

RP04/05/06

DEVICE ROUTINE (MPG)
MD-11-DTRPA-B

EP-DTRPA-B-DL-A NOV 1976
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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DTRPA-B
PRODUCT NAME: RH11/RH70 - RPO4/RPO5/RPO6 DEVICE
ROUTINE FOR MPG
DATE: APRIL 1976
MAINTAINER: SYSTEMS RELIABILITY
AUTHOR: C. E. HARPER

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MAINDEC-11-DTRPA-B RH11/RH70 - RPO4/RPO5/RPO6 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:21 PAGE 2
DTRPAB.P11 REVISION HISTORY

SEQ 0002

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.SBTTL REVISION HISTORY

APR 76 DTRPA-B RELEASE
FEB 76 CHANGED THE DEVICE TYPE OF THIS DEVICE ROUTINE
JAN 76 TO THE RPO4/RPO5/RPO6 DISKS ON THE RH11/RH70 CONTROLLERS.
ADDED FULL SUPPORT FOR I/O COMMANDS AND OTHER
FUNCTIONS.
AUG 75 DTRPA-A INITIAL RELEASE AS A MINIMUM SUPPORT
DEVICE ROUTINE FOR THE RP11/RP03 DISK.

.SBTTL STANDARD DEVICE ROUTINE TABLE
 .TITLE MAINDEC-11-DTRPA-B RH11/RH70 - RPO4/RPO5/RPO6 DEVICE ROUTINE FOR MPG
 ;REVISION 'B'
 ;FILENAME OF "TRPA8.MPG" ON MPG/XXDP MEDIA
 ;MACY11: DTRPA?,DTRPA?/CRF:SYM/DOC=DTRPA?.P11
 ;LNKX11: DTRPA?.MPG/B:0+DTRPA?/E
 ;PAPER TAPE: PUNCH DTRPA?.MPG/FILE:ELEV

000000'

.CSECT RJP11
 .DSABL GBL

;THE FOLLOWING TABLE IS IN THE STANDARDIZED FORMAT REQUIRED
 ;TO INTERFACE WITH MPG.

78	000000'	014002	LOCZ: .WORD	DVREND-.	;DEVICE ROUT SIZE IN BYTES
79	000002'	000000	DFLGMD: .WORD	0	;DEVICE ROUT FLAGWORD
80		100000		WAITMD= 100000	; WAIT MODE - 0 = WAIT
81		002000		CORFLG= 2000	; CORRECTION MODE - 0 = CORON
82		001000		VVFLG= 1000	; VV MODE - 0 = VVON
83					
84		000200		ANYIOI= 200	; ANY I/O HAS BEEN ISSUED
85		000100		CMDISU= 100	; I/O COMMAND HAS BEEN ISSUED
86		000040		SNOVTO= 40	; TIMEOUT ON SWITCH OVER
87		000020		SNOIER= 20	; ERROR ON INT FOR SWITCH OVER
88		000010		SNOVER= 10	; ACQUIRING DISK - SWITCH OVER
89		000004		UNLDIP= 4	; UNLOAD CMD IN PROGRESS
90		000002		DOTERM= 2	; PROCESS I/O TERMINATION
91		000001		IOERR= 1	; ERROR ON CURRENT I/O
92	000004'	000000	CYL: .WORD	0	; CYLINDER # (0 THRU 410./814.)
93	000006'	000000	HEAD: .WORD	0	; HEAD # (0 THRU 18.)
94	000010'	000000	SECT: .WORD	0	; SECTOR # (0 THRU 21./19.)
95	000012'	000003	RTRY: .WORD	3	; # OF RETRY ATTEMPTS
96	000014'	000000		0	; INTERFACE WORD # 5 (NOT USED)
97	000016'	000000		0	; INTERFACE WORD # 6 (NOT USED)
98	000020'	000000	SIZE: .WORD	0	; # OF BYTES TRANSFERRED / UNIMAP FLG
99	000022'	000000	ERRI: .WORD	0	; ERROR ON LAST I/O INDICATOR
100	000024'	176700	DREGAD: .WORD	176700	; FIRST DEVICE REGISTER ADR
101	000026'	000254	IVCTAD: .WORD	254	; INTERRUPT VECTOR ADR
102	000030'	000240	PSWD: .WORD	240	; INT PROC STATUS WORD (BR 5)
103	000032'	000000		0	; NOT USED
104	000034'	002414		HSKEEP-.	; HOUSEKEEPING ROUT REL ADR
105	000036'	002472		REPORT-.	; REPORT ROUT REL ADR
106	000040'	003330		KILL-.	; KILL ROUT REL ADR
107	000042'	002254		DATAER-.	; DATA ERROR COUNTER REL ADR
108	000044'	003030		TOUTER-.	; TIME OUT ERROR ROUT REL ADR
109	000046'	000000	CIOSBY: .WORD	0	; I/O BUSY BRANCH ADR
110	000050'	000000	CUPGER: .WORD	0	; DEVICE ERROR BRANCH ADR
111	000052'	000000	ULIST: .WORD	0	; USER MODE PRINT ROUTINE BRANCH ADR
112	000054'	000000	CLIST: .WORD	0	; CMD MODE PRINT ROUTINE BRANCH ADR
113	000056'	000000	BINASC: .WORD	0	; CONVERT BINARY TO ASCII ROUT BR ADR

