

THRU 46

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1 * THIS IS A COPYRIGHTED PROGRAM. COPYRIGHT 1971 BY VARIAN DATA MACHINES01 00001
2 * 01 00002
3 * V.D.M. PART NO. 92L0107-0210 *****
4 * 01 00004
5 * RELEASED 10-25-74 01 00005
6 * 01 00006
7 * 620 MEMORY TEST PART 2 01 00007
8 * 01 00008
9 * 01 00009
10 * 01 00010
11 * SMRY 01 00011
12 * * * * * 01 00012
13 * ** * * * * 01 00013
14 * * * * * 01 00014
15 * * * * * 01 00015
16 * * * * * 01 00016
17 * * * * * 01 00017
18 * * * * * 01 00018
19 * 01 00019
20 * 01 00020
21 * * * * * 01 00021
22 * * * * * 01 00022
23 * * * * * 01 00023
24 * * * * * 01 00024
25 * * * * * 01 00025
26 * * * * * 01 00026
27 * * * * * 01 00027
28 * 01 00028
29 * 01 00029
30 * * * * * 01 00030
31 * * * * * 01 00031
32 * * * * * 01 00032
33 * * * * * 01 00033
34 * * * * * 01 00034
35 * * * * * 01 00035
36 * * * * * 01 00036
37 * 01 00037
38 * 01 00038
39 * THIS TEST PROGRAM IS A PART OF THE MAINTAIN II 01 00039
40 * TEST PROGRAM SYSTEM 01 00040
41 * 01 00041
42 * 01 00042

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43 *				01 00043
44 *			THE MEMO TEST IS DESIGNED TO ASCERTAIN THE OPERATIONAL	01 00044
45 *			STATUS OF THE COMPUTER MEMORY. ANY MEMORY SIZE (4K-32K, 16 OR 18	01 00045
46 *			BIT) CAN BE CHECKED. READ-ONLY-MEMORY (ROM) IS NOT TESTED BY	01 00046
47 *			THIS PROGRAM.	01 00047
48 *				01 00048
49 *				01 00049
50 *				01 00050
51 *				01 00051
52 *				01 00052
53 *				01 00053
54 *				01 00054
55 *				01 00055
56 *				01 00056
57 *			*****	01 00057
58 *			* AREAS RESERVED BY EXECUTIVE *	01 00058
59 *			*****	01 00059
60 *	ORG	0		01 00060
61 *	JMP	EXECUTIVE		01 00061
62 *	ORG	040		01 00062
63 *	JMPM	POWER DOWN ROUTINE		01 00063
64 *	JMP	POWER UP ROUTINE		01 00064
65 *	NOTE:	THE TEST EXECUTIVE ALSO RESERVES LOCATIONS 0400 TO 0477		01 00065
66 *		FOR A POINTER TABLE TO STANDARD ROUTINES, AND AS AN AREA		01 00066
67 *		FOR EXECUTIVE DATA. ALL TEST PROGRAMS WORKING WITH THE		01 00067
68 *		EXECUTIVE MUST PRESERVE THIS BLOCK.		01 00068
69 *		STANDARD ROUTINES WILL BE CALLED INDIRECTLY THRU		01 00069
70 *		THIS TABLE		01 00070
71 *				01 00071
72 *				01 00072
73 *				01 00073
74 *				01 00074
75 *				01 00075
000400	77	ORG	0400	01 00076
000400	78	OUTA	BSS 1	01 00077
000401	79	OUTB	BSS 1	01 00078
000402	80	OUTC	BSS 1	01 00079
000403	81	OUTD	BSS 1	01 00080
000404	82	OUTE	BSS 1	01 00081
000405	83	OUTF	BSS 1	01 00082
000406	84	OUTG	BSS 1	01 00083
			OUTPUT ONE CHAR ROUTINE	01 00084
			OUTPUT TWO CHAR ROUTINE	01 00085
			OUTPUT CR/LF ROUTINE	01 00086
			OUTPUT MESSAGE ROUTINE	01 00087
			OUTPUT OCTAL WORD ROUTINE	01 00088
			OUTPUT OCTAL ADDR ROUTINE	01 00089
			OUTPUT ERROR MSG ROUTINE	01 00090



000407	85	OUTH	BSS	1	OUTPUT CONTROL CHAR TO TTY ROUTINE	01	00085
000410	86	INPA	BSS	1	INPUT ONE CHAR ROUTINE	01	00086
000411	87	INPB	BSS	1	INPUT AND PRINT ONE CHAR ROUTINE	01	00087
000412	88	INPC	BSS	1	INPUT ONE CHAR EDITED ROUTINE	01	00088
000413	89	INPD	BSS	1	INPUT ONE ALPHA CHAR ROUTINE	01	00089
000414	90	INPE	BSS	1	INPUT TWO ALPHA CHAR ROUTINE	01	00090
000415	91	INPF	BSS	1	INPUT COMMA/PERIOD TERMINATION ROUTINE	01	00091
000416	92	INPG	BSS	1	INPUT OCTAL NUMBER ROUTINE	01	00092
000417	93	TOUT	BSS	1	TIME-OUT ROUTINE	01	00093
000420	94	TDLY	BSS	1	TIME DELAY ROUTINE	01	00094
000421	95	SSWT	BSS	1	STANDARD SENSE SWITCH ROUTINE	01	00095
000422	96	SLWE	BSS	1	LOWEST WORD USED BY EXEC	01	00096
000423	97	ESZC	BSS	1	MEMORY SIZE DETERMINATION ROUTINE	01	00097
000424	98	\$MSM	BSS	1	MEMORY SIZE MESSAGE	01	00098
	99	*				01	00099
	100	*				01	00100
000440	101		ORG	0440		01	00101
	102	*				01	00102
	103	*		EXECUTIVE DATA TABLE		01	00103
	104	*				01	00104
000440	105	\$FLG	BSS	1	LOOP ON ERROR FLAG, 0=DON'T LOOP 1=LOOP	01	00105
000441	106	\$MEM	BSS	1	MEMORY SIZE (HIGHEST AVAIL CORE)	01	00106
000442	107	\$CON	BSS	1	0=CONSOLE MODE 1=TTY MODE	01	00107
000443	108		BSS	22		01	00108
000471	109	\$DCT	BSS	1	DIGIT COUNTER FOR INPG	01	00109
	110	*				01	00110
000042	111		ORG	042	POWER UP INTERRUPT	B	01 00111
000042	001000	A	JMP	PROP		R	01 00112
000043	005434	A					
	113	*				01	00113
000100	114		ORG	0100		01	00114
000100	000000	A	ENTR	0	INSTRUCTION PARITY ERROR	01	00115
000101	001000	A	JMP	IPER		01	00116
000102	005162	A					
000104	117		ORG	0104		01	00117
000104	000000	A	ENTR	0	ADDRESS PARITY ERROR	01	00118
000105	001000	A	JMP	APER		01	00119
000106	005221	A					
000110	120		ORG	0110		01	00120
000110	000000	A	ENTR	0	OPERAND PARITY ERROR	01	00121
000111	001000	A	JMP	OPER		01	00122
000112	005260	A					



000114		123	ORG	0114		01	00123	
000114	000000	A 124	ENTR	0	TRAP PARITY ERROR	01	00124	
000115	001000	A 125	JMP	TPER		01	00125	
000116	005317	A 126 *				01	00126	
000370		127	ORG	0370		C	*****	
000370	002000	A 128	JMPH	PER		D	*****	
000371	005356	A 129 *				C	*****	
000500		130	ORG	0500		01	00127	
		131	*****				01	00128
		132 *	MAIN ENTRY POINT				*01	00129
		133	*****				01	00130
	000045	A 134	PRTY SET	045	PARITY HARDWARE DEVICE ADDRESS	01	00131	
000500	001000	A 135	JMP	STRY		01	00132	
000501	003200	A 136	*****				01	00133
		137 *	DATA				*01	00134
		138	*****				01	00135
		139 *					01	00136
		140 *	DATA TABLE				01	00137
		141 *					01	00138
000502		142	MTW1	BSS	1	SAVE VALID PATTERN	01	00139
000503		143	MTW2	BSS	1	SAVE PATTERN READ	01	00140
000504		144	TCYC	BSS	1	TOTLE CYCLES EXECUTED	01	00141
000505	000000	A 145	CYCL	DATA	0	CYCLES	01	00142
000506	000000	A 146	EMEM	DATA	0	PRINT END MEMO FLAG	01	00143
000507	000000	A 147	TEST	DATA	0	TEST NUMBER	01	00144
000510		148	TBAA	BSS	1		B 01	00145
000511	000000	A 149	PFK	DATA	0	COUNT OF POWER FAILURES	B 01	00146
000512		150	REP1	BSS	1	REP CTR	01	00147
000513		151	REP	BSS	1	REP CTR	01	00148
000514	000000	A 152	FRST	DATA	0	FIRST ADDRESS	01	00149
000515	000000	A 153	LAST	DATA	0	LAST ADDRESS	01	00150
000316		154	BITS	BSS	1	BIT SELECT PATTERN	01	00151
000517		155	PAT1	BSS	1	PATTERN 1	01	00152
000520		156	PAT2	BSS	1	PATTERN 2	01	00153
000521	000000	A 157	TERR	DATA	0	ERROR TOTAL	01	00154
000522	000000	A 158	SWCH	DATA	0	PRINT ERROR HNG FLG	01	00155
000523	000000	A 159	SAVB	DATA	0		01	00156
000524	000000	A 160	SAVX	DATA	0		01	00157
		161 *					01	00158



Address	Label	Value	Table Name	Index	Description	Segment	Page	Line
162	*				TABLES HAVE THE FORM		01	00159
163	*	NAME	BSS	1	TABLE NAME, INDEX PTR FOR TABLE		01	00160
164	*		BSS	1	MAX LENGTH OR CURRENT LENGTH OF TABLE		01	00161
165	*				(DEPENDING ON ROUTINE ACCESSING TABLE)		01	00162
166	*		BSS	N	BODY OF TABLE, NOTAL MAX LENGTH		01	00163
167	*						01	00164
000525	000000	A	168	TBL I	DATA 0,6		C	*****
000526	000006	A						
000527	000203	A	169		DATA 0203	AMPEX		01 00166
000530	004001	A	170		DATA 04001	FABRI-TEK OR LITTON		01 00167
000531	000024	A	171		DATA 024,0144,044		B	01 00168
000532	000144	A						
000533	000044	A						
000534	003000	A	172		DATA 03000		C	*****
173	*						01	00169
174	*	TBL0			MEMORY LOCATIONS IN FIRST 4K TO BE TESTED		01	00170
175	*						01	00171
000535	000000	A	176	TBL0	DATA 0,8			01 00172
000536	000010	A						
177	*						B	01 00173
178	*				WARNING		B	01 00174
179	*						B	01 00175
180	*				NUMBER PAIRS MUST REFERENCE AN EVEN NUMBER OF WORDS		B	01 00176
181	*				----		B	01 00177
182	*						B	01 00178
000537	000002	A	183		DATA 2,037		B	01 00179
000540	000037	A						
000541	000044	A	184		DATA 044,077			01 00180
000542	000077	A						
000543	000120	A	185		DATA 0120,0367		C	*****
000544	000367	A						
000545	000622	A	186		DATA 0022,((SM272)*2)+1		B	01 00182
000546	003177	A						
187	*						01	00183
188	*	TBL			CONTAINS BEGINNING AND ENDING ADDRS OF MEMORY SEGMENT TO BE TESTED		01	00184
189	*						01	00185
000547		A	190	TBL	BSS 1	TBL INDEX	01	00186
000550		A	191		BSS 1	TBL LENGTH, VARIABLE UP TO 30	01	00187
000551		A	192		BSS 30	TBL DATA ITEMS	01	00188
193	*				*****		01	00189
194	*						01	00190
195	*				*****		01	00191



