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

RELEASED 6-16-75

620 POWER FAIL/RESTART TEST PROGRAM

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94 *      *      *      *      *      *      *      *      *      *
95 *      *      *      *      *      *      *      *      *      *

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THIS TEST PROGRAM IS PART OF THE MAINTAIN
TEST PROGRAM SYSTEM

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

AREAS RESERVED BY EXECUTIVE *

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

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

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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

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PAGE 2

MAINTAIN III

PWRPAL

000414	96	INPE	BSS	1	INPUT TWO ALPHA CHAR ROUTINE	04	00096
000415	97	INPF	BSS	1	INPUT COMMA/PERIOD TERMINATION ROUTINE	04	00097
000416	98	INPG	BSS	1	INPUT OCTAL NUMBER ROUTINE	04	00098
000417	99	TOUT	BSS	1	TIME-OUT ROUTINE	04	00099
000420	100	TDLY	BSS	1	TIME DELAY ROUTINE	04	00100
000421	101	SSWT	BSS	1	STANDARD SENSE SWITCH ROUTINE	04	00101
000422	102	SLWE	BSS	1	LOWEST WORD USED BY EXEC	04	00102
000423	103	ESZC	BSS	1	MEMORY SIZE DETERMINATION ROUTINE	04	00103
000424	104	\$MSM	BSS	1	MEMORY SIZE MESSAGE	04	00104
	105	*				04	00105
	106	*				04	00106
000440	107	ORG		0440		04	00107
	108	*				04	00108
	109	*				04	00109
	110	*				04	00110
000440	111	\$FLG	BSS	1	LOOP ON ERROR FLAG, 0=DON'T LOOP 1=LOOP	04	00111
000441	112	\$MEM	BSS	1	MEMORY SIZE (HIGHEST AVAIL CORE)	04	00112
000442	113	\$CDN	BSS	1	0=CONSOLE MODE 1=TTY MODE	04	00113
000443	114	BSS		22		04	00114
000471	115	\$DCT	BSS	1	DIGIT COUNTER FOR INPG	04	00115
	116	*				04	00116
	117	*****				04	00117
	118	*				04	00118
	119	*****				04	00119
000500	120	ORG		0500		04	00120
000500	121	PFRS	LDA	041		04	00121
000501	122		STA	PFDN	SAVE POWER DOWN ADDRESS	04	00122
000502	123		LDA	043		04	00123
000503	124		STA	PFUP	SAVE POWER UP ADDRESS	04	00124
000504	125		LDA	01		04	00125
000505	126		STA	PFEX	TEST EXECUTIVE RESTART LOCATION	04	00126
000506	127		LDAI	PFTM	POWER/FAILURE TERMINATION ROUTINE	04	00127
000507							
000510	128		STA	01		04	00128
000511	129	PFR1	LDBI	02	SET ADDRESS PLUS SET BIT 8 IN LOCATIONS	04	00129
000512							
000513	130	PFR0	TBA		2 THROUGH 0377.	04	00130
000514	131		DRAI	0400		04	00131
000515							
000516	132		STA	0,2		04	00132
000517	133		IBR			04	00133
000520	134		TBA			04	00134
000521	135		SUBI	0400		04	00135
000522							
000523	136		JAZ	*+4		04	00136
000524							
000525	137		JMP	PFR0		04	00137
000526							
000527	138		LDAI	02000	SET UP POWER FAIL/RESTART ADDRESS IN	04	00138
000530					INTERRUPT ADDRESSES.		
000531	139		STA	040		04	00139
000532	140		STA	042		04	00140
000533	141		LDAI	PWRD		04	00141
000534							
000535	142		STA	041		04	00142
000536	143		LDAI	PWRU		04	00143
000537							
000540	144		STA	043		04	00144
000541	145	STRT	LDA	\$CDN	CHECK IF CONSOLE MODE	04	00145
000542	146		JAZ	PFR6		04	00146
000543							
000544	147		LDXI	MES1	NO - WRITE TEST TITLE	04	00147
000545							
000546	148		CALL*	OUTD		04	00148
000547							
000550	149		LDXI	MES6	ASK FOR TIME DELAY CONSTANT	04	00149
000551							
000552	150		CALL	(OUTD)*		04	00150
000553							
000554	151		CALL	(INPG)*	INPUT NO.	04	00151
000555							
000556	152		JMP	STRT	TERM. EXIT	04	00152
000557							
000560	153		JMP	STRT	ABORT EXIT	04	00153
000561							
000562	154		JMP	*+2	COMMA EXIT	04	00154
000563							
000564	155		STA	CNTT	SET CONSTANT	04	00155
000565	156		CALL	(OUTC)*	CR/LF	04	00156
000566							
000567	157	PFR2	LDA	\$CDN	CHECK IF CONSOLE MODE	04	00157
000570	158		JAZ	PFR3		04	00158
000571							
000572	159		LDXI	MES2	WRITE HALT TEST TITLE	04	00159
000573							
000574	160		CALL*	OUTD		04	00160
000575							
000576	161		CALL	RING		04	00161
000577							
000600	162	PFR3	LDAI	2	SET UP INITIAL STOP CODE	04	00162
000601							
000602	163		STA	HLT4+2		04	00163
000603	164		CALL	HLTT,0		04	00164
000604							
000605							

