ITEM WORD SIZE                      V2  07 00577
000103 A  578 LOC     SET     LOC+1                                                    V2  07 00578
000103 A  579 INFL    SET     LOC       INITIAL ENTRY FLAG                             V2* 07 00579
000104 A  580 LOC     SET     LOC+1                                                    V2  07 00580
000104 A  581 IOCONT  SET     LOC       V$IOC CONTROL WORD                             V2  07 00581
000105 A  582 LOC     SET     LOC+1                                                    V2  07 00582
000105 A  583 IOLNK   SET     LOC       IOLINK CONTROL WORD                            V2  07 00583
000106 A  584 LOC     SET     LOC+1                                                    V2  07 00584
000106 A  585 IOSTAT  SET     LOC       I/O STATUS                                     V2  07 00585
000107 A  586 LOC     SET     LOC+1                                                    V2  07 00586
000107 A  587 ISCB    SET     LOC       ITEM SCB                                       V2  07 00587
000113 A  588 LOC     SET     LOC+4                                                    V2  07 00588
000113 A  589 ITEMAD  SET     LOC       ADDRESS OF LIST ITEM                           V2  07 00589
000114 A  590 LOC     SET     LOC+1                                                    V2  07 00590
000114 A  591 ITEMWC  SET     LOC       COUNT OF WORDS REMAINING IN ITEM               V2  07 00591
000115 A  592 LOC     SET     LOC+1                                                    V2  07 00592
000115 A  593 ITMINC  SET     LOC       LIST ITEM WORD INCREMENT                       V2  07 00593
000116 A  594 LOC     SET     LOC+1                                                    V2  07 00594
000116 A  595 ITMODE  SET     LOC       LIST ITEM MODE                                 V2  07 00595
000117 A  596 LOC     SET     LOC+1                                                    V2  07 00596
000123 A  597 LGOV    SET     LRWC      LOGICAL RECORD OVERLAP                         V2  07 00597
000117 A  598 LISTFL  SET     LOC       LIST DATA XFER FLAG                            V2  07 00598
000120 A  599 LOC     SET     LOC+1                                                    V2  07 00599
```

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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
```

```
                    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      704 AIN     EQU     *                                                               07 00704
      000000 R      705 AOUT    EQU     *                                                               07 00705
                    707         ZAB     AIBUF-1         SET LIST ITEM SCB(0) = 0 (BYTE COUNT)           07 00707
000000 003001 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 105025 A
000012 005125 R
                    715         TSAB    RWFL,WR,AIOL2       TEST IF INPUT OR OUTPUT                     07 00715
000013 016154 A
000014 006411 A
000015 000053 R
                    716 *********                                                                       07 00716
                    717 * INPUT *                                                                       07 00717
                    718 *********                                                                       07 00718
                    719 AIOL1   PUSHJ   OBC             INPUT BUFFER CHARACTER                  V2      07 00719
000016 105025 A
000017 000101 R
                    720         MOVBAB  BCHAR,ICHAR         MOVE CHAR FROM BUFF SCB TO ITEM SCB         07 00720
000020 016030 A
000021 056111 A
                    721         MOVBAB  AISCB,ASCB          SET SCB TO LIST ITEM                        07 00721
000022 016013 A
000023 056021 A
                    722         PUSHJ   PCH             PUT CHARACTER IN ITEM                   V2      07 00722
000024 105025 A
000025 003320 R
                    723         TNZAB   WT,AIOL1            LOOP TILL FIELD WIDTH WT EXHAUSTED          07 00723
000026 016171 A
000027 001016 A
000030 000016 R
                    724         SUTBBB  IIBSZ,W,COUNT       GET COUNT OF EXCESS CHARS IN ITEM           07 00724
000031 016101 A
000032 146170 A
000033 056052 A
000034 005311 A     725         DAR                                                                     07 00725
000035 001004 A     726         JAN     FRS65           EXIT TO FRS IF LIST ITEM FILLED                 07 00726
000036 001014 R
                    727         MOVBAB  BLNK1,ICHAR     LOAD BLANK AS FILL CHARACTER            V2      07 00727
000037 016202 A
000040 056111 A
000041 016154 A     728         LDA     RWFL,B                                                          07 00728
000042 110432 A     729         ORA     WRS             SET WRITE FLAG                          V2      07 00729
000043 056154 A     730         STA     RWFL,B                                                          07 00730
                    731         PUSHJ   RCH             FILL OUT ITEM WITH BLANKS               V2      07 00731
000044 105025 A
000045 005125 R
000046 016154 A     732         LDA     RWFL,B                                                          07 00732
000047 150452 A     733         ANA     WRR             RESTORE I/O MODE TO READ                V2      07 00733
000050 056154 A     734         STA     RWFL,B                                                          07 00734
000051 001000 A     735         JMP     FRS65           AND RETURN TO FORMAT SCAN                       07 00735
000052 001014 R
                    736 **********                                                                      07 00736
                    737 * OUTPUT *                                                                      07 00737
                    738 **********                                                                      07 00738
                    739 AIOL2   MOVBAB  AISCB,ASCB          SET SCB TO LIST ITEM                        07 00739
000053 016013 A
000054 056021 A
                    740         PUSHJ   ICC             INPUT CHARACTER FROM LIST ITEM          V2      07 00740
000055 105025 A
000056 001623 R
                    741         MOVBAB  ICHAR,BCHAR         MOVE CHAR FROM LIST SCB TO BUFF SCB         07 00741
000057 016111 A
000060 056030 A
                    742         PUSHJ   OCB             OUTPUT CHARACTER TO BUFFER/EXIT         V2      07 00742
000061 105025 A
000062 002452 R
000063 001000 A     743         JMP     AIOL2           LOOP TILL DONE                                  07 00743
000064 000053 R
                    744         EJEC                                                                    07 00744
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                    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
000065 036015 A     767 CAN     LDX     ANPOJ,B       POINT X AT V$FORTIO POP/JUMP        V2  07 00767
                    769         IFF     NUC                                               FG  07 00769
                    770         GOTO    NUC1                                              FG  07 00770
                    772         IFT     VII                                               FG  07 00772
                    773         GOTO    NUC2                                              FG  07 00773
000066 016014 A     775         LDA     ALOC,B        GET ALOC ENTRY FLAG                 FG  07 00775
000067 001016 A     776         JANZ    CAN1          TEST VORTEX BACKGROUND CALL TO NUCLEUS FG  07 00776
000070 000073 R
                    778 ************************************                                  07 00778
                    779 * EXIT TO V$FORTIO VIA DIRECT JUMP *                               FG  07 00779
                    780 ************************************                                  07 00780
                    782 NUC1    CONT                                                      FG  07 00782
000071 006705 A     783         IJMP    0,X                                               FG  07 00783
000072 000000 A
                    784 NUC2    CONT                                                      FG  07 00784
                    786 ********************************                                  FG  07 00786
                    787 * EXIT TO V$FORTIO VIA DEALOC *                                   FG  07 00787
                    788 ********************************                                  FG  07 00788
000073 R            790 CAN1    EQU     *                                                 FG  07 00790
                    792         IFF     NUC                                               FG  07 00792
                    793         GOTO    NUC1                                              FG  07 00793
                    795         IFT     VII                                               FG  07 00795
                    796         OME     MAP,V$ST2     SET EXEC STATE TO NO                V2  07 00796
000073 005021 A     797         TBA                   SAVE B                              V2  07 00797
000074 020302 A     798         LDB     V$CRS         POINT B AT ALOC STACK               V2  07 00798
000075 076003 A     799         STX     PR,B          STORE POP/JUMP ADDR IN P-REG FIELD  V2  07 00799
                    801         IFF     VII                                               FG  07 00801
                    802         GOTO    VII1                                              FG  07 00802
                    803         SPAC                                                      FG  07 00803
                    804 ************************************                                  FG  07 00804
                    805 * V$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 ********************************************************************** FG  07 00814
                    815 * LOOP TO FIND TOP OF RETURN ADDRESSES IN V$FORTIO STACK *          FG  07 00815
                    816 ********************************************************************** FG  07 00816
                    817         SPAC                                                      FG  07 00817
                    818         TXA                                                       FG  07 00818
                    819 CAN1    SUB     ADPSTK,B                                          FG  07 00819
                    820         JAP     CAN3          END OF STACK ?                      FG  07 00820
                    821         LDA     0,X           NO. GET OP FROM STACK               FG  07 00821
                    822         SUB     CEX                                               V2  07 00822
                    823         JAZ     CAN5          DONT SAVE STACK WITH EXIT OP        V2  07 00823
                    824         LDA     0,X           LOAD OP                             V2  07 00824
                    825         LSRA    6                                                 V2  07 00825
                    826         JANZ    CAN2          EXIT ON ADDRESS OP                  V2  07 00826
                    827         INCR    045           BUMP POINTER                        FG  07 00827
                    828         JMP     CAN1.1        AND CONTINUE                        V2  07 00828
                    829         SPAC                                                      FG  07 00829
                    830 ********************************************************************** FG  07 00830
                    831 * TOP OF RETURN ADDRESS STACK FOUND - MOVE FROM V$FORTIO TO V$RERR *  FG  07 00831
                    832 ********************************************************************** FG  07 00832
                    833         SPAC                                                      FG  07 00833
                    834 CAN2    TXA                                                       FG  07 00834
                    835         SUB     ADPSTK,B                                          V2  07 00835
                    836         CPA                                                       FG  07 00836
                    837         LDXI    BASE                                              V2  07 00837
                    838         STA     ROPSTP,X      STORE STACK ITEM COUNT-1            FG  07 00838
                    839         CPA                                                       FG  07 00839
                    840         INCR    014           SET X = -(STACK ITEM COUNT-1)       FG  07 00840
                    841         ADD     ANRB,B                                            V2  07 00841
                    842         ADDI    OPSTK+STKSZ                                       FG  07 00842
                    843         TAB                   POINT B AT V$FORTIO STACK           V2  07 00843
                    844 CAN1.2  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
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                    847          IBR                    BUMP POINTERS                                  FG 07 00847
                    848          IXR                                                                   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
000076 006505 A
000077 000000 E
000100 000700 A
                    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
000101 036002 A     871 CBC      LDX     ABSCB,B                                                          07 00871
000102 076021 A     872          STX     ASCB,B         SET SCB TO BUFFER                                 07 00872
000103 015000 A     873          LDA     0,X            GET CURRENT CHAR COUNT                            07 00873
000104 006400 A     874          BT      ASET+B0,CBC4           ON WORD BOUNDARY ?                        07 00874
000105 000110 R
                    875          PUSHJ   GBA            YES. GET NEXT BUFFER ADDRESS                   V2 07 00875
000106 105025 A
000107 001103 R
                    876 CBC4     DAB     WT             DECREMENT REMAINIG FIELD WIDTH                    07 00876
000110 016171 A
000111 005311 A
000112 056171 A
                    877          TRAB    RWFL,EC,CBC6   JUMP IF NOT ENCODE/DECODE                      PD 07 00877
000113 016154 A
000114 006452 A
000115 000122 R
000116 036152 A     878          LDX     RETURN+1,B                                                    PD 07 00878
000117 001040 A     879          JXZ     CBC6           NO COUNT ADDRESS                               PD 07 00879
000120 000122 R
000121 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
000122 016154 A
000123 006451 A
000124 001623 R
000125 001000 A     882          JMP     PCH            WRITE: EXIT TO PUT CHAR IN BUFFER                 07 00882
000126 003320 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
000127 016123 A
000130 056165 A
000131 146144 A     901          SUB     PBWC,B                                                           07 00901
000132 001004 A     902          JAN     CLB4           SET COUNT = MINIMUM(LRWC,PBWC)                    07 00902
000133 000136 R
                    903          MOVBAB  PBWC,TEMP1                                                       07 00903
000134 016144 A
000135 056165 A
                    904 CLB4     TZAB    TEMP1,CLBX     EXIT IF COUNT=0                                   07 00904
000136 016165 A
000137 001010 A
000140 000162 R
                    905          TSAB    RWFL,RB,CLBX   DONT CLEAR IF READ-BEFORE-WRITE FLAG SET          07 00905
000141 016154 A
000142 006403 A
000143 000162 R
                    906          TZAB    FRMT,CLB8      CLEAR TO ZEROS ON UNFORMATTED                  V2 07 00906
000144 016063 A
000145 001010 A
000146 000150 R
000147 016203 A     907          LDA     BLNK2,B        CLEAR TO BLANKS ON FORMATTED                   V2 07 00907
000150 056164 A     908 CLB8     STA     TEMP,B                                                        V2 07 00908
000151 036025 A     909          LDX     BFWPT,B                                                       V2 07 00909
                    910 ************                                                                        07 00910
```

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                    911 * FILL LOOP *                                                                    07 00911
                    912 ***************                                                                  07 00912
000152 R            913 CLBLP   EQU     *                                                          V2   07 00913
000152 005144 A     914         IXR                     LOAD X AS BUFFER POINTER                   V2   07 00914
                    915         MOVBAX  TEMP,0          MOVE FILL WORD TO BUFFER                   V2   07 00915
000153 016164 A
000154 055000 A
000155 005041 A     916         TXA                                                                V2   07 00916
000156 146025 A     917         SUB     BFWPT,B                                                    V2   07 00917
000157 146165 A     918         SUB     TEMP1,B                                                         07 00918
000160 001004 A     919         JAN     CLBLP           LOOP TILL DONE                                  07 00919
000161 000152 R
                    920 CLBX    POPJ                    EXIT                                       FG   07 00920
000162 105065 A
                    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
000163 010432 A     944 CLS     LDA     WRS             SET WRITE FLAG                             V2   07 00944
000164 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
000165 105025 A
000166 005625 R
000167 001010 A     950         JAZ     ER4             ERROR 4/ FCB(U) NOT ON CHAIN /                  07 00950
000170 005364 R
                    951         PUSHJ   PRU             PROCESS FORTRAN UNIT NUMBER U              V2   07 00951
000171 105025 A
000172 003754 R
000173 036016 A     952         LDX     ANRB,B                                                     V2   07 00952
                    953         MOVBAX  UNIT,IOCONT     INITIALIZE IOC CONTROL WORD                V2   07 00953
000174 016167 A
000175 055104 A
000176 036010 A     954         LDX     ADFCB,B         POINT X AT FCB                                  07 00954
000177 015014 A     955         LDA     12,X                                                            07 00955
000200 006455 A     956         BT      ARST+FLF,CLS20  *   TEST FOR LOGICAL FILE                   V2   07 00956
000201 000225 R
000202 006454 A     957         BT      ARST+FRM,CLS20      AND RMD                                V2   07 00957
000203 000225 R
                    958 ************************                                                     V2   07 00958
                    959 * U IS RMD LOGICAL FILE *                                                   V2   07 00959
                    960 ************************                                                     V2   07 00960
000204 006456 A     961         BT      ARST+FPD,CLS10      ANY UNPOSTED DATA ?                    V2   07 00961
000205 000213 R
                    962         MOVBAX  PBSZ,0          YES. LOAD FCB(0) WITH PHYSICAL BUFF SIZE        07 00962
000206 016143 A
000207 055000 A
                    963         PUSHJ   PSB             AND POST BUFFER                            V2   07 00963
000210 105025 A
000211 004533 R
000212 036010 A     964         LDX     ADFCB,B         RESTORE X                                       07 00964
                    965 CLS10   MOVBAX  BD120,0         SET FCB(0) = 120 WORDS                     V2   07 00965
000213 016201 A
000214 055000 A
                    966         TZAB    LGOV,CLS15      LOGICAL RECORD OVERLAP ?                        07 00966
000215 016123 A
000216 001010 A
000217 000223 R
                    967         ADBBB   PRECNO,PBRC,PRECNO      YES. BUMP PHYSICAL RECORD NUMBER        07 00967
000220 016145 A
000221 126142 A
000222 056145 A
                    968 CLS15   MOVBAX  PRECNO,3         SET FCB(3) = PHYSICAL RECORD NUMBER             07 00968
000223 016145 A
000224 055003 A
                    969 ****************************                                                 07 00969
                    970 * CALL IOC TO CLOSE FILE *                                                  07 00970
                    971 ****************************                                                 07 00971
000225 036151 A     972 CLS20   LDX     RETURN,B        POINT X AT CALL SEQUENCE                        07 00972
000226 035005 A     973         LDX     5,X             POINT X AT UPDATE/LEAVE PARAMETER               07 00973
000227 015000 A     974         LDA     0,X             GET UPDATE/LEAVE PARAMETER                      07 00974
000230 001010 A     975         JAZ     *+3                                                             07 00975
000231 000233 R
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000232 010435 A  976          LDA     BS12            SET FLAG FOR UPDATE                                  07 00976
000233 006110 A  977          ORAI    03400           MERGE IN IOC CLOSE SKELETON WORD          V2         07 00977
000234 003400 A
000235 116167 A  978          ORA     UNIT,B          OR IN LUN                                            07 00978
000236 036016 A  979          LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                       07 00979
000237 055104 A  980          STA     IOCONT,X        STORE IOC CONTROL WORD IN V$FORTIO                   07 00980
                 981          DAX     LNKCNT          DECREMENT LINK COUNT                                 07 00981
000240 015120 A
000241 005311 A
000242 055120 A
000243 010464 A  982          LDA     CIO                                                  V2              07 00982
000244 006505 A  983          JSR     PSJ,X           CALL IOC                             V2              07 00983
000245 004563 R
000246 036010 A  984          LDX     ADFCB,B         POINT X AT FCB                                       07 00984
                 985          TRAB    RWFL,LF,CLS30       LOGICAL FILE ?                                   07 00985
000247 016154 A
000250 006441 A
000251 000254 R
                 986          MOVBAX  LRSZ,0          YES. RESTORE LOGICAL REC SIZE IN FCB(0)              07 00986
000252 016122 A
000253 055000 A
                 987 ************************                                                             07 00987
                 988 * TAKE FCB OFF CHAIN *                                                               07 00988
                 989 ************************                                                             07 00989
000254 015012 A  990 CLS30    LDA     10,X            GET FORWARD LINK                                     07 00990
000255 036146 A  991          LDX     PRLINK,B                                                             07 00991
000256 055012 A  992          STA     10,X            HOOK TO PREVIOUS LINK                                07 00992
                 993 ********                                                                             07 00993
                 994 * EXIT *                                                                             07 00994
                 995 ********                                                                             07 00995
000257 010422 A  996          LDA     CEX                                                                  07 00996
                 997          PUSHF                   PUSH EXIT OP ONTO V$FORTIO STACK                     07 00997
000260 036016 A
000261 035000 A
000262 005344 A
000263 055000 A
000264 005041 A
000265 036016 A
000266 055000 A
000267 001000 A  998          JMP     CAN             EXIT TO V$FORTIO                                     07 00998
000270 000065 R
                 999          EJEC                                                                         07 00999
                1000 ********************************************************************************** 07 01000
                1001 *                                                                                  * 07 01001
                1002 *              4 - W O R D   D I V I D E   B Y   1 0 ( D 1 0 )                      * 07 01002
                1003 *                                                                                  * 07 01003
                1004 * FUNCTION: TO DIVIDE A 4-WORD NUMBER BY 10                                         * 07 01004
                1005 *                                                                                  * 07 01005
                1006 * ENTRY: ACC = DIVIDEND                                                            * 07 01006
                1007 *                                                                                  * 07 01007
                1008 * EXIT : ACC = ACC/10                                                              * 07 01008
                1009 *                                                                                  * 07 01009
                1010 ********************************************************************************** 07 01010
000271 005024 A 1012 D10      TBX                     LOAD X AS BASE REGISTER                              07 01012
000272 005001 A 1013          TZA                     CLEAR HIGH-ORDER WORD OF DIVIDEND                    07 01013
000273 025003 A 1014          LDB     ACC,X                                                                07 01014
000274 170471 A 1015          DIV     TEN             ACC(0)=ACC(0)/10                                     07 01015
000275 065003 A 1016          STB     ACC,X                                                                07 01016
000276 025004 A 1017          LDB     ACC+1,X                                                              07 01017
000277 170471 A 1018          DIV     TEN             ACC(1)=(ACC(1)+REM(0))/10                            07 01018
000300 065004 A 1019          STB     ACC+1,X                                                              07 01019
000301 025005 A 1020          LDB     ACC+2,X                                                              07 01020
000302 170471 A 1021          DIV     TEN             ACC(2)=(ACC(2)+REM(1))/10                            07 01021
000303 065005 A 1022          STB     ACC+2,X                                                              07 01022
000304 025006 A 1023          LDB     ACC+3,X                                                              07 01023
000305 170471 A 1024          DIV     TEN             ACC(3)=(ACC(3)+REM(2))/10                            07 01024
000306 065006 A 1025          STB     ACC+3,X                                                              07 01025
000307 005042 A 1026          TXB                     RESTORE BASE REGISTER B                              07 01026
                1027          POPJ                    AND EXIT                                     FG      07 01027
000310 105065 A
                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 DNF                                                             * 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
000311 001004 A 1049 DEF      JAN     DEF4            IS A .GE. ZERO ?                                     07 01049
000312 000316 R
000313 056100 A 1050          STA     IFW,B           YES. STORE AS INTEGER FIELD WIDTH                    07 01050
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000314 001000 A 1051          JMP     DEF8                                                    07 01051
000315 000321 R
000316 005211 A 1052 DEF4     CPA                  A NEGATIVE                                 07 01052
000317 005111 A 1053          IAR                                                             07 01053
000320 056176 A 1054          STA     ZFW,B        LOAD LEADING ZERO FILL COUNT               07 01054
000321 046147 A 1055 DEF8     INR     PTFL,B       D/E/F HAVE A '.'                           07 01055
000322 001000 A 1056          JMP     ONF          EXIT TO OUTPUT NUMERIC FIELD               07 01056
000323 002502 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
000324  R     1083 DOUT     EQU     *                                                       07 01083
000324  R     1084 EOUT     EQU     *                                                       07 01084
                1085          MOVBAB  D,COUNT      $ET SIGNIFICANT DIGIT COUNT TO D           07 01085
000324 016054 A
000325 056052 A
                1086          TZAB    S,DEO10      EXIT IF NO SCALE FACTOR                    07 01086
000326 016155 A
000327 001010 A
000330 000346 R
000331 001004 A 1087          JAN     DEO5                                                    07 01087
000332 000344 R
000333 046052 A 1088          INR     COUNT,B      SCALE FACTOR IS +. BUMP COUNT TO D+1       07 01088
000334 146054 A 1089          SUB     D,B                                                     07 01089
000335 005311 A 1090          DAR                                                             07 01090
000336 001004 A 1091          JAN     DEO10        OK IF D.GE.S                               07 01091
000337 000346 R
                1092          MOVBAB  S,COUNT      OTHERWISE, GET S SIGNIFICANT DIGITS        07 01092
000340 016155 A
000341 056052 A
000342 001000 A 1093          JMP     DEO10                                                   07 01093
000343 000346 R
000344 126056 A 1094 DEO5     ADD     DT,B         SCALE FACTOR IS -. SET COUNT TO DT-S       07 01094
000345 056052 A 1095          STA     COUNT,B                                                 07 01095
                1096 DEO10    PUSHJ   RND          ROUND DECIMAL FIELD                  V2    07 01096
000346 105025 A
000347 005512 R
000350 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
000351 016055 A
000352 146155 A
000353 056055 A
                1100          MOVPAB  FOUR,XFW     EXPONENT FIELD IS 4 CHARS WIDE             07 01100
000354 010423 A
000355 056174 A
000356 016155 A 1101          LDA     S,B                                                     07 01101
000357 001004 A 1102          JAN     DEF                                                     07 01102
000360 000311 R
000361 001010 A 1103          JAZ     DEF          S .GT. 0 ?                                 07 01103
000362 000311 R
000363 016056 A 1104          LDA     DT,B         YES                                        07 01104
000364 146155 A 1105          SUB     S,B                                                     07 01105
000365 005111 A 1106          IAR                                                             07 01106
000366 001002 A 1107          JAP     *+3          SET DT = MAX(0,DT-S+1)                     07 01107
000367 000371 R
000370 005001 A 1108          TZA                                                             07 01108
000371 056056 A 1109          STA     DT,B                                                    07 01109
000372 016155 A 1110          LDA     S,B          EXIT WITH A = S                            07 01110
000373 001000 A 1111          JMP     DEF          PROCESS S                                  07 01111
000374 000311 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
```

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                    1123 * EXIT : DIRECT TO DEF                                                    * 07 01123
                    1124 *        A = DEXP = DEXP+S                                                * 07 01124
                    1125 *                                                                         * 07 01125
                    1126 ***************************************************************************** 07 01126
         000375 R   1128 FOUT    EQU     *                                                           07 01128
000375 016155 A     1130        LDA     S,B             GET SCALE FACTOR                            07 01130
000376 126055 A     1131        ADD     DEXP,B          ADD DECIMAL EXPONENT                        07 01131
000377 126054 A     1132        ADD     D,B             ADD FRACTIONAL FIELD COUNT                  07 01132
000400 056052 A     1133        STA     COUNT,B         STORE AS SIGNIFICANT DIGIT COUNT            07 01133
                    1134        PUSHJ   RND             ROUND TO SIGNIFICANT DIGIT COUNT      V2    07 01134
000401 105025 A
000402 005512 R
000403 016055 A     1135        LDA     DEXP,B                                                      07 01135
000404 126155 A     1136        ADD     S,B             BUMP EXPONENT BY S                          07 01136
000405 056055 A     1137        STA     DEXP,B                                                      07 01137
000406 001000 A     1138        JMP     DEF             EXIT WITH INTEGER FIELD WIDTH IN A          07 01138
000407 000311 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 ********************                                                       07 01157
                    1158 * INITIAL ENTRY *                                                        07 01158
                    1159 ********************                                                       07 01159
                    1160 FRS     ZAB     FRPT            CLEAR FORMAT STRING POINTER                 07 01160
000410 005001 A
000411 056062 A
000412 056075 A     1161        STA     GSRPC+1,B       CLEAR LEVEL 2 GROUP REPEAT COUNT            07 01161
000413 056117 A     1162        STA     LISTFL,B        CLEAR LIST DATA XFER FLAG                   07 01162
000414 056141 A     1163        STA     PARLV,B         CLEAR '(' GROUP LEVEL COUNT                 07 01163
000415 056155 A     1164        STA     S,B             CLEAR SCALE FACTOR                          07 01164
000416 005101 A     1165        INCR    1                                                           07 01165
000417 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
000420 105025 A
000421 001756 R
000422 006443 A     1168        BT      ARST+LP,ER1     ERROR 1/ 1ST FORMAT CHAR NOT '(' /           07 01168
000423 005367 R
                    1169 ********************                                                       07 01169
                    1170 * '(' ENTRY *                                                           07 01170
                    1171 ********************                                                       07 01171
000424 046141 A     1172 FRS2    INR     PARLV,B         BUMP '(' LEVEL                              07 01172
000425 016141 A     1173        LDA     PARLV,B                                                     07 01173
000426 140423 A     1174        SUB     FOUR                                                        07 01174
000427 001002 A     1175        JAP     ER1             ERROR 1/ MORE THAN 3 '(' LEVELS /           07 01175
000430 005367 R
000431 016012 A     1176        LDA     AGPAR,B                                                     07 01176
000432 126141 A     1177        ADD     PARLV,B                                                     07 01177
000433 005014 A     1178        TAX                     POINT X AT GROUP REPEAT COUNT               07 01178
000434 016125 A     1179        LDA     R,B             GET REPEAT COUNT                            07 01179
000435 055000 A     1180        STA     0,X             STORE IN DYNAMIC GROUP REPEAT COUNT TABLE   07 01180
000436 055006 A     1181        STA     GSRPC-GDRPC,X   STORE IN STATIC GROUP REPEAT COUNT TABLE    07 01181
000437 016062 A     1182        LDA     FRPT,B          GET FORMAT CHARACTER POINTER                07 01182
000440 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
000441 006010 A     1191 FRS5    LDAI    07077                                                  V2    07 01191
000442 007077 A
000443 056053 A     1192        STA     CVFL,B                                                 V2    07 01192
000444 005101 A     1193        INCR    1                                                           07 01193
000445 056125 A     1194        STA     R,B             SET REPEAT COUNT TO 1                       07 01194
                    1195        ZAB     SCF             CLEAR SCALE FACTOR FLAG                     07 01195
000446 005001 A
000447 056156 A
000450 056054 A     1196        STA     D,B             CLEAR FRACTIONAL FIELD WIDTH                07 01196
000451 056022 A     1197        STA     ASFL,B          CLEAR '*' FLAG                              07 01197
000452 056150 A     1198        STA     QFL,B           CLEAR QUOTE FLAG                            07 01198
                    1199 FRS10   ZAB     SGFL            CLEAR SIGN FLAG                             07 01199
000453 005001 A
000454 056157 A
                    1200        PUSHJ   INF             INPUT NON-BLANK FORMAT CHARACTER      V2    07 01200
000455 105025 A
000456 001756 R
000457 156053 A     1201        ANA     CVFL,B          CHECK VALIDITY OF CHAR                      07 01201
000460 001010 A     1202        JAZ     ER1             ERROR 1/ ILLEGAL FORMAT CHAR /              07 01202
000461 005367 R
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                    1203 **************                                                                  07 01203
                    1204 * TEST CHAR *                                                                  07 01204
                    1205 **************                                                                  07 01205
000462 016065 A     1206          LDA     FCODE,B         RELOAD FORMAT CHARACTER CODE                  07 01206
000463 006402 A     1207          BT      ASET+CM,FRS10         TEST FOR ','                            07 01207
000464 000453 R
000465 006403 A     1208          BT      ASET+LP,FRS2    TEST FOR '('                                  07 01208
000466 000424 R
000467 006412 A     1209          BT      ASET+RP,FRS15   TEST FOR ')'                                  07 01209
000470 000511 R
000471 006404 A     1210          BT      ASET+MN,FRS20   TEST FOR '-'                                  07 01210
000472 000567 R
000473 006413 A     1211          BT      ASET+SL,FRS70   TEST FOR '/'                                  07 01211
000474 001023 R
000475 006405 A     1212          BT      ASET+NM,FRS25         TEST FOR NUMERIC                        07 01212
000476 000574 R
000477 006400 A     1213          BT      ASET+AL,FRS35         TEST FOR ALPHA                          07 01213
000500 000635 R
000501 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
000502 010460 A
000503 056125 A
000504 056171 A     1216          STA     NT,B                                                  V2      07 01216
                    1217          MOVPAB  EIGHT,FDLKEY    LOAD 'H' DESCRIPTOR KEY                       07 01217
000505 010424 A
000506 056061 A
000507 001000 A     1218          JMP     FRS60           EXIT                                          07 01218
000510 001001 R
                    1219 **************                                                                  07 01219
                    1220 * ')' INPUT *                                                                  07 01220
                    1221 **************                                                                  07 01221
000511 016012 A     1222 FRS15    LDA     AGPAR,B                                                       07 01222
000512 126141 A     1223          ADD     PARLV,B                                                       07 01223
000513 005014 A     1224          TAX                     POINT X AT '(' GROUP REPEAT COUNT             07 01224
                    1225          DAX     0               DECREMENT DYNAMIC '(' REPEAT COUNT            07 01225
000514 015000 A
000515 005311 A
000516 055000 A
000517 001016 A     1226          JANZ    FRS19           IS '(' GROUP FINISHED ?                       07 01226
000520 000563 R
                    1227          DAB     PARLV           YES. DECREMENT '(' LEVEL                      07 01227
000521 016141 A
000522 005311 A
000523 056141 A
000524 001016 A     1228          JANZ    FRS75           CONTINUE SCAN IF NOT LAST ')'                 07 01228
000525 001027 R
                    1229 **************************                                                    07 01229
                    1230 * PROCESS RIGHTMOST ')' *                                                    07 01230
                    1231 **************************                                                    07 01231
                    1232          ZAB     FDLKEY          DISABLE PXF MODE TEST                         07 01232
000526 005001 A
000527 056061 A
                    1233          PUSHJ   GNL             GET ADDRESS OF NEXT LIST ITEM         V2      07 01233
000530 105025 A
000531 001447 R
                    1234          SUTBBB  ITEMAD,ITMINC,ITEMAD    REINITIALIZE LIST CONTROL             07 01234
000532 016113 A
000533 146115 A
000534 056113 A
                    1235          ADBBB   ITEMWC,ITMINC,ITEMWC                                          07 01235
000535 016114 A
000536 126115 A
000537 056114 A
                    1236          PUSHJ   RCL             RECYCLE LOGICAL BUFFER                V2      07 01236
000540 105025 A
000541 005167 R
000542 016117 A     1237          LDA     LISTFL,B                                                      07 01237
000543 001010 A     1238          JAZ     ER1             ERROR 17 NO DATA XFER DESCRIPTORS /           07 01238
000544 005367 R
                    1239          ZAB     LISTFL          CLEAR LIST DATA XFER FLAG                     07 01239
000545 005001 A
000546 056117 A
000547 036012 A     1240          LDX     AGPAR,B                                                       07 01240
000550 005144 A     1241 IXR      IXR                     POINT X AT '(' LEVEL 1                        07 01241
000551 046141 A     1242          INR     PARLV,B         ALSO LEVEL COUNTER                            07 01242
000552 015006 A     1243          LDA     GSRPC-GDRPC,X                                                 07 01243
000553 055000 A     1244          STA     0,X             RELOAD LEVEL 1 DYNAMIC REPEAT COUNT           07 01244
000554 015007 A     1245          LDA     GSRPC-GDRPC+1,X                                               07 01245
000555 001010 A     1246          JAZ     FRS19           IS THERE A 2ND LEVEL ?                        07 01246
000556 000563 R
000557 046141 A     1247          INR     PARLV,B         YES                                           07 01247
000560 005144 A     1248          IXR                     USE 2ND '(' LEVEL                             07 01248
000561 015006 A     1249          LDA     GSRPC-GDRPC,X         GET STATIC REPEAT COUNT                 07 01249
000562 055000 A     1250          STA     0,X             RELOAD DYNAMIC REPEAT COUNT                   07 01250
000563 015003 A     1251 FRS19    LDA     GFRPT-GDRPC,X                                                 07 01251
000564 056062 A     1252          STA     FRPT,B          BACK UP SCAN TO '('                           07 01252
000565 001000 A     1253          JMP     FRS5            RESUME SCAN AFTER CORRESPONDING '('           07 01253
000566 000441 R
                    1254 **************                                                                  07 01254
                    1255 * '-' INPUT *                                                                  07 01255
                    1256 **************                                                                  07 01256
000567 046157 A     1257 FRS20    INR     SGFL,B          SET SIGN FLAG                                 07 01257
                    1258          PUSHJ   INF             INPUT NON-BLANK FOLLOWING '-'         V2      07 01258
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000570 105025 A
000571 001756 R
000572 006445 A 1259          BT      ARST+NM,ER1     ERROR 1/ NOT NUMERIC /                          07 01259
000573 005367 R
                1260 ************************
                1261 * NUMERIC CHAR INPUT *                                                           07 01260
                1262 ************************                                                       07 01261
                1263 FRS25    PUSHJ   IFF             INPUT NUMERIC FORMAT FIELD              V2      07 01262
000574 105025 A
000575 001722 R
000576 006150 A 1264          ANAI    0211            ENABLE 'P'/'('/ALPHA                    V2      07 01263
000577 000211 A
000600 001010 A 1265          JAZ     ER1             ERROR 1/ ILLEGAL TERMINATOR /                   07 01264
000601 005367 R
000602 016065 A 1266          LDA     FCODE,B                                                         07 01265
000603 006447 A 1267          BT      ARST+PS,FRS30       TEST IF TERMINATOR IS 'P'                   07 01266
000604 000622 R
                1268 ******************************                                                 07 01267
                1269 * DESCRIPTOR HAS 'P' FIELD *                                                    07 01268
                1270 ******************************                                                 07 01269
000605 046156 A 1271          INR     SCF,B           SET SCALE FACTOR FLAG                           07 01270
000606 016126 A 1272          LDA     NFF,B           GET SCALE FACTOR ABS VALUE IN A                 07 01271
000607 036157 A 1273          LDX     SGFL,B          GET SIGN FLAG IN X                              07 01272
000610 001040 A 1274          JXZ     *+4                                                             07 01273
000611 000614 R
000612 005211 A 1275          CPA                     NEGATE A IF SIGN FLAG SET                       07 01274
000613 005111 A 1276          IAR                                                                     07 01275
000614 056155 A 1277          STA     S,B             LOAD SCALE FACTOR S                             07 01276
000615 006010 A 1278          LDAI    041                                                     V2      07 01277
000616 000041 A
000617 056053 A 1279          STA     CVFL,B          ENABLE ONLY NUMERIC/ALPHA               V2      07 01278
000620 001000 A 1280          JMP     FRS10                                                           07 01279
000621 000453 R
                1281 ********************************                                               07 01280
                1282 * NUMERIC - NOT SCALE FACTOR *                                                  07 01281
                1283 ********************************                                               07 01282
                1284 FRS30    TNZAB   SGFL,ER1        ERROR 1/ '-' PRECEDES REPEAT COUNT /            07 01283
000622 016157 A
000623 001016 A
000624 005367 R
                1285          MOVBAB  NFF,R           LOAD REPEAT COUNT                               07 01284
000625 016126 A
000626 056125 A
000627 056171 A 1286          STA     WT,B            ALSO AS FIELD WIDTH FOR H/X                     07 01285
000630 016065 A 1287          LDA     FCODE,B                                                         07 01286
000631 006403 A 1288          BT      ASET+LP,FRS2    TEST FOR '('                                    07 01287
000632 000424 R
000633 006440 A 1289          BT      ARST+AL,ER1     ERROR 1/ TERMINATOR NOT ALPHA /                 07 01288
000634 005367 R
                1290 ************************                                                       07 01289
                1291 * ALPHABETIC CHAR INPUT *                                                      07 01290
                1292 ************************                                                       07 01291
        000635 R 1293 FRS35   EQU     *                                                       V2      07 01292
000635 016064 A 1294          LDA     FCHAR,B         GET FORMAT DESCRIPTOR CHARACTER         V2      07 01293
                1295          IFF     NUC                                                      FG     07 01294
                1296          GOTO    NV2NUC                                                   FG     07 01295
                1297          IFT     VII                                                      FG     07 01296
                1298          OME     MAP,VSST0       SET EXEC STATE TO 00                    V2      07 01297
                1299 NV2NUC   CONT                                                             FG     07 01298
000636 006030 A 1300          LDXI    FRSJT-FRSCHT-1      GET TABLE COUNT IN X                V2      07 01299
000637 000012 A
000640 006145 A 1301 FRSL1    SUBE    FRSCHT,X                                                V2      07 01300
000641 001042 R
000642 001010 A 1302          JAZ     FRS40           MATCH ?                                         07 01301
000643 000651 R
                1303          IFF     NUC                                                      FG     07 01302
                1304          GOTO    NV2NUC                                                   FG     07 01303
                1305          IFT     VII                                                      FG     07 01304
                1306          GOTO    VIINUC                                                   FG     07 01305
                1307 NV2NUC   CONT                                                             FG     07 01306
000644 001040 A 1308          JXZ     ER1             ERROR 1/ ILLEGAL FORMAT CHAR /          V2      07 01307
000645 005367 R
                1309          GOTO    NV2NUC                                                   FG     07 01308
                1310 VIINUC   CONT                                                             FG     07 01309
                1311          JXZ     FRS39                                                   V2      07 01310
                1312 NV2NUC   CONT                                                             FG     07 01311
000646 005344 A 1313          DXR                     DROP TABLE COUNT                        V2      07 01312
