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3 \* V.D.M. PART NO. 92L0107-008G

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RELEASED

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620 POWER FAIL/RESTART TEST PROGRAM

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10 *      ****      ***** * * ***** *****      ***** *      *** *
11 *      * * * * * * * * * * * * * * * * * * * * * * * * * * * *
12 *      * * * * * * * * * * * * * * * * * * * * * * * * * * * *
13 *      **** * * * * * * * * * * * * * * * * * * * * * * * * * * * *
14 *      * * * * * * * * * * * * * * * * * * * * * * * * * * * *
15 *      * * * * * * * * * * * * * * * * * * * * * * * * * * * *
16 *      * * * * * * * * * * * * * * * * * * * * * * * * * * * *

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THIS TEST PROGRAM IS PART OF THE MAINTAIN TEST PROGRAM SYSTEM

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43 \*  
 44 \* POWER FAIL / RESTART TEST PROGRAM.  
 45 \* THE PURPOSE OF THIS TEST IS TO VERIFY THAT THE A, B AND X  
 46 \* REGISTER, OVERFLOW BIT, AND CORE MEMORY HAS NOT BEEN MODIFIED  
 47 \* UPON COMPLETION OF A POWER FAILURE.

48 \*  
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54 \* \*\*\*\*\*  
 55 \* \* \*  
 56 \* \* AREAS RESERVED BY EXECUTIVE \*

57 \* \*\*\*\*\*

58 \* ORG 0  
 59 \* JMP EXECUTIVE  
 60 \* ORG 040  
 61 \* JMPM POWER DOWN ROUTINE  
 62 \* JMP POWER UP ROUTINE

63 \* NOTE: THE TEST EXECUTIVE ALSO RESERVES LOCATIONS 0400 TO 0477  
 64 \* FOR A POINTER TABLE TO STANDARD ROUTINES, AND AS AN AREA  
 65 \* FOR EXECUTIVE DATA, ALL TEST PROGRAMS WORKING WITH THE  
 66 \* EXECUTIVE MUST PRESERVE THIS BLOCK.  
 67 \* STANDARD ROUTINES WILL BE CALLED INDIRECTLY THRU  
 68 \* THIS TABLE

69 \*  
 70 \*  
 71 \*

000000	A	73	R0	SET	0	F
000001	A	74	R1	SET	1	F
000002	A	75	R2	SET	2	F
000003	A	76	R3	SET	3	F
000004	A	77	R4	SET	4	F
000005	A	78	R5	SET	5	F
000006	A	79	R6	SET	6	F
000007	A	80	R7	SET	7	F

81 \*  
 82 \*

000400 83 ORG 0400  
 000400 84 OUTA BSS 1 OUTPUT ONE CHAR ROUTINE

000401	85	OUTB	BSS	1	OUTPUT TWO CHAR ROUTINE
000402	86	OUTC	BSS	1	OUTPUT CR/LF ROUTINE
000403	87	OUTD	BSS	1	OUTPUT MESSAGE ROUTINE
000404	88	OUTE	BSS	1	OUTPUT OCTAL WORD ROUTINE
000405	89	OUTF	BSS	1	OUTPUT OCTAL ADDR ROUTINE
000406	90	OUTG	BSS	1	OUTPUT ERROR MSG ROUTINE
000407	91	OUTH	BSS	1	OUTPUT CONTROL CHAR TO TTY ROUTINE
000410	92	INPA	BSS	1	INPUT ONE CHAR ROUTINE
000411	93	INPB	BSS	1	INPUT AND PRINT ONE CHAR ROUTINE
000412	94	INPC	BSS	1	INPUT ONE CHAR EDITED ROUTINE
000413	95	INPD	BSS	1	INPUT ONE ALPHA CHAR ROUTINE
000414	96	INPE	BSS	1	INPUT TWO ALPHA CHAR ROUTINE
000415	97	INPF	BSS	1	INPUT COMMA/PERIOD TERMINATION ROUTINE
000416	98	INPG	BSS	1	INPUT OCTAL NUMBER ROUTINE
000417	99	TOUT	BSS	1	TIME-OUT ROUTINE
000420	100	TDLY	BSS	1	TIME DELAY ROUTINE
000421	101	SSWT	BSS	1	STANDARD SENSE SWITCH ROUTINE
000422	102	SLWE	BSS	1	LOWEST WORD USED BY EXEC
000423	103	ESZC	BSS	1	MEMORY SIZE DETERMINATION ROUTINE
000424	104	SMSM	BSS	1	MEMORY SIZE MESSAGE

105 \*  
106 \*

000440 107 ORG 0440

108 \*  
109 \* EXECUTIVE DATA TABLE  
110 \*

000440	111	SFLG	BSS	1	LOOP ON ERROR FLAG, 0=DON'T LOOP 1=LOOP
000441	112	\$MEM	BSS	1	MEMORY SIZE (HIGHEST AVAIL CORE)
000442	113	\$CON	BSS	1	0=CONSOLE MODE 1=TTY MODE
000443	114		BSS	22	
000471	115	\$DCT	BSS	1	DIGIT COUNTER FOR INPG

116 \*  
117 \*\*\*\*\*  
118 \*  
119 \*\*\*\*\*

000500			ORG	0500	
000500	010041	A	121	PFRS	LDA 041
000501	052651	A	122		STA PFDN SAVE POWER DOWN ADDRESS
000502	010043	A	123		LDA 043
000503	052652	A	124		STA PFUP SAVE POWER UP ADDRESS
000504	010001	A	125		LDA 01
000505	052653	A	126		STA PFEX TEST EXECUTIVE RESTART LOCATION

000506	006010	A	127		LDAI	PFTM	POWER/FAILURE TERMINATION ROUTINE
000507	002640	A					
000510	050001	A	128		STA	01	
000511	006020	A	129	PFRT	LDBI	02	SET ADDRESS PLUS SET BIT 8 IN LOCATIONS
000512	000002	A					
000513	005021	A	130	PFRO	TBA		2 THROUGH 0377.
000514	006110	A	131		ORAI	0400	
000515	000400	A					
000516	056000	A	132		STA	0,2	
000517	005122	A	133		IBR		
000520	005021	A	134		TBA		
000521	006140	A	135		SUBI	0400	
000522	000400	A					
000523	001010	A	136		JAZ	*+4	
000524	000527	A					
000525	001000	A	137		JMP	PFRO	
000526	000513	A					
000527	006010	A	138		LDAI	02000	SET UP POWER FAIL/RESTART ADDRESS IN
000530	002000	A					
000531	050040	A	139		STA	040	INTERRUPT ADDRESSES.
000532	050042	A	140		STA	042	
000533	006010	A	141		LDAI	PWRD	
000534	002476	A					
000535	050041	A	142		STA	041	
000536	006010	A	143		LDAI	PWRU	
000537	002430	A					
000540	050043	A	144		STA	043	
000541	010442	A	145	STRT	LDA	SCON	CHECK IF CONSOLE MODE
000542	001010	A	146		JAZ	PFRO	
000543	001021	A					
000544	006030	A	147		LDXI	MES1	NO - WRITE TEST TITLE
000545	001026	A					
000546	002000	A	148		CALL*	OUTD	
000547	100403	A					
000550	006030	A	149		LDXI	MES6	ASK FOR TIME DELAY CONSTANT
000551	001105	A					
000552	002000	A	150		CALL	(OUTD)*	
000553	100403	A					
000554	002000	A	151		CALL	(INPG)*	INPUT NO.
000555	100416	A					
000556	001000	A	152		JMP	STRT	TERM, EXIT
000557	000541	A					