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MAINDEC-11-DTRPA-B RH11/RH70 - RP04/RP05/RP06 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:21 PAGE 3-1 SEQ 0004
DTRPAB.P11 STANDARD DEVICE ROUTINE TABLE

114	000060'	000000	BTASLZ:	.WORD	0	: CONVERT BINARY TO DECIMAL ASCII BR ADR
115	000062'	000000	DECASC:	.WORD	0	: CONVERT PACKED DECIMAL TO ASCII BR ADR
116	000064'	000000	CSYSFW:	.WORD	0	: MPG SYSTEM FLAGWORD ADR
117	000066'	000000	SETVEC:	.WORD	0	: SET INT VECT ROUT BR ADR
118	000070'	000000	CLRVEC:	.WORD	0	: CLEAR INT VECTOR ROUT BR ADR
119	000072'	000000	TSTVEC:	.WORD	0	: TEST INT VECTOR ROUT BR ADR
120	000074'	000000	RTNINT:	.WORD	0	: RETURN FROM INT ROUT BR ADR
121	000076'	000000	GETBYT:	.WORD	0	: GET DATA BYTE ROUT BR ADR
122	000100'	000000	PUTBYT:	.WORD	0	: PUT DATA BYTE ROUT BR ADR
123	000102'	000014		.WORD	DVREGS-	: ADR OF DEVICE REGISTER NAMES
124	000104'	000216		.WORD	DVCMD5-	: ADR OF DEVICE FUNCTIONS
125	000106'	000452		.WORD	DVPKTE-	: ADR OF PACK TBL EXTENSION
126	000110'	001120		.WORD	DVMVTE-	: ADR OF MODEL VECTOR TBL EXTEN.
127	000112'	001342		.WORD	DVCPTE-	: ADR OF COMPILER TBL EXTEN.
128	000114'	001740		.WORD	DVIWST-	: ADR OF DEV INTERFACE WD SYM TBL

.SBTTL COMPILER TABLES & CONSTANT AREAS

130							
131							
132							
133	000116'	050122	030503	DVREGS:	.ASCII	/RPC1/	:VALID DEVICE REGISTER NAMES &
134	000122'	000000			.WORD	0	:THEIR POSITIONS RELATIVE TO
135	000124'	050122	041527		.ASCII	/RPWC/	:THE DEVICE REGISTERS BASE ADDRESS.
136	000130'	000002			.WORD	2	
137	000132'	050122	040502		.ASCII	/RPBA/	
138	000136'	000004			.WORD	4	
139	000140'	050122	040504		.ASCII	/RPDA/	
140	000144'	000006			.WORD	6	
141	000146'	050122	031103		.ASCII	/RPC2/	
142	000152'	000010			.WORD	10	
143	000154'	050122	051504		.ASCII	/RPDS/	
144	000160'	000012			.WORD	12	
145	000162'	050122	030505		.ASCII	/RPE1/	
146	000166'	000014			.WORD	14	
147	000170'	050122	051501		.ASCII	/RPAS/	
148	000174'	000016			.WORD	16	
149	000176'	050122	040514		.ASCII	/RPLA/	
150	000202'	000020			.WORD	20	
151	000204'	050122	041104		.ASCII	/RPDB/	
152	000210'	000022			.WORD	22	
153	000212'	050122	051115		.ASCII	/RPMR/	
154	000216'	000024			.WORD	24	
155	000220'	050122	052104		.ASCII	/RPDT/	
156	000224'	000026			.WORD	26	
157	000226'	050122	047123		.ASCII	/RPSN/	
158	000232'	000030			.WORD	30	
159	000234'	050122	043117		.ASCII	/RPOF/	
160	000240'	000032			.WORD	32	
161	000242'	050122	041504		.ASCII	/RPDC/	
162	000246'	000034			.WORD	34	
163	000250'	050122	041503		.ASCII	/RPCC/	
164	000254'	000036			.WORD	36	
165	000256'	050122	031105		.ASCII	/RPE2/	
166	000262'	000040			.WORD	40	
167	000264'	050122	031505		.ASCII	/RPE3/	
168	000270'	000042			.WORD	42	
169	000272'	050122	047520		.ASCII	/RPP0/	
170	000276'	000044			.WORD	44	
171	000300'	050122	040520		.ASCII	/RPPA/	
172	000304'	000046			.WORD	46	
173	000306'	050122	042501		.ASCII	/RPAE/	
174	000312'	000050			.WORD	50	
175	000314'	050122	031503		.ASCII	/RPC3/	
176	000320'	000052			.WORD	52	
177		000322'		DVREG=	.		
178							
179							
180	000322'	120	211	DVCMDs:	.BYTE	120, 211	:VALID DEVICE FUNCTIONS
181	000324'	004636			.WORD	READ-	:FLAG BYTE:
182	000326'	130	211		.BYTE	130, 211	:BIT 7 = NPR DEV
183	000330'	004662			.WORD	WRITE-	:BIT 3 = MASSBUS DEV
184	000332'	376	000		.BYTE	376, 0	:BIT 0 = 2 WORDS FOR ADR
185	000334'	003322			.WORD	NOWAIT-	: (18 BIT ADRS)

