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2 *
3 * V.D.M. PART NO. 92L0107-021F
4 *

RELEASED 6-16-75

620 MEMORY TEST PART 2

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THIS TEST PROGRAM IS A PART OF THE MAINTAIN
TEST PROGRAM SYSTEM

THE MEMO TEST IS DESIGNED TO ASCERTAIN THE OPERATIONAL
STATUS OF THE COMPUTER MEMORY. ANY MEMORY SIZE (4K-32K, 16 OR 18
BIT) CAN BE CHECKED. READ-ONLY-MEMORY (ROM) IS NOT TESTED BY
THIS PROGRAM.

*
* AREAS RESERVED BY EXECUTIVE *

ORG 0
JMP EXECUTIVE
ORG 040
JMPM POWER DOWN ROUTINE
JMP POWER UP ROUTINE
NOTE: THE TEST EXECUTIVE ALSO RESERVES LOCATIONS 0400 TO 0477
FOR A POINTER TABLE TO STANDARD ROUTINES, AND AS AN AREA
FOR EXECUTIVE DATA. ALL TEST PROGRAMS WORKING WITH THE
EXECUTIVE MUST PRESERVE THIS BLOCK.
STANDARD ROUTINES WILL BE CALLED INDIRECTLY THRU
THIS TABLE

000400	76	ORG	0400	
000400	77	OUTA	BSS	1
000401	78	OUTB	BSS	1
000402	79	OUTC	BSS	1
000403	80	OUTD	BSS	1
000404	81	OUTE	BSS	1
000405	82	OUTF	BSS	1
000406	83	OUTG	BSS	1
000407	84	OUTH	BSS	1
000410	85	INPA	BSS	1
000411	86	INPB	BSS	1
000412	87	INPC	BSS	1
000413	88	INPD	BSS	1
000414	89	INPE	BSS	1
000415	90	INPF	BSS	1
000416	91	INPG	BSS	1
000417	92	TOUT	BSS	1
000420	93	TDLY	BSS	1
000421	94	SSWT	BSS	1
000422	95	SLWE	BSS	1
				OUTPUT ONE CHAR ROUTINE
				OUTPUT TWO CHAR ROUTINE
				OUTPUT CR/LF ROUTINE
				OUTPUT MESSAGE ROUTINE
				OUTPUT OCTAL WORD ROUTINE
				OUTPUT OCTAL ADDR ROUTINE
				OUTPUT ERROR MSG ROUTINE
				OUTPUT CONTROL CHAR TO TTY ROUTINE
				INPUT ONE CHAR ROUTINE
				INPUT AND PRINT ONE CHAR ROUTINE
				INPUT ONE CHAR EDITED ROUTINE
				INPUT ONE ALPHA CHAR ROUTINE
				INPUT TWO ALPHA CHAR ROUTINE
				INPUT COMMA/PERIOD TERMINATION ROUTINE
				INPUT OCTAL NUMBER ROUTINE
				TIME-OUT ROUTINE
				TIME DELAY ROUTINE
				STANDARD SENSE SWITCH ROUTINE
				LOWEST WORD USED BY EXEC

PAGE	2	MAINTAIN III	MEMPT2		
000423		96 ESZC BSS 1	MEMORY SIZE DETERMINATION ROUTINE	04	00096
000424		97 \$MSM BSS 1	MEMORY SIZE MESSAGE	04	00097
		98 *		04	00098
		99 *		04	00099
000440		100 ORG 0440		04	00100
		101 *		04	00101
		102 *	EXECUTIVE DATA TABLE	04	00102
		103 *		04	00103
000440		104 \$FLG BSS 1	LOOP ON ERROR FLAG, 0=DON'T LOOP 1=LOOP	04	00104
000441		105 \$MEM BSS 1	MEMORY SIZE (HIGHEST AVAIL CORE)	04	00105
000442		106 \$CON BSS 1	0=CONSOLE MODE 1=TTY MODE	04	00106
000443		107 BSS 22		04	00107
000471		108 \$DCT BSS 1	DIGIT COUNTER FOR INPG	04	00108
		109 *		04	00109
000040		110 ORG 040	POWER DOWN INTERRUPT	F	04 00110
000040 001000 A		111 JMP PRDN		F	04 00111
000041 003617 A					
000042		112 ORG 042	POWER UP INTERRUPT	B	04 00112
000042 001000 A		113 JMP PRUP		B	04 00113
000043 005623 A					
		114 *		04	00114
000100		115 ORG 0100		04	00115
000100 000000 A		116 ENTR 0	INSTRUCTION PARITY ERROR	04	00116
000101 001000 A		117 JMP IPER		04	00117
000102 005344 A					
000104		118 ORG 0104		04	00118
000104 000000 A		119 ENTR 0	ADDRESS PARITY ERROR	04	00119
000105 001000 A		120 JMP APER		04	00120
000106 005403 A					
000110		121 ORG 0110		04	00121
000110 000000 A		122 ENTR 0	OPERAND PARITY ERROR	04	00122
000111 001000 A		123 JMP OPER		04	00123
000112 005442 A					
000114		124 ORG 0114		04	00124
000114 000000 A		125 ENTR 0	TRAP PARITY ERROR	04	00125
000115 001000 A		126 JMP TPER		04	00126
000116 005501 A					
		127 *		C	04 00127
000500		128 ORG 0500		04	00128
		129 *****		04	00129
		130 * MAIN ENTRY POINT		04	00130
		131 *****		04	00131
000045 A		132 PRY SET 045	PARITY HARDWARE DEVICE ADDRESS	04	00132
000500 001000 A		133 JMP STRT		04	00133
000501 003000 A					
		134 *****		04	00134
		135 * DATA		04	00135
		136 *****		04	00136
		137 *		04	00137
		138 * DATA TABLE		04	00138
		139 *		04	00139
000502		140 MTW1 BSS 1	SAVE VALID PATTERN	04	00140
000503		141 MTW2 BSS 1	SAVE PATTERN READ	04	00141
000504		142 TCYC BSS 1	TOTLE CYCLES EXECUTED	04	00142
000505 000000 A		143 CYCL DATA 0	CYCLES	04	00143
000506 000000 A		144 EMEM DATA 0	PRINT END MEMO FLAG	04	00144
000507 000000 A		145 TEST DATA 0	TEST NUMBER	04	00145
000510		146 TBAA BSS 1		B	04 00146
000511 000000 A		147 PFK DATA 0	COUNT OF POWER FAILURES	B	04 00147
000512		148 REP1 BSS 1	REP CTR	04	00148
000513		149 REP BSS 1	REP CTR	04	00149
000514 000000 A		150 FRST DATA 0	FIRST ADDRESS	04	00150
000515 000000 A		151 LAST DATA 0	LAST ADDRESS	04	00151
000516		152 BITS BSS 1	BIT SELECT PATTERN	04	00152
000517		153 PAT1 BSS 1	PATTERN 1	04	00153
000520		154 PAT2 BSS 1	PATTERN 2	04	00154
000521 000000 A		155 TERR DATA 0	ERROR TOTAL	04	00155
000522 000000 A		156 SWCH DATA 0	PRINT ERROR HDG FLG	04	00156
000523 000000 A		157 SAVB DATA 0		04	00157
000524 000000 A		158 SAVX DATA 0		04	00158
000525 000000 A		159 V701 DATA 0		F	04 00159
000526 177777 A		160 EFLG DATA -1	EXTENDED ADDRESSING FLAG	F	04 00160
		161 *		04	00161
		162 * TABLES HAVE THE FORM		04	00162
		163 * NAME BSS 1	TABLE NAME, INDEX PTR FOR TABLE	04	00163
		164 * BSS 1	MAX LENGTH OR CURRENT LENGTH OF TABLE	04	00164
		165 * (DEPENDING ON ROUTINE ACCESSING TABLE)		04	00165
		166 * BSS N	BODY OF TABLE, N=OCTAL MAX LENGTH	04	00166
		167 *		04	00167
000527 000000 A		168 TBLI DATA 0,6	TABLE OF WORSE CASE PATTERNS	C	04 00168
000530 000006 A					
000531 000203 A		169 DATA 0203	AMPEX	04	00169
000532 004001 A		170 DATA 04001	FABRI-TEK OR LITTON	04	00170
000533 000024 A		171 DATA 024,0144,044		B	04 00171
000534 000144 A					
000535 000044 A					
000536 003000 A		172 DATA 03000		C	04 00172
		173 *		04	00173
		174 * TBL0 = MEMORY LOCATIONS IN FIRST 4K TO BE TESTED		04	00174
		175 *		04	00175
000537 000000 A		176 TBL0 DATA 0,8		04	00176
000540 000010 A					
		177 *		B	04 00177
		178 *	W A R N I N G	B	04 00178
		179 *		B	04 00179

MAINTAIN III

MEMPT2

PAGE 3

	180 *	NUMBER PAIRS MUST REFERENCE AN EVEN NUMBER OF WORDS	B	04	00180
	181 *	----	B	04	00181
	182 *		B	04	00182
000541 000002 A	183	DATA 2,037	B	04	00183
000542 000037 A					
000543 000044 A	184	DATA 044,077	B	04	00184
000544 000077 A					
000545 000120 A	185	DATA 0120,0367	C	04	00185
000546 000367 A					
000547 000622 A	186	DATA 0622,((SM2/2)*2)-1	B	04	00186
000550 002777 A					
	187 *			04	00187
	188 *	TBL CONTAINS BEGINNING AND ENDING ADDR OF MEMORY SEGMENT TO BE TESTED		04	00188
	189 *			04	00189
000551	190 TBL BSS 1	TBL INDEX		04	00190
000552	191 BSS 1	TBL LENGTH, VARIABLE UP TO 30		04	00191
000553	192 BSS 30	TBL DATA ITEMS		04	00192
	193 *****			04	00193
	194 *			04	00194
	195 *****			04	00195
003000	196 ORG 03000		F	04	00196
	197 *****			04	00197
003000 003000 A	198 SM2 EQU *		B	04	00198
003001 013163 A	199 STRT LDA NL	RESTORE HEADING	B	04	00199
003002 033020 A	200 LDX RM1		B	04	00200
003003 055000 A	201 STA 0,1		B	04	00201
003004 006010 A	202 LDAI MTOP	RETURN TO MTOP	B	04	00202
003005 003010 A					
003006 006030 A	203 LDXI PWRR	ON POWER FAILURE	B	04	00203
003007 005641 A					
003007 055000 A	204 STA 0,1			04	00204
	205 *****			04	00205
	206 *	MEMO TOP - COMMON ENTRY POINT		04	00206
	207 *****			04	00207
003010 010442 A	208 MTOP LDA SCON	CONSOLE MODE ?		04	00208
003011 001010 A	209 JAZ MTCM	YES		04	00209
003012 003163 A					
	210 *****			04	00210
	211 *	INPUT PARAMETERS (TTY MODE)		04	00211
	212 *****			04	00212
003013 033020 A	213 MTTM LDX RM1	'MEMORY TEST'	B	04	00213
003014 002000 A	214 CALL (OUTD)*			04	00214
003015 100403 A					
003016 005001 A	215 TZA	PRINT HEADING ONCE		04	00215
003017 006030 A	216 LDXI HDG1			04	00216
003020 003154 A					
003020 003020 A	217 RM1 EQU *-1		B	04	00217
003021 055000 A	218 STA 0,1			04	00218
003022 002000 A	219 MTT1 CALL (EASZC)*	DETERMINE MEMORY SIZE		04	00219
003023 100423 A					
003024 003024 A	220 D2K EQU *		F	04	00220
003025 002000 A	221 JNPM INT1	GET INTERRUPT LOCATION	F	04	00221
003026 005100 A					
003026 006010 A	222 LDAI 05000	NOP	F	04	00222
003027 005000 A					
003030 053024 A	223 STA D2K		F	04	00223
003031 053025 A	224 STA D2K+1		F	04	00224
003032 053022 A	225 STA MTT1		F	04	00225
003033 053023 A	226 STA MTT1+1		F	04	00226
003034 100445 A	227 EXC 0400+PRTY	ENABLE PARITY INTERRUPTS		04	00227
003035 030424 A	228 LDX SMSM	PRINT MEMORY SIZE MESSAGE		04	00228
003036 002000 A	229 CALL (OUTD)*			04	00229
003037 100403 A					
003040 006030 A	230 LDXI HDG2	'4K MEMORY MODULE(S) TO BE TESTED ='		04	00230
003041 005655 A					
003042 002000 A	231 CALL (OUTD)*			04	00231
003043 100403 A					
003044 005001 A	232 TZA	INIT TBL		04	00232
003045 050551 A	233 STA TBL			04	00233
003046 006010 A	234 LDAI 30			04	00234
003047 000030 A					
003047 003047 A	235 D36 EQU *-1		B	04	00235
003050 005052 A	236 STA TBL+1			04	00236
003051 007400 A	237 MTT2 RUF	RESET COMMA INDICATOR		04	00237
003052 006010 A	238 LDAI MTT2	RETURN TO MTT2	B	04	00238
003053 003051 A					
003054 006030 A	239 LDXI PWRR	ON POWER FAILURE	B	04	00239
003055 005641 A					
003056 055000 A	240 STA 0,1		B	04	00240
003057 002000 A	241 CALL (INPG)*	INPUT N		04	00241
003060 100416 A					
003061 001000 A	242 JMP MTOP	SS3		04	00242
003062 003010 A					
003063 001000 A	243 JMP MTT1+5	BACKSLASH		04	00243
003064 003027 A					
003065 007401 A	244 SDF	COMMA		04	00244
003066 005011 A	245 MERG 011	NOP		04	00245
003067 020471 A	246 LDB \$DCT	TEST ALL OF MEMORY ?		04	00246
003070 001020 A	247 JBZ MTT4	YES,GOTO MTT4		04	00247
003071 003104 A					
003072 002000 A	248 CALL MTP2,TPR,TTR	PUT INTO TBL,PARAMETER ERROR,TBL SIZE ERR		04	00248
003073 003361 A					
003074 003146 A					
003075 003140 A					
003076 001001 A	249 JDF MTT2	GET NEXT N IF COMMA IND SET		04	00249