Address	Code	Op	Op2	Op3	Description	Mode	Count	Label
003200			DRG	03200		B	01	00192
					*****		01	00193
003200	003200	A	SM2	LQU	*	B	01	00194
003200	013353	A	STR1	LDA	NL	B	01	00195
003201	033220	A		LDX	RM1	B	01	00196
003202	055000	A		STA	0,1	B	01	00197
003203	006010	A		LDAI	MTOP	B	01	00198
003204	003210	A						
003205	006030	A		LDXI	PWRR	B	01	00199
003206	005445	A						
003207	055000	A		STA	0,1		01	00200
					*****		01	00201
					* MENU TOP = COMMON ENTRY POINT		*01	00202
					*****		01	00203
003210	010442	A	MTOP	LDA	\$CON		01	00204
003211	001010	A		JAZ	MTCH		01	00205
003212	003355	A						
					*****		01	00206
					* INPUT PARAMETERS (TTY MODE)		*01	00207
					*****		01	00208
003213	033220	A	MTTM	LDX	RM1	B	01	00209
003214	002000	A		CALL	(OUTD)*		01	00210
003215	100403	A						
003216	005001	A		TZA			01	00211
003217	006030	A		LDXI	HDG1		01	00212
003220	003344	A						
	003220	A	RM1	EQI	*=1	B	01	00213
003221	055000	A		STA	0,1		01	00214
003222	002000	A	MTT1	CALL	(B37C)*		01	00215
003223	100423	A						
003224	100445	A		EXC	0400+PRTY		01	00216
003225	030424	A		LDX	\$MSH		01	00217
003226	002000	A		CALL	(OUTD)*		01	00218
003227	100403	A						
003230	006030	A		LDXI	HDG2		01	00219
003231	005460	A						
003232	002000	A		CALL	(OUTD)*		01	00220
003233	100403	A						
003234	005001	A		TZA			01	00221
003235	050547	A		STA	TBL		01	00222
003236	006010	A		LDAI	30		01	00223
003237	000036	A						

003237	A	228	036	RDJ	*=1		B	01	00224
003240	A	229		STA	TBL+1			01	00225
003241	A	230	MTT2	RDF		RESET COMMA INDICATOR		01	00226
003242	A	231		LDAI	MTT2	RETURN TO MTT2	B	01	00227
003243	A								
003244	A	232		LDXI	PWRP	ON POWER FAILURE	B	01	00228
003245	A								
003246	A	233		STA	0,1		B	01	00229
003247	A	234		CALL	(INPG)*	INPUT N		01	00230
003250	A								
003251	A	235		JMP	MTOP	SS3		01	00231
003252	A								
003253	A	236		JMP	MTT1+5	BACKSLASH		01	00232
003254	A								
003255	A	237		SDF		COMMA		01	00233
003256	A	238		MEKQ	011	NOP		01	00234
003257	A	239		LDB	SDCT	TEST ALL OF MEMORY ?		01	00235
003260	A	240		JPT	MTT4	YES, GOTD MTT4		01	00236
003261	A								
003262	A	241		CALL	MTP2,TPR,TTR	PUT INTO TBL, PARAMETER ERROR, TBL SIZE ERR	01	00237	
003263	A								
003264	A								
003265	A								
003266	A	242		JOP	MTT2	GET NEXT N IF COMMA IND SET		01	00238
003267	A								
003270	A	243	MTT3	LDA	TBL	FIX TBL LENGTH		01	00239
003271	A	244		STA	TBL+1			01	00240
003272	A	245		JMP	MTT3			01	00241
003273	A								
003274	A	246	MTT4	CALL	MTPI,TTR	TBL=ALL OF MEMORY		01	00242
003275	A								
003276	A								
003277	A	247		JMP	MTT3			01	00243
003300	A								
003301	A	248	MTT5	LDXI	HDC6	CYCLES *		01	00244
003302	A								
003303	A	249		CALL	(OUT0)*			01	00245
003304	A								
003305	A	250		CALL	(INPG)*	INPUT CYCLES		01	00246
003306	A								
003307	A	251		JMP	OTEM	SS3 TERMINATE		01	00247
003310	A								



003311	001000	A	252		JMP	MTT5	HACKSLASH		01	00248	
003312	003301	A									
003313	001000	A	253		JMP	MTT6	COMMA (PRINT 'END MEMO')		01	00249	
003314	003322	A									
003315	050505	A	254		STA	CYCL	SAVE CYCLES		01	00250	
003316	005001	A	255		TZA				01	00251	
003317	050506	A	256		STA	EMEM	SET FLAG TO SUPPRESS END MEMO		01	00252	
003320	001000	A	257		JMP	MINT	BRANCH TO TEST INITIALIZATION		01	00253	
003321	003635	A									
003322	050505	A	258	MTT6	STA	CYCL	SAVE CYCLES		01	00254	
003323	005001	A	259		TZA				01	00255	
003324	005211	A	260		CPA				01	00256	
003325	050506	A	261		STA	EMEM	SET FLAG TO PRINT END MEMO		01	00257	
003326	001000	A	262		JMP	MINT			01	00258	
003327	003635	A									
003330	006030	A	263	TTR	LDXI	H0G3	'TOO MANY PARAMETERS'		01	00259	
003331	005500	A									
003332	002000	A	264		CALL	(OUTD)*			01	00260	
003333	100403	A									
003334	001000	A	265		JMP	MTT1			01	00261	
003335	003222	A									
003336	006030	A	266	TPR	LDXI	H0G5	'MODULE NOT WITHIN MEMORY RANGE'		01	00262	
003337	005514	A									
003340	002000	A	267		CALL	(OUTD)*			01	00263	
003341	100403	A									
003342	001000	A	268		JMP	MTT1			01	00264	
003343	003222	A									
	106612	A	269	CRLF	SET	0106612	CARRIAGE RETURN / LINE FEED		01	00265	
003344	106612	A	270	H0G1	DATA	CRLF, 'MEMORY TEST', CRLF, 0			01	00266	
003345	146705	A									
003346	146717	A									
003347	151331	A									
003350	120324	A									
003351	142723	A									
003352	152240	A									
003353	106612	A									
003354	000000	A									
	003353	A	271	NL	EQU	H0G1+7		B	01	00267	
			272	*					01	00268	
			273	*****						01	00269
			274	*	INPUT PARAMETERS (CONSOLE MODE)				*01	00270	
			275	*****						01	00271



PAGE	N	10/24/74	MEMPT2	VIRTXII	DASMP	1527 HOURS		
003355	002000	A	276	MTCM	CALL	(ESZC)*	X=ADDRS OF HIGHEST AVAILABLE CORE	01 00272
003356	100423	A						
003357	100445	A	277		EXC	0400+PRTY	ENABLE PARITY INTERRUPTS	01 00273
003360	030441	A	278		LDX	SMEM		01 00274
003361	005103	A	279		INCR	03	SET A REG FOR ALL MEM, CONTINUES EXECUTION	01 00275
003362	004541	A	280		LLSR	1	INIT TBL	01 00276
003363	050547	A	281		STA	TBL		01 00277
003364	013237	A	282		LDA	U36		01 00278
003365	050550	A	283		STA	TBL+1		01 00279
003366	005021	A	284		TBA	A=10---0		01 00280
003367	001000	A	285		JMP	MTC1+1		01 00281
003370	003372	A						
003371	005001	A	286	MTC1	IZA			01 00282
003372	000037	A	287		HLT	037	INPUT PARAMETERS	01 00283
003373	001004	A	288		JAN	MTC4	INPUT CYCLES? YES, GO TO MTC4	01 00284
003374	003412	A						
003375	002000	A	289		CALL	MTC2, MTC3	PUT INTO TBL	01 00285
003376	003531	A						
003377	003403	A						
003400	003406	A						
003401	001000	A	290		JMP	MTC1		01 00286
003402	003371	A						
003403	005301	A	291	MTC2	DECR	01	PARAMETER EXCEEDS MEM A=-1	01 00287
003404	001000	A	292		JMP	MTC1+1		01 00288
003405	003372	A						
003406	013407	A	293	MTC3	LDA	**1	TOO MANY PARAMETERS	01 00289
003407	000077	A	294		HLT	077		01 00290
003410	001000	A	295		JMP	MTCM		01 00291
003411	003355	A						
003412	005150	A	296	MTC4	ANAI	077777	STORE CYCLES	01 00292
003413	077777	A						
003414	050505	A	297		STA	CYCL		01 00293
003415	010547	A	298		LDA	TBL	TEST ALL OF MEMORY	01 00294
003416	001010	A	299		JAZ	MTC6		01 00295
003417	003424	A						
003420	010547	A	300	MTC5	LDA	TBL	FIX TBL LENGTH	01 00296
003421	050550	A	301		STA	TBL+1		01 00297
003422	001000	A	302		JMP	MINT		01 00298
003423	003635	A						
003424	001000	A	303	MTC6	CALL	MTC1, MTC3	TBL=ALL OF MEMORY	01 00299
003425	003450	A						
003426	003405	A						



003427	001000	A	304	JMP	MTC5		01	00300
003430	003420	A						
			305	*****			01	00301
			306	*	PARAMETER INPUT SUBROUTINES		*01	00302
			307	*****			01	00303
			308	*			01	00304
			309	*	TBL = ALL OF MEMORY		01	00305
			310	*			01	00306
003431	003302	A	311	MTP3	DECR	02	01	00307
003432	003123	A	312		INCR	023	01	00308
003433	002000	A	313		CALL	MTP2,MTP7,MTP5 TBL = MODULE (A)	01	00309
003434	003531	A						
003435	003446	A						
003436	003441	A						
003437	001000	A	314	JMP	MTP3+1		01	00310
003440	003432	A						
003441	033450	A	315	MTP5	LDX	MTP1 TOO MANY PARAMETERS	01	00311
003442	035000	A	316		LDX	0,I	01	00312
003443	073450	A	317		STX	MTP1	01	00313
003444	001000	A	318		JMP	(MTP1)*	01	00314
003445	103450	A						
003446	043450	A	319	MTP7	INR	MTP1 NORMAL EXIT	01	00315
003447	001000	A	320		JMP	0	01	00316
003450	000000	A						
003450			321	MTP1	RES	0 ENTRY	01	00317
003451	001000	A	322		JMP	MTP3	01	00318
003452	003431	A						
			323	*			01	00319
			324	*	TBL = MODULE (A)		01	00320
			325	*			01	00321
003453	001010	A	326	MTP4	JAZ	MTP8 TBL=1ST 4K? YES,GOTO MTP8	01	00322
003454	003505	A						
003455	004254	A	327		LRLA	12 PARAMETER EXCEEDS MEMORY ?	01	00323
003456	140441	A	328		SUB	MEM YES,GOTO MTP6	01	00324
003457	001002	A	329		JAP	MTP6	01	00325
003460	003500	A						
003461	120441	A	330		ADD	MEM	01	00326
003462	002000	A	331		CALL	UADA,TBL,MTP0 PUT PARAMETERS INTO TBL	01	00327
003463	003565	A						
003464	000547	A						
003465	003521	A						
003466	005110	A	332		DRAI	07777	01	00328



003467	007777	A						
003470	002000	A	333	CALL	UADA, TBL, MTP0			01 00329
003471	003565	A						
003472	000547	A						
003473	003521	A						
003474	043531	A	334	INR	MTP2	NORMAL EXIT		01 00330
003475	043531	A	335	INR	MTP2			01 00331
003476	001000	A	336	JMP	(MTP2)*			01 00332
003477	103531	A						
003500	033531	A	337	MTP6 LDX	MTP6	PARAMETER EXCEEDS MEM, EXIT		01 00333
003501	035000	A	338	LDX	0,1			01 00334
003502	073504	A	339	STX	*+2			01 00335
003503	001000	A	340	JMP	0			01 00336
003504	000000	A						
003505	000001	A	341	MTP8 IZA		TBL #1ST 4K		01 00337
003506	050535	A	342	STA	TBL0			01 00338
003507	002000	A	343	CALL	UACA, TBL0, MTPA	TRANSFER TBL5		01 00339
003510	003526	A						
003511	000535	A						
003512	003526	A						
003513	002000	A	344	CALL	UADA, TBL, MTP0			01 00340
003514	003565	A						
003515	000547	A						
003516	003521	A						
003517	001000	A	345	JMP	MTP8+2			01 00341
003520	003507	A						
003521	033531	A	346	MTP0 LDX	MTP2	TBL UVFL EXIT		01 00342
003522	035001	A	347	LDX	1,1			01 00343
003523	073525	A	348	STX	*+2			01 00344
003524	001000	A	349	JMP	0			01 00345
003525	000000	A						
003526	043531	A	350	MTPA INR	MTP2	NORMAL EXIT		01 00346
003527	043531	A	351	INR	MTP2			01 00347
003530	001000	A	352	JMP	0			01 00348
003531	000000	A						
003531			353	MTP2 BES	0	ENTRY		01 00349
003532	001000	A	354	JMP	MTPA			01 00350
003533	003453	A						
			355	*				01 00351
			356	*				01 00352
			357	*	*****			01 00353
			358	*	*			01 00354