000647 001000 A 1314          JMP     FRSL1           AND CONTINUE COMPARISON                         07 01313
000650 000640 R
                1315          IFF     NUC                                                      FG     07 01314
                1316          GOTO    NV2NUC                                                   FG     07 01315
                1317          IFF     VII                                                      FG     07 01316
                1318          GOTO    NV2NUC                                                   FG     07 01317
                1319 FRS39    OME     MAP,V$ST3       SET EXEC STATE TO NN                    V2      07 01318
                1320          JMP     ER1                                                     V2      07 01319
                1321 NV2NUC   CONT                                                             FG     07 01320
        000651 R 1322 FRS40   EQU     *                                                       V2      07 01321
                1323          IFF     NUC                                                      FG     07 01322
                1324          GOTO    NV2NUC                                                   FG     07 01323
                1325          IFT     VII                                                      FG     07 01324
                1326          OME     MAP,V$ST3       SET EXEC STATE TO NN                    V2      07 01325
                1327 NV2NUC   CONT                                                             FG     07 01326
000651 005041 A 1328          TXA                                                             V2      07 01327
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000652 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
000653 016156 A
000654 001010 A
000655 000662 R
000656 016061 A 1334          LDA     FDLKEY,B      YES                                             07 01334
000657 140423 A 1335          SUB     FOUR                                                          07 01335
000660 001002 A 1336          JAP     ER1           ERROR 1/ ILLEGAL SCALE FACTOR /                 07 01336
000661 005367 R
000662 016061 A 1337 FRS45    LDA     FDLKEY,B                                                      07 01337
000663 140424 A 1338          SUB     EIGHT                                                         07 01338
000664 001004 A 1339          JAN     FRS46                                                         07 01339
000665 000675 R
000666 140422 A 1340          SUB     TWO                                                           07 01340
000667 001016 A 1341          JANZ    FRS60         SCAN FINISHED FOR H/X                           07 01341
000670 001001 R
000671 016125 A 1342          LDA     R,B                                                           07 01342
000672 140422 A 1343          SUB     TWO                                                           07 01343
000673 001002 A 1344          JAP     ER1           ERROR 1/ 'T' DESCRIPTOR HAS REPEAT COUNT        07 01344
000674 005367 R
               1345 FRS46     PUSHJ   INF           INPUT NON-BLANK FORMAT CHARACTER          V2    07 01345
000675 105025 A
000676 001756 R
000677 006445 A 1346          BT      ARST+NM,ER1   ERROR 1/ NON-NUM AFTER DESCRIPTOR LETTER /      07 01346
000700 005367 R
               1347           PUSHJ   IFF           INPUT NUMERIC FIELD                       V2    07 01347
000701 105025 A
000702 001722 R
000703 016126 A 1348          LDA     NFF,B                                                         07 01348
000704 056170 A 1349          STA     W,B           LOAD FIELD WIDTH W                              07 01349
000705 001010 A 1350          JAZ     ER1           ERROR 1/ ZERO FIELD WIDTH /                     07 01350
000706 005367 R
000707 016061 A 1351          LDA     FDLKEY,B                                                      07 01351
000710 140423 A 1352          SUB     FOUR                                                          07 01352
000711 001004 A 1353          JAN     FRS47         CONTINUE SCAN FOR D/E/F/G                       07 01353
000712 000720 R
000713 140423 A 1354          SUB     FOUR                                                          07 01354
000714 001004 A 1355          JAN     FRS50         NO FRACTIONAL D FIELD FOR I/L/A           V2    07 01355
000715 000733 R
000716 001000 A 1356          JMP     FRS60         SCAN FINISHED FOR T                             07 01356
000717 001001 R
000720 016065 A 1357 FRS47    LDA     FCODE,B                                                       07 01357
000721 006450 A 1358          BT      ARST+PT,ER1   ERROR 1/ TERMINATOR NOT '.' /                   07 01358
000722 005367 R
               1359           PUSHJ   INF           INPUT NON-BLANK FORMAT CHARACTER          V2    07 01359
000723 105025 A
000724 001756 R
000725 006445 A 1360          BT      ARST+NM,ER1   ERROR 1/ NON-NUMERIC AFTER LETTER /             07 01360
000726 005367 R
               1361           PUSHJ   IFF           INPUT NUMERIC FIELD                       V2    07 01361
000727 105025 A
000730 001722 R
000731 016126 A 1362          LDA     NFF,B                                                         07 01362
000732 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
000733 105025 A
000734 001447 R
000735 046117 A 1368          INR     LISTFL,B      SET LIST FLAG                                   07 01368
               1369           MOVBAB  W,WT          SET WT=W                                        07 01369
000736 016170 A
000737 056171 A
               1370           MOVBAB  D,DT          SET DT=D                                        07 01370
000740 016054 A
000741 056056 A
               1371           ZAB     ACC           CLEAR ACCUMULATOR ACC                           07 01371
000742 005001 A
000743 056003 A
000744 056004 A 1372          STA     ACC+1,B                                                       07 01372
000745 056005 A 1373          STA     ACC+2,B                                                       07 01373
000746 056006 A 1374          STA     ACC+3,B                                                       07 01374
000747 056022 A 1375          STA     ASFL,B        CLEAR '*' FLAG                                  07 01375
000750 056055 A 1376          STA     DEXP,B        CLEAR DECIMAL EXPONENT                          07 01376
000751 056100 A 1377          STA     IFW,B         CLEAR INTEGER FIELD WIDTH                       07 01377
000752 056147 A 1378          STA     PTFL,B        CLEAR '.' FLAG                                  07 01378
000753 056157 A 1379          STA     SGFL,B        CLEAR SIGN FLAG                                 07 01379
000754 056173 A 1380          STA     XFL,B         CLEAR EXPONENT FIELD FLAG                       07 01380
000755 056174 A 1381          STA     XFW,B         SET EXPONENT FIELD WIDTH TO ZERO                07 01381
000756 056176 A 1382          STA     ZFW,B         CLEAR ZERO FILL FIELD WIDTH                     07 01382
000757 056166 A 1383          STA     TERM,B        CLEAR TERMINATING DIGIT                   V2    07 01383
               1384           MOVBAB  ABSCB,ASCB    SET SCB TO BUFFER                               07 01384
000760 016002 A
000761 056021 A
000762 016061 A 1385          LDA     FDLKEY,B                                                      07 01385
000763 140465 A 1386          SUB     FIVE                                                          07 01386
000764 001002 A 1387          JAP     FRS60         EXIT ON NON-NUMERIC DESCRIPTOR                  07 01387
000765 001001 R
               1388 **********************                                                        07 01388
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                    1389 * NUMERIC DESCRIPTOR *                                                                  07 01389
                    1390 ************************                                                               07 01390
000766 005111 A     1391         IAR                                                                             07 01391
000767 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
000770 016154 A
000771 006411 A
000772 000777 R
                    1394 ********                                                                                07 01394
                    1395 * READ *                                                                               07 01395
                    1396 ********                                                                               07 01396
                    1397         PUSHJ    IXN             INPUT EXTERNAL NUMERIC FIELD                V2   07 01397
000773 105025 A
000774 001775 R
000775 001000 A     1398         JMP      FRS60                                                                  07 01398
000776 001001 R
                    1399 *********                                                                              07 01399
                    1400 * WRITE *                                                                              07 01400
                    1401 *********                                                                              07 01401
                    1402 FRS55   PUSHJ    GNI             GET NUMERIC LIST ITEM                       V2   07 01402
000777 105025 A
001000 001160 R
                    1403 ************************                                                               07 01403
                    1404 * EXIT TO PROCESSOR *                                                                 07 01404
                    1405 ************************                                                               07 01405
001001 016061 A     1406 FRS60   LDA      FDLKEY,B                                                               07 01406
001002 004241 A     1407         LRLA     1                                                                      07 01407
001003 005014 A     1408         TAX                      SET X = DESCRIPTOR READ KEY                           07 01408
001004 016154 A     1409         LDA      RWFL,B                                                                 07 01409
001005 150432 A     1410         ANA      WRS                                                            V2     07 01410
001006 003016 A     1411         XANZ     IXR             BUMP KEY FOR WRITE                             V2     07 01411
001007 000550 R
                    1412         IFF      NUC                                                            FG     07 01412
                    1413         GOTO     NV2NUC                                                         FG     07 01413
                    1414         IFT      VII                                                            FG     07 01414
                    1415         OME      MAP,V$ST0       SET EXEC STATE TO 00                           V2     07 01415
                    1416 NV2NUC  CONT                                                                    FG     07 01416
001010 006035 A     1417         LDXE     FRSJT,X         GET PROCESSOR ADDRESS FROM TABLE                      07 01417
001011 001055 R
                    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
001012 006705 A     1423         IJMP     0,X             EXIT TO PROCESSOR                                     07 01423
001013 000000 A
                    1424 ************************                                                               07 01424
                    1425 * TEST REPEAT COUNT *                                                                 07 01425
                    1426 ************************                                                               07 01426
001014 016125 A     1427 FRS65   DAB      R               DECREMENT REPEAT COUNT                                07 01427
001015 005311 A
001016 056125 A
001017 001016 A     1428         JANZ     FRS50           REPEAT DESCRIPTOR R TIMES                             07 01428
001020 000733 R
001021 001000 A     1429         JMP      FRS85           THEN RESUME SCAN                                      07 01429
001022 001031 R
                    1430 ****************                                                                       07 01430
                    1431 * PROCESS '/' *                                                                       07 01431
                    1432 ****************                                                                       07 01432
                    1433 FRS70   PUSHJ    RCL             RECYCLE LOGICAL BUFFER                      V2     07 01433
001023 105025 A
001024 005167 R
001025 001000 A     1434         JMP      FRS5            AND SCAN FORWARD FOR NEXT DESCRIPTOR                  07 01434
001026 000441 R
                    1435 ****************************                                                         07 01435
                    1436 * PROCESS FIELD SEPARATOR *                                                          07 01436
                    1437 ****************************                                                         07 01437
                    1438 FRS75   PUSHJ    TMF             GET TERMINATING CHARACTER                   V2     07 01438
001027 105025 A
001030 001756 R
001031 016065 A     1439 FRS85   LDA      FCODE,B         GET CHAR CODE                                         07 01439
001032 006402 A     1440         BT       ASET+CM,FRS5    TEST FOR ','                                          07 01440
001033 000441 R
001034 006413 A     1441         BT       ASET+SL,FRS70   TEST FOR '/'                                          07 01441
001035 001023 R
001036 006412 A     1442         BT       ASET+RP,FRS15       TEST FOR ')'                                      07 01442
001037 000511 R
001040 001000 A     1443         JMP      ER1             ERROR 1/ ILLEGAL TERMINATOR /                         07 01443
001041 005367 R
                    1444 ********************************                                                     07 01444
                    1445 * TABLE OF VALID FORMAT SPEC CHARS *                                                 07 01445
                    1446 ********************************                                                     07 01446
        001042 R    1447 FRSCHT  EQU      *                                                              V2     07 01447
001042 177777 A     1448         DATA     -1              SRDW.D                                         V2     07 01448
001043 177777 A     1449         DATA     -1              SREW.D                                         V2     07 01449
001044 177777 A     1450         DATA     -1              SRFW.D                                         V2     07 01450
001045 177776 A     1451         DATA     -2              SRGW.D                                         V2     07 01451
001046 177757 A     1453         DATA     -021            RIW                                                   07 01453
001047 000016 A     1455         DATA     016             RZW                                                   07 01455
001050 000013 A     1456         DATA     013             RLW                                            V2     07 01456
001051 177771 A     1457         DATA     -7              RAW                                            V2     07 01457
001052 177760 A     1459         DATA     -020            NH...                                          V2     07 01459
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001053 000004 A 1460          DATA    4                NX                                  V2  07 01460
001054 000324 A 1461          DATA    0324             TN                                  V2  07 01461
               1463 ****************                                                             07 01463
               1464 * JUMP TABLE *                                                             07 01464
               1465 ****************                                                             07 01465
       001055  R 1466 FRSJT   EQU     *                                                       07 01466
001055 083347  R 1467          PZE     DIN                                                     07 01467
001056 000324  R 1468          PZE     DOUT                                                    07 01468
001057 003347  R 1469          PZE     EIN                                                     07 01469
001060 000324  R 1470          PZE     EOUT                                                    07 01470
001061 003347  R 1471          PZE     FIN                                                     07 01471
001062 000375  R 1472          PZE     FOUT                                                    07 01472
001063 003347  R 1473          PZE     GIN                                                     07 01473
001064 001502  R 1474          PZE     GOUT                                                    07 01474
001065 003347  R 1475          PZE     IIN                                                     07 01475
001066 001765  R 1476          PZE     IOUT                                                    07 01476
001067 006207  R 1477          PZE     ZIN                                                     07 01477
001070 006207  R 1478          PZE     ZOUT                                                    07 01478
001071 002262  R 1479          PZE     LIN                                                     07 01479
001072 002314  R 1480          PZE     LOUT                                                    07 01480
001073 000000  R 1481          PZE     AIN                                                     07 01481
001074 000000  R 1482          PZE     AOUT                                                    07 01482
001075 001532  R 1483          PZE     HIN                                                     07 01483
001076 001532  R 1484          PZE     HOUT                                                    07 01484
001077 006175  R 1485          PZE     XIN                                                     07 01485
001100 006175  R 1486          PZE     XOUT                                                    07 01486
001101 005763  R 1487          PZE     TIN                                                     07 01487
001102 005763  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
               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
001103 016144  A 1522 GBA     LDA     PBWC,B                                                  07 01522
001104 005311  A 1523          DAR                                                             07 01523
001105 001002  A 1524          JAP     GBA50                                                   07 01524
001106 001114  R
               1525          TSAB    RWFL,EC,GBA80                                       PD  07 01525
001107 016154  A
001110 006412  A
001111 001152  R
               1526 ****************************                                           07 01526
               1527 * END OF PHYSICAL BUFFER *                                           07 01527
               1528 ****************************                                           07 01528
               1529          PUSHJ   P,RCP           RECYCLE PHYSICAL BUFFER             V2  07 01529
001112 103025  A
001113 005225  R
               1530 ********************************                                       07 01530
               1531 * TEST FOR END OF LOGICAL RECORD *                                     07 01531
               1532 ********************************                                       07 01532
001114 046025  A 1533 GBA50   INR     BFWPT,B         BUMP BUFFER WORD POINTER            07 01533
001115 016123  A 1534          LDA     LRWC,B                                              07 01534
001116 005311  A 1535          DAR                                                         07 01535
001117 001002  A 1536          JAP     GBA70                                               07 01536
001120 001143  R
               1537 ************************                                               07 01537
               1538 * END OF LOGICAL RECORD *                                             07 01538
               1539 ************************                                               07 01539
001121 046121  A 1540          INR     LRECNO,B        BUMP LOGICAL RECORD NUMBER          07 01540
               1541          MOVBAB  BFWPT,ALBF      UPDATE LOGICAL BUFFER ADDRESS       07 01541
001122 016025  A
001123 056027  A
               1542 GBA55   MOVBAB  LRSZ,LRWC       RELOAD REMAINING WORD COUNT         PD  07 01542
001124 016122  A
001125 056123  A
               1543          ZAB     BFPT            CLEAR BUFFER CHARACTER POINTER      07 01543
001126 005001  A
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001127 056026 A                                                                                                  07 01544
                1544          DAB     RWFL,WR,GBA70       WRITE ?
001130 016154 A
001131 006451 A
001132 001143 R
001133 006404 A 1545          BT      ASET+TR,GBA70       YES. TERMINATE ?                                       07 01545
001134 001143 R
        001135 R 1546 GBA60   EQU     *                                                                    V2  07 01546
                1547          DAB     BFWPT               NO. SET UP CLB                                   V2  07 01547
001135 016025 A
001136 005311 A
001137 056025 A
                1548          PUSHJ   CLB                 CLEAR LOGICAL BUFFER                             V2  07 01548
001140 105025 A
001141 000127 R
001142 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
001143 016144 A
001144 005311 A
001145 056144 A
                1554          DAB     LRWC                                                                       07 01554
001146 016123 A
001147 005311 A
001150 056123 A
                1555          POPJ                        EXIT                                             FG  07 01555
001151 105065 A
                1556 GBA80    MOVBAB  PBSZ,PBWC           RESET ENCODE/DECODE POINTERS                     PD  07 01556
001152 016143 A
001153 056144 A
                1557          MOVBAB  ALBF,BFWPT                                                           PD  07 01557
001154 016027 A
001155 056025 A
001156 001000 A 1558          JMP     GBA55                                                                PD  07 01558
001157 001124 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
001160 036113 A 1584 GNI      LDX     ITEMAD,B            POINT X AT ITEM                                        07 01584
001161 015000 A 1585          LDA     0,X                 GET 1ST WORD OF ITEM                                   07 01585
001162 004317 A 1586          ASRA    15                                                                         07 01586
001163 056157 A 1587          STA     SGFL,B              SAVE SIGN                                              07 01587
001164 016116 A 1588          LDA     ITMODE,B                                                                   07 01588
001165 140422 A 1589          SUB     TWO                                                                        07 01589
001166 001002 A 1590          JAP     GNI4                TEST FOR INTEGER LIST ITEM                             07 01590
001167 001204 R
                1591 ****************                                                                             07 01591
                1592 * INTEGER ITEM *                                                                           07 01592
                1593 ****************                                                                           07 01593
001170 015000 A 1594          LDA     0,X                 GET INTEGER                                            07 01594
001171 001002 A 1595          JAP     GNI2                                                                 V2  07 01595
001172 001177 R
001173 005211 A 1596          CPA                                                                                07 01596
001174 005111 A 1597          IAR                                                                                07 01597
001175 001004 A 1598          JAN     ER3                 ERROR 3/ INVALID INTEGER /                             07 01598
001176 005365 R
001177 056003 A 1599 GNI2     STA     ACC,B               STORE IN ACC                                     V2  07 01599
                1600          MOVPAB  D15,BEXP            LOAD INTEGER BIAS AS BINARY EXPONENT                   07 01600
001200 010472 A
001201 056024 A
001202 001000 A 1601          JMP     GNI10                                                                      07 01601
001203 001315 R
001204 005311 A 1602 GNI4     DAR                                                                                07 01602
001205 001010 A 1603          JAZ     GNI8                DOUBLE PRECISION #                                     07 01603
001206 001240 R
001207 140422 A 1604          SUB     TWO                 NO
001210 001010 A 1605          JAZ     GNI9                TEST DP INTEGER                                        07 01605
001211 001263 R
                1606 ****************                                                                           07 01606
                1607 * REAL ITEM *                                                                             07 01607
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                    1608 ***************                                                    07 01608
001212 015000 A     1609          LDA       0,X       GET 1ST WORD OF REAL ITEM          07 01609
001213 001002 A     1610          JAP       *+3       CONVERT TO ABS                     07 01610
001214 001216 R
001215 005211 A     1611          CPA                                                    07 01611
001216 056164 A     1612          STA       TEMP,B    SAVE                               07 01612
001217 015001 A     1613          LDA       1,X       GET 2ND WORD OF REAL ITEM          07 01613
001220 150460 A     1614          ANA       BR15      CLEAR B15                    D.1   07 01614
001221 005024 A     1615          TBX                 LOAD X AS BASE REGISTER            07 01615
001222 005012 A     1616          TAB                 2ND WORD TO B-REG                  07 01616
001223 015164 A     1617          LDA       TEMP,X    1ST WORD TO A-REG                  07 01617
001224 065164 A     1618          STB       TEMP,X    SAVE 2ND WORD                      07 01618
001225 004507 A     1619          LASR      7         GET BINARY EXPONENT                07 01619
001226 140430 A     1620          SUB       BXBIAS    UNBIAS IT                    V2    07 01620
001227 055024 A     1621          STA       BEXP,X    SAVE                               07 01621
001230 065003 A     1622          STB       ACC,X     STORE 1ST MANTISSA WORD            07 01622
001231 015164 A     1623          LDA       TEMP,X    RESTORE 2ND WORD                   07 01623
001232 005002 A     1624          TZB                 CLEAR B                            07 01624
001233 004507 A     1625          LASR      7                                            07 01625
001234 065004 A     1626          STB       ACC+1,X   SAVE                               07 01626
001235 005042 A     1627          TXB                 RESTORE BASE REGISTER B            07 01627
001236 001000 A     1628          JMP       GNI10                                        07 01628
001237 001315 R
                    1629 ************************                                       07 01629
                    1630 * DOUBLE PRECISION ITEM *                                     07 01630
                    1631 ************************                                       07 01631
001240 015001 A     1632 GNI8     LDA       1,X       GET 1ST MANTISSA WORD              07 01632
001241 004317 A     1633          ASRA      15                                           07 01633
001242 056157 A     1634          STA       SGFL,B    GET SIGN                           07 01634
001243 015001 A     1635          LDA       1,X       RELOAD WORD 1                      07 01635
001244 001002 A     1636          JAP       *+3       IS ITEM NEGATIVE ?           V2    07 01636
001245 001247 R
001246 005211 A     1637          CPA                 YES. GET ABS VALUE                 07 01637
001247 056003 A     1638          STA       ACC,B     LOAD WORD 0 OF ACCUMULATOR         07 01638
001250 015000 A     1639          LDA       0,X       GET BINARY EXPONENT                07 01639
001251 140430 A     1640          SUB       BXBIAS    UNBIAS IT                    V2    07 01640
001252 056024 A     1641          STA       BEXP,B    SAVE                               07 01641
001253 015002 A     1642          LDA       2,X       GET WORD 2                   D.1   07 01642
001254 150460 A     1643          ANA       BR15      CLEAR B15                    D.1   07 01643
001255 056004 A     1644          STA       ACC+1,B                                D.1   07 01644
001256 015003 A     1645          LDA       3,X       GET WORD 3                   D.1   07 01645
001257 150460 A     1646          ANA       BR15      CLEAR B15                    D.1   07 01646
001260 056005 A     1647          STA       ACC+2,B                                D.1   07 01647
001261 001000 A     1648          JMP       GNI10                                        07 01648
001262 001315 R
                    1649 ***************                                                07 01649
                    1650 * DP INTEGER *                                                07 01650
                    1651 ***************                                                07 01651
001263 006010 A     1652 GNI9     LDAI      30                                           07 01652
001264 000036 A
001265 056024 A     1653          STA       BEXP,B    LOAD BIAS IN BINARY EXPONENT       07 01653
001266 015001 A     1654          LDA       1,X       GET 2ND WORD                       07 01654
001267 150460 A     1655          ANA       BR15      CLEAR HIGH BIT                     07 01655
001270 050000 A     1656          STA                                                    07 01656
001271 056004 A     1657          STA       ACC+1,B   STORE                              07 01657
001272 015000 A     1658          LDA       0,X       GET 1ST WORD                       07 01658
001273 056003 A     1659          STA       ACC,B     SAVE                               07 01659
001274 001002 A     1660          JAP       GNI10     NEGATIVE #                         07 01660
001275 001315 R
001276 005211 A     1661          CPA                 YES. TAKE 1-COMP                   07 01661
001277 056003 A     1662          STA       ACC,B                                        07 01662
001300 016004 A     1663          LDA       ACC+1,B                                      07 01663
001301 007400 A     1664          RDF                                                    07 01664
001302 001016 A     1665          JANZ      GNI9A     IS WORD 2 ZERO #                   07 01665
001303 001311 R
001304 046003 A     1666          INR       ACC,B     YES. 2-COMP WORD 1                 07 01666
001305 001001 A     1667          JOF       ER3       ERROR 3/INVALID NUMBER/            07 01667
001306 005365 R
001307 001000 A     1668          JMP       GNI10                                        07 01668
001310 001315 R
001311 005211 A     1669 GNI9A    CPA                 TAKE 2-COMP OF WORD 2              07 01669
001312 005111 A     1670          IAR                                                    07 01670
001313 150460 A     1671          ANA       BR15                                         07 01671
001314 056004 A     1672          STA       ACC+1,B                                      07 01672
                    1673 ***************                                                07 01673
                    1674 * TEST FOR ZERO *                                             07 01674
                    1675 ***************                                                07 01675
001315 016003 A     1676 GNI10    LDA       ACC,B                                        07 01676
001316 116004 A     1677          ORA       ACC+1,B                                      07 01677
001317 116005 A     1678          ORA       ACC+2,B                                      07 01678
001320 001016 A     1679          JANZ      GNIL1     IS ITEM = ZERO ?                   07 01679
001321 001326 R
001322 005101 A     1680          INCR      1         YES                                07 01680
001323 056055 A     1681          STA       BEXP,B    YES. SET DECIMAL EXPONENT TO 1     07 01681
001324 001000 A     1682          JMP       GNI50                                        07 01682
001325 001431 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
001326 105025 A
001327 002402 R
001330 016024 A     1687          LDA       BEXP,B                                       07 01687
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001331 001010 A 1688          JAZ     GNI50          FINISHED IF BINARY EXPONENT = ZERO          07 01688
001332 001431 R
001333 001004 A 1689          JAN     GNI20                                                      07 01689
001334 001342 R
                1690 ************************************                                         07 01690
                1691 * (ACC,BEXP).GE.1 DIVIDE BY 10 *                                          07 01691
                1692 ************************************                                         07 01692
001335 046055 A 1693          INR     DEXP,B         BUMP DECIMAL EXPONENT                       07 01693
                1694          PUSHJ   D10            ACC = ACC/10                          V2    07 01694
001336 105025 A
001337 000271 R
001340 001000 A 1695          JMP     GNIL1          LOOP TILL DONE                              07 01695
001341 001326 R
                1696 ************************************                                         07 01696
                1697 * (ACC,BEXP).LT.1 TEST IF .GE. .1 *                                        07 01697
                1698 ************************************                                         07 01698
001342 120464 A 1699 GNI20    ADD     THREE                                                      07 01699
001343 001004 A 1700          JAN     GNI30          (ACC,BEXP) .LT. .1 IF BEXP .LT. -3          07 01700
001344 001414 R
001345 001016 A 1701          JANZ    GNI25          (ACC,BEXP) .GT. .1 IF BEXP .GT. -3          07 01701
001346 001405 R
001347 016055 A 1702          LDA     BEXP,B                                                     07 01702
001350 005311 A 1703          DAR                                                                07 01703
001351 001002 A 1704          JAP     GNI25          DONT OSCILLATE                              07 01704
001352 001405 R
001353 016003 A 1705          LDA     ACC,B                                                      07 01705
001354 006140 A 1706          SUBI    063146                                              V2     07 01706
001355 063146 A
001356 001004 A 1707          JAN     GNI30          TEST WORD 0.LT..1                           07 01707
001357 001414 R
001360 001016 A 1708          JANZ    GNI25                                                      07 01708
001361 001405 R
001362 016004 A 1709          LDA     ACC+1,B                                                    07 01709
001363 006140 A 1710          SUBI    031463                                              V2     07 01710
001364 031463 A
001365 001004 A 1711          JAN     GNI30          TEST WORD 1.LT..1                           07 01711
001366 001414 R
001367 001016 A 1712          JANZ    GNI25                                                      07 01712
001370 001405 R
001371 016005 A 1713          LDA     ACC+2,B                                                    07 01713
001372 006140 A 1714          SUBI    014631                                              V2     07 01714
001373 014631 A
001374 001004 A 1715          JAN     GNI30          TEST WORD 2.LT..1                           07 01715
001375 001414 R
001376 001016 A 1716          JANZ    GNI25                                                      07 01716
001377 001405 R
001400 016006 A 1717          LDA     ACC+3,B                                                    07 01717
001401 006140 A 1718          SUBI    046315                                              V2     07 01718
001402 046315 A
001403 001004 A 1719          JAN     GNI30          TEST WORD 3.LT..1                           07 01719
001404 001414 R
                1720 ************************************************************************   07 01720
                1721 * .1 .LE. (ACC,BEXP) .LT. 1 SHIFT ACC TO POSITION *                        07 01721
                1722 ************************************************************************   07 01722
001405 005001 A 1723 GNI25    TZA                                                                07 01723
001406 146024 A 1724          SUB     BEXP,B                                                     07 01724
001407 056052 A 1725          STA     COUNT,B        LOAD SHIFT COUNT                            07 01725
                1726          PUSHJ   SHA            SHIFT ACC TO POSITION                 V2    07 01726
001410 105025 A
001411 005667 R
001412 001000 A 1727          JMP     GNI50                                                      07 01727
001413 001431 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
001414 010423 A
001415 056052 A
001416 126024 A 1732          ADD     BEXP,B         BUMP BINARY EXPONENT BY 4                   07 01732
001417 056024 A 1733          STA     BEXP,B                                                     07 01733
                1734          PUSHJ   SHA            SHIFT ACC RIGHT 4                     V2    07 01734
001420 105025 A
001421 005667 R
                1735          PUSHJ   M10            ACC = ACC*10                          V2    07 01735
001422 105025 A
001423 002337 R
                1736          DAB     BEXP           DROP DECIMAL EXPONENT                       07 01736
001424 016055 A
001425 005311 A
001426 056055 A
001427 001000 A 1737          JMP     GNIL1          LOOP TILL DONE                              07 01737
001430 001326 R
                1738 ************************************                                         07 01738
                1739 * GENERATE DECIMAL DIGITS *                                               07 01739
                1740 ************************************                                         07 01740
                1741 GNI50    MOVBAB  ACHB,CHBPT     INITIALIZE CHB POINTER                      07 01741
001431 016007 A
001432 056050 A
001433 046124 A 1742          INR     MOV,B          SET MULTIPLY OVERFLOW FLAG                  07 01742
                1743 GNIL2    PUSHJ   M10            ACC = ACC*10                          V2    07 01743
001434 105025 A
001435 002337 R
001436 036050 A 1744          LDX     CHBPT,B        POINT X AT ARRAY CHB                        07 01744
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001437 055000 A 1745          STA     0,X             STORE DECIMAL DIGIT IN ARRAY CHB                07 01745
001440 005145 A 1748          INCR    045             BUMP ARRAY POINTER                              07 01746
001441 076050 A 1747          STX     CHBPT,B                                                         07 01747
001442 146007 A 1748          SUB     ACHB,B                                                          07 01748
001443 146200 A 1749          SUB     BD14,B                                                  V2      07 01749
001444 001004 A 1750          JAN     GNIL2           LOOP TILL 14 DECIMAL DIGITS GENERATED           07 01750
001445 001434 R
                1751          POPJ                    EXIT                                    FG      07 01751
001446 105065 A
                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
                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
001447 016113 A
001450 126115 A
001451 056113 A
001452 016114 A 1770          LDA     ITEMWC,B                                                        07 01770
001453 005311 A 1771          DAR                                                                     07 01771
001454 001002 A 1772          JAP     GNL2            LIST ITEM FINISHED ?                            07 01772
001455 001476 R
001456 006010 A 1773          LDAI    GNL2            YES                                     V2      07 01773
001457 001476 R
001460 036000 A 1774          LDX     OPSTKP,B                                                V2      07 01774
001461 005344 A 1775          DXR                                                              FG      07 01775
001462 076000 A 1776          STX     OPSTKP,B                                                 FG      07 01776
001463 055000 A 1777          STA     0,X             PUSH RETURN ADDRESS GNL2                V2      07 01777
001464 010422 A 1778          LDA     CEX                                                             07 01778
                1779          PUSHF                   PUSH EXIT OP                                    07 01779
001465 036016 A
001466 035000 A
001467 005344 A
001470 055000 A
001471 005041 A
001472 036016 A
001473 055000 A
001474 001000 A 1780          JMP     CAN             EXIT TO V$FORTID                                07 01780
001475 000065 R
                1781 GNL2     SUTBBB  ITEMWC,ITMINC,ITEMWC    DECREMENT LIST ITEM WORD COUNT          07 01781
001476 016114 A
001477 146115 A
001500 056114 A
                1782          POPJ                    EXIT                                    FG      07 01782
001501 105065 A
                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
001502 016055 A 1804 GOUT     LDA     DEXP,B          GET DECIMAL EXPONENT                            07 01804
001503 001004 A 1805          JAN     EOUT            PROCESS AS 'E' IF DEXP .LT. ZERO                07 01805
001504 000324 R
001505 146054 A 1806          SUB     D,B                                                             07 01806
001506 005311 A 1807          DAR                                                                     07 01807
001507 001002 A 1808          JAP     EOUT            PROCESS AS 'E' IF DEXP .GE. D                   07 01808
001510 000324 R
                1809          MOVBAB  DT,COUNT        LOAD SIGNIFICANT DIGIT COUNT                    07 01809
001511 016056 A
001512 056052 A
                1810          PUSHJ   RND             ROUND DECIMAL DIGIT STRING              V2      07 01810
001513 105025 A
001514 005512 R
001515 016056 A 1811          LDA     DT,B                                                            07 01811
001516 146055 A 1812          SUB     DEXP,B          DECREMENT FRACTIONAL FIELD                      07 01812
001517 001004 A 1813          JAN     EOUT            PROCESS AS 'E' ON ROUNDING OVERFLOW             07 01813
001520 000324 R
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001521 056056 A 1814          STA     DT,B                                                    07 01814
                1815          MOVPAB  FOUR,XFW      SET EXPONENT FIELD WIDTH TO 4             07 01815
001522 010423 A
001523 056174 A
                1816          ZAB     XFL           SET FLAG TO BLANK OUT EXPONENT FIELD      07 01816
001524 005001 A
001525 056173 A
                1817          MOVBAB  DEXP,IFW      LOAD INTEGER FIELD WIDTH                  07 01817
001526 016055 A
001527 056100 A
001530 001000 A 1818          JMP     DEF           PROCESS AS 'F' DESCRIPTOR                 07 01818
001531 000311 R
                1819          EJEC                                                            07 01819
                1820 ***********************************************************************  07 01820
                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
        001532 R 1839 HIN     EQU     *                                                       07 01839
        001532 R 1840 HOUT    EQU     *                                                       07 01840
                1842          TZAB    QFL,HI06      TEST IF H OR '...' DESCRIPTOR             07 01842
001532 016150 A
001533 001010 A
001534 001567 R
                1843 ********************                                                    07 01843
                1844 * '...' SPECIFIER *                                                    07 01844
                1845 ********************                                                    07 01845
001535 005311 A 1846          DAR                                                           07 01846
001536 001010 A 1847          JAZ     HI02          QFL = 2 ?                               07 01847
001537 001543 R
001540 056150 A 1848          STA     QFL,B         YES. SET QFL = 1                        07 01848
001541 001000 A 1849          JMP     HI010          AND INPUT OVER 2ND QUOTE OF PAIR       07 01849
001542 001577 R
                1850 HI02     MOVBAB  AFSCB,ASCB    SET SCB TO FORMAT STRING                07 01850
001543 016011 A
001544 056021 A
                1851          PUSHJ   ICC           INPUT FORMAT CHARACTER            V2    07 01851
001545 105025 A
001546 001623 R
001547 006451 A 1852          BT      ARST+QT,HI04        IS CHAR A QUOTE ?                 07 01852
001550 001564 R
                1853          PUSHJ   ICC           YES. INPUT NEXT CHARACTER         V2    07 01853
001551 105025 A
001552 001623 R
001553 006451 A 1854          BT      ARST+QT,FRS85 EXIT TO FORMAT SCAN ON SINGLE QUOTE       07 01854
001554 001031 R
                1855          DAB     FMPT          2 CONSECUTIVE QUOTES - BACK UP FORMAT PTR 07 01855
001555 016062 A
001556 005311 A
001557 056062 A
                1856          TSAB    RWFL,WR,HI015  READ ?                                 07 01856
001560 016154 A
001561 006411 A
001562 001611 R
001563 046150 A 1857          INR     QFL,B         YES. SET QFL = 2                        07 01857
                1858 HI04     DAB     FMPT          BACK UP FORMAT POINTER                  07 01858
001564 016062 A
001565 005311 A
001566 056062 A
                1859 ********************                                                    07 01859
                1860 * NH.. SPECIFIER *                                                    07 01860
                1861 ********************                                                    07 01861
                1862 HI06     DAB     N             DECREMENT FIELD WIDTH N                 07 01862
001567 016125 A
001570 005311 A
001571 056125 A
001572 001004 A 1863          JAN     FRS5          EXIT WHEN FIELD EXHAUSTED               07 01863
001573 000441 R
                1864          TSAB    RWFL,WR,HI015                                   V2    07 01864
001574 016154 A
001575 006411 A
001576 001611 R
                1865 *********                                                             07 01865
                1866 * INPUT *                                                             07 01866
                1867 *********                                                             07 01867
                1868 HI010    PUSHJ   CBC           INPUT BUFFER CHARACTER            V2    07 01868
001577 105025 A
001600 000101 R
                1869          MOVBAB  AFSCB,ASCB    SET SCB TO FORMAT STRING                07 01869
001601 016011 A
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001602 056021 A
                1878            MOVBAB  BCHAR,FCHAR     MOVE CHAR FROM BUFFER SCB TO FORMAT SCB     07 01870
001603 016030 A
001604 056064 A
                1871            PUSHJ   PCH             PUT CHARACTER IN FORMAT STRING          V2   07 01871
001605 105025 A
001606 003320 R
001607 001000 A 1872            JMP     HIN             PROCESS NEXT CHAR                           07 01872
001610 001532 R
                1873 ***********                                                                   07 01873
                1874 * OUTPUT *                                                                    07 01874
                1875 ***********                                                                   07 01875
                1876 HI015      MOVBAB  AFSCB,ASCB      SET SCB TO FORMAT STRING                    07 01876
001611 016011 A
001612 056021 A
                1877            PUSHJ   ICC             INPUT FORMAT CHARACTER                 V2   07 01877
001613 105025 A
001614 001623 R
                1878            MOVBAB  FCHAR,BCHAR     MOVE CHAR FROM FORMAT SCB TO BUFFER SCB     07 01878
001615 016064 A
001616 056030 A
                1879            PUSHJ   OCB             OUTPUT FORMAT CHARACTER TO BUFFER       V2   07 01879
001617 105025 A
001620 002452 R
001621 001000 A 1880            JMP     HOUT            PROCESS NEXT CHAR                           07 01880
001622 001532 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
001623 036021 A 1901 ICC    LDX     ASCB,B          POINT X AT SCB                              07 01901
001624 015000 A 1902        LDA     0,X             GET CURRENT POINTER                         07 01902
001625 045000 A 1903        INR     0,X             BUMP CURRENT POINTER                        07 01903
001626 007401 A 1904 SOF    SOF                                                                 07 01904
001627 004257 A 1905        LRLA    15              CONVERT BYTE TO WORD COUNT                  07 01905
001630 003004 A 1906        XAN     ROF             OVFL SET IF HIGH BYTE                       07 01906
001631 002201 R
001632 150460 A 1907        ANA     BR15            CLEAR SIGN BIT                              07 01907
001633 125001 A 1908        ADD     1,X             ADD STRING START ADDRESS                    07 01908
001634 005014 A 1909        TAX                     POINT X AT WORD                             07 01909