DTRPA8.P11

COMPILER TABLES & CONSTANT AREAS

186	000336'	375	000	.BYTE	375,0
187	000340'	003276		.WORD	WAIT-
188	000342'	374	000	.BYTE	374,0
189	000344'	002164		.WORD	REPORT-
190	000346'	373	000	.BYTE	373,0
191	000350'	002160		.WORD	REPORT-
192	000352'	372	000	.BYTE	372,0
193	000354'	004750		.WORD	SEEK-
194	000356'	371	211	.BYTE	371,211
195	000360'	004736		.WORD	WRCKHD-
196	000362'	370	211	.BYTE	370,211
197	000364'	004702		.WORD	WRCK-
198	000366'	367	211	.BYTE	367,211
199	000370'	004652		.WORD	RDHD-
200	000372'	366	211	.BYTE	366,211
201	000374'	004660		.WORD	WRHD-
202	000376'	365	000	.BYTE	365,0
203	000400'	003466		.WORD	CRESET-
204	000402'	364	000	.BYTE	364,0
205	000404'	003532		.WORD	DRESET-
206	000406'	363	000	.BYTE	363,0
207	000410'	004736		.WORD	SEARCH-
208	000412'	362	000	.BYTE	362,0
209	000414'	003006		.WORD	STEPUP-
210	000416'	361	000	.BYTE	361,0
211	000420'	003150		.WORD	STEPDN-
212	000422'	360	000	.BYTE	360,0
213	000424'	004734		.WORD	OFFSET-
214	000426'	357	000	.BYTE	357,0
215	000430'	004742		.WORD	RETCTR-
216	000432'	356	000	.BYTE	356,0
217	000434'	003510		.WORD	UNLOAD-
218	000436'	355	000	.BYTE	355,0
219	000440'	004744		.WORD	RECAL-
220	000442'	354	000	.BYTE	354,0
221	000444'	003506		.WORD	PAKACK-
222	000446'	353	000	.BYTE	353,0
223	000450'	003510		.WORD	RDPSET-
224	000452'	352	000	.BYTE	352,0
225	000454'	003512		.WORD	REL-
226	000456'	351	000	.BYTE	351,0
227	000460'	003206		.WORD	APORT-
228	000462'	350	000	.BYTE	350,0
229	000464'	003212		.WORD	BPORT-
230	000466'	347	000	.BYTE	347,0
231	000470'	003356		.WORD	FMT22-
232	000472'	346	000	.BYTE	346,0
233	000474'	003362		.WORD	FMT20-
234	000476'	345	000	.BYTE	345,0
235	000500'	003206		.WORD	000-
236	000502'	344	000	.BYTE	344,0
237	000504'	003212		.WORD	EVEN-
238	000506'	343	000	.BYTE	343,0
239	000510'	003216		.WORD	ECION-
240	000512'	342	000	.BYTE	342,0
241	000514'	003222		.WORD	ECIOFF-

242	000516'	341	000			.BYTE	341,0
243	000520'	003226				.WORD	HCION-
244	000522'	340	000			.BYTE	340,0
245	000524'	003232				.WORD	HCIOFF-
246	000525'	337	000			.BYTE	337,0
247	000530'	003236				.WORD	BAION-
248	000532'	336	000			.BYTE	336,0
249	000534'	003242				.WORD	BAIOFF-
250	000536'	335	000			.BYTE	335,0
251	000540'	003246				.WORD	CORON-
252	000542'	334	000			.BYTE	334,0
253	000544'	003252				.WORD	COROFF-
254	000546'	333	000			.BYTE	333,0
255	000550'	003256				.WORD	VVON-
256	000552'	332	000			.BYTE	332,0
257	000554'	003262				.WORD	VVOFF-
258	000556'	177777				.WORD	177777
259							
260	000560'	047516	040527	052111	DVPKTE:	.ASCII	/NOWAIT/
261	000566'	376	000			.BYTE	376,0
262	000570'	020040	040527	052111		.ASCII	/ WAIT/
263	000576'	375	000			.BYTE	375,0
264	000600'	052123	052101	051525		.ASCII	/STATUS/
265	000606'	374	000			.BYTE	374,0
266	000610'	047503	047125	051524		.ASCII	/COUNTS/
267	000616'	373	000			.BYTE	373,0
268	000620'	020040	042523	045505		.ASCII	/ SEEK/
269	000626'	372	000			.BYTE	372,0
270	000630'	051127	045503	042110		.ASCII	/WRCKHD/
271	000636'	371	000			.BYTE	371,0
272	000640'	020040	051127	045503		.ASCII	/ WRCK/
273	000646'	370	000			.BYTE	370,0
274	000650'	020040	042122	042110		.ASCII	/ RDHD/
275	000656'	367	000			.BYTE	367,0
276	000660'	020040	051127	042110		.ASCII	/ WRHD/
277	000666'	366	000			.BYTE	366,0
278	000670'	051103	051505	052105		.ASCII	/CRESET/
279	000676'	365	000			.BYTE	365,0
280	000700'	051104	051505	052105		.ASCII	/DRESET/
281	000706'	364	000			.BYTE	364,0
282	000710'	042523	051101	044103		.ASCII	/SEARCH/
283	000716'	363	000			.BYTE	363,0
284	000720'	052123	050105	050125		.ASCII	/STEPUP/
285	000726'	362	000			.BYTE	362,0
286	000730'	052123	050105	047104		.ASCII	/STEPDN/
287	000736'	361	000			.BYTE	361,0
288	000740'	043117	051506	052105		.ASCII	/OFFSET/
289	000746'	360	000			.BYTE	360,0
290	000750'	042522	041524	051124		.ASCII	/RETCTR/
291	000756'	357	000			.BYTE	357,0
292	000760'	047125	047514	042101		.ASCII	/UNLOAD/
293	000766'	356	000			.BYTE	356,0
294	000770'	051040	041505	046101		.ASCII	/ RECAL/
295	000776'	355	000			.BYTE	355,0
296	001000'	040520	040513	045503		.ASCII	/PAKACK/
297	001006'	354	000			.BYTE	354,0