000560	001000	A	153	JMP	STRT	ABORT EXIT	
000561	000541	A					
000562	001000	A	154	JMP	*+2	COMMA EXIT	
000563	000564	A					
000564	052533	A	155	STA	CNTT	SET CONSTANT	
000565	002000	A	156	CALL	(OUTC)*	CR/LF	
000566	100402	A					
000567	010442	A	157	PFR2	LDA	SCON	CHECK IF CONSOLE MODE
000570	001010	A	158	JAZ	PFR3		
000571	000600	A					
000572	006030	A	159	LDXI	MES2	WRITE HALT TEST TITLE	
000573	001045	A					
000574	002000	A	160	CALL*	OUTD		
000575	100403	A					
000576	002000	A	161	CALL	RING		
000577	002353	A					
000600	006010	A	162	PFR3	LDAI	2	SET UP INITIAL STOP CODE
000601	000002	A					
000602	051157	A	163	STA	HLT4+2		
000603	002000	A	164	CALL	HLTT,0		
000604	001115	A					
000605	000000	A					
000606	002000	A	165	CALL	RING		
000607	002353	A					
000610	001400	A	166	JSS3	PFRT		
000611	000511	A					
000612	002000	A	167	CALL	HLTT,0177777		
000613	001115	A					
000614	177777	A					
000615	002000	A	168	CALL	RING		
000616	002353	A					
000617	001400	A	169	JSS3	PFRT		
000620	000511	A					
000621	002000	A	170	CALL	HLTT,0125252		
000622	001115	A					
000623	125252	A					
000624	002000	A	171	CALL	RING		
000625	002353	A					
000626	001400	A	172	JSS3	PFRT		
000627	000511	A					
000630	002000	A	173	CALL	HLTT,0052525		
000631	001115	A					

000632	052525	A							
000633	001400	A	174	JSS3	PFRT				
000634	000511	A							
			175	*****					
			176	*****					
			177	*****					
			178	*****					
			179	*****					
			180	*****					
000635	010442	A	181	LDA	\$CON	CHECK IF CONSOLE MODE.			
000636	001010	A	182	JAZ	PF4				
000637	000650	A							
000640	006030	A	183	LXI	MES4	NO - WRITE (VOLATILE REGISTER TEST)			
000641	001054	A							
000642	002000	A	184	CALL*	OUTD				
000643	100403	A							
000644	002000	A	185	CALL	RING				
000645	002353	A							
000646	001400	A	186	JSS3	PFRT				
000647	000511	A							
000650	007400	A	187	PFR4	ROF	SET UP VOLATILE REGISTERS			
000651	006010	A	188	LDAI	6	SET UP ERROR HALT ADDRESS VALUE.			
000652	000006	A							
000653	051766	A	189	STA	PFV6+2				
000654	012427	A	190	LDA	V75			F	
000655	001010	A	191	JAZ	NOV75			F	
000656	000671	A							
000657	007443	A	192	LDI,R3	025253	DO IT		F	
000660	025253	A							
000661	007444	A	193	LDI,R4	025254	FOR		F	
000662	025254	A							
000663	007445	A	194	LDI,R5	025255	R3 THRU R7		F	
000664	025255	A							
000665	007446	A	195	LDI,R6	025256	IF A		F	
000666	025256	A							
000667	007447	A	196	LDI,R7	025257	V75 CPU		F	
000670	025257	A							
000671	006010	A	197	NOV75	LDAI	0177777		F	
000672	177777	A							
000673	006020	A	198	LDBI	0111111				
000674	111111	A							
000675	006030	A	199	LXI	0155555				

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000676 155555 A
000677 002000 A 200 CALL PFVE
000700 001570 A
000701 002000 A 201 CALL RING
000702 002353 A
000703 001400 A 202 JSS3 PFRT
000704 000511 A
000705 006010 A 203 LDAI 7 SET UP ERROR HALT ADDRESS VALUE.
000706 000007 A
000707 051766 A 204 STA PFV6+2
000710 007401 A 205 SOF
000711 012427 A 206 LDA V75 F
000712 001010 A 207 JAZ V75NOT F
000713 000726 A
000714 007443 A 208 LDI,R3 0125254 V75 F
000715 125254 A
000716 007444 A 209 LDI,R4 0125253 REGISTERS F
000717 125253 A
000720 007445 A 210 LDI,R5 0125252 TOO F
000721 125252 A
000722 007446 A 211 LDI,R6 0125251 F
000723 125251 A
000724 007447 A 212 LDI,R7 0125250 F
000725 125250 A
000726 006010 A 213 V75NOT LDAI 0100000 F
000727 100000 A
000730 006020 A 214 LDBI 0066666
000731 066666 A
000732 006030 A 215 LDXI 0022222
000733 022222 A
000734 002000 A 216 CALL PFVE
000735 001570 A
000736 001400 A 217 JSS3 PFRT
000737 000511 A

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218 *****
219 *
220 * VOLATILE REGISTER TEST COMPLETE *
221 *****
222 *****
223 *
224 * START CORE VALIDITY CHECK *
225 *

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226 *****
000740 010442 A 227 LDA $CON CHECK IF CONSOLE MODE
000741 001010 A 228 JAZ PFR5
000742 000753 A
000743 006030 A 229 LDXI MESS WRITE = CORE VALIDITY CHECK.
000744 001071 A
000745 002000 A 230 CALL* OUTD
000746 100403 A
000747 002000 A 231 CALL RING
000750 002353 A
000751 001400 A 232 JSS3 PFRT
000752 000511 A
000753 006010 A 233 PFR5 LDAI 8
000754 000010 A
000755 051254 A 234 STA CRE5+2
000756 002000 A 235 CALL CREV,0
000757 001174 A
000760 000000 A
000761 002000 A 236 CALL RING
000762 002353 A
000763 001400 A 237 JSS3 PFRT
000764 000511 A
000765 006010 A 238 LDAI 9
000766 000011 A
000767 051254 A 239 STA CRE5+2
000770 002000 A 240 CALL CREV,0177777
000771 001174 A
000772 177777 A
000773 002000 A 241 CALL RING
000774 002353 A
000775 001400 A 242 JSS3 PFRT
000776 000511 A
000777 006010 A 243 LDAI 10
001000 000012 A
001001 051254 A 244 STA CRE5+2
001002 002000 A 245 CALL CREV,0125252
001003 001174 A
001004 125252 A
001005 002000 A 246 CALL RING
001006 002353 A
001007 001400 A 247 JSS3 PFRT
001010 000511 A
    
