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1 * THIS IS A COPYRIGHTED PROGRAM, COPYRIGHT 1972 BY VARIAN DATA MACHINES 00 00001
2 *                                     00 00002
3 *   V.D.M. PART NO. 92L0105-002D *****
4 *                                     00 00004
5 *           MEMORY PROTECT TEST          RELEASED 12-10-73 00 00005
6 *                                     00 00006
7 *           MEMORY PROTECT TEST          00 00007
8 *                                     00 00008
9 *                                     00 00009
10 *          * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
11 *         ** ** * ** ** * * * * * * * * * * * * * * * * * * * * * *
12 *        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
13 *       * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
14 *      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
15 *     * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
16 *    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
17 *   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
18 *  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
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27 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
28 *           THIS TEST PROGRAM IS A PART OF THE MAINTAIN II 00 00028
29 *             TEST PROGRAM SYSTEM                          00 00029
30 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * 00 00030
31 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * 00 00031
32 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * 00 00032
33 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * 00 00033
34 * ***** 00 00034
35 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *00 00035
36 * 620/F MEMORY PROTECT TEST PROGRAM *00 00036
37 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *00 00037
38 * THIS TEST IS DESIGNED TO TEST THE MEMORY PROTECT OPTION, *00 00038
39 * ITS PURPOSE IS TO TEST THE HARDWARE CAPABILITY TO PREVENT *00 00039
40 * UNAUTHORIZED PROGRAM ENTRY INTO CERTAIN AREAS OF CORE MEMORY *00 00040
41 * DESIGNATED AS PROTECTED MEMORY AND TO PREVENT UNAUTHORIZED *00 00041
42 * MODIFICATION OF THE CONTENTS OF SUCH MEMORY. *00 00042

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43	*									*00	00043		
44	*	*****									00	00044	
45	*									00	00045		
46	*									00	00046		
47	*									00	00047		
48	*									00	00048		
49	*									00	00049		
50	*	*****									00	00050	
51	*	* AREA RESERVED BY EXECUTIVE *									00	00051	
52	*	*****									00	00052	
53	*	ORG	0							00	00053		
54	*	JMP	EXECUTIVE							00	00054		
55	*	ORG	040							00	00055		
56	*	JMP	POWER DOWN ROUTINE							00	00056		
57	*	JMP	POWER UP ROUTINE							00	00057		
58	*	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									00	00058
59	*									00	00059		
60	*									00	00060		
61	*									00	00061		
62	*									00	00062		
63	*									00	00063		
64	*									00	00064		
65	*									00	00065		
66	*									00	00066		
67	*									00	00067		
68	*									00	00068		
69	*									00	00069		
70	*									00	00070		
000400	71	ORG	0400							00	00071		
000400	72	OUTA	BSS	1	OUTPUT	ONE CHAR	ROUTINE			00	00072		
000401	73	OUTB	BSS	1	OUTPUT	TWO CHAR	ROUTINE			00	00073		
000402	74	OUTC	BSS	1	OUTPUT	CR/LF	ROUTINE			00	00074		
000403	75	OUTD	BSS	1	OUTPUT	MESSAGE	ROUTINE			00	00075		
000404	76	OUTE	BSS	1	OUTPUT	OCTAL WORD	ROUTINE			00	00076		
000405	77	OUTF	BSS	1	OUTPUT	OCTAL ADDR	ROUTINE			00	00077		
000406	78	OUTG	BSS	1	OUTPUT	ERROR MSG	ROUTINE			00	00078		
000407	79	OUTH	BSS	1	OUTPUT	CONTROL CHAR TO TTY	ROUTINE			00	00079		
000410	80	INPA	BSS	1	INPUT	ONE CHAR	ROUTINE			00	00080		
000411	81	INPB	BSS	1	INPUT	AND PRINT ONE CHAR	ROUTINE			00	00081		
000412	82	INPC	BSS	1	INPUT	ONE CHAR EDITED	ROUTINE			00	00082		
000413	83	INPD	BSS	1	INPUT	ONE ALPHA CHAR	ROUTINE			00	00083		
000414	84	INPE	BSS	1	INPUT	TWO ALPHA CHAR	ROUTINE			00	00084		

PAGE	3	11/08/73	MEPROT	VORTEX	DASMR	2023 HOURS			
000415			85	INPF	BSS	1	INPUT COMMA/PERIOD TERMINATION ROUTINE	00 00085	
000416			86	INPG	BSS	1	INPUT OCTAL NUMBER ROUTINE	00 00086	
000417			87	TOUT	BSS	1	TIME=OUT ROUTINE	00 00087	
000420			88	TDLY	BSS	1	TIME DELAY ROUTINE	00 00088	
000421			89	SSWT	BSS	1	STANDARD SENSE SWITCH ROUTINE	00 00089	
000422			90	SLWE	BSS	1	LOWEST WORD USED BY EXEC	00 00090	
000423			91	ESZC	BSS	1	MEMORY SIZE DETERMINATION ROUTINE	00 00091	
000424			92	SMSM	BSS	1	MEMORY SIZE MESSAGE	00 00092	
			93	*				00 00093	
			94	*				00 00094	
000440			95		ORG	0440		00 00095	
			96	*				00 00096	
			97	*	EXECUTIVE DATA TABLE			00 00097	
			98	*				00 00098	
000440			99	SFLG	BSS	1	LOOP ON ERROR FLAG, 0=DON'T LOOP 1=LOOP	00 00099	
000441			100	SMEM	BSS	1	MEMORY SIZE (HIGHEST AVAIL CORE)	00 00100	
000442			101	SCON	BSS	1	0=CONSOLE MODE 1=TTY MODE	00 00101	
000443			102		BSS	22		00 00102	
000471			103	SDCT	BSS	1	DIGIT COUNTER FOR INPG	00 00103	
			104	*				00 00104	
			105	*****					00 00105
			106	*				*00 00106	
			107	*****					00 00107
			108	*				00 00108	
	000045	A	109	MPM	SET	045	MEMORY PROTECT DEVICE ADDRESS	00 00109	
000500			110		ORG	0500		00 00110	
000500	002000	A	111	TST1	CALL	LBBT	LOW BLOCK BOUNDARY TEST (SAVE AND SET LOC.)	00 00111	
000501	001410	A							
000502	011065	A	112	TSTA	LDA	ONE	SET UP ERROR CODE ONE ** 1 **	00 00112	
000503	05:544	A	113		STA	ERRC		00 00113	
000504	002000	A	114		CALL	ILAS,JPM,TSTZ	SET INTERRUPT ADDRESS TO YSTZ	00 00114	
000505	001133	A							
000506	000010	A							
000507	000520	A							
000510	002000	A	115		CALL	SETM,MSK0		00 00115	
000511	001201	A							
000512	001635	A							
000513	100645	A	116		EXC	0600+MPM	ENABLE MP	00 00116	
000514	011641	A	117		LDA	LLDC		00 00117	
000515	050517	A	118		STA	*+2		00 00118	
000516	001000	A	119		JMP	*	JUMP TO LOW BOUNDARY (1ST UNPROTECTED LOC)	00 00119	
000517	000516	A							

000520	000000	A	120	TSTZ	ENTR			00	00120
000521	100745	A	121		EXC	0700+MPM	DISABLE MP	00	00121
000522	102545	A	122		CIA	MPM		00	00122
000523	051100	A	123		STA	LOCP		00	00123
000524	011101	A	124		LDA	LPFE		00	00124
000525	001004	A	125		JAN	**7		00	00125
000526	000534	A							
000527	010440	A	126		LDA	SFLG		00	00126
000530	001010	A	127		JAZ	**4		00	00127
000531	000534	A							
000532	002000	A	128		CALL	ERRS		00	00128
000533	000746	A							
000534	002000	A	129		CALL	RLBB	RESTORE LOW BLOCK BOUNDARY	00	00129
000535	001440	A							
000536	002000	A	130		CALL	CKSE	CHECK SSS AND HLTIF FLAG.	00	00130
000537	001204	A							
000540	011100	A	131		LDA	LOCP	CHECK IF INST ADDRESS REGISTER CORRECT	00	00131
000541	141641	A	132		SUB	LLOC		00	00132
000542	005311	A	133		DAR			00	00133
000543	001010	A	134		JAZ	**4	CHECK FOR ERROR	00	00134
000544	000547	A							
000545	002000	A	135		CALL	IARE		00	00135
000546	001036	A							
000547	011101	A	136		LDA	LPFE	CHECK FOR LOOPING NON ERROR	00	00136
000550	001010	A	137		JAZ	**4		00	00137
000551	000554	A							
000552	002000	A	138		CALL	IARE		00	00138
000553	001036	A							
000554	002000	A	139		CALL	CKSE	CHECK SSS AND HLTIF FLAG.	00	00139
000555	001204	A							
000556	006010	A	140		LDAI	TSTB		00	00140
000557	000566	A							
000560	051645	A	141		STA	LOOP	SET UP LOOP ADDRESS	00	00141
000561	006010	A	142		LDAI	TSTY		00	00142
000562	000608	A							
000563	051646	A	143		STA	CONT	SET UP CONT. ADDRESS	00	00143
000564	002000	A	144		CALL	HBBT	HIGH BOUNDARY BIT TEST (SAVE AND SET LOC)	00	00144
000565	001342	A							
000566	011066	A	145	TSTB	LDA	TWO	SET UP ERROR CODE TWO. ** 2 **	00	00145
000567	051644	A	146		STA	ERRC		00	00146
000570	002000	A	147		CALL	ILAS, JPM, TSTY	SET INTERRUPT ADDRESS TO TSTY	00	00147
000571	001133	A							

000572	000010	A						
000573	000605	A						
000574	002000	A	148	CALL	SETM,MSKO			00 00148
000575	001201	A						
000576	001635	A						
000577	100645	A	149	EXC	0600+MPM	ENABLE MP		00 00149
000600	011642	A	150	LDA	HLOC			00 00150
000601	005311	A	151	DAR				00 00151
000602	050604	A	152	STA	*+2	JUMP TO HIGH BOUNDARY=1 (LAST UNPROTECTED		00 00152
000603	001000	A	153	JMP	*	LOCATION)		00 00153
000604	000603	A						
000605	000000	A	154	TSTY	ENTR			00 00154
000606	100745	A	155	EXC	0700+MPM	DISABLE MP		00 00155
000607	010440	A	156	LDA	SFLG			00 00156
000610	001010	A	157	JAZ	*+4			00 00157
000611	000614	A						
000612	002000	A	158	CALL	ERRS			00 00158
000613	000746	A						
000614	002000	A	159	CALL	RHBB	RESTORE HIGH BLOCK BOUNDARY		00 00159
000615	001373	A						
000616	002000	A	160	CALL	CKSE	CHECK SS3 AND HLTF FLAG.		00 00160
000617	001204	A						
000620	006010	A	161	LDAI	TSTC			00 00161
000621	000630	A						
000622	051645	A	162	STA	LOOP	SET UP LOOP ADDRESS		00 00162
000623	006010	A	163	LDAI	TSTX			00 00163
000624	000647	A						
000625	051646	A	164	STA	CONT	SET UP CONT. ADDRESS		00 00164
000626	002000	A	165	CALL	SSMB	SAVE AND SET 12 WORD IN MIDDLE OF BLOCK		00 00165
000627	001250	A						
000630	011067	A	166	TSTC	LDA	THRE	SET UP ERROR CODE THREE, ** 3 **	00 00166
000631	051644	A	167		STA	ERRC		00 00167
000632	002000	A	168	CALL	ILAS,JPM,ERRS	SET INTERRUPT ADDRESS TO ERRS		00 00168
000633	001133	A						
000634	000010	A						
000635	000746	A						
000636	100745	A	169	EXC	0700+MPM	DISABLE MP		00 00169
000637	002000	A	170	CALL	SETM,MSKO	SET BLOCK UNPROTECTED		00 00170
000640	001201	A						
000641	001635	A						
000642	011641	A	171	LDA	LLOC	CALC. TEST SUB.		00 00171
000643	121075	A	172	ADD	N371			00 00172

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000644	050646	A	173	STA	**+2		00	00173
000645	002000	A	174	JMPM	0	JUMP TO SUB,	00	00174
000646	000000	A						
000647	000000	A	175	TSTX	ENTR		00	00175
000650	011070	A	176	LDA	FOUR	SHOULD RETURN WITH NO INTERRUPT	** 4 **	00 00176
000651	051644	A	177	STA	ERRC	SET UP ERROR CODE FOUR,		00 00177
000652	100745	A	178	EXC	0700+MPM	DISABLE MP		00 00178
000653	002000	A	179	CALL	CLMP	PROTECT ALL AREAS,		00 00179
000654	001234	A						
000655	006010	A	180	LDAI	TSTX		00	00180
000656	000647	A						
000657	051645	A	181	STA	LOOP	SET UP LOOP ADDRESS	00	00181
000660	006010	A	182	LDAI	TSTW		00	00182
000661	000670	A						
000662	051646	A	183	STA	CONT	SET UP CONTINUE ADDRESS	00	00183
000663	011641	A	184	LDA	LLOC		00	00184
000664	121074	A	185	ADD	N374	CALC TEST SUB,	00	00185
000665	050667	A	186	STA	**+2		00	00186
000666	002000	A	187	JMPM	0	JUMP TO SUB	00	00187
000667	000000	A						
000670	000000	A	188	TSTW	ENTR		00	00188
000671	011071	A	189	LDA	FIVE	SHOULD RETURN WITH NO ERRORS OR INTERRUPT,		00 00189
000672	051644	A	190	STA	ERRC	SET UP ERROR CODE FIVE,	** 5 **	00 00190
000673	002000	A	191	CALL	CLMP	PROTECT ALL AREAS,		00 00191
000674	001234	A						
000675	100645	A	192	EXC	0600+MPM	ENABLE MP	00	00192
000676	006010	A	193	LDAI	TSTW		00	00193
000677	000670	A						
000700	051645	A	194	STA	LOOP	SET UP LOOP ADDRESS	00	00194
000701	006010	A	195	LDAI	TSTV		00	00195
000702	060711	A						
000703	051646	A	196	STA	CONT	SET UP CONTINUE ADDRESS,	00	00196
000704	011641	A	197	LDA	LLOC		00	00197
000705	121077	A	198	ADD	N377	CALC TEST SUB,	00	00198
000706	050710	A	199	STA	**+2		00	00199
000707	002000	A	200	JMPM	0	JUMP TO SUB,	00	00200
000710	000000	A						
000711	000000	A	201	TSTV	ENTR		00	00201
000712	011072	A	202	LDA	SIX	SHOULD RETURN WITH NO ERRORS OR INTERRUPT,		00 00202
000713	051644	A	203	STA	ERRC	ERROR CODE	** 6 **	00 00203
000714	100745	A	204	EXC	0700+MPM	DISABLE MP	00	00204
000715	002000	A	205	CALL	SETM,MSKO	UNPROTECT BLOCK	00	00205

000716	001201	A						
000717	001635	A						
000720	006010	A	206	LOAI	TSTV			00 00206
000721	000711	A						
000722	051645	A	207	STA	LOOP	SET UP LOOP ADDRESS		00 00207
000723	006010	A	208	LOAI	TSTU			00 00208
000724	000740	A						
000725	051646	A	209	STA	CONT	SET UP CONTINUE ADDRESS		00 00209
000726	002000	A	210	CALL	ILAS,JPM,TSTU	SET UP INTERRUPT ADDRESS		00 00210
000727	001133	A						
000730	000010	A						
000731	000740	A						
000732	100645	A	211	EXC	0600+MPM	ENABLE MP		00 00211
000733	011641	A	212	LOA	LLOC			00 00212
000734	121073	A	213	ADD	N402			00 00213
000735	050737	A	214	STA	*+2			00 00214
000736	002000	A	215	JMPM	0			00 00215
000737	000000	A						
000740	000000	A	216	TSTU	ENTR			00 00216
000741	100545	A	217	EXC	0500+MPM	DISABLE MP.		00 00217
000742	002000	A	218	CALL	RMBL	RESTORE MIDDLE BLOCK LOCATIONS.		00 00218
000743	001322	A						
000744	001000	A	219	JMP*	TSTL			00 00219
000745	100772	A						
220	*****							00 00220
221	*							00 00221
222	*	ERROR SUBROUTINE						00 00222
223	*							00 00223
224	*****							00 00224
000746	000000	A	225	ERRS	ENTR			00 00225
000747	100745	A	226	EXC	0700+MPM	DISABLE MP		00 00226
000750	011645	A	227	LOA	LOOP			00 00227
000751	050767	A	228	STA	ERR1+5			00 00228
000752	011646	A	229	LOA	CONT			00 00229
000753	005111	A	230	IAR				00 00230
000754	050766	A	231	STA	ERR1+4	TERMINATION ADDRESS		00 00231
000755	050771	A	232	STA	ERR2+1	CONTINUE ADDRESS		00 00232
000756	011643	A	233	LDA	MASK			00 00233
000757	021644	A	234	LOB	ERRC			00 00234
000760	060764	A	235	STB	ERR1+2			00 00235
000761	030746	A	236	LOX	ERRS			00 00236
000762	002000	A	237	ERR1	CALL*	SSWT,00,(ERMG)*,0,0		00 00237