;TABLE TERMINATOR

;PACK TABLE EXTENSION

DTRPA8.P11 COMPILER TABLES & CONSTANT AREAS

298	001010'	042122	051520	052105	.ASCII	/RDPSET/
299	001016'	353	000		.BYTE	353,0
300	001020'	020040	051040	046105	.ASCII	/REL/
301	001026'	352	000		.BYTE	352,0
302	001030'	040440	047520	052122	.ASCII	/APORT/
303	001036'	351	000		.BYTE	351,0
304	001040'	041040	047520	052122	.ASCII	/BPORT/
305	001046'	350	000		.BYTE	350,0
306	001050'	043040	052115	031062	.ASCII	/FMT22/
307	001056'	347	000		.BYTE	347,0
308	001060'	043040	052115	030062	.ASCII	/FMT20/
309	001066'	346	000		.BYTE	346,0
310	001070'	020040	047440	042104	.ASCII	/ODD/
311	001076'	345	000		.BYTE	345,0
312	001100'	020040	053105	047105	.ASCII	/EVEN/
313	001106'	344	000		.BYTE	344,0
314	001110'	042440	044503	047117	.ASCII	/ECION/
315	001116'	343	000		.BYTE	343,0
316	001120'	041505	047511	043106	.ASCII	/ECIOFF/
317	001126'	342	000		.BYTE	342,0
318	001130'	044040	044503	047117	.ASCII	/HCION/
319	001136'	341	000		.BYTE	341,0
320	001140'	041510	047511	043106	.ASCII	/HCIOFF/
321	001146'	340	000		.BYTE	340,0
322	001150'	041040	044501	047117	.ASCII	/BAION/
323	001156'	337	000		.BYTE	337,0
324	001160'	040502	047511	043106	.ASCII	/BAIOFF/
325	001166'	336	000		.BYTE	336,0
326	001170'	041440	051117	047117	.ASCII	/CORON/
327	001176'	335	000		.BYTE	335,0
328	001200'	047503	047522	043106	.ASCII	/COROFF/
329	001206'	334	000		.BYTE	334,0
330	001210'	020040	053126	047117	.ASCII	/VVON/
331	001216'	333	000		.BYTE	333,0
332	001220'	053040	047526	043106	.ASCII	/VVOFF/
333	001226'	332	000		.BYTE	332,0
334						
335	001230'	000376	002106		DVMVTE: .WORD	376,MSFMT1-LOCZ
336	001234'	000375	002106		.WORD	375,MSFMT1-LOCZ
337	001240'	000374	002106		.WORD	374,MSFMT1-LOCZ
338	001244'	000373	002106		.WORD	373,MSFMT1-LOCZ
339	001250'	000372	002106		.WORD	372,MSFMT1-LOCZ
340	001254'	000371	002107		.WORD	371,MSFMT2-LOCZ
341	001260'	000370	002107		.WORD	370,MSFMT2-LOCZ
342	001264'	000367	002114		.WORD	367,MSFMT3-LOCZ
343	001270'	000366	002123		.WORD	366,MSFMT4-LOCZ
344	001274'	000365	002106		.WORD	365,MSFMT1-LOCZ
345	001300'	000364	002106		.WORD	364,MSFMT1-LOCZ
346	001304'	000363	002106		.WORD	363,MSFMT1-LOCZ
347	001310'	000362	002132		.WORD	362,MSFMT5-LOCZ
348	001314'	000361	002132		.WORD	361,MSFMT5-LOCZ
349	001320'	000360	002132		.WORD	360,MSFMT5-LOCZ
350	001324'	000357	002106		.WORD	357,MSFMT1-LOCZ
351	001330'	000356	002106		.WORD	356,MSFMT1-LOCZ
352	001334'	000355	002106		.WORD	355,MSFMT1-LOCZ
353	001340'	000354	002106		.WORD	354,MSFMT1-LOCZ

;MODEL VECTOR TABLE EXTEN.