```



001011	006010	A	248	LDAI	11	
001012	000013	A				
001013	051254	A	249	STA	CRE5+2	
001014	002000	A	250	CALL	CREV,0052525	
001015	001174	A				
001016	052525	A				
001017	001000	A	251	JMP	PFR2	RETURN TO BEGINNING OF TEST
001020	000567	A				
001021	005001	A	252	PFR6	TZA	
001022	000777	A	253	HLT	0777	ASK FOR TIME DELAY CONSTANT
001023	052533	A	254	STA	CNTT	SET CONSTANT
001024	001000	A	255	JMP	PFR3	
001025	000600	A				
001026	150317	A	256	MES1	DATA	'POWER FAILURE/RESTART TEST'
001027	153705	A				
001030	151240	A				
001031	143301	A				
001032	144714	A				
001033	152722	A				
001034	142657	A				
001035	151305	A				
001036	151724	A				
001037	140722	A				
001040	152240	A				
001041	152305	A				
001042	151724	A				
001043	106612	A	257	DATA	0106612	CARRIAGE RETURN/LINE FEED
001044	000000	A	258	DATA	0	
001045	144301	A	259	MES2	DATA	'HALT TEST'
001046	146324	A				
001047	120324	A				
001050	142723	A				
001051	152240	A				
001052	106612	A	260	DATA	0106612,0	
001053	000000	A				
001054	153317	A	261	MES4	DATA	'VOLATILE REGISTER TEST'
001055	146301	A				
001056	152311	A				
001057	146305	A				
001060	120322	A				
001061	142707	A				
001062	144723	A				

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001063 152305 A
001064 151240 A
001065 152305 A
001066 151724 A
001067 106612 A 262 DATA 0106612,0
001070 000000 A
001071 141717 A 263 MESS DATA 'CORE VALIDITY CHECK ',0106612,0
001072 151305 A
001073 120326 A
001074 140714 A
001075 144704 A
001076 144724 A
001077 154640 A
001100 141710 A
001101 142703 A
001102 145640 A
001103 106612 A
001104 000000 A
001105 152311 A 264 MESS DATA 'TIME DELAY = ',0
001106 146705 A
001107 120304 A
001110 142714 A
001111 140731 A
001112 120275 A
001113 120240 A
001114 000000 A

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265 *****
266 *
267 * HALT TEST SUBROUTINE *

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268 *****
001115 000000 A 269 HLTT ENTR
001116 021115 A 270 LDB HLTT STORE BACKGROUND VALUE IN BKGR,
001117 016000 A 271 LDA 0,2
001120 051453 A 272 STA BKGR
001121 002000 A 273 CALL BCKG BACKGROUND ALL UNUSED CORE,
001122 001414 A
001123 006010 A 274 LDAI 01000 SET UP JUMP BACK TO HALT TEST AFTER A
001124 001000 A
001125 052531 A 275 STA PHLT+1 POWER DN/UP SEQ,
001126 006010 A 276 LDAI HLT3
001127 001143 A
001130 052532 A 277 STA PHLT+2

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001131 006010 A 278          LDAI    05000          STORE NOP IN HALT INST. IN POWER UP SUB.
001132 005000 A
001133 052530 A 279          STA     PHLT
001134 006010 A 280 HLT1   LDAI    PHLT+1
001135 002531 A
001136 005002 A 281          TZB
001137 005004 A 282          TZX
001140 000001 A 283          HLT     01          HALT = WAIT FOR POWER DN/UP SEQ.
001141 001000 A 284          JMP     **=1
001142 001140 A

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285 *****
286 *   UPON DETECTING A PF/R WHILE IN THE HALT MODE, THE PF/R SAVE *
287 *   ROUTINE IS NOT EXECUTED. THE PF/R RESTORE ROUTINE IS *
288 *   EXECUTED UPON POWER UP, THIS SUBROUTINE DETECTS THAT THE SAVE *
289 *   ROUTINE WAS NOT EXECUTED AND HALTS AT LOCATION PHLT. *
290 * *
291 *   THE OPERATOR PUSHES RUN AND CONTROL RETURNS TO HALT TEST SUB. *
292 * *
293 *****

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001143 005001 A 294 HLT3   TZA          ZERO OUT JUMP BACK TO HALT TEST SUB.
001144 052531 A 295          STA     PHLT+1
001145 052530 A 296          STA     PHLT          RESTORE HALT INST IN POWER UP SUB.
001146 002000 A 297          CALL   CRCK         CHECK IF ANY BACKGROUND VALUES CHANGED.
001147 001456 A
001150 001010 A 298          JAZ     HLTS         CHECK IF ERROR OCCURED
001151 001163 A
001152 006020 A 299 HLT6   LDBI    EBUF         SET UP ERROR HALT VALUES
001153 002544 A
001154 032544 A 300          LDX     EBUF

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301 *   A = NO. OF MODIFIED WORDS
302 *   B = LOC. OF ERROR TABLE
303 *   X = 1ST LOC. WHERE BACKGROUND WORD
304 *   MODIFIED.

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001155 002000 A 305 HLT4   CALL*   SSWT,02,(MSGE)*,PFRT,HLIT+1
001156 100421 A
001157 000002 A
001160 101263 A
001161 000511 A
001162 001116 A
001163 010440 A 306 HLT5   LDA     $FLG         CHECK IF LOOPING
001164 001010 A 307          JAZ     **=4
001165 001170 A

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001166	001000	A	308	JMP	HLT6	
001167	001152	A				
001170	041115	A	309	INR	HLTT	RETURN TO CALLING PROGRAM.
001171	041157	A	310	INR	HLT4+2	
001172	001000	A	311	JMP*	HLTT	
001173	101115	A				
			312	*****		
			313	*	CORE VALIDITY TEST	*
			314	*	ALL UNUSED CORE IS BACKGROUNDED TO CALLING PARAMETER.	*
			315	*	CORE IS CHECKED FOR MODIFIED VALUES.	*
			316	*****		
001174	000000	A	317	CREV	ENTR	
001175	021174	A	318	LDB	CREV	GET PARAMETER (BACK-GROUND VALUE)
001176	016000	A	319	LDA	0,2	
001177	051453	A	320	STA	BKGR	SAVE BACK-GROUND VALUE
001200	006010	A	321	CREL	LDAI	59
001201	000073	A				
001202	005012	A	322	TAB		
001203	006120	A	323	ADDI	EBUF	
001204	002544	A				
001205	005014	A	324	TAX		
001206	005001	A	325	TZA		ZERO 60 WORD TABLE
001207	055000	A	326	CRE1	STA	0,1
001210	005344	A	327	DXR		
001211	005322	A	328	DBR		