PAGE	4	MAINTAIN III	MEMPT2		
003077	003031	A			
003100	010551	A	250 MTT3	LDA TBL	FIX TBL LENGTH
003101	050552	A	251	STA TBL+1	
003102	001000	A	252	JMP MTT5	
003103	003111	A			
003104	002000	A	253 MTT4	CALL MTP1,TTR	TBL=ALL OF MEMORY
003105	003260	P			
003106	003140	A			
003107	001000	A	254	JMP MTT3	
003110	003100	A			
003111	006030	A	255 MTT5	LDXI HDG6	CYCLES =
003112	005732	A			
003113	002000	A	256	CALL (OUTD)*	
003114	100403	A			
003115	002000	A	257	CALL (INPG)*	INPUT CYCLES
003116	100416	A			
003117	001000	A	258	JMP MTTM	SS3 TERMINATE
003120	003013	A			
003121	001000	A	259	JMP MTT5	BACKSLASH
003122	003111	A			
003123	001000	A	260	JMP MTT6	COMMA (PRINT 'END MEMO')
003124	003132	A			
003125	050505	A	261	STA CYCL	SAVE CYCLES
003126	005001	A	262	TZA	
003127	050506	A	263	STA ENEM	SET FLAG TO SUPPRESS END MEMO
003130	001033	A	264	JMP MINT	BRANCH TO TEST INITIALIZATION
003131	003507	A			
003132	050505	A	265 MTT6	STA CYCL	SAVE CYCLES
003133	005001	A	266	TZA	
003134	005211	A	267	CPA	
003135	050506	A	268	STA ENEM	SET FLAG TO PRINT END MEMO
003136	001000	A	269	JMP MINT	
003137	003507	A			
003140	006030	A	270 TTR	LDXI HDG3	'TOO MANY PARAMETERS'
003141	005675	A			
003142	002000	A	271	CALL (OUTD)*	
003143	100403	A			
003144	001000	A	272	JMP MTT1	
003145	003022	S			
003146	006030	A	273 TPR	LDXI HDG5	'MODULE NOT WITHIN MEMORY RANGE'
003147	005711	A			
003150	002000	A	274	CALL (OUTD)*	
003151	100403	A			
003152	001000	A	275	JMP MTT1	
003153	003022	A			
003154	106612	A	276 CRLF	SET 0106612	CARRIAGE RETURN / LINE FEED
003155	146705	A	277 HDG1	DATA CRLF,'MEMORY TEST',CRLF,0	
003156	146717	A			
003157	151331	A			
003160	120324	A			
003161	142723	A			
003162	152240	A			
003163	106612	A			
003164	000000	A			
003165	003163	A			
003165	002000	A	278 NL	EQU HDG1+7	
003166	100423	A	279 *		
003167	100445	A	280 *****		
003170	030441	A	281 *	INPUT PARAMETERS (CONSOLE MODE)	
003171	005103	A	282 *****		
003172	004541	A	283 MTCM	CALL (ESZC)*	X=ADDRS OF HIGHEST AVAILABLE CORE
003173	050551	A			
003174	013047	A	284	EXC 0400+PRTY	ENABLE PARITY INTERRUPTS
003175	050552	A	285	LDX \$MEM	
003176	005021	A	286	INCR 03	SET A REG FOR ALL MEM,CONTINUES EXECUTION
003177	001000	A	287	LLSR 1	INIT TBL
003200	003202	A	288	STA TBL	
003201	005001	A	289	LDA U36	
003202	000037	A	290	STA TBL+1	
003203	001004	A	291	TPA	A=10---0
003204	003222	A	292	JMP MTC1+1	
003205	002020	A			
003206	003361	A	293 MTC1	TZA	
003207	003213	A	294	HLT 037	INPUT PARAMETERS
003210	003216	A	295	JAN MTC4	INPUT CYCLES? YES,GOTO MTC4
003211	001000	A			
003212	003201	A	296	CALL MTP2,MTC2,MTC3	PUT INTO TBL
003213	005301	A			
003214	001000	A	297	JMP MTC1	
003215	003202	A			
003216	013217	A	298 MTC2	DECR 01	PARAMETER EXCEEDS MEM A=-1
003217	000077	A	299	JMP MTC1+1	
003220	001000	A	300 MTC3	LDA *+1	TOO MANY PARAMETERS
003221	003165	A	301	HLT 077	
003222	006150	A	302	JMP MTCM	
003223	077777	A	303 MTC4	ANAI 077777	STORE CYCLES
003224	050505	A			
003225	010551	A	304	STA CYCL	
003226	001010	A	305	LDA TBL	TEST ALL OF MEMORY
003227	003234	A	306	JAZ MTC6	

		MAINTAIN III	MEMPT2		PAGE	5
003230	010531	A	307	MTC5 LDA TBL	04	00307
003231	050532	A	308	STA TBL+1	04	00308
003232	001000	A	309	JMP MINT	04	00309
003233	003507	A				
003234	002000	A	310	MTC6 CALL MTP1,MTC3	04	00310
003235	003260	A		TBL=ALL OF MEMORY		
003236	003216	A				
003237	001000	A	311	JMP MTC5	04	00311
003240	003230	A				
			312	*****	04	00312
			313	* PARAMETER INPUT SUBROUTINES	04	00313
			314	*****	04	00314
			315	*	04	00315
			316	* TBL = ALL OF MEMORY	04	00316
			317	*	04	00317
003241	005302	A	318	MTP3 DECR 02	04	00318
003242	005123	A	319	INCR 023	04	00319
003243	002000	A	320	CALL MTP2,MTP7,MTP5	04	00320
003244	003361	A		TBL = MODULE (A)		
003245	003236	A				
003246	003251	A				
003247	001000	A	321	JMP MTP3+1	04	00321
003250	003242	A				
003251	033260	A	322	MTP5 LDX MTP1	04	00322
003252	035000	A	323	LDX 0,1	04	00323
003253	073260	A	324	STX MTP1	04	00324
003254	001000	A	325	JMP (MTP1)*	04	00325
003255	103260	A				
003256	043260	A	326	MTP7 INR MTP1	04	00326
003257	001000	A	327	JMP 0	04	00327
003260	000000	A				
003260			328	MTP1 BES 0	04	00328
003261	001000	A	329	JMP MTP3	04	00329
003262	003241	A				
			330	*	04	00330
			331	* TBL = MODULE (A)	04	00331
			332	*	04	00332
003263	001010	A	333	MTP4 JAZ MTP8	04	00333
003264	003335	A		TBL=1ST 4K? YES,GOTO MTP8		
003265	004254	A	334	LRLA 12	04	00334
003266	140441	A	335	SUB MEM	04	00335
003267	001000	A	336	JAP MTP6	04	00336
003270	003330	A				
003271	120441	A	337	ADD MEM	04	00337
003272	002000	A	338	CALL UADA,TBL,MTP0	04	00338
003273	003427	A		PUT PARAMETERS INTO TBL		
003274	000551	A				
003275	003351	A				
003276	005014	A	339	TAX	E	04 00339
003277	010422	A	340	LDA \$LWE	E	04 00340
003300	153305	A	341	ANA D10K	E	04 00341
003301	001010	A	342	JAZ MPTB	E	04 00342
003302	003364	A				
003303	005041	A	343	TXR	E	04 00343
003304	006140	A	344	SURI 010000	E	04 00344
003305	010000	A				
003306	003305	A	345	D10K EQU *-1	E	04 00345
003307	003312	A	346	JAZ *-4	E	04 00346
003310	001000	A	347	JMP MPTB	E	04 00347
003311	003364	A				
003312	006010	A	348	LDAI 013777	E	04 00348
003313	013777	A		SKIP UNDER MAINTAIN III		
003314	001000	A	349	JMP MPT9+2	E	04 00349
003315	003320	A				
003316	006110	A	350	MPT9 BRAI 07777	E	04 00350
003317	007777	A		FULL 4K		
003320	002000	A	351	CALL UADA,TBL,MTP0	04	00351
003321	003427	A				
003322	000551	A				
003323	003301	A				
003324	043361	A	352	INR MTP2	04	00352
003325	043301	A	353	INR MTP2	04	00353
003326	001000	A	354	JMP (MTP2)*	04	00354
003327	103301	A				
003330	033361	A	355	MTP6 LDX MTP2	04	00355
003331	035000	A	356	LDX 0,1	04	00356
003332	073334	A	357	STX *-2	04	00357
003333	001000	A	358	JMP 0	04	00358
003334	000000	A				
003335	005001	A	359	MTP8 TZA	04	00359
003336	050537	A	360	STA TBL0	04	00360
003337	002000	A	361	CALL UADA,TBL0,MTPA	04	00361
003340	003500	A		TRANSFER TBL5		
003341	000537	A				
003342	003356	A				
003343	002000	A	362	CALL UADA,TBL,MTP0	04	00362
003344	003427	A				
003345	000551	A				
003346	003351	A				
003347	001000	A	363	JMP MTP8+2	04	00363
003350	003337	A				
003351	033361	A	364	MTP0 LDX MTP2	04	00364
003352	035001	A	365	LDX 1,1	04	00365
003353	073355	A	366	STX *-2	04	00366

PAGE	6	MAINTAIN III	MEMPT2		
003354	001000	A	367	JMP	0
003355	000000	A			
003356	043361	A	368	MTPA	INR
003357	043361	A	369	INR	MTP2
003360	001000	A	370	JMP	0
003361	000000	A			
003362	001000	A	371	MTP2	BES
003363	003263	A	372	JMP	MTP4
003364	005041	A	373	MPTB	TXA
003365	001000	A	374	JMP	MPT9
003366	003316	A			
			375	*	
			376	*	
			377	*	
			378	*	
			379	*	
			380	*	
			381	*	
			382	CALL	UADA,TBLPTR,DVFLXIT
			383		INCR ()TBLPTR,IF.GT.()TBLPTR+1
			384		GOTO DVFLXIT,ELSE
			385		()TBLPTR+()TBLPTR)=A
			386	TBL=INDEX,TBLSIZE,ITEM1,...,ITEMN	
			387	LDX	UADA
			388	LDB	0,1
			389	INR	0,2
			390	LDA	1,2
			391	SUB	0,2
				JAN	UADC
			392	INCR	021
			393	ADD	0,2
			394	DAR	
			395	TAB	
			396	LDA	0,2
			397	IAR	
			398	SUB	UADD
			399	JAZ	UADE
			400	IBR	
			401	LDA	UADD
			402	STA	0,2
			403	LDB	UADD+1
			404	LDX	UADD+2
			405	INR	UADA
			406	INR	UADA
			407	JMP	(UADA)*
			408	UADC	LDA
			409	STA	UADA-1
			410	LDA	UADD
			411	LDB	UADD+1
			412	LDX	UADD+2
			413	JMP	*
					DVFLXIT (RETURN+1)*
			414	UADA	ENTR
			415	STA	UADD
			416	STB	UADD+1
			417	STX	UADD+2
			418	JMP	UADB
					CONTINUE
			419	UADE	LDB
			420	LDA	0,1
			421	SUBI	0,2
					2
			422	STA	0,2
			423	LDA	UADD
			424	JMP	UADC-6
					NORMAL EXIT
			425	UADD	BSS
			426	*	
			427	*	
			428	*	
			429	*	
			430	*	
			431	*	
			432	*	
			433	CALL	UACA,TBLPTR,ENDEXIT
			434		(A)=()TBL+1+()TBLPTR
			435	*	
			436	TBL=INDEX,TBLSIZE,ITEM1,...,ITEMN	
			437	LDX	UACA
			438	LDB	0,1
			439	INR	0,2
			440	LDA	1,2
			441	SUB	0,2
				JAN	UACC
			442	INCR	021
			443	ADD	0,2
			444	TAB	
			445	LDA	0,2
			446	LDB	UACD
			447	LDX	UACD+1
			448	INR	UACA
			449	INR	UACA
					EXIT (RETURN+2)