354	001344'	000353	002106	.WORD	353,MSFMT1-LOCZ
355	001350'	000352	002106	.WORD	352,MSFMT1-LOCZ
356	001354'	000351	002106	.WORD	351,MSFMT1-LOCZ
357	001360'	000350	002106	.WORD	350,MSFMT1-LOCZ
358	001364'	000347	002106	.WORD	347,MSFMT1-LOCZ
359	001370'	000346	002106	.WORD	346,MSFMT1-LOCZ
360	001374'	000345	002106	.WORD	345,MSFMT1-LOCZ
361	001400'	000344	002106	.WORD	344,MSFMT1-LOCZ
362	001404'	000343	002106	.WORD	343,MSFMT1-LOCZ
363	001410'	000342	002106	.WORD	342,MSFMT1-LOCZ
364	001414'	000341	002106	.WORD	341,MSFMT1-LOCZ
365	001420'	000340	002106	.WORD	340,MSFMT1-LOCZ
366	001424'	000337	002106	.WORD	337,MSFMT1-LOCZ
367	001430'	000336	002106	.WORD	336,MSFMT1-LOCZ
368	001434'	000335	002106	.WORD	335,MSFMT1-LOCZ
369	001440'	000334	002106	.WORD	334,MSFMT1-LOCZ
370	001444'	000333	002106	.WORD	333,MSFMT1-LOCZ
371	001450'	000332	002106	.WORD	332,MSFMT1-LOCZ

...
DVCPT: COMPILER TABLE EXTENSION

376	001454'	003	376	.BYTE	3,376	;NO WAIT
377	001456'	004537	000012	.WORD	4537,10.	
378	001462'	003	375	.BYTE	3,375	;WAIT
379	001464'	004537	000012	.WORD	4537,10.	
380	001470'	004	374	.BYTE	4,374	;STATUS
381	001472'	004537	000012	.WORD	4537,10.,1002	
382	001500'	004	373	.BYTE	4,373	;COUNTS
383	001502'	004537	000012	.WORD	4537,10.,1001	
384	001510'	003	372	.BYTE	3,372	;SEEK
385	001512'	004537	000012	.WORD	4537,10.	
386	001516'	006	371	.BYTE	6,371	;WRITE CHECK HEADER & DATA
387	001520'	004537	000012	.WORD	4537,10.,0,2,2	
	001526'	000002	000002			
388	001532'	006	370	.BYTE	6,370	;WRITE CHECK DATA
389	001534'	004537	000012	.WORD	4537,10.,0,2,2	
	001542'	000002	000002			
390	001546'	006	367	.BYTE	6,367	;READ HEADER & DATA
391	001550'	004537	000012	.WORD	4537,10.,0,2,2	
	001556'	000002	000002			
392	001562'	006	366	.BYTE	6,366	;WRITE HEADER & DATA
393	001564'	004537	000012	.WORD	4537,10.,0,2,2	
	001572'	000002	000002			
394	001576'	003	365	.BYTE	3,365	;CONTROL RESET
395	001600'	004537	000012	.WORD	4537,10.	
396	001604'	003	364	.BYTE	3,364	;DRIVE RESET
397	001606'	004537	000012	.WORD	4537,10.	
398	001612'	003	363	.BYTE	3,363	;SEARCH
399	001614'	004537	000012	.WORD	4537,10.	
400	001620'	004	362	.BYTE	4,362	;STEP UP
401	001622'	004537	000012	.WORD	4537,10.,0	
402	001630'	004	361	.BYTE	4,361	;STEP DOWN
403	001632'	004537	000012	.WORD	4537,10.,0	
404	001640'	004	360	.BYTE	4,360	;OFFSET
405	001642'	004537	000012	.WORD	4537,10.,0	


```

;
;
;      DEVICE INTERFACE WORD SYMBOL TABLE
DVIWST: .ASCII /CYL /
        .WORD DEVIW1
        .ASCII /HEAD/
        .WORD DEVIW2
        .ASCII /SECT/
        .WORD DEVIW3
        .ASCII /RTRY/
        .WORD DEVIW4