		MAINTAIN III	PWRFAL	PAGE 3
000606	002000	A	165 CALL RING	04 00165
000607	002353	A		
000610	001400	A	166 JSS3 PFRT	04 00166
000611	000511	A		
000612	002000	A	167 CALL HLTT,0177777	04 00167
000613	001115	A		
000614	177777	A		
000615	002000	A	168 CALL RING	04 00168
000616	002353	A		
000617	001400	A	169 JSS3 PFRT	04 00169
000620	000511	A		
000621	002000	A	170 CALL HLTT,0125252	04 00170
000622	001115	A		
000623	125252	A		
000624	002000	A	171 CALL RING	04 00171
000625	002353	A		
000626	001400	A	172 JSS3 PFRT	04 00172
000627	000511	A		
000630	002000	A	173 CALL HLTT,0052525	04 00173
000631	001115	A		
000632	052525	A		
000633	001400	A	174 JSS3 PFRT	04 00174
000634	000511	A		
			175 *****	04 00175
			176 *	04 00176
			177 * HALT TEST COMPLETED	04 00177
			178 *	04 00178
			179 * START VOLATILE REGISTER TEST	04 00179
			180 *****	04 00180
000635	010442	A	181 LDA \$CON CHECK IF CONSOLE MODE.	04 00181
000636	001010	A	182 JAZ PFR4	04 00182
000637	000650	A		
000640	006030	A	183 LDXI MES4 NO - WRITE (VOLATILE REGISTER TEST)	04 00183
000641	001054	A		
000642	002000	A	184 CALL* OUTD	04 00184
000643	100403	A		
000644	002000	A	185 CALL RING	04 00185
000645	002353	A		
000646	001400	A	186 JSS3 PFRT	04 00186
000647	000511	A		
000650	007400	A	187 PFR4 RDF SET UP VOLATILE REGISTERS	04 00187
000651	006010	A	188 LDAI 6 SET UP ERROR HALT ADDRESS VALUE.	04 00188
000652	000006	A		
000653	051766	A	189 STA PFV6+2	04 00189
000654	012426	A	190 LDA V75	F 04 00190
000655	001010	A	191 JAZ NOV75	F 04 00191
000656	000671	A		
000657	007443	A	192 LDI,R3 025253 DO IT	F 04 00192
000660	025253	A		
000661	007444	A	193 LDI,R4 025254 FOR	F 04 00193
000662	025254	A		
000663	007445	A	194 LDI,R5 025255 R3 THRU R7	F 04 00194
000664	025255	A		
000665	007446	A	195 LDI,R6 025256 IF A	F 04 00195
000666	025256	A		
000667	007447	A	196 LDI,R7 025257 V75 CPU	F 04 00196
000670	025257	A		
000671	006010	A	197 NOV75 LDAI 0177777	F 04 00197
000672	177777	A		
000673	006020	A	198 LDBI 0111111	04 00198
000674	111111	A		
000675	006030	A	199 LDXI 0155555	04 00199
000676	155555	A		
000677	002000	A	200 CALL PFVE	04 00200
000700	001570	A		
000701	002000	A	201 CALL RING	04 00201
000702	002353	A		
000703	001400	A	202 JSS3 PFRT	04 00202
000704	000511	A		
000705	006010	A	203 LDAI 7 SET UP ERROR HALT ADDRESS VALUE.	04 00203
000706	000007	A		
000707	051766	A	204 STA PFV6+2	04 00204
000710	007401	A	205 RDF	04 00205
000711	012426	A	206 LDA V75	F 04 00206
000712	001010	A	207 JAZ V75NOT	F 04 00207
000713	000726	A		
000714	007443	A	208 LDI,R3 0125254 V75	F 04 00208
000715	125254	A		
000716	007444	A	209 LDI,R4 0125253 REGISTERS	F 04 00209
000717	125253	A		
000720	007445	A	210 LDI,R5 0125252 TOD	F 04 00210
000721	125252	A		
000722	007446	A	211 LDI,R6 0125251	F 04 00211
000723	125251	A		
000724	007447	A	212 LDI,R7 0125250	F 04 00212
000725	125250	A		
000726	006010	A	213 V75NOT LDAI 0100000	F 04 00213
000727	100000	A		
000730	006020	A	214 LDBI 0066666	04 00214
000731	066666	A		
000732	006030	A	215 LDXI 0022222	04 00215
000733	022222	A		
000734	002000	A	216 CALL PFVE	04 00216
000735	001570	A		
000736	001400	A	217 JSS3 PFRT	04 00217

000737 000511 A

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218 *****04 00218
219 *04 00219
220 * VOLATILE REGISTER TEST COMPLETE04 00220
221 *****04 00221
222 *****04 00222
223 *04 00223
224 * START CORE VALIDITY CHECK04 00224
225 *04 00225
226 *****04 00226
000740 010442 A 227 LDA $CON CHECK IF CONSOLE MODE04 00227
000741 001010 A 228 JAZ PFR504 00228
000742 000753 A
000743 006030 A 229 LDXI MESS WRITE - CORE VALIDITY CHECK.04 00229
000744 001071 A 230 CALL* OUTD04 00230
000745 002000 A 231 CALL RING04 00231
000746 100403 A 232 JSS3 PFRT04 00232
000747 002000 A 233 PFR5 LDAI 804 00233
000750 002353 A 234 STA CRE5+204 00234
000751 001400 A 235 CALL CREV,004 00235
000752 000511 A
000753 006010 A 236 CALL RING04 00236
000754 000010 A 237 JSS3 PFRT04 00237
000755 051254 A 238 LDAI 904 00238
000756 002000 A 239 STA CRE5+204 00239
000757 001174 A 240 CALL CREV,017777704 00240
000760 000000 A
000761 002000 A 241 CALL RING04 00241
000762 002353 A 242 JSS3 PFRT04 00242
000763 001400 A 243 LDAI 1004 00243
000764 000511 A 244 STA CRE5+204 00244
000765 006010 A 245 CALL CREV,012525204 00245
000766 000011 A
000767 051254 A 246 CALL RING04 00246
000770 002000 A 247 JSS3 PFRT04 00247
000771 001174 A 248 LDAI 1104 00248
000772 177777 A 249 STA CRE5+204 00249
000773 002000 A 250 CALL CREV,005252504 00250
000774 002353 A
000775 001400 A 251 JMP PFR2 RETURN TO BEGINNING OF TEST04 00251
000776 000511 A 252 PFR6 TZA04 00252
000777 006010 A 253 HLT 0777 ASK FOR TIME DELAY CONSTANT04 00253
000778 000013 A 254 STA CNTT SET CONSTANT04 00254
000779 051254 A 255 JMP PFR304 00255
000780 002000 A
000781 001174 A 256 MES1 DATA 'POWER FAILURE/RESTART TEST'04 00256
000782 052525 A
000783 001000 A
000784 000567 A
000785 005001 A
000786 000777 A
000787 052532 A
000788 001000 A
000789 000600 A
000790 150317 A
000791 153705 A
000792 151240 A
000793 143301 A
000794 144714 A
000795 152722 A
000796 142657 A
000797 151305 A
000798 151724 A
000799 140722 A
000800 152240 A
000801 152305 A
000802 151724 A
000803 106612 A 257 DATA 0106612 CARRIAGE RETURN/LINE FEED04 00257
000804 000000 A 258 DATA 004 00258
000805 144301 A 259 MES2 DATA 'HALT TEST'04 00259
000806 146324 A
000807 120324 A
000808 142723 A
000809 152240 A
000810 106612 A 260 DATA 0106612,004 00260
000811 000000 A
000812 153317 A 261 MES4 DATA 'VOLATILE REGISTER TEST'04 00261
000813 146301 A
000814 152311 A
000815 146305 A
000816 120322 A
000817 142707 A
000818 144723 A
000819 152305 A
000820 151240 A