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003467	001000	A	450	JMP	(UACA)*	04	00450
003470	103500	A					
003471	016001	A	451	UACC	LDA 1,2 (A)=TBLSIZE	04	00451
003472	035001	A	452	LDA	1,1 SETEXIT	04	00452
003473	073477	A	453	STX	UACA-1	04	00453
003474	023505	A	454	LDB	UACB	04	00454
003475	033503	A	455	LDA	UACB+1	04	00455
003476	001000	A	456	JMP	0	04	00456
003477	000000	A			EXIT (RETURN+1)* =GOTO ENDEXIT		
003500	000000	A	457	UACA	ENTR	04	00457
003501	063503	A	458	STB	UACB	04	00458
003502	073506	A	459	STX	UACB+1	04	00459
003503	001000	A	460	JMP	UACB	04	00460
003504	003450	A			CONTINUE		
003505			461	UACB	BSS 2 (B),(X)	04	00461
			462	*		04	00462
			463	*****	*****	04	00463
			464	*	SUBTEST DRIVER, AND CYCLS COUNTER	04	00464
			465	*****	*****	04	00465
003507	005001	A	466	MINT	TZA	04	00466
003510	050521	A	467	STA	TERR	04	00467
003511	050532	A	468	STA	SWCH	04	00468
003512	050504	A	469	STA	TCYC	04	00469
003513	030510	A	470	STA	TBA	B	04 00470
003514	002000	A	471	JMPM	DTAC	C	04 00471
003515	005603	A					
003516	007400	A	472	MIN1	RDF		04 00472
003517	036010	A	473	LDRI	MIN1	B	04 00473
003520	003516	A			RESET ERROR INDICATOR		
003521	006030	A	474	LDA	PMRR	B	04 00474
003522	005641	A			ON POWER FAILURE		
003523	055000	A	475	STA	0,1	B	04 00475
003524	002000	A	476	CALL	TUAT		04 00476
003525	004034	A			UNIQUE ADDR		
003526	005001	A	477	TZA			04 00477
003527	030551	A	478	STA	TBL		04 00478
003530	002000	A	479	MIN2	CALL	UACA,TBL,MIN3	04 00479
003531	003500	A			GET FRST ADDR		
003532	000531	A					
003533	003572	A					
003534	050514	A	480	STA	FRST		04 00480
003535	002000	A	481	CALL	UACA,TBL,MIN3		04 00481
003536	003500	A			GET LAST ADDR		
003537	000531	A					
003540	003572	A					
003541	050515	A	482	STA	LAST		04 00482
003542	002000	A	483	JMPM	TBAT	B	04 00483
003543	004656	A			BINARY ADDRESS		
003544	010514	A	484	LDA	TCYC	B	04 00484
003545	001010	A	485	JAZ	*14	B	04 00485
003546	003551	A			FIRST PASS		
003547	001000	A	486	JMP	*17	B	04 00486
003550	003556	A			NO		
003551	010522	A	487	LDA	SWCH	B	04 00487
003552	001010	A	488	JAZ	*14	B	04 00488
003553	003556	A			ABORT IF ANY ERRORS		
003554	001010	A	489	JMP	TERM	B	04 00489
003555	003625	A					
003556	005001	A	490	TZA		B	04 00490
003557	050516	A	491	STA	TBA	B	04 00491
003560	002000	A	492	CALL	TACT		04 00492
003561	004150	A			ALL ZEROS		
003562	002000	A	493	CALL	TADT		04 00493
003563	004174	A			ALL ONES		
003564	002000	A	494	CALL	TERT		04 00494
003565	004220	A			CHECKERBOARD		
003566	002010	A	495	CALL	TACT	B	04 00495
003567	004376	A			BIT COMPLIMENT		
003570	001000	A	496	JMP	MIN2		04 00496
003571	003500	A			CONTINUE TO NEXT CASE		
003572	010000	A	497	MIN3	CALL	DEM	04 00497
003573	003610	A			DISPLAY "END MEMO"		
003574	010010	A	498	LDA	CYCL		04 00498
003575	011010	A	499	JAZ	MIN1		04 00499
003576	003510	A			CONTINUES ?		
003577	005001	A	500	DAR			04 00500
003580	050505	A	501	STA	CYCL		04 00501
003601	001010	A	502	JAZ	TERM		04 00502
003602	003625	A			YES,GOTO TERM		
003603	001000	A	503	JMP	MIN1		04 00503
003604	003516	A			NO,CONTINUE TO MIN1		
003605	000000	A	504	DEM	ENTR		04 00504
003606	040504	A	505	INR	TCYC		04 00505
003607	002000	A	506	JMPM	DTAC	C	04 00506
003610	005603	A					
003611	010440	A	507	LDA	SCON		04 00507
003612	001010	A	508	JAZ	(DEM)*		04 00508
003613	103605	A					
003614	010506	A	509	LDA	ENEM		04 00509
003615	001010	A	510	JAZ	(DEM)*		04 00510
003616	103615	A					
003617	006030	A	511	LDA	HOG8		04 00511
003620	005741	A			"END MEMO"		
003621	002000	A	512	CALL	(CONTD)*		04 00512
003622	103400	A					

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003623	001000	A	513	JMP (DEM)* RETURN 04 00513
003624	103605	A		
003625	100545	A	514	*****04 00514
003626	010442	A	515	* TERMINATE TESTS *04 00515
003627	001010	A	516	*****04 00516
003630	003667	A	517	TERM EXC 0500+PRTY DISABLE PARITY INTERRUPTS 04 00517
003631	006030	A	518	LDA SCON TERMINATE TEST, REPORT TOTALS 04 00518
003632	005747	A	519	JAZ TERN MODE = CONSOLE ? YES, GO TO TERN 04 00519
003633	002000	A	520	LDXI HDG9 'ERROR TOTAL =', TERR 04 00520
003634	100403	A	521	CALL (OUTD)* 04 00521
003635	010521	A	522	LDA TERR 04 00522
003636	002000	A	523	CALL (OUTE)* 04 00523
003637	100404	A	524	LDXI HG11 'NO. CYCLES RUN =' 04 00524
003640	006030	A	525	CALL (OUTD)* 04 00525
003641	006006	A	526	LDA TCYC TOTAL CYCLES EXECUTED 04 00526
003642	002000	A	527	CALL (OUTE)* 04 00527
003643	100403	A	528	LDA PFK ANY POWER FAILURES? B 04 00528
003644	010504	A	529	JAZ TERN -NO- B 04 00529
003645	002000	A	530	LDXI PFKM 'POWER FAILURES' B 04 00530
003646	100404	A	531	CALL (OUTD)* B 04 00531
003647	010511	A	532	LDXI PFK COUNT B 04 00532
003650	001010	A	533	LDA PFK CLEAR COUNT B 04 00533
003651	003663	A	534	STX PFK B 04 00534
003652	006030	A	535	CALL (OUTE)* B 04 00535
003653	006114	A	536	TERD EQU * B 04 00536
003654	002000	A	537	CALL (OUTC)* 04 00537
003655	100402	A	538	JMP MTOP CONTINUE 04 00538
003656	001000	A	539	TERN LDA TERR A = TOTAL ERRORS 04 00539
003657	010521	A	540	LDB TCYC B = NO. CYCLES 04 00540
003660	070511	A	541	LDX TEST X = CURRENT (OR LAST) TEST 04 00541
003661	002000	A	542	HLT 0777 DISPLAY TOTALS 04 00542
003662	100404	A	543	JMP MTOP CONTINUE 04 00543
003663	003663	A	544	*****04 00544
003664	002000	A	545	* ERROR REPORTING ROUTINE *04 00545
003665	100402	A	546	*****04 00546
003666	001000	A	547	MERR ENTR 0 04 00547
003667	010521	A	548	SDF 04 00548
003670	020504	A	549	INR TERR INCR ERR CTR 04 00549
003671	030507	A	550	STB SAVB SAVE B (#TEST CYCLES) 04 00550
003672	000777	A	551	STX SAVX ERROR ADDRESS 04 00551
003673	001000	A	552	JMPM UTAC C 04 00552
003674	003010	A	553	LDA TEST 04 00553
003675	000000	A	554	ANAI 0777 SAVE HALT B 04 00554
003676	007401	A	555	STA ERR1+2 GET TEST NO. 04 00555
003677	040521	A	556	LDA MTW1 EXPECTED 04 00556
003678	060523	A	557	LDB MTW2 ACTUAL 04 00557
003679	070524	A	558	ERR1 CALL (SSWT)* CALL SENSE SWITCH ROUTINE 04 00558
003700	002000	A	559	DATA 0 TEST# 04 00559
003701	005603	A	560	DATA (ERPD)* ERR PRINTOUT 04 00560
003702	010507	A	561	DATA TERM SSS EXIT 04 00561
003703	005603	A	562	DATA ELOP LOOP ON ERROR 04 00562
003704	010507	A	563	LDB SAVB RESTORE B 04 00563
003705	006150	A	564	LDB SAVX 04 00564
003706	000777	A	565	JMP* MERR PROCEED WITH TEST 04 00565
003707	053714	A	566	* ERROR PRINTOUT SUBROUTINE 04 00566
003710	010502	A	567	ERPD ENTR 0 04 00567
003711	020503	A	568	CALL (OUTC)* 04 00568
003712	002000	A	569	LDA SWCH 04 00569
003713	100421	A	570	JAZ *+4 04 00570
003714	000000	A	571	JMP ERP1 04 00571
003715	103724	A	572	INR SWCH SET TO BYPASS HEADING 04 00572
003716	003625	A	573	LDXI HG10 04 00573
003717	004010	A	574	CALL (OUTD)* 04 00574
003720	020523	A	575	ERP1 LDA TEST TEST NO. 04 00575
003721	030524	A	576	CALL (OUTE)* 04 00576
003722	001000	A	577	LDA SAVX ADDR 04 00577
003723	103675	A	578	CALL (OUTE)* 04 00578
003724	000000	A	579	LDAI 0120240 04 00579
003725	002000	A	580	CALL (OUTB)* 04 00580
003726	100402	A		
003727	010522	A		
003728	001010	A		
003729	003734	A		
003730	001000	A		
003731	003741	A		
003732	040522	A		
003733	006030	A		
003734	005760	A		
003735	002000	A		
003736	100403	A		
003737	010507	A		
003738	002000	A		
003739	100404	A		
003740	010524	A		
003741	002000	A		
003742	100404	A		
003743	006010	A		
003744	120240	A		
003745	002000	A		

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003752	100401	A									
003753	010502	A	581	LDA	MTW1	EXP			04	00581	
003754	002000	A	582	CALL	(DUTE)*				04	00582	
003755	100404	A									
003756	006010	A	583	LDAI	0120240				04	00583	
003757	120240	A									
003760	002000	A	584	CALL	(DUTB)*				04	00584	
003761	100401	A									
003762	002000	A	585	CALL	(DUTA)*				04	00585	
003763	100400	A									
003764	010503	A	586	LDA	MTW2	ACTUAL			04	00586	
003765	002000	A	587	CALL	(DUTE)*				04	00587	
003766	100404	A									
003767	006010	A	588	LDAI	.			F	04	00588	
003770	120240	A									
003771	002000	A	589	CALL	(DUTA)*			F	04	00589	
003772	100400	A									
003773	010504	A	590	LDA	TCYC	GET TOTAL CYCLES PERFORMED		F	04	00590	
003774	003111	A	591	IAR		MAKE IT THE CURRENT CYCLE		F	04	00591	
003775	002000	A	592	CALL	(DUTE)*			F	04	00592	
003776	100404	A									
003777	010510	A	593	LDA	TEAA	TEST TEST WORD		B	04	00593	
004000	001010	A	594	JAZ	*+4			B	04	00594	
004001	004004	A									
004002	002000	A	595	CALL	(DUTE)*			B	04	00595	
004003	100404	A									
004004	001000	A	596	JMP*	ESPD	RETURN			04	00596	
004005	103724	A									
			597	*****						04	00597
			598	* LOOP ON ERROR						04	00598
			599	*****						04	00599
004006	001200	A	600	JSS2	ERR1-2	SS2 EXIT FROM LOOPING			04	00600	
004007	003710	A									
004010	001400	A	601	ELDP	JSS3	TERM	SS3 EXIT		04	00601	
004011	003620	A									
004012	010502	A	602	LDA	MTW1				04	00602	
004013	055000	A	603	STA	0:1			B	04	00603	
004014	005000	A	604	NOP					04	00604	
004015	135000	A	605	ERA	0:1	READ ERROR WORD			04	00605	
004016	001010	A	606	JAZ	ELDP-2	ERROR AGAIN? NO, TRY AGAIN			04	00606	
004017	004006	A									
004020	130502	A	607	ERA	MTW1	RESTORE			04	00607	
004021	050503	A	608	STA	MTW2				04	00608	
004022	001000	A	609	JMP	ERR1-2	REPORT			04	00609	
004023	003710	A									
			610	*****						04	00610
			611	* SUBTEST ROUTINES						04	00611
			612	*****						04	00612
			613	* UNIQUE ADDRS						04	00613
			614	*						04	00614
			615	*						04	00615
004024	000000	A	616	TUAT	ENTR	0			04	00616	
004025	005101	A	617		INCR	1	TEST = 1	B	04	00617	
004026	050507	A	618		STA	TEST			04	00618	
004027	005001	A	619		TZA		INIT TBL		04	00619	
004030	050551	A	620		STA	TBL			04	00620	
004031	002000	A	621	TUAA	CALL	UACA,TBL,TUAB	GET FRST		04	00621	
004032	003500	A									
004033	000551	A									
004034	004051	A									
004035	050514	A	622	STA	FRST				04	00622	
004036	002000	A	623	CALL	UACA,TBL,TUAB	GET LAST			04	00623	
004037	003500	A									
004040	000551	A									
004041	004051	A									
004042	050510	A	624	STA	LAST				04	00624	
004043	001400	A	625	JSS3	TERM	SS3 TERMINATE TESTS			04	00625	
004044	003500	A									
004045	002000	A	626	CALL	IUA	INIT MEMORY			04	00626	
004046	004075	A									
004047	001000	A	627	JMP	TUAA	CONTINUE			04	00627	
004050	004001	A									
004051	005001	A	628	TUAB	TZA		INIT TBL		04	00628	
004052	050551	A	629		STA	TBL			04	00629	
004053	065101	A	630		INCR	1	RCP = 1	B	04	00630	
004054	050513	A	631		STA	RCP			04	00631	
004055	002000	A	632	TUAC	CALL	UACA,TBL,(TUAT)*	GET FRST		04	00632	
004056	000551	A									
004057	000551	A									
004060	104024	A									
004061	050514	A	633	STA	FRST				04	00633	
004062	002000	A	634	CALL	UACA,TBL,(TUAT)*	GET LAST			04	00634	
004063	003500	A									
004064	000551	A									
004065	104024	A									
004066	050515	A	635	STA	LAST				04	00635	
004067	001400	A	636	JSS3	TERM	SS3 TERMINATE TESTS			04	00636	
004070	003620	A									
004071	002000	A	637	CALL	TUAA	TEST UNIQUE ADDRS			04	00637	
004072	004107	A									
004073	001000	A	638	JMP	TUAC	CONTINUE			04	00638	
004074	004055	A									
			639	* INIT UNIQUE ADDRS						04	00639
004075	000000	A	640	IUA	ENTR	0			04	00640	
004076	030514	A	641		LDB	FRST			04	00641	