001635 015000 A 1910        LDA     0,X             GET WORD                                    07 01910
001636 003001 A 1911        XOF     LSRA8           RIGHT JUSTIFY BYTE                          07 01911
001637 001721 R
001640 150463 A 1912        ANA     RHW             CLEAR HIGH BYTE                             07 01912
001641 036021 A 1913        LDX     ASCB,B          POINT X AT SCB                              07 01913
001642 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$ST0       SET EXEC STATE TO 00               V2   07 01921
                1922 NV2NUC     CONT                                                       FG   07 01922
001643 034010 A 1923            LDX     ICCCT                                                   07 01923
001644 005144 A 1924 ICCLP      IXR                     POINT X AT CLASSIFICATION TABLE         07 01924
001645 145000 A 1925            SUB     0,X                                                     07 01925
001646 001002 A 1926            JAP     ICCLP                                                   07 01926
001647 001644 R
001650 015022 A 1927            LDA     ICCCT1-ICCCT,X      GET CHARACTER CLASSIFICATION CODE   07 01927
                1928            IFF     NUC                                                FG   07 01928
                1929            GOTO    NV2NUC                                             FG   07 01929
                1930            IFT     VII                                                FG   07 01930
                1931            OME     MAP,V$ST3       SET EXEC MODE TO NN                V2   07 01931
                1932 NV2NUC     CONT                                                       FG   07 01932
001651 036021 A 1933            LDX     ASCB,B          POINT X AT SCB                          07 01933
001652 055003 A 1934            STA     3,X             A = SCB(3) = CODE                       07 01934
                1935            POPJ                    EXIT                               FG   07 01935
001653 105065 A
                1936 ********************************                                            07 01936
                1937 * CLASSIFICATION TABLE - CHARS *                                           07 01937
                1938 ********************************                                            07 01938
001654 001654 R 1939 ICCCT  PZE     *                                                           07 01939
001655 000240 A 1940        DATA    0240            SPECIAL CHAR                                07 01940
001656 000001 A 1941        DATA    0241-0240       BLANK                                       07 01941
001657 000006 A 1942        DATA    0247-0241       SPECIAL CHAR                                07 01942
001660 000001 A 1943        DATA    0250-0247       ' QUOTE                                     07 01943
001661 000001 A 1944        DATA    0251-0250       '(' LEFT PAREN                              07 01944
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001662 000001 A 1945          DATA    0252-0251       ')' RIGHT PAREN                          07 01945
001663 000001 A 1946          DATA    0253-0252       SPECIAL CHAR                             07 01946
001664 000001 A 1947          DATA    0254-0253       '+' PLUS SIGN                            07 01947
001665 000001 A 1948          DATA    0255-0254       ',' COMMA                                07 01948
001666 000001 A 1949          DATA    0256-0255       '-' MINUS SIGN                           07 01949
001667 000001 A 1950          DATA    0257-0256       '.' PERIOD                               07 01950
001670 000001 A 195           DATA    0260-0257       '/' SLASH                                07 01951
001671 000012 A 195           DATA    0272-0260       NUMERIC                                  07 01952
001672 000007 A 195           DATA    0301-0272       SPECIAL CHAR                             07 01953
001673 000017 A 195           DATA    0320-0301       ALPHA                                    07 01954
001674 000001 A 1955          DATA    0321-0320       P                                        07 01955
001675 000012 A 1956          DATA    0333-0321       ALPHA                                    07 01956
001676 000045 A 195           DATA    0400-0333       SPECIAL CHAR                             07 01957
                1959  ********************************************                             07 01959
                1960  * CLASSIFICATION TABLE - CODES *                                         07 01960
                1961  ********************************************                             07 01961
001676 R        1962  ICCCT1  EQU     *-1                                                      07 01962
001677 000000 A 1963          DATA    0               SPECIAL CHAR                             07 01963
001700 000002 A 1964          DATA    2               BLANK                                    07 01964
001701 000000 A 1965          DATA    0               SPECIAL CHAR                             07 01965
001702 001000 A 1966          DATA    01000           ' QUOTE                                  07 01966
001703 000010 A 1967          DATA    010             '(' LEFT PAREN                           07 01967
001704 002000 A 1968          DATA    02000           ')' RIGHT PAREN                          07 01968
001705 000000 A 1969          DATA    0               SPECIAL CHAR                             07 01969
001706 000100 A 1970          DATA    0100            '+' PLUS SIGN                            07 01970
001707 000004 A 1971          DATA    4               ',' COMMA                                07 01971
001710 000020 A 1972          DATA    020             '-' MINUS SIGN                           07 01972
001711 000400 A 1973          DATA    0400            '.' PERIOD                               07 01973
001712 004000 A 1974          DATA    04000           '/' SLASH                                07 01974
001713 000040 A 1975          DATA    040             NUMERIC                                  07 01975
001714 000000 A 1976          DATA    0               SPECIAL CHAR                             07 01976
001715 000001 A 1977          DATA    1               ALPHA                                    07 01977
001716 000200 A 1978          DATA    0200            P                                        07 01978
001717 000001 A 1979          DATA    1               ALPHA                                    07 01979
001720 000000 A 1980          DATA    0               SPECIAL CHAR                             07 01980
001721 004350 A 1981  LSR#8  '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
001722 005001 A
001723 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
001724 016064 A
001725 146177 A
001726 056064 A
001727 016126 A 2003          LDA     NFF,B           GET COUNTER                              07 02003
001730 006140 A 2004          SUBI    3277            TEST IF IT CAN BE MULTIPLIED BY 10   V2  07 02004
001731 006315 A
001732 001002 A 2005          JAP     ER1             ERROR 1/ NUMBER TOO LARGE /              07 02005
001733 005367 R
001734 016126 A 2006          LDA     NFF,B           RESTORE COUNTER IN A                     07 02006
001735 005024 A 2007          TBX                     SAVE BASE REGISTER IN X                  07 02007
001736 004560 A 2008          LLSR    16                                                       07 02008
001737 160471 A 2009          MUL     TEN                                                      07 02009
001740 005021 A 2010          TBA                                                              07 02010
001741 005042 A 2011          TXB                     RESTORE BASE REGISTER B                  07 02011
001742 007400 A 2012          ROF                     CLEAR OVFL                               07 02012
001743 126064 A 2013          ADD     FCHAR,B         ADD IN NEW DIGIT                         07 02013
001744 001001 A 2014          JOF     ER1             ERROR 1/ NUMBER TOO LARGE /              07 02014
001745 005367 R
001746 055126 A 2015          STA     NFF,X           UPDATE COUNTER                           07 02015
                2016  IFFL1   PUSHJ   IOC             INPUT NEXT FORMAT CHARACTER          V2  07 02016
001747 105025 A
001750 001623 R
001751 006405 A 2017          BT      ASET+NM,IFFL        LOOP ON NUMERIC                      07 02017
001752 001724 R
001753 006401 A 2018          BT      ASET+BL,IFFL1       IGNORE BLANKS                        07 02018
001754 001747 R
                2019          POPJ                    EXIT ON NON-NUMERIC                  FG  07 02019
001755 105065 A
                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
                2025  * FUNCTION: TO SCAN THRU A FORMAT CHAR STRING TO A NON-BLANK         * 07 02025
                2026  *                                                                    * 07 02026
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                    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
001756 016011 A
001757 056021 A
                    2035 INFLP   PUSHJ   ICC            INPUT/CLASSIFY CHARACTER            V2   07 02035
001760 105025 A
001761 001623 R
001762 006401 A     2036         BT      ASET+BL,INFLP      LOOP TILL NON-BLANK INPUT             07 02036
001763 001760 R
                    2037         POPJ                   EXIT                                FG   07 02037
001764 105065 A
                    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 ONF                                                 * 07 02053
                    2054 *        IFW = DEXP                                                    * 07 02054
                    2055 *                                                                       * 07 02055
                    2056 ***********************************************************************  07 02056
001765 R            2058 IOUT    EQU     *                                                       07 02058
                    2060         MOVBAB  DEXP,COUNT                                              07 02060
001765 016055 A
001766 056052 A
                    2061         PUSHJ   RND            ROUND TO DEXP DIGITS                 V2   07 02061
001767 105025 A
001770 005512 R
                    2062         MOVBAB  DEXP,IFW       SET INTEGER COUNT TO DEXP                07 02062
001771 016055 A
001772 056100 A
001773 001000 A     2063         JMP     ONF            OUTPUT NUMERIC FIELD                     07 02063
001774 002502 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
001775 005001 A
001776 056057 A
001777 056077 A     2090         STA     IDEXP,B        CLEAR IMPLICIT DECIMAL EXPONENT          07 02090
002000 056124 A     2091         STA     MOV,B          CLEAR MULTIPLY OVERFLOW FLAG             07 02091
002001 056175 A     2092         STA     ^SG,B          CLEAR EXPONENT SIGN FLAG                 07 02092
002002 006010 A     2093         LDAI    60                                                  V2   07 02093
002003 000074 A
002004 056024 A     2094         STA     BIAS,B         BIAS ACC AS INTEGER ACCUMULATOR      V2   07 02094
                    2095 ********************************                                       07 02095
                    2096 * INPUT INTEGER AND FRACTIONAL PART *                                 07 02096
                    2097 ********************************                                       07 02097
002005 006010 A     2098         LDAI    0566           ENABLE BLANK/',','/'-'/NUMERIC/'+'/'.'   V2   07 02098
002006 000566 A
002007 056053 A     2099         STA     CVFL,B                                                  07 02099
                    2100 IXNL1   TZAB    WT,IXN50       EXIT IF FIELD EXHAUSTED                  07 02100
002010 016171 A
002011 001010 A
002012 002172 R
                    2101         PUSHJ   CBC            INPUT BUFFER CHARACTER               V2   07 02101
002013 105025 A
002014 000101 R
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002015 156053 A 2102          ANA     CVFL,B                                                          07 02102
002016 001010 A 2103          JAZ     ER3             ERROR 3/ ILLEGAL CHAR /                         07 02103
002017 005365 R
002020 016031 A 2104          LDA     BCODE,B         RELOAD CHARACTER CODE                           07 02104
002021 006402 A 2105          BT      ASET+CM,IXN50       STOP SCAN ON ','                            07 02105
002022 002172 R
002023 006400 A 2106          BT      ASET+AL,IXN15       TEST ALPHA                                  07 02106
002024 002102 R
                2107 ************************                                                         07 02107
                2108 * PROCESS BLANK CHAR *                                                           07 02108
                2109 ************************                                                         07 02109
002025 006441 A 2110          BT      ARST+BL,IXN4        TEST FOR BLANK                              07 02110
002026 002033 R
                2111          MOVBAB  AZER,BCHAR      REPLACE ASCII BLANK WITH ASCII ZERO      V2     07 02111
002027 016177 A
002030 056030 A
002031 001000 A 2112          JMP     IXN10                                                           07 02112
002032 002073 R
002033 016053 A 2113 IXN4     LDA     CVFL,B          NON-BLANK INPUT                                 07 02113
002034 150445 A 2114          ANA     BR4             DISABLE '-'                                     07 02114
002035 150447 A 2115          ANA     BR6             DISABLE '+'                                     07 02115
002036 056053 A 2116          STA     CVFL,B                                                          07 02116
                2117 ************************                                                         07 02117
                2118 * PROCESS '+' AND '-' *                                                         07 02118
                2119 ************************                                                         07 02119
002037 016031 A 2120          LDA     BCODE,B         RELOAD CHAR CODE                                07 02120
002040 006405 A 2121          BT      ASET+PL,IXN5        TEST '+'                                    07 02121
002041 002052 R
002042 006444 A 2122          BT      ARST+MN,IXN6        TEST '-'                                    07 02122
002043 002057 R
002044 016053 A 2123          LDA     CVFL,B                                                          07 02123
002045 006414 A 2124          BT      ASET+B12,IXN18      '-' IS EXPONENT IF BIT 12 SET               07 02124
002046 002136 R
002047 046157 A 2125          INR     SGFL,B          SET '-' FLAG                                    07 02125
002050 001000 A 2126          JMP     IXNL1           CONTINUE SCAN                                   07 02126
002051 002010 R
002052 016053 A 2127 IXN5     LDA     CVFL,B                                                          07 02127
002053 006414 A 2128          BT      ASET+B12,IXN18      '+' IS EXPONENT IF BIT 12 SET               07 02128
002054 002136 R
002055 001000 A 2129          JMP     IXNL1           CONTINUE SCAN                                   07 02129
002056 002010 R
002057 006450 A 2130 IXN6     BT      ARST+PT,IXN8        TEST '.'                                    07 02130
002060 002067 R
002061 046147 A 2131          INR     PTFL,B          '.' INPUT. SET FLAG                             07 02131
002062 016053 A 2132          LDA     CVFL,B                                                          07 02132
002063 150451 A 2133          ANA     BR8             DISABLE '.'                                     07 02133
002064 056053 A 2134          STA     CVFL,B                                                          07 02134
002065 001000 A 2135          JMP     IXNL1           CONTINUE SCAN                                   07 02135
002066 002010 R
                2136 ************************                                                         07 02136
                2137 * PROCESS NUMERIC CHAR *                                                         07 02137
                2138 ************************                                                         07 02138
002067 016053 A 2139 IXN8     LDA     CVFL,B                                                          07 02139
002070 006110 A 2140          ORAI    010121          ENABLE ALPHA/EXPONENT SIGN               V2     07 02140
002071 010121 A
002072 056053 A 2141          STA     CVFL,B                                                          07 02141
002073 016030 A 2142 IXN10    LDA     BCHAR,B         GET INPUT NUMERIC CHAR                          07 02142
002074 146177 A 2143          SUB     AZER,B          CONVERT ASCII DIGIT TO BINARY            V2     07 02143
002075 056166 A 2144          STA     TERM,B                                                          07 02144
                2145          PUSHJ   M10             ACC = ACC*10 + TERM                      V2     07 02145
002076 105025 A
002077 002337 R
002100 001000 A 2146          JMP     IXNL1           CONTINUE SCAN                                   07 02146
002101 002010 R
                2147 ************************                                                         07 02147
                2148 * ALPHA CHAR INPUT *                                                            07 02148
                2149 ************************                                                         07 02149
002102 016030 A 2150 IXN15    LDA     BCHAR,B                                                         07 02150
002103 006140 A 2151          SUBI    0304                                                     V2     07 02151
002104 000304 A
002105 001004 A 2152          JAN     ER3             ERROR 3/ NOT 'D' OR 'E' /                       07 02152
002106 005365 R
002107 140422 A 2153          SUB     TWO                                                             07 02153
002110 001002 A 2154          JAP     ER3             ERROR 3/ NOT 'D' OR 'E' /                       07 02154
002111 005365 R
                2155 ************************                                                         07 02155
                2156 * PROCESS EXPONENT FIELD *                                                      07 02156
                2157 ************************                                                         07 02157
002112 006010 A 2158          LDAI    0166                                                     V2     07 02158
002113 000166 A
002114 056053 A 2159          STA     CVFL,B          ENABLE BLANK/'+'/'-'/','/NUMERIC         V2     07 02159
                2160 IXNL2    TZAB    VT,IXN30        EXIT IF FIELD EXHAUSTED                         07 02160
002115 016171 A
002116 001010 A
002117 002170 R
                2161          PUSHJ   GBC             INPUT BUFFER CHARACTER                   V2     07 02161
002120 105025 A
002121 000101 R
002122 156053 A 2162          ANA     CVFL,B                                                          07 02162
002123 001010 A 2163          JAZ     ER3             ERROR 3/ ILLEGAL CHAR /                         07 02163
002124 005365 R
002125 016031 A 2164          LDA     BCODE,B         RELOAD CHARACTER CODE                           07 02164
002126 006402 A 2165          BT      ASET+CM,IXN30       STOP SCAN ON ','                            07 02165
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002127 002170 R
002130 006441 A 2166          BT      ARST+BL,IXN20       TEST FOR BLANK                          07 02166
002131 002141 R
                2167          MOVBAB  AZER,BCHAR    REPLACE BLANK WITH ZERO             V2    07 02167
002132 016177 A
002133 056030 A
002134 001000 A 2168          JMP     IXN25                                                     07 02168
002135 002155 R
002136 006010 A 2169 IXN1B    LDAI    0166                                              V2    07 02169
002137 000166 A
002140 056053 A 2170          STA     CVFL,B        ENABLE BLANK/NUMERIC                V2    07 02170
002141 016053 A 2171 IXN20    LDA     CVFL,B        NON-BLANK INPUT                           07 02171
002142 150445 A 2172          ANA     BR4           DISABLE '-'                               07 02172
002143 150447 A 2173          ANA     BR6           DISABLE '+'                               07 02173
002144 056053 A 2174          STA     CVFL,B                                                  07 02174
                2175 ********************************                                        07 02175
                2176 * PROCESS EXPONENT '+' OR '-' *                                        07 02176
                2177 ********************************                                        07 02177
002145 016031 A 2178          LDA     BCODE,B       RELOAD BUFFER CHARACTER CODE              07 02178
002146 006406 A 2179          BT      ASET+PL,IXNL2       CONTINUE SCAN ON '+'                07 02179
002147 002115 R
002150 006444 A 2180          BT      ARST+MN,IXN25       TEST FOR '-'                        07 02180
002151 002155 R
002152 046175 A 2181          INR     XSG,B         SET '-' EXPONENT SIGN FLAG                07 02181
002153 001000 A 2182          JMP     IXNL2         CONTINUE SCAN                             07 02182
002154 002115 R
                2183 ************************************                                    07 02183
                2184 * PROCESS NUMERIC EXPONENT DIGIT *                                    07 02184
                2185 ************************************                                    07 02185
002155 016030 A 2186 IXN25    LDA     BCHAR,B       GET ASCII DIGIT                           07 02186
002156 146177 A 2187          SUB     AZER,B        CONVERT TO BINARY                   V2    07 02187
002157 005024 A 2188          TBX                   SAVE BASE REGISTER SETTING IN X           07 02188
002160 025057 A 2189          LDB     EDEXP,X                                                 07 02189
002161 160471 A 2190          MUL     TEN                                                     07 02190
002162 065057 A 2191          STB     EDEXP,X       UPDATE EXPLICIT DECIMAL EXPONENT          07 02191
002163 005042 A 2192          TXB                   RESTORE BASE REGISTER B                   07 02192
002164 001016 A 2193          JANZ    ER3           ERROR 3/ EXPONENT TOO LARGE /             07 02193
002165 005365 R
002166 001000 A 2194          JMP     IXNL2         CONTINUE SCAN                             07 02194
002167 002115 R
                2195 IXN30    ZAB     SCF           DISABLE SCALE FACTOR IF EXTERNAL EXPONENT 07 02195
002170 005001 A
002171 056156 A
                2196 ********************************                                        07 02196
                2197 * CONVERT TO STANDARD FORM *                                          07 02197
                2198 ********************************                                        07 02198
002172 036001 A 2199 IXN50    LDX     AACC,B        POINT X AT ACC                            07 02199
002173 015000 A 2200          LDA     0,X                                                     07 02200
002174 115001 A 2201          ORA     1,X                                                     07 02201
002175 115002 A 2202          ORA     2,X                                                     07 02202
002176 115003 A 2203          ORA     3,X                                                     07 02203
002177 001010 A 2204          JAZ     IXN57         EXIT IF ACC=0                       FG    07 02204
002200 002235 R
002201 007400 A 2205 RDF      RDF                                                             07 02205
                2206          TZAB    XSG,IXN52     IS EXPONENT SIGN FLAG SET ?         V2    07 02206
002202 016175 A
002203 001010 A
002204 002210 R
002205 005001 A 2207          TZA                   YES                                       07 02207
002206 146057 A 2208          SUB     EDEXP,B       NEGATE EXPLICIT DECIMAL EXPONENT          07 02208
002207 056057 A 2209          STA     EDEXP,B                                                 07 02209
                2210 IXN52    TNZAB   PTFL,IXN53     HAS A '.' BEEN INPUT ?              V2    07 02210
002210 016147 A
002211 001016 A
002212 002216 R
                2211          SUTBBB  IDEXP,D,IDEXP       NO. DECREMENT EXPONENT BY D           07 02211
002213 016077 A
002214 146054 A
002215 056077 A
                2212 IXN53    TZAB    SCF,IXN55     IS SCALE FACTOR ENABLED ?           V2    07 02212
002216 016156 A
002217 001010 A
002220 002223 R
002221 005001 A 2213          TZA                   YES                                       07 02213
002222 146155 A 2214          SUB     S,B                                                     07 02214
002223 126077 A 2215 IXN55    ADD     IDEXP,B       ADD IMPLICIT DECIMAL EXPONENT       V2    07 02215
002224 126057 A 2216          ADD     EDEXP,B       ADD EXPLICIT DECIMAL EXPONENT             07 02216
002225 056055 A 2217          STA     DEXP,B        STORE IN DEXP                             07 02217
002226 001001 A 2218          JOF     ER3           ERROR 3/ EXPONENT TOO LARGE /             07 02218
002227 005365 R
                2219 IXNL3    PUSHJ   NRM           NORMALIZE ACC                       V2    07 02219
002230 105025 A
002231 002402 R
                2220          TNZAB   DEXP,IXN58                                       FG    07 02220
002232 016055 A
002233 001016 A
002234 002236 R
                2221 IXN57    POPJ                  EXIT WHEN DEXP=0                    FG    07 02221
002235 105065 A
002236 001002 A 2222 IXN58    JAP     IXN60         TEST SIGN OF DEXP                   FG    07 02222
002237 002245 R
                2223 ********************************                                        07 02223
                2224 * NEGATIVE DECIMAL EXPONENT *                                        07 02224
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                    2225 ********************************                                                07 02225
                    2226         PUSHJ   D10             ACC = ACC/10                              V2  07 02226
002240 105025 A
002241 000271 R
002242 046055 A     2227         INR     DEXP,B          BUMP DEXP                                     07 02227
002243 001000 A     2228         JMP     IXNL3           CONTINUE CONVERSION                           07 02228
002244 002230 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
002245 010423 A
002246 056052 A
002247 126024 A     2233         ADD     BEXP,B          BUMP BINARY EXPONENT                          07 02233
002250 056024 A     2234         STA     BEXP,B                                                        07 02234
                    2235         PUSHJ   SHA             SHIFT ACC RIGHT 4                         V2  07 02235
002251 105025 A
002252 005667 R
                    2236         PUSHJ   M10             ACC = ACC*10                              V2  07 02236
002253 105025 A
002254 002337 R
                    2237         DAB     BEXP            DROP BEXP                                     07 02237
002255 016055 A
002256 005311 A
002257 056055 A
002260 001000 A     2238         JMP     IXNL3           CONTINUE CONVERSION                           07 02238
002261 002230 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
002262 016171 A
002263 001010 A
002264 005365 R
                    2259         PUSHJ   CBC             INPUT BUFFER CHARACTER                    V2  07 02259
002265 105025 A
002266 000101 R
002267 006401 A     2260         BT      ASET+BL,LIN     SLEW THRU BLANKS                              07 02260
002270 002262 R
002271 036113 A     2261         LDX     ITEMAD,B        POINT X AT LIST ITEM                          07 02261
002272 005301 A     2262         DECR    1                                                             07 02262
002273 055000 A     2263         STA     0,X             SET LIST ITEM TO .TRUE. (-1)                  07 02263
002274 016030 A     2264         LDA     BCHAR,B         GET INPUT CHAR                                07 02264
002275 006140 A     2265         SUBI    0324                                                      V2  07 02265
002276 000324 A
002277 001010 A     2266         JAZ     LINX            EXIT TO FORMAT SCAN IF 'T'                    07 02266
002300 002306 R
002301 045000 A     2267         INR     0,X             SET LIST ITEM TO .FALSE. (0)                  07 02267
002302 006120 A     2268         ADDI    016             TEST FOR 'F'                              V2  07 02268
002303 000016 A
002304 001016 A     2269         JAMZ    ER3             ERROR 3/ 1ST CHAR NOT 'T' OR 'F' /            07 02269
002305 005365 R
                    2270 LINX    MOVBAB  WT,COUNT        LOAD REMAINING FIELD WIDTH AS REPEAT COUNT    07 02270
002306 016171 A
002307 056052 A
                    2271         PUSHJ   RCH             GOBBLE REST OF FIELD                      V2  07 02271
002310 105025 A
002311 005125 R
002312 001000 A     2272         JMP     FRS65           EXIT TO FORMAT SCAN                           07 02272
002313 001014 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
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002314 016202 A
002315 056030 A
                2292            DABB    WT,COUNT        SET COUNT TO WT-1                                       07 02292
002316 016171 A
002317 005311 A
002320 056052 A
                2293            PUSHJ   RCH             OUTPUT WT-1 LEADING BLANKS              V2      07 02293
002321 105025 A
002322 005125 R
002323 006010 A 2294            LDAI    0306                                                    V2      07 02294
002324 000306 A
002325 056030 A 2295            STA     BCHAR,B         LOAD 'F' AS OUTPUT CHARACTER            V2      07 02295
002326 036113 A 2296            LDX     ITEMAD,B        POINT X AT LIST ITEM                            07 02296
                2297            TZAX    0,LOU4          TEST LIST ITEM = 0 (FALSE)                      07 02297
002327 015000 A
002330 001010 A
002331 002335 R
002332 006010 A 2298            LDAI    0324            SET OUTPUT CHAR TO 'T' IF NOT           V2      07 02298
002333 000324 A
002334 056030 A 2299            STA     BCHAR,B                                                 V2      07 02299
                2300 LOU4       PUSHJ   OCB             OUTPUT 'T' OR 'F'/EXIT                  V2      07 02300
002335 105025 A
002336 002452 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
002337 005024 A 2320 M10        TBX                     LOAD X AS BASE REGISTER                         07 02320
002340 015003 A 2321            LDA     ACC,X                                                           07 02321
002341 006140 A 2322            SUBI    3276                                                    V2      07 02322
002342 006314 A
002343 001004 A 2323            JAN     M104            CAN ACC BE MULTIPLIED BY 10 ?                   07 02323
002344 002355 R
002345 015124 A 2324            LDA     MOV,X           NO                                              07 02324
002346 001016 A 2325            JANZ    M104            MULTIPLY ANYWAY IF MOV SET                      07 02325
002347 002355 R
002350 015147 A 2326            LDA     PTFL,X                                                          07 02326
002351 001016 A 2327            JANZ    M10X            EXIT IF '.' PASSED                      FG      07 02327
002352 002401 R
002353 045077 A 2328            INR     IDEXP,X         OTHERWISE BUMP IMPLICIT DECIMAL EXPONENT        07 02328
                2329            POPJ                     AND EXIT                               FG      07 02329
002354 105065 A
002355 015166 A 2330 M104       LDA     TERM,X          LOAD I                                          07 02330
002356 025006 A 2331            LDB     ACC+3,X                                                         07 02331
002357 160471 A 2332            MUL     TEN             ACC(3)=ACC(3)*10 + I                            07 02332
002360 065006 A 2333            STB     ACC+3,X                                                         07 02333
002361 025005 A 2334            LDB     ACC+2,X                                                         07 02334
002362 160471 A 2335            MUL     TEN             ACC(2)=ACC(2)*10 + OVFL(3)                      07 02335
002363 065005 A 2336            STB     ACC+2,X                                                         07 02336
002364 025004 A 2337            LDB     ACC+1,X                                                         07 02337
002365 160471 A 2338            MUL     TEN             ACC(1)=ACC(1)*10 + OVFL(2                       07 02338
002366 065004 A 2339            STB     ACC+1,X                                                         07 02339
002367 025003 A 2340            LDB     ACC,X                                                           07 02340
002370 160471 A 2341            MUL     TEN             ACC(0)=ACC(0)*10 + OVFL(1)                      07 02341
002371 065003 A 2342            STB     ACC,X                                                           07 02342
002372 005042 A 2343            TXB                     RESTORE BASE REGISTER B                         07 02343
002373 036147 A 2344            LDX     PTFL,B                                                          07 02344
002374 001040 A 2345            JXZ     M10X            HAS A '.' BEEN PASSED ?                 FG      07 02345
002375 002401 R
002376 036077 A 2346            LDX     IDEXP,B         YES                                             07 02346
002377 005344 A 2347            DXR                     DECREMENT IMPLICIT DECIMAL EXPONENT             07 02347
002400 076077 A 2348            STX     IDEXP,B                                                         07 02348
                2349 M10X       POPJ                    EXIT                                    FG      07 02349
002401 105065 A
                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
002402 005024 A 2364 NRM        TBX                     LOAD X AS BASE REGISTER                         07 02364
002403 015003 A 2365 NRML       LDA     ACC,X                                                           07 02365
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002404 004241 A 2366          LRLA    1                                                    07 02366
002405 001004 A 2367          JAN     NRMX            EXIT WHEN NORMALIZED                 07 02367
002406 002450 R
002407 001016 A 2368          JANZ    NRM4            ACC(0) = 0 ?                         07 02368
002410 002426 R
                2369          MOVXAX  ACC+1,ACC       YES. SHIFT 1 WORD                    07 02369
002411 015004 A
002412 055003 A
                2370          MOVXAX  ACC+2,ACC+1                                          07 02370
002413 015005 A
002414 055004 A
                2371          MOVXAX  ACC+3,ACC+2                                          07 02371
002415 015006 A
002416 055005 A
                2372          ZAX     ACC+3                                                07 02372
002417 005001 A
002420 055006 A
002421 016024 A 2373          LDA     BEXP,B                                               07 02373
002422 140472 A 2374          SUB     D15                                                  07 02374
002423 056024 A 2375          STA     BEXP,B                                               07 02375
002424 001000 A 2376          JMP     NRML                                                 07 02376
002425 002403 R
002426 015003 A 2377 NRM4     LDA     ACC,X                                                07 02377
002427 025004 A 2378          LDB     ACC+1,X                                              07 02378
002430 004401 A 2379          LASL    1                                                    07 02379
002431 055003 A 2380          STA     ACC,X           SHIFT ACC(0) LEFT 1                  07 02380
002432 015004 A 2381          LDA     ACC+1,X                                              07 02381
002433 025005 A 2382          LDB     ACC+2,X                                              07 02382
002434 004401 A 2383          LASL    1                                                    07 02383
002435 055004 A 2384          STA     ACC+1,X         SHIFT ACC(1) LEFT 1                  07 02384
002436 015005 A 2385          LDA     ACC+2,X                                              07 02385
002437 025006 A 2386          LDB     ACC+3,X                                              07 02386
002440 004401 A 2387          LASL    1                                                    07 02387
002441 055005 A 2388          STA     ACC+2,X         SHIFT ACC(2) LEFT 1                  07 02388
002442 065006 A 2389          STB     ACC+3,X         SHIFT ACC(3) LEFT 1                  07 02389
002443 015024 A 2390          LDA     BEXP,X                                               07 02390
002444 005311 A 2391          DAR                     DECREMENT BINARY EXPONENT BEXP       07 02391
002445 055024 A 2392          STA     BEXP,X                                               07 02392
002446 001000 A 2393          JMP     NRML            CONTINUE NORMALIZE LOOP              07 02393
002447 002403 R
002450 005042 A 2394 NRMX     TXB                     RESTORE BASE REGISTER B              07 02394
                2395          POPJ                    EXIT                              FG 07 02395
002451 105065 A
                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
002452 016022 A
002453 001010 A
002454 002464 R
002455 016171 A 2413          LDA     WT,B            YES                                  07 02413
002456 005311 A 2414          DAR                                                          07 02414
002457 001016 A 2415          JANZ    OCB4            WT = 1 ?                             07 02415
002460 002464 R
002461 006010 A 2416          LDAI    0252                                              V2 07 02416
002462 000252 A
002463 056030 A 2417          STA     BCHAR,B         YES. LOAD '*' AS OUTPUT CHARACTER    V2 07 02417
                2418 OCB4     PUSHJ   OBC             OUTPUT CHAR TO BUFFER                V2 07 02418
002464 105025 A
002465 000101 R
                2419          TZAB    WT,OCB6         FIELD EXHAUSTED ?                 FG 07 02419
002466 016171 A
002467 001010 A
002470 002472 R
                2420          POPJ                    NO. RETURN                        FG 07 02420
002471 105065 A
                2421 OCB6     MOVBAB  ADPSTK,DPSTKP   YES. CLEAR STACK                  FG 07 02421
002472 016017 A
002473 056000 A
002474 016061 A 2422          LDA     FDLKEY,B                                             07 02422
002475 140424 A 2423          SUB     EIGHT                                                07 02423
002476 001002 A 2424          JAP     FRS5            SCAN FOR NEXT FORMAT CHAR ON H/X     07 02424
002477 000441 R
002500 001000 A 2425          JMP     FRS65           RETURN TO FORMAT SCAN                07 02425
002501 001013 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
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                    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 OCB                                                          * 07 02451
                    2452 *                                                                                  * 07 02452
                    2453 ************************************************************************************ 07 02453
                    2455 ************************                                                           07 02455
                    2456 * OUTPUT LEADING BLANKS *                                                          07 02456
                    2457 ************************                                                           07 02457
002502 016171 A     2458 ONF     LDA      WT,B          GET FIELD WIDTH                                     07 02458
002503 126157 A     2459         ADD      SGFL,B        SUBTRACT '-'                                        07 02459
002504 146100 A     2460         SUB      IFW,B         SUBTRACT WIDTH OF INTEGER FIELD                     07 02460
002505 146147 A     2461         SUB      PTFL,B        SUBTRACT SPACE FOR '.'                              07 02461
002506 146056 A     2462         SUB      DT,B          SUBTRACT WIDTH OF FRACTIONAL FIELD                  07 02462
002507 146174 A     2463         SUB      XFW,B         SUBTRACT WIDTH OF EXPONENT FIELD                    07 02463
002510 056052 A     2464         STA      COUNT,B       STORE LEADING BLANK COUNT                           07 02464
002511 001002 A     2465         JAP      ONF5          TEST FOR FIELD OVERFLOW                             07 02465
002512 002532 R
                    2466 ********************                                                               07 02466
                    2467 * FIELD OVERFLOW *                                                               07 02467
                    2468 ********************                                                               07 02468
002513 005311 A     2469         DAR                    ALLOW 1 SPACE FOR '*'                               07 02469
002514 056022 A     2470         STA      ASFL,B        SET '*' FLAG                                        07 02470
002515 126056 A     2471         ADD      DT,B                                                              07 02471
002516 056056 A     2472         STA      DT,B          REDUCE FRACTIONAL FIELD                             07 02472
002517 001002 A     2473         JAP      ONF5          DOES FIELD STILL OVERFLOW ?                         07 02473
002520 002532 R
002521 005004 A     2474         TZX                    YES                                                 07 02474
002522 076056 A     2475         STX      DT,B          SET FRACTIONAL FIELD WIDTH = 0                      07 02475
002523 126147 A     2476         ADD      PTFL,B        DELETE '.'                                          07 02476
002524 076147 A     2477         STX      PTFL,B                                                            07 02477
002525 126100 A     2478         ADD      IFW,B                                                             07 02478
002526 056100 A     2479         STA      IFW,B         REDUCE INTEGER FIELD WIDTH                          07 02479
002527 001002 A     2480         JAP      ONF5          DOES FIELD STILL OVERFLOW ?                         07 02480
002530 002532 R
002531 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
002532 016202 A
002533 056030 A
                    2483         PUSHJ    RCH           OUTPUT COUNT BLANKS                         V2      07 02483
002534 105025 A
002535 005125 R
                    2484 ****************                                                                   07 02484
                    2485 * OUTPUT SIGN *                                                                  07 02485
                    2486 ****************                                                                   07 02486
                    2487         TZAB     SGFL,ONF20    DONT OUTPUT '+' SIGN                                07 02487
002536 016157 A
002537 001010 A
002540 002546 R
002541 006010 A     2488         LDAI     0255                                                      V2      07 02488
002542 000255 A
002543 056030 A     2489         STA      BCHAR,B                                                   V2      07 02489
                    2490         PUSHJ    OCB           OUTPUT '-'                                  V2      07 02490
002544 105025 A
002545 002452 R
                    2491 ************************                                                           07 02491
                    2492 * OUTPUT INTEGER FIELD *                                                          07 02492
                    2493 ************************                                                           07 02493
                    2494 ONF20   MOVBAB   IFW,COUNT     LOAD LOOP COUNT                                     07 02494
002546 016100 A
002547 056052 A
                    2495         MOVBAB   ACHB,CHBPT    INITIALIZE CHB ARRAY POINTER                        07 02495
002550 016007 A
002551 056050 A
002552 016052 A     2496 ONFL1   LDA      COUNT,B                                                           07 02496
002553 005311 A     2497         DAR                    DECREMENT COUNT                                     07 02497
002554 001004 A     2498         JAN      ONF30         EXIT WHEN FINISHED                                  07 02498
002555 002577 R
002556 056052 A     2499         STA      COUNT,B                                                           07 02499
002557 036050 A     2500         LDX      CHBPT,B                                                           07 02500
002560 046050 A     2501         INR      CHBPT,B       BUMP CHB POINTER                                    07 02501
002561 015000 A     2502         LDA      0,X           GET DIGIT                                           07 02502
002562 126177 A     2503         ADD      AZER,B        CONVERT TO ASCII                            V2      07 02503
002563 056030 A     2504         STA      BCHAR,B                                                           07 02504
                    2505         PUSHJ    OCB           OUTPUT CHARACTER TO BUFFER                  V2      07 02505
002564 105025 A
002565 002452 R
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002566 016050 A 2506          LDA     CHBPT,B                                                    07 02506
002567 146007 A 2507          SUB     ACHB,B                                                     07 02507
002570 146200 A 2508          SUB     BD14,B                                              V2     07 02508
002571 001004 A 2509          JAN     DNFL1                                                      07 02509
002572 002552 R
               2510           MOVBAB  AZER,BCHAR    LOAD '0' AS REPEAT CHARACTER          V2     07 02510
002573 016177 A
002574 056030 A
               2511           PUSHJ   RCH           OUTPUT '0' FILL                       V2     07 02511
002575 105025 A
002576 005125 R
               2512 ***************                                                             07 02512
               2513 * OUTPUT '.' *                                                             07 02513
               2514 ***************                                                             07 02514
               2515 DNF30     TZAB    PTFL,DNF40    SKIP IF NO '.'                            07 02515
002577 016147 A
002600 001010 A
002601 002645 R
002602 006010 A 2516          LDAI    0256                                                V2     07 02516
002603 000256 A
002604 056030 A 2517          STA     BCHAR,B       LOAD '.' AS OUTPUT CHARACTER          V2     07 02517
               2518           PUSHJ   DCB           OUTPUT '.'                            V2     07 02518
002605 105025 A
002606 002452 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
002607 016176 A
002610 056052 A
               2523           MOVBAB  AZER,BCHAR    LOAD '0' AS REPEAT CHARACTER          V2     07 02523
002611 016177 A
002612 056030 A
               2524           PUSHJ   RCH           OUTPUT LEADING ZEROS                  V2     07 02524
002613 105025 A
002614 005125 R
               2525 ***************************                                                07 02525
               2526 * OUTPUT FRACTIONAL PART *                                                 07 02526
               2527 ***************************                                               07 02527
               2528           SUTBBB  DT,ZFW,COUNT      LOAD COUNTER                          07 02528
002615 016056 A
002616 146176 A
002617 056052 A
002620 016052 A 2529 DNFL2     LDA     COUNT,B                                                   07 02529
002621 005311 A 2530           DAR                   DECREMENT COUNT                           07 02530
002622 001004 A 2531           JAN     DNF40         EXIT WHEN FINISHED                        07 02531
002623 002645 R
002624 056052 A 2532          STA     COUNT,B                                                   07 02532
002625 036050 A 2533          LDX     CHBPT,B       POINT X AT DIGIT                            07 02533
002626 046050 A 2534          INR     CHBPT,B       BUMP CHB POINTER                            07 02534
002627 015000 A 2535          LDA     0,X           GET DIGIT                                   07 02535
002630 126177 A 2536          ADD     AZER,B        CONVERT TO ASCII                      V2    07 02536
002631 056030 A 2537          STA     BCHAR,B                                                   07 02537
               2538           PUSHJ   DCB           OUTPUT CHAR TO BUFFER                 V2     07 02538
002632 105025 A
002633 002452 R
002634 016050 A 2539          LDA     CHBPT,B                                                   07 02539
002635 146007 A 2540          SUB     ACHB,B                                                    07 02540
002636 146200 A 2541          SUB     BD14,B                                              V2    07 02541
002637 001004 A 2542          JAN     DNFL2                                                     07 02542
002640 002620 R
               2543           MOVBAB  AZER,BCHAR    LOAD '0' AS REPEAT CHARACTER          V2     07 02543
002641 016177 A
002642 056030 A
               2544           PUSHJ   RCH           OUTPUT '0' FILL                       V2     07 02544
002643 105025 A
002644 005125 R
               2545 DNF40     TNZAB   XFL,DNF50      TEST EXPONENT FLAG                   V2     07 02545
002645 016173 A
002646 001016 A
002647 002656 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
002650 010423 A
002651 056052 A
               2550           MOVBAB  BLNK1,BCHAR                                         V2    07 02550