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001065	152305	A						
001066	151724	A						
001067	106612	A	262	DATA	0106612,0		04	00262
001070	000000	A						
001071	141717	A	263	MES5	DATA	'CORE VALIDITY CHECK ',0106612,0	04	00263
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	MES6	DATA	'TIME DELAY = ',0	04	00264
001106	146705	A						
001107	120304	A						
001110	142714	A						
001111	140731	A						
001112	120275	A						
001113	120240	A						
001114	000000	A						
			265	*****			04	00265
			266	*****			04	00266
			267	*****			04	00267
			268	*****			04	00268
001115	000000	A	269	HLTT	ENTR		04	00269
001116	021115	A	270		LDB	HLTT	04	00270
001117	016000	A	271		LDA	0,2	04	00271
001120	051453	A	272		STA	BKGR	04	00272
001121	002000	A	273		CALL	BCKG	04	00273
001122	001414	A						
001123	006010	A	274		LDAI	01000	04	00274
001124	001000	A						
001125	052530	A	275		STA	PHLT+1	04	00275
001126	006010	A	276		LDAI	HLT3	04	00276
001127	001143	A						
001130	052531	A	277		STA	PHLT+2	04	00277
001131	006010	A	278		LDAI	05000	04	00278
001132	005000	A						
001133	052527	A	279		STA	PHLT	04	00279
001134	006010	A	280	HLT1	LDAI	PHLT+1	04	00280
001135	002530	A						
001136	005002	A	281		TZB		04	00281
001137	005004	A	282		TZX		04	00282
001140	000001	A	283		HLT	01	04	00283
001141	001000	A	284		JMP	*-1	04	00284
001142	001140	A						
			285	*****			04	00285
			286	*****			04	00286
			287	*****			04	00287
			288	*****			04	00288
			289	*****			04	00289
			290	*****			04	00290
			291	*****			04	00291
			292	*****			04	00292
			293	*****			04	00293
001143	005001	A	294	HLT3	TZA		04	00294
001144	052530	A	295		STA	PHLT+1	04	00295
001145	052527	A	296		STA	PHLT	04	00296
001146	002000	A	297		CALL	CRCK	04	00297
001147	001456	A						
001150	001010	A	298		JAZ	HLT5	04	00298
001151	001163	A						
001152	006020	A	299	HLT6	LDBI	EBUF	04	00299
001153	002543	A						
001154	032543	A	300		LDX	EBUF	04	00300
			301	*****			04	00301
			302	*****			04	00302
			303	*****			04	00303
			304	*****			04	00304
001155	002000	A	305	HLT4	CALL*	SSWT,02,(MSGE)*,PFRT,HLTT+1	04	00305
001156	100421	A						
001157	000002	A						
001160	101263	A						
001161	000511	A						
001162	001116	A						
001163	010440	A	306	HLT5	LDA	\$FLG	04	00306
001164	001010	A	307		JAZ	*+4	04	00307
001165	001170	A						
001166	001000	A	308		JMP	HLT6	04	00308
001167	001132	A						
001170	041115	A	309		INR	HLTT	04	00309
001171	041137	A	310		INR	HLT4+2	04	00310
001172	001000	A	311		JMP*	HLTT	04	00311
001173	101115	A						
			312	*****			04	00312
			313	*****			04	00313
			314	*****			04	00314
			315	*****			04	00315
			316	*****			04	00316
001174	000000	A	317	CREV	ENTR		04	00317
001175	021174	A	318		LDB	CREV	04	00318
						GET PARAMETER (BACK-GROUND VALUE)		

PAGE	6	MAINTAIN	III	PURFAL	
001176	016000	A	319	LDA	0,2
001177	051453	A	320	STA	BKGR
001200	006010	A	321	CREL	LDAL
001201	000073	A			59
001202	005012	A	322	TAB	
001203	006120	A	323	ADDI	EBUF
001204	002543	A			
001205	005014	A	324	TAX	
001206	005001	A	325	TZA	
001207	055000	A	326	CRE1	STA
001210	005344	A	327		0,1
001211	005322	A	328	DXR	
001212	001020	A	329	DBR	
001213	001216	A		JBZ	*+4
001214	001000	A	330	JMP	CRE1
001215	001207	A			
001216	002000	A	331	CALL	BCKG
001217	001414	A			
001220	005201	A	332	COMP	1
001221	052475	A	333	STA	PWRD
001222	020441	A	334	CRE3	\$MEM
001223	016000	A	335	CRE4	LDA
001224	005322	A	336		0,2
001225	001020	A	337	DBR	
001226	001231	A		JBZ	*+4
001227	001000	A	338	JMP	CRE4
001230	001223	A			
001231	012475	A	339	LDA	PWRD
001232	001002	A	340	JAP	*+4
001233	001236	A			
001234	001000	A	341	JMP	CRE3
001235	001222	A			
001236	002000	A	342 *		
001237	001456	A	343	CALL	CRCK
001240	020440	A	344	LDB	\$FLG
001241	001010	A	345	JAZ	*+4
001242	001245	A			
001243	001000	A	346	JMP	*+4
001244	001247	A			
001245	001020	A	347	JBZ	CRE6
001246	001260	A			
001247	006020	A	348	LDBI	EBUF
001250	002543	A			
001251	032543	A	349	LDX	EBUF
001252	002000	A	350	CRE5	CALL*
001253	100421	A			SSWT,7,(MSGE)*,PFRT,CREL
001254	000007	A			
001255	101263	A			
001256	000511	A			
001257	001200	A			
001260	041174	A	351	CRE6	INR
001261	001000	A	352		CREV
001262	101174	A			
001263	000000	A	353	MSGE	ENTR
001264	006030	A	354		LDXI
001265	001355	A			
001266	002000	A	355		CALL*
001267	100403	A			
001270	012542	A	356	LDA	ERFG
001271	051413	A	357	STA	MSGZ
001272	002000	A	358	CALL*	MSGZ
001273	100404	A			DUTE
001274	006030	A	359	LDXI	MSGB
001275	001371	A			
001276	002000	A	360	CALL*	DUTE
001277	100403	A			
001300	006010	A	361	LDAL	20
001301	000024	A			
001302	141413	A	362	SUB	MSGZ
001303	001002	A	363	JAP	MSGX
001304	001310	A			
001305	006010	A	364	LDAL	20
001306	000024	A			
001307	051413	A	365	STA	MSGZ
001310	005001	A	366	MSGX	TZA
001311	051412	A	367		STA
001312	011412	A	368	MSG3	LDAL
001313	006120	A	369		ADDI
001314	002543	A			EBUF
001315	005012	A	370	TAB	
001316	016000	A	371	LDA	0,2
001317	002000	A	372	CALL*	DUTE
001320	100404	A			
001321	041412	A	373	INR	MSGC
001322	011412	A	374	LDA	MSGC
001323	006120	A	375	ADDI	EBUF
001324	002543	A			
001325	005012	A	376	TAB	
001326	016000	A	377	LDA	0,2
001327	002000	A	378	CALL*	DUTE
001330	100404	A			
001331	041412	A	379	INR	MSGC
001332	011412	A	380	LDA	MSGC
001333	006120	A	381	ADDI	EBUF