			359 *		* PUT ITEM INTO TABLE *		01	00355
			360 *		*		01	00356
			361 *		*****		01	00357
			362 *	CALL	UADA, TBLPTR, OVFLXIT INCR ()TBLPTR, IF .GT. ()TBLPTR+1		01	00358
			363 *		GOTO OVFLXIT, FLSE		01	00359
			364 *		() (TBLPTR+()TBLPTR) = A		01	00360
			365 *		TBL = INDEX, TBLSIZE, ITEM1, . . . , ITEMN		01	00361
003534	033565	A	366	UADB	LDB UADA B=TBLPTR		01	00362
003535	025000	A	367		LDB 0,1		01	00363
003536	046000	A	368		INR 0,2 INCR ()TBLPTR		01	00364
003537	016001	A	369		LDA 1,2 IF ()TBLPTR .GT. () (TBLPTR+1), GOTO ENDEXIT		01	00365
003540	145000	A	370		SUB 0,2		01	00366
003541	001004	A	371		JAN UADC		01	00367
003542	003556	A						
003543	005121	A	372		INCR 021		01	00368
003544	126000	A	373		ADD 0,2		01	00369
003545	005012	A	374		TAB		01	00370
003546	013573	A	375		LDA UADB RESTORE A, B, X		01	00371
003547	056000	A	376		STA 0,2		01	00372
003550	023574	A	377		LDB UADD+1		01	00373
003551	033575	A	378		LDX UADD+2		01	00374
003552	043565	A	379		INR UADA EXIT (RETURN+2)		01	00375
003553	043565	A	380		INR UADA		01	00376
003554	001000	A	381		JMP [UADA] *		01	00377
003555	103565	A						
003556	015001	A	382	UADC	LDA 1,1 SET EXIT		01	00378
003557	053564	A	383		STA UADA-1 RESTORE A, B, X		01	00379
003560	013573	A	384		LDA UADD		01	00380
003561	023574	A	385		LDB UADD+1		01	00381
003562	033575	A	386		LDX UADD+2		01	00382
003563	001000	A	387		JMP * OVFLXIT (RETURN+1) *		01	00383
003564	003563	A						
003565	000000	A	388	UADA	ENTR ENTRY POINT		01	00384
003566	053573	A	389		STA UADD SAVE A, B, X		01	00385
003567	063574	A	390		STB UADD+1		01	00386
003570	073575	A	391		STX UADD+2		01	00387
003571	001000	A	392		JMP UADB CONTINUE		01	00388
003572	003534	A						
003573			393	UADD	BSS 3		01	00389
			394 *				01	00390
			395 *				01	00391
			396 *		*****		01	00392



			397	*	*			01	00393
			398	*	*	GET NEXT ITEM FROM TABLE	*	01	00394
			399	*	*		*	01	00395
			400	*	*	*****		01	00396
			401	*	CALL	UACA, TBLPTR, ENDEXIT	(A) = () (TBL+1 + () (TBLPTR))	01	00397
			402	*				01	00398
			403	*		TBL=INDEX, TBLSIZE, ITEM1, ..., ITEMN		01	00399
003576	033626	A	404	UACH	LDX	UACA	(B) = TBLPTR	01	00400
003577	025000	A	405		LOB	0,1		01	00401
003600	046000	A	406		INR	0,2	INCR () TBLPTR	01	00402
003601	016001	A	407		LDA	1,2	IF () TBLPTR .GT. () (TBLPTR+1), GOTO ENDEXIT	01	00403
003602	146000	A	408		SUB	0,2		01	00404
003603	001004	A	409		JAN	UACC		01	00405
003604	003617	A							
003605	003121	A	410		INCR	021	(A) = () (TBLPTR+1) + () (TBLPTR)	01	00406
003606	126000	A	411		ADD	0,2		01	00407
003607	005012	A	412		TAB			01	00408
003610	016000	A	413		LDA	0,2		01	00409
003611	023633	A	414		LOB	UACD	RESTORE B, X	01	00410
003612	033634	A	415		LDX	UACD+1		01	00411
003613	043626	A	416		INR	UACA	EXIT (RETURN+2)	01	00412
003614	043626	A	417		INR	UACA		01	00413
003615	001000	A	418		JMP	(UACA)*		01	00414
003616	103626	A							
003617	016001	A	419	UACC	LDA	1,2	(A) = TBLSIZE	01	00415
003620	035001	A	420		LDX	1,1	SETEXIT	01	00416
003621	073625	A	421		STX	UACA-1		01	00417
003622	023633	A	422		LOB	UACD	RESTORE B, X	01	00418
003623	033634	A	423		LDX	UACD+1		01	00419
003624	001000	A	424		JMP	0	EXIT (RETURN+1) * #GOTO ENDEXIT	01	00420
003625	000000	A							
003626	000000	A	425	UACA	ENTR		ENTRY POINT	01	00421
003627	063633	A	426		STB	UACD	SAVE B, X	01	00422
003630	073634	A	427		STX	UACD+1		01	00423
003631	001000	A	428		JMP	UACB	CONTINUE	01	00424
003632	003576	A							
003633			429	UACD	BSB	2	(B), (X)	01	00425
			430	*				01	00426
			431	*	*****			01	00427
			432	*	SUBTEST DRIVER, AND CYCLES COUNTER			*01	00428
			433	*	*****			01	00429
003635	005001	A	434	MINI	TZA			01	00430

003636	050521	A	435	STA	TERR	INIT ERROR CTR		01	00431
003637	050522	A	436	STA	SWCH	SET TO PRINT ERROR TABLE HEADING		01	00432
003640	050504	A	437	STA	TCYC	TOTAL CYCLES EXECUTED = 0		01	00433
003641	050510	A	438	STA	TBAA		B	01	00434
003642	002000	A	439	JMPM	UTAC		C	*****	
003643	005420	A							
003644	007400	A	440	MIN1	RDF	RESET ERROR INDICATOR		01	00435
003645	008010	A	441	LDAI	MIN1	RETURN TO MIN1	B	01	00436
003646	003644	A							
003647	006030	A	442	LDCI	PWRR	ON POWER FAILURE	B	01	00437
003650	005445	A							
003651	055000	A	443	STA	0,1		B	01	00438
003652	002000	A	444	CALL	THAT	UNIQUE ADDRS		01	00439
003653	004142	A							
003654	005001	A	445	TZA		INIT TBL		01	00440
003655	050547	A	446	STA	TBL			01	00441
003656	002000	A	447	MIN2	CALL	UACA,TBL,MIN3 GET FRST ADDRS		01	00442
003657	003626	A							
003660	000547	A							
003661	003720	A							
003662	050514	A	448	STA	FRST			01	00443
003663	002000	A	449	CALL	UACA,TBL,MIN3 GET LAST ADDRS			01	00444
003664	003626	A							
003665	000547	A							
003666	003720	A							
003667	050515	A	450	STA	LAST			01	00445
003670	002000	A	451	JMPM	THAT	BINARY ADDRESS	B	01	00446
003671	004744	A							
003672	010504	A	452	LDA	TCYC	FIRST PASS	B	01	00447
003673	001010	A	453	JAZ	**4	YES	B	01	00448
003674	003677	A							
003675	001000	A	454	JNP	**7	NO	B	01	00449
003676	003704	A							
003677	010522	A	455	LDA	SWCH	ABORT IF ANY ERRORS	B	01	00450
003700	001010	A	456	JAZ	**4		B	01	00451
003701	003704	A							
003702	001000	A	457	JMP	TERM		B	01	00452
003703	003753	A							
003704	005001	A	458	TZA			B	01	00453
003705	050510	A	459	STA	TBAA		B	01	00454
003706	002000	A	460	CALL	TAZT	ALL ZEROS		01	00455
003707	004255	A							



003710	002000	A	461	CALL	TADT	ALL UNES	01	00456	
003711	004301	A							
003712	002000	A	462	CALL	ICBT	CHECKERBOARD	01	00457	
003713	004325	A							
003714	002000	A	463	CALL	TBCY	BIT COMPLIMENT	B	01 00459	
003715	004503	A							
003716	001000	A	464	JMP	MIN2	CONTINUE TO NEXT CASE	01	00460	
003717	003656	A							
003720	002000	A	465	CALL	DEM	DISPLAY 'END MEMO'	01	00461	
003721	003733	A							
003722	010505	A	466	LDA	CYCL	CONTINUES ?	01	00462	
003723	001010	A	467	JAZ	MIN1	YES, GOTO MIN1	01	00463	
003724	003644	A							
003725	005311	A	468	DAR		NO, DONE ?	01	00464	
003726	050505	A	469	STA	CYCL		01	00465	
003727	001010	A	470	JAZ	TERM	YES, GOTO TERM	01	00466	
003730	003753	A							
003731	001000	A	471	JMP	MIN1	NO, CONTINUE TO MIN1	01	00467	
003732	003644	A							
003733	000000	A	472	ENTR	D	DISPLAY END MEMO	01	00468	
003734	040504	A	473	INR	TCYC	TCYC = TCYC+1	01	00469	
003735	002000	A	474	JMPH	BTAC		C	*****	
003736	005420	A							
003737	010442	A	475	LDA	SEON	CONSOLE MODE? YES, RETURN	01	00472	
003740	001010	A	476	JAZ	(DEM)*		01	00473	
003741	103733	A							
003742	010506	A	477	LDA	EMEM	SUPPRESS MESSAGE ? YES, RETURN	01	00474	
003743	001010	A	478	JAZ	(DEM)*		01	00475	
003744	103733	A							
003745	006030	A	479	LDXI	H0GB	'END MEMO'	01	00476	
003746	005544	A							
003747	002000	A	480	CALL	(OUTD)*		01	00477	
003750	100403	A							
003751	001000	A	481	JMP	(DEM)*	RETURN	01	00478	
003752	103733	A							
			482	*****				01	00479
			483	*	TERMINATE TESTS		*01	00480	
			484	*****				01	00481
003753	100545	A	485	TER	EXC	0500+FRY	01	00482	
003754	010442	A	486	LDA	SEON	TERMINATE TEST, REPORT TOTALS	01	00483	
003755	001010	A	487	JAZ	TERM	MODE = CONSOLE ? YES, GO TO TERM	01	00484	
003756	004015	A							



003757	006030	A	488	LDXI	H0G9	'ERROR TOTAL =',TERR	01	00485	
003760	005552	A							
003761	002000	A	489	CALL	(OUTD)*		01	00486	
003762	100403	A							
003763	010521	A	490	LDA	TERR		01	00487	
003764	002000	A	491	CALL	(OUTE)*		01	00488	
003765	100404	A							
003766	006030	A	492	LDXI	H011	'NO. CYCLES RUN ='	01	00489	
003767	005505	A							
003770	002000	A	493	CALL	(OUTD)*		01	00490	
003771	100403	A							
003772	010504	A	494	LDA	TCYC	TOTAL CYCLES EXECUTED	01	00491	
003773	002000	A	495	CALL	(OUTE)*		01	00492	
003774	100404	A							
003775	010511	A	496	LDA	PFK	ANY POWER FAILURES?	B	01 00493	
003776	001010	A	497	JAZ	TERR	-NO-	B	01 00494	
003777	004011	A							
004000	006030	A	498	LDXI	PFKN	'POWER FAILURES'	B	01 00495	
004001	005713	A							
004002	002000	A	499	CALL	(OUTD)*		B	01 00496	
004003	100403	A							
004004	005004	A	500	TZX			B	01 00497	
004005	010511	A	501	LDA	PFK	COUNT	B	01 00498	
004006	070511	A	502	STX	PFK	CLEAR COUNT	B	01 00499	
004007	002000	A	503	CALL	(OUTE)*		B	01 00500	
004010	100404	A							
	004011	A	504	TERD	EQD	*	B	01 00501	
004011	002000	A	505	CALL	(OUTC)*			01 00502	
004012	100402	A							
004013	001000	A	506	JMP	HTOP	CONTINUE		01 00503	
004014	003210	A							
004015	010521	A	507	TERN	LDA	TERR	A = TOTAL ERRORS	01 00504	
004016	020504	A	508	LDB	TCYC		B = NO. CYCLES	01 00505	
004017	030507	A	509	LDX	TEST		X = CURRENT (OR LAST) TEST	01 00506	
004020	000777	A	510	HLT	0777	DISPLAY TOTALS		01 00507	
004021	001000	A	511	JMP	HTOP	CONTINUE		01 00508	
004022	003210	A							
	512			*****				01	00509
	513	*		ERROR REPORTING ROUTINE				*01	00510
	514			*****				01	00511
004023	000000	A	515	MERR	ENTR	0		01 00512	
004024	007401	A	516	SDF				01 00513	