002652 016202 A
002653 056030 A
               2551           PUSHJ   RCH           OUTPUT 4 BLANKS AND EXIT              V2     07 02551
002654 105025 A
002655 005125 R
               2552 ***********************                                                    07 02552
               2553 * OUTPUT EXPONENT FIELD *                                                 07 02553
               2554 ***********************                                                   07 02554
002656 006010 A 2555 DNF50     LDAI    0305                                                V2    07 02555
002657 000305 A
002660 056030 A 2556          STA     BCHAR,B       SET EXPONENT CHARACTER TO 'E'         V2     07 02556
               2557           TNZAB   FDLKEY,DNF52  IS FORMAT DESCRIPTOR 'D' ?            V2     07 02557
002661 016061 A
002662 001016 A
002663 002667 R
```

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                    2558          DAB     BCHAR          YES. LOAD 'D'                                  V2  07 02558
002664 016030 A
002665 005311 A
002666 056030 A
                    2559 ONF52    PUSHJ   OCB            OUTPUT 'D' OR 'E'                              V2  07 02559
002667 105025 A
002670 002452 R
                    2560          MOVBAB  BLNK1,BCHAR    LOAD BLANK FOR PLUS                            V2  07 02560
002671 016202 A
002672 056030 A
                    2561          TPAB    DEXP,ONF55     IS EXPONENT NEGATIVE ?                             07 02561
002673 016055 A
002674 001002 A
002675 002704 R
002676 005211 A 2562          CPA                    YES .                                              07 02562
002677 005111 A 2563          IAR                    CONVERT TO ABS                                     07 02563
002700 056055 A 2564          STA     DEXP,B                                                            07 02564
002701 006010 A 2565          LDAI    0255                                                           V2  07 02565
002702 000255 A
002703 056030 A 2566          STA     BCHAR,B        LOAD '-'                                        V2  07 02566
                    2567 ONF55    PUSHJ   OCB            OUTPUT EXPONENT SIGN                           V2  07 02567
002704 105025 A
002705 002452 R
002706 005024 A 2568          TBX                    LOAD X AS BASE REGISTER                            07 02568
002707 005001 A 2569          TZA                                                                       07 02569
002710 025055 A 2570          LDB     DEXP,X         GET EXPONENT                                       07 02570
002711 170471 A 2571          DIV     TEN            GET DECIMAL DIGITS                                 07 02571
002712 055055 A 2572          STA     DEXP,X                                                            07 02572
002713 005021 A 2573          TBA                    GET TENS DIGIT IN A                                07 02573
002714 005042 A 2574          TXB                    RESTORE BASE REGISTER B                            07 02574
002715 126177 A 2575          ADD     AZER,B         CONVERT TO ASCII                               V2  07 02575
002716 056030 A 2576          STA     BCHAR,B                                                           07 02576
                    2577          PUSHJ   OCB            OUTPUT TENS DIGIT OF EXPONENT                  V2  07 02577
002717 105025 A
002720 002452 R
002721 016055 A 2578          LDA     DEXP,B         RESTORE UNITS DIGIT                                07 02578
002722 126177 A 2579          ADD     AZER,B         CONVERT TO ASCII                               V2  07 02579
002723 056030 A 2580          STA     BCHAR,B                                                           07 02580
                    2581 ONF60    PUSHJ   OCB            OUTPUT UNITS DIGIT/ '*' / EXIT                 V2  07 02581
002724 105025 A
002725 002452 R
002726 001000 A 2582          JMP     ONF60                                                             07 02582
002727 002724 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(3) = 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
002730 016164 A 2629 OPN     LDA     TEMP,B         GET OP                                         V2  07 02629
002731 006140 A 2630          SUBI    COPY           BIAS IT                                        V2  07 02630
002732 000016 A
002733 001010 A 2631          JAZ     *+3            LOGICAL FILE ?                                 V2  07 02631
002734 002736 R
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002735 010422 A 2632          LDA     LFS             YES. SET FLAG                                   V2  07 02632
002736 110427 A 2633          ORA     INS             SET INITIALIZE FLAG                             V2  07 02633
002737 056154 A 2634          STA     RWFL,B          STORE FLAG WORD                                 V2  07 02634
002740 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
002741 015162 A
002742 056035 A
               2637 ********************************************                                       07 02637
               2638 * MOVE PARAMETERS FROM CALL SEQ TO DATA BLOCK *                                     07 02638
               2639 ********************************************                                       07 02639
002743 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
002744 015005 A
002745 056032 A
               2642          MOVXAB  6,SAVE+6        MOVE ADDRESS OF FCB ARRAY                       V2  07 02642
002746 015006 A
002747 056040 A
               2643          MOVXAB  7,SAVE+1        MOVE ADDRESS OF OPEN MODE PARAMETER                 07 02643
002750 015007 A
002751 056033 A
               2644          TRAB    RWFL,LF,OPN4    LOGICAL FILE ?                                  V2  07 02644
002752 016154 A
002753 006441 A
002754 002763 R
               2645          MOVXAB  8,SAVE+2        YES. MOVE ADDRESS OF LOGICAL RECORD SIZE            07 02645
002755 015010 A
002756 056034 A
               2646          MOVXAB  9,SAVE+3        MOVE BUFFER ADDRESS                                 07 02646
002757 015011 A
002760 056035 A
               2647          MOVXAB  10,SAVE+4       SAVE ADDRESS OF READ BEFORE WRITE FLAG               07 02647
002761 015012 A
002762 056036 A
               2648 ********************
               2649 * PROCESS PARAMETERS *                                                              07 02648
               2650 ********************                                                              07 02649
                                                                                                       07 02650
        002763 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
002763 016014 A
002764 001010 A
002765 002774 R
002766 016040 A 2657          LDA     SAVE+6,B                                                        D.1 07 02657
002767 006505 A 2658          JSR     TBK,X           TEST FCB IN BACKGROUND                          V2  07 02658
002770 005735 R
002771 126200 A 2659          ADD     BD14,B                                                          V2  07 02659
002772 006505 A 2660          JSR     TBK,X                                                           V2  07 02660
002773 005735 R
        002774 R 2661 OPN5    EQU     *                                                               E.1 07 02661
               2662 VII1      CONT                                                                    FG  07 02662
               2663 NUC1      CONT                                                                    FG  07 02663
002774 036032 A 2664          LDX     SAVE,B          GET ADDRESS OF LOGICAL UNIT NUMBER L            V2  07 02664
               2665          MOVXAB  0,SAVE          GET L                                               07 02665
002775 015000 A
002776 056032 A
               2666          PUSHJ   PRU             PROCESS UNIT NUMBERS U,L                        V2  07 02666
002777 105025 A
003000 003754 R
003001 036033 A 2667          LDX     SAVE+1,B        POINT X AT OPEN MODE M(REWIND,LEAVE)                07 02667
003002 015000 A 2668          LDA     0,X             GET M                                               07 02668
003003 001010 A 2669          JAZ     *+3                                                                 07 02669
003004 003006 R
003005 010435 A 2670          LDA     BS12            SET LEAVE BIT                                       07 02670
003006 116032 A 2671          ORA     SAVE,B          MERGE IN L                                          07 02671
003007 006110 A 2672          ORAI    03000           MERGE IN SKELETON OF IOC OPEN CONT WD           V2  07 02672
003010 003000 A
003011 036016 A 2673          LDX     ANRB,B          POINT X AT V$FORTIO                                 07 02673
003012 055104 A 2674          STA     IOCONT,X        STORE I/O CONTROL WORD IN V$FORTIO                  07 02674
               2675          MOVBAB  SAVE+6,ADFCB    GET FCB ADDRESS                                 V2  07 02675
003013 016040 A
003014 056010 A
003015 055010 A 2676          STA     ADFCB,X         ALSO IN V$FORTIO                                V2  07 02676
003016 005014 A 2677          TAX                     POINT X AT FCB                                      07 02677
               2678          MOVBAX  BD120,0         SET FCB(0) = 120 WORDS                          V2  07 02678
003017 016201 A
003020 055000 A
               2679          MOVBAX  SAVE+3,1        LOAD BUFFER ADDRESS INTO FCB(1)                     07 02679
003021 016035 A
003022 055001 A
003023 015002 A 2680          LDA     2,X             GET KEY WORD                                        07 02680
003024 150463 A 2681          ANA     MHW             CLEAR UPPER BYTE                                    07 02681
003025 006110 A 2682          ORAI    01400           SET MODE TO SEQUENTIAL                          V2  07 02682
003026 001400 A
003027 055002 A 2683          STA     2,X                                                                 07 02683
               2684 ********************                                                              07 02684
               2685 * MAKE IOC OPEN CALL *                                                            07 02685
               2686 ********************                                                              07 02686
003030 010464 A 2687          LDA     CIO                                                             V2  07 02687
003031 006505 A 2688          JSR     PSJ,X           CALL V$FORTIO TO DO IOC OPEN                    V2  07 02688
003032 004563 R
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                    2689 **********************                                                                  07 02689
                    2690 * LINK FCB ON CHAIN *                                                                  07 02690
                    2691 **********************                                                                  07 02691
003033 036146 A     2692          LDX     PRLINK,B        POINT X AT LAST LINK OF FCB CHAIN                     07 02692
                    2693          MOVBAX  ADFCB,10        LINK FCB ON CHAIN                                     07 02693
003034 016010 A
003035 055012 A
003036 036016 A     2694          LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                        07 02694
003037 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
003040 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
003041 016167 A
003042 055013 A
003043 016154 A     2701          LDA     RWFL,B          GET FLAG WORD                                   V2    07 02701
003044 150447 A     2702          ANA     INR             CLEAR INITIALIZE FLAG                           V2    07 02702
003045 004254 A     2703          LRLA    SH              POSITION                                        V2    07 02703
003046 116032 A     2704          ORA     SAVE,B          MERGE IN LOGICAL UNIT NUMBER L                  V2    07 02704
003047 055014 A     2705          STA     12,X            STORE IN FCB(12)                                V2    07 02705
003050 006455 A     2706          BT      ARST+FLF,OPN30      TEST IF LOGICAL FILE                        V2    07 02706
003051 003111 R
                    2707 ************************************                                                    07 02707
                    2708 * PROCESS LOGICAL FILE PARAMETERS *                                                    07 02708
                    2709 ************************************                                                    07 02709
003052 036034 A     2710          LDX     SAVE+2,B                                                              07 02710
                    2711          MOVXAB  0,SAVE+2        SAVE LOGICAL RECORD SIZE                              07 02711
003053 015000 A
003054 056034 A
003055 036010 A     2712          LDX     ADFCB,B         POINT X AT FCB                                        07 02712
003056 055000 A     2713          STA     0,X             STORE LOGICAL RECORD SIZE IN FCB(0)                   07 02713
                    2714          TRAB    RWFL,RM,OPN30       EXIT IF NOT RMD                             V2    07 02714
003057 016154 A
003060 006440 A
003061 003111 R
003062 036036 A     2715          LDX     SAVE+4,B        POINT X AT ADDR OF READ BEFORE WRITE FLAG             07 02715
003063 015000 A     2716          LDA     0,X             GET FLAG                                              07 02716
003064 001010 A     2717          JAZ     *+3                                                                   07 02717
003065 003067 R
003066 010440 A     2718          LDA     FRBS            SET READ BEFORE WRITE FLAG                      V2    07 02718
003067 036010 A     2719          LDX     ADFCB,B         POINT X AT FCB                                        07 02719
003070 115014 A     2720          ORA     12,X            MERGE WITH L                                          07 02720
003071 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
003072 005001 A
003073 055015 A
003074 015003 A     2723          LDA     3,X             GET CURRENT RECNO                                     07 02723
003075 005311 A     2724          DAR                     CHANGE FROM BASE 1 TO BASE 0                          07 02724
003076 001010 A     2725          JAZ     OPN30           EXIT IF AT START OF FILE                              07 02725
003077 003111 R
                    2726 ************************************************                                        07 02726
                    2727 * CONVERT PHYSICAL RECNO TO LOGICAL RECNO IN FCB(3) *                                  07 02727
                    2728 ************************************************                                        07 02728
003100 005024 A     2729          TBX                     SAVE BASE REGISTER IN X                               07 02729
003101 004560 A     2730          LLSR    16                                                                    07 02730
003102 165201 A     2731          MUL     BD120,X                                                         V2    07 02731
003103 175034 A     2732          DIV     SAVE+2,X        CONVERT PHYSICAL POSITION TO LOGICAL                  07 02732
003104 005021 A     2733          TBA                                                                           07 02733
003105 005042 A     2734          TXB                     RESTORE BASE REGISTER B                               07 02734
003106 036010 A     2735          LDX     ADFCB,B         POINT X AT FCB                                        07 02735
003107 005111 A     2736          IAR                     CHANGE FROM BASE 0 TO BASE 1                          07 02736
003110 055003 A     2737          STA     3,X             STORE LOGICAL RECORD POSITION IN FCB(3)               07 02737
003111 010422 A     2738 OPN30    LDA     CEX                                                                   07 02738
                    2739          PUSHF                   PUSH EXIT OP ONTO V$FORTIO STACK                      07 02739
003112 036016 A
003113 035000 A
003114 005344 A
003115 055000 A
003116 005041 A
003117 036016 A
003120 055000 A
003121 001000 A     2740          JMP     CAN             EXIT TO V$FORTIO                                      07 02740
003122 000065 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
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                    2760 *                                                                                * 07 02760
                    2761 ************************************************************************************** 07 02761
003123 016164 A     2763 PAX     SUTBPB  TEMP,CBK,SAVE+1     GET BIASED OP                          V2  07 02763
003124 140467 A
003125 056033 A
                    2764         ZAB     RWFL               CLEAR FLAG WORD                                 07 02764
003126 005001 A
003127 056154 A
                    2765         PUSHJ   PRU                PROCESS FORTRAN UNIT NUMBER U           V2  07 02765
003130 105025 A
003131 003754 R
                    2766         TRAB    RWFL,RM,PAX50      TEST IF RMD                            V2  07 02766
003132 016154 A
003133 006440 A
003134 003260 R
                    2767 ************
                    2768 * U IS RMD *                                                                      07 02768
                    2769 ************                                                                      07 02769
                    2770         TZAB    SAVE+1,PAX10       BACKSPACE                                       07 02770
003135 016033 A
003136 001010 A
003137 003145 R
003140 005311 A     2771         DAR                        NO                                              07 02771
003141 001010 A     2772         JAZ     PAX15              ENDFILE ?                                       07 02772
003142 003161 R
003143 001000 A     2773         JMP     PAX30              NO. REWIND                                      07 02773
003144 003244 R
                    2774 ****************                                                                  07 02774
                    2775 * BACKSPACE RMD *                                                                07 02775
                    2776 ****************                                                                  07 02776
003145 016154 A     2777 PAX10   TSAB    RWFL,GF,PAX50      CALL V$IOC BACKSPACE IF GLOBAL FCB     V2  07 02777
003146 006407 A
003147 003260 R
                    2778 ********************************************                                      07 02778
                    2779 * BACKSPACE BY SETTING FCB(3) = FCB(3)-1 *                                       07 02779
                    2780 ********************************************                                      07 02780
003150 036010 A     2781         LDX     ADFCB,B            POINT X AT FCB                                  07 02781
                    2782         DAX     3                  DECREMENT CURRENT RECORD NUMBER IN FCB(3)       07 02782
003151 015003 A
003152 005311 A
003153 055003 A
003154 005311 A     2783         DAR                                                                        07 02783
003155 001004 A     2784         JAN     PAX30              DO REWIND IF FCB(3).LT.1                        07 02784
003156 003244 R
003157 001000 A     2785         JMP     PAX70              EXIT                                            07 02785
003160 003270 R
                    2786 ***************                                                                   07 02786
                    2787 * ENDFILE RMD *                                                                  07 02787
                    2788 ***************                                                                   07 02788
003161 016154 A     2789 PAX15   TRAB    RWFL,PO,PAX16      POST BIT SET ?                         V2  07 02789
003162 006442 A
003163 003166 R
                    2790         PUSHJ   PSB                YES. POST BUFFER                       V2  07 02790
003164 105025 A
003165 004533 R
003166 006010 A     2791 PAX16   LDAI    013400             GET SKELETON CLOSE/UPDATE CONTROL WD    V2  07 02791
003167 013400 A
003170 116167 A     2792         ORA     UNIT,B             MERGE IN LOGICAL UNIT NUMBER                    07 02792
003171 036016 A     2793         LDX     ANRB,B             POINT X AT V$FORTIO DATA BLOCK                  07 02793
003172 055104 A     2794         STA     IOCONT,X           STORE IOC CONTROL WORD IN V$FORTIO              07 02794
003173 016154 A     2795         LDA     RWFL,B                                                             07 02795
003174 006441 A     2796         BT      ARST+LF,PAX20          LOGICAL FILE ?                              07 02796
003175 003217 R
003176 036010 A     2797         LDX     ADFCB,B            YES. POINT X AT FCB                             07 02797
                    2798         MOVBAX  DD120,0            SET RECORD SIZE FCB(0) = 120 WORDS      V2  07 02798
003177 016201 A
003200 055000 A
003201 016121 A     2799         LDA     LRECNO,B                                                           07 02799
003202 005311 A     2800         DAR                        CONVERT FROM BASE 1 TO BASE 0                   07 02800
003203 005024 A     2801         TBX                        SAVE BASE REGISTER IN X                         07 02801
003204 004560 A     2802         LLSR    16                                                                 07 02802
003205 165122 A     2803         MUL     LRSZ,X             GET WORD COUNT                                  07 02803
003206 175201 A     2804         DIV     DD120,X            CONVERT TO 120-WORD PHYSICAL REC CNT    V2  07 02804
003207 001010 A     2805         JAZ     *+3                                                                07 02805
003210 003212 R
003211 005122 A     2806         IBR                        BUMP 1 FOR PARTIAL RECORD                       07 02806
003212 005122 A     2807         IBR                        BUMP 1 TO CONVERT TO BASE 1                     07 02807
003213 005021 A     2808         TRA                                                                        07 02808
003214 005042 A     2809         TXB                        RESTORE BASE REGISTER B                         07 02809
003215 036010 A     2810         LDX     ADFCB,B            POINT X AT FCB                                  07 02810
003216 055003 A     2811         STA     3,X                STORE CURRENT PHYSICAL RECNO IN FCB(3)          07 02811
003217 010464 A     2812 PAX20   LDA     CIO                                                        V2  07 02812
003220 006505 A     2813         JSR     PSJ,X              CALL V$IOC FOR CLOSE/UPDATE             V2  07 02813
003221 004563 R
003222 006010 A     2814         LDAI    013000             GET IOC OPEN/LEAVE SKELETON CONTROL WD   V2  07 02814
003223 013000 A
003224 116167 A     2815         ORA     UNIT,B             MERGE IN LOGICAL UNIT NUMBER                    07 02815
003225 036016 A     2816         LDX     ANRB,B             POINT X AT V$FORTIO                             07 02816
003226 055104 A     2817         STA     IOCONT,X           STORE IOC CONTROL WORD IN V$FORTIO              07 02817
003227 010464 A     2818         LDA     CIO                                                        V2  07 02818
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003230 006505 A 2819          JSR     PSJ,X           CALL V$IOC FOR OPEN/LEAVE                    V2  07 02819
003231 004563 R
               2820          TRAB    RWFL,LF,PAX70       EXIT IF NOT LOGICAL FILE                 V2  07 02820
003232 016154 A
003233 006441 A
003234 003270 R
003235 036010 A 2821          LDX     ADFCB,B         POINT X AT FCB                                   07 02821
               2822          MOVBAX  LRSZ,0          RESTORE LOGICAL RECORD SIZE IN FCB(0)            07 02822
003236 016122 A
003237 055000 A
               2823          MOVBAX  LRECNO,3        RESTORE CURR LOG RECORD NUMBER IN FCB(3)         07 02823
003240 016121 A
003241 055003 A
003242 001000 A 2824          JMP     PAX70           EXIT                                             07 02824
003243 003270 R
               2825 ***************                                                                   07 02825
               2826 * REWIND RMD *                                                                   07 02826
               2827 ***************                                                                   07 02827
               2828 PAX30    TRAB    RWFL,GF,PAX33       GLOBAL FCB ?                             V2  07 02828
003244 016154 A
003245 006447 A
003246 003253 R
003247 006010 A 2829          LDAI    03000           YES. CALL V$IOC OPEN/REWIND                  V2  07 02829
003250 003000 A
003251 001000 A 2830          JMP     PAX55                                                            07 02830
003252 003263 R
003253 036010 A 2831 PAX33    LDX     ADFCB,B         POINT X AT FCB                                   07 02831
003254 005101 A 2832          INCR    1                                                                07 02832
003255 055003 A 2833          STA     3,X             SET CURRENT RECORD NUMBER TO 1                   07 02833
003256 001000 A 2834          JMP     PAX70           EXIT                                             07 02834
003257 003270 R
               2835 ************************                                                          07 02835
               2836 * CALL V$IOC TO DO OP *                                                       V2  07 02836
               2837 ************************                                                          07 02837
003260 036033 A 2838 PAX50    LDX     SAVE+1,B        GET BIASED OP IN X                               07 02838
               2839          IFF     NUC                                                          FG  07 02839
               2840          GOTO    NV2NUC                                                       FG  07 02840
               2841          IFT     VII                                                          FG  07 02841
               2842          OME     MAP,V$ST0       SET EXEC STATE TO 00                         V2  07 02842
               2843 NV2NUC   CONT                                                                 FG  07 02843
003261 006015 A 2844          LDAE    PAXTAB,X        GET IOC CONTROL WORD MODEL                       07 02844
003262 003315 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
003263 116167 A 2850 PAX55    ORA     UNIT,B          MERGE IN LOGICAL UNIT NUMBER                     07 02850
003264 036016 A 2851          LDX     ANRB,B                                                           07 02851
003265 055104 A 2852          STA     IOCONT,X        STORE AS IOC CONTROL WORD                        07 02852
003266 007400 A 2853          ROF                                                                      07 02853
003267 001006 A 2854          DATA    01006                                                            07 02854
003270 007401 A 2855 PAX70    SOF                                                                      07 02855
003271 010422 A 2856          LDA     CEX                                                              07 02856
               2857          PUSHF           .       PUSH EXIT OP                                     07 02857
003272 036016 A
003273 035000 A
003274 005344 A
003275 055000 A
003276 005041 A
003277 036016 A
003300 055000 A
003301 001001 A 2858          JOF     CAN             EXIT IF DONE                                     07 02858
003302 000065 R
003303 010464 A 2859          LDA     CIO                                                              07 02859
               2860          PUSHF                   PUSH I/O OP                                      07 02860
003304 036016 A
003305 035000 A
003306 005344 A
003307 055000 A
003310 005041 A
003311 036016 A
003312 055000 A
003313 001000 A 2861          JMP     CAN             EXIT                                             07 02861
003314 000065 R
               2862 ************************************                                              07 02862
               2863 * AUXILIARY I/O CONTROL WORD TABLE *                                              07 02863
               2864 ************************************                                              07 02864
003315 012000 A 2865 PAXTAB   DATA    012000          BACKSPACE                                        07 02865
003316 001000 A 2866          DATA    01000           WRITE EOF                                        07 02866
003317 001400 A 2867          DATA    01400           REWIND                                           07 02867
               2868          EJEC                                                                     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
```

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                    2880 *
                    2881 * EXIT : SCB(0) = SCB(0)+1                                                    * 07 02880
                    2882 *                                                                            * 07 02881
                    2883 ************************************************************************** * 07 02882
003320 036021 A     2885 PCH    LDX     ASCB,B          POINT X AT SCB                                  07 02883
                    2886        MDVXAB  2,TEMP          SAVE CHAR                                       07 02885
003321 015002 A                                                                                       07 02886
003322 056164 A
003323 015000 A     2887        LDA     0,X             GET CURRENT POINTER                             07 02887
003324 045000 A     2888        INR     0,X             BUMP CURRENT POINTER                            07 02888
003325 007401 A     2889        SDF                                                                     07 02889
003326 004257 A     2890        LRLA    15              CONVERT BYTE TO WORD COUNT                      07 02890
003327 003004 A     2891        XAN     ROF             OVFL SET IF HIGH BYTE                           07 02891
003330 002201 R
003331 150460 A     2892        ANA     BR15            CLEAR SIGN BIT                                  07 02892
003332 125001 A     2893        ADD     1,X             ADD STRING START ADDRESS                        07 02893
003333 005014 A     2894        TAX                     POINT X AT WORD                                 07 02894
003334 015000 A     2895        LDA     0,X             GET WORD                                        07 02895
003335 001007 A     2896        JOFN    *+4             HIGH BYTE ?                                     07 02896
003336 003341 R
003337 007401 A     2897        SDF                     YES                                             07 02897
003340 004250 A     2898 LRLA8  LRLA    8               SWAP BYTES                                      07 02898
003341 150462 A     2899        ANA     LHW             CLEAR UNWANTED BYTE                             07 02899
003342 116164 A     2900        ORA     TEMP,B          MERGE IN NEW CHARACTER                          07 02900
003343 003001 A     2901        XOF     LRLA8           SWAP BYTES IF HIGH BYTE                         07 02901
003344 003340 R
003345 055000 A     2902        STA     0,X             STORE IN MEMORY                                 07 02902
                    2903        POPJ                    EXIT                                        FG  07 02903
003346 105065 A
                    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
003347 R            2937 DIN    EQU     *                                                               07 02937
003347 R            2938 EIN    EQU     *                                                               07 02938
003347 R            2939 FIN    EQU     *                                                               07 02939
003347 R            2940 GIN    EQU     *                                                               07 02940
003347 R            2941 IIN    EQU     *                                                               07 02941
                    2943 ****************                                                              07 02943
                    2944 * TEST FOR ZERO *                                                            07 02944
                    2945 ****************                                                              07 02945
003347 007401 A     2946        SDF                                                                     07 02946
003350 016004 A     2947        LDA     ACC+1,B                                                         07 02947
003351 116005 A     2948        ORA     ACC+2,B                                                         07 02948
003352 116006 A     2949        ORA     ACC+3,B                                                         07 02949
003353 003010 A     2950        XAZ     ROF             OVFL RESET IF ACC(1)=ACC(2)=ACC(3)=0            07 02950
003354 002201 R
003355 116003 A     2951        ORA     ACC,B                                                           07 02951
003356 001010 A     2952        JAZ     PNI50           EXIT IF ACC=0                                   07 02952
003357 003552 R
003360 016116 A     2953        LDA     ITMODE,B                                                        07 02953
003361 140422 A     2954        SUB     TWO                                                             07 02954
003362 001002 A     2955        JAP     PNI4            TEST INTEGER LIST ITEM                          07 02955
003363 003432 R
                    2956 ********************                                                          07 02956
                    2957 * INTEGER LIST ITEM *                                                        07 02957
                    2958 ********************                                                          07 02958
003364 001001 A     2959        JOF     ER3             ERROR 37 NOT INTEGER /                          07 02959
003365 005365 R
003366 016024 A     2960        LDA     BEXP,B          GET BINARY EXPONENT                             07 02960
003367 005311 A     2961        DAR                                                                     07 02961
003370 001004 A     2962        JAN     ER3             ERROR 37 NOT INTEGER /                          07 02962
003371 005365 R
003372 140472 A     2963        SUB     D15                                                             07 02963
003373 001002 A     2964        JAP     ER3             ERROR 37 NOT INTEGER /                          07 02964
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003374 005365 R
                    2965          MOVBAB  ACC,TEMP      SAVE LEFT-JUSTIFIED INTEGER                    07 02965
003375 016003 A
003376 056164 A
                    2966          ZAB     ACC           CLEAR ACCUMULATOR ACC                          07 02966
003377 005001 A
003400 056003 A
                    2967 ************************                                                     07 02967
                    2968 * INTEGER SHIFT LOOP *                                                     07 02968
                    2969 ************************                                                     07 02969
003401 005024 A     2970          TBX                   USE X AS BASE REGISTER                         07 02970
                    2971 PNIL1    DAX     BEXP          DECREMENT BINARY EXPONENT                      07 02971
003402 015024 A
003403 005311 A
003404 055024 A
003405 001004 A     2972          JAN     PNIL1X        EXIT ON FINISH                                 07 02972
003406 003416 R
003407 015003 A     2973          LDA     ACC,X                                                        07 02973
003410 025164 A     2974          LDB     TEMP,X                                                       07 02974
003411 004401 A     2975          LASL    1             SHIFT INTEGER INTO ACC                         07 02975
003412 055003 A     2976          STA     ACC,X                                                        07 02976
003413 065164 A     2977          STB     TEMP,X                                                       07 02977
003414 001000 A     2978          JMP     PNIL1         CONTINUE TILL DONE                             07 02978
003415 003402 R
003416 001026 A     2979 PNIL1X   JBNZ    ER3           ERROR 3/ NOT INTEGER /                    V2   07 02979
003417 005365 R
003420 005042 A     2980          TXB                   RESTORE BASE REGISTER B                   V2   07 02980
                    2981          TZAB    SGFL,PNI50    IS SIGN NEGATIVE ?                             07 02981
003421 016157 A
003422 001010 A
003423 003552 R
003424 016003 A     2982          LDA     ACC,B         YES                                            07 02982
003425 005211 A     2983          CPA                   NEGATE INTEGER                                 07 02983
003426 005111 A     2984          IAR                                                                  07 02984
003427 056003 A     2985          STA     ACC,B                                                        07 02985
003430 001000 A     2986          JMP     PNI50                                                        07 02986
003431 003552 R
003432 130464 A     2987 PNI4     ERA     THREE                                                        07 02987
003433 001010 A     2988          JAZ     PNI60         D.P. INTEGER                                   07 02988
003434 003575 R
003435 140422 A     2989          SUB     TWO                                                          07 02989
003436 001010 A     2990          JAZ     PNI8          D.P.                                           07 02990
003437 003474 R
                    2991 ********************                                                         07 02991
                    2992 * CONSTRUCT.REAL *                                                         07 02992
                    2993 ********************                                                         07 02993
003440 016004 A     2994          LDA     ACC+1,B       GET 2ND MANTISSA WORD                          07 02994
003441 120430 A     2995          ADD     BS7           ROUND UPWARD                                   07 02995
003442 007400 A     2996          ROF                                                                  07 02996
003443 001002 A     2997          JAP     *+4           OVERFLOW ?                                     07 02997
003444 003447 R
003445 005001 A     2998          TZA                   YES. CLEAR WORD                                07 02998
003446 046003 A     2999          INR     ACC,B         BUMP WORD 0                                    07 02999
003447 056004 A     3000          STA     ACC+1,B                                                      07 03000
003450 001007 A     3001          JOFN    *+5           OVERFLOW ?                                     07 03001
003451 003455 R
003452 046024 A     3002          INR     BEXP,B        YES. BUMP BINARY EXPONENT                      07 03002
                    3003          MOVPAB  BS14,ACC      SHIFT FIELD                                    07 03003
003453 010437 A
003454 056003 A
003455 005024 A     3004          TBX                   LOAD X AS BASE REGISTER                        07 03004
003456 015024 A     3005          LDA     BEXP,X        GET BINARY EXPONENT IN A                       07 03005
003457 120430 A     3006          ADD     BXBIAS        ADD BINARY EXPONENT BIAS                  V2   07 03006
003460 025003 A     3007          LDB     ACC,X         GET HIGH WORD OF MANTISSA IN B                 07 03007
003461 004407 A     3008          LASL    7             POSITION AB TO MAKE 1ST WORD OF REAL           07 03008
003462 055164 A     3009          STA     TEMP,X        SAVE 1ST WORD OF REAL                          07 03009
003463 015003 A     3010          LDA     ACC,X         GET 1ST MANTISSA WORD IN A                     07 03010
003464 025004 A     3011          LDB     ACC+1,X       GET 2ND MANTISSA WORD IN B                     07 03011
003465 004407 A     3012          LASL    7             POSITION AS 2ND WORD OF REAL                   07 03012
003466 055004 A     3013          STA     ACC+1,X       STORE IN ACC                                   07 03013
003467 005042 A     3014          TXB                   RESTORE BASE REGISTER B                        07 03014
                    3015          MOVBAB  TEMP,ACC      LOAD 1ST WORD OF REAL INTO ACC(0)              07 03015
003470 016164 A
003471 056003 A
003472 001000 A     3016          JMP     PNI19                                                        07 03016
003473 003535 R
                    3017 ********************************                                           07 03017
                    3018 * CONSTRUCT DOUBLE PRECISION *                                           07 03018
                    3019 ********************************                                           07 03019
003474 016006 A     3020 PNI8     LDA     ACC+3,B                                                      07 03020
003475 004241 A     3021          LRLA    1                                                            07 03021
003476 001002 A     3022          JAP     PNI18         OVERFLOW ?                                     07 03022
003477 003523 R
003500 046005 A     3023          INR     ACC+2,B       YES. BUMP WORD 2                               07 03023
003501 016005 A     3024          LDA     ACC+2,B       GET WORD                                       07 03024
003502 001002 A     3025          JAP     PNI18         OVERFLOW ?                                     07 03025
003503 003523 R
003504 046004 A     3026          INR     ACC+1,B       YES. BUMP WORD 1                               07 03026
003505 005001 A     3027          TZA                                                                  07 03027
003506 056005 A     3028          STA     ACC+2,B       CLEAR WORD 2                                   07 03028
003507 016004 A     3029          LDA     ACC+1,B       GET WORD 1                                     07 03029
003510 001002 A     3030          JAP     PNI18         OVERFLOW ?                                     07 03030
003511 003523 R
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003512 046003 A 3031          INR     ACC,B          YES. BUMP WORD 0                                07 03031
003513 005001 A 3032          TZA                                                                    07 03032
003514 056004 A 3033          STA     ACC+1,B        CLEAR WORD 1                                    07 03033
003515 016003 A 3034          LDA     ACC,B          GET WORD 0                                      07 03034
003516 001002 A 3035          JAP     PNI18          OVERFLOW ?                                      07 03035
003517 003523 R
003520 046024 A 3036          INR     BEXP,B         YES. BUMP BINARY EXPONENT                       07 03036
003521 010437 A 3037          LDA     B314           AND SHIFT OVERFLOW BIT                          07 03037
003522 056003 A 3038          STA     ACC,B          STORE WORD 0                                    07 03038
                3039 PNI18    MOVBAB  ACC+2,ACC+3    SHIFT FIELD                                     07 03039
003523 016005 A
003524 056006 A
                3040          MOVBAB  ACC+1,ACC+2                                                    07 03040
003525 016004 A
003526 056005 A
                3041          MOVBAB  ACC,ACC+1                                                      07 03041
003527 016003 A
003530 056004 A
003531 016024 A 3042          LDA     BEXP,B         GET BINARY EXPONENT                             07 03042
003532 120430 A 3043          ADD     BXBIAS         ADD BINARY EXPONENT BIAS                  V2    07 03043
003533 056003 A 3044          STA     ACC,B          STORE IN WORD 0                                 07 03044
003534 005124 A 3045          INCR    024            POINT X AT BASE+1                               07 03045
003535 016157 A 3046 PNI19    LDA     SGFL,B                                                         07 03046
003536 001010 A 3047          JAZ     PNI20          IS SIGN FLAG SET ?                              07 03047
003537 003543 R
003540 015003 A 3048          LDA     ACC,X          YES                                             07 03048
003541 005211 A 3049          CPA                    NEGATE NUMBER                                   07 03049
003542 055003 A 3050          STA     ACC,X                                                          07 03050
                3051 **************************                                                   07 03051
                3052 * CHECK EXPONENT RANGE *                                                       07 03052
                3053 **************************                                                   07 03053
003543 016024 A 3054 PNI20    LDA     BEXP,B         GET BINARY EXPONENT                             07 03054
003544 120430 A 3055          ADD     BXBIAS         ADD BINARY EXPONENT BIAS                  V2    07 03055
003545 001004 A 3056          JAN     ER3            ERROR 3/ UNDERFLOW /                            07 03056
003546 005365 R
003547 150462 A 3057          ANA     LHW                                                            07 03057
003550 001016 A 3058          JANZ    ER3            ERROR 3/ OVERFLOW /                             07 03058
003551 005365 R
                3059 ********************                                                         07 03059
                3060 * LOAD LIST ITEM *                                                           07 03060
                3061 ********************                                                         07 03061
                3062 PNI50    ZAB     COUNT          CLEAR COUNTER                                   07 03062
003552 005001 A
003553 056052 A
                3063          MOVBAB  AACC,TEMP      INITIALIZE ACC POINTER                          07 03063
003554 016001 A
003555 056164 A
                3064          MOVBAB  ITEMAD,BEXP    INITIALIZE LIST ITEM POINTER                    07 03064
003556 016113 A
003557 056024 A
003560 036164 A 3065 PNIL2    LDX     TEMP,B         POINT X AT ACC                                  07 03065
003561 015000 A 3066          LDA     0,X            GET WORD                                        07 03066
003562 036024 A 3067          LDX     BEXP,B         POINT X AT LIST ITEM                            07 03067
003563 055000 A 3068          STA     0,X            STORE DATA IN LIST ITEM                         07 03068
003564 046164 A 3069          INR     TEMP,B         BUMP ACC POINTER                                07 03069
003565 046024 A 3070          INR     BEXP,B         BUMP LIST ITEM POINTER                          07 03070
003566 046052 A 3071          INR     COUNT,B        BUMP LOOP COUNT                                 07 03071
003567 016052 A 3072          LDA     COUNT,B                                                        07 03072
003570 146102 A 3073          SUB     IIWSZ,B                                                        07 03073
003571 001004 A 3074          JAN     PNIL2          LOOP TILL ITEM FILLED                           07 03074
003572 003560 R
003573 001000 A 3075          JMP     FRS65          EXIT TO FRS                                     07 03075
003574 001014 R
                3077 *        PROCESS DOUBLE PRECISION INTEGER                                 *    07 03077
003575 016005 A 3078 PNI60    LDA     ACC+2,B                                                        07 03078
003576 116006 A 3079          ORA     ACC+3,B                                                        07 03079
003577 001016 A 3080          JANZ    ER3            NOT INTEGER                                     07 03080
003600 005365 R
003601 016024 A 3081          LDA     BEXP,B                                                         07 03081
003602 005311 A 3082          DAR                                                                    07 03082
003603 001004 A 3083          JAN     ER3            NOT INTEGER                                     07 03083
003604 005365 R
003605 006140 A 3084          SUBI    30                                                             07 03084
003606 000036 A
003607 001002 A 3085          JAP     ER3            NOT INTEGER                                     07 03085
003610 005365 R
003611 005024 A 3086          TBX                                                                    07 03086
003612 005111 A 3087 PNI62    IAR                    POSITION VALUE                                  07 03087
003613 001002 A 3088          JAP     PNI64          DONE                                            07 03088
003614 003626 R
003615 055024 A 3089          STA     BEXP,X                                                         07 03089
003616 015003 A 3090          LDA     ACC,X                                                          07 03090
003617 025004 A 3091          LDB     ACC+1,X                                                        07 03091
003620 004501 A 3092          LASR    1                                                              07 03092
003621 055003 A 3093          STA     ACC,X                                                          07 03093
003622 065004 A 3094          STB     ACC+1,X                                                        07 03094
003623 015024 A 3095          LDA     BEXP,X                                                         07 03095
003624 001000 A 3096          JMP     PNI62                                                          07 03096