001334	002543	A									
001335	005012	A	382	TAB						04	00382
001336	016000	A	383	LDA	0,2					04	00383
001337	002000	A	384	CALL*	OUTC					04	00384
001340	100404	A									
001341	002000	A	385	CALL*	OUTC		OUTPUT CR/LF			04	00385
001342	100402	A									
001343	041412	A	386	INR	MSGC					04	00386
001344	011413	A	387	LDA	MSGZ					04	00387
001345	005311	A	388	DAR						04	00388
001346	051413	A	389	STA	MSGZ					04	00389
001347	001010	A	390	JAZ*	MSGE					04	00390
001350	101263	A									
001351	001100	A	391	JSS1*	MSGE		IF SS1 SET TERMINATE MESSAGE			04	00391
001352	101263	A									
001353	001000	A	392	JMP	MSG3					04	00392
001354	001312	A									
001355	142722	A	393	MSGSA	DATA	'ERROR - CORE MODIFIED ',0				04	00393
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				04	00394
001372	144715	A									
001373	142723	A									
001374	106612	A									
001375	120314	A	395		DATA	' LOC INITIAL FINAL ',0106612,0				04	00395
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				04	00396
001413	000000	A	397	MSGZ	DATA	0				04	00397
			398	*****	*****	*****				04	00398
			399	*	THIS SUBROUTINE BACKGROUNDS ALL UNUSED CORE TO VALUE IN BKGR.					04	00399
			400	*	IF OVER 4 K OF CORE, ALL THE REST IS BACKGROUNDED WITH BKGR					04	00400
			401	*	VALUE.					04	00401
			402	*****	*****	*****				04	00402
001414	000000	A	403	BCKG	ENTR					04	00403
001415	010422	A	404		LDA	\$LWE	CALC NO. OF WORDS IN 1ST 4K TO BE			04	00404
001416	141455	A	405		SUB	TBLC	BACKGROUNDED.			04	00405
001417	051454	A	406		STA	NWBG				04	00406
001420	005002	A	407		TZB					04	00407
001421	031455	A	408		LDB	TBLC				04	00408
001422	011453	A	409	BCK1	LDA	BKGR	BACK-GROUND ALL UNUSED CORE IN 1ST. 4K.			04	00409
001423	055000	A	410		STA	0,1				04	00410
001424	005144	A	411		IXR					04	00411
001425	005122	A	412		IBR					04	00412
001426	005021	A	413		TBA					04	00413
001427	141454	A	414		SUB	NWBG				04	00414
001430	001004	A	415		JAN	BCK1				04	00415
001431	001422	A									
001432	010441	A	416	BCK3	LDA	\$MEM	CHECK IF MORE THAN 4K			04	00416
001433	004354	A	417		LSRA	12				04	00417
001434	001010	A	418		JAZ*	BCKG				04	00418
001435	101414	A									
001436	010441	A	419		LDA	\$MEM	BACK-GROUND ALL CORE FROM 4K ON.			04	00419
001437	005014	A	420		TAX					04	00420
001440	006140	A	421		SUBI	007777				04	00421
001441	007777	A									
001442	005012	A	422		TAB					04	00422
001443	011453	A	423		LDA	BKGR				04	00423
001444	055000	A	424	BCK4	STA	0,1				04	00424
001445	005344	A	425		DXR					04	00425
001446	005322	A	426		DBR					04	00426
001447	001020	A	427		JBZ*	BCKG				04	00427
001450	101414	A									
001451	001000	A	428		JMP	BCK4				04	00428
001452	001444	A									
001453	000000	A	429	BKGR	DATA	0				04	00429
001454	000000	A	430	NWBG	DATA	0				04	00430
001455	002653	A	431	TBLC	DATA	LLTP	LAST LOCATION OF TEST PROGRAM			04	00431
			432	*****	*****	*****				04	00432
			433	*	CHECK BACKGROUND VALUES FOR MODIFICATION					04	00433
			434	*****	*****	*****				04	00434
001456	000000	A	435	CRC0	ENTR					04	00435
001457	005001	A	436		TZA		ZERO ERROR FLAG			04	00436
001460	052542	A	437		STA	ERFG				04	00437
001461	005002	A	438		TZB					04	00438
001462	005021	A	439	CRC1	TBA		CHECK IF 1ST 4K BACK-GROUND VALUES HAVE			04	00439