000763	100421	A								
000764	000000	A								
000765	101553	A								
000766	000000	A								
000767	000000	A								
000770	001000	A	238	ERR2	JMP	0			00 00238	
000771	000000	A								
			239	*****					00	00239
			240	*					*00 00240	
			241	*	MASK REGISTER TEST				*00 00241	
			242	*					*00 00242	
			243	*****					00	00243
000772	000000	A	244	TSTL	ENR				00 00244	
000773	006010	A	245		LOAI	8	SET UP ERRONEOUS ERROR FLAG,		00 00245	
000774	000010	A								
000775	051644	A	246		STA	ERRC			00 00246	
000776	100745	A	247		EXC	0700+MPM	DISABLE MP		00 00247	
000777	002000	A	248		CALL	CLMP	SET ALL MASKS TO 1 (ALL PROTECTED)		00 00248	
001000	001234	A								
001001	005201	A	249		CJMP	1			00 00249	
001002	051635	A	250		STA	MSK0			00 00250	
001003	051636	A	251		STA	MSK0+1			00 00251	
001004	051637	A	252		STA	MSK0+2			00 00252	
001005	051640	A	253		STA	MSK0+3			00 00253	
001006	005004	A	254		TZX				00 00254	
001007	011643	A	255		LOA	MASK	SETUP MASK TABLE WITH SPECIFIED BIT ZERO,		00 00255	
001010	141064	A	256		SUB	SIXT			00 00256	
001011	001004	A	257		JAN	**5			00 00257	
001012	001016	A								
001013	005144	A	258		IXR				00 00258	
001014	001000	A	259		JMP	**4			00 00259	
001015	001010	A								
001016	121064	A	260		ADD	SIXT			00 00260	
001017	121076	A	261		ADD	N424	BUILD A ROTATE LEFT INST,		00 00261	
001020	051022	A	262		STA	**2			00 00262	
001021	011065	A	263		LDA	ONE			00 00263	
001022	005000	A	264		NOP		BUILD A MASK WITH BIT TO BE CHANGED		00 00264	
001023	005211	A	265		CPA				00 00265	
001024	006055	A	266		STAE	MSK0,1			00 00266	
001025	001635	A								
001026	006010	A	267		LOAI	TSTA	SET UP LOOP ADDRESS		00 00267	
001027	000502	A								

001030	051645	A	268		STA	LOOP		00	00268
001031	006010	A	269		LOAI	TSTZ	SET UP CONTINUE ADDRESS	00	00269
001032	000520	A							
001033	051646	A	270		STA	CONT		00	00270
001034	001000	A	271		JMP	TST1		00	00271
001035	000500	A							
001036	000000	A	272	IARE	ENTR		INST. ADDRESS REGISTER ERROR	00	00272
001037	006010	A	273		LOAI	7		00	00273
001040	000007	A							
001041	051644	A	274		STA	ERRC		00	00274
001042	006010	A	275		LOAI	IARL		00	00275
001043	001052	A							
001044	051645	A	276		STA	LOOP		00	00276
001045	006010	A	277		LOAI	IARC		00	00277
001046	001056	A							
001047	051646	A	278		STA	CONT		00	00278
001050	002000	A	279		CALL	ERRS		00	00279
001051	000746	A							
001052	005201	A	280	IARL	COMP	1	LOOPING	00	00280
001053	051101	A	281		STA	LPFE	INST. ADDRESS REG. LOOP FLAG	00	00281
001054	001000	A	282		JMP	TST1		00	00282
001055	000500	A							
001056	000000	A	283	IARC	ENTR			00	00283
001057	005001	A	284		TZA			00	00284
001060	051101	A	285		STA	LPFE		00	00285
001061	001000	A	286		JMP*	IARE		00	00286
001062	101036	A							
001063	000007	A	287	SVEN	DATA	7		00	00287
001064	000020	A	288	SIXT	DATA	16		00	00288
001065	000001	A	289	ONE	DATA	1		00	00289
001066	000002	A	290	TWO	DATA	2		00	00290
001067	000003	A	291	THRE	DATA	3		00	00291
001070	000004	A	292	FOUR	DATA	4		00	00292
001071	000005	A	293	FIVE	DATA	5		00	00293
001072	000006	A	294	SIX	DATA	6		00	00294
001073	000402	A	295	N402	DATA	0402		00	00295
001074	000374	A	296	N374	DATA	0374		00	00296
001075	000371	A	297	N371	DATA	0371		00	00297
001076	004240	A	298	N424	DATA	04240		00	00298
001077	000377	A	299	N377	DATA	0377		00	00299
001100	000000	A	300	LDCP	DATA	0		00	00300
001101	000000	A	301	LPFE	DATA	0		00	00301

001102	000100	A	302	N100	DATA	0100			00	00302	
001103	177677	A	303	C100	DATA	0177677			00	00303	
001104	000000	A	304	MODE	DATA	0		D	*****		
			305	*****						00	00304
			306	*	INTERRUPT LOCATION ADDRESS SETUP (ILAS)				*00	00305	
			307	*						*00	00306
			308	*	CALLING SEQUENCE				*00	00307	
			309	*	CALL ILAS(BIT,PROCESSOR LOC)				*00	00308	
			310	*	THIS SUBROUTINE STORES THE LOCATION SPECIFIED BY 2ND TERM IN					*00	00309
			311	*	TRAP LOCATION DEFINED BY BIT VALUE, IF BIT IS ONE, ADDRESS					*00	00310
			312	*	IS STORE IN INTERRUPT ADDRESS, IF ZERO, NO CHANGE,					*00	00311
			313	*****						00	00312
	000001	A	314	HALT	EQU	01	HALT	0120	00	00313	
	000020	A	315	OVER	EQU	020	OVERFLOW	0130	00	00314	
	000002	A	316	IDE	EQU	02	I/O ERROR	0122	00	00315	
	000004	A	317	WRT	EQU	04	WRITE	0124	00	00316	
	000010	A	318	JPM	EQU	010	JUMP	0126	00	00317	
	000040	A	319	IDEO	EQU	040	I/O ERROR/OVERFLOW	0132	00	00318	
	000100	A	320	WRTO	EQU	0100	WRITE/OVERFLOW	0134	00	00319	
	000200	A	321	JPMO	EQU	0200	JUMP/OVERFLOW	0136	00	00320	
001105	031133	A	322	ILA1	LDX	ILAS			00	00321	
001106	015000	A	323		LOA	0,1	GET BIT		00	00322	
001107	005144	A	324		IXR				00	00323	
001110	025000	A	325		LOB	0,1	GET PROC, LOC,		00	00324	
001111	006030	A	326		LOXI	16			00	00325	
001112	000020	A									
001113	004250	A	327		LRLA	8			00	00326	
001114	001002	A	328	ILA2	JAP	*+3	CHECK IF BIT SET		00	00327	
001115	001117	A									
001116	065C17	A	329		STB	017,1	STORE PROC, LOCATION		00	00328	
001117	001040	A	330		JXZ	ILA3			00	00329	
001120	001126	A									
001121	005344	A	331		DXR		DECREMENT INTERRUPT LOC, POINTER		00	00330	
001122	005344	A	332		DXR				00	00331	
001123	004241	A	333		LRLA	1	SHIFT A RIGHT,		00	00332	
001124	001000	A	334		JMP	ILA2			00	00333	
001125	001114	A									
001126	002000	A	335	ILA3	CALL	RESR	RESTORE REGISTERS		00	00334	
001127	001153	A									
001130	041133	A	336		INR	ILAS			00	00335	
001131	041133	A	337		INR	ILAS			00	00336	
001132	001000	A	338		JMP	0			00	00337	

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001133 000000 A
001133          339 ILAS  BES  0          00 00338
001134 002000 A 340          CALL  SAVR          SAVE REGISTERS 00 00339
001135 001144 A
001136 001000 A 341          JMP    ILA1          00 00340
001137 001105 A
342 *****00 00341
343 *          *00 00342
344 *          THIS ROUTINE SAVES VOLATILE REGISTERS *00 00343
345 *          *00 00344
346 *****00 00345
001140 051156 A 347 SAV1  STA  SAVA          00 00346
001141 061157 A 348          STB  SAVA+1        00 00347
001142 071160 A 349          STX  SAVA+2        00 00348
001143 001000 A 350          JMP    0          00 00349
001144 000000 A
001144          351 SAVR  BES  0          00 00350
001145 001000 A 352          JMP    SAV1          00 00351
001146 001140 A
353 *****00 00352
354 *          *00 00353
355 *          THIS ROUTINE RESTORES VOLATILE REGISTERS *00 00354
356 *          *00 00355
357 *****00 00356
001147 011156 A 358 RES1  LOA  SAVA          00 00357
001150 021157 A 359          LOB  SAVA+1        00 00358
001151 031160 A 360          LOX  SAVA+2        00 00359
001152 001000 A 361          JMP    0          00 00360
001153 000000 C A
001153          362 RESR  BES  0          00 00361
001154 001000 A 363          JMP    RES1          00 00362
001155 001147 A
001156          364 SAVA  BSS  3          00 00363
365 *****00 00364
366 *          *00 00365
367 *          THIS SETS UP MASKS FROM TABLE DEFINED BY CALLING SEQUENCE, *00 00366
368 *          *00 00367
369 *****00 00368
001161 006037 A 370 SET1  LOXE* SETM          00 00369
001162 101201 A
001163 041201 A 371          INR  SETM          00 00370
001164 100045 A 372          EXC  MPM          SELECT MASK REGISTER 0 00 00371

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001165	015000	A	373	LDA	0,1		00	00372
001166	103145	A	374	DAR	MPM	OUTPUT TO MASK REGISTER 0	00	00373
001167	100145	A	375	EXC	0100+MPM	SELECT MASK REGISTER 1	00	00374
001170	015001	A	376	LDA	1,1		00	00375
001171	103145	A	377	DAR	MPM	OUTPUT TO MASK REGISTER 1	00	00376
001172	100245	A	378	EXC	0200+MPM	SELECT MASK REG, 2	00	00377
001173	015002	A	379	LDA	2,1		00	00378
001174	103145	A	380	DAR	MPM	OUTPUT TO MASK REG, 2	00	00379
001175	100345	A	381	EXC	0300+MPM	SELECT MASK REG, 3	00	00380
001176	015003	A	382	LDA	3,1		00	00381
001177	103145	A	383	DAR	MPM	OUTPUT TO MASK REG, 3	00	00382
001200	001000	A	384	JMP	0	RETURN TO CALLING PROGRAM,	00	00383
001201	000000	A						
001201			385	SETM	BES	0	00	00384
001202	001000	A	386	JMP	SET1		00	00385
001203	001161	A						
			387	*****			00	00386
			388	*			*00	00387
			389	*	SUBROUTINE TO CHECK SSS AND EXECUTIVE EXIT FLAG,		*00	00388
			390	*			*00	00389
			391	*****			00	00390
001204	000000	A	392	CKSE	ENTR		00	00391
001205	011233	A	393	LDA	HLTF		00	00392
001206	001010	A	394	JAZ	*+10		00	00393
001207	001220	A						
001210	005001	A	395	TZA			00	00394
001211	051233	A	396	STA	HLTF		00	00395
001212	011224	A	397	LDA	LDCZ		00	00396
001213	050000	A	398	STA	0		00	00397
001214	011225	A	399	LDA	LDCZ+1		00	00398
001215	050001	A	400	STA	01		00	00399
001216	001000	A	401	JMP	0		00	00400
001217	000000	A						
001220	001400	A	402	JSS3	MPT1		00	00401
001221	003136	A						
001222	001000	A	403	JMP*	CKSE		00	00402
001223	101204	A						
001224	000000	A	404	LDCZ	DATA	0,0	00	00403
001225	000000	A						
			405	*			*00	00404
			406	*	CONSOLE INTERRUPT PROCESSOR		*00	00405
			407	*			*00	00406

001226	041233	A	408	INR	HLTF			00	00407	
001227	001000	A	409	JMP	0			00	00408	
001230	000000	A								
001230			410	HLTR	BES	0		00	00409	
001231	001000	A	411	JMP	*=3			00	00410	
001232	001226	A								
001233	000000	A	412	HLTF	DATA	0		00	00411	
			413	*****					00	00412
			414	*	SET ALL MASKS BITS TO 1 (ALL PROTECTED)			*00	00413	
			415	*****					00	00414
001234	000000	A	416	CLMP	ENTR			00	00415	
001235	005201	A	417	COMP	1			00	00416	
001236	100045	A	418	EXC	MPM	MASK 0		00	00417	
001237	103145	A	419	DAR	MPM			00	00418	
001240	100145	A	420	EXC	0100+MPM	MASK 1		00	00419	
001241	103145	A	421	DAR	MPM			00	00420	
001242	100245	A	422	EXC	0200+MPM	MASK 2		00	00421	
001243	103145	A	423	DAR	MPM			00	00422	
001244	100345	A	424	EXC	0300+MPM	MASK 3		00	00423	
001245	103145	A	425	DAR	MPM			00	00424	
001246	001000	A	426	JMP*	CLMP	RETURN		00	00425	
			427	*****					00	00426
			428	*				*00	00427	
			429	*	SAVE AND SETUP 12 WORDS IN MIDDLE OF BLOCK,			*00	00428	
			430	*	BLOCK SET UP			*00	00429	
			431	*	ENTR			*00	00430	
			432	*	JMP*	*=1		*00	00431	
			433	*	ENTR			*00	00432	
			434	*	JMP*	*=1		*00	00433	
			435	*	ENTR			*00	00434	
			436	*	JMP*	*=1		*00	00435	
			437	*	ENTR			*00	00436	
			438	*	JMP	ERRS		*00	00437	
			439	*				*00	00438	
			440	*****					00	00439
001250	000000	A	441	SSMB	ENTR			00	00440	
001251	011641	A	442	LOA	LLOC	SAVE 12 WORDS STARTING AT LLOC + 0371		00	00441	
001252	006120	A	443	ADDI	0371			00	00442	
001253	000371	A								
001254	005012	A	444	TAB				00	00443	
001255	006030	A	445	LIXI	11			00	00444	

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001256	000013	A						
001257	016000	A	446	SSM1	LOA	0,2	00 00445	
001260	006055	A	447		STAE	SVLB,1	00 00446	
001261	001537	A						
001262	001040	A	448		JXZ	SSM2	00 00447	
001263	001270	A						
001264	005344	A	449		DXR		00 00448	
001265	005122	A	450		IBR		00 00449	
001266	001000	A	451		JMP	SSM1	00 00450	
001267	001257	A						
001270	011641	A	452	SSM2	LOA	LLOC	SET UP JUMP INST	00 00451
001271	006120	A	453		ADDI	0371	00 00452	
001272	000371	A						
001273	005012	A	454		TAB		00 00453	
001274	006010	A	455		LOAI	02000	JUMP AND MARK INST	00 00454
001275	002000	A						
001276	056001	A	456		STA	1,2	00 00455	
001277	056004	A	457		STA	4,2	00 00456	
001300	056007	A	458		STA	7,2	00 00457	
001301	056012	A	459		STA	10,2	00 00458	
001302	006010	A	460		LOAI	ERRS	00 00459	
001303	000746	A						
001304	056013	A	461		STA	11,2	00 00460	
001305	005021	A	462		TBA		SETUP JUMP INDIRECT BACK TO CALLING PROG,	00 00461
001306	111647	A	463		DRA	BT15	00 00462	
001307	056002	A	464		STA	2,2	00 00463	
001310	005111	A	465		IAR		00 00464	
001311	005111	A	466		IAR		00 00465	
001312	005111	A	467		IAR		00 00466	
001313	056005	A	468		STA	5,2	00 00467	
001314	005111	A	469		IAR		00 00468	
001315	005111	A	470		IAR		00 00469	
001316	005111	A	471		IAR		00 00470	
001317	056010	A	472		STA	8,2	00 00471	
001320	001000	A	473		JMP*	SSMB	RETURN TO CALLING PROGRAM,	00 00472
001321	101250	A						
	474	*	*****					00 00473
	475	*						*00 00474
	476	*	RESTORE SAVED 12 WORDS FROM MIDDLE OF BLOCK					*00 00475
	477	*						*00 00476
	478	*	*****					00 00477
001322	000000	A	479	RMBL	ENTR		00 00478	