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004077	005041	A	642	IUA1	TXA	(X)X = X	04 00642
004100	055000	A	643		STA 0,1		04 00643
004101	005144	A	644		IXR	X = X+1	04 00644
004102	140515	A	645		SUB LAST	DONE ?	04 00645
004103	001004	A	646		JAN IUA1	NO,CONTINUE	04 00646
004104	004077	A					
004105	001000	A	647		JMP (IUA)*	RETURN	04 00647
004106	104075	A					
			648	*	TEST UNIQUE ADDRS		04 00648
004107	000000	A	649	TUA	ENTR 0		04 00649
004110	020513	A	650		LDB REP	B * REP	04 00650
004111	030514	A	651		LDBX FRST	X = FRST	04 00651
004112	010526	A	652	TUA1	LDA EFLG		F 04 00652
004113	001010	A	653		JAZ TUA2		F 04 00653
004114	004123	A					
004115	005041	A	654		TXA		F 04 00654
004116	074001	A	655		STX #+2		F 04 00655
004117	006137	A	656		ERAE 000		F 04 00656
004120	000000	A					
004121	001000	A	657		JMP TUA3		F 04 00657
004122	004125	A					
004123	005041	A	658	TUA2	TXA		F 04 00658
004124	135000	A	659		ERA 0,1		F 04 00659
004125	001010	A	660	TUA3	JAZ #+7		F 04 00660
004126	004134	A					
004127	070502	A	661		STX MTW1	NO,CALL MERR	04 00661
004130	130502	A	662		ERA MTW1		04 00662
004131	050503	A	663		STA MTW2		04 00663
004132	002000	A	664		CALL MERR		04 00664
004133	003675	A					
004134	005041	A	665		TXA	A = X	04 00665
004135	005144	A	666		IXR	X = X+1	04 00666
004136	140515	A	667		SUB LAST	DONE ?	04 00667
004137	001004	A	668		JAN TUA1	NO,CONTINUE	04 00668
004140	004112	A					
004141	001020	A	669		JBZ TUA+1	CONTINUES ? YES	04 00669
004142	004110	A					
004143	005322	A	670		DBR	DONE ?	04 00670
004144	001000	A	671		JBZ (TUA)*	YES,RETURN	04 00671
004145	104107	A					
004146	001000	A	672		JMP TUA+1	NO,CONTINUE	04 00672
004147	004110	A					
			673	*****			04 00673
			674	*****			04 00674
			675	*****			04 00675
			676	*****			04 00676
004150	000000	A	677	TAZT	ENTR 0	ENTRY/EXIT	04 00677
004151	002000	A	678		CALL IAZ	INIT	04 00678
004152	004161	A					
004153	014227	A	679		LDA 03	REP = 3	B 04 00679
004154	050513	A	680		STA REP		04 00680
004155	002000	A	681		CALL TES	TEST PATTERN	04 00681
004156	005042	A					
004157	001000	A	682		JMP (TAZT)*	RETURN	04 00682
004160	104150	A					
			683	*	INIT ALL ZERUS		04 00683
004161	000000	A	684	IAZ	ENTR 0		04 00684
004162	006010	A	685		LDAI 2	TEST = 2	04 00685
004163	000002	A					
004164	050507	A	686		STA TEST		04 00686
004165	005001	A	687		TZA	BITS = 0	04 00687
004166	050516	A	688		STA BITS		04 00688
004167	050517	A	689		STA PAT1	PATTERN1 = 0	04 00689
004170	002000	A	690		CALL SET	SET PATTERN INTO MEMORY	04 00690
004171	005000	A					
004172	001000	A	691		JMP (IAZ)*		04 00691
004173	104161	A					
			692	*****			04 00692
			693	*****			04 00693
			694	*****			04 00694
			695	*****			04 00695
004174	000000	A	696	TAQT	ENTR 0	ENTRY/EXIT	04 00696
004175	002000	A	697		CALL IAZ	INIT	04 00697
004176	004203	A					
004177	014203	A	698		LDA 03	REP = 3	B 04 00698
004200	050513	A	699		STA REP		04 00699
004201	002000	A	700		CALL TES	TEST PATTERN	04 00700
004202	005042	A					
004203	001000	A	701		JMP (TAQT)*	RETURN	04 00701
004204	104174	A					
			702	*	INIT ALL ONES		04 00702
004205	000000	A	703	IAO	ENTR 0		04 00703
004206	014174	A	704		LDA 03	TEST = 3	B 04 00704
004207	050507	A	705		STA TEST		04 00705
004210	005001	A	706		TZA	BITS = 0	04 00706
004211	050516	A	707		STA BITS		04 00707
004212	005211	A	708		CPA	PATTERN1 = 1'S	04 00708
004213	050517	A	709		STA PAT1	PATTERN1 = 1'S	04 00709
004214	002000	A	710		CALL SET	SET PATTERN INTO MEMORY	04 00710
004215	005000	A					
004216	001000	A	711		JMP (IAO)*		04 00711
004217	104203	A					
			712	*****			04 00712
			713	*****			04 00713
			714	*****			04 00714
				CHECKER BOARD			

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Address	Hex	Label	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op417	
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MEMPT2

004351	000004	A	787	04	DATA	4			C	04	00787
004352	000000	A	788	*	INIT	WORST CASE				04	00788
004353	050516	A	789	IWC	ENTR	0				04	00789
004354	005001	A	790		STA	BITS				04	00790
004355	050517	A	791		TZA		PAT1 = 0			04	00791
004356	005211	A	792		STA	PAT1				04	00792
004357	050520	A	793		CPA		PAT2 = 1			04	00793
004360	002000	A	794		STA	PAT2				04	00794
004361	005025	A	795		CALL	SET	SET PATTERN INTO MEMORY			04	00795
004362	040507	A	796		JMP	TEST	TEST = TEST + 1			04	00796
004363	001000	A	797		JMP	(IWC)*				04	00797
004364	104352	A									
004365	000000	A	798	*	INIT	WORST CASE COMPLIMENT				04	00798
004366	005001	A	799	IWCC	ENTR	0				04	00799
004367	050520	A	800	*						04	00800
004370	005211	A	801		TZA		COMPLIMENT PAT1 AND PAT2			04	00801
004371	050517	A	802		STA	PAT2				04	00802
004372	002000	A	803		CPA					04	00803
004373	005025	A	804		STA	PAT1				04	00804
004374	001000	A	805		CALL	SET	SET PATTERN INTO MEMORY			04	00805
004375	104365	A	806		JMP	(IWCC)*				04	00806
004376	000000	A	807	*						04	00807
004377	006010	A	808	*						04	00808
004400	000037	A	809	*	BIT COMPLIMENT				B	04	00809
004401	050507	A	810	*					B	04	00810
004402	006010	A	811	TBCT	ENTR	0	SELECT WORST CASE PATTERN TABLE		B	04	00811
004403	000003	A	812		LDAI	037	TEST = 037+N		B	04	00812
004404	050513	A	813		STA	TEST			B	04	00813
004405	006020	A	814		LDAI	03	REP=3		B	04	00814
004406	000527	A	815	03	EQU	*-1			B	04	00815
004407	005001	A	816		STA	REP			B	04	00816
004410	056009	A	817		LDBI	TBL1	TABLE OF WORSE CASE PATTERNS		B	04	00817
004411	064002	A	818	TBCA	TZA		INIT TBL		B	04	00818
004412	002000	A	819		STA	0,2			B	04	00819
004413	003500	A	820		STB	TBCB+2			B	04	00820
004414	000000	A	821	TBCB	CALL	UACA,0,(TBCT)*	GET WORST CASE PATTERN FROM TABLE		B	04	00821
004415	104376	A									
004416	002000	A	822		CALL	IWC	SET WORST CASE PATTERN INTO MEMORY		B	04	00822
004417	004302	A	823		CALL	TBC	TEST BIT COMPLIMENT		B	04	00823
004420	002000	A	824		CALL	IWCC	COMPLIMENT PATTERN		B	04	00824
004421	004430	A	825		CALL	TBC			B	04	00825
004422	002000	A	826		JMP	TBCB			B	04	00826
004423	004365	A									
004424	002000	A									
004425	004430	A									
004426	001000	A									
004427	004412	A									
004430	000000	A	827	*					B	04	00827
004431	005103	A	828	TBC	ENTR	0			B	04	00828
004432	004541	A	829		INCR	03	B = REP		B	04	00829
004433	064221	A	830		LLSR	1	BITX = SIGN BIT ON		B	04	00830
004434	020513	A	831		STB	BITX			B	04	00831
004435	030514	A	832		LDB	REP			B	04	00832
004436	014216	A	833		LDB	FRST	X = FRST		B	04	00833
004437	054214	A	834	TBC1	LDA	BITX	INIT BITC		B	04	00834
004440	005041	A	835		STA	BITC			B	04	00835
004441	002030	A	836		TXA		(>X = 1'S		B	04	00836
004442	004767	A	837		CALL	NAP			B	04	00837
004443	001004	A	838		JAN	TBC5	YES,GOTO		B	04	00838
004444	004000	A									
004445	005001	A	839	TBC2	TZA		ZERO		B	04	00839
004446	050502	A	840		STA	MTW1	EXPECTED		B	04	00840
004447	015000	A	841		LDA	0,1			B	04	00841
004450	050503	A	842		STA	MTW2	ACTUAL		B	04	00842
004451	001010	A	843		JAZ	*+4			B	04	00843
004452	004455	A									
004453	001000	A	844		JMP	TBC0	-ERROR-		B	04	00844
004454	004641	A									
004455	014176	A	845		LDA	BITC	(>X = (>X XOR BITC		B	04	00845
004456	135000	A	846		ERA	0,1			B	04	00846
004457	055000	A	847		STA	0,1			B	04	00847
004460	050502	A	848		STA	MTW1	SAVE S/B		C	04	00848
004461	015000	A	849		LDA	0,1			C	04	00849
004462	050503	A	850		STA	MTW2	SAVE WAS		C	04	00850
004463	130502	A	851		ERA	MTW1			C	04	00851
004464	001010	A	852		JAZ	*+4	JUMP IF SAME		C	04	00852
004465	004470	A									
004466	001000	A	853		JMP	TBCG			C	04	00853
004467	004500	A									
004470	014163	A	854		LDA	BITC	(>X = (>X XOR BITC		B	04	00854
004471	135000	A	855		ERA	0,1			B	04	00855
004472	055000	A	856		STA	0,1			B	04	00856
004473	001010	A	857		JAZ	TBC3	ERROR ? NO,SKIP REPORT		B	04	00857
004474	004504	A									
004475	050503	A	858		STA	MTW2	YES		B	04	00858
004476	005001	A	859		TZA		SET MTW1 = EXP,MTW2 = ACT		B	04	00859