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001463	121455	A	440	ADD	TBLC	04 00440
001464	005014	A	441	TAX		04 00441
001465	015000	A	442	LDA	0,1	04 00442
001466	005014	A	443	TAX		04 00443
001467	141453	A	444	SUB	BKGR	04 00444
001470	001010	A	445	JAZ	CRC2	04 00445
001471	001475	A				
001472	002000	A	446	CALL	CRER,LLTP	04 00446
001473	001536	A				
001474	002653	A				
001475	005122	A	447	CRC2	IBR	04 00447
001476	005021	A	448	TBA		04 00448
001477	141454	A	449	SUB	NWBG	04 00449
001500	001004	A	450	JAN	CRC1	04 00450
001501	001462	A				
001502	010441	A	451	LDA	\$MEM	04 00451
001503	004354	A	452	LSRA	12	04 00452
001504	001010	A	453	JAZ	CRC4	04 00453
001505	001533	A				
001506	010441	A	454	LDA	\$MEM	04 00454
001507	006140	A	455	SUBI	007777	04 00455
001510	007777	A				
001511	005012	A	456	TAB		04 00456
001512	005021	A	457	CRC3	TBA	04 00457
001513	006120	A	458	ADDI	07777	04 00458
001514	007777	A				
001515	005014	A	459	TAX		04 00459
001516	015000	A	460	LDA	0,1	04 00460
001517	005014	A	461	TAX		04 00461
001520	141453	A	462	SUB	BKGR	04 00462
001521	001010	A	463	JAZ	*+5	04 00463
001522	001526	A				
001523	002000	A	464	CALL	CRER,07777	04 00464
001524	001536	A				
001525	007777	A				
001526	005322	A	465	DBR		04 00465
001527	001020	A	466	JBZ	CRC4	04 00466
001530	001533	A				
001531	001000	A	467	JMP	CRC3	04 00467
001532	001512	A				
001533	012542	A	468	CRC4	LDA	04 00468
001534	001000	A	469	JMP*	ERFG	04 00469
001535	101456	A				
001536	000000	A	470	CRER	ENTR	04 00470
001537	061567	A	471	STB	SVB	04 00471
001540	012542	A	472	LDA	ERFG	04 00472
001541	006140	A	473	SUBI	20	04 00473
001542	000024	A				
001543	001002	A	474	JAP	CREZ	04 00474
001544	001563	A				
001545	012542	A	475	LDA	ERFG	04 00475
001546	122542	A	476	ADD	ERFG	04 00476
001547	122542	A	477	ADD	ERFG	04 00477
001550	006120	A	478	ADDI	EBUF	04 00478
001551	002543	A				
001552	005012	A	479	TAB		04 00479
001553	076002	A	480	STX	2,2	04 00480
001554	011453	A	481	LDA	BKGR	04 00481
001555	056001	A	482	STA	1,2	04 00482
001556	031536	A	483	LDX	CRER	04 00483
001557	015000	A	484	LDA	0,1	04 00484
001560	041536	A	485	INR	CRER	04 00485
001561	121567	A	486	ADD	SVB	04 00486
001562	056000	A	487	STA	0,2	04 00487
001563	042542	A	488	CREZ	INR	04 00488
001564	021567	A	489	LDB	SVB	04 00489
001565	001000	A	490	JMP*	CRER	04 00490
001566	101536	A				
001567	000000	A	491	SVB	DATA	04 00491
			492	*****	*****	04 00492
			493	*****	SUBROUTINE TO CHECK VOLATILE REGISTERS UPON PF/R	04 00493
			494	*****	*****	04 00494
001570	000000	A	495	PFVE	ENTR	04 00495
001571	052016	A	496	STA	PFVS	04 00496
001572	062017	A	497	STB	PFVS+1	04 00497
001573	072020	A	498	STX	PFVS+2	04 00498
001574	012426	A	499	LDA	V75	F 04 00499
001575	001010	A	500	JAZ	NOTV75	F 04 00500
001576	001611	A				
001577	007130	A	501	ST,R3	PFVS+5	F 04 00501
001600	002023	A				
001601	007140	A	502	ST,R4	PFVS+6	F 04 00502
001602	002024	A				
001603	007150	A	503	ST,R5	PFVS+7	F 04 00503
001604	002025	A				
001605	007160	A	504	ST,R6	PFVS+8	F 04 00504
001606	002026	A				
001607	007170	A	505	ST,R7	PFVS+9	F 04 00505
001610	002027	A				
001611	005001	A	506	NOTV75	TZA	F 04 00506
001612	005511	A	507	ADFA		04 00507
001613	052021	A	508	STA	PFVS+3	04 00508
001614	006010	A	509	LDAI	PFV1+2	04 00509
001615	001656	A				
001616	052022	A	510	STA	PFVS+4	04 00510

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001617	006010	A	511 *		04 00511
001620	005000	A	512 PFVL LDAI 05000	LOOP ENTRANCE - SET UP NOP	04 00512
001621	051654	A	513 STA PFV1		04 00513
001622	022017	A	514 LDB PFVS+1	RETURN VOLATILE REGISTERS.	04 00514
001623	032020	A	515 LDX PFVS+2	B AND X	04 00515
001624	012426	A	516 LDA V75	AND	F 04 00516
001625	001010	A	517 JAZ PFVL1	R3	F 04 00517
001626	001641	A			
001627	007030	A	518 LD,R3 PFVS+5	THRU	F 04 00518
001630	002023	A			
001631	007040	A	519 LD,R4 PFVS+6	R7	F 04 00519
001632	002024	A			
001633	007050	A	520 LD,R5 PFVS+7	IF	F 04 00520
001634	002025	A			
001635	007060	A	521 LD,R6 PFVS+8	A	F 04 00521
001636	002026	A			
001637	007070	A	522 LD,R7 PFVS+9	V75	F 04 00522
001640	002027	A			
001641	007400	A	523 PFVL1 ROP		F 04 00523
001642	012021	A	524 LDA PFVS+3	OVERFLOW	04 00524
001643	001010	A	525 JAZ *+3		04 00525
001644	001646	A			
001645	007401	A	526 SDF		04 00526
001646	012016	A	527 LDA PFVS	SET INTERRUPT MARK NEG.	04 00527
001647	001004	A	528 JAN *+4		04 00528
001650	001653	A			
001651	005211	A	529 CPA		04 00529
001652	052016	A	530 STA PFVS		04 00530
001653	052475	A	531 STA PWRD		04 00531
			532 *		04 00532
001654	005000	A	533 PFV1 NOP	HANG WAITING FOR POWER/FAIL RESTART	04 00533
001655	012475	A	534 LDA PWRD		04 00534
001656	002004	A	535 JANM PFV1		04 00535
001657	001654	A			
001660	052034	A	536 STA PFVI+4	PF/R INTERRUPT PROCESSED.	04 00536
001661	012463	A	537 LDA SAVA		04 00537
001662	052030	A	538 STA PFVI		04 00538
001663	012464	A	539 LDA SAVB		04 00539
001664	052031	A	540 STA PFVI+1		04 00540
001665	012465	A	541 LDA SAVX		04 00541
001666	052032	A	542 STA PFVI+2		04 00542
001667	012466	A	543 LDA SAVD		04 00543
001670	052033	A	544 STA PFVI+3		04 00544
001671	012426	A	545 LDA V75		F 04 00545
001672	001010	A	546 JAZ PFVEI1		F 04 00546
001673	001712	A			
001674	012467	A	547 LDA SAVR3		F 04 00547
001675	052035	A	548 STA PFVI+5		F 04 00548
001676	012470	A	549 LDA SAVR4		F 04 00549
001677	052036	A	550 STA PFVI+6		F 04 00550
001700	012471	A	551 LDA SAVR5		F 04 00551
001701	052037	A	552 STA PFVI+7		F 04 00552
001702	012472	A	553 LDA SAVR6		F 04 00553
001703	052040	A	554 STA PFVI+8		F 04 00554
001704	012473	A	555 LDA SAVR7		F 04 00555
001705	052041	A	556 STA PFVI+9		F 04 00556
001706	006030	A	557 LDXI 9		F 04 00557
001707	000011	A			
001710	001000	A	558 JMP PFVEI1+2		F 04 00558
001711	001714	A			
001712	006030	A	559 PFVEI1 LDXI 4		F 04 00559
001713	000004	A			
001714	005002	A	560 T2B	ZERO ERROR FLAG	04 00560
001715	062045	A	561 STB PFVT+3		04 00561
001716	005041	A	562 PFV2 T2A		04 00562
001717	006120	A	563 ADDI PFVS		04 00563
001720	002016	A			
001721	005012	A	564 TAB		04 00564
001722	016000	A	565 LDA 0,2		04 00565
001723	051733	A	566 STA PFV7+1		04 00566
001724	005041	A	567 T2A		04 00567
001725	006120	A	568 ADDI PFVI		04 00568
001726	002030	A			
001727	005012	A	569 TAB		04 00569
001730	016000	A	570 LDA 0,2		04 00570
001731	052044	A	571 STA PFVT+2		04 00571
001732	006140	A	572 PFV7 SUBI 0		04 00572
001733	000000	A			
001734	001010	A	573 JAZ PFV3		04 00573
001735	001751	A			
001736	005111	A	574 IAR	MEMORY PROTECT OPTION CAN INT AT 2 LOCATION	04 00574
001737	002010	A	575 JAZM PFV9	TEST FOR 2'ND LOCATION	04 00575
001740	002001	A			
001741	022045	A	576 LDB PFVT+3		04 00576
001742	004041	A	577 LRLB 1	ERROR CONDITION	04 00577
001743	005122	A	578 IBR		04 00578
001744	062045	A	579 STB PFVT+3		04 00579
001745	011733	A	580 LDA PFV7+1		04 00580
001746	052042	A	581 STA PFVT		04 00581
001747	012044	A	582 LDA PFVT+2		04 00582
001750	052043	A	583 STA PFVT+1		04 00583
001751	001040	A	584 PFV3 JXZ *+5	CHECK IF 5 REGISTERS CHECKED	04 00584
001752	001756	A			
001753	005344	A	585 DXR		04 00585