001212	001020	A	329	JBZ	**+4	
001213	001216	A				
001214	001000	A	330	JMP	CRE1	
001215	001207	A				
001216	002000	A	331	CALL	BCKG	BACKGROUND ALL UNUSED CORE
001217	001414	A				
001220	005201	A	332	COMP	1	STORE NEG. NUMBER IN
001221	052476	A	333	STA	PWRD	INTERRUPT MARK LOCATION.
001222	020441	A	334	CRE3	LDB	\$MEM
001223	016000	A	335	CRE4	LDA	0,2
001224	005322	A	336	DBR		
001225	001020	A	337	JBZ	**+4	
001226	001231	A				
001227	001000	A	338	JMP	CRE4	
001230	001223	A				
001231	012476	A	339	LDA	PWRD	
001232	001002	A	340	JAP	**+4	

001233	001236	A							
001234	001000	A	341	JMP	CRE3				
001235	001222	A							
			342 *						PF/R INTERRUPT PROCESSED
001236	002000	A	343	CALL	CRCK				CHECK CORE VALIDITY
001237	001456	A							
001240	020440	A	344	LDB	SFLG				LOOP FLAG
001241	001010	A	345	JAZ	**4				CHECK ERROR FLAG
001242	001245	A							
001243	001000	A	346	JMP	**4				YES ERROR
001244	001247	A							
001245	001020	A	347	JBZ	CRE6				CHECK IF LOOPING
001246	001260	A							
001247	006020	A	348	LDBI	EBUF				
001250	002544	A							
001251	032544	A	349	LDX	EBUF				
001252	002000	A	350	CALL*	SSWT,7,(MSGE)*,PFRT,CREI				
001253	100421	A							
001254	000007	A							
001255	101263	A							
001256	000511	A							
001257	001200	A							
001260	041174	A	351	CRE6	INR	CREV			RETURN TO CALLING PROGRAM,
001261	001000	A	352	JMP*	CREV				
001262	101174	A							
001263	000000	A	353	MSGE	ENTR				
001264	006030	A	354	LDXI	MGSA				CORE MODIFIED WRITE ERROR MESSAGE ROUTINE
001265	001355	A							
001266	002000	A	355	CALL*	OUTD				
001267	100403	A							
001270	012543	A	356	LDA	ERFG				ROUTINE WILL WRITE UP TO 20 ERROR
001271	051413	A	357	STA	MSGZ				MESSAGES STORED IN EBUF CAUSED BY
001272	002000	A	358	CALL*	OUTE				CORE BEING MODIFIED
001273	100404	A							
001274	006030	A	359	LDXI	MSGB				
001275	001371	A							
001276	002000	A	360	CALL*	OUTD				
001277	100403	A							
001300	006010	A	361	LDAI	20				
001301	000024	A							
001302	141413	A	362	SUB	MSGZ				
001303	001002	A	363	JAP	MSGX				

001304	001310	A			
001305	006010	A	364	LDAI	20
001306	000024	A			
001307	051413	A	365	STA	MSGZ
001310	005001	A	366	MSGX	TZA
001311	051412	A	367	STA	MSGC
001312	011412	A	368	MSG3	LDA
001313	006120	A	369	ADDI	EBUF
001314	002544	A			
001315	005012	A	370	TAB	
001316	016000	A	371	LDA	0,2
001317	002000	A	372	CALL*	OUTE
001320	100404	A			
001321	041412	A	373	INR	MSGC
001322	011412	A	374	LDA	MSGC
001323	00 20	A	375	ADDI	EBUF
001324	002544	A			
001325	005012	A	376	TAB	
001326	016000	A	377	LDA	0,2
001327	002000	A	378	CALL*	OUTE
001330	100404	A			
001331	041412	A	379	INR	MSGC
001332	011412	A	380	LDA	MSGC
001333	006120	A	381	ADDI	EBUF
001334	002544	A			
001335	005012	A	382	TAB	
001336	016000	A	383	LDA	0,2
001337	002000	A	384	CALL*	OUTE
001340	100404	A			
001341	002000	A	385	CALL*	OUTC
					OUTPUT CR/LF
001342	100402	A			
001343	041412	A	386	INR	MSGC
001344	011413	A	387	LDA	MSGZ
001345	005311	A	388	DAR	
001346	051413	A	389	STA	MSGZ
001347	001010	A	390	JAZ*	MSGE
001350	101263	A			
001351	001100	A	391	JSS1*	MSGE
					IF SS1 SET TERMINATE MESSAGE
001352	101263	A			
001353	001000	A	392	JMP	MSG3
001354	001312	A			
001355	142722	A	393	MGSA	DATA
					'ERROR = CORE MODIFIED ',0

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001356 151317 A
001357 151240 A
001360 126640 A
001361 141717 A
001362 151305 A
001363 120315 A
001364 147704 A
001365 144706 A
001366 144705 A
001367 142240 A
001370 000000 A
001371 120324 A 394 MSGB DATA ' TIMES',0106612
001372 144715 A
001373 142723 A
001374 106612 A
001375 120314 A 395 DATA ' LOC INITIAL FINAL ',0106612,0
001376 147703 A
001377 120240 A
001400 144716 A
001401 144724 A
001402 144701 A
001403 146240 A
001404 120306 A
001405 144716 A
001406 140714 A
001407 120240 A
001410 106612 A
001411 000000 A
001412 000000 A 396 MSGC DATA 0
001413 000000 A 397 MSGZ DATA 0
398 *****
399 * THIS SUBROUTINE BACKGROUNDS ALL UNUSED CORE TO VALUE IN BKGR. *
400 * IF OVER 4 K OF CORE, ALL THE REST IS BACKGROUNDED WITH BKGR *
401 * VALUE. *
402 *****
001414 000000 A 403 BCKG ENTR
001415 010422 A 404 LDA SLWE CALC NO. OF WORDS IN 1ST 4K TO BE
001416 141455 A 405 SUB TBLC BACKGROUNDED.
001417 051454 A 406 STA NWBG
001420 005002 A 407 TZB
001421 031455 A 408 LDX TBLC
001422 011453 A 409 BCK1 LDA BKGR BACK-GROUND ALL UNUSED CORE IN 1ST. 4K.

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001423	055000	A	410		STA	0,1		
001424	005144	A	411		IXR			
001425	005122	A	412		IBR			
001426	005021	A	413		TBA			
001427	141454	A	414		SUB	NWBG		
001430	001004	A	415		JAN	BCK1		
001431	001422	A						
001432	010441	A	416	BCK3	LDA	\$MEM	CHECK IF MORE THAN 4K	
001433	004354	A	417		LSRA	12		
001434	001010	A	418		JAZ*	BCKG		
001435	101414	A						
001436	010441	A	419		LDA	\$MEM	BACK-GROUND ALL CORE FROM 4K ON.	
001437	005014	A	420		TAX			
001440	006140	A	421		SUBI	007777		
001441	007777	A						
001442	005012	A	422		TAB			
001443	011453	A	423		LDA	BKGR		
001444	055000	A	424	BCK4	STA	0,1		
001445	005344	A	425		DXR			
001446	005322	A	426		DBR			
001447	001020	A	427		JBZ*	BCKG		
001450	101414	A						
001451	001000	A	428		JMP	BCK4		
001452	001444	A						
001453	000000	A	429	BKGR	DATA	0		
001454	000000	A	430	NWBG	DATA	0		
001455	002654	A	431	TBLC	DATA	LLTP	LAST LOCATION OF TEST PROGRAM	