003625 003612 R
003626 005042 A 3097 PNI64    TXB                    RESTORE BASE REGISTER B                         07 03097
                3098          TZAB    SGFL,PNI50     POSITIVE SIGN                                   07 03098
003627 016157 A
003630 001010 A
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003631 003552 R
003632 015004 A 3099          LDA     ACC+1,X       NEGATE VALUE                                    07 03099
003633 025003 A 3100          LDB     ACC,X                                                         07 03100
003634 005211 A 3101          CPA                                                                   07 03101
003635 005222 A 3102          CPB                                                                   07 03102
003636 005111 A 3103          IAR                                                                   07 03103
003637 001002 A 3104          JAP     PNI66                                                         07 03104
003640 003643 R
003641 130440 A 3105          ERA     BS15                                                          07 03105
003642 005122 A 3106          IBR                                                                   07 03106
003643 055004 A 3107 PNI66    STA     ACC+1,X                                                       07 03107
003644 065003 A 3108          STB     ACC,X                                                         07 03108
003645 005042 A 3109          TXB                                                                   07 03109
003646 001000 A 3110          JMP     PNI50                                                         07 03110
003647 003552 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
003650 036000 A 3125 POJ      LDX     OPSTKP,B      POINT X AT OP                                   07 03125
003651 035000 A 3126          LDX     0,X           GET OP IN X                                  FG 07 03126
003652 046000 A 3127          INR     OPSTKP,B      BUMP STACK POINTER                           FG 07 03127
003653 006705 A 3128          IJMP    0,X           EXIT                                            07 03128
003654 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
003655 016164 A 3151 PRD      LDA     TEMP,B                                                        PD 07 03151
003656 006140 A 3152          SUBI    CDC                                                           PD 07 03152
003657 000020 A
003660 004250 A 3153          LRLA    8             POSITION READ/WRITE FLAG                        PD 07 03153
003661 056104 A 3154          STA     IOCONT,B                                                      PD 07 03154
003662 001010 A 3155          JAZ     *+3                                                           PD 07 03155
003663 003665 R
003664 010432 A 3156          LDA     WRS           SET WRITE BIT                                   PD 07 03156
003665 110431 A 3157          ORA     BFS           SET FILL FLAG                                   PD 07 03157
003666 006110 A 3158          ORAI    02000         SET ENCODE/DECODE BIT                           PD 07 03158
003667 002000 A
003670 056154 A 3159          STA     RWFL,B        INITIALIZE READ/WRITE FLAG WORD                 PD 07 03159
003671 036151 A 3160          LDX     RETURN,B      POINT X TO PARAMETER LIST                       PD 07 03160
               3161           MOVXAB  5,FRMT        SAVE FOR MAT STRING ADDRESS                     PD 07 03161
003672 015005 A
003673 056063 A
               3162           MOVXAB  6,APBF        BUFFER ADDRESS                                  PD 07 03162
003674 015006 A
003675 056020 A
003676 056027 A 3163          STA     ALBF,B                                                        PD 07 03163
003677 005311 A 3164          JAR                                                                   07 03164
003700 056025 A 3165          STA     BFWPT,B                                                       PD 07 03165
003701 015007 A 3166          LDA     7,X           CHARACTER-PROCESSED COUNT ADDRESS               PD 07 03166
003702 056152 A 3167          STA     RETURN+1,B                                                    PD 07 03167
003703 001010 A 3168          JAZ     PRD1          NO COUNT FIELD                                  PD 07 03168
003704 003711 R
003705 005014 A 3169          TAX                                                                   PD 07 03169
003706 005001 A 3170          TZA                                                                   PD 07 03170
003707 055000 A 3171          STA     0,X           INITIALIZE COUNT VARIABLE                       PD 07 03171
003710 036151 A 3172          LDX     RETURN,B                                                      PD 07 03172
003711 016167 A 3173 PRD1     LDA     UNIT,B        BUFFER SIZE                                     PD 07 03173
003712 005111 A 3174          IAR                                                                   PD 07 03174
003713 004301 A 3175          ASRA    1             MAKE BUFFER COUNT WORDS                         PD 07 03175
003714 056143 A 3176          STA     PBSZ,B                                                        PD 07 03176
003715 056144 A 3177          STA     PRWC,B                                                        PD 07 03177
003716 056122 A 3178          STA     LRSZ,B                                                        PD 07 03178
003717 056123 A 3179          STA     LRWC,B                                                        PD 07 03179
003720 005001 A 3180          TZA                                                                   PD 07 03180
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003721 056167 A 3181          STA     UNIT,B          SET NO UNIT                                    PD 07 03181
003722 035016 A 3182          LDX     ANRB,X          POINT X AT V$FORTIO DATA BLOCK                 PD 07 03182
003723 010435 A 3183          LDA     BS12            IOC MODE IS ASCII                              PD 07 03183
003724 115104 A 3184          ORA     IOCONT,X                                                       PD 07 03184
003725 055104 A 3185          STA     IOCONT,X                                                       PD 07 03185
               3186          MOVBAX  RWFL,RWFL                                                      PD 07 03186
003726 016154 A
003727 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
003730 016014 A
003731 001010 A
003732 003742 R
003733 015020 A 3192          LDA     APBF,X          YES                                            PD 07 03192
003734 006505 A 3193          JSR     TBK,X           TEST BUFFER START ADDRESS                      PD 07 03193
003735 005735 R
003736 126143 A 3194          ADD     PBSZ,B                                                         PD 07 03194
003737 005311 A 3195          DAR                                                                    PD 07 03195
003740 006505 A 3196          JSR     TBK,X           TEST BUFFER END ADDRESS                        PD 07 03196
003741 005735 R
               3197 VII1      CONT                                                                   FG 07 03197
               3198 NUC1      CONT                                                                   FG 07 03198
               3199 PRD2      ZAB     BFPT            CLEAR BUFFER CHARACTER POINTER                 PD 07 03199
003742 005001 A
003743 056026 A
               3200          TRAB    RWFL,WR,PRD4    WRITE?                                         PD 07 03200
003744 016154 A
003745 006451 A
003746 003751 R
               3201          PUSHJ   CLB             YES, CLEAR BUFFER                              PD 07 03201
003747 103025 A
003750 000127 R
003751 046172 A 3202 PRD4     INR     XFFL,B          ENABLE PARAMETER XFER                          PD 07 03202
003752 001000 A 3203          JMP     FRS             TO FORMAT SCAN                                 PD 07 03203
003753 000410 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(IN) = 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 *        LRECND = 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
003754 016167 A 3257 PRU      LDA     UNIT,B          GET U                                          07 03257
003755 150462 A 3258          ANA     LHW                                                            07 03258
003756 001016 A 3259          JANZ    ER4             ERROR 4/ U NOT IN (1,255) /                    07 03259
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003757 005364 R
                    3260 ***********************************************                                  07 03260
                    3261 * SEARCH FCB CHAIN FOR U ALREADY DEFINED *                                  07 03261
                    3262 ***********************************************                                  07 03262
                    3263          TRAB    RWFL,DA,PRU0                                                 07 03263
003760 016154 A
003761 006453 A
003762 003767 R
003763 036151 A 3264          LDX     RETURN,B      DIRECT ACCESS                                        07 03264
003764 015011 A 3265          LDA     9,X           FCB ADDRESS                                          07 03265
003765 001000 A 3266          JMP     PRU05                                                              07 03266
003766 003773 R
                    3267 PRU0     PUSHJ   SCH           SEARCH FCB CHAIN                               07 03267
003767 105025 A
003770 005625 R
003771 001010 A 3268          JAZ     PRU5                                                             07 03268
003772 004077 R
                    3269 ***********************                                                        07 03269
                    3270 * U IS ON FCB CHAIN *                                                        07 03270
                    3271 ***********************                                                        07 03271
003773 056010 A 3272 PRU05    STA     ADFCB,B       STORE FCB ADDRESS                                    07 03272
003774 036016 A 3273          LDX     ANRB,B                                                       E   07 03273
003775 055010 A 3274          STA     ADFCB,X       ALSO IN V$FORTIO                               E   07 03274
003776 005014 A 3275          TAX                   POINT X AT FCB                                       07 03275
                    3276          TSAB    RWFL,IN,ER4   ERROR 4/ OPEN CALL FINDS U ON CHAIN /      V2  07 03276
003777 016154 A
004000 006406 A
004001 005364 R
                    3277          MOVXAB  3,SVRECN      SAVE RECORD NO                                 07 03277
004002 015003 A
004003 056160 A
                    3278          MOVXAB  0,LRSZ        SET LOGICAL RECORD SIZE = FCB(0)               07 03278
004004 015000 A
004005 056122 A
004006 056143 A 3279          STA     PBSZ,B        ALSO PHYSICAL RECORD SIZE                            07 03279
                    3280          MOVXAB  1,APBF        SET PHYSICAL BUFFER ADDRESS = FCB(1)           07 03280
004007 015001 A
004010 056020 A
004011 056027 A 3281          STA     ALBF,B        ALSO LOGICAL BUFFER ADDRESS                          07 03281
004012 015014 A 3282          LDA     12,X          GET L                                                07 03282
004013 150463 A 3283          ANA     RHW                                                                07 03283
004014 056167 A 3284          STA     UNIT,B        STORE LOGICAL UNIT NUMBER L IN UNIT                  07 03284
004015 015014 A 3285          LDA     12,X          GET FLAGS FROM FCB                                   07 03285
004016 004354 A 3286          LSRA    SH            POSITION                                       V2  07 03286
004017 116154 A 3287          ORA     RWFL,B        MERGE INTO READ/WRITE FLAG                           07 03287
004020 056154 A 3288          STA     RWFL,B                                                             07 03288
004021 006441 A 3289          BT      ARST+LF,PRU50     EXIT ON NON-LOGICAL FILE                     FG  07 03289
004022 004346 R
004023 006400 A 3290          BT      ASET+RM,PRU1      RMD ?                                        V2  07 03290
004024 004030 R
004025 150451 A 3291          ANA     BFR           NO. CLEAR FILL FLAG                            V2  07 03291
004026 056154 A 3292          STA     RWFL,B                                                       V2  07 03292
                    3293          POPJ                  EXIT                                         FG  07 03293
004027 105065 A
                    3294 *****************************                                              V2  07 03294
                    3295 * U IS AN RMD LOGICAL FILE *                                              V2  07 03295
                    3296 *****************************                                              V2  07 03296
004030 R            3297 PRU1     EQU     *                                                        V2  07 03297
                    3298          MOVXAB  3,LRECNO      LOAD LOGICAL RECORD NUMBER                     07 03298
004030 015003 A
004031 056121 A
004032 016122 A 3299          LDA     LRSZ,B        GET LOGICAL RECORD SIZE                              07 03299
004033 005024 A 3300          TBX                   SAVE BASE POINTER IN X                               07 03300
004034 145201 A 3301          SUB     BD120,X                                                        V2  07 03301
004035 001002 A 3302          JAP     PRU2          IS LOGICAL RECORD SIZE .LT. 120 WORDS ?              07 03302
004036 004045 R
004037 015201 A 3303          LDA     BD120,X       YES                                              V2  07 03303
004040 004560 A 3304          LLSR    16                                                                 07 03304
004041 175122 A 3305          DIV     LRSZ,X                                                             07 03305
004042 005102 A 3306          INCR    B             SET BUFFER SIZE TO 1 RECORD                          07 03306
004043 001000 A 3307          JMP     PRU3                                                               07 03307
004044 004054 R
004045 015122 A 3308 PRU2     LDA     LRSZ,X                                                             07 03308
004046 004560 A 3309          LLSR    16                                                                 07 03309
004047 175201 A 3310          DIV     BD120,X       GET COUNT OF PHYSICAL RECS IN LOG REC            V2  07 03310
004050 001010 A 3311          JAZ     PRU4          ANY REMAINDER ?                                      07 03311
004051 004057 R
004052 005122 A 3312          IBR                   YES. BUMP ALLOCATION                                 07 03312
004053 005311 A 3313          DAR                                                                        07 03313
004054 001010 A 3314 PRU3     JAZ     *+3                                                                07 03314
004055 004057 R
004056 005122 A 3315          IBR                   BUMP COUNT IF NOT FACTOR OR MULTIPLE                 07 03315
004057 065142 A 3316 PRU4     STB     PBRC,X        STORE PHYSICAL RECORD COUNT                          07 03316
004060 005001 A 3317          TZA                                                                        07 03317
004061 165201 A 3318          MUL     BD120,X       GET PHYSICAL BUFFER SIZE                         V2  07 03318
004062 065143 A 3319          STB     PBSZ,X        STORE                                                07 03319
004063 015121 A 3320          LDA     LRECNO,X      GET LOGICAL RECORD NUMBER                            07 03320
004064 005311 A 3321          DAR                   CONVERT FROM BASE 1 TO BASE 0                        07 03321
004065 004560 A 3322          LLSR    16                                                                 07 03322
004066 165122 A 3323          MUL     LRSZ,X        GET WORD COUNT TO START OF LRECNO                    07 03323
004067 175201 A 3324          DIV     BD120,X       GET PHYSICAL RECORD COUNT TO LRECNO              V2  07 03324
004070 005122 A 3325          IBR                   CONVERT FROM BASE 0 TO BASE 1                        07 03325
004071 065145 A 3326          STB     PRECNO,X      SAVE PHYSICAL RECORD NUMBER                          07 03326
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004072 055123 A 3327          STA     LGOV,X          STORE OVERFLOW                                  07 03327
004073 125020 A 3328          ADD     APBF,X                                                          07 03328
004074 055027 A 3329          STA     ALBF,X          STORE ADDRESS OF LOGICAL BUFFER                 07 03329
004075 005042 A 3330          TXB                     RESTORE BASE REGISTER B                         07 03330
               3331          POPJ                    EXIT                                        FG  07 03331
004076 105065 A
               3332 **********************************                                              07 03332
               3333 * U NOT ON FCB CHAIN - SET L=U *                                                 07 03333
               3334 **********************************                                              07 03334
004077 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
004100 015023 A
004101 056010 A
004102 055010 A 3337          STA     ADFCB,X                                                         07 03337
004103 005014 A 3338          TAX                                                                     07 03338
               3339          MOVXAB  1,APBF          USE V$FORTIO SYSTEM BUFFER $BUF                 07 03339
004104 015001 A
004105 056020 A
004106 056027 A 3340          STA     ALBF,B                                                          07 03340
               3341          MOVBAX  BD120,0         SET RECORD SIZE TO 120 WORDS                V2  07 03341
004107 016201 A
004110 055000 A
004111 056143 A 3342          STA     PBSZ,B                                                          07 03342
004112 056122 A 3343          STA     LRSZ,B                                                          07 03343
               3344 **********************                                                          07 03344
               3345 * TEST VALIDITY OF L *                                                           07 03345
               3346 **********************                                                          07 03346
004113 036032 A 3347          LDX     SAVE,B          L = SAVE ON OPEN CALL                       V2  07 03347
               3348          TSAB    RWFL,IN,PRU6    OPEN CALL ?                                 V2  07 03348
004114 016154 A
004115 006406 A
004116 004120 R
004117 036167 A 3349          LDX     UNIT,B          NO. L=UNIT                                  V2  07 03349
004120 005041 A 3350 PRU6     TXA                     GET L IN A                                  V2  07 03350
004121 001010 A 3351          JAZ     PRU50           EXIT IF L=0                                  FG 07 03351
004122 004346 R
004123 006030 A 3352          LDXI    V$LUT1          POINT X AT LUN POINTER TABLE                V2  07 03352
004124 000400 A
004125 005311 A 3353          DAR                     1ST BLOCK BIASED BASE 1                         07 03353
004126 056164 A 3354          STA     TEMP,B          SAVE                                            07 03354
004127 005111 A 3355          IAR                     RESTORE L IN A                              V2  07 03355
004130 006140 A 3356          SUBI    1,1                                                         V2  07 03356
004131 000145 A
004132 001004 A 3357          JAN     PRU10           IS L IN BLOCK 1(1-100) ?                        07 03357
004133 004144 R
004134 005144 A 3358          IXR                     NO. BUMP BLOCK POINTER                          07 03358
004135 056164 A 3359          STA     TEMP,B          SAVE BIASED LUN                                 07 03359
004136 006140 A 3360          SUBI    79                                                          V2  07 03360
004137 000117 A
004140 001004 A 3361          JAN     PRU10           IS L IN BLOCK 2(101-180) ?                      07 03361
004141 004144 R
004142 005144 A 3362          IXR                     NO. BUMP BLOCK POINTER                          07 03362
004143 056164 A 3363          STA     TEMP,B          SAVE BIASED L                                   07 03363
004144 016164 A 3364 PRU10    LDA     TEMP,B          GET BIASED L                                    07 03364
004145 035000 A 3365          LDX     0,X             POINT X AT BLOCK POINTER                        07 03365
004146 145000 A 3366          SUB     0,X             COMPARE BIASED L WITH BLOCK SIZE                07 03366
004147 001002 A 3367          JAP     ER4             ERROR 47 INVALID LUN /                          07 03367
004150 005364 R
               3368 ****************                                                                07 03368
               3369 * GET DST INFO *                                                                 07 03369
               3370 ****************                                                                07 03370
004151 005141 A 3371          INCR    041                                                             07 03371
004152 126164 A 3372          ADD     TEMP,B                                                          07 03372
004153 005014 A 3373          TAX                     POINT X AT LOGICAL UNIT TABLE ENTRY             07 03373
004154 015000 A 3374          LDA     0,X                                                             07 03374
004155 150463 A 3375          ANA     RHW             GET DST INCREMENT FROM LUT                      07 03375
004156 056037 A 3376          STA     SAVE+3,B        SAVE                                        V2  07 03376
004157 001010 A 3377          JAZ     PRU50           EXIT IF L=DUMMY                              FG 07 03377
004160 004346 R
004161 005024 A 3378          TBX                     SAVE BASE POINTER IN X                          07 03378
004162 005312 A 3379          DECR    012             BIASED DST COUNT TO B                           07 03379
004163 010355 A 3380          LDA     V$DSTB          A = BASE OF DST TABLES                          07 03380
004164 160464 A 3381          MUL     THREE           B = DST ADDRESS                                 07 03381
004165 005041 A 3382          TXA                     A = BASE REGISTER                               07 03382
004166 005024 A 3383          TBX                     POINT X AT DST                                  07 03383
004167 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
004170 015002 A 3388          LDA     2,X                                                             07 03388
004171 004346 A 3389          LSRA    6                                                               07 03389
004172 150473 A 3390          ANA     RMD7                                                            07 03390
004173 001010 A 3391          JAZ     *+3                                                         V2  07 03391
004174 004176 R
004175 010421 A 3392          LDA     RMS             SET RMD FLAG                                V2  07 03392
004176 116154 A 3393          ORA     RWFL,B                                                      V2  07 03393
004177 056154 A 3394          STA     RWFL,B                                                      V2  07 03394
004200 006406 A 3395          BT      ASET+IN,PRU50     EXIT ON OPEN CALL                          FG 07 03395
004201 004346 R
004202 006400 A 3396          BT      ASET+RM,PRU30                                               V2  07 03396
004203 004256 R
               3397 ************
               3398 * L NOT RMD *                                                                   07 03398
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                    3399 ************
                    3400          TZAB    FRMT,PRU15     FORMATTED I/O ?                          V2  07 03400
004204 016063 A
004205 001010 A
004206 004210 R
004207 015001 A     3401          LDA     1,X            YES. GET 1ST TWO CHARS OF NAMR           V2  07 03401
       004210 R     3402 PRU15    EQU     *                                                       V2  07 03402
004210 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          IFT     VII                                                      FG  07 03406
                    3407          OME     MAP,V$ST0      SET EXEC STATE TO 00                     V2  07 03407
                    3408 NV2NUC   CONT                                                             FG  07 03408
004211 034147 A     3409          LDX     PRUDTB         POINT X AT DEVICE TABLE                      07 03409
                    3410 ****************************                                                07 03410
                    3411 * LOOP TO IDENTIFY DEVICE *                                                07 03411
                    3412 ****************************                                                07 03412
004212 005144 A     3413 PRUL1    IXR                    BUMP TABLE POINTER                           07 03413
004213 145000 A     3414          SUB     0,X                                                      V2  07 03414
004214 001010 A     3415          JAZ     PRU20          EXIT ON MATCH                            V2  07 03415
004215 004222 R
004216 001002 A     3416          JAP     PRUL1          LOOP TILL DONE                           V2  07 03416
004217 004212 R
004220 006030 A     3417          LDXI    PRUDTE         POINT X AT END IF NO FIND                V2  07 03417
004221 004370 R
004222 015007 A     3418 PRU20    LDA     PRUDTE-PRUDTB,X    GET DEVICE PARAMS FROM TABLE              07 03418
004223 001004 A     3419          JAN     PRU25          IF SPOOL UNIT                            E.1 07 03419
004224 004245 R
004225 005014 A     3420          TAX                    SAVE                                     V2  07 03420
004226 001004 A     3421          JAN     PRU25          IF SPOOL UNIT                            E.1 07 03421
004227 004245 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
004230 150431 A     3427          ANA     BFS                                                      V2  07 03427
004231 056164 A     3428          STA     TEMP,B         SAVE                                         07 03428
004232 005041 A     3429          TXA                    RESTORE A                                V2  07 03429
004233 036010 A     3430          LDX     ADFCB,B        POINT X AT DCB                               07 03430
004234 150463 A     3431          ANA     RHW            GET RECORD SIZE                              07 03431
004235 055000 A     3432          STA     0,X            STORE IN DCB                                 07 03432
004236 056143 A     3433          STA     PBSZ,B         ALSO AS PHYSICAL BUFFER SIZE                 07 03433
004237 056122 A     3434          STA     LRSZ,B         ALSO LOGICAL BUFFER SIZE                     07 03434
004240 016154 A     3435          LDA     RWFL,B                                                   V2  07 03435
004241 150451 A     3436          ANA     BFR                                                      V2  07 03436
004242 116164 A     3437          ORA     TEMP,B         MERGE FILL FLAG                           V2  07 03437
004243 056154 A     3438          STA     RWFL,B         INTO READ/WRITE FLAGS                        07 03438
                    3439          POPJ                   EXIT                                     FG  07 03439
004244 105065 A
       004245 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
004245 036032 A     3446          LDX     SAVE,B         DST ADDR                                 E.2 07 03446
004246 015000 A     3447          LDA     0,X            DSUNAM  (BITS 12-4)                      E.1 07 03447
004247 004352 A     3448          LSRA    10             POSITION MSB                             E.1 07 03448
004250 150467 A     3449          ANA     SEVEN                                                   E.1 07 03449
004251 006120 A     3450          ADDI    180            SET TO LUN 18N                           E.1 07 03450
004252 000264 A
004253 005014 A     3451          TAX                                                             E.1 07 03451
004254 001000 A     3452          JMP     PRU6                                                    E.1 07 03452
004255 004120 R
                    3453 ************                                                                 07 03453
                    3454 * RMD FILE *                                                               07 03454
                    3455 ************                                                                 07 03455
004256 010301 A     3456 PRU30    LDA     V$CPL          GET PRIORITY LEVEL                           07 03456
004257 140422 A     3457          SUB     TWO                                                         07 03457
004260 001002 A     3458          JAP     ER4            ERROR 47 FOREGROUND RMD FILE NOT OPEN /      07 03458
004261 005364 R
                    3459 ********************************************                                07 03459
                    3460 * BACKGROUND PROGRAM - CHECK GLOBAL FCB'S *                                07 03460
                    3461 ********************************************                                07 03461
004262 016167 A     3462          LDA     UNIT,B         GET L                                        07 03462
004263 006110 A     3463          ORAI    01400          MERGE IOLINK SKELETON CONTROL WORD        V2 07 03463
004264 001400 A
004265 056105 A     3464          STA     IOLNK,B        IOLINK CONTROL WORD FOR L GLOBAL FCB         07 03464
004266 016167 A     3465          LDA     UNIT,B         GET L                                        07 03465
004267 140422 A     3466          SUB     TWO                                                         07 03466
004270 001004 A     3467          JAN     PRU35          IGNORE L=1                                   07 03467
004271 004305 R
004272 140470 A     3468          SUB     NINE                                                        07 03468
004273 001002 A     3469          JAP     PRU35          NO GLOBAL FCB.GT.10                          07 03469
004274 004305 R
                    3470          IFF     NUC                                                      FG  07 03470
                    3471          GOTO    NV2NUC                                                   FG  07 03471
                    3472          IFT     VII                                                      FG  07 03472
                    3473          OME     MAP,V$ST0      SET EXEC STATE TO 00                     V2  07 03473
                    3474 NV2NUC   CONT                                                                07 03474
004275 124062 A     3475          ADD     PRUGT          ADD TABLE ADDRESS                            07 03475
004276 005014 A     3476          TAX                    POINT X AT GLOBAL FCB TABLE                  07 03476
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004277 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          OMÉ     MAP,V$ST3           SET EXEC STATE TO NN                       07 03481
                3482 NV2NUC   CONT                                                           FG      07 03482
004300 001040 A 3483          JXZ     PRU35           'SO' HAS NO GLOBAL FCB                         07 03483
004301 004305 R
004302 015005 A 3484          LDA     5,X             TEST GLOBAL FCB ENABLED                        07 03484
004303 001016 A 3485          JANZ    PRU40                                                          07 03485
004304 004332 R
                3486 ********************************                                               07 03486
                3487 * NO GLOBAL FCB - TEST U=SI *                                                  07 03487
                3488 ********************************                                               07 03488
004305 030400 A 3489 PRU35    LDX     V$LUT1                                                         07 03489
004306 015002 A 3490          LDA     2,X             GET SI ASSIGNMENT                              07 03490
004307 146037 A 3491          SUB     SAVE+5,B        COMPARE WITH L ASSIGNMENT              V2      07 03491
004310 150463 A 3492          ANA     RHW                                                            07 03492
004311 001016 A 3493          JANZ    ER4             ERROR 4/ RMD FILE NOT OPEN /                   07 03493
004312 005364 R
004313 010422 A 3494          LDA     TWO             L = SI                                         07 03494
004314 006110 A 3495          URAI    01400           MERGE IOLINK SKELETON CONTROL WORD      V2     07 03495
004315 001400 A
004316 056105 A 3496          STA     IOLNK,B         IOLINK CONTROL WORD FOR SIFCB                  07 03496
004317 006010 A 3497          LDAI    40                                                     V2      07 03497
004320 000050 A
004321 056143 A 3498          STA     PBSZ,B          ALSO PHYSICAL BUFFER SIZE                      07 03498
004322 056122 A 3499          STA     LRSZ,B          ALSO LOGICAL BUFFER SIZE                       07 03499
004323 036010 A 3500          LDX     ADFCB,B         POINT X AT V$FORTIO DATA BLOCK                 07 03500
004324 055000 A 3501          STA     0,X             SET RECORD SIZE DCB(0) = 40 WORDS              07 03501
004325 006030 A 3502          LDXI    SIFCB           POINT X AS SI GLOBAL FCB               V2      07 03502
004326 000000 E
004327 015005 A 3503          LDA     5,X                                                            07 03503
004330 001010 A 3504          JAZ     ER4             ERROR 4/ RMD NOT OPEN /                        07 03504
004331 005364 R
004332 005041 A 3505 PRU40    TXA                     GET FCB ADDRESS IN A                           07 03505
004333 056010 A 3506          STA     ADFCB,B         STORE                                          07 03506
004334 036016 A 3507          LDX     ANRB,B          POINT X AT V$FORTIO                            07 03507
004335 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
004336 016105 A
004337 055105 A
004340 016154 A 3510          LDA     RWFL,B                                                 V2      07 03510
004341 110430 A 3511          ORA     GFS             SET GLOBAL FCB FLAG                    V2      07 03511
004342 056154 A 3512          STA     RWFL,B                                                 V2      07 03512
004343 010420 A 3513          LDA     CXC                                                    V2      07 03513
004344 006505 A 3514          JSR     PSJ,X           PUSH IOLINK UP                         V2      07 03514
004345 004563 R
                3515 PRU50    POPJ                    EXIT                                   FG      07 03515
004346 105065 A
                3516 ************************                                                       07 03516
                3517 * GLOBAL FCB POINTERS *                                                       07 03517
                3518 ************************                                                       07 03518
004347 004326 E 3519 PRUASI   PZE     SIFCB           $I( 2) GLOBAL FCB                              07 03519
004350 000000 A 3520          DATA    0               SO( 3) NO GLOBAL FCB                           07 03520
004351 000000 E 3521          PZE     PIFCB           PI( 4) GLOBAL FCB                              07 03521
004352 000000 E 3522          PZE     LOFCB           LO( 5) GLOBAL FCB                              07 03522
004353 000000 E 3523          PZE     BIFCB           BI( 6) GLOBAL FCB                              07 03523
004354 000000 E 3524          PZE     BOFCB           BO( 7) GLOBAL FCB                              07 03524
004355 000000 E 3525          PZE     SSFCB           SS( 8) GLOBAL FCB                              07 03525
004356 000000 E 3526          PZE     GOFCB           GO( 9) GLOBAL FCB                              07 03526
004357 000000 E 3527          PZE     POFCB           PO(10) GLOBAL FCB                              07 03527
004360 004360 R 3528 PRUGT    PZE     *                                                              07 03528
                3529 ****************                                                               07 03529
                3530 * DEVICE TABLE *                                                               07 03530
                3531 ****************                                                               07 03531
004361 004361 R 3532 PRUDTB   PZE     *                                                              07 03532
004362 141720 A 3533          DATA    'CP'            1ST 2 CHARS OF DEVICE NAME                     07 03533
004363 000002 A 3534          DATA    2               'CR'                                   V2      07 03534
004364 000002 A 3535          DATA    2               'CT'                                   V2      07 03535
004365 004374 A 3536          DATA    04374           'LP'                                   V2      07 03536
004366 003400 A 3537          DATA    03400           :SP:                                   E.1     07 03537
004367 000411 A 3538          DATA    0411            :TY:                                   E.1     07 03538
004370 077777 A 3539          DATA    077777          TABLE END MARKER                       V2      07 03539
       004370 R 3540 PRUDTE   EQU     *-1                                                            07 03540
004371 000050 A 3541          DATA    40              CONSOLE FLAG/BUFFER SIZE                       07 03541
004372 000050 A 3542          DATA    40                                                             07 03542
004373 000450 A 3543          DATA    40+BFA                                                 V2      07 03543
004374 000102 A 3544          DATA    66                                                             07 03544
004375 177777 A 3545          DATA    -1              SPOOL UNIT INDICATOR                   E.1     07 03545
004376 000450 A 3546          DATA    40+BFA                                                 V2      07 03546
004377 000074 A 3547          DATA    60                                                             07 03547
                3548          EJEC                                                                   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
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                    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 UIO                                                * 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
004400 016164 A     3580 PRW     LDA      TEMP,B          GET OP                                            07 03580
004401 140471 A     3581         SUB      CRD                                                            V2  07 03581
004402 004250 A     3582         LRLA     8               POSITION READ/WRITE FLAG                          07 03582
004403 056104 A     3583         STA      IOCONT,B         FOR IOC CALL CONTROL WORD                        07 03583
004404 001010 A     3584         JAZ      *+3                                                            V2  07 03584
004405 004407 R
004406 010432 A     3585         LDA      WRS             SET WRITE BIT                                  V2  07 03585
004407 110431 A     3586         ORA      BFS             SET FILL FLAG                                  V2  07 03586
004410 056154 A     3587         STA      RWFL,B          INITIALIZE READ/WRITE FLAG WORD                   07 03587
004411 036151 A     3588 PRW05   LDX      RETURN,B                                                          07 03588
004412 015003 A     3589         LDA      3,X             GET READ/WRITE PARAMETER COUNT                    07 03589
004413 140422 A     3590         SUB      TWO                                                               07 03590
004414 001016 A     3591         JANZ     PRW0            WAS PROGRAM COMPILED WITH 'G' COMPILER ?          07 03591
004415 004422 R
004416 056152 A     3592         STA      RETURN+1,B      NO. CLEAR 'END' EXIT ADDRESS                      07 03592
004417 056153 A     3593         STA      RETURN+2,B      CLEAR 'ERR' EXIT ADDRESS                          07 03593
004420 001000 A     3594         JMP      PRW1                                                              07 03594
004421 004426 R
004422 015007 A     3595 PRW0    LDA      7,X             PROGRAM WAS COMPILED BY 'G' COMPILER              07 03595
004423 056152 A     3596         STA      RETURN+1,B      SAVE 'END' EXIT ADDRESS                           07 03596
004424 015010 A     3597         LDA      8,X             GET 'ERR' EXIT ADDRESS                            07 03597
004425 056153 A     3598         STA      RETURN+2,B      SAVE                                              07 03598
       004426 R     3599 PRW1    EQU      *                                                                 07 03599
                    3600         MOVXAB   5,FRMT          SAVE FORMAT STRING ADDRESS(0 IF NONE)             07 03600
004426 015005 A
004427 056063 A
                    3601         PUSHJ    PRU             PROCESS FORTRAN UNIT NUMBER                    V2  07 03601
004430 105025 A
004431 003754 R
                    3602         TZAB     FRMT,PRW2       IOC MODE IS SYS BINARY FOR UNFORMATTED         V2  07 03602
004432 016063 A
004433 001010 A
004434 004436 R
004435 010435 A     3603         LDA      BS12            IOC MODE IS ASCII FOR FORMATTED                   07 03603
004436 036016 A     3604 PRW2    LDX      ANRB,B          POINT X AT V$FORTIO DATA BLOCK                 V2  07 03604
004437 116167 A     3605         ORA      UNIT,B          MERGE IN LOGICAL UNIT NUMBER L                    07 03605
004440 116104 A     3606         ORA      IOCONT,B        MERGE IN READ/WRITE BIT                           07 03606
004441 055104 A     3607         STA      IOCONT,X        STORE IN V$FORTIO                                 07 03607
                    3608         MOVBAX   RWFL,RWFL       MOVE FLAG WORD TO V$FORTIO                        07 03608
004442 016154 A
004443 055154 A
004444 016152 A     3609         LDA      RETURN+1,B      MOVE RETURN ADDRESSES TO V$FORTIO               PD 07 03609
004445 055152 A     3610         STA      RETURN+1,X                                                      PD 07 03610
004446 016153 A     3611         LDA      RETURN+2,B                                                      PD 07 03611
004447 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
004450 016014 A
004451 001010 A
004452 004462 R
004453 016020 A     3618         LDA      APDF,B          YES                                               07 03618
004454 006505 A     3619         JSR      TBK,X           TEST BUFFER START ADDRESS                         07 03619
004455 005735 R
004456 126143 A     3620         ADD      PBSZ,B                                                            07 03620
004457 005311 A     3621         DAR                                                                        07 03621
004460 006505 A     3622         JSR      TBK,X           TEST BUFFER END ADDRESS                           07 03622
004461 005735 R
                    3623 VII1    CONT                                                                    FG 07 03623
                    3624 NUC1    CONT                                                                    FG 07 03624
                    3625 PRW4    ZAB      BFPT            CLEAR BUFFER CHARACTER POINTER                    07 03625
004462 005001 A
004463 056026 A
                    3626         TRAB     RWFL,LF,PRW6        LOGICAL FILE ?                                07 03626
004464 016154 A
004465 006441 A
004466 004472 R
004467 036010 A     3627         LDX      ADFCB,B         YES                                               07 03627
                    3628         MOVBAX   PBSZ,0          SET FCB(0) = PHYSICAL BUFFER SIZE                 07 03628
004470 016143 A
004471 055000 A
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                    3629 PRW6    PUSHJ   RFL             REPOSITION FILE                                  V2  07 03629
004472 105025 A
004473 005404 R
                    3630         TRAB    RWFL,WR,PRW10       WRITE ?                                      V2  07 03630
004474 016154 A
004475 006451 A
004476 004502 R
                    3631         PUSHJ   CLB             YES. CLEAR BUFFER                                V2  07 03631
004477 105025 A
004500 000127 R
004501 001006 A 3632         DATA    01006           SKIP                                                     07 03632
004502 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
004503 016122 A
004504 056123 A
004505 046172 A 3635         INR     XFFL,B          ENABLE PARAMETER XFER                                    07 03635
                    3636         TZAB    FRMT,UIO        PROCESS UNFORMATTED I/O IF FRMT=0                    07 03636
004506 016063 A
004507 001010 A
004510 006152 R
004511 001000 A 3637         JMP     FRS             EXIT TO FORMAT SCAN IF FORMATTED                         07 03637
004512 000410 R
                    3638         EJEC                                                                         07 03638
                    3639 ********************************************************************************** 07 03639
                    3640 *                                                                                  * 07 03640
                    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
004513 016164 A 3645 PRX     LDA     TEMP,B                                                                  07 03645
004514 006140 A 3646         SUBI    CRA                                                                     07 03646
004515 000022 A
004516 004250 A 3647         LRLA    8               POSITION READ/WRITE FLAG                                 07 03647
004517 056104 A 3648         STA     IOCONT,B                                                                07 03648
004520 001010 A 3649         JAZ     *+3                                                                     07 03649
004521 004523 R
004522 010432 A 3650         LDA     WRS                                                                     07 03650
004523 110431 A 3651         ORA     BFS                                                                     07 03651
004524 110434 A 3652         ORA     BS11            SET DIRECT ACCESS FLAG                                   07 03652
004525 056154 A 3653         STA     RWFL,B                                                                  07 03653
004526 016164 A 3654         LDA     TEMP,B                                                                  07 03654
004527 140424 A 3655         SUB     EIGHT                                                                   07 03655
004530 056164 A 3656         STA     TEMP,B          SET TO READ/WRITE                                        07 03656
004531 001000 A 3657         JMP     PRW05                                                                   07 03657
004532 004411 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
004533 016154 A 3673 PSB     LDA     RWFL,B                                                                  07 03673
004534 150443 A 3674         ANA     PDR             CLEAR POST BIT IN FLAG WORD                      V2     07 03674
004535 056154 A 3675         STA     RWFL,B                                                                  07 03675
004536 036010 A 3676         LDX     ADFCB,B                                                                 07 03676
004537 015014 A 3677         LDA     12,X                                                                    07 03677
004540 150457 A 3678         ANA     FPDR            CLEAR POST BIT IN FCB(12)                        V2     07 03678
004541 055014 A 3679         STA     12,X                                                                    07 03679
                    3680         MOVXAX  13,3            LOAD PHYSICAL RECORD NUMBER INTO FCB(3)              07 03680
004542 015015 A
004543 055003 A
004544 036016 A 3681         LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                           07 03681
004545 015104 A 3682         LDA     IOCONT,X                                                                07 03682
004546 110431 A 3683         ORA     BS8             SET WRITE BIT IN V$IOC CONTROL WORD                      07 03683
004547 055104 A 3684         STA     IOCONT,X                                                                07 03684
004550 010464 A 3685         LDA     CIO             PUSH I/O OP                                      V2     07 03685
004551 006505 A 3686         JSR     PSJ,X           WRITE OUT BUFFER                                 V2     07 03686
004552 004563 R
                    3687         TSAB    RWFL,WR,PSBX    EXIT ON WRITE                                FG     07 03687
004553 016154 A
004554 006411 A
004555 004562 R
004556 036016 A 3688         LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK                           07 03688
004557 015104 A 3689         LDA     IOCONT,X                                                                07 03689
004560 150451 A 3690         ANA     MBS             CLEAR WRITE BIT IN V$IOC CONTROL WORD                    07 03690
004561 055104 A 3691         STA     IOCONT,X                                                                07 03691
                    3692 PSBX    POPJ            EXIT                                                 FG     07 03692
004562 105065 A