004025	040521	A	517		INR	TERR	INCR ERR CTR	01	00514
004026	060523	A	518		STB	SAVR	SAVE B (#TEST CYCLES)	01	00515
004027	070524	A	519		STX	SAVX	ERROR ADDRESS	01	00516
004030	002000	A	520		JMPM	DTAC		C	*****
004031	000420	A							
004032	010507	A	521		LDA	TEST		01	00517
004033	006150	A	522		ANAI	0777	SAVE HALT	B	01 00518
004034	000777	A							
004035	054004	A	523		STA	ERR1+2	GET TEST NO.	01	00519
004036	010502	A	524		LDA	MT#1	EXPECTED	01	00520
004037	020503	A	525		LDB	MT#2	ACTUAL	01	00521
004040	002000	A	526	ERR1	CALL	(SSWT)*	CALL SENSE SWITCH ROUTINE	01	00522
004041	100421	A							
004042	000000	A	527		DATA	0	TEST#	01	00523
004043	100052	A	528		DATA	(ERR0)*	ERR PRINTOUT	01	00524
004044	003753	A	529		DATA	TERM	SS3 EXIT	01	00525
004045	004126	A	530		DATA	LOOP	LOOP ON ERROR	01	00526
004046	020523	A	531		LDB	SAVR	RESTORE B	01	00527
004047	030524	A	532		LDX	SAVX		01	00528
004050	001000	A	533		JMP*	ERR	PROCEED WITH TEST	01	00529
004051	104023	A							
			534	*		ERRR	ERROR PRINTOUT SUBROUTINE	01	00530
004052	000000	A	535	ERR0	ENTR	0		01	00531
004053	002000	A	536		CALL	(OUT0)*		01	00532
004054	100402	A							
004055	010522	A	537		LDA	SWCH		01	00533
004056	001010	A	538		JAZ	**1		01	00534
004057	004062	A							
004060	001000	A	539		JMP	ERR1		01	00535
004061	004067	A							
004062	040522	A	540		INR	SWCH	SET TO BYPASS READING	01	00536
004063	000030	A	541		LDXI	RG10		01	00537
004064	005553	A							
004065	002000	A	542		CALL	(OUT0)*		01	00538
004066	100403	A							
004067	010507	A	543	ERR1	LDA	TEST	TEST NO.	01	00539
004070	002000	A	544		CALL	(OUT0)*		01	00540
004071	100404	A							
004072	010524	A	545		LDA	SAVX	ADDR	01	00541
004073	002000	A	546		CALL	(OUT0)*		01	00542
004074	100404	A							
004075	006010	A	547		LDAT	0120240		01	00543



004076	120240	A									
004077	002000	A	548	CALL	(OUTB)*				01	00544	
004100	100401	A									
004101	010502	A	549	LDA	MTW1	EXP			01	00545	
004102	002000	A	550	CALL	(OUTE)*				01	00546	
004103	100404	A									
004104	005010	A	551	LDAI	0120240				01	00547	
004105	120240	A									
004106	002000	A	552	CALL	(OUTB)*				01	00548	
004107	100401	A									
004110	002000	A	553	CALL	(OUTA)*				01	00549	
004111	100400	A									
004112	010503	A	554	LDA	MTW2	ACTUAL			01	00550	
004113	002000	A	555	CALL	(OUTE)*				01	00551	
004114	100404	A									
004115	010510	A	556	LDA	TBA A	TBCT TEST WORD		R	01	00552	
004116	001010	A	557	JAZ	**4			R	01	00553	
004117	004122	A									
004120	002000	A	558	CALL	(OUTE)*			R	01	00554	
004121	100404	A									
004122	001000	A	559	JMP*	ERR0	RETURN			01	00555	
004123	104052	A									
	560			*****						01	00556
	561	*		LOOP ON ERROR						*01	00557
	562			*****						01	00558
004124	001200	A	563	JSS2	ERR1-2	SS2 EXIT FROM LOOPING			01	00559	
004125	004036	A									
004126	001400	A	564	ELDP	JSS3	TERM	SS3 EXIT		01	00560	
004127	003753	A									
004130	010502	A	565	LDA	MTW1				01	00561	
004131	055000	A	566	STA	0,1			R	01	00562	
004132	005000	A	567	NOP					01	00563	
004133	135000	A	568	ERA	0,1	READ ERROR WORD			01	00564	
004134	001010	A	569	JAZ	ELDP-2	ERROR AGAIN? NO, TRY AGAIN			01	00565	
004135	004124	A									
004136	130502	A	570	ERA	MTW1	RESTORE			01	00566	
004137	050503	A	571	STA	MTW2				01	00567	
004140	001000	A	572	JMP	ERR1-2	REPORT			01	00568	
004141	004036	A									
	573			*****						01	00569
	574	*		SUBTEST ROUTINES						*01	00570
	575			*****						01	00571



004211	001000	A	601	JMP	TUAC	CONTINUE	01	00597	
004212	004173	A							
			602	*	INIT	UNIQUE ADDRS	01	00598	
004213	000000	A	603	IUA	ENTR	0	01	00599	
004214	030514	A	604		LDX	FRST	01	00600	
004215	005041	A	605	IUA1	TXA	()X = X	01	00601	
004216	055000	A	606		STA	0,1	01	00602	
004217	005144	A	607		IXR	X = X+1	01	00603	
004220	140515	A	608		SUB	LAST	01	00604	
004221	001004	A	609		JAN	IUA1	01	00605	
004222	004215	A				NO,CONTINUE			
004223	001000	A	610	JMP	(IUA)*	RETURN	01	00606	
004224	104213	A							
			611	*	TEST	UNIQUE ADDRS	01	00607	
004225	000000	A	612	TUA	ENTR	0	01	00608	
004226	020513	A	613		LDX	REP	01	00609	
004227	030514	A	614		LDX	FRST	01	00610	
004230	005041	A	615	TUA1	TXA	()X = X ?	01	00611	
004231	135000	A	616		ERA	0,1	01	00612	
004232	001010	A	617		JAZ	*+7	01	00613	
004233	004241	A							
004234	070502	A	618		STA	MT*1	01	00614	
004235	130502	A	619		ERA	MT*1	01	00615	
004236	050503	A	620		STA	MT*2	01	00616	
004237	002000	A	621		CALL	MERR	01	00617	
004240	004023	A							
004241	005041	A	622		TXA	A = X	01	00618	
004242	005144	A	623		IXR	X = X+1	01	00619	
004243	140515	A	624		SUB	LAST	01	00620	
004244	001004	A	625		JAN	TUA1	01	00621	
004245	004230	A							
004246	001020	A	626		JBZ	TUA+1	01	00622	
004247	004226	A							
004250	005322	A	627		DBR	DONE ?	01	00623	
004251	001020	A	628		JBZ	(TUA)*	01	00624	
004252	104223	A							
004253	001000	A	629	JMP	TUA+1	NO,CONTINUE	01	00625	
004254	004226	A							
630	*****							01	00626
631	*						01	00627	
632	*	ALL	ZEROS				01	00628	
633	*						01	00629	



004255	000000	A	634	TAZI	ENTR	0	ENTRY/EXIT	01	00630
004256	002000	A	635		CALL	TAZ	INIT	01	00631
004257	004266	A							
004260	014227	A	636		LDA	03	REP = 3	B	01 00632
004261	050513	A	637		STA	REP		01	00633
004262	002000	A	638		CALL	TES	TEST PATTERN	01	00634
004263	005124	A							
004264	001000	A	639		JMP	(TAZI)*	RETURN	01	00635
004265	104255	A							
			640	*	INIT	ALL ZEROS		01	00636
004266	000000	A	641	IAZ	ENTR	0		01	00637
004267	006010	A	642		LDAI	2	TEST = 2	01	00638
004270	000002	A							
004271	050507	A	643		STA	TEST		01	00639
004272	005001	A	644		IZA		BITS = 0	01	00640
004273	050516	A	645		STA	BITS		01	00641
004274	050517	A	646		STA	PAT1	PATTERN1 = 0	01	00642
004275	002000	A	647		CALL	SET	SET PATTERN INTO MEMORY	01	00643
004276	003107	A							
004277	001000	A	648		JMP	(IAZ)*		01	00644
004300	104266	A							
			649	*****				01	00645
			650	*				01	00646
			651	*	ALL ONES			01	00647
			652	*				01	00648
004301	000000	A	653	TAOT	ENTR	0	ENTRY/EXIT	01	00649
004302	002000	A	654		CALL	TAO	INIT	01	00650
004303	004312	A							
004304	014203	A	655		LDA	03	REP = 3	B	01 00651
004305	050513	A	656		STA	REP		01	00652
004306	002000	A	657		CALL	TES	TEST PATTERN	01	00653
004307	005124	A							
004310	001000	A	658		JMP	(TAOT)*	RETURN	01	00654
004311	104301	A							
			659	*	INIT	ALL ONES		01	00655
004312	000000	A	660	TAO	ENTR	0		01	00656
004313	014174	A	661		LDA	03	TEST = 3	B	01 00657
004314	050507	A	662		STA	TEST		01	00658
004315	005001	A	663		IZA		BITS = 0	01	00659
004316	050516	A	664		STA	BITS		01	00660
004317	005211	A	665		CPA		PATTERN1 = 1'S	01	00661
004320	050517	A	666		STA	PAT1	PATTERN1 = 1'S	01	00662

004321	002000	A	667	CALL	SET	SET PATTERN INTO MEMORY	01	00663	
004322	005107	A							
004323	001000	A	668	JMP	(YAO)*		01	00664	
004324	104312	A							
			669	*****				01	00665
			670	*			01	00666	
			671	*	CHECKER BOARD		01	00667	
			672	*			01	00668	
004325	000000	A	673	TCBT	FNTR	0	01	00669	
004326	014161	A	674	LDA	03	REP = 3	B	01 00670	
004327	050513	A	675	STA	REP		01	00671	
004330	002000	A	676	CALL	ICB	INIT CHECKER BOARD	01	00672	
004331	004342	A							
004332	002000	A	677	CALL	ICB	TEST CHECKER BOARD	01	00673	
004333	004411	A							
004334	002000	A	678	CALL	ICBC	INIT CHECKER BOARD COMPLIMENTED	01	00674	
004335	004351	A							
004336	002000	A	679	CALL	ICB	TEST CHECKER BOARD	01	00675	
004337	004411	A							
004340	001000	A	680	JMP	(TCBT)*		01	00676	
004341	104325	A							
			681	*	INIT CHECKER BOARD		01	00677	
004342	000000	A	682	ICB	ENTR	0	01	00678	
004343	002000	A	683	CALL	ICB1	B = 0252525	01	00679	
004344	004361	A							
004345	002000	A	684	CALL	ICB2	WRITE B AND NOT B INTO MEMORY	01	00680	
004346	004373	A							
004347	001000	A	685	JMP	(ICB)*	RETURN	01	00681	
004350	104342	A							
			686	*	INIT CHECKER BOARD COMPLIMENTED		01	00682	
004351	000000	A	687	ICBC	ENTR	0	01	00683	
004352	002000	A	688	CALL	ICB1	B = 0525252	01	00684	
004353	004361	A							
004354	005222	A	689	CPB			01	00685	
004355	002000	A	690	CALL	ICB2	WRITE B AND NOT B INTO MEMORY	01	00686	
004356	004373	A							
004357	001000	A	691	JMP	(ICBC)*	RETURN	01	00687	
004360	104351	A							
004361	000000	A	692	ICB1	FNTR		01	00688	
004362	014073	A	693	LDA	04	TEST = 4	R	01 00689	
004363	050507	A	694	STA	TEST		01	00690	
004364	014002	A	695	LDA	0525	B = 252525	B	01 00691	