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004477	050502	A	860	STA	MTW1	CALL MERR
004500	002000	A	861	TBC6	CALL	MODIFY TEST # TO INCLUDE BIT
004501	004617	A				
004502	002000	A	862		CALL	MERR
004503	003675	A				
004504	014147	A	863	TBC3	LDA	BITC = LOGICAL SHIFT RIGHT 1(BITC)
004505	004341	A	864	LSRA	1	
004506	054145	A	865	STA	BITC	DONE ?
004507	001010	A	866	JAZ	TBC7	YES
004510	004513	A				
004511	001000	A	867	JMP	TBC2	NO, CONTINUE WITH SAME WORD
004512	004445	A				
004513	005041	A	868	TBC7	TXA	A = X
004514	006150	A	869	ANAI	060000	ABOVE FIRST 8K?
004515	060000	A				
004516	001010	A	870	JAZ	TBC8	-NO-
004517	004532	A				
004520	005041	A	871		TXA	
004521	134002	A	872	ERA	04K	SWAP BIT 11
004522	005115	A	873	INCR	015	A+1 TO A 2X
004523	006130	A	874	ERAI	04000	SWAP BIT 11
004524	004000	A				
004525	140515	A	875	04K	EQU	*-1
004526	001004	A	876	SUB	LAST	END?
004527	004436	A	877	JAN	TBC1	-NO-
004530	001000	A	878	JMP	TBC4	-YES-
004531	004537	A				
004532	005041	A	879	TBC8	TXA	A = X
004533	005144	A	880	IXR		X = X+1
004534	140515	A	881	SUB	LAST	DONE ?
004535	001004	A	882	JAN	TBC1	NO, GET NEXT WORD
004536	004436	A				
004537	001020	A	883	TBC4	JBZ	TBC1-1
004540	004435	A				
004541	005322	A	884	DSR		
004542	001020	A	885	JBZ	(TBC)*	YES, RETURN
004543	104436	A				
004544	001000	A	886	JMP	TBC1-1	CONTINUE
004545	004435	A				
004546	005301	A	887	TBC5	DECR	1
004547	050502	A	888	STA	MTW1	DONES
004550	015000	A	889	LDA	0+1	EXPECTED
004551	050503	A	890	STA	MTW2	ACTUAL
004552	005211	A	891	CPA		
004553	001010	A	892	JAZ	*+4	
004554	004557	A				
004555	001000	A	893	JMP	TBC0	-ERROR-
004556	004641	A				
004557	014074	A	894	LDA	BITC	(X) = (X) XOR BITC
004560	135000	A	895	ERA	0+1	
004561	055000	A	896	STA	0+1	
004562	050502	A	897	STA	MTW1	SAVE S/B
004563	013030	A	898	LDA	0+1	
004564	050503	A	899	STA	MTW2	SAVE WAS
004565	130502	A	900	ERA	MTW1	
004566	001010	A	901	JAZ	*+4	JUMP IF SAME
004567	004572	A				
004570	001000	A	902	JMP	TBCF	
004571	004604	A				
004572	014061	A	903	LDA	BITC	(X) = (X) XOR BITC
004573	135000	A	904	ERA	0+1	
004574	055000	A	905	STA	0+1	
004575	005211	A	906	CPA		ERROR ?
004576	001010	A	907	JAZ	TBC6	NO, SKIP REPORT
004577	004610	A				
004600	005211	A	908	CPA		
004601	050503	A	909	STA	MTW2	MTW1 = EXP, MTW2 = ACT
004602	005301	A	910	DECR	01	
004603	050502	A	911	STA	MTW1	
004604	002000	A	912	TBCF	CALL	MODIFY TEST # TO INCLUDE BIT
004605	001017	A				
004606	002000	A	913	CALL	MERR	CALL MERR
004607	003675	A				
004610	014043	A	914	TBC6	LDA	BITC = LOGICAL SHIFT RIGHT 1(BITC)
004611	004341	A	915	LSRA	1	
004612	054041	A	916	STA	BITC	DONE ?
004613	001010	A	917	JAZ	TBC7	YES
004614	004513	A				
004615	001000	A	918	JMP	TBC5	NO, CONTINUE WITH SAME WORD
004616	004546	A				
004617	000000	A	919	*		MODIFY TEST TO INDICATE BIT POSITION
004620	054032	A	920	TBC8	ENTR	0
004621	014032	A	921	SIB	TBC0	
004622	005302	A	922	LDA	BITC	INIT
004623	001010	A	923	DECR	02	
004624	004631	A	924	TBC9	JAZ	TBCD
004625	004341	A	925		LSRA	1
004626	005122	A	926	IXR		SHIFT BITC
004627	001000	A	927	JMP	TBC9	INCR COUNT
004630	004623	A				CONTINUE
004631	010507	A	928	TBCD	LDA	MERGE BIT COUNT
004632	154010	A	929	ANA	0+7	WITH TEST NUMBER
004633	004046	A	930	LRLB	0	

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MEMPT2

004634	005001	A	931	MERG	031		B	04	00931
004635	050507	A	932	STA	TEST		B	04	00932
004636	024014	A	933	LDB	TBCE		B	04	00933
004637	001000	A	934	JMP	(TBCE)*	RETURN	B	04	00934
004640	104617	A							
004641	010507	A	935	TBCC	LDA	TEST	B	04	00935
004642	006150	A	936	ANAI	077	MERGE BIT 18	B	04	00936
004643	000077	A							
	004643	A	937	077	EQU	*-1	B	04	00937
004644	006110	A	938	ORAI	04000	WITH	B	04	00938
004645	004000	A							
004646	050507	A	939	STA	TEST	TEST NO.	B	04	00939
004647	002000	A	940	CALL	MERR		B	04	00940
004650	003675	A							
004651	001000	A	941	JMP	TBC7	GOTO NEXT WORD	B	04	00941
004652	004513	A							
004653			942	TBCE	BSS	SAVE B	B	04	00942
004654			943	BITC	BSS	BIT COMPLIMENTED	B	04	00943
004655			944	BITX	BSS	(-MAX)	B	04	00944
			945	*			B	04	00945
			946	*****			B	04	00946
			947	*			B	04	00947
			948	*	BINARY ADDRESS		B	04	00948
			949	*			B	04	00949
004656	000000	A	950	TBAT	ENTR	BINARY ADDRESS TEST	B	04	00950
			951	*			B	04	00951
			952	*			B	04	00952
004657	010514	A	953	LDA	FRST		B	04	00953
004660	006150	A	954	ANAI	070000		B	04	00954
004661	070000	A							
004662	001010	A	955	JAZ*	TBAT	JUMP IF IN 1ST 4K	B	04	00955
004663	104656	A							
004664	005111	A	956	IAR			B	04	00956
004665	050510	A	957	STA	TBAA	TEST ADDRESS	B	04	00957
004666	010515	A	958	LDA	LAST		E	04	00958
004667	006150	A	959	ANAI	07000		E	04	00959
004670	007000	A							
004671	054070	A	960	STA	TBA8		E	04	00960
004672	002000	A	961	TBA1	CALL	INITIALIZE TO ALL ZEROS	B	04	00961
004673	004161	A							
004674	006010	A	962	LDAI	050	TEST = 50	B	04	00962
004675	000050	A							
004676	050507	A	963	STA	TEST		B	04	00963
004677	030510	A	964	LDX	TBAA		B	04	00964
004700	005301	A	965	DECR	1	SET TEST WORD TO ONES	B	04	00965
004701	055000	A	966	STA	0,1		B	04	00966
004702	030514	A	967	LDX	FRST		B	04	00967
004703	005041	A	968	TBA2	TXA		B	04	00968
004704	140310	A	969	SUB	TBAA		B	04	00969
004705	001010	A	970	JAZ	TBA4	JUMP IF CHECK FOR ALL ONES	B	04	00970
004706	004723	A							
004707	015000	A	971	LDA	0,1	CHECK FOR ALL ZEROS	B	04	00971
004710	001010	A	972	JAZ	TBA3		B	04	00972
004711	004714	A							
004712	001000	A	973	JMP	TBA2	ERROR NOT ALL ZEROS	B	04	00973
004713	004754	A							
004714	005041	A	974	TBA3	TXA		B	04	00974
004715	005144	A	975	IXR		STEP ADDRESS	B	04	00975
004716	140515	A	976	SUB	LAST		B	04	00976
004717	001010	A	977	JAZ	TBA5		B	04	00977
004720	004731	A							
004721	001000	A	978	JMP	TBA2		B	04	00978
004722	004703	A							
004723	015000	A	979	TBA4	LDA	0,1	B	04	00979
004724	005211	A	980	CPA			B	04	00980
004725	001010	A	981	JAZ	TBA3		B	04	00981
004726	004714	A							
004727	001000	A	982	JMP	TBA0	ERROR NOT ALL ONES	B	04	00982
004730	004744	A							
004731	010510	A	983	TBA5	LDA	TBAA	B	04	00983
004732	000130	A	984	ANAI	01777		B	04	00984
004733	001777	A							
004734	120510	A	985	ADD	TBAA		B	04	00985
004735	050510	A	986	STA	TBAA		B	04	00986
004736	006150	A	987	ANAI	01777		B	04	00987
004737	001777	A							
004740	001010	A	988	JAZ	TBA7		B	04	00988
004741	004757	A							
004742	001000	A	989	JMP	TBA1		B	04	00989
004743	004672	A							
			990	*			B	04	00990
004744	005301	A	991	TBA0	DECR	1	B	04	00991
004745	050507	A	992	TBA6	STA	MTW1	B	04	00992
004746	015000	A	993	LDA	0,1		B	04	00993
004747	050503	A	994	STA	MTW2	ACTUAL ANNOUNCE ERROR	B	04	00994
004750	002000	A	995	CALL	MERR		B	04	00995
004751	003675	A							
004752	001000	A	996	JMP	TBA3		B	04	00996
004753	004714	A							
004754	005001	A	997	TBA2	TZA	ZEROS	B	04	00997
004755	001000	A	998	JMP	TBA6		B	04	00998
004756	004745	A							
004757	040510	A	999	TBA7	INR	TBAA	B	04	00999
004760	010510	A	1000	LDA	TBAA		B	04	01000
004761	006150	A	1001	ANAI	07000		B	04	01001

Address	Hex	Label	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op417	
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005100	000000	A	1075	*				F	04	01075
			1076	INTI	ENTR			F	04	01076
			1077	*				F	04	01077
005101	006030	A	1078		LXI	INTM	'V70 INTERRUPT LOC.'	F	04	01078
005102	006127	A								
005103	002000	A	1079		CALL*	OUTD		F	04	01079
005104	100403	A								
005105	002000	A	1080		CALL*	INPG		F	04	01080
005106	100416	A								
005107	001000	A	1081		JMP	STRT	SS3	F	04	01081
005110	003000	A								
005111	001000	A	1082		JMP	INTI+1	\	F	04	01082
005112	005101	A								
005113	001000	A	1083		JMP	*+2	,	F	04	01083
005114	005115	A								
005115	002000	A	1084		CALL*	OUTC		F	04	01084
005116	100402	A								
005117	006020	A	1085		LDBI	TBL0		F	04	01085
005120	000537	A								
005121	001010	A	1086		JAZ	V70N	. IF ZERO, ASSUME 620	F	04	01086
005122	005315	A								
005123	050525	A	1087		STA	V70I		F	04	01087
005124	005002	A	1088		TZB			F	04	01088
005125	004541	A	1089		LLSR	1		F	04	01089
005126	001020	A	1090		JBZ	*+6	JUMP IF EVEN	F	04	01090
005127	005134	A								
005130	002000	A	1091	INTV	CALL*	OUTG	'INVALID'	F	04	01091
005131	100406	A								
005132	001000	A	1092		JMP	INTI+1		F	04	01092
005133	005101	A								
005134	006020	A	1093		LDBI	TBL0		F	04	01093
005135	000537	A								
005136	010525	A	1094		LDA	V70I		F	04	01094
005137	144170	A	1095		SUB	02		F	04	01095
005140	001010	A	1096		JAZ	I1	.EQ. 2	F	04	01096
005141	005275	A								
005142	001004	A	1097		JAN	INTV	.LT. 2	F	04	01097
005143	005130	A								
005144	144160	A	1098		SUB	034		F	04	01098
005145	001010	A	1099		JAZ	I2	.EQ. 36	F	04	01099
005146	005207	A								
005147	001004	A	1100		JAN	I3	.LT. 36 + .GT. 4	F	04	01100
005150	005237	A								
005151	144157	A	1101		SUB	08		F	04	01101
005152	001010	A	1102		JAZ	I4	.EQ. 44	F	04	01102
005153	005225	A								
005154	001004	A	1103		JAN	INTV	.LT. 44 + .GT. 36	F	04	01103
005155	005130	A								
005156	144162	A	1104		SUB	0332		F	04	01104
005157	001010	A	1105		JAZ	I5	.EQ. 376	F	04	01105
005160	005212	A								
005161	001002	A	1106		JAP	INTV	.GT. 376	F	04	01106
005162	005130	A								
005163	014157	A	1107	I6	LDA	0377	.LT. 376 + .GT. 44	F	04	01107
005164	056007	A	1108		STA	7,2		F	04	01108
005165	010525	A	1109		LDA	V70I		F	04	01109
005166	124141	A	1110		ADD	02		F	04	01110
005167	056006	A	1111		STA	6,2		F	04	01111
005170	144060	A	1112		SUB	03A		F	04	01112
005171	056005	A	1113		STO	5,2		F	04	01113
005172	014142	A	1114		LDA	044		F	04	01114
005173	056004	A	1115		STA	4,2		F	04	01115
005174	014137	A	1116	I8	LDA	037		F	04	01116
005175	056003	A	1117		STA	3,2		F	04	01117
005176	014131	A	1118		LDA	02		F	04	01118
005177	056002	A	1119		STA	2,2		F	04	01119
005200	020525	A	1120	I8	LDA	V70I		F	04	01120
005201	001020	A	1121		JBZ*	INTI		F	04	01121
005202	105100	A								
005203	013024	A	1122		LDA	02K		F	04	01122
005204	056000	A	1123		STA	0,2		F	04	01123
005205	006010	A	1124		LDAI	PER		F	04	01124
005206	005075	A								
005207	056001	A	1125		STA	1,2		F	04	01125
005210	001000	A	1126		JMP*	INTI		F	04	01126
005211	105100	A								
005212	014127	A	1127	I5	LDA	0375	.EQ. 376	F	04	01127
005213	056007	A	1128		STA	7,2		F	04	01128
005214	014122	A	1129		LDA	0100		F	04	01129
005215	056006	A	1130		STA	6,2		F	04	01130
005216	006010	A	1131	IC	LDAI	077		F	04	01131
005217	000077	A								
005220	056005	A	1132		STA	5,2		F	04	01132
005221	014113	A	1133		LDA	044		F	04	01133
005222	056004	A	1134		STA	4,2		F	04	01134
005223	001000	A	1135		JNP	I8		F	04	01135
005224	005174	A								
005225	014115	A	1136	I4	LDA	0377	.EQ. 44	F	04	01136
005226	056007	A	1137		STA	7,2		F	04	01137
005227	014107	A	1138		LDA	0100		F	04	01138
005230	056006	A	1139		STA	6,2		F	04	01139
005231	014050	A	1140		LDA	077A		F	04	01140
005232	056005	A	1141		STA	5,2		F	04	01141
005233	014102	A	1142		LDA	046		F	04	01142
005234	056004	A	1143		STA	4,2		F	04	01143