```

```

462 002104' 177777 .WORD 177777 ;END OF TABLE
463
464
465
466
467 002106' 000
468 002107' 377 052101 000377 MSFMT1: .BYTE 0
469 002114' 044777 052116 177517 MSFMT2: .ASCIZ <377>/AT/<377>
002122' 000 MSFMT3: .ASCIZ <377>/INTO/<377>
470 002123' 377 051106 046517 MSFMT4: .ASCIZ <377>/FROM/<377>
002130' 000377
471 002132' 377 000 MSFMT5: .BYTE 377,0
472 .EVEN
473
474
475 ;DEVICE ROUTINE CONSTANTS & EQUATES
476
477
478 002134' HSKPST= .
479 002134' ISTAT= . ;STORAGE FOR DEV REG'S AT INT
480 002134' 000000 000000 000000 .WORD 0,0,0,0,0,0,0,0
002142' 000000 000000 000000
002150' 000000 000000 000000
481 002154' 000000 000000 000000 .WORD 0,0,0,0,0,0,0,0
002162' 000000 000000 000000
002170' 000000
482 002172' 000000 000000 000000 .WORD 0,0,0,0,0,0,0,0
002200' 000000 000000 000000
002206' 000000
483
484 002210' 000026 CSTAT: .BLKW 22. ;DEV REG CURRENT VALUES STORAGE
485 002264' COUNTS:
486 002264' 000000 BYRD: .WORD 0 ;BYTES READ COUNT
487 002266' 000000 .WORD 0
488 002270' 000000 BYWR: .WORD 0 ;BYTES WRITTEN COUNT
489 002272' 000000 .WORD 0
490 002274' 000000 BYCK: .WORD 0 ;BYTES CHECKED COUNT
491 002276' 000000 .WORD 0
492 002300' 000000 RDCNT: .WORD 0 ;READ CMND COUNT
493 002302' 000000 WRCNT: .WORD 0 ;WRITE CMND COUNT
494 002304' 000000 CKCNT: .WORD 0 ;CHECK CMND COUNT
495 002306' 000000 SKCNT: .WORD 0 ;SEEK/SEARCH CMND COUNT
496 002310' 000000 MISCNT: .WORD 0 ;MISC. CMND COUNT
497 002312' 000000 ERRCNT: .WORD 0 ;DEVICE ERRORS COUNT
498 002314' 000000 CECCER: .WORD 0 ;CORRECTABLE ECC ERRORS
499 002316' 000000 DATAER: .WORD 0 ;DATA ERRORS COUNT
500 002320' 000000 DLT CNT: .WORD 0 ;DATA LATE ERRORS
501 002322' 000000 DTECNT: .WORD 0 ;DRIVE TIMING ERRORS
502 002324' 000000 HCR CNT: .WORD 0 ;HEADER CRC ERRORS
503 002326' 000000 FER CNT: .WORD 0 ;FORMAT ERRORS
504 002330' 000000 HCECNT: .WORD 0 ;HEADER COMPARE ERRORS
505 002332' 000000 DCKCNT: .WORD 0 ;DATA CHECK ERRORS
506 002334' 000000 JCECNT: .WORD 0 ;WRITE CHECK ERRORS
507 002336' 000000 RETRYS: .WORD 0 ;# OF RETRIES ON I/O CMNDS
508 002340' 000000 INTCNT: .WORD 0 ;INTERRUPTS COUNT
509

```


510	002342'	000000	ERRADR: .WORD	0	; CURR ADR IN USER PROG
511	002344'	000000	CNTADR: .WORD	0	; ADR OF BYTE COUNT TOTALS
512	002346'	000000	CURFLG: .WORD	0	; FLAG WORD OF CURR CMND
513	002350'	000000	C'JRCMD: .WORD	0	; CURR CMND CODE
514	002352'	000000	CURADR: .WORD	0	; CURR BUS ADDRESS
515	002354'	000000	.WORD	0	
516	002356'	000000	CURCNT: .WORD	0	; NEG WORD CNT FOR CURR CMND
517	002360'	000000	CURPBC: .WORD	0	; POSITIVE BYTE CNT FOR CURR CMND
518	002362'	000000	FINCNT: .WORD	0	; FINAL WORD CNT (RPWC)
519	002364'	000000	CURRTY: .WORD	0	; CURR RETRY COUNT
520	002366'	000000	RTRYIP: .WORD	0	; RETRY IN PROGRESS FLAG
521	002370'	000000	CURPSW: .WORD	0	; PSW STORAGE AREA
522		002372'	HSKPEN=	.	
523					
524	002372'	000000	RPCS1V: .WORD	0	; BASE VALUE FOR RPCS1 REG
525		002000	PORT=	2000	; PORT SELECT BIT - 1 = PORT B
526					
527	002374'	000000	RPCS2V: .WORD	0	; BASE VALUE FOR RPCS2 REG
528		000010	BAI=	10	; BUS ADDRESS INCREMENT INHIBIT = 1
529		000020	PARITY=	20	; PARITY MODE - 1 = EVEN
530					
531	002376'	010000	RPOFV: .WORD	10000	; BASE VALUE FOR RPOF REG
532		002000	HCI=	2000	; HEADER COMPARE INHIBIT = 1
533		004000	ECI=	4000	; ECC INHIBIT = 1
534		010000	FMT22B=	10000	; FORMAT 16 BIT WORDS = 1
535					
536		000000	XXXX=	0	; VALUE TO BE TAILORED BY DEV ROUT
537					
538		177776	PS=	177776	; PSW ADDRESS
539					
540		000026	REGNUM=	22.	; # OF DEVICE REGISTERS
541		000027	CNTNUM=	23.	; # OF STATISTICAL COUNT WORDS
542					
543		000001	MMVER=	1	; SYS FLGWD BIT DEFINITIONS
544		000002	USMTPS=	2	
545		000010	CPU70=	10	
546					
547		172350	KPAR4=	172350	; MEMORY MANAGEMENT EQUATES
548		172310	KPDR4=	172310	
549		100000	P4CONS=	100000	
550		077406	PDRCON=	077406	
551					
552		000000	RPCS1=	0	; EQUATES FOR DEVICE REGISTER NAMES
553		000002	RPWC=	2	
554		000004	RPBA=	4	
555		000006	RPDA=	6	
556		000010	RPCS2=	10	
557		000012	RPDS=	12	
558		000014	RPER1=	14	
559		000016	RPAS=	16	
560		000020	RPLA=	20	
561		000022	RPDB=	22	
562		000024	RPMR=	24	
563		000026	RPDT=	26	
564		000030	RPSN=	30	
565		000032	RPOF=	32	