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001754	001000	A	586	JMP	PFV2	04 00586
001755	001716	A				
001756	022045	A	587	LDB	PFVT+3	04 00587
001757	001020	A	588	JBZ	PFV5	04 00588
001760	001774	A			CHECK IF ERROR	
001761	005021	A	589	PFV4	TBA	04 00589
001762	022042	A	590	LDB	PFVT	04 00590
001763	032043	A	591	LDX	PFVT+1	04 00591
001764	002000	A	592	PFV6	CALL*	04 00592
001765	100421	A			SSWT,5,(MSGR)*,PFRT,PFVL	
001766	000005	A				
001767	102046	A				
001770	000511	A				
001771	001617	A				
001772	001000	A	593	JMP*	PFVE	04 00593
001773	101570	A				
001774	010440	A	594	PFV5	LDA	04 00594
001775	001010	A	595	JAZ*	\$FLG	04 00595
001776	101570	A			CHECK IF LOOPING	
001777	001000	A	596	JMP	PFV4	04 00596
002000	001761	A				
002001	000000	A	597	PFV9	ENTR	04 00597
002002	005041	A	598	TXA	0	04 00598
002003	006140	A	599	SUBI	4	04 00599
002004	000004	A				
002005	001004	A	600	JAN	(PFV9)*	04 00600
002006	102001	A			ERROR RETURN	
002007	001000	A	601	JMP	PFV3	04 00601
002010	001751	A				
002011	005311	A	602	DAR		04 00602
002012	001010	A	603	JAZ	PFV3	04 00603
002013	001751	A			WILL BE NEEDED IF MP OPTION USED.	
002014	001000	A	604	JMP*	PFV9	(INTERRUPTS WILL NOT BE DISABLED ON A
002015	102001	A			JUMP AND MARK INSTRUCTION.)	04 00604
002016			605	PFVS	BSS	10 F 04 00605
002030			606	PFVI	BSS	10 F 04 00606
002042			607	PFVT	BSS	4 F 04 00607
002046	000000	A	608	MSGR	ENTR	
002047	006030	A	609	LDXI	MSG1	THIS IS THE ERROR MESSAGE SUBROUTINE
002050	002270	A				04 00609
002051	002000	A	610	CALL*	OUTD	04 00610
002052	100403	A				
002053	012016	A	611	LDA	PFVS	A REGISTER VALUES
002054	002000	A	612	CALL*	OUTE	04 00611
002055	100404	A				04 00612
002056	012030	A	613	LDA	PFVI	04 00613
002057	002000	A	614	CALL*	OUTE	04 00614
002060	100404	A				
002061	002000	A	615	CALL*	OUTC	OUTPUT CR/LF
002062	100402	A				04 00615
002063	006030	A	616	LDXI	MSG2+2	B REGISTER VALUES
002064	002314	A				04 00616
002065	002000	A	617	CALL*	OUTD	04 00617
002066	100403	A				
002067	012017	A	618	LDA	PFVS+1	04 00618
002070	002000	A	619	CALL*	OUTE	04 00619
002071	100404	A				
002072	012031	A	620	LDA	PFVI+1	04 00620
002073	002000	A	621	CALL*	OUTE	04 00621
002074	100404	A				
002075	002000	A	622	CALL*	OUTC	OUTPUT CR/LF
002076	100402	A				04 00622
002077	006030	A	623	LDXI	MSG2+4	X REGISTER VALUES
002100	002316	A				04 00623
002101	002000	A	624	CALL*	OUTD	04 00624
002102	100403	A				
002103	012020	A	625	LDA	PFVS+2	04 00625
002104	002000	A	626	CALL*	OUTE	04 00626
002105	100404	A				
002106	012032	A	627	LDA	PFVI+2	04 00627
002107	002000	A	628	CALL*	OUTE	04 00628
002110	100404	A				
002111	002000	A	629	CALL*	OUTC	OUTPUT CR/LF
002112	100402	A				04 00629
002113	012026	A	630	LDA	V25	F 04 00630
002114	001010	A	631	JAZ	PREGMS	F 04 00631
002115	002212	A				
002116	006030	A	632	LDXI	MSGR3	R3 REGISTER VALUES
002117	002334	A				F 04 00632
002120	002000	A	633	CALL*	OUTD	F 04 00633
002121	100403	A				
002122	012023	A	634	LDA	PFVS+3	F 04 00634
002123	002000	A	635	CALL*	OUTE	F 04 00635
002124	100404	A				
002125	012035	A	636	LDA	PFVI+3	F 04 00636
002126	002000	A	637	CALL*	OUTE	F 04 00637
002127	100404	A				
002130	002000	A	638	CALL*	OUTC	OUTPUT CR/LF
002131	100402	A				F 04 00638
002132	006030	A	639	LDXI	MSGR4	R4 REGISTER VALUES
002133	002337	A				F 04 00639
002134	002000	A	640	CALL*	OUTD	F 04 00640
002135	100403	A				
002136	012024	A	641	LDA	PFVS+6	F 04 00641
002137	002000	A	642	CALL*	OUTE	F 04 00642