MAINTAIN III

MEMPT2

PAGE 17

005235	001000	A	1144	JMP	1B		F	04	01144
005236	005174	A							
005237	014103	A	1145	I3	LDA	0377		F	04 01145
005240	056007	A	1146		STA	7,2		F	04 01146
005241	014073	A	1147		LDA	044		F	04 01147
005242	056001	A	1148		STA	6,2		F	04 01148
005243	014070	A	1149		LDA	037		F	04 01149
005244	056005	A	1150		STA	5,2		F	04 01150
005245	010585	A	1151		LDA	V701		F	04 01151
005246	005111	A	1152		IAR			F	04 01152
005247	056004	A	1153		STA	4,2		F	04 01153
005250	006140	A	1154		SUBI	3		F	04 01154
005251	000003	A							
005252	005251	A	1155	03A	EQU	*-1		F	04 01155
005253	056003	A	1156		STA	3,2		F	04 01156
005254	014054	A	1157		LDA	02		F	04 01157
005255	056002	A	1158		STA	2,2		F	04 01158
005256	001000	A	1159		JMP	1A		F	04 01159
005257	005200	A							
005258	014053	A	1160	I2	LDA	0377		F	04 01160
005260	056007	A	1161		STA	7,2		F	04 01161
005261	014055	A	1162		LDA	0100		F	04 01162
005262	056006	A	1163		STA	6,2		F	04 01163
005263	014016	A	1164		LDA	077A		F	04 01164
005264	056005	A	1165		STA	5,2		F	04 01165
005265	014047	A	1166		LDA	044		F	04 01166
005266	056004	A	1167		STA	4,2		F	04 01167
005267	014043	A	1168		LDA	035		F	04 01168
005270	056003	A	1169		STA	3,2		F	04 01169
005271	014036	A	1170		LDA	02		F	04 01170
005272	056002	A	1171		STA	2,2		F	04 01171
005273	001000	A	1172		JMP	1A		F	04 01172
005274	005200	A							
005275	014045	A	1173	I1	LDA	0377		F	04 01173
005276	056007	A	1174		STA	7,2		F	04 01174
005277	014037	A	1175		LDA	0100		F	04 01175
005300	056006	A	1176		STA	6,2		F	04 01176
005301	006010	A	1177		LDAI	077		F	04 01177
005302	000077	A							
005303	005302	A	1178	077A	EQU	*-1		F	04 01178
005304	056005	A	1179		STA	5,2		F	04 01179
005305	014030	A	1180		LDA	044		F	04 01180
005306	056004	A	1181		STA	4,2		F	04 01181
005307	014025	A	1182		LDA	037		F	04 01182
005308	056003	A	1183		STA	3,2		F	04 01183
005310	006010	A	1184		LDAI	4		F	04 01184
005311	000004	A							
005312	056002	A	1185		STA	2,2		F	04 01185
005313	001000	A	1186		JMP	1A		F	04 01186
005314	005200	A							
005315	014025	A	1187	V70N	LDA	0377		F	04 01187
005316	056007	A	1188		STA	7,2		F	04 01188
005317	014020	A	1189		LDA	0120		F	04 01189
005320	056006	A	1190		STA	6,2		F	04 01190
005321	005001	A	1191		TZA			F	04 01191
005322	050526	A	1192		STA	EFLG		F	04 01192
005323	005311	A	1193		DAR			F	04 01193
005324	006057	A	1194		STAE	EFLG		F	04 01194
005325	000526	A							
005326	001000	A	1195		JMP	1C		F	04 01195
005327	005215	A							
005330	000002	A	1196	02	DATA	2		F	04 01196
005331	000016	A	1197	08	DATA	8		F	04 01197
005332	000034	A	1198	034	DATA	034		F	04 01198
005333	000035	A	1199	035	DATA	035		F	04 01199
005334	000037	A	1200	037	DATA	037		F	04 01200
005335	000044	A	1201	044	DATA	044		F	04 01201
005336	000046	A	1202	046	DATA	046		F	04 01202
005337	000100	A	1203	0100	DATA	0100		F	04 01203
005340	002120	A	1204	0120	DATA	0120		F	04 01204
005341	000332	A	1205	0332	DATA	0332		F	04 01205
005342	000375	A	1206	0375	DATA	0375		F	04 01206
005343	000377	A	1207	0377	DATA	0377		F	04 01207
1208	*								
1209	*****								
1210	*								
1211	*****								
1212	IPER	BSS	0						
005344	100545	A	1213	EXC	0500+PRTY				
005345	054037	A	1214	STA	IP5A				
005346	064032	A	1215	STB	IP5B				
005347	074032	A	1216	STX	IP5X				
005350	010100	A	1217	LDA	0100				
005351	006020	A	1218	LDBI	0100				
005352	000100	A							
005353	002000	A	1219	CALL	(SSWT)*				
005354	100421	A							
005355	005000	A	1220	DATA	05000				
005356	105364	A	1221	DATA	(1PE1)*				
005357	003625	A	1222	DATA	TERM				
005360	005361	A	1223	DATA	*+1				
005361	000020	A	1224	HLT	020				
005362	001000	A	1225	JMP	TERM				
005363	003625	A							
1226	*								

.LT. 36 + .GT. 2

.EQ. 36

.EQ 2

ZERO TO EFLG

-1 TO EFLG IF EXTENDED ADDRESSING

INSTRUCTION PARITY ERROR PROCESSOR
DISABLE PARITY INTERRUPTS
SAVE A
B
AND X
A=ERROR ADDRESS
B=TRAP LOCATION

CALL SENSE SWITCH ROUTINE

NOP
ERR PRINTOUT
SSS EXIT

04 01226

005364	000000	A	1227	IPE1	DATA	0		04	01227
005365	006030	A	1228		LDXI	HG12		04	01228
005366	006023	A							
005367	002000	A	1229		CALL	(OUTD)*	OUTPUT ERR MESSAGE	04	01229
005370	100403	A							
005371	010100	A	1230		LDA	0100		04	01230
005372	002000	A	1231		CALL	(OUTE)*	AND PARITY ERROR ADDRESS	04	01231
005373	100404	A							
005374	002000	A	1232		CALL	(OUTC)*	CR/LF	04	01232
005375	100402	A							
005376	001000	A	1233		JMP*	IPE1		04	01233
005377	105364	A							
005400	000000	A	1234	IPEA	DATA	0	REGISTER	04	01234
005401	000000	A	1235	IPEB	DATA	0	SAVE	04	01235
005402	000000	A	1236	IPEX	DATA	0	AREA	04	01236
			1237	*				04	01237
005403			1238	APER	BSS	0	ADDRESS PARITY ERROR PROCESSOR	04	01238
005403	100545	A	1239		EXC	0500+PRTY	DISABLE PARITY INTERRUPTS	04	01239
005404	054032	A	1240		STA	APEA	SAVE A	04	01240
005405	064032	A	1241		STB	APEB	B	04	01241
005406	074032	A	1242		STX	APEX	AND X	04	01242
005407	010104	A	1243		LDA	0104	A=ERROR ADDRESS	04	01243
005410	006020	A	1244		LDBI	0104	B=TRAP LOCATION	04	01244
005411	000104	A							
005412	002000	A	1245		CALL	(SSWT)*	CALL SENSE SWITCH ROUTINE	04	01245
005413	100421	A							
005414	005000	A	1246		DATA	05000	NOP	04	01246
005415	105423	A	1247		DATA	(APE1)*	ERR PRINTOUT	04	01247
005416	003625	A	1248		DATA	TERM	SS3 EXIT	04	01248
005417	005420	A	1249		DATA	*+1		04	01249
005420	000021	A	1250		HLT	021		04	01250
005421	001000	A	1251		JMP	TERM		04	01251
			1252	*				04	01252
005423	000000	A	1253	APE1	DATA	0		04	01253
005424	006030	A	1254		LDXI	HG13		04	01254
005425	006043	A							
005426	002000	A	1255		CALL	(OUTD)*	OUTPUT ERR MESSAGE	04	01255
005427	100403	A							
005430	010104	A	1256		LDA	0104		04	01256
005431	002000	A	1257		CALL	(OUTE)*	AND PARITY ERROR ADDRESS	04	01257
005432	100404	A							
005433	002000	A	1258		CALL	(OUTC)*	CR/LF	04	01258
005434	100402	A							
005435	001000	A	1259		JMP*	APE1		04	01259
005436	105423	A							
005437	000030	A	1260	APEA	DATA	0	REGISTER	04	01260
005440	000000	A	1261	APEB	DATA	0	SAVE	04	01261
005441	000000	A	1262	APEX	DATA	0	AREA	04	01262
			1263	*				04	01263
005442			1264	OPER	BSS	0	OPERAND PARITY ERROR PROCESSOR	04	01264
005442	100545	A	1265		EXC	0500+PRTY	DISABLE PARITY INTERRUPTS	04	01265
005443	054032	A	1266		STA	OPEA	SAVE A	04	01266
005444	064032	A	1267		STB	OPEB	B	04	01267
005445	074032	A	1268		STX	OPEX	AND X	04	01268
005446	010110	A	1269		LDA	0110	A=ERROR ADDRESS	04	01269
005447	006020	A	1270		LDXI	0110	B=TRAP LOCATION	04	01270
005450	000110	A							
005451	002000	A	1271		CALL	(SSWT)*	CALL SENSE SWITCH ROUTINE	04	01271
005452	100421	A							
005453	005000	A	1272		DATA	05000	NOP	04	01272
005454	105423	A	1273		DATA	(OPE1)*	ERR PRINTOUT	04	01273
005455	003625	A	1274		DATA	TERM	SS3 EXIT	04	01274
005456	005457	A	1275		DATA	*+1		04	01275
005457	000022	A	1276		HLT	022		04	01276
005460	001000	A	1277		JMP	TERM		04	01277
005461	003625	A							
			1278	*				04	01278
005462	000000	A	1279	OPE1	DATA	0		04	01279
005463	006030	A	1280		LDXI	HG14		04	01280
005464	006061	A							
005465	002000	A	1281		CALL	(OUTD)*	OUTPUT ERR MESSAGE	04	01281
005466	100403	A							
005467	010110	A	1282		LDA	0110		04	01282
005470	002000	A	1283		CALL	(OUTE)*	AND PARITY ERROR ADDRESS	04	01283
005471	100404	A							
005472	002000	A	1284		CALL	(OUTC)*	CR/LF	04	01284
005473	100402	A							
005474	001000	A	1285		JMP*	OPE1		04	01285
005475	105462	A							
			1286	*				04	01286
005476	000000	A	1287	OPEA	DATA	0	REGISTER	04	01287
005477	000000	A	1288	OPEB	DATA	0	SAVE	04	01288
005500	000000	A	1289	OPEX	DATA	0	AREA	04	01289
			1290	*				04	01290
005501			1291	TPER	BSS	0	TRAP PARITY ERROR PROCESSOR	04	01291
005501	100545	A	1292		EXC	0500+PRTY	DISABLE PARITY INTERRUPTS	04	01292
005502	054032	A	1293		STA	TPEA	SAVE A	04	01293
005503	064032	A	1294		STB	TPEB	B	04	01294
005504	074032	A	1295		STX	TPEx	AND X	04	01295
005505	010114	A	1296		LDA	0114	A=ERROR ADDRESS	04	01296
005506	006020	A	1297		LDBI	0114	B=TRAP LOCATION	04	01297
005507	000114	A							
005510	002000	A	1298		CALL	(SSWT)*	CALL SENSE SWITCH ROUTINE	04	01298
005511	100421	A							