001323	011641	A	480	LDA	LLDC	RESTORE 12 WORDS	00	00479
001324	006120	A	481	ADDI	0371		00	00480
001325	000371	A						
001326	005012	A	482	TAB			00	00481
001327	006030	A	483	LDCI	11		00	00482
001330	000013	A						
001331	006015	A	484	RMB1	LOAE	SVLB,1	00	00483
001332	001537	A						
001333	056000	A	485	STA	0,2		00	00484
001334	001040	A	486	JXZ*	RMBL		00	00485
001335	101322	A						
001336	005344	A	487	DXR			00	00486
001337	005122	A	488	IBR			00	00487
001340	001000	A	489	JMP	RMB1		00	00488
001341	001331	A						
			490	*****			00	00489
			491	*			00	00490
			492	*	HIGH BLOCK BOUNDARY TEST SAVE AND SET LOCATIONS.		00	00491
			493	*			00	00492
			494	*****			00	00493
001342	000000	A	495	HBBT	ENTR		00	00494
001343	021642	A	496		LOB	HLDC	00	00495
001344	005322	A	497		DOR		00	00496
001345	016000	A	498		LDA	0,2	00	00497
001346	051537	A	499		STA	SVLB	00	00498
001347	006010	A	500		LOAI	01000	00	00499
001350	001000	A				JUMP INST.		
001351	056000	A	501		STA	0,2	00	00500
001352	016001	A	502		LDA	1,2	00	00501
001353	051540	A	503		STA	SVLB+1	00	00502
001354	011642	A	504		LDA	HLDC	00	00503
001355	005111	A	505		IAR		00	00504
001356	056001	A	506		STA	1,2	00	00505
001357	016002	A	507		LDA	2,2	00	00506
001360	051541	A	508		STA	SVLB+2	00	00507
001361	006010	A	509		LOAI	02000	00	00508
001362	002000	A				JUMP AND MARK INST		
001363	056002	A	510		STA	2,2	00	00509
001364	016003	A	511		LDA	3,2	00	00510
001365	051542	A	512		STA	SVLB+3	00	00511
001366	006010	A	513		LOAI	ERRS	00	00512
001367	000746	A				ERROR SUBROUTINE ADDR.		

001370	056003	A	514	STA	3,2		00	00513
001371	001000	A	515	JMP*	HBBT	RETURN TO CALLING PROG.	00	00514
001372	101342	A						
			516	*****			00	00515
			517	*			00	00516
			518	*	RESTORE HIGH BLOCK BOUNDARY TEST LOCATIONS.		00	00517
			519	*			00	00518
			520	*****			00	00519
001373	000000	A	521	RHBB	ENTR		00	00520
001374	021642	A	522	LOB	HLOC		00	00521
001375	005322	A	523	DBR			00	00522
001376	011537	A	524	LDA	SVLB		00	00523
001377	056000	A	525	STA	0,2		00	00524
001400	011540	A	526	LDA	SVLB+1		00	00525
001401	056001	A	527	STA	1,2		00	00526
001402	011541	A	528	LDA	SVLB+2		00	00527
001403	056002	A	529	STA	2,2		00	00528
001404	011542	A	530	LDA	SVLB+3		00	00529
001405	056003	A	531	STA	3,2		00	00530
001406	001000	A	532	JMP*	RHBB		00	00531
001407	101373	A						
			533	*****			00	00532
			534	*			*00	00533
			535	*	LOW BLOCK BOUNDARY TEST SAVE AND SET LOCATIONS.		*00	00534
			536	*			*00	00535
			537	*****			00	00536
001410	000000	A	538	LBBT	ENTR		00	00537
001411	021641	A	539	LOB	LLOC		00	00538
001412	005322	A	540	DBR			00	00539
001413	005322	A	541	DBR			00	00540
001414	016000	A	542	LDA	0,2		00	00541
001415	051537	A	543	STA	SVLB		00	00542
001416	006010	A	544	LOAI	02000	JMPM INST.	00	00543
001417	002000	A						
001420	056000	A	545	STA	0,2		00	00544
001421	016001	A	546	LDA	1,2		00	00545
001422	051540	A	547	STA	SVLB+1		00	00546
001423	006010	A	548	LOAI	ERRS	ERROR SUB. LOCATION	00	00547
001424	000746	A						
001425	056001	A	549	STA	1,2		00	00548
001426	016002	A	550	LDA	2,2		00	00549
001427	011541	A	551	STA	SVLB+2		00	00550

001430	006010	A	552	LOAI	01000	JMP INST.	00	00551
001431	001000	A						
001432	056002	A	553	STA	2,2		00	00552
001433	016003	A	554	LOA	3,2		00	00553
001434	051542	A	555	STA	SVLB+3		00	00554
001435	066003	A	556	STB	3,2	LOC. OF LLOC=2	00	00555
001436	001000	A	557	JMP*	LBBT		00	00556
001437	101410	A						
			558	*****			00	00557
			559	*			*00	00558
			560	*	RESTORE LOW BLOCK BOUNDARY CORE LOC.		*00	00559
			561	*			*00	00560
			562	*****			00	00561
001440	000000	A	563	RLBB	ENTR		00	00562
001441	021641	A	564	LDB	LLOC		00	00563
001442	005322	A	565	DBR			00	00564
001443	005322	A	566	DBR			00	00565
001444	011537	A	567	LOA	SVLB		00	00566
001445	056000	A	568	STA	0,2		00	00567
001446	011540	A	569	LOA	SVLB+1		00	00568
001447	056001	A	570	STA	1,2		00	00569
001450	011541	A	571	LOA	SVLB+2		00	00570
001451	056002	A	572	STA	2,2		00	00571
001452	011542	A	573	LOA	SVLB+3		00	00572
001453	056003	A	574	STA	3,2		00	00573
001454	001000	A	575	JMP*	RLBB		00	00574
001455	101440	A						
			576	*	MESSAGE BUFFERS		*00	00575
001456	146705	A	577	MSG1	DATA	'MEMORY PROTECT TEST 1,0106612,0	00	00576
001457	146717	A						
001460	151331	A						
001461	120320	A						
001462	151317	A						
001463	152305	A						
001464	141724	A						
001465	120324	A						
001466	142723	A						
001467	152240	A						
001470	106612	A						
001471	000000	A						
001472	141731	A	578	MSG2	DATA	'CYCLES =1,0	00	00577
001473	141714	A						

001474	142723	A						
001475	120275	A						
001476	000000	A						
001477	146701	A	579	MSG3	DATA	'MASK REG, TEST',0106612,0		00 00578
001500	151713	A						
001501	120322	A						
001502	142707	A						
001503	127240	A						
001504	152305	A						
001505	151724	A						
001506	106612	A						
001507	000000	A						
001510	151724	A	580	MSG4	DATA	'START TEST 0,=MASK REG, OR 1,=INST, TEST ',0106612,0		00 00579
001511	140722	A						
001512	152240	A						
001513	152305	A						
001514	151724	A						
001515	120240	A						
001516	130256	A						
001517	136715	A						
001520	140723	A						
001521	145640	A						
001522	151305	A						
001523	143656	A						
001524	120317	A						
001525	151240	A						
001526	130656	A						
001527	136711	A						
001530	147323	A						
001531	152256	A						
001532	120324	A						
001533	142723	A						
001534	152240	A						
001535	106612	A						
001536	000000	A						
001537			581	SVLB	BSS	12		00 00580
001553	000000	A	582	ERMG	ENTR			00 00581
001554	011644	A	583		LOA	ERRC	SET UP ERROR CODE IN ASCII	00 00582
001555	006120	A	584		AODI	0120260		00 00583
001556	120260	A						
001557	051630	A	585		STA	EMSG+13		00 00584
001560	011643	A	586		LOA	MASK	SET UP BLOCK CODE IN ASCII	00 00585

001561	005002	A	587		TZB			00	00586
001562	006140	A	588	ERM1	SUBI	10		00	00587
001563	000012	A							
001564	001004	A	589		JAN	ERM2		00	00588
001565	001571	A							
001566	005122	A	590		ISR			00	00589
001567	001000	A	591		JMP	ERM1		00	00590
001570	001562	A							
001571	006120	A	592	ERM2	ADDI	10		00	00591
001572	000012	A							
001573	006120	A	593		ADDI	0260		00	00592
001574	000260	A							
001575	051603	A	594		STA	ERM3+1		00	00593
001576	005021	A	595		TBA			00	00594
001577	006120	A	596		ADDI	0260		00	00595
001600	000260	A							
001601	004250	A	597		LRLA	8		00	00596
001602	006120	A	598	ERM3	ADDI	0		00	00597
001603	000000	A							
001604	051623	A	599		STA	EMSG+8		00	00598
001605	006030	A	600		LOXI	EMSG		00	00599
001606	001613	A							
001607	002000	A	601		CALL*	OUTD		00	00600
001610	100403	A							
001611	001000	A	602		JMP*	ERMG		00	00601
001612	101553	A							
001613	142722	A	603	EMSG	DATA	'ERROR BLOCK = ' , 0 , ' TYPE = ' , 0 , 0106612 , 0		00	00602
001614	151317	A							
001615	15124C	A							
001616	120302	A							
001617	146317	A							
001620	141713	A							
001621	120275	A							
001622	120240	A							
001623	000000	A							
001624	120240	A							
001625	152331	A							
001626	150305	A							
001627	120275	A							
001630	000000	A							
001631	106612	A							
001632	000000	A							

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				604 *	POINTS, MASKS, AND TEMP. STORAGE		*00	00603
001633	000000	A	605	WTMS	DATA 0	WRITE NON ERROR MESSAGE SUPPRESSION	00	00604
			606 *			0 = SUPPRESS	*00	00605
			607 *			1 = WRITE MESSAGE	*00	00606
001634	000000	A	608	CYCL	DATA 0	NO OF TIMES TO RUN TEST	00	00607
			609 *			0 = CONTINUOUS	*00	00608
			610 *			1 TO X DEFINES NUMBER OF TIMES TO RUN.	*00	00609
001635	177777	A	611	MSK0	DATA 0177777		00	00610
001636	177777	A	612	MSK1	DATA 0177777		00	00611
001637	177777	A	613	MSK2	DATA 0177777		00	00612
001640	177777	A	614	MSK3	DATA 0177777		00	00613
001641	000000	A	615	LLOC	DATA 0	CURRENT LOW BOUNDARY LOCATION	00	00614
001642	000000	A	616	HLOC	DATA 0	CURRENT HIGH BOUNDARY LOCATION.	00	00615
001643	000000	A	617	MASK	DATA 0	MASK BIT	00	00616
001644	000000	A	618	ERRC	DATA 0		00	00617
001645	000000	A	619	LOOP	DATA 0		00	00618
001646	000000	A	620	CONT	DATA 0		00	00619
001647	100000	A	621	BT15	DATA 0100000		00	00620
002000			622		DRG 02000		00	00621
			623	*****			*00	00622
			624 *				*00	00623
			625 *	INSTRUCTION INTERRUPT ADDRESS TEST UNPROTECTED CORE AREA.			*00	00624
			626 *				*00	00625
			627	*****			*00	00626
002000	000000	A	628	TX01	ENTR	TEST ONE	00	00627
002001	000001	A	629		HLT 01	HALT INST. IN UNPROTECTED CORE.	00	00628
002002	001000	A	630		JMP* TX01		00	00629
002003	102000	A						
002004	000000	A	631	TX02	ENTR	TEST TWO	00	00630
002005	005001	A	632		TZA		00	00631
002006	052777	A	633		STA 02777	STORE HALT INSTRUCTION IN LAST UNPROT.	00	00632
002007	001000	A	634		JMP 02777	JUMP TO HALT INST.	00	00633
002010	002777	A						
002011	000000	A	635	TX03	ENTR	TEST THREE	00	00634
002012	003000	A	636		XEC 02	EXECUTE A XEC COMMAND TO EXECUTE A HALT	00	00635
002013	000002	A						
002014	001000	A	637		JMP* TX03		00	00636
002015	102011	A						
002016	000000	A	638	TX04	ENTR	TEST FOUR	00	00637
002017	006010	A	639		LDAI 05122	EXECUTE A NON I/O, NON STORE, ONE WORD INST	00	00638
002020	005122	A						
002021	52777	A	640		STA 02777	IN LAST LOC. OF UPA.	00	00639

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002022	001000	A	641		JMP	02777		00 00640
002023	002777	A						
002024	000000	A	642	TX05	ENTR		TEST 5	00 00641
002025	006010	A	643		LDAI	06010	EXECUTE A TWO WORD INST. IN LAST UPA	00 00642
002026	006010	A						
002027	052776	A	644		STA	02776		00 00643
002030	001000	A	645		JMP	02776		00 00644
002031	002776	A						
002032	000000	A	646	TX06	ENTR		TEST 6	00 00645
002033	006010	A	647		LDAI	06010	EXECUTE A TWO WORD INST WITH 1ST WORD IN	00 00646
002034	006010	A						
002035	052777	A	648		STA	02777	LAST UPA,	00 00647
002036	001000	A	649		JMP	02777		00 00648
002037	002777	A						
002040	000000	A	650	TX07	ENTR		TEST 7	00 00649
002041	006010	A	651		LDAI	01010	STORE 2 WORD JUMP TEST (DO NOT MEET CONDITIO	00 00650
002042	001010	A						
002043	052776	A	652		STA	02776	IONS)	00 00651
002044	001000	A	653		JMP	02776		00 00652
002045	002776	A						
002046	000000	A	654	TX10	ENTR		TEST 10	00 00653
002047	006010	A	655		LDAI	03000	EXECUTE A XEC WITH 2ND WORD IN LAST LOC	00 00654
002050	003000	A						
002051	052776	A	656		STA	02776	OF UPA AND EXECUTING A HALT COMMAND,	00 00655
002052	006010	A	657		LDAI	**5		00 00656
002053	002057	A						
002054	052777	A	658		STA	02777		00 00657
002055	001000	A	659		JMP	02776		00 00658
002056	002776	A						
002057	000000	A	660		HLT			00 00659
002060	000000	A	661	TX11	ENTR		TEST 11	00 00660
002061	006010	A	662		LDAI	006047		00 00661
002062	006047	A						
002063	052776	A	663		STA	02776	EXECUTE A INR EXTENDED INDIRECT THROUGH	00 00662
002064	012060	A	664		LDA	TX11	PROTECTED TO UNPROTECTED MEMORY WITH	00 00663
002065	006110	A	665		ORAI	0100000	2ND WORD OF INR IN LAST UPA,	00 00664
002066	100000	A						
002067	052777	A	666		STA	02777		00 00665
002070	001000	A	667		JMP	02776		00 00666
002071	002776	A						
002072	000000	A	668	TX12	ENTR		TEST 12	00 00667
002073	006010	A	669		LDAI	06017	EXECUTE A 2 WORD READ WITH 2ND WORD IN	00 00668