			432	*****				
			433	*	CHECK BACKGROUND VALUES FOR MODIFICATION		*	
			434	*****				
001456	000000	A	435	CRCK	ENTR			
001457	005001	A	436		TZA		ZERO ERROR FLAG	
001460	052543	A	437		STA	ERFG		
001461	005002	A	438		TZB			
001462	005021	A	439	CRC1	TBA		CHECK IF 1ST 4K BACK-GROUND VALUES HAVE	
001463	121455	A	440		ADD	TBLC		
001464	005014	A	441		TAX			
001465	015000	A	442		LDA	0,1		
001466	005014	A	443		TAX			
001467	141453	A	444		SUB	BKGR	BEEN MODIFIED.	
001470	001010	A	445		JAZ	CRC2		
001471	001475	A						



001472	002000	A	446	CALL	CRER,LLTP	SAVE ERROR VALUES
001473	001536	A				
001474	002654	A				
001475	005122	A	447	CRC2	IBR	
001476	005021	A	448		TBA	
001477	141454	A	449		SUB	NWBG
001500	001004	A	450		JAN	CRC1
001501	001462	A				
001502	010441	A	451		LDA	SMEM
001503	004354	A	452		LSRA	12
001504	001010	A	453		JAZ	CRC4
001505	001533	A				
001506	010441	A	454		LDA	SMEM
001507	006140	A	455		SUBI	007777
001510	007777	A				CHECK IF MORE THAN 4 K.
001511	005012	A	456		TAB	
001512	005021	A	457	CRC3	TBA	
001513	006120	A	458		ADDI	07777
001514	007777	A				
001515	005014	A	459		TAX	
001516	015000	A	460		LDA	0,1
001517	005014	A	461		TAX	
001520	141453	A	462		SUB	BKGR
001521	001010	A	463		JAZ	**5
001522	001526	A				CHECK BACKGROUND VALUE AGAINST CORE.
001523	002000	A	464	CALL	CRER,07777	SAVE ERROR VALUE
001524	001536	A				
001525	007777	A				
001526	005322	A	465		DBR	
001527	001020	A	466		JBZ	CRC4
001530	001533	A				CHECK IF ALL WORDS OVER 4K CHECKED
001531	001000	A	467		JMP	CRC3
001532	001512	A				
001533	012543	A	468	CRC4	LDA	ERFG
001534	001000	A	469		JMP*	CRCK
001535	101456	A				
001536	000000	A	470	CRER	ENTR	
001537	061567	A	471		STB	SVB
001540	012543	A	472		LDA	ERFG
001541	006140	A	473		SUBI	20
001542	000024	A				CHECK IF OVER 20 ERRORS
001543	001002	A	474		JAP	CREZ

001544	001563	A						
001545	012543	A	475	LDA	ERFG	GET TABLE LOC.		
001546	122543	A	476	ADD	ERFG			
001547	122543	A	477	ADD	ERFG	STORE LOC. ON 1ST WORD		
001550	006120	A	478	ADDI	EBUF	STORE INITIAL BACKGROUND		
001551	002544	A						
001552	005012	A	479	TAB		VALUE IN 2ND WORD		
001553	076002	A	480	STX	2,2			
001554	011453	A	481	LDA	BKGR	STORE ACTURAL CORE VALUE IN 3RD. WORD		
001555	056001	A	482	STA	1,2			
001556	031536	A	483	LDX	CRER			
001557	015000	A	484	LDA	0,1			
001560	041536	A	485	INR	CRER	TABLE SIZE IS (3,20)		
001561	121567	A	486	ADD	SVB			
001562	056000	A	487	STA	0,2			
001563	042543	A	488	CREZ	INR	ERFG		
001564	021567	A	489	LD8	SVB	RETURN B REGISTER		
001565	001000	A	490	JMP*	CRER			
001566	101536	A						
001567	000000	A	491	SVB	DATA	0		
			492	*****				
			493	*	SUBROUTINE TO CHECK VOLATILE REGISTERS UPON PF/R		*	
			494	*****				
001570	000000	A	495	PFVE	ENTR			
001571	052016	A	496	STA	PFVS	SAVE VOLATILE REGISTERS.		
001572	062017	A	497	STB	PFVS+1			
001573	072020	A	498	STX	PFVS+2			
001574	012427	A	499	LDA	V75		F	
001575	001010	A	500	JAZ	NOTV75		F	
001576	001611	A						
001577	007130	A	501	ST,R3	PFVS+5		F	
001600	002023	A						
001601	007140	A	502	ST,R4	PFVS+6		F	
001602	002024	A						
001603	007150	A	503	ST,R5	PFVS+7		F	
001604	002025	A						
001605	007160	A	504	ST,R6	PFVS+8		F	
001606	002026	A						
001607	007170	A	505	ST,R7	PFVS+9		F	
001610	002027	A						
001611	005001	A	506	NOTV75	TZA		F	
001612	005511	A	507	AOFA				

001613	052021	A	508	STA	PFVS+3		
001614	006010	A	509	LDAI	PFV1+2		
001615	001656	A					
001616	052022	A	510	STA	PFVS+4		
			511 *				
001617	006010	A	512	PFVL LDAI	05000	LOOP ENTRANCE = SET UP NOP	
001620	005000	A					
001621	051654	A	513	STA	PFV1		
001622	022017	A	514	LDB	PFVS+1	RETURN VOLATILE REGISTERS,	
001623	032020	A	515	LDX	PFVS+2	B AND X	
001624	012427	A	516	LDA	V75	AND	F
001625	001010	A	517	JAZ	PFVL1	R3	F
001626	001641	A					
001627	007030	A	518	LD,R3	PFVS+5	THRU	F
001630	002023	A					
001631	007040	A	519	LD,R4	PFVS+6	R7	F
001632	002024	A					
001633	007050	A	520	LD,R5	PFVS+7	IF	F
001634	002025	A					
001635	007060	A	521	LD,R6	PFVS+8	A	F
001636	002026	A					
001637	007070	A	522	LD,R7	PFVS+9	V75	F
001640	002027	A					
001641	007400	A	523	PFVL1 ROF			F
001642	012021	A	524	LDA	PFVS+3	OVERFLOW	
001643	001010	A	525	JAZ	**3		
001644	001646	A					
001645	007401	A	526	SOF			
001646	012016	A	527	LDA	PFVS	SET INTERRUPT MARK NEG,	
001647	001004	A	528	JAN	**4		
001650	001653	A					
001651	005211	A	529	CPA			
001652	052016	A	530	STA	PFVS		
001653	052476	A	531	STA	PWRD		
			532 *				
001654	005000	A	533	PFV1 NOP		HANG WAITING FOR POWER/FAIL RESTART	
001655	012476	A	534	LDA	PWRD		
001656	002004	A	535	JANM	PFV1		
001657	001654	A					
001660	052034	A	536	STA	PFVI+4	PF/R INTERRUPT PROCESSED,	
001661	012464	A	537	LDA	SAVA		
001662	052030	A	538	STA	PFVI		

001663	012465	A	539	LDA	SAV8		
001664	052031	A	540	STA	PFVI+1		
001665	012466	A	541	LDA	SAVX		
001666	052032	A	542	STA	PFVI+2		
001667	012467	A	543	LDA	SAV0		
001670	052033	A	544	STA	PFVI+3		
001671	012427	A	545	LDA	V75		F
001672	001010	A	546	JAZ	PFVEI1		F
001673	001712	A					
001674	012470	A	547	LDA	SAVR3		F
001675	052035	A	548	STA	PFVI+5		F
001676	012471	A	549	LDA	SAVR4		F
001677	052036	A	550	STA	PFVI+6		F
001700	012472	A	551	LDA	SAVR5		F
001701	052037	A	552	STA	PFVI+7		F
001702	012473	A	553	LDA	SAVR6		F
001703	052040	A	554	STA	PFVI+8		F