                    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
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                    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
004563 056164 A     3713 PSJ     STA      TEMP,B          SAVE EXIT                                      07 03713
004564 005041 A     3714          TXA                                                                     07 03714
004565 036000 A     3715          LDX      OPSTKP,B        POINT X AT STACK                               07 03715
004566 005344 A     3716          DXR                      DROP STACK POINTER                          FG 07 03716
004567 076000 A     3717          STX      OPSTKP,B                                                    FG 07 03717
004570 055000 A     3718          STA      0,X             PUSH RETURN                                    07 03718
004571 016164 A     3719          LDA      TEMP,B          RESTORE A                                      07 03719
004572 005014 A     3720          TAX                                                                     07 03720
004573 004346 A     3721          LSRA     6                                                              07 03721
004574 001010 A     3722          JAZ      *+4             EXTERNAL REQUEST ?                             07 03722
004575 004600 R
004576 006705 A     3723          IJMP     0,X             NO. JUMP DIRECTLY TO INTERNAL SUBROUTINE       07 03723
004577 000000 A
004600 010423 A     3724          LDA      CRB                                                            07 03724
                    3725          PUSHF                    PUSH RETURN TO V$RERR                          07 03725
004601 036016 A
004602 035000 A
004603 005344 A
004604 055000 A
004605 005041 A
004606 036016 A
004607 055000 A
004610 016164 A     3726          LDA      TEMP,B          RESTORE CALLED OP                              07 03726
                    3727          PUSHF                    PUSH V$FORTIO OP                               07 03727
004611 036016 A
004612 035000 A
004613 005344 A
004614 055000 A
004615 005041 A
004616 036016 A
004617 055000 A
004620 001000 A     3728          JMP      CAN             EXIT TO V$FORTIO                               07 03728
004621 000065 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
004622 016172 A     3762 PXF     LDA      XFFL,B                                                         07 03762
004623 001010 A     3763          JAZ      ER2             ERROR 2/ ILLEGAL CALL TO $IX /                 07 03763
004624 005366 R
004625 036016 A     3764          LDX      ANRB,B          POINT X AT V$FORTIO                            07 03764
004626 015116 A     3765          LDA      ITMODE,X                                                       07 03765
004627 056116 A     3766          STA      ITMODE,B        MOVE MODE FROM V$FORTIO TO V$RERR              07 03766
004630 016063 A     3767          LDA      FRMT,B                                                         07 03767
004631 005004 A     3768          TZX                      SET ITEM WORD SIZE TO 1.                       07 03768
004632 001010 A     3769          JAZ      PXF5            ITEM WORD SIZE = 1 FOR UNFORMATTED             07 03769
004633 004635 R
004634 036116 A     3770          LDX      ITMODE,B                                                       07 03770
       004635 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$STO       SET EXEC STATE TO 00                        V2 07 03775
                    3776 NV2NUC  CONT                                                                  FG 07 03776
004635 006015 A     3777          LDAE     PXFSZT,X        GET ITEM WORD SIZE FROM TABLE               V2 07 03777
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004636 004705 R
                    3778           IFF     NUC                                                          FG 07 03778
                    3779           GOTO    NV2NUC                                                       FG 07 03779
                    3780           IFT     VII                                                          FG 07 03780
                    3781           OME     MAP,V$ST3      SET EXEC STATE TO NN                          V2 07 03781
                    3782 NV2NUC    CONT                                                                 FG 07 03782
004637 056102 A     3783           STA     IIWSZ,B        STORE                                            07 03783
004640 056115 A     3784           STA     ITMINC,B       ALSO ITEM INCREMENT                              07 03784
004641 004241 A     3785           LRLA    1              GET ITEM BYTE SIZE                               07 03785
004642 056101 A     3786           STA     IIBSZ,B        STORE IN TABLE                                   07 03786
004643 005344 A     3787           DXR                                                                     07 03787
004644 001046 A     3788           JXNZ    *+3            2-WORD INTEGER/LOGICAL ?                      V2 07 03788
004645 004647 R
004646 046115 A     3789           INR     ITMINC,B       YES. SET INCREMENT TO 2                          07 03789
004647 016063 A     3790           LDA     FRMT,B                                                       V2 07 03790
004650 001010 A     3791           JAZ     PXF10          ALL MODES OK FOR UNFORMATTED                  V2 07 03791
004651 004665 R
004652 016061 A     3792           LDA     FDLKEY,B                                                        07 03792
004653 140423 A     3793           SUB     FOUR                                                            07 03793
004654 001016 A     3794           JANZ    PXF10          I FORMAT DESCRIPTOR ?                            07 03794
004655 004665 R
004656 016116 A     3795           LDA     ITMODE,B       YES                                              07 03795
004657 140422 A     3796           SUB     TWO                                                             07 03796
004660 001004 A     3797           JAN     PXF10          INTEGER ITEM                                     07 03797
004661 004665 R
004662 140464 A     3798           SUB     THREE                                                           07 03798
004663 001016 A     3799           JANZ    ER2            ERR 2/NON-INTEGER ITEM/                          07 03799
004664 005366 R
004665 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
004666 015004 A
004667 056114 A
                    3802           MOVXAB  5,ITEMAD       SAVE LIST ITEM ADDRESS                           07 03802
004670 015005 A
004671 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           TZAB    ALOC,PXF20     EXIT IF NOT VORTEX BKGND CALLING NUC          FG 07 03807
004672 016014 A
004673 001010 A
004674 004704 R
004675 016113 A     3808           LDA     ITEMAD,B                                                        07 03808
004676 006505 A     3809           JSR     TBK,X          TEST START OF ITEM ADDRESS                       07 03809
004677 005735 R
004700 126114 A     3810           ADD     ITEMWC,B                                                        07 03810
004701 005311 A     3811           DAR                                                                     07 03811
004702 006505 A     3812           JSR     TBK,X          TEST END OF ITEM ADDRESS                         07 03812
004703 005735 R
                    3813 VII1      CONT                                                                 FG 07 03813
                    3814 NUC1      CONT                                                                 FG 07 03814
                    3815 PXF20     POPJ                   EXIT                                          FG 07 03815
004704 105065 A
                    3816 ********************************                                                07 03816
                    3817 * TABLE OF ITEM SIZES IN WORDS *                                                07 03817
                    3818 ********************************                                                07 03818
004705 000001 A     3819 PXFSZT    DATA    1              1-WORD INTEGER/LOGICAL                           07 03819
004706 000001 A     3820           DATA    1              2-WORD INTEGER/LOGICAL                           07 03820
004707 000002 A     3821           DATA    2              REAL                                             07 03821
004710 000004 A     3822           DATA    4              DOUBLE PRECISION                                 07 03822
004711 000002 A     3823           DATA    2              COMPLEX                                          07 03823
004712 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 OP IS .GE. 0100(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
004713 R            3856 V$RERR EQU     *              ALOC ENTRY                                       V2 07 03856
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                    3857          IFF     NUC                                                    FG 07 03857
                    3858          GOTO    NUC1                                                   FG 07 03858
004713 000005 A     3859          DATA    5                                                      V2 07 03859
                    3860          IFF     VII                                                    FG 07 03860
                    3861          GOTO    VII1                                                   FG 07 03861
                    3862          EXC2    0500+MAP                                               V2 07 03862
                    3863          OME     MAP,V$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$FORTIO *                     V2 07 03872
                    3873 ********************************************************               V2 07 03873
                    3874          LDA     ANRB,B                                                 V2 07 03874
                    3875          OME     MAP,V$ST1       SET EXEC STATE TO ON                   V2 07 03875
                    3876          ADDI    OPSTK+STKSZ-1                                          FG 07 03876
                    3877          LDXI    BASE            POINT X AT V$RERR STACK BASE           V2 07 03877
                    3878          SUB     FOPSTP,X                                               FG 07 03878
                    3879          TAB                     POINT B AT V$FORTIO STACK              V2 07 03879
                    3880          LDA     ROPSTP,X        GET COUNT                              FG 07 03880
                    3881          JAN     RBEX            EXIT IF NO MOVE                        V2 07 03881
                    3882          CPA                                                            FG 07 03882
                    3883          INCR    014             SET X = -(COUNT-1)                     FG 07 03883
                    3884 RBEL1    LDAE    BASE+STKSZ-1,X                                         FG 07 03884
                    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
       004714 R     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
004714 006030 A     3902          LDXI    BASE            POINT X AT V$RERR DATA BLOCK           V2 07 03902
004715 006340 R
004716 065016 A     3903          STB     ANRB,X          SAVE ADDRESS OF NON-REENTRANT BLOCK        07 03903
                    3904          ZAX     ERN             CLEAR ERROR COUNTER                        07 03904
004717 005001 A
004720 055060 A
                    3905 ********************************                                           07 03905
                    3906 * TEST V$FORTIO STACK EMPTY *                                           07 03906
                    3907 ********************************                                           07 03907
004721 016000 A     3908          LDA     OPSTKP,B                                               07 03908
004722 146017 A     3909          SUB     AOPSTK,B                                               07 03909
004723 001016 A     3910          JANZ    RBE5                                                   07 03910
004724 004733 R
                    3911 ************************************************************************ 07 03911
                    3912 * V$FORTIO STACK EMPTY -- RESUME EXECUTION FROM V$RERR STACK *          07 03912
                    3913 ************************************************************************ 07 03913
004725 015000 A     3914          LDA     OPSTKP,X                                               07 03914
004726 145017 A     3915          SUB     AOPSTK,X                                               07 03915
004727 001010 A     3916          JAZ     RBE90           ERROR/ V$RERR STACK EMPTY /            07 03916
004730 005102 R
004731 005042 A     3917          TXB                     LOAD BASE REGISTER B                   07 03917
                    3918          POPJ                    RESUME EXECUTION FROM V$RERR STACK     FG 07 03918
004732 105065 A
                    3919 ************************************************                       07 03919
                    3920 * V$FORTIO STACK HAS OP - TEST VALIDITY *                             07 03920
                    3921 ************************************************                       07 03921
004733 036000 A     3922 RBE5     LDX     OPSTKP,B                                               07 03922
004734 015000 A     3923          LDA     0,X             GET OP                                 07 03923
004735 006140 A     3924          SUBI    13                                                     PD 07 03924
004736 000015 A
004737 001004 A     3925          JAN     RBE90           ERROR/ ILLEGAL OP /                    07 03925
004740 005102 R
004741 006140 A     3926          SUBI    11                                                     V2 07 03926
004742 000013 A
004743 001002 A     3927          JAP     RBE90           ERROR/ ILLEGAL OP /                    07 03927
004744 005102 R
004745 120425 A     3928          ADD     D16             RESTORE OP                             07 03928
004746 034155 A     3929          LDX     RBEB            POINT X AT V$RERR DATA BLOCK           07 03929
004747 055164 A     3930          STA     TEMP,X          SAVE OP                                07 03930
004750 140466 A     3931          SUB     CXF                                                    V2 07 03931
004751 001010 A     3932          JAZ     RBE10           PARAMETER XFER ?                       07 03932
004752 004755 R
004753 015017 A     3933          LDA     AOPSTK,X        NO. INITIALIZE V$RERR STACK            07 03933
004754 001006 A     3934          DATA    01006           SKIP                                   07 03934
004755 015000 A     3935 RBE10    LDA     OPSTKP,X                                               07 03935
004756 005311 A     3936          DAR                     PUSH V$RERR STACK                      FG 07 03936
004757 055000 A     3937          STA     OPSTKP,X                                               07 03937
004760 005014 A     3938          TAX                                                            07 03938
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 ,761 024142 A 3939          LDB     RBE8            POINT B AT V$RERR DATA BLOCK                    07 03939
004762 016164 A 3940          LDA     TEMP,B          RELOAD OP                                       07 03940
004763 055000 A 3941          STA     0,X             PUSH OP ONTO V$RERR STACK                       07 03941
004764 026016 A 3942          LDB     ANRB,B          POINT B AT V$FORTIO DATA BLOCK                  07 03942
004765 034136 A 3943          LDX     RBEB            POINT X AT V$RERR DATA BLOCK                    07 03943
               3945 **********************************************************                    07 03945
               3946 * MOVE ADDRESSES FROM NON-REENTRANT MODULE TO REENTRANT *                    07 03946
               3947 **********************************************************                    07 03947
004766 016151 A 3949          LDA     RETURN,B                                                        07 03949
004767 055151 A 3950          STA     RETURN,X        MOVE CALL SEQ ADDRESS                           07 03950
004770 006505 A 3951          JSR     TBK,X           TEST RETURN ADDRESS IN BACKGROUND               07 03951
004771 005735 R
004772 120471 A 3952          ADD     TEN                                                             07 03952
004773 006505 A 3953          JSR     TBK,X           TEST PARAMETER LIST IN BACKGROUND               07 03953
004774 005735 R
004775 005021 A 3954          TBA                                                                     07 03954
004776 006505 A 3955          JSR     TBK,X           TEST 1ST WORD OF DATA BLOCK IN BACKGRND         07 03955
004777 005735 R
005000 006120 A 3956          ADDI    YYY-1                                                   V2      07 03956
005001 000176 A
005002 006505 A 3957          JSR     TBK,X           TEST LAST WORD OF DATA BLOCK IN BACKGRND        07 03957
005003 005735 R
005004 034117 A 3958          LDX     RBEB                                                            07 03958
005005 016015 A 3959          LDA     ANPOJ,B                                                         07 03959
005006 055015 A 3960          STA     ANPOJ,X         MOVE NON-REENTRANT POP/JUMP ADDRESS             07 03960
005007 006505 A 3961          JSR     TBK,X           TEST NON-REENTRANT POP/JUMP IN BACKGROUND       07 03961
005010 005735 R
005011 034112 A 3962          LDX     RBE8            POINT X AT REENTRANT BLOCK                      07 03962
005012 016000 A 3963          LDA     OPSTKP,B                                                        07 03963
005013 145016 A 3964          SUB     ANRB,X                                                          07 03964
005014 006140 A 3965          SUBI    VOPSTK-BASE     COMPARE WITH BOTTOM OF STACK            V2      07 03965
005015 000127 A
005016 001004 A 3966          JAN     RBE90           ERROR/ PROTECTION /                             07 03966
005017 005102 R
005020 006140 A 3967          SUBI    STKSZ                                                   V2      07 03967
005021 000012 A
005022 001002 A 3968          JAP     RBE90           ERROR/ PROTECTION /                             07 03968
005023 005102 R
005024 046000 A 3969          INR     OPSTKP,B        POP V$FORTIO STACK                       FG     07 03969
005025 024076 A 3970          LDB     RBEB            POINT B AT V$RERR DATA BLOCK                    07 03970
005026 016164 A 3971          LDA     TEMP,B          RELOAD OP                                       07 03971
005027 140466 A 3972          SUB     CXF                                                     V2      07 03972
005030 001016 A 3973          JANZ    RBE4            IS OP PARAMETER XFER ?                  V2      07 03973
005031 005035 R
005032 016172 A 3974          LDA     XFFL,B          YES. GET XFER ENABLE FLAG                       07 03974
005033 001010 A 3975          JAZ     RBE90           EXIT IF ILLEGAL OP                              07 03975
005034 005102 R
               3976 VII1      CONT                                                             FG     07 03976
       005035 R 3977 RBE4     EQU     *                                                       V2      07 03977
               3978           IFE     VORTEX-2                                                V2      07 03978
               3979           OME     MAP,V$ST3       SET EXEC STATE TO MN                    V2      07 03979
005035 005101 A 3980          INCR    1               SET ALOC ENTRY FLAG                     V2      07 03980
005036 001006 A 3981          DATA    01006                                                   V2      07 03981
               3982 NUC1      CONT                                                             FG     07 03982
               3983 **********************************                                              07 03983
               3984 * REENTRANT MODULE CALLED BY DIRECT JUMP *                                      07 03984
               3985 **********************************                                              07 03985
       005037 R 3986 V$RER1   EQU     *                                                               07 03986
005037 005001 A 3987          TZA                     RESET ALOC ENTRY FLAG                   V2      07 03987
005040 056014 A 3988          STA     ALOC,B                                                  V2      07 03988
               3989 ***********                                                                       07 03989
               3990 * TEST OP *                                                                       07 03990
               3991 ***********                                                                       07 03991
005041 036000 A 3992          LDX     OPSTKP,B                                                V2      07 03992
005042 015000 A 3993          LDA     0,X             GET OP IN A                                     07 03993
005043 056164 A 3994          STA     TEMP,B          SAVE                                            07 03994
005044 004346 A 3995          LSRA    6                                                               07 03995
005045 001010 A 3996          JAZ     RBE15           IS OP RETURN ADDRESS ?                   FG     07 03996
005046 005050 R
               3997           POPJ                    YES. RETURN                              FG     07 03997
005047 105065 A
005050 015000 A 3998 RBE15     LDA     0,X             RELOAD OP                                FG     07 03998
005051 005144 A 3999           IXR                     POP STACK                                FG     07 03999
005052 076000 A 4000           STX     OPSTKP,B                                                        07 04000
005053 140465 A 4001           SUB     CTR                                                     V2      07 04001
005054 001004 A 4002           JAN     ER4             ERROR 4/ILLEGAL OP/                             07 04002
005055 005364 R
005056 001010 A 4003           JAZ     RBE25           NO UNIT ASSOCIATED WITH TERMINATE CALL          07 04003
005057 005073 R
005060 005311 A 4004           DAR                                                             V2      07 04004
005061 001010 A 4005           JAZ     RBE30           NO UNIT ASSOCIATED WITH PARAM XFER CALL         07 04005
005062 005075 R
005063 006140 A 4006           SUBI    RBEJTE-RBEJT-1                                          V2      07 04006
005064 000016 A
005065 001002 A 4007           JAP     ER4             ERROR 4/ILLEGAL OP/                             07 04007
005066 005364 R
005067 036151 A 4008           LDX     RETURN,B                                                        07 04008
005070 035004 A 4009           LDX     4,X             POINT X AT FORTRAN UNIT NUMBER                  07 04009
005071 015000 A 4010           LDA     0,X             GET FORTRAN UNIT NUMBER                         07 04010
005072 056167 A 4011           STA     UNIT,B          STORE                                           07 04011
005073 005001 A 4012 RBE25     TZA                                                                     07 04012
005074 056172 A 4013           STA     XFFL,B          DISABLE PARAMETER XFER                          07 04013
005075 036164 A 4014 RBE30     LDX     TEMP,B          LOAD OP AS JUMP TABLE INDE/             V2      07 04014
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                 4015         IFF     NUC                                                    FG 07 04015
                 4016         GOTO    NV2NUC                                                 FG 07 04016
                 4017         IFT     VII                                                    FG 07 04017
                 4018         DME     MAP,V$ST0       SET EXEC STATE TO 00                   V2 07 04018
                 4019 NV2NUC  CONT                                                           FG 07 04019
005076 006035 A  4020         LDXE    RBEJT-CTRV,X      GET PROCESSOR ADDRESS                V2 07 04020
005077 005100 R
                 4021         IFF     NUC                                                    FG 07 04021
                 4022         GOTO    NV2NUC                                                 FG 07 04022
                 4023         IFT     VII                                                    FG 07 04023
                 4024         DME     MAP,V$ST3       SET EXEC STATE TO NN                   V2 07 04024
                 4025 NV2NUC  CONT                                                           FG 07 04025
005100 006705 A  4026         IJMP    0,X             EXIT TO PROCESSOR                         07 04026
005101 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
005102 005001 A  4034 RBE90   TZA                                                               07 04034
005103 001000 A  4035         JMP     TBK             FORCE TBK ERROR                           07 04035
005104 005735 R
                 4036 VII1    CONT                                                           FG 07 04036
                 4037 NUC1    CONT                                                           FG 07 04037
                 4038 ********************                                                      07 04038
                 4039 * EXIT JUMP TABLE *                                                       07 04039
                 4040 ********************                                                      07 04040
005105 006062 R  4041 RBEJT   PZE     TRM             TERMINATE                                 07 04041
005106 004622 R  4042         PZE     PXF             PARAMETER XFER                         V2 07 04042
005107 003123 R  4043         PZE     PAX             BACKSPACE                                 07 04043
005110 003123 R  4044         PZE     PAX             WRITE EOF                                 07 04044
005111 003123 R  4045         PZE     PAX             REWIND                                    07 04045
005112 004400 R  4046         PZE     PRW             READ                                      07 04046
005113 004400 R  4047         PZE     PRW             WRITE                                     07 04047
005114 000163 R  4048         PZE     CLS             CLOSE RMD FILE                            07 04048
005115 000163 R  4049         PZE     CLS             CLOSE RMD FILE                            07 04049
005116 002730 R  4050         PZE     OPN             OPEN RMD FILE                             07 04050
005117 002730 R  4051         PZE     OPN             OPEN RMD FILE                             07 04051
005120 003655 R  4052         PZE     PRD             DECODE                                 PD 07 04052
005121 003655 R  4053         PZE     PRD             ENCODE                                 PD 07 04053
005122 004513 R  4054         PZE     PRX             READ - DIRECT ACCESS                      07 04054
005123 004513 R  4055         PZE     PRX             WRITE - DIRECT ACCFSS                     07 04055
       005124 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
005124 006340 R  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
005125 016052 A  4078 RCH     LDA     COUNT,B                                                   07 04078
005126 005311 A  4079         DAR                     DECREMENT COUNT                           07 04079
005127 001002 A  4080         JAP     RCH2                                                   FG 07 04080
005130 005132 R
                 4081         POPJ                    EXIT IF COUNT .LE. 0                   FG 07 04081
005131 105065 A
005132 056052 A  4082 RCH2    STA     COUNT,B                                                FG 07 04082
005133 016021 A  4083         LDA     ASCB,B                                                    07 04083
005134 146002 A  4084         SUB     ABSCB,B                                                   07 04084
005135 007400 A  4085         ROF                                                            V2 07 04085
005136 003010 A  4086         XAZ     SOF             SET OVFL IF BUFFER SCB                 V2 07 04086
005137 001626 R
                 4087         TSAB    RWFL,WR,RCH10                                          V2 07 04087
005140 016154 A
005141 006411 A
005142 005155 R
                 4088 *********                                                                 07 04088
                 4089 * INPUT *                                                                 07 04089
                 4090 *********                                                                 07 04090
005143 001001 A  4091         JOF     RCH5                                                   V2 07 04091
005144 005151 R
                 4092 *****************************                                             07 04092
                 4093 * INPUTTING FROM NON-BUFFER *                                             07 04093
                 4094 *****************************                                             07 04094
                 4095         PUSHJ   ICC             INPUT CHARACTER                        V2 07 04095
005145 105025 A
005146 001623 R
005147 001000 A  4096         JMP     RCH             LOOP TILL DONE                            07 04096
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005150 005125 R
                    4097 ****************************                                                                07 04097
                    4098 * INPUTTING FROM BUFFER *                                                                 07 04098
                    4099 ****************************                                                                07 04099
                    4100 RCH5   PUSHJ   CBC          INPUT CHARACTER FROM BUFFER                          V2    07 04100
005151 105025 A
005152 000101 R
005153 001000 A     4101        JMP     RCH          LOOP TILL DONE                                               07 04101
005154 005125 R
                    4102 **********                                                                                 07 04102
                    4103 * OUTPUT *                                                                                 07 04103
                    4104 **********                                                                                 07 04104
005155 001001 A     4105 RCH10  JOF     RCH15                                                                V2    07 04105
005156 005163 R
                    4106 ****************************                                                            07 04106
                    4107 * OUTPUT TO NON-BUFFER *                                                                 07 04107
                    4108 ****************************                                                            07 04108
                    4109        PUSHJ   PCH          PUT CHARACTER                                        V2    07 04109
005157 105025 A
005160 003320 R
005161 001000 A     4110        JMP     RCH          LOOP TILL DONE                                               07 04110
005162 005125 R
                    4111 ************************                                                                07 04111
                    4112 * OUTPUT TO BUFFER *                                                                     07 04112
                    4113 ************************                                                                07 04113
                    4114 RCH15  PUSHJ   OCB          OUTPUT CHARACTER TO BUFFER                           V2    07 04114
005163 105025 A
005164 002452 R
005165 001000 A     4115        JMP     RCH          LOOP TILL DONE                                               07 04115
005166 005125 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
                    4126 *                                                                              *        07 04126
                    4127 ********************************************************************************        07 04127
                    4129 RCL    TRAB    RWFL,LF,RCL5     LOGICAL FILE ?                              V2    07 04129
005167 016154 A
005170 006441 A
005171 005174 R
005172 006400 A     4130        BT      ASET+RM,RCL10    YES. RMD ?                                  D.1   07 04130
005173 005201 R
                    4131 RCL5   ZAB     LRWC             NO. FORCE RECYCLE                           V2    07 04131
005174 005001 A
005175 056123 A
005176 056144 A     4132        STA     PBWC,B           CLEAR WORD COUNTS                                 07 04132
005177 001000 A     4133        JMP     RCL15                                                        D.1   07 04133
005200 005210 R
005201 006444 A     4134 RCL10  BT      ARST+TR,RCL15    TERMINATE LOGICAL RMD ?                     D.1   07 04134
005202 005210 R
                    4135        TNZAB   LRWC,RCL15       YES. END OF LOGICAL RECORD ?                D.1   07 04135
005203 016123 A
005204 001016 A
005205 005210 R
005206 046121 A     4136        INR     LRECNO,B         YES. BUMP LOGICAL RECORD NUMBER             D.1   07 04136
                    4137        POPJ                     EXIT                                         FG    07 04137
005207 105065 A
                    4138 RCL15  PUSHJ   GBA              STEP THRU LOGICAL BUFFER                    D.1   07 04138
005210 105025 A
005211 001103 R
005212 016123 A     4139        LDA     LRWC,B                                                             07 04139
005213 005111 A     4140        IAR                                                                        07 04140
005214 146122 A     4141        SUB     LRSZ,B                                                             07 04141
005215 001004 A     4142        JAN     RCL              LOOP TILL LOGICAL BOUNDARY PASSED           D.1   07 04142
005216 005167 R
005217 046123 A     4143        INR     LRWC,B           RESTORE WORD COUNTS                               07 04143
005220 046144 A     4144        INR     PBWC,B                                                             07 04144
                    4145        DAB     BFWPT            AND BUFFER POINTER                                07 04145
005221 016025 A
005222 005311 A
005223 056025 A
                    4146        POPJ                     EXIT                                         FG    07 04146
005224 105065 A
                    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
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                    4161 *          BUFFER POSTED IF PD 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
      005225 R      4171 RCP    EQU     *                                                            V2  07 04171
                    4172        TRAB    RWFL,IN,RCP5  INITIALIZING ?                                 V2  07 04172
005225 016154 A
005226 006446 A
005227 005241 R
005230 006442 A     4173        BT      ARST+PD,RCP3        YES. ANY UNPOSTED DATA ?                       07 04173
005231 005235 R
                    4174        PUSHJ   PSB           YES. POST BUFFER                               V2  07 04174
005232 105025 A
005233 004533 R
005234 016154 A     4175        LDA     RWFL,B        RESTORE FLAG WORD                                  07 04175
005235 006451 A     4176 RCP3   BT      ARST+WR,RCP15       READ ?                                   V2  07 04176
005236 005263 R
005237 001000 A     4177        JMP     RCP25         NO. WRITE                                          07 04177
005240 005306 R
                    4178 RCP5   MOVBAB  PBSZ,PBWC     RELOAD PHYSICAL WORD COUNT                         07 04178
005241 016143 A
005242 056144 A
005243 016027 A     4179        LDA     ALBF,B                                                     D.1 07 04179
005244 146025 A     4180        SUB     BFWPT,B                                                    D.1 07 04180
005245 005311 A     4181        DAR                                                                D.1 07 04181
005246 126020 A     4182        ADD     APBF,B                                                     D.1 07 04182
005247 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
005250 016020 A
005251 005311 A
005252 056025 A
                    4185        TSAB    RWFL,WR,RCP20       READ ?                                 V2  07 04185
005253 016154 A
005254 006411 A
005255 005301 R
005256 006442 A     4186        BT      ARST+PD,RCP15       YES. ANY UNPOSTED DATA ?               C.1 07 04186
005257 005263 R
                    4187        PUSHJ   PSB           YES. POST BUFFER                               V2  07 04187
005260 105025 A
005261 004533 R
005262 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
005263 006400 A     4192 RCP15  BT      ASET+RM,RCP20        RMD ?                                 V2  07 04192
005264 005301 R
                    4193        TZAB    UNIT,RCP20    NO. DONT CLEAR IF L=0                        D.1 07 04193
005265 016167 A
005266 001010 A
005267 005301 R
005270 036010 A     4194        LDX     ADFCB,B                                                    D.1 07 04194
                    4195        MOVBAB  LRWC,SAVE+2   SAVE LRWC                                        07 04195
005271 016123 A
005272 056034 A
                    4196        MOVXAB  0,LRWC        SET LOGICAL WORD COUNT = FCB(0)                  07 04196
005273 015000 A
005274 056123 A
                    4197        PUSHJ   CLB           CLEAR BUFFER                                 V2  07 04197
005275 105025 A
005276 000127 R
                    4198        MOVBAB  SAVE+2,LRWC   RESTORE LRWC                                     07 04198
005277 016034 A
005300 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
005301 105025 A
005302 005564 R
                    4203        TRAB    RWFL,WR,RCP30       READ ?                                 V2  07 04203
005303 016154 A
005304 006451 A
005305 005357 R
005306 006441 A     4204 RCP25  BT      ARST+LF,RCP40     NO, WRITE LOGICAL FILE ?                 D.1 07 04204
005307 005350 R
005310 036010 A     4205        LDX     ADFCB,B       YES. POINT X AT FCB                          V2  07 04205
005311 006440 A     4206        BT      ARST+RM,RCP40     RMD ?                                    D.1 07 04206
005312 005350 R
005313 110423 A     4207        ORA     PDS           YES. SET POST FLAG                           D.1 07 04207
005314 056154 A     4208        STA     RWFL,B                                                         07 04208
005315 015014 A     4209        LDA     12,X                                                           07 04209
005316 110437 A     4210        ORA     FPDS          ALSO IN FCB(12)                              V2  07 04210
005317 055014 A     4211        STA     12,X                                                           07 04211
                    4212        TRAB    RWFL,RB,RCP35       IS READ BEFORE WRITE ENABLED ?             07 04212
005320 016154 A
005321 006443 A
005322 005345 R
005323 036016 A     4213        LDX     AMRB,B        YES. POINT X AT V#FORTIO DATA BLOCK              07 04213
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005324 015104 A 4214          LDA     IOCONT,X                                                    07 04214
005325 150451 A 4215          ANA     BR8             CLEAR WRITE BIT IN V$IOC CONTROL WORD       07 04215
005326 055104 A 4216          STA     IOCONT,X                                                    07 04216
                4217          PUSHJ   RPB             READ NEXT PHYSICAL RECORD             V2    07 04217
005327 105025 A
005330 005564 R
                4218          SUT$BB  PRECNO,PBRC,PRECNO      RESTORE PHYSICAL RECORD NUMBER      07 04218
005331 016145 A
005332 146142 A
005333 056145 A
005334 036016 A 4219          LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK              07 04219
005335 015106 A 4220          LDA     IOSTAT,X        GET STATUS OF READ                          07 04220
005336 005311 A 4221          DAR                                                                 07 04221
005337 001004 A 4222          JAN     *+3             TEST FOR EOF                                07 04222
005340 005342 R
005341 055106 A 4223          STA     IOSTAT,X        CLEAR EOF FLAG ON READ BEFORE WRITE         07 04223
005342 015104 A 4224          LDA     IOCONT,X                                                    07 04224
005343 110431 A 4225          ORA     BSS             RESTORE WRITE BIT IN V$IOC CONTROL WORD     07 04225
005344 055104 A 4226          STA     IOCONT,X                                                    07 04226
005345 036010 A 4227 RCP35    LDX     ADFCB,B                                                     07 04227
                4228          MOVBAX  PRECNO,13       UPDATE FCB(13)                              07 04228
005346 016145 A
005347 055015 A
                4229 RCP40    TSAB    RWFL,IN,RCP50   EXIT ON INITIALIZE                    D.1   07 04229
005350 016154 A
005351 006406 A
005352 005357 R
005353 006405 A 4230          BT      ASET+SC,RCP50                                         D.1   07 04230
005354 005357 R
                4231          PUSHJ   CLB             CLEAR BUFFER AFTER WRITE              D.1   07 04231
005355 105025 A
005356 000127 R
005357 016154 A 4232 RCP50    LDA     RWFL,B                                                D.1   07 04232
005360 150446 A 4233          ANA     SCR             CLEAR CLEAR SUPPRESS FLAG             D.1   07 04233
005361 150447 A 4234          ANA     INR             CLEAR INITIALIZE FLAG                 V2    07 04234
005362 056154 A 4235          STA     RWFL,B                                                      07 04235
                4236          POPJ                    EXIT                                   FG   07 04236
005363 105065 A
                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$RERR                              V2*    07 04242
                4243 *                                                                     *     07 04243
                4244 * ENTRY: ER1 FORMAT                                                   *     07 04244
                4245 *        ER2 MODE                                                     *     07 04245
                4246 *        ER3 DATA                                                     *     07 04246
                4247 *        ER4 I/O ERROR                                                *     07 04247
                4248 *                                                                     *     07 04248
                4249 * EXIT : DIRECT TO CAN                                               *     07 04249
                4250 *        ERN = ERROR NUMBER-1                                         *     07 04250
                4251 *        ERROR OP PUSHED                                          V2* 07 04251
                4252 *                                                                     *     07 04252
                4253 ***********************************************************************     07 04253
005364 046060 A 4255 ER4      INR     ERN,B           I/O                                         07 04255
005365 046060 A 4256 ER3      INR     ERN,B           DATA                                        07 04256
005366 046060 A 4257 ER2      INR     ERN,B           MODE                                        07 04257
005367 036016 A 4258 ER1      LDX     ANRB,B          POINT X AT V$FORTIO DATA BLOCK              07 04258
005370 016060 A 4259          LDA     ERN,B                                                       07 04259
005371 055060 A 4260          STA     ERN,X           MOVE ERROR NUMBER                           07 04260
005372 010421 A 4261          LDA     CER             GET ERROR OP                                07 04261
                4262          PUSHF                                                               07 04262
005373 036016 A
005374 035000 A
005375 005344 A
005376 055000 A
005377 005041 A
005400 036016 A
005401 055000 A
005402 001000 A 4263          JMP     CAN             EXIT TO V$FORTIO                            07 04263
005403 000065 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
005404 016122 A
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005405 056123 A
                4285          DABB    ALBF,BFWPT     INITIALIZE BUFFER WORD POINTER          V2  07 04285
005406 016027 A
005407 005311 A
005410 056025 A
                4286          MOVBAB  PBSZ,PBWC      INITIALIZE PHYSICAL WORD COUNT              07 04286
005411 016143 A
005412 056144 A
                4287          TRAB    RWFL,LF,RFL5       LOGICAL FILE ?                      V2  07 04287
005413 016154 A
005414 006441 A
005415 005420 R
005416 006400 A 4288          BT      ASET+RM,RFL10      YES. TEST IF RMD                    V2  07 04288
005417 005424 R
                4289 ************************                                                  V2  07 04289
                4290 * NOT LOGICAL RMD FILE *                                                  V2  07 04290
                4291 ************************                                                  V2  07 04291
005420 006411 A 4292 RFL5     BT      ASET+WR,RFL40     READ ?                                FG  07 04292
005421 005504 R
005422 001000 A 4293          JMP     RCP            YES. RECYCLE PHYSICAL BUFFER                07 04293
005423 005225 R
                4294 ********************                                                      V2  07 04294
                4295 * LOGICAL RMD FILE *                                                      V2  07 04295
                4296 ********************                                                      V2  07 04296
005424 016020 A 4297 RFL10    LDA     APBF,B                                                    07 04297
005425 126143 A 4298          ADD     PBSZ,B                                                    07 04298
005426 146027 A 4299          SUB     ALBF,B                                                    07 04299
005427 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
005430 036010 A 4304          LDX     ADFCB,B                                                   07 04304
005431 015015 A 4305          LDA     13,X                                                      07 04305
005432 001010 A 4306          JAZ     RFL50          TEST IF BUFFER EMPTY                       07 04306
005433 005505 R
005434 146145 A 4307          SUB     PRECNO,B       COMPARE BUFFER ADDRESS WITH PRECNO         07 04307
005435 001010 A 4308          JAZ     RFL20          LRECNO RESIDENT IF EQUAL                   07 04308
005436 005467 R
005437 001002 A 4309          JAP     RFL50                                                     07 04309
005440 005505 R
005441 056164 A 4310          STA     TEMP,B         SAVE -(RECORD INCREMENT)                   07 04310
005442 126142 A 4311          ADD     PBRC,B                                                    07 04311
005443 005311 A 4312          DAR                                                               07 04312
005444 001004 A 4313          JAN     RFL50                                                     07 04313
005445 005505 R
                4314 ************************                                                  07 04314
                4315 * LRECNO IS RESIDENT *                                                    07 04315
                4316 ************************                                                  07 04316
                4317          MOVXAB  13,PRECNO      UPDATE PHYSICAL RECORD NUMBER              07 04317
005446 015015 A
005447 056145 A
005450 005024 A 4318          TBX                    SAVE BASE REGISTER                         07 04318
005451 005001 A 4319          TZA                                                               07 04319
005452 146164 A 4320          SUB     TEMP,B         GET RECORD INCREMENT                       07 04320
005453 004560 A 4321          LLSR    16                                                        07 04321
005454 165201 A 4322          MUL     BD120,X        CONVERT TO WORD INCREMENT              V2  07 04322
005455 065164 A 4323          STB     TEMP,X                                                    07 04323
005456 005042 A 4324          TXB                    RESTORE BASE REGISTER B                    07 04324
005457 016027 A 4325          LDA     ALBF,B                                                    07 04325
005460 126164 A 4326          ADD     TEMP,B         BUMP LOGICAL BUFFER ADDRESS                07 04326
005461 056027 A 4327          STA     ALBF,B                                                    07 04327
005462 005311 A 4328          DAR                                                               07 04328
005463 056025 A 4329          STA     BFWPT,B        ALSO BUFFER WORD POINTER                   07 04329
005464 016144 A 4330          LDA     PBWC,B                                                    07 04330
005465 146164 A 4331          SUB     TEMP,B         DECREMENT PHYSICAL WORD COUNT              07 04331
005466 056144 A 4332          STA     PBWC,B                                                    07 04332
                4333 RFL20    TSAB    RWFL,WR,RFL30      READ ?                              V2  07 04333
005467 016154 A
005470 006411 A
005471 005476 R
                4334          ADBBB   PRECNO,PBRC,PRECNO     YES. BUMP PHYSICAL RECNO        V2  07 04334
005472 016145 A
005473 126142 A
005474 056145 A
                4335          POPJ                   AND EXIT                                FG  07 04335
005475 105065 A
005476 110423 A 4336 RFL30    ORA     POS            SET POST FLAG ON WRITE                  V2  07 04336
005477 056154 A 4337          STA     RWFL,B                                                 V2  07 04337