566	000034	RPDC=	34
567	000036	RPCC=	36
568	000040	RPER2=	40
569	000042	RPER3=	42
570	000044	RPEC1=	44
571	000046	RPEC2=	46
572	000050	RPBAE=	50
573	000052	RPCS3=	52
574			
575			
576		;RPCS1	
577			
578	040000	TRE=	40000
579	020000	MCPE=	20000
580	004000	DVA=	4000
581			
582		;RPCS2	
583			
584	010000	NED=	10000
585			
586		;RPDS	
587			
588	100000	ATA=	100000
589	040000	ERR=	40000
590	010000	MOL=	10000
591	000400	DPR=	400
592	000100	VV=	100
593			
594		;RPER1	
595			
596	040000	UNS=	40000
597			
598			
599	002400'	PATCH:	.REPT 20.
600			.WORD 0
601			.ENDR

DEVICE BIT EQUATES

;PATCH AREA

.SBTTL RPO4/RPO5/RPO6 SUPPORT ROUTINES ENTERED FROM MPC

```

;DEVICE ROUTINE HOUSEKEEPING

```

```

:JSR    RS,HSKEEP
:WORD   0 OR 1
:
:R2 = PROG'S OPSW
:DESTROYS R0,R1

```

S/R CALL
0 = DO HSKP PER OPSW
1 = UNCOND. DO HSKP

002450'	012767	000003	175334
002456'	005067	177710	
002462'	005067	177706	
002466'	012767	010000	177702
002474'	005725		
002476'	001003		
002500'	032702	000004	
002504'	001010		
002506'	010700		
002510'	062700	177424	
002514'	012701	000117	
002520'	005020		
002522'	005301		
002524'	001375		
002526'	000205		

```

83 RTRY
RPCS1V
RPCS2V
#10000,RPOFV
(RS)+
10$
#H$KPEP,R2
30$
PC,R0
#H$KPST-.,R0
#H$KPEN-H$KPST/2,R1
(R0)+
R1
20$
RS

```

```

;INIT # OF RETRY ATTEMPTS
;INITIALIZE RPCS1 VALUE
;INITIALIZE RPCS2 VALUE
;INITIALIZE RPOF VALUE
;UNCONDITIONALLY DO HSKP?
;N, Y-10$
;OPSW SPECIFY EACH PASS HSKP?
;Y, N-30$
;SET UP FIRST WD ADR

;SET UP # OF WORDS
;HSKP ALL NECESSARY AREAS

;EXIT IN-LINE

```

:RPO4/RPO5/RPO6 REPORT ROUTINE

```
JSR      RS,REPORT  
WORD     FLGND
```

S/R CALL
FLAGWORD
BIT 15 = CHND MODE CALL
BIT 9 = PROG STMT CALL
BIT 1 = DO STATUS REPORT
BIT 0 = DO COUNTS REPORT

002530'	004067	006604
002534'	004767	006632
002540'	011504	
002542'	032704	000002
002546'	001403	
002550'	004567	006636
002554'	177434	
002556'	032704	177776
002562'	001012	
002564'	010700	
002566'	062700	177476
002572'	012701	000027
002576'	005720	
002600'	001003	
002602'	005301	
002604'	001374	
002606'	000477	
002610'	004767	006706
002614'	032704	000002

```

REPORT: JSR      RO, SAVREG
        MOV      PC, SUPTAD
        BIT      (R5), R4
        BEQ      #2, R4
        JSR      SS
        .WORD    RS, STSTAT
SS:      BIT      CSTAT-,
        BNE      #177776, R4
        MOV      155
        MOV      PC, RO
        ADD      #COUNTS-, RO
        MOV      #CNTNUM, R1
105:     TST      (RO)+
        BNE      155
        DEC      R1
        BNE      105
        BR       DVREX
155:     JSR      PC, DEVID
        BIT      #2, R4

```

```

;SAVE REG'S R0 - R5
;SET UP PROG TBL ADR IN R3
;GET FLAGWORD
;GOING TO DO STATUS DISPLAY?
;Y,N-5$
;GO STORE STATUS REG'S

;DISPLAYING CNTS AT END OF
;PROG PASS? (Y,N-15$)
;SET UP ADR OF CNTS

;GET # OF CNT WORDS
;THIS CNT WORD = 0?
;Y,N-15$
;DECR WORD CNT
;CK'ED ALL WORDS? (Y,N-10$)
;GO TO EXIT -- ALL CNTS ARE 0'S
;DISPLAY DEVICE I.D.
;DOING STATUS DISPLAY?