001704	012474	A	555	LDA	SAVR7		F
001705	052041	A	556	STA	PFVI+9		F
001706	006030	A	557	LDXI	9		F
001707	000011	A					
001710	001000	A	558	JMP	PFVEI1+2		F
001711	001714	A					
001712	006030	A	559	PFVEI1	LDXI	4	F
001713	000004	A					
001714	005002	A	560	TZB		ZERO ERROR FLAG	
001715	062045	A	561	STB	PFVT+3		
001716	005041	A	562	PFV2	TXA		
001717	006120	A	563	ADDI	PFVS		
001720	002016	A					
001721	005012	A	564	TAB			
001722	016000	A	565	LDA	0,2		
001723	051733	A	566	STA	PFV7+1		
001724	005041	A	567	TXA			
001725	006120	A	568	ADDI	PFVI		
001726	002030	A					
001727	005012	A	569	TAB			
001730	016000	A	570	LDA	0,2		
001731	052044	A	571	STA	PFVT+2		
001732	006140	A	572	PFV7	SUBI	0	
001733	000000	A					
001734	001010	A	573	JAZ	PFV3		

001735	001751	A					
001736	005111	A	574	IAR			MEMORY PROTECT OPTION CAN INT AT 2 LOCATION
001737	002010	A	575	JAZM	PFV9		TEST FOR 2 <sup>ND</sup> LOCATION
001740	002001	A					
001741	022045	A	576	LDB	PFVT+3		
001742	004041	A	577	LRLB	1		ERROR CONDITION
001743	005122	A	578	IBR			
001744	062045	A	579	STB	PFVT+3		
001745	011733	A	580	LDA	PFV7+1		
001746	052042	A	581	STA	PFVT		
001747	012044	A	582	LDA	PFVT+2		
001750	052043	A	583	STA	PFVT+1		
001751	001040	A	584	PFV3	JXZ	**+5	CHECK IF 9 REGISTERS CHECKED
001752	001756	A					
001753	005344	A	585	DXR			
001754	001000	A	586	JMP	PFV2		
001755	001716	A					
001756	022045	A	587	LDB	PFVT+3		
001757	001020	A	588	JBZ	PFV5		CHECK IF ERROR
001760	001774	A					
001761	005021	A	589	PFV4	TBA		ERROR CONDITION OR LOOPING
001762	022042	A	590	LDB	PFVT		SET UP ERROR HALT REGISTERS
001763	032043	A	591	LDX	PFVT+1		
001764	002000	A	592	PFV6	CALL*	SSWT,5,(MSGR)*,PFRT,PFVL	
001765	100421	A					
001766	000005	A					
001767	102046	A					
001770	000511	A					
001771	001617	A					
001772	001000	A	593	JMP*	PFVE		
001773	101570	A					
001774	010440	A	594	PFV5	LDA	SFLG	CHECK IF LOOPING
001775	001010	A	595	JAZ*	PFVE		
001776	101570	A					
001777	001000	A	596	JMP	PFV4		
002000	001761	A					
002001	000000	A	597	PFV9	ENTR	0	IF CHECKING (P),D,K.
002002	005041	A	598	TXA			ELSE
002003	006140	A	599	SUBI	4		
002004	000004	A					
002005	001004	A	600	JAN	(PFV9)*		ERROR RETURN
002006	102001	A					

002007	001000	A	601	JMP	PFV3		
002010	001751	A					
002011	005311	A	602	DAR		WILL BE NEEDED IF MP OPTION USED.	
002012	001010	A	603	JAZ	PFV3	(INTERRUPTS WILL NOT BE DISABLED ON A	
002013	001751	A					
002014	001000	A	604	JMP*	PFV9	JUMP AND MARK INSTRUCTION.)	
002015	102001	A					
002016			605	PFVS	BSS	10	F
002030			606	PFVI	BSS	10	F
002042			607	PFVT	BSS	4	
002046	000000	A	608	MSGR	ENTR		THIS IS THE ERROR MESSAGE SUBROUTINE
002047	006030	A	609	LDXI	MSG1		
002050	002270	A					
002051	002000	A	610	CALL*	OUTD		
002052	100403	A					
002053	012016	A	611	LDA	PFVS		A REGISTER VALUES
002054	002000	A	612	CALL*	OUTE		
002055	100404	A					
002056	012030	A	613	LDA	PFVI		
002057	002000	A	614	CALL*	OUTE		
002060	100404	A					
002061	002000	A	615	CALL*	OUTC		OUTPUT CR/LF
002062	100402	A					
002063	006030	A	616	LDXI	MSG2+2		B REGISTER VALUES
002064	002314	A					
002065	002000	A	617	CALL*	OUTD		
002066	100403	A					
002067	012017	A	618	LDA	PFVS+1		
002070	002000	A	619	CALL*	OUTE		
002071	100404	A					
002072	012031	A	620	LDA	PFVI+1		
002073	002000	A	621	CALL*	OUTE		
002074	100404	A					
002075	002000	A	622	CALL*	OUTC		OUTPUT CR/LF
002076	100402	A					
002077	006030	A	623	LDXI	MSG2+4		X REGISTER VALUES
002100	002316	A					
002101	002000	A	624	CALL*	OUTD		
002102	100403	A					
002103	012020	A	625	LDA	PFVS+2		
002104	002000	A	626	CALL*	OUTE		
002105	100404	A					

002106	012032	A	627	LDA	PFVI+2		D
002107	002000	A	628	CALL*	OUTE		
002110	100404	A					
002111	002000	A	629	CALL*	OUTC	OUTPUT CR/LF	
002112	100402	A					
002113	012427	A	630	LDA	V75		F
002114	001010	A	631	JAZ	PREGMS		F
002115	002212	A					
002116	006030	A	632	LDXI	MSGR3	R3 REGISTER VALUES	F
002117	002334	A					
002120	002000	A	633	CALL*	OUTD		F
002121	100403	A					
002122	012023	A	634	LDA	PFVS+5		F
002123	002000	A	635	CALL*	OUTE		F
002124	100404	A					
002125	012035	A	636	LDA	PFVI+5		F
002126	002000	A	637	CALL*	OUTE		F
002127	100404	A					
002130	002000	A	638	CALL*	OUTC	OUTPUT CR/LF	F
002131	100402	A					
002132	006030	A	639	LDXI	MSGR4	R4 REGISTER VALUES	F
002133	002337	A					
002134	002000	A	640	CALL*	OUTD		F
002135	100403	A					
002136	012024	A	641	LDA	PFVS+6		F
002137	002000	A	642	CALL*	OUTE		F
002140	100404	A					
002141	012036	A	643	LDA	PFVI+6		F
002142	002000	A	644	CALL*	OUTE		F
002143	100404	A					
002144	002000	A	645	CALL*	OUTC	OUTPUT CR/LF	F
002145	100402	A					
002146	006030	A	646	LDXI	MSGR5	R5 REGISTER VALUES	F
002147	002342	A					
002150	002000	A	647	CALL*	OUTD		F
002151	100403	A					
002152	012025	A	648	LDA	PFVS+7		F
002153	002000	A	649	CALL*	OUTE		F
002154	100404	A					
002155	012037	A	650	LDA	PFVI+7		F
002156	002000	A	651	CALL*	OUTE		F
002157	100404	A					

002160	002000	A	652	CALL*	OUTC	OUTPUT CRLF	
002161	100402	A					
002162	006030	A	653	LDXI	MSGR6	R6 VALUES	F
002163	002345	A					
002164	002000	A	654	CALL*	OUTD		F
002165	100403	A					
002166	012026	A	655	LDA	PFVS+8		F
002167	002000	A	656	CALL*	OUTE		F
002170	100404	A					
002171	012040	A	657	LDA	PFVI+8		F
002172	002000	A	658	CALL*	OUTE		F