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005512	005000	A	1299	DATA	05000	NOP		04	01299
005513	105521	A	1300	DATA	(TPE1)*	ERR PRINTOUT		04	01300
005514	003625	A	1301	DATA	TERM	SS3 EXIT		04	01301
005515	005516	A	1302	DATA	*+1			04	01302
005516	000003	A	1303	HLT	023			04	01303
005517	001000	A	1304	JMP	TERM			04	01304
005520	003625	A	1305	*					
005521	000000	A	1306	TPE1	DATA	0		04	01305
005522	006000	A	1307	LDXI	HG15			04	01306
005523	006077	A						04	01307
005524	002000	A	1308	CALL	(DUTD)*	OUTPUT ERR MESSAGE		04	01308
005525	100403	A							
005526	010114	A	1309	LDA	0114			04	01309
005527	002000	A	1310	CALL	(DUTE)*	AND PARITY ERROR ADDRESS		04	01310
005530	100404	A							
005531	002000	A	1311	CALL	(DUTC)*	CR/LF		04	01311
005532	100402	A							
005533	001000	P	1312	JMP*	TPE1			04	01312
005534	105521	A							
005535	000000	A	1313	*				04	01313
005536	000000	A	1314	TPEA	DATA	0	REGISTER	04	01314
005537	000000	A	1315	TPEB	DATA	0	SAVE	04	01315
005537	000000	A	1316	TPEX	DATA	0	AREA	04	01316
005540			1317	*					
005540	100545	A	1318	PER1	BSS	0		C	04 01317
005541	054936	A	1319	EXC	0500+PRTY	DISABLE PARITY INTERRUPTS	F	04	01318
005542	064036	A	1320	STA	PEA	SAVE A	C	04	01319
005543	074036	A	1321	STB	PEB	B	C	04	01320
005544	014036	A	1322	STX	PEX	AND X	C	04	01321
005545	020525	A	1323	LDA	PER	ERROR ADDRESS	F	04	01322
005546	002030	A	1324	LDR	V701	TRAP ADDRESS	F	04	01323
005547	100421	A	1325	CALL	(SSWT)*	CALL SENSE SWITCH ROUTINE	C	04	01324
005550	005500	A	1326	DATA	05000	NOP	C	04	01326
005551	105557	A	1327	DATA	(PE1)*	ERR PRINTOUT	C	04	01327
005552	003625	A	1328	DATA	TERM	553 EXIT	C	04	01328
005553	005554	A	1329	DATA	*+1		C	04	01329
005554	000024	A	1330	HLT	024		C	04	01330
005555	001000	A	1331	JMP	TERM		C	04	01331
005556	002625	A							
005557	000000	A	1332	*				C	04 01332
005560	002000	A	1333	PE1	DATA	0		C	04 01333
005561	100402	A	1334	CALL	(DUTC)*		C	04	01334
005562	006030	A	1335	LDXI	HG12+7		C	04	01335
005563	006030	A							
005564	002000	A	1336	CALL	(DUTD)*	OUTPUT ERR MESSAGE	C	04	01336
005565	100403	A							
005566	014006	A	1337	LDA	PER		F	04	01337
005567	002000	A	1338	CALL	(DUTE)*	AND PARITY ERROR ADDRESS	C	04	01338
005570	100404	A							
005571	002000	A	1339	CALL	(DUTC)*		C	04	01339
005572	100402	A							
005573	001000	A	1340	JMP*	PE1		C	04	01340
005574	105557	A							
005575	000000	A	1341	PER	ENTR	V70 PARITY ERROR	F	04	01341
005576	001000	A	1342	JMP	PER1		F	04	01342
005577	005540	A							
005600	000000	A	1343	PEA	DATA	0	REGISTER	C	04 01343
005601	000000	A	1344	PEB	DATA	0	SAVE	C	04 01344
005602	000000	A	1345	PEX	DATA	0	AREA	C	04 01345
005603	000000	A	1346	*				C	04 01346
005604	005002	A	1347	BTAC	ENTR	0	OUTPUT ERROR AND CYCLE	C	04 01347
005605	010501	A	1348	LDI	TEB	CLEAR B	C	04	01348
005606	001000	A	1349	JAZ	TEB	GET ERROR CNTR	C	04	01349
005607	005600	A	1350	JAZ	*+1	JUMP IF NO ERRORS	C	04	01350
005610	006000	A	1351	LDXI	0100000	SET SIGN OF V	C	04	01351
005611	100030	A							
005612	010500	A	1352	LDA	TCYC	TOTAL CYCLES	C	04	01352
005613	005031	A	1353	TRG	031	ERROR & CYCLE TO A	C	04	01353
005614	103107	A	1354	LDI	077	A TO DISPLAY	C	04	01354
005615	001000	A	1355	JMP*	BTAC	-EXIT	C	04	01355
005616	105600	A							
005617	044022	A	1356	*****				04	01356
005620	000000	A	1357	*				B	04 01357
005621	001000	A	1358	PRDN	INR	PEHF	F	04	01358
005622	000000	A	1359	PHLT	HLT	0	F	04	01359
005623	006030	A	1360	JMP			F	04	01360
005624	005643	A							
005625	040511	A	1361	PRUP	LDXI	PFMG	POWER RESTORED MESSAGE	B	04 01361
005626	024013	A	1362	INR	PEK		B	04	01362
005627	005001	A	1363	LDA	PEHF		F	04	01363
005630	054011	A	1364	TZA			F	04	01364
005631	001020	A	1365	STA	PEHF		F	04	01365
005632	005620	A	1366	JRZ	PHLT		F	04	01366
005633	010442	A	1367	LDA	\$CON		B	04	01367
005634	001010	A	1368	JAZ*	PNRR		B	04	01368
005635	105641	A							
005636	002000	A	1369	CALL*	DUTD		B	04	01369
005637	100403	A							
005640	001000	A	1370	JMP	MIH1		B	04	01370

005773	142734	A				
005774	120240	A				
005775	140703	A				
005776	152323	A				
005777	140714	A				
006000	120240	A				
006001	141731	A				
006002	141714	A				
006003	142643	A				
006004	106612	A				
006005	000000	A				
006006	106612	A	1385	HG11	DATA	CRLF,'NUMBER OF CYCLES RUN =',0
006007	147323	A				
006010	146702	A				
006011	142722	A				
006012	120317	A				
006013	143240	A				
006014	141731	A				
006015	141714	A				
006016	142723	A				
006017	120322	A				
006020	152716	A				
006021	120275	A				
006022	000000	A				
006023	106612	A	1386	HG12	DATA	CRLF,'INSTRUCTION PARITY ERROR AT ',0
006024	144716	A				
006025	151724	A				
006026	151323	A				
006027	141721	A				
006030	144717	A				
006031	147240	A				
006032	150301	A				
006033	151311	A				
006034	152331	A				
006035	120305	A				
006036	151322	A				
006037	147722	A				
006040	120301	A				
006041	152210	A				
006042	000000	A				
006043	106612	A	1387	HG13	DATA	CRLF,'ADDRESS PARITY ERROR AT ',0
006044	140704	A				
006045	142322	A				
006046	142723	A				
006047	151640	A				
006050	150301	A				
006051	151311	A				
006052	152331	A				
006053	120305	A				
006054	151322	A				
006055	147722	A				
006056	120301	A				
006057	152240	A				
006060	000000	A				
006061	106612	A	1388	HG14	DATA	CRLF,'OPERAND PARITY ERROR AT ',0
006062	147722	A				
006063	142722	A				
006064	140716	A				
006065	142240	A				
006066	150301	A				
006067	151311	A				
006070	152331	A				
006071	120305	A				
006072	151322	A				
006073	147722	A				
006076	120301	A				
006075	152240	A				
006076	000000	A				
006077	106612	A	1389	HG15	DATA	CRLF,'TRAP PARITY ERROR AT ',0
006100	152332	A				
006101	143720	A				
006102	120310	A				
006103	140702	A				
006104	144724	A				
006105	154640	A				
006106	142722	A				
006107	151317	A				
006110	151240	A				
006111	140704	A				
006112	120240	A				
006113	000000	A				
006114	106612	A	1390	PFKM	DATA	CRLF,'POWER FAILURES = ',0
006115	150317	A				
006116	153705	A				
006117	151240	A				
006120	143301	A				
006121	144714	A				
006122	152722	A				
006123	142723	A				
006124	120275	A				
006125	120240	A				
006126	000000	A				
006127	106612	A	1391	INTM	DATA	CRLF,'V70 PARITY ERROR INTERRUPT LOCATION '
006130	153267	A				
006131	130240	A				

Address	Hex	Label	Operation	Comments	Page	Line
006132	150301	A				
006133	151311	A				
006134	152331	A				
006135	120305	A				
006136	151322	A				
006137	147722	A				
006140	120311	A				
006141	147324	A				
006142	142722	A				
006143	151325	A				
006144	150324	A				
006145	120314	A				
006146	147733	A				
006147	140724	A				
006150	144717	A				
006151	147240	A				
006152	124266	A	1392	DATA * (620=0.) = ',0	F	04 01392
006153	131260	A				
006154	136660	A				
006155	127251	A				
006156	120275	A				
006157	120240	A				
006160	000000	A				
001000	005041	A	1393	EJEC	B	04 01393
001001	000001	A	1394	MEMORY CHECKERBOARD DUMP	B	04 01394
001002	001004	A	1395		B	04 01395
001003	003010	A	1396		B	04 01396
001004	151073	A	1397	DRG 01000	F	04 01397
001005	005014	A	1398		B	04 01398
001006	002000	A	1399	MDMP	B	04 01399
001007	100402	A	1400	HLT 1 SET A=START ADDRESS	B	04 01400
001010	005041	A	1401	JAN MTOP	B	04 01401
001011	151073	A	1402	ANA 070K SAVE 4K START	B	04 01402
001012	004354	A	1403	TAX IN X	B	04 01403
001013	121076	A	1404	CALL* DUTC CR/LF	B	04 01404
001014	002000	A	1405	TXA OUTPUT	B	04 01405
001015	100400	A	1406	ANA 070K FIRST	B	04 01406
001016	005041	A	1407	LSRA 12 THREE	B	04 01407
001017	151074	A	1408	ADD ZERO OCTAL	B	04 01408
001018	004351	A	1409	CALL* DUTA DIGITS	B	04 01409
001019	100400	A	1410	TXA OF	B	04 01410
001020	004351	A	1411	ANA 07K ADDRESS	B	04 01411
001021	121076	A	1412	LSRA 9	B	04 01412
001022	002000	A	1413	ADD ZERO	B	04 01413
001023	100400	A	1414	CALL* DUTA	B	04 01414
001024	005041	A	1415	TXA	B	04 01415
001025	151075	A	1416	ANA 0700	B	04 01416
001026	004346	A	1417	LSRA 6	B	04 01417
001027	121076	A	1418	ADD ZERO	B	04 01418
001028	002000	A	1419	CALL* DUTA	B	04 01419
001031	100400	A	1420	LDA SPCE	B	04 01420
001032	011077	A	1421	CALL* DUTA	B	04 01421
001033	002000	A	1422	MDM2 LDA 0:1 GET WORD	B	04 01422
001034	100400	A	1423	JAZ A0 ZERO?	B	04 01423
001035	015000	A	1424	IAR	B	04 01424
001036	001010	A	1425	JAZ A1 -1?	B	04 01425
001037	001065	A	1426	LDA N01 NOT ZERO OR MINUS ONE	B	04 01426
001038	002000	A	1427	CALL* DUTA	B	04 01427
001039	100400	A	1428	INCR 045 BVUMP X TO A	B	04 01428
001040	005113	A	1429	ANA ED8	B	04 01429
001041	151102	A	1430	JAZ MDM9 END OF 4K?	B	04 01430
001042	001057	A	1431	ANA EDL	B	04 01431
001043	011101	A	1432	JAZ MDM1 END OF LINE?	B	04 01432
001044	002000	A	1433	JMP MDM2	B	04 01433
001045	001000	A	1434	MDM9 CALL* DUTC CR/LF	B	04 01434
0						