002074	006017	A							
002075	052776	A	670	STA	02776		LAST UPA	00	00669
002076	005001	A	671	TZA				00	00670
002077	052777	A	672	STA	02777			00	00671
002100	001000	A	673	JMP	02776			00	00672
002101	002776	A							
002102	000000	A	674	TX13	ENTR		TEST 13	00	00673
002103	006010	A	675	LOAI	06057		EXECUTE A EXTENDED WRITE TO UNPROTECTED	00	00674
002104	006057	A							
002105	052776	A	676	STA	02776		MEMORY WITH 2ND WORD OF INST. IN LAST	00	00675
002106	006010	A	677	LOAI	TX13		LOC. OF UPA	00	00676
002107	002102	A							
002110	052777	A	678	STA	02777			00	00677
002111	001000	A	679	JMP	02776			00	00678
002112	002776	A							
002113	000000	A	680	TX14	ENTR		TEST 14	00	00679
002114	100745	A	681	EXC	0700+MPM		EXECUTE 1 WORD I/O INSTRUCTION IN UPA	00	00680
002115	002000	A	682	CALL	ERRR			00	00681
002116	005035	A							
002117	100745	A	683	TX15	EXC	0700+MPM	EXECUTE COMMAND BY XEC FROM PA	00	00682
002120	000000	A	684	TX16	ENTR		TEST 16	00	00683
002121	003000	A	685	XEC	**4		EXECUTE A 1 WORD I/O INST. IN UPA BY	00	00684
002122	002125	A							
002123	002000	A	686	CALL	ERRR		A XEC IN UPA	00	00685
002124	005035	A							
002125	100745	A	687	EXC	0700+MPM		DISABLE MP	00	00686
002126	000000	A	688	TX17	ENTR		TEST 17	00	00687
002127	012126	A	689	LOA	TX17		EXECUTE A 1 WORD I/O INST. IN A PA BY	00	00688
002130	052132	A	690	STA	**2		A XEC IN UPA	00	00689
002131	003000	A	691	XEC	*			00	00690
002132	002131	A							
002133	002000	A	692	CALL	ERRR			00	00691
002134	005035	A							
002135	000000	A	693	TX20	ENTR		TEST 20	00	00692
002136	006010	A	694	LOAI	0101101		EXECUTE 2 WORD I/O INST IN LAST LOC.	00	00693
002137	101101	A							
002140	052776	A	695	STA	02776		OF UNPROTECT MEMORY.	00	00694
002141	006010	A	696	LOAI	02774			00	00695
002142	002774	A							
002143	052777	A	697	STA	02777			00	00696
002144	006010	A	698	LOAI	01000			00	00697
002145	001000	A							

002146	052774	A	699		STA	02774		00	00698
002147	006010	A	700		LOAI	ERRR		00	00699
002150	005035	A							
002151	052775	A	701		STA	02775		00	00700
002152	001000	A	702		JMP	02776		00	00701
002153	002776	A							
002154	000000	A	703	TX21	ENTR		TEST 21	00	00702
002155	005201	A	704		COMP	1		00	00703
002156	050010	A	705		STA	010	EXECUTE A 1 WORD WRITE INST IN UPA	00	00704
002157	002000	A	706		CALL	ERRR	THAT WRITE IN PROTECTED CORE,	00	00705
002160	005035	A							
002161	000000	A	707	TX22	ENTR		TEST 22	00	00706
002162	006057	A	708		STAE*	**1	EXECUTE A 2 WORD WRITE INST. IN UPA	00	00707
002163	102161	A							
002164	002000	A	709		CALL	ERRR	THAT WRITES IN PROTECTED CORE,	00	00708
002165	005035	A							
002166	000000	A	710	TX23	ENTR		TEST 23	00	00709
002167	012166	A	711		LDA	TX23	EXECUTE A 1 WORD WRITE INST. IN UPA,	00	00710
002170	005111	A	712		IAR		THAT WRITES IN UPA,	00	00711
002171	052175	A	713		STA	**4		00	00712
002172	000000	A	714		HLT			00	00713
002173	002000	A	715		CALL	ERRR		00	00714
002174	005035	A							
002175	000000	A	716		DATA	0		00	00715
002176	000000	A	717	TX24	ENTR		TEST 24	00	00716
002177	012166	A	718		LDA	TX23	EXECUTE A 2 WORD WRITE INST. IN UPA	00	00717
002200	005111	A	719		IAR		THAT WRITES IN UPA,	00	00718
002201	006057	A	720		STAE	**5		00	00719
002202	002206	A							
002203	000000	A	721		HLT			00	00720
002204	002000	A	722		CALL	ERRR		00	00721
002205	005035	A							
002206	000000	A	723		DATA			00	00722
002207	000000	A	724	TX25	ENTR		TEST 25	00	00723
002210	010012	A	725		LDA	10	EXECUTE A WRITE INST. IN UPA VIA A	00	00724
002211	003000	A	726		XEC	**4	XEC COMMAND IN UPA WHICH TRIES TO	00	00725
002212	002215	A							
002213	002000	A	727		CALL	ERRR	MODIFY A PA LOC,	00	00726
002214	005035	A							
002215	050012	A	728		STA	10		00	00727
002216	000000	A	729	TX26	ENTR		TEST 26	00	00728
002217	012226	A	730		LDA	**7	EXECUTE A WRITE INST. IN UPA VIA A	00	00729

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002220	003000	A	731	XEC	**5	XEC COMMAND IN UPA WHICH MODIFIES	00	00730
002221	002225	A						
002222	000000	A	732	HLT		A UPA LOC. (NO INTERRUPT)	00	00731
002223	002000	A	733	CALL	ERRR		00	00732
002224	005035	A						
002225	052226	A	734	STA	**1		00	00733
002226	005000	A	735	NOP			00	00734
002227	000000	A	736	TX27	ENTR	TEST 27	00	00735
002230	006010	A	737	LOAI	050012	EXECUTE A 1 WORD WRITE INTO PROTECTED	00	00736
002231	050012	A						
002232	052777	A	738	STA	02777	MEMORY WHERE THE WRITE INSTRUCTION IS	00	00737
002233	010012	A	739	LDA	012	IN THE LAST LOC. OF UNPROTECT MEMORY,	00	00738
002234	001000	A	740	JMP	02777		00	00739
002235	002777	A						
002236	000000	A	741	TX30	ENTR	TEST 30	00	00740
002237	001000	A	742	JMP*	TX30	EXECUTE A JUMP TO PROTECTED MEMORY.	00	00741
002240	102236	A						
002241	000000	A	743	TX31	ENTR	TEST 31	00	00742
002242	002000	A	744	JMPM*	TX31	EXECUTE A JUMP AND MARK TO PROTECTED MEM.	00	00743
002243	102241	A						
002244	000000	A	745	TX32	ENTR	TEST 32	00	00744
002245	006010	A	746	LOAI	01000	EXECUTE A JUMP INST. IN UPA WITH 1ST	00	00745
002246	001000	A						
002247	052777	A	747	STA	02777	WORD IN LAST LOC. OF UPA,	00	00746
002250	001000	A	748	JMP	02777		00	00747
002251	002777	A						
002252	000000	A	749	TX33	ENTR	TEST 33	00	00748
002253	022252	A	750	LOB	TX33	EXECUTE A INDEXED JUMP INST. IN UPA	00	00749
002254	006706	A	751	DATA	006706,0	MEMORY CAUSING A JUMP TO PROTECTED MEM	00	00750
002255	000000	A						
			752	*			00	00751
			753	*			00	00752
002256	000000	A	754	TX34	ENTR	TEST 34	00	00753
002257	006506	A	755	DATA	06506, (TX34)*	EXECUTE A JUMP UNCONDITIONAL AND SET	00	00754
002260	102256	A						
002261	005000	A	756	NOP		RETURN IN B, FROM UPA TO PA,	00	00755
			757	*			00	00756
			758	*	TEST 35 OPTIONAL ON 620/F		00	00757
			759	*			00	00758
			760	*	JSR* TX34,2		00	00759
			761	*			00	00760
002262	000000	A	762	TX35	ENTR	TEST 35	00	00761

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002263	005001	A	763	TZA		EXECUTE THE BIT TEST INST. IN UPA CAUSING	00	00762
002264	006441	A	764	DATA	006441,(TX35)*	JUMP TO PROTECTED MEMORY (OPTIONAL)	00	00763
002265	102262	A						
			765	*			00	00764
			766	*			00	00765
002266	000000	A	767	TX36	ENTR		00	00766
002267	012266	A	768		LOA TX36	JUMP TO CALLING PROGRAM TO CHECK P ADDRESS	00	00767
002270	052776	A	769		STA 02776		00	00768
002271	006010	A	770		LOAI 01000		00	00769
002272	001000	A						
002273	052775	A	771		STA 02775		00	00770
002274	001000	A	772		JMP 02775		00	00771
002275	002775	A						
			773	*			00	00772
			774	*	TEST 37	OPTIONAL ON 620/F	00	00773
			775	*	SRE	010,TX37	00	00774
			776	*			00	00775
002276	000000	A	777	TX37	ENTR	TEST 36 TEST SKIP IF REG. EQUAL.	00	00776
002277	006010	A	778		LOAI 006617		00	00777
002300	006617	A						
002301	052774	A	779		STA 02774	EXECUTE A SKIP IF REG. EQUAL WHERE	00	00778
002302	006010	A	780		LOAI TX37	THE A REG. IS EQUAL TO THE VALUE IN	00	00779
002303	002276	A						
002304	052775	A	781		STA 02775	THE OPERAND ADDRESS, AND THE INSTR.	00	00780
002305	005001	A	782		TZA	SKIP IS EXECUTED. THE LOCATION SKIPPED	00	00781
002306	052776	A	783		STA 02776	TO IS PROTECTED.	00	00782
002307	052777	A	784		STA 02777		00	00783
002310	012276	A	785		LOA TX37		00	00784
002311	001000	A	786		JMP 02774		00	00785
002312	002774	A						
002313	144716	A	787	MSG5	DATA	'INSTR. INT. ADDR. TEST',0105612,0	00	00786
002314	151724	A						
002315	151256	A						
002316	120311	A						
002317	147324	A						
002320	127240	A						
002321	140704	A						
002322	142322	A						
002323	127240	A						
002324	152305	A						
002325	151724	A						
002326	106612	A						

002327 000000 A
002330 146720 A 788 MSG7 DATA 'IMP TEST COMPLETE',0106612,0 00 00787
002331 120324 A
002332 142723 A
002333 152240 A
002334 141717 A
002335 146720 A
002336 146305 A
002337 152305 A
002340 106612 A
002341 000000 A
002342 147720 A 789 MSG8 DATA 'OPTIONAL INST, PRESENT 0,=YES, 1,=NO',0106612,0 00 00788
002343 152311 A
002344 147716 A
002345 140714 A
002346 120311 A
002347 147323 A
002350 152256 A
002351 120320 A
002352 151305 A
002353 151705 A
002354 147324 A
002355 120240 A
002356 130256 A
002357 136731 A
002360 142723 A
002361 126240 A
002362 130656 A
002363 136716 A
002364 147640 A
002365 106612 A
002366 000000 A
002367 106612 A 790 MSG9 DATA 0106612,'ENTER CPU TYPE 0=620/F 1=V73',0106612,0 00 00789
002370 142716 A
002371 152305 A
002372 151240 A
002373 141720 A
002374 152640 A
002375 152331 A
002376 150305 A
002377 120240 A
002400 ' 7240 A

002401 130275 A
002402 133262 A
002403 130257 A
002404 143240 A
002405 120261 A
002406 136726 A
002407 133663 A
002410 106612 A
002411 000000 A

		791		EJEC			00	00790	
003000		792		ORG	03000		00	00791	
003000	002000 A	793		CALL	ERRR		00	00792	
003001	005035 A								
003002	002000 A	794		CALL	ERRR		00	00793	
003003	005035 A								
		795	*****					00	00794
		796	*				*00	00795	
		797	*	THIS IS THE 620/F MEMORY PROTECT TEST PROGRAM,			*00	00796	
		798	*	LOCATIONS 01777 TO 02777 ARE USED BY THE PROGRAM			*00	00797	
		799	*	AS THE UNPROTECTED MEMORY FOR TESTING INTERRUPT			*00	00798	
		800	*	ADDRESSES			*00	00799	
		801	*				*00	00800	
		802	*****					00	00801
003010		803		ORG	03010		00	00802	
003010	010000 A	804	MPTT	LDA	0	SAVE LOCATIONS ZERO AND ONE,	00	00803	
003011	051224 A	805		STA	LOCZ		00	00804	
003012	010001 A	806		LDA	1		00	00805	
003013	051225 A	807		STA	LOCZ+1		00	00806	
003014	005001 A	808		TZA			00	00807	
003015	051233 A	809		STA	HLTF	CLEAR HALT FLAG	00	00808	
003016	006020 A	810	MPTS	LDBI	2	SET ADDRESS + BIT 8 SET IN LOCATIONS 2	00	00809	
003017	000002 A								
003020	005021 A	811	MPTO	TBA		TO 0377 EXCEPT LOCATIONS 040 TO	00	00810	
003021	006110 A	812		ORAI	0400	043 (POWER FAIL RESTART INTERRUPT	00	00811	
003022	000400 A								
003023	056000 A	813		STA	0,2	ADDRESSES),	00	00812	
003024	005122 A	814		IBR			00	00813	
003025	005021 A	815		TBA			00	00814	
003026	006140 A	816		SUBI	040	CHECK IF 040	00	00815	
003027	000040 A								
003030	001010 A	817		JAZ	*+8		00	00816	
003031	003040 A								
003032	006140 A	818		SUBI	0340	CHECK IF 0400 (ALL ADDRESSES MODIFIED)	00	00817	
003033	000340 A								
003034	001010 A	819		JAZ	*+8		00	00818	
003035	003044 A								
003036	001000 A	820		JMP	MPTO		00	00819	
003037	003020 A								
003040	006020 A	821		LDBI	044	JUMP OVER PF/R INTERRUPT ADDRESSES	00	00820	
003041	000044 A								
003042	001000 A	822		JMP	MPTO		00	00821	

003043	003020	A						
003044	010442	A	823	LOA	SCON			00 00822
003045	001010	A	824	JAZ	MPCM	TEST IF CONSOLE MODE,		00 00823
003046	003175	A						
003047	006030	A	825	LOXI	MSG1			00 00824
003050	001458	A						
003051	002000	A	826	CALL*	OUTD	WRITE (MEMORY PROTECT TEST)		00 00825
003052	100403	A						
003053	006030	A	827	LOXI	MSG9	'ENTER CPU TYPE---'		00 00826
003054	002367	A						
003055	002000	A	828	CALL*	OUTD	PRINT		00 00827
003056	100403	A						
003057	002000	A	829	CALL*	INPG	INPUT OCTAL NUMBER		00 00828
003060	100416	A						
003061	001000	A	830	JMP	MPTS	TERMINATION EXIT		00 00829
003062	003016	A						
003063	001000	A	831	JMP	*=8	ABORT EXIT		00 00830
003064	003053	A						
003065	001000	A	832	JMP	*=2	COMMA EXIT		00 00831
003066	003063	A						
003067	006057	A	833	STAE	DPTX	SAVE CPU/M,P. TYPE		00 00832
003070	005123	A						
003071	002000	A	834	CALL*	OUTC	CR/LF		00 00833
003072	100402	A						
003073	001016	A	835	JANZ	MPC1	SKIP OPTIONAL INST QUERY IF V73		00 00834
003074	003115	A						
003075	006030	A	836	LOXI	MSG8			00 00835
003076	002342	A						
003077	002000	A	837	CALL*	OUTD	WRITE =OPTIONAL INST, PRESENT 0=YES, 1=NO		00 00836
003100	100403	A						
003101	002000	A	838	CALL*	INPG	INPUT OCTAL NUMBER,		00 00837
003102	100416	A						
003103	001000	A	839	JMP	MPTS	TERMINATION EXIT		00 00838
003104	003016	A						
003105	001000	A	840	JMP	*=8	ABORT EXIT		00 00839
003106	003075	A						
003107	001000	A	841	JMP	*=2	COMMA EXIT		00 00840
003110	003105	A						
003111	006057	A	842	STAE	DPTT			00 00841
003112	005122	A						
003113	002000	A	843	CALL*	OUTC	CR/LF		00 00842
003114	100402	A						