002140	100404	A						
002141	012036	A	643	LDA	PFVI+6			F 04 00643
002142	002000	A	644	CALL*	DUTE			F 04 00644
002143	100404	A						
002144	002000	A	645	CALL*	OUTC	OUTPUT CR/LF		F 04 00645
002145	100402	A						
002146	006030	A	646	LDXI	MSGR5	R5 REGISTER VALUES		F 04 00646
002147	002342	A						
002150	002000	A	647	CALL*	OUTD			F 04 00647
002151	100403	A						
002152	012025	A	648	LDA	PFVS+7			F 04 00648
002153	002000	A	649	CALL*	DUTE			F 04 00649
002154	100404	A						
002155	012037	A	650	LDA	PFVI+7			F 04 00650
002156	002000	A	651	CALL*	DUTE			F 04 00651
002157	100404	A						
002160	002000	A	652	CALL*	OUTC	OUTPUT CRLF		F 04 00652
002161	100402	A						
002162	006030	A	653	LDXI	MSGR6	R6 VALUES		F 04 00653
002163	002345	A						
002164	002000	A	654	CALL*	OUTD			F 04 00654
002165	100403	A						
002166	012026	A	655	LDA	PFVS+8			F 04 00655
002167	002000	A	656	CALL*	DUTE			F 04 00656
002170	100404	A						
002171	012040	A	657	LDA	PFVI+8			F 04 00657
002172	002000	A	658	CALL*	DUTE			F 04 00658
002173	100404	A						
002174	002000	A	659	CALL*	OUTC	CRLF		F 04 00659
002175	100402	A						
002176	006030	A	660	LDXI	MSGR7	R7 VALUES		F 04 00660
002177	002350	A						
002200	002000	A	661	CALL*	OUTD			F 04 00661
002201	100403	A						
002202	012027	A	662	LDA	PFVS+9			F 04 00662
002203	002000	A	663	CALL*	DUTE			F 04 00663
002204	100404	A						
002205	012041	A	664	LDA	PFVI+9			F 04 00664
002206	002000	A	665	CALL*	DUTE			F 04 00665
002207	100404	A						
002210	002000	A	666	CALL*	OUTC	CRLF		F 04 00666
002211	100402	A						
002212	006030	A	667	PREGMS	LDXI	MSG2+8	P REGISTER VALUE	F 04 00667
002213	002322	A						
002214	002000	A	668	CALL*	OUTD			04 00668
002215	100403	A						
002216	012022	A	669	LDA	PFVS+4			04 00669
002217	002000	A	670	CALL*	DUTE			04 00670
002220	100404	A						
002221	012034	A	671	LDA	PFVI+4			04 00671
002222	002000	A	672	CALL*	DUTE			04 00672
002223	100404	A						
002224	002000	A	673	CALL*	OUTC	OUTPUT CR/LF		04 00673
002225	100402	A						
002226	006030	A	674	LDXI	MSG2+6	WRITE OVER FLOW MESSAGE		04 00674
002227	002320	A						
002230	002000	A	675	CALL*	OUTD			04 00675
002231	100403	A						
002232	012021	A	676	LDA	PFVS+3			04 00676
002233	001010	A	677	JAZ	*+6			04 00677
002234	002241	A						
002235	006030	A	678	LDXI	MSG2+14			04 00678
002236	002330	A						
002237	001000	A	679	JMP	*+4			04 00679
002240	002243	A						
002241	006030	A	680	LDXI	MSG2+10			04 00680
002242	002324	A						
002243	002000	A	681	CALL*	OUTD			04 00681
002244	100403	A						
002245	006010	A	682	LDXI	' '	WRITE 1 BLANK CHAR.		04 00682
002246	120240	A						
002247	002000	A	683	CALL*	OUTA			04 00683
002250	100400	A						
002251	012033	A	684	LDA	PFVI+3			04 00684
002252	001010	A	685	JAZ	*+6			04 00685
002253	002260	A						
002254	006030	A	686	LDXI	MSG2+14			04 00686
002255	002330	A						
002256	001000	A	687	JMP	*+4			04 00687
002257	002262	A						
002260	006030	A	688	LDXI	MSG2+10			04 00688
002261	002324	A						
002262	002000	A	689	CALL*	OUTD			04 00689
002263	100403	A						
002264	002000	A	690	CALL*	OUTC	OUTPUT CR/LF		04 00690
002265	100402	A						
002266	001000	A	691	JMP*	MSGR			04 00691
002267	102046	A						
002270	120322	A	692	MSG1	DATA	' REGISTER ERROR ',0106612		04 00692
002271	142707	A						
002272	144723	A						
002273	152305	A						
002274	151240	A						
002275	142722	A						
002276	151317	A						