005500 036010 A 4338          LDX     ADFCB,B        POINT X AT FCB                          V2  07 04338
005501 015014 A 4339          LDA     12,X                                                   V2  07 04339
005502 110437 A 4340          ORA     FPOS           ALSO IN FCB                             V2  07 04340
005503 055014 A 4341          STA     12,X                                                   V2  07 04341
                4342 RFL40    POPJ                   AND EXIT                                FG  07 04342
005504 105065 A
                4343 ************************                                                  07 04343
                4344 * LRECNO NOT IN BUFFER *                                                  07 04344
                4345 ************************                                                  07 04345
005505 016154 A 4346 RFL50    LDA     RWFL,B                                                    07 04346
005506 110427 A 4347          ORA     INS            SET INITIALIZE FLAG                     V2  07 04347
005507 056154 A 4348          STA     RWFL,B                                                    07 04348
005510 001000 A 4349          JMP     RCP            RECYCLE PHYSICAL BUFFER                    07 04349
005511 005225 R
                4350          EJEC                                                              07 04350
```

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                    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
    005512 R        4367 RNA     EQU     *                                                        07 04367
005512 016052 A     4368 RND     LDA     COUNT,B                                                  07 04368
005513 001004 A     4369         JAN     RNDX            EXIT IF COUNT NEGATIVE                FG 07 04369
005514 005563 R
005515 146200 A     4370         SUB     BD14,B                                                V2 07 04370
005516 001004 A     4371         JAN     RND5            IS COUNT .GE. 14 ?                       07 04371
005517 005531 R
005520 016007 A     4372         LDA     ACHB,B          YES                                      07 04372
005521 126200 A     4373         ADD     BD14,B                                                V2 07 04373
005522 005314 A     4374         DECR    014             POINT X AT LAST DIGIT                    07 04374
005523 016003 A     4375         LDA     ACC,B                                                    07 04375
005524 004241 A     4376         LRLA    1                                                        07 04376
005525 001002 A     4377         JAP     RNDX            EXIT IF NO BUMP                       FG 07 04377
005526 005563 R
005527 001000 A     4378         JMP     RNDL            OTHERWISE PROPAGATE CARRY                07 04378
005530 005545 R
005531 016007 A     4379 RND5    LDA     ACHB,B                                                   07 04379
005532 126052 A     4380         ADD     COUNT,B                                                  07 04380
005533 005314 A     4381         DECR    014             POINT X AT ROUND POSITION-1              07 04381
005534 015001 A     4382         LDA     1,X             GET DECIMAL DIGIT                        07 04382
005535 140465 A     4383         SUB     FIVE                                                     07 04383
005536 001004 A     4384         JAN     RNDX            EXIT IF NO CARRY                      FG 07 04384
005537 005563 R
                    4385         TZAP    COUNT,RND10     TEST COUNT=0                             07 04385
005540 016052 A
005541 001010 A
005542 005560 R
                    4386         ZAX     1               CLEAR LAST DIGIT IN CASE OF OVERFLOW     07 04386
005543 005001 A
005544 055001 A
                    4387 ********************************                                        07 04387
                    4388 * LOOP TO PROPAGATE CARRIES *                                         07 04388
                    4389 ********************************                                        07 04389
005545 045000 A     4390 RNDL    INR     0,X             BUMP PRECEDING DIGIT                     07 04390
005546 015000 A     4391         LDA     0,X                                                      07 04391
005547 140471 A     4392         SUB     TEN                                                      07 04392
005550 001004 A     4393         JAN     RNDX            EXIT IF NO CARRY                      FG 07 04393
005551 005563 R
005552 005001 A     4394         TZA                                                              07 04394
005553 055000 A     4395         STA     0,X             CLEAR DIGIT                              07 04395
005554 005345 A     4396         DECR    045             DECREMENT CHB ARRAY POINTER              07 04396
005555 146007 A     4397         SUB     ACHB,B                                                   07 04397
005556 001002 A     4398         JAP     RNDL            IS CARRY PROPAGATED OUT OF CHB ?         07 04398
005557 005545 R
005560 046055 A     4399 RND10   INR     DEXP,B          YES. BUMP DECIMAL EXPONENT               07 04399
005561 005101 A     4400         INCR    1                                                        07 04400
005562 055001 A     4401         STA     1,X             SHIFT CHB RIGHT 1                        07 04401
                    4402 RNDX    POPJ                    EXIT                                  FG 07 04402
005563 105065 A
                    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 RPS     TRAB    RWFL,LF,RPB10       TEST IF LOGICAL FILE                 07 04422
005564 016154 A
005565 006401 A
005566 005573 R
                    4423 ********************************                                        07 04423
                    4424 * LOGICAL FILE - SET UP FCB *                                         07 04424
                    4425 ********************************                                        07 04425
005567 036010 A     4426         LDX     ADFCB,B         POINT X AT FCB                           07 04426
                    4427         MOVBAX  PRECNO,3        MOVE PHYSICAL RECNO TO FCB(3)            07 04427
005570 016145 A
005571 055003 A
```

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005572 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
005573 010464 A 4432 RPB10      LDA     CIO             CALL V$IOC TO DO I/O                    V2      07 04432
005574 006505 A 4433            JSR     PSJ,X                                                   V2      07 04433
005575 004563 R
                4434            TRAB    RWFL,IN,RPB11     INITIALIZING [                        E.1     07 04434
005576 016154 A
005577 006446 A
005600 005606 R
005601 016020 A 4435            LDA     APBF,B          YES                                     E.1     07 04435
005602 126143 A 4436            ADD     PBSZ,B                                                  E.1     07 04436
005603 146027 A 4437            SUB     ALBF,B          COMPUTE REMAINING PHYSICAL WORD COUNT   E.1     07 04437
005604 001000 A 4438            JMP     RPB12                                                   E.1     07 04438
005605 005610 R
005606 036016 A 4439 RPB11      LDX     ANRB,B          NOT INITIALIZING                        E.1     07 04439
005607 015144 A 4440            LDA     PBWC,X          XFER I/O WORD COUNT FROM V$FORTIO       E.1     07 04440
005610 056144 A 4441 RPB12      STA     PBWC,B                                                  E.1     07 04441
                4442            TRAB    RWFL,LF,RPB15       LOGICAL FILE ?                      V2      07 04442
005611 016154 A
005612 006441 A
005613 005616 R
005614 006400 A 4443            BT      ASET+RM,RPB20       YES. RMD ?                          V2      07 04443
005615 005621 R
                4444 RPB15      MOVBAB  PBWC,LRSZ       NO. UPDATE LOGICAL WORD COUNT           V2      07 04444
005616 016144 A
005617 056122 A
                4445            POPJ                    EXIT                                    FG      07 04445
005620 105065 A
                4446 RPB20      ADBBB   PRECNO,PBRC,PRECNO      BUMP PHYSICAL RECORD NUMBER            07 04446
005621 016145 A
005622 126142 A
005623 056145 A
                4447            POPJ                    EXIT                                    FG      07 04447
005624 105065 A
                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
005625 036016 A 4471 SCH        LDX     ANRB,B                                                  07      07 04471
005626 005041 A 4472            TXA                     GET DATA BLOCK ADDRESS.                 07      07 04472
005627 006120 A 4473            ADDI    CHNHDR-10       ADD BIAS                                V2      07 04473
005630 000037 A
005631 056146 A 4474            STA     PRLINK,B        POINT PREVIOUS LINK AT CHAIN HEADER             07 04474
005632 015120 A 4475            LDA     LNKCNT,X        GET LINK COUNT                          07      07 04475
005633 056052 A 4476            STA     COUNT,B         STORE AS LOOP COUNT                     07      07 04476
005634 035051 A 4477            LDX     CHNHDR,X        POINT X AT HEAD OF CHAIN                07      07 04477
                4478 ***************                                                                    07 04478
                4479 * SEARCH LOOP *                                                                    07 04479
                4480 ***************                                                                    07 04480
005635 016052 A 4481 SCHLP      LDA     COUNT,B                                                         07 04481
005636 001010 A 4482            JAZ     SCH7            FLAG NO FIND BY EXIT WITH A=0           FG      07 04482
005637 005666 R
005640 005311 A 4483            DAR                     DECREMENT COUNT                         07      07 04483
005641 056052 A 4484            STA     COUNT,B                                                 07      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
005642 016014 A
005643 001010 A
005644 005655 R
005645 076164 A 4490            STX     TEMP,B          YES. SAVE X                             07      07 04490
005646 005041 A 4491            TXA                                                             07      07 04491
005647 006505 A 4492            JSR     TBK,X           TEST FCB(0) IN BACKGROUND               07      07 04492
005650 005735 R
005651 120472 A 4493            ADD     D15                                                     07      07 04493
005652 006505 A 4494            JSR     TBK,X           TEST FCB(14) IN BACKGROUND              07      07 04494
005653 005735 R
005654 036164 A 4495            LDX     TEMP,B          RESTORE X                               07      07 04495
                4496 NUC1       CONT                                                            FG      07 04496
                4497 VII1       CONT                                                            FG      07 04497
005655 015013 A 4498 SCH5       LDA     11,X                                                    07      07 04498
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005636 146167 A 4499          SUB     UNIT,B          COMPARE WITH U                                  07 04499
005657 001010 A 4500          JAZ     SCHX            EXIT ON FIND WITH X=FCB ADDRESS                 07 04500
005660 005665 R
005661 076146 A 4501          STX     PRLINK,B        UPDATE PREVIOUS LINK                            07 04501
005662 035012 A 4502          LDX     10,X            POINT X AT NEXT LINK                            07 04502
005663 001000 A 4503          JMP     SCHLP           LOOP TILL CHAIN EXHAUSTED                       07 04503
005664 005635 R
005665 005041 A 4504 SCHX     TXA                     FLAG FIND BY A.NE.0 (FCB ADDRESS)               07 04504
                4505 SCHY     POPJ                    EXIT                                        FG  07 04505
005666 105065 A
                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
                4518 **********************************************************************          07 04518
005667 005024 A 4520 SHA      TBX                     LOAD X AS BASE POINTER                          07 04520
                4521 SHAL     TNAX    COUNT,SHA50     TEST DIRECTION OF SHIFT                     V2  07 04521
005670 015052 A
005671 001004 A
005672 005716 R
005673 001010 A 4522          JAZ     SHAX            EXIT WHEN FINISHED                              07 04522
005674 005733 R
005675 005311 A 4523          DAR                     DECREMENT SHIFT COUNT                           07 04523
005676 055052 A 4524          STA     COUNT,X                                                         07 04524
                4525 ****************                                                                  07 04525
                4526 * RIGHT SHIFT *                                                                  07 04526
                4527 ****************                                                                  07 04527
005677 025006 A 4528          LDB     ACC+3,X                                                         07 04528
005700 015005 A 4529          LDA     ACC+2,X                                                         07 04529
005701 004501 A 4530          LASR    1                                                               07 04530
005702 065006 A 4531          STB     ACC+3,X         SHIFT ACC(3)                                    07 04531
005703 025005 A 4532          LDB     ACC+2,X                                                         07 04532
005704 015004 A 4533          LDA     ACC+1,X                                                         07 04533
005705 004501 A 4534          LASR    1                                                               07 04534
005706 065005 A 4535          STB     ACC+2,X         SHIFT ACC(2)                                    07 04535
005707 025004 A 4536          LDB     ACC+1,X                                                         07 04536
005710 015003 A 4537          LDA     ACC,X                                                           07 04537
005711 004501 A 4538          LASR    1                                                               07 04538
005712 065004 A 4539          STB     ACC+1,X         SHIFT ACC(1)                                    07 04539
005713 055003 A 4540          STA     ACC,X           SHIFT ACC(0)                                    07 04540
005714 001000 A 4541          JMP     SHAL            LOOP TILL DONE                                  07 04541
005715 005670 R
                4542 ****************                                                                  07 04542
                4543 * LEFT SHIFT *                                                                   07 04543
                4544 ****************                                                                  07 04544
005716 015003 A 4545 SHA50    LDA     ACC,X                                                           07 04545
005717 025004 A 4546          LDB     ACC+1,X                                                         07 04546
005720 004401 A 4547          LASL    1                                                               07 04547
005721 055003 A 4548          STA     ACC,X           SHIFT ACC(0)                                    07 04548
005722 015004 A 4549          LDA     ACC+1,X                                                         07 04549
005723 025005 A 4550          LDB     ACC+2,X                                                         07 04550
005724 004401 A 4551          LASL    1                                                               07 04551
005725 055004 A 4552          STA     ACC+1,X         SHIFT ACC(1)                                    07 04552
005726 015005 A 4553          LDA     ACC+2,X                                                         07 04553
005727 025006 A 4554          LDB     ACC+3,X                                                         07 04554
005730 004401 A 4555          LASL    1                                                               07 04555
005731 055005 A 4556          STA     ACC+2,X         SHIFT ACC(2)                                    07 04556
005732 065006 A 4557          STB     ACC+3,X         SHIFT ACC(3)                                    07 04557
005733 005042 A 4558 SHAX     TXB                     RESTORE BASE REGISTER B                         07 04558
                4559          POPJ                    EXIT                                        FG  07 04559
005734 105065 A
                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
005735 140316 A 4580 TBK      SUB     V$LUP                                                           07 04580
005736 001004 A 4581          JAN     TBK10           ERROR IF A.LT.V$LUP                             07 04581
005737 005751 R
005740 120316 A 4582          ADD     V$LUP           RESTORE A                                       07 04582
005741 140317 A 4583          SUB     V$LLUP                                                          07 04583
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005742 001010 A 4584          JAZ     *+4                                                    07 04584
005743 005746 R
005744 001002 A 4585          JAP     TBK10          ERROR IF A.GT.V$LLUP                    07 04585
005745 005751 R
005746 120317 A 4586          ADD     V$LLUP         RESTORE A                               07 04586
005747 006705 A 4587          IJMP    0,X            RETURN IF OK                            07 04587
005750 000000 A
                4588 ************************************************                      07 04588
                4589 * ERROR - CONSTRUCT MEMORY PROTECT VIOLATION *                        07 04589
                4590 ************************************************                      07 04590
005751 030316 A 4591 TBK10    LDX     V$LUP          POINT X AT 1ST BACKGROUND WORD          07 04591
005752 010432 A 4592          LDA     TBKJMP                                                 07 04592
005753 055000 A 4593          STA     0,X                                                    07 04593
005754 005001 A 4594          TZA                                                            07 04594
005755 055001 A 4595          STA     1,X            STORE 'JMP 0' IN BACKGROUND             07 04595
005756 020302 A 4596          LDB     V$CRS          POINT B AT STACK                        07 04596
005757 076003 A 4597          STX     PR,B           SET DEALOC ADDRESS TO 1ST BACKGROUND WORD 07 04597
                4598          DEALOC                                                         07 04598
005760 006505 A
005761 000077 E
005762 000700 A
       000432 A 4599 TBKJMP   SET     BS9                                                    07 04599
                4600 WII1     CONT                                                   FG      07 04600
                4601 NUC1     CONT                                                   FG      07 04601
                4602          EJEC                                                           07 04602
                4603 ************************************************************************ 07 04603
                4604 *                                                                      * 07 04604
                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
       005763 R 4622 TIN      EQU     *                                                      07 04622
       005763 R 4623 TOUT     EQU     *                                                      07 04623
                4625          MOVBAB  BFPT,SAVE      SAVE CURRENT VALUE OF BUFFER CHAR PTR   07 04625
005763 016026 A
005764 056032 A
005765 016170 A 4626          LDA     W,B            GET W                                   07 04626
005766 005311 A 4627          DAR                    CONVERT FROM BASE 1 TO BASE 0           07 04627
005767 056026 A 4628          STA     BFPT,B         STORE AS BUFFER CHARACTER POINTER       07 04628
005770 146032 A 4629          SUB     SAVE,B                                                 07 04629
005771 001004 A 4630          JAN     TIO10          TEST DIRECTION OF REPOSITION      V2    07 04630
005772 006002 R
                4631 ********************                                              V2    07 04631
                4632 * POSITION FORWARD *                                            V2    07 04632
                4633 ********************                                              V2    07 04633
005773 016122 A 4634          LDA     LRSZ,B         YES                                     07 04634
005774 004241 A 4635          LRLA    1              GET LOGICAL RECORD BYTE COUNT           07 04635
005775 146170 A 4636          SUB     W,B                                                    07 04636
005776 001004 A 4637          JAN     ER1            ERROR 1/ W OUTSIDE RECORD /             07 04637
005777 005367 R
006000 001000 A 4638          JMP     TIOLP                                                  07 04638
006001 006045 R
                4639 ********************                                              V2    07 04639
                4640 * POSITION BACKWARD *                                           V2    07 04640
                4641 ********************                                              V2    07 04641
006002 016026 A 4642 TIO10    LDA     BFPT,B                                                 07 04642
006003 004341 A 4643          LSRA    1              GET WORD POSITION                       07 04643
006004 126027 A 4644          ADD     ALBF,B         GET ADDRESS                             07 04644
006005 146020 A 4645          SUB     APBF,B         COMPARE WITH BUFFER START ADDRESS       07 04645
006006 001002 A 4646          JAP     TIO20          EXIT IF STILL IN BUFFER                 07 04646
006007 006032 R
                4647 ********************                                                  07 04647
                4648 * REPOSITION BUFFER *                                               07 04648
                4649 ********************                                                  07 04649
006010 036010 A 4650          LDX     ABFCB,B                                                07 04650
006011 015015 A 4651          LDA     13,X           GET BUFFER RECORD NUMBER                07 04651
006012 146142 A 4652          SUB     PBRC,B                                                 07 04652
006013 056145 A 4653          STA     PRECND,B       BACK UP FILE                            07 04653
                4654          ADRBB   ALBF,PBSZ,ALBF      BUMP LOGICAL BUFFER ADDRESS       07 04654
006014 016027 A
006015 126143 A
006016 056027 A
                4655          MOVBAB  RWFL,SAVE+1    SAVE FLAG WORD                          07 04655
006017 016154 A
006020 056033 A
006021 006451 A 4656          BT      ARST+WR,TIO15       WRITE ?                      V2    07 04656
006022 006025 R
006023 110424 A 4657          ORA     RBS            YES. SET READ BEFORE WRITE FLAG     V2    07 04657
006024 056154 A 4658          STA     RWFL,B                                                 07 04658
                4659 TIO15    PUSHJ   RFL            REPOSITION FILE                     V2    07 04659
006025 105025 A
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006026 003404 R
006027 016033 A 4660          LDA     SAVE+1,B      RESTORE FLAG WORD                              07 04660
006030 110426 A 4661          ORA     SCS           SET CLEAR SUPPRESS FLAG                  V2    07 04661
006031 056154 A 4662          STA     RWFL,B                                                       07 04662
                4663 TI020    DABB    ALBF,BFWPT    INITIALIZE BUFFER WORD POINTER                 07 04663
006032 016027 A
006033 005311 A
006034 056025 A
006035 016020 A 4664          LDA     APBF,B                                                       07 04664
006036 126143 A 4665          ADD     PBSZ,B                                                       07 04665
006037 146027 A 4666          SUB     ALBF,B                                                       07 04666
006040 056144 A 4667          STA     PBWC,B        REINITIALIZE PHYSICAL WORD COUNT               07 04667
                4668          MOVBAB  LRSZ,LRWC     ALSO LOGICAL WORD COUNT                        07 04668
006041 016122 A
006042 056123 A
                4669          ZAB     SAVE          ALSO CHAR COUNTER                              07 04669
006043 005001 A
006044 056032 A
                4670 ******************                                                           07 04670
                4671 * POSITION LOOP *                                                           07 04671
                4672 ******************                                                           07 04672
006045 016026 A 4673 TIOLP    LDA     BFPT,B                                                       07 04673
006046 146032 A 4674          SUB     SAVE,B                                                       07 04674
006047 001010 A 4675          JAZ     FRS85         EXIT TO FORMAT SCAN WHEN DONE                  07 04675
006050 001031 R
006051 016032 A 4676          LDA     SAVE,B                                                       07 04676
006052 046032 A 4677          INR     SAVE,B        BUMP CHAR COUNTER                              07 04677
006053 004257 A 4678          LRLA    15                                                           07 04678
006054 001004 A 4679          JAN     TIOLP         WORD BOUNDARY ?                                07 04679
006055 006045 R
                4680          PUSHJ   GBA           YES. GET NEXT BUFFER ADDRESS             V2    07 04680
006056 105025 A
006057 001103 R
006060 001000 A 4681          JMP     TIOLP         LOOP TILL DONE                                 07 04681
006061 006045 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 04694
                4695 ********************************************************************************* 07 04695
006062 016154 A 4697 TRM      LDA     RWFL,B                                                 V2    07 04697
006063 110425 A 4698          ORA     TRS           SET TERMINATE FLAG                       V2    07 04698
006064 056154 A 4699          STA     RWFL,B                                                 V2    07 04699
006065 006441 A 4700          BT      ARST+LF,TRM20     TEST LOGICAL FILE                    V2    07 04700
006066 006112 R
                4701 ******************                                                           07 04701
                4702 * LOGICAL FILE *                                                           07 04702
                4703 ******************                                                           07 04703
006067 006440 A 4704          BT      ARST+RM,TRM20     RMD ?                                V2    07 04701
006070 006112 R
006071 006451 A 4705          BT      ARST+WR,TRM10     YES. WRITE ?                         V2    07 04705
006072 006076 R
006073 056154 A 4706          STA     RWFL,B                                                       07 04706
                4707          PUSHJ   RCL           YES. RECYCLE LOGICAL BUFFER            V2    07 04707
006074 105025 A
006075 005167 R
006076 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
006077 016122 A
006100 055000 A
006101 015002 A 4710          LDA     2,X           GET ACCESS MODE FROM FCB                       07 04710
006102 007401 A 4711          SDF                                                                  07 04711
006103 006410 A 4712          BT      ASET+8,*+3    SET OVFL IF SEQUENTIAL                         07 04712
006104 006106 R
006105 007400 A 4713          RDF                                                                  07 04713
006106 016160 A 4714          LDA     SVRECN,B      RESTORE RECORD NUMBER IF DIRECT                07 04714
006107 003001 A 4715          XOF     TRM1          OTHERWISE UPDATE                               07 04715
006110 006151 R
006111 055003 A 4716          STA     3,X           STORE IN FCB                                   07 04716
006112 010422 A 4717 TRM20    LDA     CEX                                                          07 04717
                4718          PUSHF                 PUSH EXIT OP                                   07 04718
006113 036016 A
006114 035000 A
006115 005344 A
006116 055000 A
006117 005041 A
006120 036016 A
006121 055000 A
                4719          TRAB    RWFL,LF,TRM30     LOGICAL ?                            V2    07 04719
006122 016154 A
006123 006441 A
006124 006132 R
006125 006400 A 4720          BT      ASET+RM,CAN       YES. EXIT IF RMD                     V2    07 04720
006126 000065 R
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006127 036010 A 4721          LDX     ADFCB,B                                          V2  07 04721
                4722          MOVBAX  PBSZ,0          IF NON-RMD, SET FCB(0) = PBSZ    V2  07 04722
006130 016143 A
006131 055000 A
                4723 TRM30    TRAB    RWFL,WR,CAN     EXIT ON READ                     D.1 07 04723
006132 016154 A
006133 006451 A
006134 000065 R
006135 006412 A 4724          BT      EC,CAN          EXIT FOR ENCODE/DECODE           PD  07 04724
006136 000065 R
006137 010464 A 4725          LDA     CID                                                  07 04725
                4726          PUSHF                   WRITE LAST NON-LOGICAL RECORD        07 04726
006140 036016 A
006141 035000 A
006142 005344 A
006143 055000 A
006144 005041 A
006145 036016 A
006146 055000 A
006147 001000 A 4727          JMP     CAN             EXIT TO V$FORTIO                     07 04727
006150 000065 R
006151 016121 A 4728 TRMI     LDA     LRECNO,B                                             07 04728
                4729          EJEC                                                         07 04729
                4730 ********************************************************************* 07 04730
                4731 *                                                                   * 07 04731
                4732 *     U N F O R M A T T E D   I N P U T / O U T P U T ( U I O )     * 07 04732
                4733 *                                                                   * 07 04733
                4734 * FUNCTION: TO PROCESS UNFORMATTED I/O CALLS                        * 07 04734
                4735 *                                                                   * 07 04735
                4736 * ENTRY:  ITEMAD = LIST ITEM ADDRESS                               * 07 04736
                4737 *          BFWPT = ADDRESS OF DATA WORD IN BUFFER                   * 07 04737
                4738 *                                                                   * 07 04738
                4739 * EXIT :  TO V$FORTIO 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
006152 105025 A
006153 001447 R
                4747          PUSHJ   GBA             GET BUFFER ADDRESS               V2  07 04747
006154 105025 A
006155 001103 R
                4748          TSAB    RWFL,WR,UIO4    TEST INPUT OR OUTPUT             V2  07 04748
006156 016154 A
006157 006411 A
006160 006167 R
                4749 **********                                                             07 04749
                4750 * INPUT *                                                             07 04750
                4751 **********                                                             07 04751
006161 036025 A 4752          LDX     BFWPT,B         POINT X AT DATA WORD IN BUFFER       07 04752
006162 015000 A 4753          LDA     0,X             GET DATA WORD                        07 04753
006163 036113 A 4754          LDX     ITEMAD,B        POINT X AT LIST ITEM                 07 04754
006164 055000 A 4755          STA     0,X             STORE INPUT DATA WORD IN LIST ITEM   07 04755
006165 001000 A 4756          JMP     UIO             LOOP UNTIL DONE                      07 04756
006166 006152 R
                4757 ***********                                                            07 04757
                4758 * OUTPUT *                                                            07 04758
                4759 ***********                                                            07 04759
006167 036113 A 4760 UIO4     LDX     ITEMAD,B        POINT X AT LIST ITEM                 07 04760
006170 015000 A 4761          LDA     0,X             GET DATA WORD                        07 04761
006171 036025 A 4762          LDX     BFWPT,B         POINT X AT DATA WORD IN BUFFER       07 04762
006172 055000 A 4763          STA     0,X             STORE DATA WORD IN OUTPUT BUFFER     07 04763
006173 001000 A 4764          JMP     UIO             LOOP UNTIL DONE                      07 04764
006174 006152 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
006175 R        4779 XIN      EQU     *                                                    07 04779
006175 R        4780 XOUT     EQU     *                                                    07 04780
                4782          MOVBAB  BLNK1,BCHAR     LOAD BLANK AS REPEAT CHARACTER   V2  07 04782
006175 016202 A
006176 056030 A
                4783          MOVBAB  N,COUNT         SET REPEAT COUNT TO N                07 04783
006177 016125 A
006200 056052 A
                4784          MOVBAB  ABSCB,ASCB      SET SCB TO BUFFER                    07 04784
006201 016002 A
006202 056021 A
                4785          PUSHJ   RCH             REPEAT CHARACTER I/O N TIMES     V2  07 04785
006203 105025 A
006204 005125 R
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006205 001000 A 4786          JMP     FRS5            RESUME FORMAT SCAN                                07 04786
006206 000441 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
                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
      006207 R  4806 ZIN    EQU     *                                                                 07 04806
      006207 R  4807 ZOUT   EQU     *                                                                 07 04807
                4809          ZAB     AIBUF-1         SET LIST ITEM SCB(0)=0 (BYTE COUNT)               07 04809
006207 005001 A
006210 056107 A
                4810          MOVBAB  ITEMAD,AIBUF    SET LIST ITEM SCB(1)=ITEM ADDRESS                 07 04810
006211 016113 A
006212 056110 A
006213 016171 A 4811          LDA     WT,B                                                              07 04811
006214 005111 A 4812          IOR                                                                       07 04812
006215 004301 A 4813          ASRA    1               (A)=BYTES TO PROCESS                              07 04813
006216 146101 A 4814          SUB     IIBSZ,B                                                           07 04814
006217 056052 A 4815          STA     COUNT,B         EXCESS BYTES                                      07 04815
                4816          MOVBAB  BLNK1,BCHAR     SLEW THRU W/2-IIBSZ CHAR                          07 04816
006220 016202 A
006221 056030 A
                4817          PUSHJ   RCH                                                               07 04817
006222 105025 A
006223 005125 R
                4818          TSAB    RWFL,WR,ZI04    I/O TEST                                          07 04818
006224 016154 A
006225 006411 A
006226 006261 R
                4820 *        INPUT                                                                     07 04820
                4821 ZI01     PUSHJ   CBC             GET BUFFER CHARACTER                              07 04821
006227 105025 A
006230 000101 R
                4822          PUSHJ   ZI06            INPUT CHARACTER TEST                              07 04822
006231 105025 A
006232 006302 R
                4823          MOVBAB  BCHAR,ICHAR                                                       07 04823
006233 016030 A
006234 056111 A
                4824          TZAB    WT,ZI02         FIELD WIDTH EXHAUSTED                             07 04824
006235 016171 A
006236 001010 A
006237 006250 R
                4825          PUSHJ   CBC             GET NEXT CHARACTER                                07 04825
006240 105025 A
006241 000101 R
                4826          PUSHJ   ZI06            INPUT CHARACTER TEST                              07 04826
006242 105025 A
006243 006302 R
006244 016111 A 4827          LDA     ICHAR,B         APPEND RT HALF                                    07 04827
006245 004204 A 4828          ASLA    4                                                                 07 04828
006246 126030 A 4829          ADD     BCHAR,B                                                           07 04829
006247 056111 A 4830          STA     ICHAR,B                                                           07 04830
                4831 ZI02     MOVBAB  AISCB,ASCB      SET SCB TO LIST ITEM                              07 04831
006250 016013 A
006251 056021 A
                4832          PUSHJ   PCH             PUT CHARACTER IN ITEM                             07 04832
006252 105025 A
006253 003320 R
                4833          TNZAB   WT,ZI01         LOOP UNTILL FIELD WIDTH EXHAUSTED                 07 04833
006254 016171 A
006255 001016 A
006256 006227 R
006257 001000 A 4834          JMP     FRS65           TO FORMAT SCAN                                    07 04834
006260 001014 R
                4836 *        OUTPUT                                                                    07 04836
                4837 ZI04     MOVBAB  AISCB,ASCB      SET SCB TO LIST ITEM                              07 04837
006261 016013 A
006262 056021 A
                4838          PUSHJ   ICC             INPUT CHARACTER FROM LIST ITEM                    07 04838
006263 105025 A
006264 001623 R
                4839          PUSHJ   ZI08            OUTPUT CHARACTER                                  07 04839
006265 105025 A
006266 006325 R
006267 016111 A 4840          LDA     ICHAR,B                                                           07 04840
006270 004304 A 4841          ASRA    4                                                                 07 04841
006271 016111 A 4842          LDA     ICHAR,B                                                           07 04842
006272 006150 A 4843          ANAI    0177            GET RT HALF                                       07 04843
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006273 000177 A
                    4844          PUSHJ   ZIO8          OUTPUT CHARACTER                                  07 04844
006274 105025 A
006275 006325 R
                    4845          PUSHJ   OCB           OUTPUT CHARACTER TO BUFFER                        07 04845
006276 105025 A
006277 002452 R
006300 001000 A     4846          JMP     ZIO4          LOOP UNTILL DONE                                  07 04846
006301 006261 R
                    4848 *        TEST INPUT CHARACTER                                                    07 04848
006302 016030 A     4849 ZIO6     LDA     BCHAR,B                                                         07 04849
006303 006140 A     4850          SUBI    '0'                                                             07 04850
006304 000260 A
006305 001004 A     4851          JAN     ER3                                                             07 04851
006306 005365 R
006307 056030 A     4852          STA     BCHAR,B                                                         07 04852
006310 140471 A     4853          SUB     TEN                                                             07 04853
006311 001004 A     4854          JAN     ZIO7          0-9                                               07 04854
006312 006324 R
006313 140467 A     4855          SUB     SEVEN                                                           07 04855
006314 001004 A     4856          JAN     ER3                                                             07 04856
006315 005365 R
006316 140467 A     4857          SUB     SEVEN                                                           07 04857
006317 001002 A     4858          JAP     ER3                                                             07 04858
006320 005365 R
006321 006120 A     4859          ADDI    020                                                             07 04859
006322 000020 A
006323 056030 A     4860          STA     BCHAR,B                                                         07 04860
                    4861 ZIO7     POPJ                  EXIT                                              07 04861
006324 105065 A
                    4863 *        GENERATE CHARACTER                                                      07 04863
006325 016111 A     4864 ZIO8     LDA     ICHAR,B                                                         07 04864
006326 006120 A     4865          ADDI    '0'                                                             07 04865
006327 000260 A
006330 056111 A     4866          STA     ICHAR,B                                                         07 04866
006331 006140 A     4867          SUBI    0272                                                            07 04867
006332 000272 A
006333 001004 A     4868          JAN     ZIO9                                                            07 04868
006334 006337 R
006335 120467 A     4869          ADD     SEVEN                                                           07 04869
006336 056111 A     4870          STA     ICHAR,B                                                         07 04870
                    4871 ZIO9     POPJ                  EXIT                                              07 04871
006337 105065 A
                    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
      006340 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
006340              4884 VDPSTP   BSS     1             DP STACK POINTER                          FG      07 04884
006341 006343 R     4885 VAACC    PZE     VACC          ADDRESS OF ACCUMULATOR ACC                        07 04885
006342 006366 R     4886 VABSCB   PZE     VBSCB         ADDRESS OF BUFFER SCB                             07 04886
006343              4887 VACC     BSS     4             4-WORD ACCUMULATOR                                07 04887
006347 006372 R     4888 VACHB    PZE     VCHB          ADDRESS OF DECIMAL DIGIT ARRAY                    07 04888
006350              4889 VADFCB   BSS     1             DCB/FCB ADDRESS                                   07 04889
006351 006422 R     4890 VAFSCB   PZE     VFSCB         ADDRESS OF FORMAT SCB                             07 04890
006352 006425 R     4891 VAGPAR   PZE     VGDRP-1       ADDRESS OF '(' GROUP BLOCK                        07 04891
006353 006447 R     4892 VAISCB   PZE     VISCB         ADDRESS OF LIST ITEM SCB                          07 04892
006354              4893 VALOC    BSS     1             ALOC ENTRY FLAG                           V2      07 04893
006355 000000 A     4894 VANPOJ   DATA    0             ADDRESS OF V$FORTIO POP/JUMP              V2      07 04894
006356              4895 VANRB    BSS     1             ADDRESS OF V$FORTIO DATA BLOCK            V2      07 04895
006357 006501 R     4896 VAOPST   PZE     VOPSTK+STKSZ  ADDRESS OF OP STACK                        FG      07 04896
006360              4897 VAPBF    BSS     1             ADDRESS OF PHYSICAL BUFFER                        07 04897
006361              4898 VASCB    BSS     1             SCAN BLOCK ADDRESS                                07 04898
006362              4899 VASFL    BSS     1             '*' FLAG                                          07 04899
006363 006517 R     4900 VASYSD   PZE     VSYSDC        ADDRESS OF SYSTEM DCB                             07 04900
006364              4901 VBEXP    BSS     1             BINARY EXPONENT                                   07 04901
006365              4902 VBFWPT   BSS     1             BUFFER WORD POINTER                               07 04902
006366              4903 VBSCB    BSS     4             BUFFER SCB                                        07 04903
006372              4904 VCHB     BSS     14            DECIMAL DIGIT ARRAY                               07 04904
006410              4905 VCHBPT   BSS     1             CHB ARRAY POINTER                                 07 04905
006411              4906 VCHNHD   BSS     1             FCB CHAIN HEADER                                  07 04906
006412              4907 VCOUN    BSS     1             COUNTER                                           07 04907
006413              4908 VCVFL    BSS     1             CHARACTER VALIDITY FLAGS                          07 04908
006414              4909 VD       BSS     1             FRACTIONAL FIELD WIDTH                            07 04909
006415              4910 VDEXP    BSS     1             DECIMAL EXPONENT                                  07 04910
006416              4911 VDT      BSS     1             WORKING FRACTIONAL FIELD WIDTH                    07 04911
006417              4912 VEDEXP   BSS     1             EXPLICIT DECIMAL EXPONENT                         07 04912
006420 000000 A     4913 VERN     DATA    0             ERROR NUMBER                                      07 04913
006421              4914 VFDLKY   BSS     1             FIELD DESCRIPTOR LETTER KEY                       07 04914
006422              4915 VFSCB    BSS     4             FORMAT STRING SCB                                 07 04915
006426              4916 VGDRP    BSS     9             '(' GROUP DYNAMIC REPEAT COUNT                    07 04916
006437              4917 VIDEXP   BSS     1             IMPLICIT DECIMAL EXPONENT                         07 04917
006440              4918 VIFW     BSS     1             INTEGER FIELD WIDTH                               07 04918
006441              4919 VIIBSZ   BSS     1             INDIVIDUAL ITEM BYTE SIZE                         07 04919
006442 000001 A     4920 VIIWSZ   DATA    1             INDIVIDUAL ITEM WORD SIZE                         07 04920
006443              4921 VINFL    BSS     1             INITIAL ENTRY FLAG                        V2      07 04921
006444              4922 VIOCON   BSS     1             I/O CONTROL WORD                                  07 04922
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006445           4923 VIOLNK  BSS     1          IOLINK CONTROL WORD                                  07 04923
006446 000000 A  4924 VIOSTA  DATA    0          I/O STATUS                                           07 04924
006447           4925 VISCB   BSS     4          LIST ITEM SCB                                        07 04925
006453           4926 VITEMA  BSS     1          ADDRESS OF LIST ITEM                                 07 04926
006454           4927 VITEMW  BSS     1          COUNT OF WORDS REMAINING IN ITEM                     07 04927
006455           4928 VITMIN  BSS     1          LIST ITEM WORD INCREMENT                             07 04928
006456           4929 VITMOD  BSS     1          LIST ITEM MODE                                       07 04929
006457           4930 VLISTF  BSS     1          LIST DATA XFER FLAG                                  07 04930
006460           4931 VLNKCN  BSS     1          FCB CHAIN LINK COUNT                                 07 04931
006461           4932 VLRECN  BSS     1          LOGICAL RECORD NUMBER                                07 04932
006462           4933 VLRSZ   BSS     1          LOGICAL RECORD SIZE                                  07 04933
006463           4934 VLRWC   BSS     1          LOGICAL RECORD REMAINING WORD COUNT                  07 04934
006464           4935 VMOV    BSS     1          MULTIPLY OVERFLOW SWITCH                             07 04935
006465           4936 VN      BSS     1          H/T/X FIELD WIDTH                                    07 04936
006466           4937 VNFF    BSS     1          NUMERIC FORMAT FIELD                                 07 04937
                 4938 VII1    CONT                                                              FG 07 04938
006467           4939 VOPSTK  BSS     STKSZ      OP STACK                                             07 04939
006501           4940 VPARLV  BSS     1          FORMAT '(' GROUP LEVEL COUNT                      FG 07 04940
                 4941         IFT     VII                                                          FG 07 04941
                 4942         GOTO    VIII                                                         FG 07 04942
006502           4943 VPBRC   BSS     1          PHYSICAL BUFFER RECORD COUNT                         07 04943
006503           4944 VPBSZ   BSS     1          PHYSICAL BUFFER SIZE                                 07 04944
006504           4945 VPBWC   BSS     1          PHYSICAL BUFFER REMAINING WORD COUNT                 07 04945
006505           4946 VPRECN  BSS     1          PHYSICAL RECORD NUMBER                               07 04946
006506           4947 VPRLIN  BSS     1          PREVIOUS LINK OF FCB CHAIN                           07 04947
006507           4948 VPTFL   BSS     1          '.' POINT FLAG                                       07 04948
006510           4949 VQFL    BSS     1          QUOTE FLAG                                           07 04949
006511           4950 VRETUR  BSS     1          RETURN ADDRESS                                       07 04950
006512           4951 VRWFL   BSS     1          FLAG WORD                                      V2    07 04951
006513           4952 VS      BSS     1          SCALE FACTOR                                         07 04952
006514           4953 VSCF    BSS     1          SCALE FACTOR FLAG                                    07 04953
006515           4954 VSGFL   BSS     1          '-' SIGN FLAG                                        07 04954
006516           4955 VSVREC  BSS     1          SAVE RECORD NO                                       07 04955
006517 000000 A  4956 VSYSDC  DATA    0,0,0      SYSTEM DCB                                           07 04956
006520 000000 A                                                                                      .