004365	004250	A	696		LRLA	8			01	00692
004366	008110	A	697		ORAI	0525			01	00693
004367	000525	A								
	004367	A	698	0525	EGD	*-1		R	01	00694
004370	009012	A	699		TAB				01	00695
004371	001000	A	700		JMP	(ICB1)*	RETURN		01	00696
004372	104361	A								
			701	*					01	00697
004373	000000	A	702	ICB2	ENTR				01	00698
004374	030514	A	703		LDX	FRST	X = FRST		01	00699
004375	005221	A	704		DATA	05221	A = NOT (B) , WRITE PATTERN		01	00700
004376	065000	A	705		STB	0,1			01	00701
004377	005144	A	706		IXR				01	00702
004400	055000	A	707		STA	0,1			01	00703
004401	005144	A	708		JMP				01	00704
004402	005041	A	709		TXA		DONE?		01	00705
004403	140515	A	710		SUB	LAST			01	00706
004404	005311	A	711		DAR				01	00707
004405	001010	A	712		JAZ	(ICB2)*	DONE ? YES, RETURN		01	00708
004406	104373	A								
004407	001000	A	713		JMP	ICB2+2	CONTINUE		01	00709
004410	004375	A								
			714	*	TEST CHECKER BOARD				01	00710
004411	000000	A	715	ICB	ENTR	0			01	00711
004412	010513	A	716		LDA	REP	REP1 = REP		01	00712
004413	050512	A	717		STA	REP1			01	00713
004414	030514	A	718		LDX	FRST	READ PATTERN , INIT		01	00714
004415	060502	A	719	ICB8	STB	MTW1	EXPECTED = PATTERN		01	00715
004416	005021	A	720		TBA		TEST FIRST WORD		01	00716
004417	135000	A	721		ERA	0,1			01	00717
004420	001010	A	722		JAZ	*+6			01	00718
004421	004426	A								
004422	130502	A	723		ERA	MTW1	BAU, CALL HERE		01	00719
004423	050503	A	724		STA	MTW2			01	00720
004424	002000	A	725		CALL	NERP			01	00721
004425	004023	A								
004426	005221	A	726		DATA	05221	OK,		01	00722
004427	005144	A	727		IXR		TEST SECOND WORD		01	00723
004430	050502	A	728		STA	MTW1			01	00724
004431	135000	A	729		ERA	0,1			01	00725
004432	001010	A	730		JAZ	*+6			01	00726
004433	004440	A								

004434	130502	A	731	ERA	MTW1	BAD,CALL MERR	01	00727
004435	050503	A	732	STA	MTW2		01	00728
004436	002000	A	733	CALL	MERR		01	00729
004437	004023	A						
004440	005041	A	734	IXA		DONE?	01	00730
004441	005144	A	735	IXR			01	00731
004442	140515	A	736	SUB	LAST		01	00732
004443	001004	A	737	JAN	TCBR	NO,CONTINUE	01	00733
004444	004415	A						
004445	010512	A	738	LDA	REF1	CONTINUES ?	01	00734
004446	001010	A	739	JAZ	TCBB-1	YES,CONTINUE	01	00735
004447	004414	A						
004450	005311	A	740	DAR			01	00736
004451	001010	A	741	JAZ	(TCB)*	DONE ? YES,RETURN	01	00737
004452	104411	A						
004453	050512	A	742	STA	REF1		01	00738
004454	001000	A	743	JMP	TCBB-1	CONTINUE	01	00739
004455	004414	A						
004456	000004	A	744	DATA	4		C	*****
			745	INIT	WORST CASE		01	00760
004457	000000	A	746	ENTR	0		01	00761
004460	050516	A	747	STA	BITS		01	00762
004461	005001	A	748	TZA		PAT1 = 0	01	00763
004462	050517	A	749	STA	PAT1		01	00764
004463	005211	A	750	CPA		PAT2 = 1	01	00765
004464	050520	A	751	STA	PAT2		01	00766
004465	002000	A	752	CALL	SET	SET PATTERN INTO MEMORY	01	00767
004466	005107	A						
004467	040507	A	753	INR	TEST	TEST = TEST + 1	01	00768
004470	001000	A	754	JMP	(INCC)*		01	00769
004471	104457	A						
			755	INIT	WORST CASE COMPLIMENT		01	00770
004472	000000	A	756	ENTR	0		01	00771
			757				01	00772
004473	005001	A	758	TZA		COMPLIMENT PAT1 AND PAT2	01	00773
004474	050520	A	759	STA	PAT2		01	00774
004475	005211	A	760	CPA			01	00775
004476	050517	A	761	STA	PAT1		01	00776
004477	002000	A	762	CALL	SET	SET PATTERN INTO MEMORY	01	00777
004500	005107	A						
004501	001000	A	763	JMP	(INCC)*		01	00778
004502	104472	A						



			764	*****					01	00779
			765	*				B	01 00780	
			766	*	BIT COMPLIMENT			B	01 00781	
			767	*				B	01 00782	
004503	000000	A	768	TBCI	ENTR	0	SELECT WORST CASE PATTERN TABLE	B	01 00783	
004504	006010	A	769		LDAT	037	TEST = 037+N	B	01 00784	
004505	000037	A								
004506	050507	A	770		STA	TEST		B	01 00785	
004507	006010	A	771		LDAT	03	RFP#3	B	01 00786	
004510	000003	A								
	004510	A	772	03	EQD	*-1		B	01 00787	
004511	050513	A	773		STA	REP		B	01 00788	
004512	006020	A	774		LDUI	TBLI	TABLE OF WORSE CASE PATTERNS	B	01 00789	
004513	000525	A								
004514	005001	A	775	TBCA	TZA		INIT TBL	B	01 00790	
004515	056000	A	776		STA	0.2		B	01 00791	
004516	064002	A	777		STB	TBCR+2		B	01 00792	
004517	002000	A	778	TBCB	CALL	DACA,0,(TBCI)*	GET WORST CASE PATTERN FROM TABLE	B	01 00793	
004520	003626	A								
004521	000000	A								
004522	104503	A								
004523	002000	A	779		CALL	IWC	SET WORST CASE PATTERN INTO MEMORY	B	01 00794	
004524	004457	A								
004525	002000	A	780		CALL	TBC	TEST BIT COMPLIMENT	B	01 00795	
004526	004535	A								
004527	002000	A	781		CALL	IMCC	COMPLIMENT PATTERN	B	01 00796	
004530	004472	A								
004531	002000	A	782		CALL	TBC		B	01 00797	
004532	004535	A								
004533	001000	A	783		JMP	TBCB		B	01 00798	
004534	004517	A								
			784	*				B	01 00799	
004535	000000	A	785	TBC	ENTR	0		B	01 00800	
004536	005103	A	786		INCP	03	B = REP	P	01 00801	
004537	004541	A	787		LLSP	1	BITX = SIGN BIT ON	B	01 00802	
004540	064202	A	788		STB	BITX		B	01 00803	
004541	020513	A	789		LDH	REP		P	01 00804	
004542	030514	A	790		LDX	FRST	X = FRST	B	01 00805	
004543	014177	A	791	TBCI	LDAT	BITX	INIT BITC	B	01 00806	
004544	054175	A	792		STA	BITC		P	01 00807	
004545	005041	A	793		TXA		()X = 1'S	B	01 00808	
004546	002000	A	794		CALL	DAP		B	01 00809	



004547	005051	A								
004550	001004	A	795	JAN	TBC5	YES,GOTO		B	01	00810
004551	004634	A								
004552	005001	A	796	TBC2	TZA	ZERO		B	01	00811
004553	050502	A	797		STA	MTW1	EXPECTED	B	01	00812
004554	015000	A	798		LDA	0,1		B	01	00813
004555	050503	A	799		STA	MTW2	ACTUAL	B	01	00814
004556	001010	A	800		JAZ	***		B	01	00815
004557	004562	A								
004560	001000	A	801		JMP	TBC6	-ERROR-	B	01	00816
004561	004727	A								
004562	014157	A	802		LDA	BITC	()X = ()X XOR BITC	B	01	00817
004563	135000	A	803		ERA	0,1		B	01	00818
004564	055000	A	804		STA	0,1		B	01	00819
004565	050502	A	805		STA	MTW1	SAVE S/B	C	*****	
004566	015000	A	806		LDA	0,1		C	*****	
004567	050503	A	807		STA	MTW2	SAVE WAS	C	*****	
004570	130502	A	808		ERA	MTW1		C	*****	
004571	001010	A	809		JAZ	***	JUMP IF SAME	C	*****	
004572	004575	A								
004573	001000	A	810		JMP	TBC6		C	*****	
004574	004605	A								
004575	014144	A	811		LDA	BITC	()X = ()X XOR BITC	B	01	00820
004576	135000	A	812		ERA	0,1		B	01	00821
004577	055000	A	813		STA	0,1		B	01	00822
004600	001010	A	814		JAZ	TBC3	ERROR ? NO,SKIP REPORT	B	01	00823
004601	004511	A								
004602	050503	A	815		STA	MTW2	YES	B	01	00824
004603	005001	A	816		TZA		SET MTH1 = EXP,MTW2 = ACT	B	01	00825
004604	050502	A	817		STA	MTW1	CALL MERR	B	01	00826
004605	002000	A	818	TBC6	CALL	TBC6	MODIFY TEST # TO INCLUDE BIT	C	*****	
004606	004735	A								
004607	002000	A	819		CALL	MERR		B	01	00828
004610	004023	A								
004611	014130	A	820	TBC3	LDA	BITC	BITC = LOGICAL SHIFT RIGHT 1(BITC)	B	01	00829
004612	004341	A	821		LSRA	1		B	01	00830
004613	054126	A	822		STA	BITC	DONE ?	B	01	00831
004614	001010	A	823		JAZ	TBC7	YES	B	01	00832
004615	001520	A								
004616	001000	A	824		JMP	TBC2	NO,CONTINUE WITH SAME WORD	B	01	00833
004617	004552	A								
004620	005041	A	825	TBC7	TXA		A = X	B	01	00834



004621	005144	A	826		IXR		X = X+1	B	01	00835
004622	140515	A	827		SUB	LAST	DONE ?	B	01	00836
004623	001004	A	828		JAN	TBC1	NO, GET NEXT WORD	B	01	00837
004624	004543	A								
004625	001020	A	829	TBC4	JBZ	TBC1-1	FINISHED ? NO, CONTINUE	B	01	00838
004626	004542	A								
004627	005322	A	830		DHR			B	01	00839
004630	001020	A	831		JBZ	(TBC)*	YES, RETURN	B	01	00840
004631	104535	A								
004632	001000	A	832		JMP	TBC1-1	CONTINUE	B	01	00841
004633	004542	A								
004634	005301	A	833	TBC5	DECR	1	ONES	B	01	00842
004635	050502	A	834		STA	MTW1	EXPECTED	B	01	00843
004636	015000	A	835		LDA	0,1		B	01	00844
004637	050503	A	836		STA	MTW2	ACTUAL	B	01	00845
004640	005211	A	837		CPA			B	01	00846
004641	001010	A	838		JAZ	**+4		B	01	00847
004642	004645	A								
004643	001000	A	839		JMP	TBC2	-ERROR-	B	01	00848
004644	004727	A								
004645	014074	A	840		LDA	BITC	()X = ()X XOR BITC	B	01	00849
004646	135000	A	841		ERA	0,1		B	01	00850
004647	055000	A	842		STA	0,1		B	01	00851
004650	050502	A	843		STA	MTW1	SAVE S/B	C	*****	
004651	015000	A	844		LDA	0,1		C	*****	
004652	050503	A	845		STA	MTW2	SAVE WAS	C	*****	
004653	130502	A	846		ERA	MTW1		C	*****	
004654	001010	A	847		JAZ	**+4	JUMP IF SAME	C	*****	
004655	004650	A								
004656	001000	A	848		JMP	TBCF		C	*****	
004657	004672	A								
004658	014074	A	849		LDA	BITC	()X = ()X XOR BITC	B	01	00852
004659	135000	A	850		ERA	0,1		B	01	00853
004662	055000	A	851		STA	0,1		B	01	00854
004663	005211	A	852		CPA		ERROR ?	B	01	00855
004664	001010	A	853		JAZ	TBC6	NO, SKIP REPORT	B	01	00856
004665	004670	A								
004666	005211	A	854		CPA			B	01	00857
004667	050503	A	855		STA	MTW2	MTW1 = EXP, MTW2 = ACT	B	01	00858
004670	005301	A	856		DECR	01		B	01	00859
004671	050502	A	857		STA	MTW1		B	01	00860
004672	002000	A	858	TBCF	CALL	TBCF	MODIFY TEST # TO INCLUDE BIT	B	01	00861