002173	100404	A					
002174	002000	A	659	CALL*	OUTC	CRLF	F
002175	100402	A					
002176	006030	A	660	LDXI	MSGR7	R7 VALUES	F
002177	002350	A					
002200	002000	A	661	CALL*	OUTD		F
002201	100403	A					
002202	012027	A	662	LDA	PFVS+9		F
002203	002000	A	663	CALL*	OUTE		F
002204	100404	A					
002205	012041	A	664	LDA	PFVI+9		F
002206	002000	A	665	CALL*	OUTE		F
002207	100404	A					
002210	002000	A	666	CALL*	OUTC	CRLF	F
002211	100402	A					
002212	006030	A	667	PREGMS LDXI	MSG2+8	P REGISTER VALUE	F
002213	002322	A					
002214	002000	A	668	CALL*	OUTD		
002215	100403	A					
002216	012022	A	669	LDA	PFVS+4		
002217	002000	A	670	CALL*	OUTE		
002220	100404	A					
002221	012034	A	671	LDA	PFVI+4		
002222	002000	A	672	CALL*	OUTE		
002223	100404	A					
002224	002000	A	673	CALL*	OUTC	OUTPUT CR/LF	
002225	100402	A					
002226	006030	A	674	LDXI	MSG2+6	WRITE OVER FLOW MESSAGE	
002227	002320	A					
002230	002000	A	675	CALL*	OUTD		
002231	100403	A					



002232	012021	A	676	LDA	PFVS+3	
002233	001010	A	677	JAZ	**6	
002234	002241	A				
002235	006030	A	678	LDXI	MSG2+14	
002236	002330	A				
002237	001000	A	679	JMP	**4	
002240	002243	A				
002241	006030	A	680	LDXI	MSG2+10	
002242	002324	A				
002243	002000	A	681	CALL*	OUTD	
002244	100403	A				
002245	006010	A	682	LDAI	' '	WRITE 1 BLANK CHAR.
002246	120240	A				
002247	002000	A	683	CALL*	OUTA	
002250	100400	A				
002251	012033	A	684	LDA	PFVI+3	
002252	001010	A	685	JAZ	**6	
002253	002260	A				
002254	006030	A	686	LDXI	MSG2+14	
002255	002330	A				
002256	001000	A	687	JMP	**4	
002257	002262	A				
002260	006030	A	688	LDXI	MSG2+10	
002261	002324	A				
002262	002000	A	689	CALL*	OUTD	
002263	100403	A				
002264	002000	A	690	CALL*	OUTC	OUTPUT CR/LF
002265	100402	A				
002266	001000	A	691	JMP*	MSGR	
002267	102046	A				
002270	120322	A	692	MSG1 DATA	' REGISTER ERROR ',0106012	
002271	142707	A				
002272	144723	A				
002273	152305	A				
002274	151240	A				
002275	142722	A				
002276	151317	A				
002277	151240	A				
002300	106612	A				
002301	120311	A	693	DATA	' INITIAL FINAL ',0106012	
002302	147311	A				
002303	152311	A				

002304	140714	A							
002305	120240	A							
002306	143311	A							
002307	147301	A							
002310	146240	A							
002311	106612	A							
002312	140640	A	694 MSG2	DATA	'A ',0,'B ',0,'X ',0,'OF',0,'P ',0,'	ON',0,'	OFF',0		
002313	000000	A							
002314	141240	A							
002315	000000	A							
002316	154240	A							
002317	000000	A							
002320	147706	A							
002321	000000	A							
002322	150240	A							
002323	000000	A							
002324	120240	A							
002325	120240	A							
002326	147716	A							
002327	000000	A							
002330	120240	A							
002331	120317	A							
002332	143306	A							
002333	000000	A							
002334	151263	A	695 MSGR3	DATA	'R3 ',0				F
002335	120240	A							
002336	000000	A							
002337	151264	A	696 MSGR4	DATA	'R4 ',0				F
002340	120240	A							
002341	000000	A							
002342	151265	A	697 MSGR5	DATA	'R5 ',0				F
002343	120240	A							
002344	000000	A							
002345	151266	A	698 MSGR6	DATA	'R6 ',0				F
002346	120240	A							
002347	000000	A							
002350	151267	A	699 MSGR7	DATA	'R7 ',0				F
002351	120240	A							
002352	000000	A							
002353	000000	A	700 RING	ENTR					
002354	010442	A	701	LDA	\$CON				
002355	001010	A	702	JAZ*	RING				

J02356	102353	A						
J02357	006030	A	703	LDXI	MRNG			
J02360	002365	A						
J02361	002000	A	704	CALL*	OUTD			
J02362	100403	A						
J02363	001000	A	705	JMP*	RING			
J02364	102353	A						
J02365	100200	A	706	MRNG	DATA	0100200		
J02366	100200	A	707		DATA	0100200		
J02367	100200	A	708		DATA	0100200		
J02370	100200	A	709		DATA	0100200		
J02371	100207	A	710		DATA	0100207		
J02372	000000	A	711		DATA	0		
J02373	006020	A	712	M23	LDBI	04354	MAINTAIN II	D
J02374	004354	A						
J02375	006030	A	713	LDXI	07777			D
J02376	007777	A						
J02377	010422	A	714	LDA	SLWE		LOWEST LOCATION USED BY EXEC	D
J02400	006150	A	715	ANAI	010000			D
J02401	010000	A						
J02402	001010	A	716	JAZ	M23C			E
J02403	002410	A						
J02404	006020	A	717	LDBI	04355		MAINTAIN III	E
J02405	004355	A						
J02406	006030	A	718	LDXI	017777			D
J02407	017777	A						
J02410	061433	A	719	M23C	STB	BCK3+1		D
J02411	061503	A	720		STB	CRC2+6		D
J02412	071441	A	721		STX	BCK3+7		D
J02413	071510	A	722		STX	CRC3+2		D
J02414	071514	A	723		STX	CRC3+2		D
J02415	071525	A	724		STX	CRC3+11		G
J02416	007400	A	725		ROF			F
J02417	007411	A	726		DATA	07411		F
J02420	001001	A	727		JOE	PFRS		F
J02421	000500	A						
J02422	006010	A	728	LDAI	=1			F
J02423	177777	A						
J02424	052427	A	729	STA	V75			F
J02425	001000	A	730	JMP	PFRS			D
J02426	000500	A						
J02427	000000	A	731	V75	DATA	0		F

	732	*****				
	733	*				
	734	*		TYPICAL POWER UP/DOWN SUBROUTINE		
	735	*		POWER DOWN INTERRUPT ADDRESS 040		
	736	*		POWER UP INTERRUPT ADDRESS 042		
	737	*				
	738	*				
	739	*		POWER UP PROCESSOR		
	740	*				
	741	*****				
102430	000000	A	742	PWRU ENTR		
102431	012475	A	743	LDA HLTF	CHECK IF POWERING UP FROM RUN CONDITION	
102432	001010	A	744	JAZ PHLT		
102433	002530	A				
102434	005001	A	745	TZA	CLEAR POWER FAIL/RESTRY FLAG	
102435	052475	A	746	STA HLTF		
	747	*****				
	748	*				
	749	*		CODING TO REINSTATE 620/F OPTIONAL HARDWARE AFTER A		
	750	*		POWER FAILURE, MUST BE DEFINED HERE, THE TOTAL EXECUTION		