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001102 007777 A 1448 EDB DATA 07777
001103 000077 A 1449 EDL DATA 077
003000 A 1450 END STRT

B 04 01448
B 04 01449
04 01450

ENTRY NAMES
EXTERNAL NAMES
SYMBOLS

000412	A	\$CDM	000471	A	\$DCT	000440	A	\$FLG	000422	A	\$LWE
000441	A	\$MEM	000424	A	\$MSM	001065	A	AO	001070	A	A1
005423	A	APE1	005437	A	APEA	005440	A	APEB	005403	A	APER
005441	A	APEX	004654	A	BITC	000516	A	BITS	004655	A	BITX
106612	A	CRLF	000505	A	CYCL	004767	A	DAP	004777	A	DAP1
005010	A	DAP2	005023	A	DAP3	003605	A	DEM	000526	A	EFLG
004010	A	ELDP	000506	A	EMEM	001102	A	EDB	001103	A	EDL
003741	A	ERP1	003724	A	ERPD	003712	A	ERR1	000423	A	ESZC
000514	A	FRST	003134	A	HDG1	005655	A	HDG2	005675	A	HDG3
005711	A	HDG5	005732	A	HDG6	005741	A	HDG8	005747	A	HDG9
005760	A	HG10	006006	A	HG11	006023	A	HG12	006043	A	HG13
006061	A	HG14	006077	A	HG15	005275	A	I1	005257	A	I2
005237	A	I3	005725	A	I4	005212	A	IS	005163	A	I6
005200	A	IA	004205	A	IAQ	004161	A	IAZ	005174	A	IB
005216	A	IC	004235	A	ICB	004254	A	ICB1	004266	A	ICB2
004244	A	ICBC	000410	A	INPA	000411	A	INPB	000412	A	INPC
000413	A	INPD	000414	A	INPE	000415	A	INPF	000416	A	INPG
005100	A	INT1	006127	A	INTM	005130	A	INTV	005364	A	IPE1
005400	A	IPEA	005401	A	IPEB	005344	A	IPEX	005402	A	IPEX
004075	A	IUA	004077	A	IUA1	004352	A	IWC	004365	A	IWCC
000515	A	LAST	001006	A	MDM1	001035	A	MDM2	001044	A	MDM3
001057	A	MDA9	001000	A	MDMP	003675	A	MERR	003516	A	MIN1
003530	A	MIN2	003572	A	MIN3	003507	A	MINT	003316	A	MFT9
003364	A	MPTB	003201	A	MTC1	003213	A	MTC2	003215	A	MTC3
003222	A	MTC4	003230	A	MTC5	003234	A	MTC6	003165	A	MTCM
002010	A	MTDP	003351	A	MTP0	003260	A	MTP1	003361	A	MTP2
003241	A	MTP3	003263	A	MTP4	003251	A	MTP5	003330	A	MTP6
003256	A	MTP7	003335	A	MTP8	003356	A	MTPA	003022	A	MTT1
003051	A	MTT2	003100	A	MTT3	003104	A	MTT4	003111	A	MTT5
003132	A	MTT6	003013	A	MTTH	000502	A	MTW1	000503	A	MTW2
001101	A	N01	003163	A	NL	005337	A	O100	003305	A	O10K
005340	A	O120	005030	A	O2	003024	A	O2K	004403	A	O3
005341	A	O332	005232	A	O34	005033	A	O35	003047	A	O36
005334	A	O37	005342	A	O375	005343	A	O377	005251	A	O3A
004351	A	O4	005335	A	O44	005336	A	O46	004524	A	O4K
004262	A	O525	001075	A	O700	001073	A	O70K	004643	A	O77
005302	A	O77A	001074	A	O7K	005331	A	O8	001100	A	ONE
005462	A	OPE1	005476	A	OPEA	005477	A	OPEB	005442	A	OPER
005500	A	OPEX	005603	A	OTAC	000400	A	OUTA	000401	A	OUTB
000402	A	OUTC	000403	A	OUTD	000404	A	OUTE	000405	A	OUTF
000406	A	OUTG	000407	A	OUTH	000517	A	PAT1	000520	A	PAT2
005557	A	PE1	005600	A	PEA	005601	A	PEB	005575	A	PER
005540	A	PER1	005602	A	PEX	005642	A	PFHF	000511	A	PFK
006114	A	PFKM	005643	A	PFNG	005620	A	PHLT	005617	A	PRDN
000045	A	PRTY	005623	A	PRUP	005641	A	PRWR	000513	A	REP
000512	A	REP1	003020	A	RM1	000523	A	SAVE	000524	A	SAVX
005025	A	SET	005027	A	SET1	003000	A	SM2	001077	A	SPACE
000421	A	SSMT	003000	A	STRT	000522	A	SWCH	004174	A	TAD1
001130	A	TAD1	004372	A	TBA1	004703	A	TBA2	004714	A	TBA3
004723	A	TBA4	004731	A	TBA5	004743	A	TBA6	004757	A	TBA7
004762	A	TBA8	000510	A	TBAR	004744	A	TBAD	004656	A	TBAT
004754	A	TBA2	004430	A	TBC	004436	A	TBC1	004445	A	TBC2
004504	A	TBC3	004537	A	TBC4	004546	A	TBC5	004610	A	TBC6
004513	A	TBC7	004617	A	TBC8	004623	A	TBC9	004407	A	TBCA
004412	A	TBC2	004641	A	TBC0	004631	A	TBCD	004653	A	TBCE
004604	A	TBCF	004500	A	TBC5	004032	A	TBCN	004375	A	TBCI
000551	A	TBL	000537	A	TBL0	000527	A	TBL1	004304	A	TCE
004310	A	TCEB	004020	A	TCBT	000504	A	TCYC	000420	A	TCLY
000625	A	TERM	003607	A	TERM	003560	A	TERD	000521	A	TERR
00042	A	TEC	005045	A	TES1	005071	A	TES2	000527	A	TEST
000417	A	TOUT	005021	A	TPB1	005020	A	TPB2	005024	A	TPCB
000531	A	TPFR	005037	A	TPFX	003116	A	TPR	003120	A	TIR
004107	A	TUR	004112	A	TUAI	004122	A	TUG2	004125	A	TUAS
004031	A	TUAB	004051	A	TUAC	004055	A	TUAC	004024	A	TUAT
003000	A	UAD1	003070	A	UAD2	003071	A	UAD3	003005	A	UAD3
003427	A	UADA	003037	A	UAD1	003420	A	UADC	003445	A	UAD3
000400	A	UAD5	000525	A	V701	005313	A	V70N	001076	A	ZERO

C ERRORS ASSEMBLY COMPLETE

LITERALS

POINTERS

106	\$CDM	208	507	518	1367						
108	\$DCT	246									
104	\$FLG										
95	\$LWE	340									
105	\$MEM	285	335	337							
97	\$MSM	228									
1437	AO	1423									
1439	A1	1425									
1253	APE1	1247	1259								
1260	APEA	1240									
1261	APEB	1241									
1238	APER	120									
1262	APEX	1242									
943	BITC	835	845	854	863	865	894	903	914	916	
		922									
152	BITS	688	707	790	1013						
944	BITX	831	834								
276	CRLF	277	277	1374	1374	1378	1379	1380	1381	1382	
		1383	1384	1385	1386	1387	1388	1389	1390	1391	

MEMPT2

[illegible]

		MAINTAIN III			MEMPT2					
359	MTP8	333	363							
368	MTPA	361								
219	MTT1	225	226	243	272	275				
237	MTT2	238	249							
250	MTT3	254								
253	MTT4	247								
255	MTT5	252	259							
265	MTT6	260								
213	MTTM	258								
140	MTW1	556	581	602	607	661	662	762	766	771
		774	840	848	851	860	888	897	900	911
		992	1059	1062						
141	MTW2	557	586	608	663	767	775	842	850	858
		890	899	909	994	1061				
1447	N01	1426								
278	NL	199								
1203	O100	1129	1138	1162	1175					
345	O10K	341								
1204	O120	1189								
1196	O2	1095	1110	1118	1157	1170				
220	O2K	223	224	1122						
815	O3	679	698	704	717					
1205	O332	1104								
1190	O34	1098								
1199	O35	1168								
235	O36	289								
1200	O37	1116	1149	1182						
1206	O375	1127								
1207	O377	1107	1136	1145	1160	1173	1187			
1155	O3A	1112								
787	O4	736								
1201	O44	1114	1133	1147	1166	1180				
1202	O46	1142								
875	O4K	872								
741	O525	738								
1443	O700	1416								
1441	O70K	1402	1406							
937	O77	929								
1178	O77A	1140	1164							
1442	O7K	1411								
1197	O8	1101								
1446	ONE	1439								
1279	OPE1	1273	1285							
1287	OPEA	1266								
1288	OPEB	1267								
1264	OPER	123								
1289	OPEX	1268								
1347	OTAC	471	506	552	1355					
77	OUTA	585	589	1409	1414	1419	1421	1427		
78	OUTB	580	584							
79	OUTC	537	568	1084	1232	1258	1284	1311	1334	1339
		1404	1434	1435						
80	OUTD	214	229	231	256	271	274	512	521	525
		531	574	1079	1229	1255	1281	1308	1336	1369
81	OUTE	523	527	535	576	578	582	587	592	595
		1231	1257	1283	1310	1338				
82	OUTF	*								
83	OUTG	1091								
84	OUTH	*								
153	PAT1	689	709	792	804	1027				
154	PAT2	794	802							
1333	PE1	1327	1340							
1343	PEA	1320								
1344	PEB	1321								
1341	PER	1124	1323	1337						
1318	PER1	1342								
1345	PEX	1322								
1372	PFHF	1358	1363	1365						
147	PFK	528	533	534	1362					
1390	PFKM	530								
1374	PFMG	1361								
1359	PILT	1366								
1358	PRDN	111								
132	PRTY	227	284	517	1213	1239	1265	1292	1319	
1361	PRUP	113								
1371	PWDR	203	239	474	1368					
149	REP	631	650	680	699	718	759	816	832	1055
148	REP1	760	781	785						
217	RM1	200	213							
157	SAVB	550	563							
158	SAVX	551	564	577						
1039	SET	690	710	795	805	1046				
1041	SET1	1048								
198	SM2	186								
1445	SPCE	1420								
94	SSWT	558	1219	1245	1271	1298	1325			
199	STRT	133	1081	1450						
156	SWCH	468	487	569	572					
696	TAOT	493	701							
677	TAZT	492	682							
961	TBA1	989	1004							
968	TBA2	978								
974	TBA3	972	981	996						
979	TBA4	970								
983	TBA5	977								

992	TBA6	990								
999	TBA7	988								
1002	TBA8	960								
146	TBA9	470	491	593	957	964	969	983	985	986
		999	1000							
991	TBA0	982								
950	TBA1	483	955	1003						
997	TBA2	973								
828	TBC	823	825	885						
834	TBC1	877	882	883	886					
839	TBC2	867								
863	TBC3	857								
883	TBC4	878								
887	TBC5	838	918							
914	TBC6	907								
868	TBC7	866	917	941						
920	TBC8	861	912	934						
924	TBC9	927								
818	TBCA	*								
821	TBCB	820	826							
935	TBCC	844	893							
928	TBCD	924								
942	TBCE	921	933							
912	TBCF	902								
861	TBCG	853								
879	TBCH	870								
811	TBCT	495	821							
190	TBL	233	236	250	251	288	290	305	307	308
		338	351	362	478	479	481	620	621	623
		629	632	634						
176	TBL0	360	361	1085	1093					
168	TBL1	817								
758	TCB	720	722	784						
762	TCBB	780	782	786						
716	TCBT	494	723							
142	TCYC	469	484	505	526	540	590	1352		
93	TDLY	*								
517	TERM	489	502	561	601	625	636	1013	1065	1222
		1225	1248	1251	1274	1277	1301	1304	1328	1331
539	TERN	519								
536	TERD	529								
155	TERR	467	522	539	549	1349				
1054	TES	681	700	1071	1073	1074				
1057	TES1	1070								
1071	TES2	1068								
145	TEST	541	553	575	618	686	705	737	796	813
		928	932	935	939	963				
90	TOUT	*								
1306	TPE1	1300	1312							
1016	TPCA	1293								
1315	TPEB	1294								
1291	TPEX	126								
1016	TPEX	1235								
273	TPR	248								
670	TTR	248	253							
649	TUA	637	669	671	672					
657	TUA1	668								
658	TUA2	653								
660	TUA3	657								
621	TUA4	627								
628	TUAB	621	623							
630	TUAC	638								
616	TUAT	476	632	634						
457	USCA	361	436	448	449	450	453	479	481	621
		620	632	634	821					
436	UACB	460								
451	UACC	441								
461	UACD	440	447	454	455	458	459			
414	UADA	338	351	352	386	405	406	407	409	
386	UADB	413								
408	UADC	391	424							
625	UADF	398	401	403	404	410	411	412	415	416
		417	423							
419	UADE	339								
159	V701	1087	1094	1109	1120	1151	1324			
1187	V70N	1086								
1444	ZERO	1408	1413	1418	1437					