006521 000000 A
006522           4957 VTEMP   BSS     1          TEMP STORE                                           07 04957
006523           4958 VTEMP1  BSS     1          TEMP STORE                                           07 04958
006524           4959 VTERM   BSS     1          PRODUCT TERM                                         07 04959
006525           4960 VUNIT   BSS     1          I/O UNIT NUMBER                                      07 04960
006526           4961 VW      BSS     1          FIELD WIDTH                                          07 04961
006527           4962 VWT     BSS     1          WORKING VALUE OF W                                   07 04962
006530 000000 A  4963 VXFFL   DATA    0          PARAMTER XFER ENABLE FLAG                            07 04963
006531           4964 VXFL    BSS     1          EXPONENT FIELD NON-BLANK FLAG                        07 04964
006532           4965 VXFW    BSS     1          EXPONENT FIELD WIDTH                                 07 04965
006533           4966 VXSG    BSS     1          EXPONENT SIGN FLAG                                   07 04966
006534           4967 VZFW    BSS     1          LEADING ZERO FIELD WIDTH                             07 04967
006535 000260 A  4968         DATA    0260       ASCII ZERO                                     V2    07 04968
006536 000016 A  4969         DATA    14         DECIMAL 14                                     V2    07 04969
006537 000170 A  4970         DATA    120        DECIMAL 120                                    V2    07 04970
006540 000240 A  4971         DATA    0240       ASCII BLANK                                    V2    07 04971
006541 120240 A  4972         DATA    '  '       ASCII BLANK WORD                               V2    07 04972
                 4973 VIII    CONT                                                                FG 07 04973
                 4974 NUC1    CONT                                                                FG 07 04974
       006542 R  4975 VZZZ    EQU     *          END OF DATA BLOCK                                    07 04975
                 4976         END                                                                  07 04976

ENTRY NAMES
005037 R V$RER1  000000 R V$RERF  000001 A V$RERN  004713 R V$RERR
EXTERNAL NAMES
004353 E BIFCB   004354 E BOFCB   004336 E GOFCB   004352 E LOFCB
004351 E PIFCB   004357 E POFCB   004347 E SIFCB   004355 E SSFCB
005761 E V$EXEC
SYMBOLS
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     000016 R AIOL1   000053 R AIOL2   000013 A AISCB
000000 A AL      000027 A ALBF    000014 A ALOC    000015 A ANPOJ
000016 A ANRB    000017 A AOPSTK  000000 R AOUT    000020 A AFBF
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      006340 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    000451 A BFR
000431 A BFS     000023 A BFWPT   004353 E BIFCB   000001 A BL
000202 A BLNK1   000203 A BLNK2   000472 A BM17    000473 A BM37
000474 A BM77    004354 E BOFCB   000001 A BR      000441 A BR0
000442 A BR1     000454 A BR11    000455 A BR12    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
000421 A BS0     000422 A BS1     000433 A BS10    000434 A BS11
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    000400 A BXBIAS
000065 R CAN     000073 R CAN1    000076 R CAN5    000101 R CBC
000110 R CBC4    000122 R CBC6    000467 A CBK     000020 A CDC
000424 A CEF     000021 A CEN     000421 A CER     000422 A CEX
000032 A CHB     000050 A CHBPT   000051 A CHNHDR  000464 A CID
000127 R CLB     000136 R CLB4    000150 R CLB8    000152 R CLBLP
000162 R CLBX    000163 R CLS     000213 R CLS10   000223 R CLS15
000225 R CLS20   000254 R CLS30   000002 A CM      000016 A COPY
000052 A COUNT   000022 A CRA     000423 A CRB     000471 A CRD
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000470 A CRW     000465 A CTR     000005 A CTRV    000053 A CVFL
000420 A CXC     000466 A CXF     000054 A D       000271 R D10
000472 A D15     000425 A D16     000013 A DA      000311 R DEF
000316 R DEF4    000321 R DEF8    000346 R DEC10   000344 R DEC5
000055 A DEXP    003347 R DIN     000324 R DOUT    000056 A DT
000012 A EC      000057 A EDEXP   000424 A EIGHT   003347 R EIN
000324 R EOUT    005367 R ER1     005366 R ER2     005365 R ER3
005364 R ER4     000060 A ERN     000064 A FCHAR   000065 A FCODE
000061 A FDLKEY  003347 R FIN     000465 A FIVE    000015 A FLF
000062 A FMPT    000423 A FOUR    000375 R FOUT    000016 A FPD
000457 A FPOR    000437 A FPOS    000017 A FRB     000440 A FRBS
000014 A FRM     000063 A FRMT    000062 A FRPT    000410 R FRS
000453 R FRS10   000511 R FRS15   000563 R FRS19   000424 R FRS2
000567 R FRS20   000574 R FRS25   000622 R FRS30   000635 R FRS35
000651 R FRS40   000662 R FRS45   000675 R FRS46   000720 R FRS47
000441 R FRS5    000733 R FRS50   000777 R FRS55   001001 R FRS60
001014 R FRS65   001023 R FRS70   001027 R FRS75   001031 R FRS85
001042 R FRSCHT  001055 R FRSJT   000640 R FRSL1   000062 A FSCB
001103 R GBA     001114 R GBA50   001124 R GBA55   001135 R GBA60
001143 R GBA70   001152 R GBA80   000066 A GDRPC   000007 A GF
000071 A GFRPT   000430 A GFS     003347 R GIN     001160 R GNI
001315 R GNI10   001177 R GNI2    001342 R GNI20   001405 R GNI25
001414 R GNI30   001204 R GNI4    001431 R GNI50   001240 R GNI8
001263 R GNI9    001311 R GNI9A   001326 R GNIL1   001434 R GNIL2
001447 R GNL     001476 R GNL2    004356 E GOFCB   001502 R GOUT
000074 A GSRPC   001532 R HIN     001577 R HIO10   001611 R HIO15
001543 R HIO2    001564 R HIO4    001567 R HIO6    001532 R HOUT
001623 R ICC     001654 R ICCCT   001676 R ICCCT1  001644 R ICCLP
000111 A ICHAR   000077 A IDEXP   001722 R IFF     001724 R IFFL
001747 R IFFL1   000100 A IFW     000101 A IIBSZ   003347 R IIN
000102 A IIWSZ   000006 A IN      001756 R INF     000103 A INFL
001760 R INFLP   000447 A INR     000427 A INS     000104 A IOCONT
000105 A IOLNK   000106 A IOSTAT  001765 R IOUT    000107 A ISCB
000113 A ITEMAD  000114 A ITEMWC  000115 A ITMINC  000116 A ITMODE
001775 R IXN     002073 R IXN10   002102 R IXN15   002136 R IXN18
002141 R IXN20   002155 R IXN25   002170 R IXN30   002033 R IXN4
002052 R IXN5    002172 R IXN50   002210 R IXN52   002216 R IXN53
002223 R IXN55   002235 R IXN57   002236 R IXN58   002057 R IXN6
002245 R IXN60   002067 R IXN8    002010 R IXNL1   002115 R IXNL2
002230 R IXNL3   000550 R IXR     000300 A LC      000001 A LF
000422 A LFS     000123 A LGOV    000462 A LHW     002262 R LIN
002306 R LINX    000117 A LISTFL  000120 A LNKCNT  000204 A LOC
004352 E LOFCB   002335 R LOU4    002314 R LOUT    000003 A LP
000121 A LRECNO  003340 R LRLA8   000122 A LRSZ    000123 A LRWC
001721 R LSRA8   002337 R M10     002355 R M104    002401 R M10X
000046 A MAP     000004 A MN      000124 A MOV     000420 A MT
000125 A N       000126 A NFF     000470 A NINE    000005 A NM
002402 R NRM     002426 R NRM4    002403 R NRML    002450 R NRMX
000001 A NUC     002452 R OCB     002464 R OCB4    002472 R OCB6
000421 A ONE     002502 R ONF     002546 R ONF20   002577 R ONF30
002645 R ONF40   002532 R ONF5    002656 R ONF50   002667 R ONF52
002704 R ONF55   002724 R ONF60   002552 R ONFL1   002620 R ONFL2
002730 R OPN     003111 R OPN30   002763 R OPN4    002774 R OPN5
000127 A OPSTK   000000 A OPSTKP  000141 A PARLV   003123 R PAX
003145 R PAX10   003161 R PAX15   003166 R PAX16   003217 R PAX20
003244 R PAX30   003253 R PAX33   003260 R PAX50   003263 R PAX55
003270 R PAX70   003315 R PAXTAB  000142 A PBRC    000143 A PBSZ
000144 A PBWC    003320 R PCH     004351 E PIFCB   000006 A PL
003523 R PNI18   003535 R PNI19   003543 R PNI20   003432 R PNI4
003552 R PNI50   003575 R PNI60   003612 R PNI62   003626 R PNI64
003643 R PNI66   003474 R PNI8    003402 R PNIL1   003416 R PNIL1X
003560 R PNIL2   000002 A PO      004357 E POFCB   003650 R POJ
000443 A POR     000423 A POS     000003 A PR      003655 R PRD
003711 R PRD1    003742 R PRD2    003751 R PRD4    000145 A PRECNO
000146 A PRLINK  003754 R PRU     003767 R PRU0    003773 R PRU05
004030 R PRU1    004144 R PRU10   004210 R PRU15   004045 R PRU2
004222 R PRU20   004245 R PRU25   004054 R PRU3    004256 R PRU30
004305 R PRU35   004057 R PRU4    004332 R PRU40   004077 R PRU5
004346 R PRU50   004120 R PRU6    004347 R PRUASI  004361 R PRUDTB
004370 R PRUDTE  004360 R PRUGT   004212 R PRUL1   004400 R PRW
004422 R PRW0    004411 R PRW05   004426 R PRW1    004502 R PRW10
004436 R PRW2    004462 R PRW4    004472 R PRW6    004513 R PRX
000007 A PS      004533 R PSB     004562 R PSBX    004563 R PSJ
000010 A PT      000147 A PTFL    004622 R PXF     004665 R PXF10
004704 R PXF20   004633 R PXF5    004705 R PXFSZT  000150 A QFL
000011 A QT      000125 A R       000003 A RB      004714 R RBE1
004755 R RBE10   005050 R RBE15   005073 R RBE25   005075 R RBE30
005035 R RBE4    004733 R RBE5    005102 R RBE90   005124 R RBEB
005105 R RBEJT   005124 R RBEJTE  000424 A RBS     005125 R RCH
005155 R RCH10   005163 R RCH15   005132 R RCH2    005151 R RCH5
005167 R RCL     005201 R RCL10   005210 R RCL15   005174 R RCL5
005225 R RCP     005263 R RCP15   005301 R RCP20   005306 R RCP25
005235 R RCP3    005345 R RCP35   005350 R RCP40   005241 R RCP5
005357 R RCP50   000151 A RETURN  005404 R RFL     005424 R RFL10
005467 R RFL20   005476 R RFL30   005504 R RFL40   005420 R RFL5
005505 R RFL50   000463 A RHW     000000 A RM      000421 A RMS
005512 R RNA     005512 R RND     005560 R RND10   005531 R RND5
005545 R RNDL    005563 R RNDX    002201 R ROF     000012 A ROPSTP
000012 A RP      005564 R RPB     005573 R RPB10   005606 R RPB11
005610 R RPB12   005616 R RPB15   005621 R RPB20   000154 A RWFL
000155 A S       000032 A SAVE    000005 A SC      000156 A SCF
005625 R SCH     005655 R SCH5    005635 R SCHLP   005665 R SCHX
005666 R SCHY    000446 A SCR     000426 A SCS     000467 A SEVEN
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000157 A SGFL    000014 A SH      005667 R SHA     005716 R SHA50
005670 R SHAL    005733 R SHAX    004347 E SIFCB   000466 A SIX
000013 A SL      001626 R SOF     004355 E SSFCB   000012 A STKSZ
000160 A SVRECN  000162 A SYSBF   000161 A SYSDCB  005735 R TBK
005751 R TBK10   000432 A TBKJMP  000164 A TEMP    000165 A TEMP1
000471 A TEN     000166 A TERM    000464 A THREE   005763 R TIN
006002 R TIO10   006025 R TIO15   006032 R TIO20   006045 R TIOLP
005763 R TOUT    000004 A TR      006062 R TRM     006076 R TRM10
006112 R TRM20   006132 R TRM30   006151 R TRMI    000425 A TRS
000422 A TWO     006152 R UIO     006167 R UIO4    000167 A UNIT
000414 A V$BVN   000301 A V$CPL   000302 A V$CRS   000355 A V$DSTB
005761 E V$EXEC  000317 A V$LLUP  000316 A V$LUP   000400 A V$LUT1
000401 A V$LUT2  000402 A V$LUT3  005037 R V$RER1  000000 R V$RERF
000001 A V$RERN  004713 R V$RERR  000000 R V$RERS  000334 A V$ST0
000335 A V$ST1   000336 A V$ST2   000337 A V$ST3   006341 R VAACC
006342 R VABSCB  006343 R VACC    006347 R VACHB   006350 R VADFCB
006351 R VAFSCB  006352 R VAGPAR  006353 R VAISCB  006354 R VALOC
006355 R VANPOJ  006356 R VANRB   006357 R VAOPST  006360 R VAPBF
006361 R VASCB   006362 R VASFL   006363 R VASYSD  006364 R VBEXP
006365 R VBFWPT  006366 R VBSCB   006372 R VCHB    006410 R VCHBPT
006411 R VCHNHD  006412 R VCOUN   006413 R VCVFL   006414 R VD
006415 R VDEXP   006416 R VDT     006417 R VEDEXP  006420 R VERN
006421 R VFDLKY  006422 R VFSCB   006426 R VGDRP   006437 R VIDEXP
006440 R VIFW    000000 A VII     006441 R VIIBSZ  006442 R VIIWSZ
006443 R VINFL   006444 R VIOCON  006445 R VIOLNK  006446 R VIOSTA
006447 R VISCB   006453 R VITEMA  006454 R VITEMW  006455 R VITMIN
006456 R VITMOD  006457 R VLISTF  006460 R VLNKCN  006461 R VLRECN
006462 R VLRSZ   006463 R VLRWC   006464 R VMOV    006465 R VN
006466 R VNFF    006467 R VOPSTK  006340 R VOPSTP  000006 A VORTEX
006501 R VPARLV  006502 R VPBRC   006503 R VPBSZ   006504 R VPBWC
006505 R VPRECN  006506 R VPRLIN  006507 R VPTFL   006510 R VQFL
006511 R VRETUR  006512 R VRWFL   006513 R VS      006514 R VSCF
006515 R VSGFL   006516 R VSVREC  006517 R VSYSDC  006522 R VTEMP
006523 R VTEMP1  006524 R VTERM   006525 R VUNIT   006526 R VW
006527 R VWT     006530 R VXFFL   006531 R VXFL    006532 R VXFW
006533 R VXSG    006534 R VZFW    006542 R VZZZ    000170 A W
000001 A WCS     000011 A WR      000432 A WRR     000432 A WRS
000171 A WT      000001 A X       000172 A XFFL    000173 A XFL
000174 A XFW     006175 R XIN     006176 R XOUT    000175 A XSG
000177 A YYY     000420 A ZERO    000176 A ZFW     006207 R ZIN
006227 R ZIO1    006250 R ZIO2    006261 R ZIO4    006302 R ZIO6
006324 R ZIO7    006325 R ZIO8    006337 R ZIO9    006207 R ZOUT
000204 A ZZZ
  0 ERRORS ASSEMBLY COMPLETE

494  AACC    2199  3063
496  ABSCB    871  1384  4084  4784
498  ACC     1014  1016  1017  1019  1020  1022  1023  1025  1371
             1372  1373  1374  1599  1622  1626  1638  1644  1647
             1657  1659  1662  1663  1666  1672  1676  1677  1678
             1705  1709  1713  1717  2321  2331  2333  2334  2336
             2337  2339  2340  2342  2365  2369  2369  2370  2370
             2371  2371  2372  2377  2378  2380  2381  2382  2384
             2385  2386  2388  2389  2947  2948  2949  2951  2965
             2966  2973  2976  2982  2985  2994  2999  3000  3003
             3007  3010  3011  3013  3015  3020  3023  3024  3026
             3028  3029  3031  3033  3034  3038  3039  3039  3040
             3040  3041  3041  3041  3048  3050  3078  3079  3090
             3091  3093  3094  3099  3100  3107  3108  4375  4528
             4529  4531  4532  4533  4535  4536  4537  4539  4540
             4545  4546  4548  4549  4550  4552  4553  4554  4556
             4557
500  ACHB    1741  1748  2495  2507  2540  4372  4379  4397
502  ADFCB    954   964   984  2675  2676  2693  2712  2719  2735
             2781  2797  2810  2821  2831  3272  3274  3336  3337
             3430  3500  3506  3508  3627  3676  4194  4205  4227
             4304  4338  4426  4650  4708  4721
504  AFSCB   1850  1869  1876  2034
506  AGPAR   1176  1222  1240
508  AIBUF    707   708  4809  4810
704  AIN     1481
719  AIOL1    723
739  AIOL2    715   743
509  AISCB    721   739  4831  4837
175  AL      1213  1289  2106
511  ALBF    1541  1557  3163  3281  3329  3340  4179  4183  4285
             4299  4325  4327  4437  4644  4654  4664  4669  4666
512  ALOC     775  2656  3191  3617  3807  3988  4489
514  ANPOJ    767  3959  3960
516  ANRB     358   363   841   952   979  2635  2673  2694  2733
             2816  2851  3182  3273  3335  3507  3604  3681  3688
             3764  3874  3903  3942  3964  4213  4219  4258  4439
             4471
518  AOPSTK   819   835  2421  3909  3915  3933
705  AOUT    1482
520  APBF    3162  3192  3280  3328  3339  3618  4182  4184  4297
             4435  4645  4664
 66  ARST     445   956   957   961  1168  1259  1267  1289  1346
             1358  1360  1852  1854  2110  2122  2130  2166  2180
             2706  2796  3289  4134  4173  4176  4186  4204  4206
             4656  4700  4704  4705
522  ASCB     721   739   872  1384  1850  1869  1876  1901  1913
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		1933	2034	2885	4083	4784	4831	4837		
67	ASET	453	874	1207	1208	1209	1210	1211	1212	1213
		1288	1440	1441	1442	1545	2017	2018	2036	2105
		2106	2121	2124	2128	2165	2179	2260	3290	3395
		3396	4130	4192	4230	4288	4292	4443	4712	4720
524	ASFL	1197	1375	2412	2470					
526	ASYSDC	3336								
674	AZER	2002	2111	2143	2167	2187	2503	2510	2523	2536
		2543	2575	2579						
68	B	241	242	243	250	252	259	261	277	278
		285	294	310	339	340	348	349	358	363
		386	387	394	395	396	403	405	412	428
		436	444	452	460	477	728	730	732	734
		767	775	799	812	819	835	841	844	871
		872	878	901	907	908	909	917	918	945
		952	954	964	972	978	979	984	991	1050
		1054	1055	1088	1089	1094	1095	1098	1101	1104
		1105	1109	1110	1130	1131	1132	1133	1135	1136
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		1177	1179	1182	1192	1194	1196	1197	1198	1201
		1206	1214	1216	1222	1223	1237	1240	1242	1247
		1252	1257	1266	1271	1272	1273	1277	1279	1286
		1287	1294	1329	1334	1337	1342	1348	1349	1351
		1357	1362	1363	1368	1372	1373	1374	1375	1376
		1377	1378	1379	1380	1381	1382	1383	1385	1392
		1406	1409	1439	1522	1533	1534	1540	1549	1584
		1587	1588	1599	1612	1634	1638	1641	1644	1647
		1653	1657	1659	1662	1663	1666	1672	1676	1677
		1678	1681	1687	1693	1702	1705	1709	1713	1717
		1724	1725	1732	1733	1742	1744	1747	1748	1749
		1770	1774	1776	1804	1806	1811	1812	1814	1848
		1857	1901	1913	1933	2003	2006	2013	2090	2091
		2092	2094	2099	2102	2104	2113	2116	2120	2123
		2125	2127	2131	2132	2134	2139	2141	2142	2143
		2144	2150	2159	2162	2164	2170	2171	2174	2178
		2181	2186	2187	2199	2208	2209	2214	2215	2216
		2217	2227	2233	2234	2261	2264	2295	2296	2299
		2344	2346	2348	2373	2375	2413	2417	2422	2458
		2459	2460	2461	2462	2463	2464	2470	2471	2472
		2475	2476	2477	2478	2479	2481	2489	2496	2499
		2500	2501	2503	2504	2506	2507	2508	2517	2529
		2532	2533	2534	2536	2537	2539	2540	2541	2556
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		2635	2640	2657	2659	2664	2667	2671	2672	2692
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		2951	2953	2960	2982	2985	2994	2999	3000	3002
		3020	3023	3024	3026	3028	3029	3031	3033	3034
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		3070	3071	3072	3073	3078	3079	3081	3125	3127
		3151	3154	3159	3160	3163	3165	3167	3172	3173
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		3580	3583	3587	3588	3592	3593	3596	3598	3604
		3605	3606	3609	3611	3618	3620	3627	3633	3635
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69	B0	874								
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		2566	2576	2580	4782	4816	4823	4829	4849	4852
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678	BD120	965	2678	2731	2798	2804	3301	3303	3310	3318
		3324	3341	4322						
676	BD14	1749	2508	2541	2659	4370	4373			

530	BEXP	1600	1621	1641	1653	1687	1724	1732	1733	2094
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		3005	3036	3042	3054	3064	3067	3070	3081	3089
		3095								
199	BF	119	120							
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532	BFPT	1543	3199	3625	4625	4628	4642	4673		
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120	BFS	3157	3427	3586	3651					
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89	BM37	3390								
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91	BR0	119	127	134	140	144	168			
103	BR15	1215	1614	1643	1646	1655	1671	1907	2892	
95	BR4	2114	2172							
97	BR6	2115	2173							
99	BR8	2133	3690	4215						
104	BS0	120	128	130	132	135	136	141	142	149
		150	153	169						
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					
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		4724	4727							
790	CAN1	776								
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								
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908	CLB8	906								
913	CLBLP	919								
920	CLBX	904	905							
944	CLS	4048	4049							
965	CLS10	961								
968	CLS15	966								
972	CLS20	956	957							
990	CLS30	985								
177	CM	1207	1440	2105	2165					
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543	COUNT	709	724	1085	1088	1092	1095	1133	1725	1731
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221	CRD	3581								
215	CTR	4001								
216	CTRV	4020								
545	CVFL	1192	1201	1279	2099	2102	2113	2116	2123	2127
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109	D16	3928								
203	DA	3263								
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553	EDEXP	2089	2189	2191	2208	2209	2216			
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2938	EIN	1469								
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124	FLF	956	2706							
561	FMPT	1855	1858							
125	FOUR	214	1100	1174	1335	1352	1354	1731	1815	2232
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127	FPDR	3678								
128	FPDS	4210	4340							
129	FRB	130								
130	FRBS	2718								
131	FRM	957								
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563	FRPT	1160	1182	1252						
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1337	FRS45	1333								
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1447	FRSCHT	1300	1301							
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1769	GNL	1233	1367	4746						
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4342	RFL40	4292								
4292	RFL5	4287								
4346	RFL50	4306	4309	4313						
143	RHW	1912	2681	3283	3375	3431	3492			
190	RM	131	149	2714	2766	3290	3396	4130	4192	4206
		4288	4443	4704	4720					
149	RMS	3392								
4368	RND	1096	1134	1810	2061					
4399	RND10	4385								
4379	RND5	4371								
4390	RNDL	4378	4398							
4402	RNDX	4369	4377	4384	4393					
2205	ROF	1906	2891	2950						
634	ROPSTP	811	838	3878	3880					
185	RP	1209	1442							
4422	RPB	4202	4217							
4432	RPB10	4422								
4439	RPB11	4434								
4441	RPB12	4438								
4444	RPB15	4442								
4446	RPB20	4443								
637	RWFL	715	728	730	732	734	877	881	905	945
		985	1393	1409	1525	1544	1856	1864	2634	2644
		2701	2714	2764	2766	2777	2789	2795	2820	2828
		3159	3186	3186	3200	3263	3276	3287	3288	3292
		3348	3393	3394	3435	3438	3510	3512	3587	3608
		3608	3626	3630	3653	3673	3675	3687	4087	4129
		4172	4175	4185	4188	4203	4208	4212	4229	4232
		4235	4287	4333	4337	4346	4348	4422	4434	4442
		4655	4658	4662	4697	4699	4706	4719	4723	4748
		4818								
639	S	1086	1092	1099	1101	1105	1110	1130	1136	1164
		1277	2214							
641	SAVE	2636	2641	2642	2643	2645	2646	2647	2657	2664
		2665	2667	2671	2675	2679	2704	2710	2711	2715
		2732	2763	2770	2838	3347	3376	3403	3446	3491
		4195	4198	4625	4629	4655	4660	4669	4674	4676
		4677								
196	SC	144	150	4230						
642	SCF	1195	1271	1333	1392	2195	2212			
4471	SCH	949	3267							
4498	SCH5	4489								
4481	SCHLP	4503								
4504	SCHX	4500								
4505	SCHY	4482								
144	SCR	4233								
150	SCS	4661								
145	SEVEN	218	3449	4855	4857	4869				
644	SGFL	1199	1257	1273	1284	1379	1587	1634	2125	2459
		2487	2981	3040	3098					
194	SH	124	126	129	131	2703	3286			
4520	SHA	1726	1734	2235						
4545	SHA50	4521								
4521	SHAL	4541								
4558	SHAX	4522								
0	SIFCB	53	3502	3519						
146	SIX	217								
186	SL	1211	1441							
1904	SOF	4086								
0	SSFCB	58	3525							
209	STKSZ	615	634	842	845	3876	3884	3967	4896	4939
646	SVRECN	3277	4714							
648	SYSBF	2636								
649	SYSDCB	648								
4580	TBK	2658	2660	3193	3196	3619	3622	3809	3812	3951
		3953	3955	3957	3961	4035	4492	4494		
4591	TBK10	4581	4585							
4599	TBKJMP	4592								
651	TEMP	908	915	1612	1617	1618	1623	2629	2763	2886
		2900	2965	2974	2977	3009	3015	3063	3065	3069
		3151	3354	3359	3363	3364	3372	3428	3437	3580
		3645	3654	3656	3713	3719	3726	3930	3940	3971
		3994	4014	4310	4320	4323	4326	4331	4490	4495
653	TEMP1	900	903	904	918					

151	TEN	221	1015	1018	1021	1024	2009	2190	2332	2335
		2338	2341	2571	3952	4392	4853			
655	TERM	1383	2144	2330						
152	THREE	213	1699	2987	3381	3798				
4622	TIN	1487								
4642	TIO10	4630								
4659	TIO15	4656								
4663	TIO20	4646								
4673	TIOLP	4638	4679	4681						
4623	TOUT	1488								
195	TR	153	1545	4134						
4697	TRM	4041								
4708	TRM10	4705								
4717	TRM20	4700	4704							
4723	TRM30	4719								
4728	TRMI	4715								
153	TRS	4698								
154	TWO	212	1340	1343	1589	1604	2153	2954	2989	3457
		3466	3494	3590	3796					
4746	UIO	3636	4756	4764						
4760	UIO4	4748								
657	UNIT	953	978	2700	2792	2815	2850	3173	3181	3257
		3284	3349	3462	3465	3605	4011	4193	4499	
156	V$CPL	3456	3869							
157	V$CRS	798	3890	4596						
158	V$DSTB	3380								
0	V$EXEC	61								
160	V$LLUP	4583	4586							
159	V$LUP	4580	4582	4591						
161	V$LUT1	3352	3469							
3986	V$RER1	34								
43	V$RERF	28	40							
46	V$RERN	35								
3856	V$RERR	33								
42	V$RERS	26	38							
164	V$ST0	1298	1415	1921	2842	3407	3473	3775	4018	
165	V$ST1	3875								
166	V$ST2	796								
167	V$ST3	1319	1326	1421	1931	2848	3425	3444	3481	3781
		3863	3892	3979	4024					
4887	VACC	4885								
4903	VBSCB	4886								
4904	VCHB	4888								
4915	VFSCB	4890								
4916	VGDRP	4891								
21	VII	22	23	772	795	801	1297	1305	1317	1325
		1414	1420	1920	1930	2654	2841	2847	3189	3406
		3424	3443	3472	3480	3615	3774	3780	3805	3860
		3898	3900	4017	4023	4032	4057	4487	4563	4882
		4941								
850	VII1	802	2655	3190	3616	3806	3861	3901	4033	4058
		4488	4564	4883	4942					
1310	VIINUC	1306								
4925	VISCB	4892								
4939	VOPSTK	3965	4896							
1	VORTEX	19	21	3978						
4956	VSYSDC	4900								
659	W	724	1349	1369	4626	4636				
19	WCS	20	25	27	37	39	326	371		
330	WCS1	327	372							
332	WCS2	329	375							
201	WR	168	169	715	881	1393	1544	1856	1864	3200
		3630	3687	4087	4176	4185	4203	4292	4333	4656
		4705	4723	4748	4818					
168	WRR	733								
169	WRS	729	944	1410	3156	3585	3650			
661	WT	709	723	876	1216	1286	1369	2100	2160	2258
		2270	2292	2413	2419	2458	4811	4824	4833	
81	X	268	270	286	302	309	317	318	341	351
		359	361	364	378	420	468	484	783	811
		821	824	838	845	873	880	955	973	974
		980	983	990	992	1014	1016	1017	1019	1020
		1022	1023	1025	1180	1181	1183	1243	1244	1245
		1249	1250	1251	1301	1417	1423	1585	1594	1609
		1613	1617	1618	1621	1622	1623	1626	1632	1635
		1639	1642	1645	1654	1658	1745	1777	1902	1903
		1908	1910	1914	1925	1927	1934	2015	2189	2191
		2200	2201	2202	2203	2263	2267	2321	2324	2326
		2328	2330	2331	2332	2334	2336	2337	2339	2340
		2342	2365	2377	2378	2380	2381	2382	2384	2385
		2386	2388	2389	2390	2392	2502	2535	2570	2572
		2658	2660	2668	2674	2676	2680	2683	2688	2695
		2705	2713	2716	2720	2721	2723	2731	2732	2737
		2794	2803	2804	2811	2813	2817	2819	2833	2844
		2852	2887	2888	2893	2895	2902	2973	2974	2976
		2977	3005	3007	3009	3010	3011	3013	3048	3050
		3066	3068	3089	3090	3091	3093	3094	3095	3099
		3100	3107	3108	3126	3128	3166	3171	3182	3184
		3185	3192	3193	3196	3265	3274	3282	3285	3301
		3303	3305	3308	3310	3316	3318	3319	3320	3323
		3324	3326	3327	3328	3329	3337	3365	3366	3374

		3388	3401	3414	3418	3432	3447	3477	3484	3490
		3501	3503	3508	3514	3589	3595	3597	3607	3610
		3612	3619	3622	3677	3679	3682	3684	3686	3689
		3691	3718	3723	3765	3777	3809	3812	3878	3880
		3884	3891	3903	3914	3915	3923	3930	3933	3935
		3937	3941	3950	3951	3953	3955	3957	3960	3961
		3964	3993	3998	4009	4010	4020	4026	4209	4211
		4214	4216	4220	4223	4224	4226	4260	4305	4322
		4323	4339	4341	4382	4390	4391	4395	4401	4428
		4433	4440	4475	4477	4492	4494	4498	4502	4524
		4528	4529	4531	4532	4533	4535	4536	4537	4539
		4540	4545	4546	4548	4549	4550	4552	4553	4554
		4556	4557	4587	4593	4595	4651	4710	4716	4753
		4755	4761	4763						
663	XFFL	3202	3635	3762	3974	4013				
665	XFL	1098	1380	1816	2545					
667	XFW	1100	1381	1815	2463					
4779	XIN	1485								
4780	XOUT	1486								
669	XSG	2092	2181	2206						
673	YYY	3956								
170	ZERO	210								
671	ZFW	1054	1382	2522	2528					
4806	ZIN	1477								
4821	ZIO1	4833								
4831	ZIO2	4824								
4837	ZIO4	4818	4846							
4849	ZIO6	4822	4826							
4861	ZIO7	4854								
4864	ZIO8	4839	4844							
4871	ZIO9	4868								
4807	ZOUT	1478								