004673	004705	A										
004674	002000	A	859		CALL	MERR		CALL MERR		B	01	00862
004675	004023	A										
004676	014043	A	860	TBC6	LDA	BITC		BITC * LOGICAL SHIFT RIGHT 1 (BITC)		B	01	00863
004677	004341	A	861		LSRA	1				B	01	00864
004700	054041	A	862		STA	BITC		DONE ?		B	01	00865
004701	001010	A	863		JAZ	TBC7		YES		B	01	00866
004702	004520	A										
004703	001000	A	864		JMP	TBC5		NO, CONTINUE WITH SAME WORD		B	01	00867
004704	004534	A										
			865	*	MODIFY TEST TO INDICATE BIT POSITION					B	01	00868
004705	000000	A	866	TBC8	ENIR	0				B	01	00869
004706	064032	A	867		STR	TBC6				B	01	00870
004707	014032	A	868		LDA	BITC		INIT		B	01	00871
004710	005302	A	869		DECR	02				P	01	00872
004711	001010	A	870	TBC9	JAZ	TBC0		DONE ? YES, GOTO TBC0		B	01	00873
004712	004717	A										
004713	004341	A	871		LSRA	1		SHIFT BITC		B	01	00874
004714	005122	A	872		IBR			INCR COUNT		B	01	00875
004715	001000	A	873		JMP	TBC0		CONTINUE		B	01	00876
004716	004711	A										
004717	010507	A	874	TBC0	LDA	TEST		MERGE BIT COUNT		B	01	00877
004720	154010	A	875		ANA	077		WITH TEST NUMBER		B	01	00878
004721	004046	A	876		LRLB	6				B	01	00879
004722	005031	A	877		MERG	031				B	01	00880
004723	050507	A	878		STA	TEST				B	01	00881
004724	024014	A	879		LDB	TBC6				B	01	00882
004725	001000	A	880		JMP	(TBC8) *		RETURN		B	01	00883
004726	104705	A										
004727	010507	A	881	TBC0	LDA	TEST		MERGE		B	01	00884
004730	006150	A	882		ANAI	077		BIT 18		B	01	00885
004731	000077	A										
	004731	A	883	077	EDU	*-1				B	01	00886
004732	006110	A	884		DRAI	04000		WITH		B	01	00887
004733	004000	A										
004734	050507	A	885		STA	TEST		TEST NO.		B	01	00888
004735	002000	A	886		CALL	MERR				B	01	00889
004736	004023	A										
004737	001000	A	887		JMP	TBC7		GOTO NEXT WORD		B	01	00890
004740	004520	A										
004741			888	TBC6	BSS	1		SAVE B		B	01	00891
004742			889	BITC	BSS	1		BIT COMPLEMENTED		B	01	00892

004743		890	BITX	BSS	1	(=MAX)		B	01	00893			
		891	*					B	01	00894			
		892	*****								B	01	00895
		893	*					B	01	00896			
		894	*	BINARY ADDRESS				B	01	00897			
		895	*					B	01	00898			
004744	000000	A	896	TBAT	ENTR	BINARY ADDRESS TEST		B	01	00899			
			897	*				B	01	00900			
			898	*				B	01	00901			
004745	010514	A	899	LDA	FRST			B	01	00902			
004746	006150	A	900	ANAI	070000			B	01	00903			
004747	070000	A											
004750	001010	A	901	JAZ*	TBAT	JUMP IF IN 1ST 4K		B	01	00904			
004751	104744	A											
004752	005111	A	902	IAR				B	01	00905			
004753	050510	A	903	STA	TBA4	TEST ADDRESS		B	01	00906			
004754	002000	A	904	TBA1	LALL	INITIALIZE TO ALL ZEROS		B	01	00907			
004755	004266	A											
004756	006010	A	905	LDA1	050	TEST = 50		B	01	00908			
004757	000050	A											
004760	050507	A	906	STA	TEST			B	01	00909			
004761	030510	A	907	LDX	TBA4			B	01	00910			
004762	003301	A	908	DECR	1	SET TEST WORD		B	01	00911			
004763	053000	A	909	STA	0,1	TO ONES		B	01	00912			
004764	030514	A	910	LDX	FRST			B	01	00913			
004765	005041	A	911	TBA2	TXA			B	01	00914			
004766	140510	A	912	SUB	TBA4			B	01	00915			
004767	001010	A	913	JAZ	TBA4	JUMP IF CHECK FOR ALL ONES		B	01	00916			
004770	005005	A											
004771	015000	A	914	LDA	0,1	CHECK FOR ALL ZEROS		B	01	00917			
004772	001010	A	915	JAZ	TBA3			B	01	00918			
004773	004776	A											
004774	001000	A	916	JMP	TBA2	ERROR NOT ALL ZEROS		B	01	00919			
004775	005036	A											
004776	005041	A	917	TBA3	TXA			B	01	00920			
004777	003144	A	918	IXR		STEP ADDRESS		B	01	00921			
005000	140515	A	919	SUB	LAST			B	01	00922			
005001	001010	A	920	JAZ	TBA5			B	01	00923			
005002	005013	A											
005003	001000	A	921	JMP	TBA2			B	01	00924			
005004	004765	A											
005005	015000	A	922	TBA4	LDA	0,1		B	01	00925			



005006	005211	A	923	CPA			B	01	00926	
005007	001010	A	924	JAZ	TBA3		B	01	00927	
005010	004776	A								
005011	001000	A	925	JMP	TBA0	ERROR NOT ALL ONES	B	01	00928	
005012	005026	A								
005013	010510	A	926	LDA	TFAA		B	01	00929	
005014	006150	A	927	ANAI	01777		B	01	00930	
005015	001777	A								
005016	120510	A	928	ADD	TFAA		B	01	00931	
005017	050510	A	929	STA	TFAA		B	01	00932	
005020	005150	A	930	ANAI	01777		B	01	00933	
005021	001777	A								
005022	001010	A	931	JAZ	TBA7		B	01	00934	
005023	005041	A								
005024	001000	A	932	JMP	TBA1		B	01	00935	
005025	004754	A								
			933	*			B	01	00936	
005026	005301	A	934	TBA0	DECF	1	B	01	00937	
005027	050502	A	935	TBA6	STA	MTW1	B	01	00938	
005030	015000	A	936		LDA	0,1	B	01	00939	
005031	050503	A	937		STA	MTW2	B	01	00940	
005032	002000	A	938		LALL	MEMR	B	01	00941	
005033	004023	A								
005034	001000	A	939	JMP	TBA3		B	01	00942	
005035	004776	A								
005036	005001	A	940	TBA2	TZA	ZEROS	B	01	00943	
005037	001000	A	941	JMP	TBA6		B	01	00944	
005040	005027	A								
005041	040510	A	942	TBA7	INR	TFAA	B	01	00945	
005042	010510	A	943		LDA	TFAA	B	01	00946	
005043	006150	A	944		ANAI	07000	B	01	00947	
005044	007000	A								
005045	001010	A	945	JAZ*	TBA7		B	01	00948	
005046	104744	A								
005047	001000	A	946	JMP	TBA1		B	01	00949	
005050	004754	A								
947	*****							B	01	00950
948	*	MISC ROUTINES							*01	00951
949	*****							*01	00952	
950	*	DERIVE ADDRS PARITY							01	00953
951	*								01	00954
952	*	ADDRS IN (A),RETURN PAT(0/I)							01	00955



			953 *					01	00956
005051	000000	A	954	DAP	ENTR	0	ENTRY/EXIT	01	00957
005052	001400	A	955		JSS3	TERM	SS3 TERMINATE TESTS	01	00958
005053	003753	A							
005054	064030	A	956		STB	DAP3	SAVE B	01	00959
005055	074030	A	957		STX	DAP3+1	SAVE X	01	00960
005056	005006	A	958		ZER0	06	ZERO B, X	01	00961
005057	030514	A	959		L0X	FRST	ATTEMPT TO MAKE CONSOLE LIGHTS MORE VISIBLE	01	00962
005060	150516	A	960		ANA	BITS	SELECT BITS	01	00963
005061	001010	A	961	DAP1	JAZ	DAP2	DONE ?	01	00964
005062	005072	A							
005063	004541	A	962		LLSR	1	NO, GET NEXT BIT	01	00965
005064	001020	A	963		JBZ	DAP1	EVEN PARITY?	01	00966
005065	005061	A							
005066	005144	A	964		IXR		NO	01	00967
005067	005002	A	965		IZB		RESET B	01	00968
005070	001000	A	966		JMP	DAP1	CONTINUE	01	00969
005071	005061	A							
005072	005041	A	967	DAP2	IXA		A*PAT1 IF EVEN	01	00970
005073	005150	A	968		ANAI	1	A*PAT2 IF ODD	01	00971
005074	000001	A							
005075	006120	A	969		ADDI	PAT1		01	00972
005076	000517	A							
005077	005014	A	970		TAX			01	00973
005100	015000	A	971		LDA	0,1		01	00974
005101	024003	A	972		LDB	DAP3	RETURN	01	00975
005102	034003	A	973		L0X	DAP3+1		01	00976
005103	001000	A	974		JMP	(DAP)*		01	00977
005104	105051	A							
005105			975	DAP3	BSS	2		01	00978
			976	*				01	00979
			977	*	SET			01	00980
			978	*			SET MEMORY TO TEST PATTERN	01	00981
			979	*			FRST, LAST, BITS, PAT1, PAT2	01	00982
			980	*				01	00983
005107	000000	A	981	SET	ENTR	0	ENTRY/EXIT	01	00984
005110	030514	A	982		L0X	FRST	X*FIRST ADDR3	01	00985
005111	005041	A	983	SET1	IXA		DERIVE ADDR3 PATTERN	01	00986
005112	002000	A	984		CALL	DAP		01	00987
005113	005051	A							
005114	055000	A	985		STA	0,1	STORE PATTERN	01	00988
005115	005041	A	986		IXA		DONE?	01	00989



005116	140515	A	987		SUB	LAST		01	00990
005117	001010	A	988		JAZ	(SET)*	YES, RETURN	01	00991
005120	105107	A							
005121	005144	A	989		JXR		ADDRS = ADDRS+1	01	00992
005122	001000	A	990		JMP	SET1	CONTINUE	01	00993
005123	005111	A							
			991	*				01	00994
			992	*	TES			01	00995
			993	*		TEST MEMORY PATTERN		01	00996
			994	*		REP, FRST, LAST, BITS, PAT1, PAT2		01	00997
			995	*				01	00998
005124	000000	A	996	TES	ENTR	0	ENTRY/EXIT	01	00999
005125	020513	A	997		LDB	REP	B = REPETITIONS	01	01000
005126	030514	A	998		LDX	FRST	X = FIRST ADDR	01	01001
005127	005041	A	999	TES1	TXA		DERIVE ADDR PATTERN	01	01002
005130	002000	A	1000		CALL	DAP		01	01003
005131	005051	A							
005132	050502	A	1001		STA	MTW1		01	01004
005133	015000	A	1002		LDA	0,1	GET ACTUAL PATTERN	01	01005
005134	050503	A	1003		STA	MTW2		01	01006
005135	130502	A	1004		FRA	MTW1	ERROR?	01	01007
005136	001010	A	1005		JAZ	**4		01	01008
005137	005142	A							
005140	002000	A	1006		CALL	HERR	YES, CALL HERR	01	01009
005141	004023	A							
005142	001400	A	1007		JSS3	TERM	SS3 TERMINATE TESTS	01	01010
005143	003753	A							
005144	005041	A	1008		TXA		DONE?	01	01011
005145	140515	A	1009		SUB	LAST		01	01012
005146	001010	A	1010		JAZ	TES2	YES, JMP TES2	01	01013
005147	005153	A							
005150	005144	A	1011		JXR		ADVANCE X TO NEXT WORD	01	01014
005151	001000	A	1012		JMP	TES1	CONTINUE	01	01015
005152	005127	A							
005153	001020	A	1013	TES2	JBZ	TES+2	CONTINUES ?, YES	01	01016
005154	005126	A							
005155	005322	A	1014		DBR		NO, DONE ?	01	01017
005156	001020	A	1015		JBZ	(TES)*	YES, RETURN	01	01018
005157	105124	A							
005160	001000	A	1016		JMP	TES+2	NO, CONTINUE	01	01019
005161	005126	A							
			1017	*					