003115	006030	A	844	MPC1	LXI	MSG4	'START TEST 0=MASK REG OR 1=INST TEST'	00	00843
003116	001510	A							
003117	002000	A	845		CALL*	OUTD		00	00844
003120	100403	A							
003121	002000	A	846		CALL*	INPG	INPUT OCTAL NUMBER,	00	00845
003122	100416	A							
003123	001000	A	847		JMP	MPTS	TERMINATION EXIT	00	00846
003124	003016	A							
003125	001000	A	848		JMP	*=8	ABORT INPUT	00	00847
003126	003115	A							
003127	001000	A	849		JMP	*=2	COMMA EXIT	00	00848
003130	003125	A							
003131	006057	A	850		STAE	TEST		00	00849
003132	005121	A							
003133	051104	A	851		STA	MODE			*****
003134	002000	A	852		CALL*	OUTC	OUTPUT CR/LF	00	00850
003135	100402	A							
003136	010442	A	853	MPT1	LOA	SCON		00	00851
003137	001010	A	854		JAZ	MPCM	TEST IF CONSOLE MODE,	00	00852
003140	003175	A							
003141	006030	A	855		LXI	MSG2		00	00853
003142	001472	A							
003143	002000	A	856		CALL*	OUTD	WRITE (CYCLES =)	00	00854
003144	100403	A							
003145	005001	A	857		TZA			00	00855
003146	051633	A	858		STA	WTMS		00	00856
003147	002000	A	859		CALL*	INPG	INPUT OCTAL NUMBER,	00	00857
003150	100416	A							
003151	001000	A	860		JMP	MPZZ	TERMINATION EXIT	00	00858
003152	003171	A							
003153	001000	A	861		JMP	MPT1	ABORT INPUT	00	00859
003154	003136	A							
003155	001000	A	862		JMP	MPT2	COMMA EXI	00	00860
003156	003162	A							
003157	051634	A	863		STA	CYCL	PERIOD EXIT WTMS = 0, (A) = CYCL	00	00861
003160	001000	A	864		JMP	*=5		00	00862
003161	003165	A							
003162	041633	A	865	MPT2	INR	WTMS	COMMA WTMS = 1, (A) = CYCL	00	00863
003163	001000	A	866		JMP	*=4		00	00864
003164	003157	A							
003165	002000	A	867		CALL*	OUTC	OUTPUT CR/LF	00	00865
003166	100402	A							

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003167	001000	A	868	JMP	MPT3		00	00866
003170	003207	A						
003171	002000	A	869	MPZZ	CALL*	OUTC	00	00867
003172	100402	A						
003173	001000	A	870	JMP	MPT1		00	00868
003174	003136	A						
003175	005001	A	871	MPCM	TZA	CONSOLE MODE	00	00869
003176	005002	A	872		TZB	CLEAR VOLATILE REGISTERS.	00	00870
003177	005004	A	873		TZX		00	00871
003200	051633	A	874		STA	WTMS	00	00872
003201	000077	A	875		HLT	077	00	00873
003202	051634	A	876		STA	CYCL	00	00874
003203	006077	A	877		STXE	TEST	00	00875
003204	005121	A						
003205	006067	A	878		STBE	OPTT	00	00876
003206	005122	A						
003207	006010	A	879	MPT3	LOAI	HLTR	00	00877
003210	001230	A						
003211	050001	A	880		STA	1	00	00878
003212	006010	A	881		LOAI	02000	00	00879
003213	002000	A						
003214	050000	A	882		STA	0	00	00880
003215	006010	A	883		LOAI	01000	00	00881
003216	001000	A						
003217	051641	A	884		STA	LLDC	00	00882
003220	006010	A	885		LOAI	01777	00	00883
003221	001777	A						
003222	051642	A	886		STA	HLDC	00	00884
003223	006010	A	887		LOAI	01	00	00885
003224	000001	A						
003225	051643	A	888		STA	MASK	00	00886
003226	006010	A	889		LOAI	02000	00	00887
003227	002000	A						
003230	050020	A	890		STA	0020	00	00888
003231	050022	A	891		STA	0022	00	00889
003232	050024	A	892		STA	0024	00	00890
003233	050026	A	893		STA	0026	00	00891
003234	050030	A	894		STA	0030	00	00892
003235	050032	A	895		STA	0032	00	00893
003236	050034	A	896		STA	0034	00	00894
003237	050036	A	897		STA	0036	00	00895
			898	*			00	00896
						SET SUBROUTINE ERRS ARE MP INTERRUPT		

003240	002000	A	899	CALL	ILAS,0377,ERRS	PROCESSOR,	00	00897
003241	001133	A						
003242	000377	A						
003243	000746	A						
003244	006017	A	900	LDAE	TEST	CHECK WHICH TEST TO START EXECUTION,	00	00898
003245	005121	A						
003246	001010	A	901	JAZ	**4		00	00899
003247	003252	A						
003250	001000	A	902	JMP	MPT6		00	00900
003251	003323	A						
003252	010442	A	903	LDA	SCDN	CHECK IF CONSOLE MODE	00	00901
003253	001010	A	904	JAZ	MPT4		00	00902
003254	003264	A						
003255	011633	A	905	LDA	WTMS	CHECK IF NON-ERROR MESSAGE SUPPRESSION	00	00903
003256	001010	A	906	JAZ	MPT4		00	00904
003257	003264	A						
003260	006030	A	907	LDXI	MSG3		00	00905
003261	001477	A						
003262	002000	A	908	CALL*	OUTD	WRITE (MASK REGISTER TEST)	00	00906
003263	100403	A						
			909	*			00	00907
			910	*****			00	00908
			911	*	MASK REGISTER TEST	*	00	00909
			912	*****			00	00910
			913	*			00	00911
003264	002000	A	914	MPT4	CALL	TSTL	00	00912
						MASK REGISTER TEST		
003265	000772	A						
003266	010441	A	915	LDA	SMEM		00	00913
003267	141642	A	916	SUB	HLOC		00	00914
003270	001010	A	917	JAZ	MPT8		D	*****
003271	003309	A						
003272	011642	A	918	LDA	HLOC		00	00916
003273	005111	A	919	IAR			00	00917
003274	051641	A	920	STA	LLDC		00	00918
003275	006120	A	921	ADDI	0777		00	00919
003276	000777	A						
003277	051642	A	922	STA	HLOC		00	00920
003300	041643	A	923	INR	MASK		00	00921
003301	002000	A	924	CALL	CKSE	CHECK SS3 AND HLTF FLAG,	00	00922
003302	001204	A						
003303	001000	A	925	JMP	MPT4	PROCESS NEXT BLOCK	00	00923
003304	003264	A						

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003305	011634	A	926	MPT8	LDA	CYCL	CHECK IF CYCLE MODE	D *****
003306	005311	A	927		DAR			D *****
003307	001004	A	928		JAN	MPT5	CONTINUAL MODE	D *****
003310	003321	A						
003311	031104	A	929		LDX	MODE		D *****
003312	001040	A	930		JXZ	MPT5		D *****
003313	003321	A						
003314	001010	A	931		JAZ	END	CYCLE COMPLETED	D *****
003315	005024	A						
003316	051634	A	932		STA	CYCL	CYCLES NOT COMPLETED	D *****
003317	001000	A	933		JMP	MPT5		D *****
003320	003321	A						
			934	*				00 00924
			935	*				00 00925
			936	*****				00 00926
			937	*	INSTRUCTION INTERRUPT ADDRESS TEST	*		00 00927
			938	*****				00 00928
			939	*				00 00929
			940	*				00 00930
003321	002000	A	941	MPT5	CALL	CKSE		00 00931
003322	001204	A						
003323	006010	A	942	MPT6	LDAI	1	SET UP ERROR CODE OF ONE	** 1 ** 00 00932
003324	000001	A						
003325	051644	A	943		STA	ERRC		00 00933
003326	005001	A	944		TZA			00 00934
003327	006057	A	945		STAE	TEST		00 00935
003330	005121	A						
003331	002000	A	946		CALL	CLMP	PROTECT ALL CORE	00 00936
003332	001234	A						
003333	010442	A	947		LDA	SCON	CHECK IF CONSOLE MODE	00 00937
003334	001010	A	948		JAZ	MPT7		00 00938
003335	003345	A						
003336	011633	A	949		LDA	WTMS	CHECK IF TELETYPE NON-ERROR MESS. SUPPRESS	00 00939
003337	001010	A	950		JAZ	MPT7		00 00940
003340	003345	A						
003341	006030	A	951		LOXI	MSG5	WRITE (INST, INTERRUPT ADDRESS TEST,)	00 00941
003342	002313	A						
003343	002000	A	952		CALL*	OUTD		00 00942
003344	100403	A						
003345	006010	A	953	MPT7	LDAI	0177773	UNPROTECTED 3RD BLOCK (02000 TO 02777)	00 00943
003346	177773	A						
003347	100045	A	954		EXC	MPM	SELECT MASK REGISTER 0	00 00944

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003350	103145	A	955		DAR	MPM	OUTPUT TO MASK REGISTER 0	00 00945
003351	100745	A	956		EXC	0700+MPM	DISABLE MP	00 00946
003352	006010	A	957		LDAI	ML01	SET UP LOOP ADDRESS	00 00947
003353	003370	A						
003354	051645	A	958		STA	LOOP		00 00948
003355	006010	A	959		LDAI	MG02=1	SET UP CONTINUE ADDRESS	00 00949
003356	003423	A						
003357	051646	A	960		STA	CONT		00 00950
003360	002000	A	961		CALL	ILAS,0377,ERRR	SET ALL INTERRUPT ADDRESS TO ERRDR SUB,	00 00951
003361	001133	A						
003362	000377	A						
003363	005035	A						
003364	002000	A	962		CALL	ILAS,HALT,MC02	SET UP HALT INTERRUPT TO CONTINUE	00 00952
003365	001133	A						
003366	000001	A						
003367	003375	A						
003370	100645	A	963	ML01	EXC	0600+MPM	ENABLE MP	00 00953
003371	002000	A	964		CALL	TX01	EXECUTE A HALT INST, IN UNPROTECTED CORE	00 00954
003372	002000	A						
003373	002000	A	965		CALL	ERRR		00 00955
003374	005035	A						
003375	000000	A	966	MC02	ENTR			00 00956
003376	100745	A	967		EXC	0700+MPM	DISABLE MP	00 00957
003377	006017	A	968		LOAE	OPTX	GET CPU TYPE	00 00958
003400	005123	A						
003401	001016	A	969		JANZ	MPC2	JUMP IF V73	00 00959
003402	003412	A						
			970	*		620/F TYPE MEMORY PROTECT		00 00960
003403	013375	A	971		LOA	MC02	CHECK IF INTERRUPTED FROM CORRECT	00 00961
003404	006140	A	972		SUBI	TX01+2	ERROR LOCATION,	00 00962
003405	002002	A						
003406	001010	A	973		JAZ	MG02		00 00963
003407	003424	A						
003410	001000	A	974		JMP	MPC3	ERROR	00 00964
003411	003417	A						
			975	*		V73 TYPE MEMORY PROTECT		00 00965
003412	013375	A	976	MPC2	LOA	MC02	CHECK IF INTERRUPTED FROM	00 00966
003413	006140	A	977		SUBI	TX01+1	CORRECT ERROR LOCATION	00 00967
003414	002001	A						
003415	001010	A	978		JAZ	MG02		00 00968
003416	003424	A						
003417	011644	A	979	MPC3	LOA	ERRC		00 00969

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003420	121102	A	980		ADD	N100		00 00970
003421	051644	A	981		STA	ERRC		00 00971
003422	002000	A	982		CALL	ERRR		00 00972
003423	005035	A						
003424	002000	A	983	MG02	CALL	ERLP		00 00973
003425	005104	A						
003426	011644	A	984		LDA	ERRC		00 00974
003427	151103	A	985		ANA	C100		00 00975
003430	051644	A	986		STA	ERRC		00 00976
003431	041644	A	987		INR	ERRC	ERROR COUNT 2 TEST NO 2	** 2 ** 00 00977
003432	006010	A	988		LOAI	ML02		00 00978
003433	003444	A						
003434	051645	A	989		STA	LOOP	SET UP LOOP ADDRESS	00 00979
003435	006010	A	990		LOAI	MC03		00 00980
003436	003447	A						
003437	051646	A	991		STA	CONT	SET UP CONTINUE ADDRESS	00 00981
003440	002000	A	992		CALL	ILAS,HALT,MC03	SET UP HALT INTERRUPT TO CONTINUE	00 00982
003441	001133	A						
003442	000001	A						
003443	003447	A						
003444	100645	A	993	ML02	EXC	0600+MPM	ENABLE MP	00 00983
003445	002000	A	994		CALL	TX02	EXECUTE HALT INST, IN LAST UPA	00 00984
003446	002004	A						
003447	000000	A	995	MC03	ENTR			00 00985
003450	100745	A	996		EXC	0700+MPM	DISABLE MP	00 00986
003451	002000	A	997		CALL	ERLP		00 00987
003452	005104	A						
003453	041644	A	998		INR	ERRC	ERROR COUNT 3 TEST NO. 3	** 3 ** 00 00988
003454	006010	A	999		LOAI	ML03		00 00989
003455	003466	A						
003456	051645	A	1000		STA	LOOP	SET UP LOOP ADDRESS	00 00990
003457	006010	A	1001		LOAI	MC04		00 00991
003460	003473	A						
003461	051646	A	1002		STA	CONT	SET UP CONTINUE ADDRESS AFTER INTERRUPT	00 00992
003462	002000	A	1003		CALL	ILAS,HALT,MC04	SET UP HALT INTERRUPT TO CONTINUE	00 00993
003463	001133	A						
003464	000001	A						
003465	003473	A						
003466	100645	A	1004	ML03	EXC	0600+MPM	ENABLE MP	00 00994
003467	002000	A	1005		CALL	TX03	EXECUTE A XEC OF HALT INST.	00 00995
003470	002011	A						
003471	002000	A	1006		CALL	ERRR		00 00996

003472	005035	A							
003473	000000	A	1007	MC04	ENTR				00 00997
003474	100745	A	1008		EXC	0700+MPM	DISABLE MP		00 00998
003475	002000	A	1009		CALL	ERLP			00 00999
003476	005104	A							
003477	041644	A	1010		INR	ERRC	ERROR COUNT 4 TEST NO. 4	** 4 **	00 01000
003500	006010	A	1011		LDAI	ML04			00 01001
003501	003518	A							
003502	051645	A	1012		STA	LOOP	SET UP LOOP ADDRESS		00 01002
003503	006010	A	1013		LDAI	MG05=1			00 01003
003504	003534	A							
003505	051646	A	1014		STA	CONT	SET UP CONTINUE ADDRESS		00 01004
003506	002000	A	1015		CALL	ILAS,HALT,ERRR			00 01005
003507	001133	A							
003510	000001	A							
003511	005035	A							
003512	002000	A	1016		CALL	ILAS,OVER,MC05	SET UP CONTINUE ADDRESS AFTER INTERRUPT		00 01006
003513	001133	A							
003514	000020	A							
003515	003521	A							
003516	100645	A	1017	ML04	EXC	0600+MPM	ENABLE MP		00 01007
003517	002000	A	1018		CALL	TX04	EXECUTE 1 WORD INST. IN LAST UPA		00 01008
003520	002018	A							
003521	000000	A	1019	MC05	ENTR				00 01009
003522	100745	A	1020		EXC	0700+MPM	DISABLE MP		00 01010
003523	013521	A	1021		LOA	MC05			00 01011
003524	006140	A	1022		SUBI	03000	CHECK INTERRUPT ADDRESS		00 01012
003525	003000	A							
003526	001010	A	1023		JAZ	MG05			00 01013
003527	003535	A							
003530	011644	A	1024		LOA	ERRC			00 01014
003531	121102	A	1025		ADD	N100			00 01015
003532	051644	A	1026		STA	ERRC			00 01016
003533	002000	A	1027		CALL	ERRR			00 01017
003534	005035	A							
003535	002000	A	1028	MG05	CALL	ERLP			00 01018
003536	005104	A							
003537	011644	A	1029		LOA	ERRC			00 01019
003540	151103	A	1030		ANA	C100			00 01020
003541	051644	A	1031		STA	ERRC			00 01021
003542	041644	A	1032		INR	ERRC	ERROR COUNT 5 TEST 5	** 5 **	00 01022
003543	006010	A	1033		LDAI	ML05			00 01023