	751	*		TIME NOT TO EXCEED A SPECIFIED TIME PERIOD, SEE PPS		
	752	*		FOR TIMING CONSTRAINTS,		
	753	*****				
102436	012467	A	754	LDA SAVO	SETUP OVERFLOW FLAG	
102437	001010	A	755	JAZ **3		
102440	002442	A				
102441	007401	A	756	SOF		
102442	012427	A	757	LDA V75		F
102443	001010	A	758	JAZ NAYV75		F
102444	002457	A				
102445	007030	A	759	LD,R3 SAVR3		F
102446	002470	A				
102447	007040	A	760	LD,R4 SAVR4		F
102450	002471	A				
102451	007050	A	761	LD,R5 SAVR5		F
102452	002472	A				
102453	007060	A	762	LD,R6 SAVR6		F
102454	002473	A				
↑ 102455	007070	A	763	LD,R7 SAVR7		F
102456	002474	A				
102457	012464	A	764	NAYV75 LDA SAVA	RETURN A,B AND X REGISTERS	F
102460	022465	A	765	LDB SAVB		

102461	032466	A	766	LDX	SAVX			
102462	001000	A	767	JMP*	PWRD	RETURN TO LOCATION INTERRUPTED FROM		
102463	102476	A						
			768	*				
102464	000000	A	769	SAVA	DATA	0		
102465	000000	A	770	SAVB	DATA	0		
102466	000000	A	771	SAVX	DATA	0		
102467	000000	A	772	SAVQ	DATA	0		
102470	000000	A	773	SAVR3	DATA	0	F	
102471	000000	A	774	SAVR4	DATA	0	F	
102472	000000	A	775	SAVR5	DATA	0	F	
102473	000000	A	776	SAVR6	DATA	0	F	
102474	000000	A	777	SAVR7	DATA	0	F	
102475	000000	A	778	HLTF	DATA	0		
			779	*****				
			780	*				
			781	*	POWER DOWN PROCESSOR			
			782	*				
			783	*****				
102476	000000	A	784	PWRD	ENTR			
102477	072534	A	785	STX	TSX			
102500	032533	A	786	LDX	CNTT			
102501	002000	A	787	CALL	TMDL			
102502	002535	A						
102503	032534	A	788	LDX	TSX			
102504	052464	A	789	STA	SAVA	SAVE A, B AND X REGISTERS		
102505	062465	A	790	STB	SAVB			
102506	072466	A	791	STX	SAVX			
102507	012427	A	792	LDA	V75		F	
102510	001010	A	793	JAZ	PWDN1		F	
102511	002524	A						
102512	007130	A	794	ST,R3	SAVR3		F	
102513	002470	A						
102514	007140	A	795	ST,R4	SAVR4		F	
102515	002471	A						
102516	007150	A	796	ST,R5	SAVR5		F	
102517	002472	A						
102520	007160	A	797	ST,R6	SAVR6		F	
102521	002473	A						
102522	007170	A	798	ST,R7	SAVR7		F	
102523	002474	A						
102524	005001	A	799	PWDN1	TZA	CHECK AND SAVE OVER-FLOW CONDITION	F	

102525	005511	A	800	AOFA				INCREMENT A IF OVERFLOW SET	
102526	052467	A	801	STA	SAVD				
102527	042475	A	802	INR	HLTF			SET POWER FAIL/RESTRT FLAG.	
102530	000000	A	803	PHLT	HLT				
102531			804	BSS	2				
			805	*****					
			806	*					*
			807	*****					
102533	000507	A	808	CNTT	DATA	327			
102534	000000	A	809	TSX	DATA	0			
102535	000000	A	810	TMDL	ENTR				
102536	001040	A	811	JXZ*	TMDL				
102537	102535	A							
102540	005344	A	812	DXR					
102541	001000	A	813	JMP	**=3				
102542	002536	A							
102543	000000	A	814	ERFG	DATA	0			
102544			815	EBUF	BSS	60			
102640	005000	A	816	PFTM	NOP				
102641	012651	A	817	LDA	PFDN			RETURN POWER FAILURE/RESTART ADDRESSES	
102642	050041	A	818	STA	041				
102643	012652	A	819	LDA	PFUP				
102644	050043	A	820	STA	043				
102645	012653	A	821	LDA	PFEX			RESTORE TEST EXECUTIVE ADDRESS TO LOC. ONE	
102646	050001	A	822	STA	01				
102647	001000	A	823	JMP	0				
102650	000000	A							
102651	000000	A	824	PFDN	DATA	0			
102652	000000	A	825	PFUP	DATA	0			
102653	000000	A	826	PFEX	DATA	0			
102654			827	LLTP	BSS	0		POINTER TO LAST LOC. TEST PROGRAM USES	
	002373	A	828	END	M23			D	

## ENTRY NAMES

## EXTERNAL NAMES

## SYMBOLS

100442	A	SCON	000471	A	SDCT	000440	A	SFLG	000422	A	SLWE
100441	A	S MEM	000424	A	SMSM	001422	A	BCK1	001432	A	BCK3
101444	A	BCK4	001414	A	BCKG	001453	A	BKGR	002533	A	CNTT
101462	A	CRC1	001475	A	CRC2	001512	A	CRC3	001533	A	CRC4
101456	A	CRCK	001207	A	CRE1	001222	A	CRE3	001223	A	CRE4
101252	A	CRE5	001260	A	CRE6	001200	A	CREL	001536	A	CRER
101174	A	CREV	001563	A	CREZ	002544	A	EBUF	002543	A	ERFG

100423	A	ESZC	001134	A	HLT1	001143	A	HLT3	001155	A	HLT4
101163	A	HLT5	001152	A	HLT6	002475	A	HLTF	001115	A	HLTF
100410	A	INPA	000411	A	INPB	000412	A	INPC	000413	A	INPD
100414	A	INPE	000415	A	INPF	000416	A	INPG	002654	A	LLTP
102373	A	M23	002410	A	M23C	001026	A	MES1	001045	A	MES2
101054	A	MES4	001071	A	MES5	001105	A	MES6	001355	A	MESA
102365	A	MRNG	002270	A	MSG1	002312	A	MSG2	001312	A	MSG3
101371	A	MSGB	001412	A	MSGC	001263	A	MSGE	002046	A	MSGR
102334	A	MSGR3	002337	A	MSGR4	002342	A	MSGR5	002345	A	MSGR6
102350	A	MSGR7	001310	A	MSGX	001413	A	MSGZ	002457	A	NAYV75
101611	A	NOTV75	000671	A	NOV75	001454	A	NWBG	000400	A	OUTA
100401	A	OUTB	000402	A	OUTC	000403	A	OUTD	000404	A	OUTE
100405	A	OUTF	000406	A	OUTG	000407	A	OUTH	002651	A	PFDN
102653	A	PFEX	000513	A	PFR0	000567	A	PFR2	000600	A	PFR3
100650	A	PFR4	000753	A	PFR5	001021	A	PFR6	000500	A	PFR8
100511	A	PFRT	002640	A	PFTM	002652	A	PFUP	001654	A	PFV1
101716	A	PFV2	001751	A	PFV3	001761	A	PFV4	001774	A	PFV5
101764	A	PFV6	001732	A	PFV7	002001	A	PFV9	001570	A	PFVE
101712	A	PFVE11	002030	A	PFVI	001617	A	PFVL	001641	A	PFVL1
102016	A	PFV9	002042	A	PFVT	002530	A	PHLT	002212	A	PREGMS
102524	A	PWDN1	002476	A	PWRD	002430	A	PWRU	000000	A	R0
100001	A	R1	000002	A	R2	000003	A	R3	000004	A	R4
100005	A	R5	000006	A	R6	000007	A	R7	002353	A	RING
102464	A	SAVA	002465	A	SAVB	002467	A	SAVO	002470	A	SAVR3
102471	A	SAVR4	002472	A	SAVR5	002473	A	SAVR6	002474	A	SAVR7
102466	A	SAVX	000421	A	SSWT	000541	A	STRT	001567	A	SVE
101455	A	TBLC	000420	A	TDLY	002535	A	TMDL	000417	A	TOUT
102534	A	TSX	002427	A	V75	000726	A	V75NOT			

0 ERRORS ASSEMBLY COMPLETE