			1018	*****01				01021
			1019	*	PARITY ERROR REPORTING ROUTINES			*01 01022
			1020	*****01				01023
005102			1021	IPEP	BSS	0	INSTRUCTION PARITY ERROR PROCESSOR	01 01024
005102	100545	A	1022	EXC		0500+PRTY	DISABLE PARTY INTERRUPTS	01 01025
005163	054032	A	1023	STA		IPEA	SAVE A	01 01026
005164	064032	A	1024	STB		IPEB	B	01 01027
005165	074032	A	1025	STX		IPEX	AND X	01 01028
005166	010100	A	1026	LDA		0100	A*ERROR ADDRESS	01 01029
005167	006020	A	1027	LDXI		0100	B*TRAP LOCATION	01 01030
005170	000100	A						
005171	002000	A	1028	CALL		(SSWT)*	CALL SENSE SWITCH ROUTINE	01 01031
005172	100421	A						
005173	005000	A	1029	DATA		05000	NOP	01 01032
005174	105202	A	1030	DATA		(IPE1)*	ERR PRINTOUT	01 01033
005175	003753	A	1031	DATA		YERM	SS3 EXIT	01 01034
005176	005177	A	1032	DATA		**1		01 01035
005177	005020	A	1033	HLT		020		01 01036
005200	001000	A	1034	JMP		TERM		01 01037
005201	003753	A						
			1035	*				01 01038
005202	000000	A	1036	IPE1	DATA	0		01 01039
005203	006030	A	1037	LDXI		HG12		01 01040
005204	005622	A						
005205	002000	A	1038	CALL		(OUTD)*	OUTPUT ERR MESSAGE	01 01041
005206	100403	A						
005207	010100	A	1039	LDA		0100		01 01042
005210	002000	A	1040	CALL		(OUTE)*	AND PARITY ERROR ADDRESS	01 01043
005211	100404	A						
005212	002000	A	1041	CALL		(OUTC)*	CR/LF	01 01044
005213	100402	A						
005214	001000	A	1042	JMP*		IPE1		01 01045
005215	105202	A						
005216	000000	A	1043	IPEA	DATA	0	REGISTER	01 01046
005217	000000	A	1044	IPEB	DATA	0	SAVE	01 01047
005220	000000	A	1045	IPEX	DATA	0	AREA	01 01048
			1046	*				01 01049
005221			1047	APER	BSS	0	ADDRESS PARITY ERROR PROCESSOR	01 01050
005221	100545	A	1048	EXC		0500+PRTY	DISABLE PARTY INTERRUPTS	01 01051
005222	054032	A	1049	STA		APEA	SAVE A	01 01052
005223	064032	A	1050	STB		APEB	B	01 01053
005224	074032	A	1051	STX		APFX	AND X	01 01054



Address	Op	Opnd	Opnd	Opnd	Opnd	Opnd	Opnd	Opnd
005225	LDA	0104	A	1052	A=ERROR ADDRESS			01 01055
005226	LDHI	0104	A	1053	B=TRAP LOCATION			01 01056
005227			A					
005230	CALL	(SSWT)*	A	1054	CALL SENSE SWITCH ROUTINE			01 01057
005231			A					
005232	DATA	05000	A	1055	NOP			01 01058
005233	DATA	(APE1)*	A	1056	ERR PRINTOUT			01 01059
005234	DATA	TERM	A	1057	SS3 EXIT			01 01060
005235	DATA	*+I	A	1058				01 01061
005236	HLT	021	A	1059				01 01062
005237	JMP	TERM	A	1060				01 01063
005240			A					
				1061 *				01 01064
005241	DATA	0	A	1062	APF1			01 01065
005242	LDXI	HG13	A	1063				01 01066
005243			A					
005244	CALL	(OUT0)*	A	1064	OUTPUT ERR MESSAGE			01 01067
005245			A					
005246	LDA	0104	A	1065				01 01068
005247	CALL	(OUTE)*	A	1066	AND PARITY ERROR ADDRESS			01 01069
005250			A					
005251	CALL	(OUTC)*	A	1067	CR/LF			01 01070
005252			A					
005253	JMP*	APE1	A	1068				01 01071
005254			A					
005255	DATA	0	A	1069	APEA	REGISTER		01 01072
005256	DATA	0	A	1070	APEB	SAVE		01 01073
005257	DATA	0	A	1071	APEX	AREA		01 01074
				1072 *				01 01075
005260	BSS	0	A	1073	OPER	OPERAND PARTTY ERROR PROCESSOR		01 01076
005260	EXC	0500+PRTY	A	1074		DISABLE PARITY INTERRUPTS		01 01077
005261	STA	UPEA	A	1075		SAVE A		01 01078
005262	STR	OPER	A	1076		B		01 01079
005263	STX	UPEX	A	1077		AND X		01 01080
005264	LDA	0110	A	1078		A=ERROR ADDRESS		01 01081
005265	LDHI	0110	A	1079		B=TRAP LOCATION		01 01082
005266			A					
005267	CALL	(SSWT)*	A	1080	CALL SENSE SWITCH ROUTINE			01 01083
005270			A					
005271	DATA	05000	A	1081	NOP			01 01084
005272	DATA	(OPE1)*	A	1082	ERR PRINTOUT			01 01085
005273	DATA	TERM	A	1083	SS3 EXIT			01 01086



005274	005275	A	1084	DATA	**1		01	01087
005275	000022	A	1085	HLT	022		01	01088
005276	001000	A	1086	JMP	TERM		01	01089
005277	003753	A						
			1087 *					
005300	000000	A	1088	OPE1	DATA	0	01	01090
005301	006030	A	1089	LOXI	HG14		01	01091
005302	005660	A						
005303	002000	A	1090	CALL	(0010)*	OUTPUT ERR MESSAGE	01	01093
005304	100403	A						
005305	010110	A	1091	LDA	0110		01	01094
005306	002000	A	1092	CALL	(00TE)*	AND PARITY ERROR ADDRESS	01	01095
005307	100404	A						
005310	002000	A	1093	CALL	(00TC)*	CR7LF	01	01096
005311	100402	A						
005312	001000	A	1094	JMP*	OPE1		01	01097
005313	105300	A						
			1095 *					
005314	000000	A	1096	OPEA	DATA	0	01	01098
						REGISTER	01	01099
005315	000000	A	1097	OPEB	DATA	0	01	01100
						SAVE		
005316	000000	A	1098	OPEX	DATA	0	01	01101
						AREA		
			1099 *					
005317			1100	TPEP	BSS	0	01	01102
						TRAP PARITY ERROR PROCESSOR	01	01103
005317	100545	A	1101	EXC	0500+PRTY	DISABLE PARTY INTERRUPTS	01	01104
005320	054032	A	1102	STA	TPEA	SAVE A	01	01105
005321	054032	A	1103	STB	TPEB	B	01	01106
005322	074032	A	1104	STX	TPEX	AND X	01	01107
005323	010114	A	1105	LDA	0114	A=ERROR ADDRESS	01	01108
005324	006020	A	1106	LDBI	0114	B=TRAP LOCATION	01	01109
005325	000114	A						
005326	002000	A	1107	CALL	(SSWT)*	CALL SENSE SWITCH ROUTINE	01	01110
005327	100421	A						
005330	005000	A	1108	DATA	05000	NOP	01	01111
005331	105337	A	1109	DATA	(TPE1)*	ERR PRINTOUT	01	01112
005332	003753	A	1110	DATA	TERM	SS3 EXIT	01	01113
005333	005334	A	1111	DATA	**1		01	01114
005334	000023	A	1112	HLT	023		01	01115
005335	001000	A	1113	JMP	TERM		01	01116
005336	003753	A						
			1114 *					
005337	000000	A	1115	TPE1	DATA	0	01	01117
005340	006030	A		LOXI	HG15		01	01118

005341	005676	A								
005342	002000	A	1117	CALL	(OUTD)*		OUTPUT ERR MESSAGE		01	01120
005343	100403	A								
005344	010114	A	1118	LDA	0114				01	01121
005345	002000	A	1119	CALL	(OUTE)*		AND PARITY ERROR ADDRESS		01	01122
005346	100404	A								
005347	002000	A	1120	CALL	(OUTC)*		CR/LF		01	01123
005350	100402	A								
005351	001000	A	1121	JMP*	TPE1				01	01124
005352	105337	A								
			1122	*					01	01125
005353	000000	A	1123	TPEA	DATA	0	REGISTER		01	01126
005354	000000	A	1124	TPEB	DATA	0	SAVE		01	01127
005355	000000	A	1125	TPEX	DATA	0	AREA		01	01128
			1126	*					C	*****
005356			1127	PER	BSS	1	PARITY ERROR		D	*****
005357	100545	A	1128	EXC	0500+PRTY		DISABLE PARITY INTERRUPTS		C	*****
005360	054034	A	1129	STA	PEA		SAVE A		C	*****
005361	064034	A	1130	STB	PEB		B		C	*****
005362	074034	A	1131	STX	PEX		AND X		C	*****
005363	017371	A	1132	LDA*	0371		A=ERROR ADDRESS		D	*****
005364	005020	A	1133	LDIB	0370		B=IRAP ADDRESS		C	*****
005365	000370	A								
005366	002000	A	1134	CALL	(SSWT)*		CALL SENSE SWITCH ROUTINE		C	*****
005367	100421	A								
005370	005000	A	1135	DATA	05000		NOP		C	*****
005371	105377	A	1136	DATA	(PE1)*		ERR PRINTOUT		C	*****
005372	003753	A	1137	DATA	TERM		553 EXIT		C	*****
005373	005374	A	1138	DATA	*+1				C	*****
005374	000024	A	1139	HLT	024				C	*****
005375	001000	A	1140	JMP	TERM				C	*****
005376	003753	A								
			1141	*					C	*****
005377	000000	A	1142	PE1	DATA	0			C	*****
005400	002000	A	1143	CALL	(OUTC)*				C	*****
005401	100402	A								
005402	006030	A	1144	LDXI	HG12+7				C	*****
005403	005631	A								
005404	002000	A	1145	CALL	(OUTD)*		OUTPUT ERR MESSAGE		C	*****
005405	100403	A								
005406	017371	A	1146	LDA*	0371				D	*****
005407	002000	A	1147	CALL	(OUTE)*		AND PARITY ERROR ADDRESS		C	*****



005455 142704 A
005456 106612 A
005457 000000 A

1174 *

01 01140

1175 * MESSAGE TABLE

01 01141

1176 *

01 01142

005460 106612 A 1177 HDG2 DATA CRLF, '4K MODULE(S) TO BE TESTED =', 0

01 01143

005461 132313 A

005462 120315 A

005463 147704 A

005464 152714 A

005465 142650 A

005466 151651 A

005467 120324 A

005470 147640 A

005471 141305 A

005472 120324 A

005473 142723 A

005474 152305 A

005475 142240 A

005476 136640 A

005477 000000 A

005500 152317 A 1178 HDG3 DATA 'TOO MANY PARAMETERS', CRLF, 0

01 01144

005501 147640 A

005502 146701 A

005503 147331 A

005504 120320 A

005505 140722 A

005506 140715 A

005507 142724 A

005510 142722 A

005511 151640 A

005512 106612 A

005513 000000 A

005514 146717 A 1179 HDG5 DATA 'MODULE NOT WITHIN MEMORY RANGE', CRLF, 0

01 01145

005515 142325 A

005516 146305 A

005517 120316 A

005520 147724 A

005521 120327 A

005522 144724 A

005523 144311 A



005524	147240	A						
005525	146705	A						
005526	146717	A						
005527	151331	A						
005530	120322	A						
005531	140716	A						
005532	143705	A						
005533	106612	A						
005534	000000	A						
005535	106612	A	1180	H0G6	DATA	CRLF, 'CYCLES = ', 0		01 01146
005536	141731	A						
005537	141714	A						
005540	142723	A						
005541	120275	A						
005542	120240	A						
005543	000000	A						
005544	106612	A	1131	H0G8	DATA	CRLF, 'END MEMO', 0		01 01147
005545	142716	A						
005546	142240	A						
005547	146705	A						
005550	146717	A						
005551	000000	A						
005552	106612	A	1182	H0G9	DATA	CRLF, 'ERROR TOTAL = ', 0		01 01148
005553	142722	A						
005554	151317	A						
005555	151240	A						
005556	152317	A						
005557	152301	A						
005560	146240	A						
005561	136640	A						
005562	000000	A						
005563	152305	A	1183	H0G10	DATA	'TEST ADDRESS EXPECTED ACTUAL', CRLF, 0		01 01149
005564	151724	A						
005565	120240	A						
005566	120301	A						
005567	142304	A						
005570	151305	A						
005571	151723	A						
005572	120240	A						
005573	142730	A						
005574	150305	A						
005575	141724	A						