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003544	003555	A						
003545	051645	A	1034	STA	LOOP	SET UP LOOP ADDRESS	00	01024
003546	006010	A	1035	LDAI	MC06		00	01025
003547	003560	A						
003550	051646	A	1036	STA	CONT	SET UP CONTINUE ADDRESS	00	01026
003551	002000	A	1037	CALL	ILAS,OVER,MC06	SET UP CONTINUE ADDRESS AFTER INTERRUPT	00	01027
003552	001133	A						
003553	000020	A						
003554	003560	A						
003555	100645	A	1038	ML05	EXC	0600+MPM	ENABLE MP	00 01028
003556	002000	A	1039	CALL	TX05	EXECUTE 2 WORD INST, IN LAST UPA	00	01029
003557	002024	A						
003560	000000	A	1040	MC06	ENTR			00 01030
003561	100745	A	1041	EXC	0700+MPM	DISABLE MP	00	01031
003562	002000	A	1042	CALL	ERLP		00	01032
003563	005104	A						
003564	041644	A	1043	INR	ERRC	ERROR COUNT 6 TEST 6	** 6 **	00 01033
003565	006010	A	1044	LDAI	ML06		00	01034
003566	003577	A						
003567	051645	A	1045	STA	LOOP	SET UP LOOP ADDRESS	00	01035
003570	006010	A	1046	LDAI	MC07		00	01036
003571	003602	A						
003572	051646	A	1047	STA	CONT	SET UP CONTINUE ADDRESS	00	01037
003573	002000	A	1048	CALL	ILAS,OVER,MC07	SET UP CONTINUE ADDR, AFTER INTERRUPT	00	01038
003574	001133	A						
003575	000020	A						
003576	003602	A						
003577	100645	A	1049	ML06	EXC	0600+MPM	ENABLE MP	00 01039
003600	002000	A	1050	CALL	TX06	EXEC 2 WORD INST, 1ST WORD IN UPA	00	01040
003601	002032	A						
003602	000000	A	1051	MC07	ENTR			00 01041
003603	100745	A	1052	EXC	0700+MPM	DISABLE MP	00	01042
003604	002000	A	1053	CALL	ERLP		00	01043
003605	005104	A						
003606	041644	A	1054	INR	ERRC	TEST 7	** 7 **	00 01044
003607	006010	A	1055	LDAI	ML07		00	01045
003610	003621	A						
003611	051645	A	1056	STA	LOOP	SET UP LOOP ADDR,	00	01046
003612	006010	A	1057	LDAI	MC10		00	01047
003613	003624	A						
003614	051646	A	1058	STA	CONT	SET UP CONTINUE ADDR,	00	01048
003615	002000	A	1059	CALL	ILAS,OVER,MC10	SET UP CONTINUE ADDRESS AFTER INTERRUPT	00	01049

003616	001133	A							
003617	000020	A							
003620	003624	A							
003621	100645	A	1060	ML07	EXC	0600+MPM	ENABLE MP		00 01050
003622	002000	A	1061		CALL	TX07	EXECUTE A JUMP INST (NOT MET) IN LAST UPA		00 01051
003623	002040	A							
003624	000000	A	1062	MC10	ENTR				00 01052
003625	100745	A	1063		EXC	0700+MPM	DISABLE MP		00 01053
003626	002000	A	1064		CALL	ERLP			00 01054
003627	005104	A							
003630	041644	A	1065		INR	ERRC	TEST 10	** 10 **	00 01055
003631	006010	A	1066		LDAI	ML10			00 01056
003632	003661	A							
003633	051645	A	1067		STA	LOOP	LOOP ADDR,		00 01057
003634	006010	A	1068		LDAI	MC11			00 01058
003635	003664	A							
003636	051646	A	1069		STA	CONT	CONTI, ADDR,		00 01059
003637	006017	A	1070		LDAE	OPTX	GET CPU TYPE		00 01060
003640	005123	A							
003641	001016	A	1071		JANZ	*+010	JUMP IF V73		00 01061
003642	003651	A							
			1072	*					
003643	002000	A	1073		CALL	ILAS,OVER,MC11	SETUP FOR OVERFLOW INTERRUPT CONTI ADDR, AFTER INTERRUPT,		00 01062 00 01063
003644	001133	A							
003645	000020	A							
003646	003664	A							
003647	001000	A	1074		JMP	ML10	CONTINUE		00 01064
003650	003661	A							
			1075	*					
003651	002000	A	1076		CALL	ILAS,OVER,ERRR	SETUP FOR HALT INTERRUPT SET OVER INT TO ERROR ROUTINE		00 01065 00 01066
003652	001133	A							
003653	000020	A							
003654	005035	A							
003655	002000	A	1077		CALL	ILAS,HALT,MC11	CONTI ADDR AFTER INTERRUPT		00 01067
003656	001133	A							
003657	000001	A							
003660	003664	A							
003661	100645	A	1078	ML10	EXC	0600+MPM	ENABLE MP		00 01068
003662	002000	A	1079		CALL	TX10	EXECUTE A XEC INDIR TO A HALT COMMAND		00 01069
003663	002046	A							
003664	000000	A	1080	MC11	ENTR				00 01070
003665	100745	A	1081		EXC	0700+MPM	DISABLE MP		00 01071

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003666	002000	A	1082	CALL	ERLP			00 01072
003667	005104	A						
003670	041644	A	1083	INR	ERRC	TEST 11	** 11 **	00 01073
003671	006010	A	1084	LOAI	ML11			00 01074
003672	003703	A						
003673	051645	A	1085	STA	LOOP	LOOP ADDR.		00 01075
003674	006010	A	1086	LOAI	MC12			00 01076
003675	003707	A						
003676	051646	A	1087	STA	CONT	CONTINUE ADDR.		00 01077
003677	002000	A	1088	CALL	ILAS,OVER,MC12	CONTINUE ADDRESS AFTER INTERRUPT		00 01078
003700	001133	A						
003701	000020	A						
003702	003707	A						
003703	100645	A	1089	ML11	EXC	0600+MPM	ENABLE MP	00 01079
003704	002000	A	1090	CALL	TX11		EXECUTE A INR EXTENDEND THRO PA TO UPA	00 01080
003705	002060	A						
003706	002060	A	1091	DATA	TX11			00 01081
003707	000000	A	1092	MC12	ENTR			00 01082
003710	100745	A	1093	EXC	0700+MPM	DISABLE MP		00 01083
003711	002000	A	1094	CALL	ERLP			00 01084
003712	005104	A						
003713	041644	A	1095	INR	ERRC	TEST 12	** 12 **	00 01085
003714	006010	A	1096	LOAI	ML12			00 01086
003715	003726	A						
003716	051645	A	1097	STA	LOOP	LOOP ADDR.		00 01087
003717	006010	A	1098	LOAI	MC13			00 01088
003720	003732	A						
003721	051646	A	1099	STA	CONT	CONTINUE ADDR.		00 01089
003722	002000	A	1100	CALL	ILAS,OVER,MC13	CONTINUE ADDRESS AFTER INTERRUPT		00 01090
003723	001133	A						
003724	000020	A						
003725	003732	A						
003726	100645	A	1101	ML12	EXC	0600+MPM	ENABLE MP	00 01091
003727	002000	A	1102	CALL	TX12		EXECUTE A 2 WORD READ WITH 2ND WORD IN LAST	00 01092
003730	002072	A						
003731	005000	A	1103	NOP		UPA		00 01093
003732	000000	A	1104	MC13	ENTR			00 01094
003733	100745	A	1105	EXC	0700+MPM	DISABLE MP		00 01095
003734	002000	A	1106	CALL	ERLP			00 01096
003735	005104	A						
003736	041644	A	1107	INR	ERRC	TEST 13	** 13 **	00 01097
003737	006010	A	1108	LOAI	ML13			00 01098

003740	003751	A							
003741	051645	A	1109	STA	LOOP	LOOP ADDR.		00	01099
003742	006010	A	1110	LDAI	MC14			00	01100
003743	003755	A							
003744	051646	A	1111	STA	CONT	CONTINUE ADDR.		00	01101
003745	002000	A	1112	CALL	ILAS,OVER,MC14	CONTINUE ADDR. AFTER INTERRUPT		00	01102
003746	001133	A							
003747	000020	A							
003750	003755	A							
003751	100645	A	1113	EXC	0600+MPM	ENABLE MP		00	01103
003752	002000	A	1114	CALL	TX13	EXECUTE EXTENDED WRITE TO UNPROTECTED MEM.		00	01104
003753	002102	A							
003754	005000	A	1115	NOP		2ND WORD IN LAST UPA.		00	01105
003755	000000	A	1116	ENTR	MC14			00	01106
003756	100745	A	1117	EXC	0700+MPM	DISABLE MP		00	01107
003757	002000	A	1118	CALL	ERLP			00	01108
003760	005104	A							
003761	041644	A	1119	INR	ERRC	TEST 14	** 14 **	00	01109
003762	006010	A	1120	LDAI	ML14			00	01110
003763	004000	A							
003764	051645	A	1121	STA	LOOP	LOOP ADDR		00	01111
003765	006010	A	1122	LDAI	MG15=1			00	01112
003766	004017	A							
003767	051646	A	1123	STA	CONT	CONTINUE ADDR.		00	01113
003770	002000	A	1124	CALL	ILAS,OVER,ERRR			00	01114
003771	001133	A							
003772	000020	A							
003773	005035	A							
003774	002000	A	1125	CALL	ILAS,IOE,MC15	CONTINUE ADDR. AFTER INTERRUPT		00	01115
003775	001133	A							
003776	000002	A							
003777	004003	A							
004000	100645	A	1126	EXC	0600+MPM	ENABLE MP		00	01116
004001	002000	A	1127	CALL	TX14			00	01117
004002	002113	A							
004003	000000	A	1128	ENTR	MC15			00	01118
004004	100745	A	1129	EXC	0700+MPM	DISABLE MP		00	01119
004005	006017	A	1130	LDAE	MC15		D	*****	
004006	004003	A							
004007	006140	A	1131	SUBI	TX14+2	CHECK IF INTERRUPT LOC. CORRECT		00	01121
004010	002115	A							
004011	001010	A	1132	JAZ	MG15			00	01122

004012	004020	A							
004013	011644	A	1133	LOA	ERRC			00	01123
004014	121102	A	1134	ADD	N100			00	01124
004015	051644	A	1135	STA	ERRC			00	01125
004016	002000	A	1136	CALL	ERRR			00	01126
004017	005035	A							
004020	002000	A	1137	MG15	CALL	ERLP		00	01127
004021	005104	A							
004022	011644	A	1138	LOA	ERRC			00	01128
004023	151103	A	1139	ANA	C100			00	01129
004024	051644	A	1140	STA	ERRC			00	01130
004025	041644	A	1141	INR	ERRC	TEST 15	** 15 **	00	01131
004026	006010	A	1142	LOAI	ML15			00	01132
004027	004040	A							
004030	051645	A	1143	STA	LOOP	LOOP ADDR,		00	01133
004031	006010	A	1144	LOAI	MC16=1			00	01134
004032	004042	A							
004033	051646	A	1145	STA	CONT	CONTI ADDR,		00	01135
004034	002000	A	1146	CALL	ILAS,IOE,ERRR	SHOULD NOT GET A INTERRUPT		00	01136
004035	001133	A							
004036	000002	A							
004037	005035	A							
004040	100645	A	1147	ML15	EXC	0600+MPM	ENABLE MP	00	01137
004041	003000	A	1148		XEC	TX15	DISABLE INST, IN UPA	00	01138
004042	002117	A							
004043	002000	A	1149	MC16	CALL	ERLP		00	01139
004044	005104	A							
004045	041644	A	1150	INR	ERRC	TEST 16	** 16 **	00	01140
004046	006010	A	1151	LOAI	ML16			00	01141
004047	004050	A							
004050	051645	A	1152	STA	LOOP	LOOP ADDR,		00	01142
004051	006010	A	1153	LOAI	MC17			00	01143
004052	004063	A							
004053	051646	A	1154	STA	CONT	CONTINUE ADDR,		00	01144
004054	002000	A	1155	CALL	ILAS,IOE,MC17	CONTINUE ADDR, AFTER INTERRUPT		00	01145
004055	001133	A							
004056	000002	A							
004057	004063	A							
004060	100645	A	1156	ML16	EXC	0600+MPM	ENABLE MP	00	01146
004061	002000	A	1157		CALL	TX16	EXECUTE I/O VIA XEC IN UPA	00	01147
004062	002120	A							
004063	000000	A	1158	MC17	ENTR			00	01148

004064	100745	A	1159		EXC	0700+MPM	DISABLE MP		00	01149
004065	002000	A	1160		CALL	ERLP			00	01150
004066	005104	A								
004067	041644	A	1161		INR	ERRC	TEST 17	** 17 **	00	01151
004070	006010	A	1162		LDAI	ML17			00	01152
004071	004102	A								
004072	051645	A	1163		STA	LOOP	LOOP ADDR.		00	01153
004073	006010	A	1164		LDAI	MC20			00	01154
004074	004106	A								
004075	051646	A	1165		STA	CONT	CONTINUE ADDR.		00	01155
004076	002000	A	1166		CALL	ILAS,IOE,MC20	CONTINUE ADDR. AFTER INTERRUPT		00	01156
004077	001133	A								
004100	000002	A								
004101	004106	A								
004102	100645	A	1167	ML17	EXC	0600+MPM	ENABLE MP		00	01157
004103	002000	A	1168		CALL	TX17	EXECUTE A I/O INST IN PA BY A XEC IN UPA		00	01158
004104	002126	A								
004105	100745	A	1169		EXC	0700+MPM	DISABLE MP		00	01159
004106	000000	A	1170	MC20	ENTR				00	01160
004107	100745	A	1171		EXC	0700+MPM	DISABLE MP		00	01161
004110	002000	A	1172		CALL	ERLP			00	01162
004111	005104	A								
004112	041644	A	1173		INR	ERRC	TEST 20	** 20 **	00	01163
004113	006010	A	1174		LDAI	ML20			00	01164
004114	004131	A								
004115	051645	A	1175		STA	LOOP	LOOP ADDR.		00	01165
004116	006010	A	1176		LDAI	MB21-1			00	01166
004117	004150	A								
004120	051646	A	1177		STA	CONT	CONTINUE ADDR.		00	01167
004121	002000	A	1178		CALL	ILAS,IOE,ERRR			00	01168
004122	001133	A								
004123	000002	A								
004124	005035	A								
004125	002000	A	1179		CALL	ILAS,IOEO,MC21	CONTINUE ADDR. AFTER INTERRUPT		00	01169
004126	001133	A								
004127	000040	A								
004130	004134	A								
004131	100645	A	1180	ML20	EXC	0600+MPM	ENABLE MP		00	01170
004132	002000	A	1181		CALL	TX20	EXECUTE 1 WORD I/O INST IN LAST UPA.		00	01171
004133	002135	A								
004134	000000	A	1182	MC21	ENTR				00	01172
004135	100745	A	1183		EXC	0700+MPM	DISABLE MP		00	01173

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004136	006017	A	1184		LOAE	MC21		00 01174
004137	004134	A						
004140	006140	A	1185		SUBI	03000	CHECK IF P REGISTER CORRECT	00 01175
004141	003000	A						
004142	001010	A	1186		JAZ	MG21		00 01176
004143	004151	A						
004144	011644	A	1187		LDA	ERRC		00 01177
004145	121102	A	1188		ADD	N100		00 01178
004146	051644	A	1189		STA	ERRC		00 01179
004147	002000	A	1190		CALL	ERRR		00 01180
004150	005035	A						
004151	002000	A	1191	MG21	CALL	ERLP		00 01181
004152	005104	A						
004153	011644	A	1192		LDA	ERRC		00 01182
004154	151103	A	1193		ANA	C100		00 01183
004155	051644	A	1194		STA	ERRC		00 01184
004156	041644	A	1195		INR	ERRC	TEST 21	** 21 ** 00 01185
004157	006010	A	1196		LDAI	ML21		00 01186
004160	004175	A						
004161	051645	A	1197		STA	LOOP	LOOP ADDR.	00 01187
004162	006010	A	1198		LDAI	MG22=1		00 01188
004163	004227	A						
004164	051646	A	1199		STA	CONT	CONTINUE ADDR.	00 01189
004165	002000	A	1200		CALL	ILAS, IOED, ERRR		00 01190
004166	001133	A						
004167	000040	A						
004170	005035	A						
004171	002000	A	1201		CALL	ILAS, WRT, MC22	CONTINUE ADDR, AFTER INTERRUPT	00 01191
004172	001133	A						
004173	000004	A						
004174	004201	A						
004175	100645	A	1202	ML21	EXC	0600+MPM	ENABLE MP	00 01192
004176	002000	A	1203		CALL	TX21	EXECUTE 1 WORD WRITE TO PA FROM UPA	00 01193
004177	002154	A						
004200	005000	A	1204		NOP			00 01194
004201	000000	A	1205	MC22	ENTR			00 01195
004202	100745	A	1206		EXC	0700+MPM	DISABLE MP	00 01196
004203	010010	A	1207		LDA	010	CHECK IF PROTECTED CORE MODIFIED,	00 01197
004204	006140	A	1208		SUBI	0410	BY A STORE FROM UPA TO A PA.	00 01198
004205	000410	A						
004206	001010	A	1209		JAZ	*+7		00 01199
004207	004215	A						