Address	Hex	Label	Op	Op1	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op417	Op418	Op419	Op420	Op421	Op422	Op423	Op424	Op425	Op426	Op427	Op428	Op429	Op430	Op431	Op432	Op433	Op434	Op435	Op436	Op437	Op438	Op439	Op440	Op441	Op442	Op443	Op444	Op445	Op446	Op447	Op448	Op449	Op450	Op451	Op452	Op453	Op454	Op455	Op456	Op457	Op458	Op459	Op460	Op461	Op462	Op463
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			738 *	POWER UP PROCESSOR		04	00738
			739 *			04	00739
			740 *****			04	00740
002427	000000	A	741 PWRU	ENTR		04	00741
002430	012474	A	742	LDA	HLTF		04 00742
002431	001010	A	743	JAZ	PHLT		04 00743
002432	002527	A					
002433	005001	A	744	TZA		04	00744
002434	052474	A	745	STA	HLTF	04	00745
			746 *****			04	00746
			747 *			04	00747
			748 *	CODING TO REINSTATE 620/F OPTIONAL HARDWARE AFTER A		04	00748
			749 *	POWER FAILURE, MUST BE DEFINED HERE. THE TOTAL EXECUTION		04	00749
			750 *	TIME NOT TO EXCEED A SPECIFIED TIME PERIOD. SEE PPS		04	00750
			751 *	FOR TIMING CONSTRAINTS.		04	00751
			752 *****			04	00752
002435	012466	A	753	LDA	SAVO		04 00753
002436	001010	A	754	JAZ	*+3	04	00754
002437	002441	A					
002440	007401	A	755	SOF		04	00755
002441	012426	A	756	LDA	V75	F	04 00756
002442	001010	A	757	JAZ	NAYV75	F	04 00757
002443	002456	A					
002444	007030	A	758	LD,R3	SAVR3	F	04 00758
002445	002467	A					
002446	007040	A	759	LD,R4	SAVR4	F	04 00759
002447	002470	A					
002450	007050	A	760	LD,R5	SAVR5	F	04 00760
002451	002471	A					
002452	007060	A	761	LD,R6	SAVR6	F	04 00761
002453	002472	A					
002454	007070	A	762	LD,R7	SAVR7	F	04 00762
002455	002473	A					
002456	012463	A	763 NAYV75	LDA	SAVA	F	04 00763
002457	022464	A	764	LDB	SAVB		04 00764
002460	032465	A	765	LDX	SAVX		04 00765
002461	001000	A	766	JMP*	PWRD		04 00766
002462	102475	A					
			767 *			04	00767
002463	000000	A	768	SAVA	DATA	0	04 00768
002464	000000	A	769	SAVB	DATA	0	04 00769
002465	000000	A	770	SAVX	DATA	0	04 00770
002466	000000	A	771	SAVO	DATA	0	04 00771
002467	000000	A	772	SAVR3	DATA	0	F 04 00772
002470	000000	A	773	SAVR4	DATA	0	F 04 00773
002471	000000	A	774	SAVR5	DATA	0	F 04 00774
002472	000000	A	775	SAVR6	DATA	0	F 04 00775
002473	000000	A	776	SAVR7	DATA	0	F 04 00776
002474	000000	A	777	HLTF	DATA	0	04 00777
			778 *****			04	00778
			779 *			04	00779
			780 *	POWER DOWN PROCESSOR		04	00780
			781 *			04	00781
			782 *****			04	00782
002475	000000	A	783 PWRD	ENTR		04	00783
002476	072533	A	784	STX	TSX		04 00784
002477	032532	A	785	LDX	CNTT		04 00785
002500	002000	A	786	CALL	TMDL		04 00786
002501	002504	A					
002502	032533	A	787	LDX	TSX		04 00787
002503	052463	A	788	STA	SAVA		04 00788
002504	062464	A	789	STB	SAVB		04 00789
002505	072465	A	790	STX	SAVX		04 00790
002506	012426	A	791	LDA	V75	F	04 00791
002507	001010	A	792	JAZ	PWDM1	F	04 00792
002510	002523	A					
002511	007130	A	793	ST,R3	SAVR3	F	04 00793
002512	002467	A					
002513	007140	A	794	ST,R4	SAVR4	F	04 00794
002514	002470	A					
002515	007150	A	795	ST,R5	SAVR5	F	04 00795
002516	002471	A					
002517	007160	A	796	ST,R6	SAVR6	F	04 00796
002520	002472	A					
002521	007170	A	797	ST,R7	SAVR7	F	04 00797
002522	002473	A					
002523	005001	A	798 PWDM1	TZA		F	04 00798
002524	005011	A	799	ADFA			04 00799
002525	052466	A	800	STA	SAVO		04 00800
002526	042474	A	801	INR	HLTF		04 00801
002527	000000	A	802 PHLT	HLT			04 00802
002530			803	BSS	2		04 00803
			804 *****			04	00804
			805 *			04	00805
			806 *****			04	00806
002532	000507	A	807 CNTT	DATA	327		04 00807
002533	000000	A	808	TSX	DATA	0	04 00808
002534	000000	A	809 TMDL	ENTR			04 00809
002535	001040	A	810	JXZ*	TMDL		04 00810
002536	102534	A					
002537	005344	A	811	DXR			04 00811
002540	001000	A	812	JMP	*-3		04 00812
002541	002535	A					
002542	000000	A	813 ERFG	DATA	0		04 00813
002543			814 EBUF	BSS	60		04 00814

96	INPE	*											
97	INPF	*											
98	INPG		151										
826	LLTP		431	446									
712	M23		827										
719	M23C		716										
256	MES1		147										
259	MES2		159										
261	MES4		183										
263	MES5		229										
264	MES6		149										
393	MGSA		354										
706	MRNG		703										
692	MSG1		609										
694	MSG2		616	623	667	674	678	680	686	688			
368	MSG3		392										
394	MSGB		359										
396	MSGC		367	368	373	374	379	380	386				
353	MSGE		305	350	390	391							
608	MSGR		592	691									
695	MSGR3		632										
696	MSGR4		639										
697	MSGR5		646										
698	MSGR6		653										
699	MSGR7		660										
366	MSGX		363										
397	MSGZ		357	362	365	387	389						
763	NAYV75		757										
506	NDTV75		500										
197	NDV75		191										
430	NWBG		406	414	449								
84	OUTA		683										
85	OUTB	*											
86	OUTC		156	385	615	622	629	638	645	652	659		
			666	673	690								
87	OUTD		148	150	160	184	230	355	360	610	617		
			624	633	640	647	654	661	668	675	681		
			689	704									
88	OUTE		358	372	378	384	612	614	619	621	626		
			628	635	637	642	644	649	651	656	658		
			663	665	670	672							
89	OUTF	*											
90	OUTG	*											
91	OUTH	*											
823	PFDN		122	816									
825	PFEX		126	820									
130	PFR0		137										
157	PFR2		251										
162	PFR3		158	255									
187	PFR4		182										
233	PFR5		228										
252	PFR6		146										
121	PFRS		726	729									
129	PFRT		160	169	172	174	186	202	217	232	237		
			242	247	305	350	592						
815	PFTM		127										
824	PFUP		124	818									
533	PFV1		509	513	535								
562	PFV2		586										
584	PFV3		573	601	603								
589	PFV4		596										
594	PFV5		588										
592	PFV6		189	204									
572	PFV7		566	580									
597	PFV9		575	600	604								
495	PFVE		200	216	593	595							
559	PFVEI1		546	558									
606	PFVI		536	538	540	542	544	548	550	552	554		
			556	568	613	620	627	636	643	650	657		
			664	671	684								
512	PFVL		592										
523	PFVL1		517										
605	PFVS		496	497	498	506	510	514	515	524	527		
			530	563	611	618	625	634	641	648	655		
			662	669	676								
607	PFVT		561	571	576	579	581	582	583	587	590		
			591										
802	PHLT		275	277	279	280	295	296	743				
667	PREGMS		631										
798	PWDN1		792										
783	PWRD		141	333	339	531	534	766					
741	PWRU		143										
73	R0	*											
74	R1	*											
75	R2	*											
76	R3		192	208	501	518	758	793					
77	R4		193	209	502	519	759	794					
78	R5		194	210	503	520	760	795					
79	R6		195	211	504	521	761	796					
80	R7		196	212	505	522	762	797					
700	RING		161	165	168	171	185	201	231	236	241		
			246	702	705								
768	SAVA		537	763	788								
769	SAVB		539	764	789								
771	SAVD		543	753	800								

PURFAL

[illegible]