005576	142704	A				
005577	120240	A				
005600	140703	A				
005601	152325	A				
005602	140714	A				
005603	106612	A				
005604	000000	A				
005605	106612	A	1184	HG11	DATA	CRLF, 'NUMBER OF CYCLES RUN =', 0
005606	147325	A				
005607	146702	A				
005610	142722	A				
005611	120317	A				
005612	143240	A				
005613	141731	A				
005614	141714	A				
005615	142723	A				
005616	120322	A				
005617	152716	A				
005620	120275	A				
005621	000000	A				
005622	106612	A	1185	HG12	DATA	CRLF, 'INSTRUCTION PARITY ERROR AT ', 0
005623	144716	A				
005624	151724	A				
005625	151325	A				
005626	141724	A				
005627	144717	A				
005630	147240	A				
005631	150301	A				
005632	151311	A				
005633	152331	A				
005634	120305	A				
005635	151322	A				
005636	147722	A				
005637	120301	A				
005640	152240	A				
005641	000000	A				
005642	106612	A	1186	HG13	DATA	CRLF, 'ADDRESS PARITY ERROR AT ', 0
005643	140704	A				
005644	142322	A				
005645	142723	A				
005646	151640	A				
005647	150301	A				



005650	151311	A				
005651	152331	A				
005652	120305	A				
005653	151322	A				
005654	147722	A				
005655	120301	A				
005656	152240	A				
005657	000000	A				
005660	106612	A	1187	HG14	DATA	CRLF, OPERAND PARITY ERROR AT 1,0 01 01153
005661	147720	A				
005662	142722	A				
005663	140716	A				
005664	142240	A				
005665	150301	A				
005666	151311	A				
005667	152331	A				
005670	120305	A				
005671	151322	A				
005672	147722	A				
005673	120301	A				
005674	152240	A				
005675	000000	A				
005676	106612	A	1188	HG15	DATA	CRLF, TRAP PARITY ERROR AT 1,0 01 01154
005677	152322	A				
005700	140720	A				
005701	120320	A				
005702	140722	A				
005703	144724	A				
005704	154640	A				
005705	142722	A				
005706	151317	A				
005707	151240	A				
005710	140724	A				
005711	120240	A				
005712	000000	A				
005713	106612	A	1189	PFKM	DATA	CRLF, POWER FAILURES 1,0 B 01 01155
005714	150317	A				
005715	153705	A				
005716	151240	A				
005717	143301	A				
005720	144714	A				
005721	152722	A				



005722 142723 A

005723 120275 A

005724 120240 A

005725 000000 A



			1190		EJEC			B	01	01156
			1191 *					B	01	01157
			1192 *		MEMORY CHECKERBOARD DUMP			B	01	01158
			1193 *					B	01	01159
003000			1194	ORG	03000			B	01	01160
			1195 *					B	01	01161
003000	005041	A	1196	MDMP	TXA			B	01	01162
003001	000001	A	1197		MLT	1	SET A=START ADDRESS	B	01	01163
003002	001004	A	1198		JAN	HTOP		B	01	01164
003003	003210	A								
003004	153073	A	1199		ANA	070K	SAVE 4K START	B	01	01165
003005	005014	A	1200		TXA		IN X	B	01	01166
003006	002000	A	1201	MDM1	CALL*	OUTC	CR/LF	B	01	01167
003007	100402	A								
003010	005041	A	1202		TXA		OUTPUT	B	01	01168
003011	153073	A	1203		ANA	070K	FIRST	B	01	01169
003012	004354	A	1204		LSRA	12	THREE	B	01	01170
003013	123076	A	1205		ADD	ZERO	OCTAL	B	01	01171
003014	002000	A	1206		CALL*	OUTA	DIGITS	B	01	01172
003015	100400	A								
003016	005041	A	1207		TXA		OF	B	01	01173
003017	153074	A	1208		ANA	07K	ADDRESS	B	01	01174
003020	004351	A	1209		LSRA	9		B	01	01175
003021	123076	A	1210		ADD	ZERO		B	01	01176
003022	002000	A	1211		CALL*	OUTA		B	01	01177
003023	100400	A								
003024	005041	A	1212		TXA			B	01	01178
003025	153075	A	1213		ANA	0700		B	01	01179
003026	004346	A	1214		LSRA	6		B	01	01180
003027	123076	A	1215		ADD	ZERO		B	01	01181
003030	002000	A	1216		CALL*	OUTA		B	01	01182
003031	100400	A								
003032	013077	A	1217		LDA	SPEC		B	01	01183
003033	002000	A	1218		CALL*	OUTA		B	01	01184
003034	100400	A								
003035	015000	A	1219	MDM2	LDA	0,1	GET WORD	B	01	01185
003036	001010	A	1220		JAZ	A0	ZERO?	B	01	01186
003037	003065	A								
003040	005111	A	1221		JAN			B	01	01187
003041	001010	A	1222		JAZ	A1	-1?	B	01	01188
003042	003070	A								
003043	013101	A	1223		JAZ	NO1	NOT ZERO OR MINDS ONE	B	01	01189



003044	002000	A	1224	MDM3	CALL*	OUTA		B	01	01190
003045	100400	A								
003046	005145	A	1225		INCB	045	BVUMP X TO A	B	01	01191
003047	153102	A	1226		ANA	E0B		B	01	01192
003050	001010	A	1227		JAZ	MD09	END OF 4K?	B	01	01193
003051	003057	A								
003052	153103	A	1228		ANA	E0L		B	01	01194
003053	001010	A	1229		JAZ	MDM1	END OF LINE?	B	01	01195
003054	003006	A								
003055	001000	A	1230		JMP	MD02		B	01	01196
003056	003035	A								
003057	002000	A	1231	MDM9	CALL*	OUTC	CR/LF	B	01	01197
003060	100402	A								
003061	002000	A	1232		CALL*	OUTC	CR/LF	B	01	01198
003062	100402	A								
003063	001000	A	1233		JMP	MDMP		B	01	01199
003064	003000	A								
003065	013076	A	1234	A0	LDA	ZERO		B	01	01200
003066	001000	A	1235		JMP	MDM3		B	01	01201
003067	003044	A								
003070	013100	A	1236	A1	LDA	ONE		B	01	01202
003071	001000	A	1237		JMP	MDM3		B	01	01203
003072	003044	A								
003073	070000	A	1238	070K	DATA	070000		B	01	01204
003074	007000	A	1239	07K	DATA	07000		B	01	01205
003075	000700	A	1240	0700	DATA	0700		B	01	01206
003076	130260	A	1241	ZERO	DATA	'00'		B	01	01207
003077	120240	A	1242	SPOF	DATA	' '		B	01	01208
003100	130061	A	1243	ONE	DATA	'11'		B	01	01209
003101	126655	A	1244	NO1	DATA	'--'		B	01	01210
003102	007777	A	1245	E0B	DATA	07777		B	01	01211
003103	000077	A	1246	E0L	DATA	077		B	01	01212
	003200	A	1247		END	STRT			01	01213

ENTRY NAMES
EXTERNAL NAMES

SYMBOLS

000442	A	\$CON	000471	A	\$DCT	000440	A	\$FLG	000422	A	\$LWE
000441	A	\$MEM	000424	A	\$MSH	003065	A	A0	003070	A	A1
005241	A	APEI	005255	A	APEA	005256	A	APEB	005221	A	APER
005257	A	APEX	004742	A	BITC	000516	A	BITS	004743	A	BITX
106612	A	CRLF	000505	A	CYCL	005051	A	DAP	005061	A	DAP1
005072	A	DAP2	005105	A	DAP3	003733	A	DEM	004126	A	ELDP



000506	A	EMEM	003102	A	EUB	003103	A	EUL	004067	A	ERP1
004052	A	ERPD	004040	A	ERR1	000423	A	ESZC	000514	A	FRST
003344	A	HGG1	005460	A	HGG2	005500	A	HGG3	005514	A	HGG5
005535	A	HGG6	005544	A	HGG8	005552	A	HGG9	005553	A	HG10
005605	A	HG11	005622	A	HG12	005642	A	HG13	005660	A	HG14
005676	A	HG15	004312	A	IA0	004266	A	IAZ	004342	A	ICB
004361	A	ICB1	004373	A	ICB2	004351	A	ICBC	000410	A	INPA
000411	A	INPB	000412	A	INPC	000413	A	INPD	000414	A	INPE
000415	A	INPF	000416	A	INPG	005202	A	IPE1	005216	A	IPEA
005217	A	IPEB	005162	A	IPEK	005220	A	IPEX	004213	A	IOA
004215	A	IUA1	004457	A	IWC	004472	A	IWCC	000515	A	LAST
003006	A	MDM1	003035	A	MDM2	003044	A	MDM3	003057	A	MDM9
003000	A	MDMP	004023	A	MERK	003644	A	MIN1	003656	A	MIN2
003720	A	MINS	003635	A	MINT	003371	A	MTC1	003403	A	MTC2
003406	A	MTC3	003412	A	MTC4	003420	A	MTC5	003424	A	MTC6
003355	A	MTCM	003210	A	MIDP	003521	A	MTP0	003450	A	MTP1
003531	A	MTP2	003431	A	MTP3	003453	A	MTP4	003441	A	MTP5
003500	A	MTP6	003446	A	MTP7	003505	A	MTP8	003526	A	MTPA
003222	A	MTT1	003241	A	MTT2	003270	A	MTT3	003274	A	MTT4
003301	A	MTT5	003322	A	MTT6	003213	A	MTTM	000502	A	MTWI
000503	A	MTW2	003101	A	N01	003353	A	NL	004510	A	03
003237	A	036	004456	A	04	004367	A	0525	003075	A	0700
003073	A	070K	004731	A	077	003074	A	07K	003100	A	0NE
005300	A	0PE1	005314	A	0PEA	005315	A	0PEB	005260	A	0PER
005316	A	0PEX	005420	A	0TAC	000400	A	0UTA	000401	A	0UTB
000402	A	0UTC	000403	A	0UTD	000404	A	0UTE	000405	A	0UTF
000406	A	0UTG	000407	A	0UTH	000517	A	PAT1	000520	A	PAT2
005377	A	PE1	005415	A	PEA	005416	A	PEB	005356	A	PER
005417	A	PEX	000511	A	PEK	005713	A	PFKM	005446	A	PFHG
000045	A	PRTY	005434	A	PRUP	005445	A	PWRR	000513	A	REP
000512	A	REP1	003220	A	RM1	000523	A	SAVB	000524	A	SAVX
005107	A	SET	005111	A	SET1	003260	A	SM2	003077	A	SPCE
000421	A	SSWT	003200	A	STRT	000522	A	SWCH	004501	A	TADT
004255	A	TAZT	004754	A	TBA1	004765	A	TBA2	004776	A	TBA3
005005	A	TBA4	005013	A	TBA5	005027	A	TBA6	005041	A	TBA7
000510	A	TBAA	005026	A	TBAU	004744	A	TBAT	005036	A	TBAZ
004535	A	TBC	004643	A	TBC1	004552	A	TBC2	004611	A	TBC3
004625	A	TBC4	004634	A	TBC5	004676	A	TBC6	004620	A	TBC7
004705	A	TBC8	004711	A	TBC9	004514	A	TBCA	004517	A	TBCB
004727	A	TBCC	004717	A	TBCD	004741	A	TBCE	004672	A	TBCF
004605	A	TBCG	004713	A	TBCT	000547	A	TBL	000535	A	TBL0
000525	A	TBL1	004711	A	TCE	004413	A	TCBB	004325	A	TCBT



000504 A TCYC	000420 A TDLY	003753 A TERM	004015 A TERN
004011 A TERD	000521 A TERR	005124 A TES	005127 A TESI
005153 A TES2	000507 A TEST	000417 A TOUT	005337 A TPE1
005353 A TPEA	005354 A TPER	005317 A TPER	005355 A TPEX
003336 A TPR	003330 A TTR	004225 A TUA	004230 A TUA1
004147 A TUAA	004167 A TUAB	004173 A TUAC	004142 A TUAT
003626 A UACA	003576 A UACB	003617 A UACC	003633 A UACD
003565 A UADA	003534 A UADB	003556 A UADC	003573 A UADD
003076 A ZERO			

0 ERRORS ASSEMBLY COMPLETE