004210	006017	A	1210		LDAE	*=3			00	01200
004211	004205	A								
004212	050010	A	1211		STA	010			00	01201
004213	002000	A	1212		CALL	ERRR			00	01202
004214	005035	A								
004215	006017	A	1213		LDAE	MC22			00	01203
004216	004201	A								
004217	006140	A	1214		SUBI	TX21+3	CHECK P REGISTER		00	01204
004220	002157	A								
004221	001010	A	1215		JAZ	MG22			00	01205
004222	004230	A								
004223	011644	A	1216		LOA	ERRC			00	01206
004224	121102	A	1217		ADD	N100			00	01207
004225	051644	A	1218		STA	ERRC			00	01208
004226	002000	A	1219		CALL	ERRR			00	01209
004227	005035	A								
004230	002000	A	1220	MG22	CALL	ERLP			00	01210
004231	005104	A								
004232	011644	A	1221		LOA	ERRC			00	01211
004233	151103	A	1222		ANA	C100			00	01212
004234	051644	A	1223		STA	ERRC			00	01213
004235	041644	A	1224		INR	ERRC	TEST 22	** 22 **	00	01214
004236	006010	A	1225		LOAI	ML22			00	01215
004237	004250	A								
004240	051645	A	1226		STA	LOOP	LOOP ADDR.		00	01216
004241	006010	A	1227		LOAI	MC23			00	01217
004242	004254	A								
004243	051646	A	1228		STA	CONT	CONTINUE ADDR.		00	01218
004244	002000	A	1229		CALL	ILAS,WRT,MC23			00	01219
004245	001133	A								
004246	000004	A								
004247	004254	A								
004250	100645	A	1230	ML22	EXC	0600+MPM	ENABLE MP		00	01220
004251	002000	A	1231		CALL	TX22	EXECUTE 2 WORD WRITE TO PA FROM UPA		00	01221
004252	002161	A								
004253	005000	A	1232		NOP				00	01222
004254	000000	A	1233	MC23	ENTR				00	01223
004255	100745	A	1234		EXC	0700+MPM	DISABLE MP		00	01224
004256	002000	A	1235		CALL	ERLP			00	01225
004257	005104	A								
004260	041644	A	1236		INR	ERRC	TEST 23	** 23 **	00	01226
004261	(010	A	1237		LOAI	ML23				01227

004262	004277	A							
004263	051645	A	1238	STA	LOOP	LOOP ADDR,		00	01228
004264	006010	A	1239	LOAI	MC24			00	01229
004265	004302	A							
004266	051646	A	1240	STA	CONT	CONTINUE ADDR,		00	01230
004267	002000	A	1241	CALL	ILAS,WRT,ERRR			00	01231
004270	001133	A							
004271	000004	A							
004272	005035	A							
004273	002000	A	1242	CALL	ILAS,HALT,MC24	RETURN THROUGH HALT ERROR		00	01232
004274	001133	A							
004275	000001	A							
004276	004302	A							
004277	100645	A	1243	EXC	0600+MPM	ENABLE MP		00	01233
004300	002000	A	1244	CALL	TX23	EXECUTE 1 WORD WRITE TO UPA (NO INTERRUPT)		00	01234
004301	002166	A							
004302	000000	A	1245	ENTR	MC24			00	01235
004303	100745	A	1246	EXC	0700+MPM	DISABLE MP		00	01236
004304	002000	A	1247	CALL	ERLP			00	01237
004305	005104	A							
004306	041644	A	1248	INR	ERRC	TEST 24	** 24 **	00	01238
004307	006010	A	1249	LOAI	ML24			00	01239
004310	004321	A							
004311	051645	A	1250	STA	LOOP	LOOP ADDRESS		00	01240
004312	006010	A	1251	LOAI	MC25			00	01241
004313	004324	A							
004314	051646	A	1252	STA	CONT	CONTINUE ADDRESS		00	01242
004315	002000	A	1253	CALL	ILAS,HALT,MC25	RETURN THROUGH HALT ERROR		00	01243
004316	001133	A							
004317	000001	A							
004320	004324	A							
004321	100645	A	1254	EXC	0600+MPM	ENABLE MP		00	01244
004322	002000	A	1255	CALL	TX24	EXECUTE 2 WORD WRITE TO UPA (NO INTERRUPT)		00	01245
004323	002176	A							
004324	000000	A	1256	ENTR	MC25			00	01246
004325	100745	A	1257	EXC	0700+MPM	DISABLE MP		00	01247
004326	002000	A	1258	CALL	ERLP			00	01248
004327	005104	A							
004330	041644	A	1259	INR	ERRC	TEST 25	** 25 **	00	01249
004331	006010	A	1260	LOAI	ML25			00	01250
004332	004347	A							
004333	051645	A	1261	STA	LOOP	LOOP ADDR,		00	01251

004334	006010	A	1262		LOAI	MC26				00	01252
004335	004353	A									
004336	051646	A	1263		STA	CONT	CONTINUE ADDR,			00	01253
004337	002000	A	1264		CALL	ILAS,HALT,ERRR				00	01254
004340	001133	A									
004341	000001	A									
004342	005035	A									
004343	002000	A	1265		CALL	ILAS,WRT,MC26	RETURN THROUGH HALT ERROR			00	01255
004344	001133	A									
004345	000004	A									
004346	004353	A									
004347	100645	A	1266	ML25	EXC	0600+MPM	ENABLE MP			00	01256
004350	002000	A	1267		CALL	TX25	EXECUTE TEST			00	01257
004351	002207	A									
004352	005000	A	1268		NOP					00	01258
004353	000000	A	1269	MC26	ENTR					00	01259
004354	100745	A	1270		EXC	0700+MPM	DISABLE MP			00	01260
004355	002000	A	1271		CALL	ERLP				00	01261
004356	005104	A									
004357	041644	A	1272		INR	ERRC	TEST 26	** 26 **		00	01262
004360	006010	A	1273		LOAI	ML26				00	01263
004361	004376	A									
004362	051645	A	1274		STA	LOOP	LOOP ADDR,			00	01264
004363	006010	A	1275		LOAI	MC27				00	01265
004364	004401	A									
004365	051646	A	1276		STA	CONT	CONTINUE ADDR,			00	01266
004366	002000	A	1277		CALL	ILAS,WRT,ERRR				00	01267
004367	001133	A									
004370	000004	A									
004371	005035	A									
004372	002000	A	1278		CALL	ILAS,HALT,MC27				00	01268
004373	001133	A									
004374	000001	A									
004375	004401	A									
004376	100645	A	1279	ML26	EXC	0600+MPM	ENABLE MP			00	01269
004377	002000	A	1280		CALL	TX26	EXECUTE TEST			00	01270
004400	002216	A									
004401	000000	A	1281	MC27	ENTR					00	01271
004402	100745	A	1282		EXC	0700+MPM	DISABLE MP			00	01272
004403	002000	A	1283		CALL	ERLP				00	01273
004404	005104	A									
004405	041644	A	1284		INR	ERRC	TEST 27	** 27 **		00	01274

004406	006010	A	1285		LDAI	ML27			00	01275
004407	004424	A								
004410	051645	A	1286		STA	LOOP	LOOP ADDR,		00	01276
004411	006010	A	1287		LDAI	MG30=1			00	01277
004412	004443	A								
004413	051646	A	1288		STA	CONT	CONTI, ADDR,		00	01278
004414	002000	A	1289		CALL	ILAS,HALT,ERRR			00	01279
004415	001133	A								
004416	000001	A								
004417	005035	A								
004420	002000	A	1290		CALL	ILAS,WRTO,MC30	RETURN FROM INTERRUPT		00	01280
004421	001133	A								
004422	000100	A								
004423	004427	A								
004424	100645	A	1291	ML27	EXC	0600+MPM	ENABLE MP		00	01281
004425	002000	A	1292		CALL	TX27	EXECUTE TEST		00	01282
004426	002227	A								
004427	000000	A	1293	MC30	ENTR				00	01283
004430	100745	A	1294		EXC	0700+MPM	DISABLE MP		00	01284
004431	006017	A	1295		LOAE	MC30			00	01285
004432	004427	A								
004433	006140	A	1296		SUBI	03000	CHECK IF INTERRUPT ADDRESS CORRECT		00	01286
004434	003000	A								
004435	001010	A	1297		JAZ	MG30			00	01287
004436	004444	A								
004437	011644	A	1298		LDA	ERRC			00	01288
004440	121102	A	1299		ADD	N100			00	01289
004441	051644	A	1300		STA	ERRC			00	01290
004442	002000	A	1301		CALL	ERRR			00	01291
004443	005035	A								
004444	002000	A	1302	MG30	CALL	ERLP			00	01292
004445	005104	A								
004446	011644	A	1303		LDA	ERRC			00	01293
004447	151103	A	1304		ANA	C100			00	01294
004450	051644	A	1305		STA	ERRC			00	01295
004451	041644	A	1306		INR	ERRC	TEST 30	** 30 **	00	01296
004452	006010	A	1307		LDAI	ML30			00	01297
004453	004470	A								
004454	051645	A	1308		STA	LOOP	LOOP ADDR,		00	01298
004455	006010	A	1309		LDAI	MC31			00	01299
004456	004475	A								
004457	051646	A	1310		STA	CONT	CONTINUE ADDR,		00	01300

PAGE	48	11/08/73	MEPROT	VORTEX	DASMR	2023 HOURS
004460	002000	A	1311	CALL	ILAS,WRTO,ERRR	00 01301
004461	001133	A				
004462	000100	A				
004463	005035	A				
004464	002000	A	1312	CALL	ILAS,JPM,MC31 RETURN FROM INTERRUPT	00 01302
004465	001133	A				
004466	000010	A				
004467	004475	A				
004470	100645	A	1313 ML30	EXC	0600+MPM ENABLE MP	00 01303
004471	002000	A	1314	CALL	TX30 EXECUTE TEST	00 01304
004472	002236	A				
004473	002000	A	1315	CALL	ERRR	00 01305
004474	005035	A				
004475	000000	A	1316 MC31	ENTR		00 01306
004476	100745	A	1317	EXC	0700+MPM DISABLE MP	00 01307
004477	002000	A	1318	CALL	ERLP	00 01308
004500	005104	A				
004501	041644	A	1319	INR	ERRC TEST 31	00 01309
004502	006010	A	1320	LDAI	ML31	00 01310
004503	004514	A				
004504	051645	A	1321	STA	LOOP LOOP ADDR,	00 01311
004505	006010	A	1322	LDAI	MC32	00 01312
004506	004522	A				
004507	051646	A	1323	STA	CONT CONTINUE ADDR	00 01313
004510	002000	A	1324	CALL	ILAS,JPM,MC32 RETURN FROM INTERRUPT	00 01314
004511	001133	A				
004512	000010	A				
004513	004522	A				
004514	100645	A	1325 ML31	EXC	0600+MPM ENABLE MP	00 01315
004515	002000	A	1326	CALL	TX31 EXECUTE TEST	00 01316
004516	002241	A				
004517	005000	A	1327	NOP		00 01317
004520	002000	A	1328	CALL	ERRR	00 01318
004521	005035	A				
004522	000000	A	1329 MC32	ENTR		00 01319
004523	100745	A	1330	EXC	0700+MPM DISABLE MP	00 01320
004524	002000	A	1331	CALL	ERLP	00 01321
004525	005104	A				
004526	006017	A	1332	LDAE	MC32=3 CHECK IF JUMP AND MARK FROM UPA TO PA	00 01322
004527	004517	A				
004530	006140	A	1333	SUBI	05000 CHANGED MARK ADDRESS,	00 01323
004531	005000	A				

004532	001010	A	1334	JAZ	**8			00	01324
004533	004542	A							
004534	006017	A	1335	LOAE	**3			00	01325
004535	004531	A							
004536	006057	A	1336	STAE	MC32=3			00	01326
004537	004517	A							
004540	002000	A	1337	CALL	ERRR			00	01327
004541	005035	A							
004542	041644	A	1338	INR	ERRC	TEST 32	** 32 **	00	01328
004543	006010	A	1339	LOAI	ML32			00	01329
004544	004561	A							
004545	051645	A	1340	STA	LOOP	LOOP ADDR,		00	01330
004546	006010	A	1341	LOAI	MC33			00	01331
004547	004567	A							
004550	051646	A	1342	STA	CONT	CONTINUE ADDR,		00	01332
004551	002000	A	1343	CALL	ILAS,JPM,ERRR			00	01333
004552	001133	A							
004553	000010	A							
004554	005035	A							
004555	002000	A	1344	CALL	ILAS,JPMO,MC33	RETURN FROM INTERRUPT		00	01334
004556	001133	A							
004557	000200	A							
004560	004567	A							
004561	100645	A	1345	ML32	EXC	0600+MPM	ENABLE MP	00	01335
004562	006010	A	1346	LOAI	ERRR		EXECUTE TEST	00	01336
004563	005035	A							
004564	053000	A	1347	STA	03000	SET UP 1ST PA WITH ERROR SUB, LOC,		00	01337
004565	002000	A	1348	CALL	TX32			00	01338
004566	002244	A							
004567	000000	A	1349	MC33	ENTR			00	01339
004570	100745	A	1350	EXC	0700+MPM	DISABLE MP		00	01340
004571	006010	A	1351	LOAI	02000	RESTORE JPM INST,		00	01341
004572	002000	A							
004573	053000	A	1352	STA	03000			00	01342
004574	002000	A	1353	CALL	ERLP			00	01343
004575	005104	A							
004576	041644	A	1354	INR	ERRC	TEST 33	** 33 **	00	01344
004577	006010	A	1355	LOAI	ML33			00	01345
004600	004615	A							
004601	051645	A	1356	STA	LOOP	LOOP ADDR,		00	01346
004602	006010	A	1357	LOAI	MC34			00	01347
004603	004623	A							

004604	051646	A	1358	STA	CONT	CONTINUE ADDR,	00	01348	
004605	002000	A	1359	CALL	ILAS, JPMO, ERRR		00	01349	
004606	001133	A							
004607	000200	A							
004610	005035	A							
004611	002000	A	1360	CALL	ILAS, JPM, MC34	RETURN FROM INTERRUPT	00	01350	
004612	001133	A							
004613	000010	A							
004614	004623	A							
004615	100645	A	1361	EXC	0600+MPM	ENABLE MP	00	01351	
004616	002000	A	1362	CALL	TX33	EXECUTE TEST	00	01352	
004617	002252	A							
004620	005000	A	1363	NOP			00	01353	
004621	002000	A	1364	CALL	ERRR		00	01354	
004622	005035	A							
004623	000000	A	1365	ENTR			00	01355	
004624	100745	A	1366	EXC	0700+MPM	DISABLE MP	00	01356	
004625	002000	A	1367	CALL	ERLP		00	01357	
004626	005104	A							
004627	041644	A	1368	INR	ERRC	TEST 34	** 34 **	00 01358	
004630	006010	A	1369	LOAI	ML34		00	01359	
004631	004642	A							
004632	051645	A	1370	STA	LOOP	LOOP ADDR,	00	01360	
004633	006010	A	1371	LOAI	MC35		00	01361	
004634	004650	A							
004635	051646	A	1372	STA	CONT	CONTINUE ADDR,	00	01362	
004636	002000	A	1373	CALL	ILAS, JPM, MC35		00	01363	
004637	001133	A							
004640	000010	A							
004641	004650	A							
004642	100645	A	1374	EXC	0600+MPM	ENABLE MP	00	01364	
004643	002000	A	1375	CALL	TX34	EXECUTE TEST	00	01365	
004644	002256	A							
004645	005000	A	1376	NOP			00	01366	
004646	002000	A	1377	CALL	ERRR		00	01367	
004647	005035	A							
004650	000000	A	1378	ENTR			00	01368	
004651	100745	A	1379	EXC	0700+MPM	DISABLE MP	00	01369	
004652	002000	A	1380	CALL	ERLP		00	01370	
004653	005104	A							
			1381	*	BYPASS TEST 35 IF 620/F WITHOUT OPTIONAL INST,			00	01371
004654	014245	A	1382	LOA	OPTT	CHECK IF OPTIONAL INST, PRESENT	00	01372	

004655	001010	A	1383	JAZ	**4			00	01373
004656	004661	A							
004657	001000	A	1384	JMP	MC36+1			00	01374
004660	004703	A							
004661	041644	A	1385	INR	ERRC	TEST 35	** 35 **	00	01375
004662	006010	A	1386	LOAI	ML35			00	01376
004663	004674	A							
004664	051645	A	1387	STA	LOOP	LOOP ADDR,		00	01377
004665	006010	A	1388	LOAI	MC36			00	01378
004666	004702	A							
004667	051646	A	1389	STA	CONT	CONTINUE ADDR,		00	01379
004670	002000	A	1390	CALL	ILAS,JPM,MC36			00	01380
004671	001133	A							
004672	000010	A							
004673	004702	A							
004674	100645	A	1391	EXC	0600+MPM	ENABLE MP		00	01381
004675	002000	A	1392	CALL	TX35	EXECUTE TEST		00	01382
004676	002262	A							
004677	005000	A	1393	NOP				00	01383
004700	002000	A	1394	CALL	ERRR			00	01384
004701	005035	A							
004702	000000	A	1395	ENTR	MC36			00	01385
004703	002000	A	1396	CALL	ERLP			00	01386
004704	005104	A							
004705	006010	A	1397	LOAI	036	TEST 36	** 36 **	00	01387
004706	000036	A							
004707	051644	A	1398	STA	ERRC			00	01388
004710	006010	A	1399	LOAI	ML36	LOOP ADDR,		00	01389
004711	004722	A							
004712	051645	A	1400	STA	LOOP			00	01390
004713	006010	A	1401	LOAI	MG37=1	CONTINUE ADDRESS		00	01391
004714	004751	A							
004715	051646	A	1402	STA	CONT			00	01392
004716	002000	A	1403	CALL	ILAS,JPM,MC37			00	01393
004717	001133	A							
004720	000010	A							
004721	004727	A							
004722	100645	A	1404	EXC	0600+MPM	ENABLE MP		00	01394
004723	002000	A	1405	CALL	TX36	EXECUTE TEST		00	01395
004724	002266	A							
004725	002000	A	1406	CALL	ERRR			00	01396
004726	005035	A							

004727	000000	A	1407	MC37	ENTR				00	01397
004730	006017	A	1408		LOAE	MC37			00	01398
004731	004727	A								
004732	006140	A	1409		SUBI	ML36+3			00	01399
004733	004725	A								
004734	001010	A	1410		JAZ	**4			00	01400
004735	004740	A								
004736	002000	A	1411		CALL	ERRR			00	01401
004737	005035	A								
004740	011644	A	1412		LDA	ERRC			00	01402
004741	121102	A	1413		ADD	N100			00	01403
004742	051644	A	1414		STA	ERRC			00	01404
004743	102545	A	1415		CIA	MPM	INPUT INSTRUCTION REGISTER,		00	01405
004744	006140	A	1416		SUBI	02776			00	01406
004745	002776	A								
004746	001010	A	1417		JAZ	MG37			00	01407
004747	004752	A								
004750	002000	A	1418		CALL	ERRR			00	01408
004751	005035	A								
004752	100745	A	1419	MG37	EXC	0700+MPM	DISABLE MP		00	01409
004753	002000	A	1420		CALL	ERLP			00	01410
004754	005104	A								
			1421	*	BYPASS TEST 37 IF 620/F WITHOUT OPTIONAL INST,				00	01411
004755	014144	A	1422		LDA	OPTT	CHECK IF OPTIONAL INST, PRESENT		00	01412
004756	001010	A	1423		JAZ	**4			00	01413
004757	004762	A								
004760	001000	A	1424		JMP	ENDT			00	01414
004761	005006	A								
004762	006010	A	1425		LOAI	037	TEST 37	** 37 **	00	01415
004763	000037	A								
004764	051644	A	1426		STA	ERRC			00	01416
004765	006010	A	1427		LOAI	ML37	LOOP ADDR,		00	01417
004766	004777	A								
004767	051645	A	1428		STA	LOOP			00	01418
004770	006010	A	1429		LOAI	MC38			00	01419
004771	005002	A								
004772	051646	A	1430		STA	CONT	CONTINUE ADDRESS		00	01420
004773	002000	A	1431		CALL	ILAS,JPM,MC38			00	01421
004774	001133	A								
004775	000010	A								
004776	005002	A								
004777	100645	A	1432	ML37	EXC	0600+MPM	ENABLE MP		00	01422

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005000	002000	A	1433		CALL TX37	EXECUTE TEST COMPAIR INSTRUCTION	00	01423
005001	002276	A						
005002	000000	A	1434	MC38	ENTR		00	01424
005003	100745	A	1435		EXC 0700+MPM	DISABLE MP	00	01425
005004	002000	A	1436		CALL ERLP		00	01426
005005	005104	A						
005006	011634	A	1437	ENDT	LOA CYCL	CHECK IF CYCLE MODE	00	01427
005007	005311	A	1438		DAR		00	01428
005010	001004	A	1439		JAN MPT3	CONTINUAL MODE	00	01429
005011	003207	A						
005012	031104	A	1440		LDX MODE		D	*****
005013	001040	A	1441		JXZ **4		D	*****
005014	005017	A						
005015	001000	A	1442		JMP MPT3		D	*****
005016	003207	A						
005017	001010	A	1443		JAZ **5	CYCLE COMPLETED	00	01430
005020	005024	A						
005021	051634	A	1444		STA CYCL	CYCLES NOT COMPLETED	00	01431
005022	001000	A	1445		JMP MPT3		00	01432
005023	003207	A						
005024	010442	A	1446	END	LOA SCON	CHECK IF CONSOLE MODE	D	*****
005025	001010	A	1447		JAZ MPT1		00	01434
005026	003136	A						
005027	006030	A	1448		LOXI MSG7	WRITE (MP TEST COMPLETE)	00	01435
005030	002330	A						
005031	002000	A	1449		CALL* OUTD		00	01436
005032	100403	A						
005033	001000	A	1450		JMP MPT1		00	01437
005034	003136	A						
			1451		*****		00	01438
			1452	*			*00	01439
			1453	*	ERROR SUBROUTINE FOR INSTRUCTION INTERRUPT ADDRESS TEST		*00	01440
			1454	*			*00	01441
			1455		*****		00	01442
005035	000000	A	1456	ERRR	ENTR		00	01443
005036	100745	A	1457		EXC 0700+MPM	DISABLE MP	00	01444
005037	011645	A	1458		LOA LOOP	SET UP SSWT CALLING SEQUENCE	00	01445
005040	054015	A	1459		STA ERR5+5	LOOP ADDRESS	00	01446
005041	011646	A	1460		LOA CONT		00	01447
005042	005111	A	1461		IAR		00	01448
005043	054014	A	1462		STA ERR6+1	CONTINUE ADDRESS	00	01449
005044	021644	A	1463		LDB ERRC		00	01450

005045	064005	A	1464	STB	ERR5+2	ERROR CODE	00	01451
005046	005001	A	1465	TZA			00	01452
005047	006037	A	1466	LDXE	ERRR		00	01453
005050	005035	A						
005051	002000	A	1467	ERR5	CALL*	SSWT,0,(ERMS)*,MPT1,0	00	01454
005052	100421	A						
005053	000000	A						
005054	105061	A						
005055	003136	A						
005056	000000	A						
005057	001000	A	1468	ERR6	JMP	0 CONTINUE	00	01455
005060	000000	A						
			1469	*			*00	01456
			1470	*	ERROR SUB, WRITE MESSAGE ROUTINE		*00	01457
			1471	*			*00	01458
005061	000000	A	1472	ERMS	ENTR		00	01459
005062	006030	A	1473		LDXI	MSG6	00	01460
005063	005075	A						
005064	002000	A	1474		CALL*	OUTD WRITE (ERROR TYPE =)	00	01461
005065	100403	A						
005066	011644	A	1475		LDA	ERRC	00	01462
005067	002000	A	1476		CALL*	OUTE WRITE ERROR TYPE	00	01463
005070	100404	A						
005071	002000	A	1477		CALL*	OUTC CR/LF	00	01464
005072	100402	A						
005073	001000	A	1478		JMP*	ERMS	00	01465
005074	105061	A						
005075	142722	A	1479	MSG6	DATA	!ERROR TYPE = 1,0	00	01466
005076	151317	A						
005077	151240	A						
005100	152331	A						
005101	150305	A						
005102	120275	A						
005103	000000	A						
005104	000000	A	1480	ERLP	ENTR		00	01467
005105	010440	A	1481		LDA	SFLG CHECK IF ERROR LOOPING	00	01468
005106	001010	A	1482		JAZ	**4	00	01469
005107	005112	A						
005110	002000	A	1483		CALL	ERRR	00	01470
005111	005035	A						
005112	001400	A	1484		J883	MPT1	00	01471
005113	003136	A						

005114	011233	A	1485	LDA	HLTF				00	01472
005115	001010	A	1486	JAZ*	ERLP				00	01473
005116	105104	A								
005117	002000	A	1487	CALL	CKSE				00	01474
005120	001204	A								
005121	000000	A	1488	TEST	DATA	0			00	01475
005122	000000	A	1489	OPTT	DATA	0			00	01476
005123	000000	A	1490	OPTX	DATA	0			00	01477
	003010	A	1491	END	MPTT				00	01478

CPU/MP TYPE: 0=620/P 1=V73

ENTRY NAMES
EXTERNAL NAMES
SYMBOLS

000442	A	SCON	000471	A	SDCT	000440	A	SFLG	000422	A	SLWE
000441	A	SMEM	000424	A	SMSM	001647	A	BT15	001103	A	C100
001204	A	CKSE	001234	A	CLMP	001646	A	CONT	001634	A	CYCL
001613	A	EMSG	005024	A	END	005006	A	ENDT	005104	A	ERLP
001562	A	ERM1	001571	A	ERM2	001602	A	ERM3	001553	A	ERMG
005061	A	ERMS	000762	A	ERR1	000770	A	ERR2	005051	A	ERR5
005057	A	ERR6	001644	A	ERRC	005035	A	ERRR	000746	A	ERRS
000423	A	ESZC	001071	A	FIVE	001070	A	FOUR	000001	A	HALT
001342	A	HBBT	001642	A	HLDC	001233	A	HLTF	001230	A	HLTR
001056	A	IARC	001036	A	IARE	001052	A	IARL	001105	A	ILAI
001114	A	ILAI	001126	A	ILAI	001133	A	ILAS	000410	A	INPA
000411	A	INPB	000412	A	INPC	000413	A	INPD	000414	A	INPE
000415	A	INPF	000416	A	INPG	000002	A	IDE	000040	A	IDED
000010	A	JPM	000200	A	JPMO	001410	A	LBBT	001641	A	LLOC
001100	A	LDCP	001224	A	LDCZ	001645	A	LDDP	001101	A	LPFE
001643	A	MASK	003375	A	MC02	003447	A	MC03	003473	A	MC04
003521	A	MC05	003560	A	MC06	003602	A	MC07	003624	A	MC10
003664	A	MC11	003707	A	MC12	003732	A	MC13	003755	A	MC14
004003	A	MC15	004043	A	MC16	004063	A	MC17	004106	A	MC20
004134	A	MC21	004201	A	MC22	004254	A	MC23	004302	A	MC24
004324	A	MC25	004353	A	MC26	004401	A	MC27	004427	A	MC30
004475	A	MC31	004522	A	MC32	004567	A	MC33	004623	A	MC34
004650	A	MC35	004702	A	MC36	004727	A	MC37	005002	A	MC38
003424	A	MG02	003535	A	MG05	004020	A	MG15	004151	A	MG21
004230	A	MG22	004444	A	MG30	004752	A	MG37	003370	A	ML01
003444	A	ML02	003466	A	ML03	003516	A	ML04	003555	A	ML05
003577	A	ML06	003621	A	ML07	003661	A	ML10	003703	A	ML11
003726	A	ML12	003751	A	ML13	004000	A	ML14	004040	A	ML15
004060	A	ML16	004102	A	ML17	004131	A	ML20	004175	A	ML21
004250	A	ML22	004277	A	ML23	004321	A	ML24	004347	A	ML25

004378	A	ML28	004424	A	ML27	004470	A	ML30	004514	A	ML31
004561	A	ML32	004615	A	ML33	004642	A	ML34	004674	A	ML35
004722	A	ML36	004777	A	ML37	001104	A	MODE	003115	A	MPC1
003412	A	MPC2	003417	A	MPC3	003175	A	MPCM	000045	A	MPM
003020	A	MPT0	003136	A	MPT1	003162	A	MPT2	003207	A	MPT3
003264	A	MPT4	003321	A	MPT5	003323	A	MPT6	003345	A	MPT7
003305	A	MPT8	003016	A	MPT8	003010	A	MPTT	003171	A	MPZZ
001466	A	MSG1	001472	A	MSG2	001477	A	MSG3	001510	A	MSG4
002313	A	MSG5	005075	A	MSG6	002330	A	MSG7	002342	A	MSG8
002367	A	MSG9	001635	A	MSK0	001636	A	MSK1	001637	A	MSK2
001640	A	MSK3	001102	A	N100	001075	A	N371	001074	A	N374
001077	A	N377	001073	A	N402	001076	A	N424	001065	A	ONE
005122	A	OPTT	005123	A	OPTX	000400	A	OUTA	000401	A	OUTB
000402	A	OUTC	000403	A	OUTD	000404	A	OUTE	000405	A	OUTF
000406	A	OUTG	000407	A	OUTH	000020	A	OVER	001147	A	RES1
001153	A	RESR	001373	A	RHBB	001440	A	RLBB	001331	A	RMB1
001322	A	RMBL	001140	A	SAV1	001156	A	SAVA	001144	A	SAVR
001161	A	SET1	001201	A	SETM	001072	A	SIX	001064	A	SIXT
001257	A	SSM1	001270	A	SSM2	001250	A	SSMB	000421	A	SSWT
001063	A	SVEN	001537	A	SVLB	000420	A	TDLY	005121	A	TEST
001067	A	THRE	000417	A	TOUT	000500	A	TST1	000502	A	TSTA
000566	A	TSTB	000630	A	TSTC	000772	A	TSTL	000740	A	TSTU
000711	A	TSTV	000670	A	TSTW	000647	A	TSTX	000605	A	TSTY
000520	A	TSTZ	001066	A	TWO	002000	A	TX01	002004	A	TX02
002011	A	TX03	002016	A	TX04	002024	A	TX05	002032	A	TX06
002040	A	TX07	002046	A	TX10	002060	A	TX11	002072	A	TX12
002102	A	TX13	002113	A	TX14	002117	A	TX15	002120	A	TX16
002126	A	TX17	002135	A	TX20	002154	A	TX21	002161	A	TX22
002166	A	TX23	002176	A	TX24	002207	A	TX25	002216	A	TX26
002227	A	TX27	002236	A	TX30	002241	A	TX31	002244	A	TX32
002252	A	TX33	002256	A	TX34	002262	A	TX35	002266	A	TX36
002276	A	TX37	000004	A	WRT	000100	A	WRTD	001633	A	WTMS

0 ERRORS ASSEMBLY COMPLETE