```


659	002620'	001432		BEQ	DISCNT	;Y,N-DISCNT
660	002622'	010700		MOV	PC,R0	;SET UP ADR OF REG'S AT
661	002624'	062700	177310	ADD	#ISTAT-.R0	;LAST INT
662	002630'	012701	000026	MOV	#REGNUM,R1	;SET UP # OF REG'S
663	002634'	005720		TST	(R0)+	;ALL REG'S = 0?
664	002636'	001003		BNE	30S	;N,Y-40S
665	002640'	005301		DEC	R1	
666	002642'	001374		BNE	20S	
667	002644'	000407		BR	40S	
668	002646'	004567	007250	30S: JSR	R5,PRINT	;ISSUE 'AT LAST INT' MSG
669	002652'	007371		.WORD	ATMSG-	
670	002654'	000014		.WORD	12.	
671	002656'	004567	006770	JSR	R5,DISPST	;GO DISPLAY STATUS AT LAST INT
672	002662'	177252		.WORD	ISTAT-	
673	002664'	004567	007232	40S: JSR	R5,PRINT	;ISSUE 'CURRENTLY' MSG
674	002670'	007367		.WORD	CURMSG-	
675	002672'	000012		.WORD	10.	
676	002674'	004567	006752	JSR	R5,DISPST	;GO DISPLAY CURRENT STATUS
677	002700'	177310		.WORD	CSTAT-	
678	002702'	004767	007144	JSR	PC,PRTIMD	;GO DISPLAY INFO WORDS
679	002706'	032704	000001	DISCNT: BIT	#1,R4	;DISPLAY COUNTS?
680	002712'	001431		BEQ	RPTEND	;Y,N-RPTEND
681	002714'	012700	000027	MOV	#CNTNUM,R0	;SET UP # OF WORDS
682	002720'	010701		MOV	PC,R1	;SET UP ADR OF CNTS
683	002722'	062701	177342	ADD	#COUNTS-.R1	
684	002726'	010702		MOV	PC,R2	;SET UP TBL ADR
685	002730'	062702	000066	ADD	#REPTBL-.R2	
686	002734'	012267	000012	RPTLP: MOV	(R2)+,RPTBAS	;MOV MSG ADR TO S/R LINKAGE
687	002740'	004067	006374	JSR	R0,SAVREG	;SAVE ALL REG'S
688	002744'	011100		MOV	(R1),R0	;GET CURRENT COUNT
689	002746'	004577	175104	JSR	R5,JBINASC	;CONVERT IT TO ASCII
690	002752'	000000		RPTBAS: .WORD	XXXX	
691	002754'	004067	006374	JSR	R0,RESREG	;RESTORE REG'S
692	002760'	005721		TST	(R1)+	;POINT AT NXT CNT
693	002762'	005300		DEC	R0	;DONE ALL WORDS?
694	002764'	001363		BNE	RPTLP	;Y,N-RPTLP
695	002766'	004567	007130	JSR	R5,PRINT	;GO ISSUE COUNTS MSG
696	002772'	007416		.WORD	CNTSMG-	
697	002774'	000512		.WORD	CNTSEN-CNTSMG	
698	002776'	004567	007120	RPTEND: JSR	R5,PRINT	;ISSUE "END OF REPORT" MSG
699	003002'	007267		.WORD	RENDMG-	
700	003004'	177763		.WORD	-13.	
701	003006'	004067	006342	DVREX: JSR	R0,RESREG	;RESTORE REGISTERS
702	003012'	005725		TST	(R5)+	;SET UP RETURN POINT
703	003014'	000205		RTS	R5	;EXIT IN-LINE
704						
705						
706	003016'	007452		REPTBL: .WORD	BCMRD-RPTBAS	
707	003020'	007460		.WORD	BCMRD+6-RPTBAS	
708	003022'	007474		.WORD	BCMRD-RPTBAS	
709	003024'	007502		.WORD	BCMRD+6-RPTBAS	
710	003026'	007520		.WORD	BCMRD-RPTBAS	
711	003030'	007526		.WORD	BCMRD+6-RPTBAS	
712	003032'	007553		.WORD	CMDCRD-RPTBAS	
713	003034'	007566		.WORD	CMDCRD-RPTBAS	
714	003036'	007601		.WORD	CMDCRD-RPTBAS	

715	003040'	007617	.WORD	CNDCK-RPTBAS
716	003042'	007634	.WORD	CNDCK-RPTBAS
717	003044'	007662	.WORD	CNTERR-RPTBAS
718	003046'	007703	.WORD	CNTCEC-RPTBAS
719	003050'	007720	.WORD	CNTDER-RPTBAS
720	003052'	007746	.WORD	CNTDLY-RPTBAS
721	003054'	007762	.WORD	CNTDTE-RPTBAS
722	003056'	007777	.WORD	CNTHCR-RPTBAS
723	003060'	010016	.WORD	CNTFER-RPTBAS
724	003062'	010032	.WORD	CNTHCE-RPTBAS
725	003064'	010046	.WORD	CNTDCK-RPTBAS
726	003066'	010065	.WORD	CNTWCE-RPTBAS
727	003070'	010114	.WORD	CNTRTY-RPTBAS
728	003072'	010142	.WORD	CNTINT-RPTBAS

```

;TIMEOUT ERROR ROUTINE

```

735						;JSR	RS,TOUTER	S/R CALL
736								
737	003074'	004067	006240		TOUTER:	JSR	RO, SAVREG	;SAVE ALL REGISTERS
738	003100'	004767	006266			JSR	PC, SUPTAD	;SET UP RPCS1 & PROG TBL ADR'S
739	003104'	032767	000004	174670		BIT	#UNLDIP, DFLGWD	;UNLOAD CMD IN PROGRESS?
740	003112'	001037				BNE	CKUNLD	;N.Y-CKUNLD
741	003114'	004567	006272			JSR	RS, STSTAT	;STORE CURRENT STATUS
742	003120'	177070				.WORD	CSTAT-	
743	003122'	004567	004526			JSR	RS, TVECT	;CK IF I HAVE VECTOR CONTROL
744	003126'	000404				BR	10\$	;BR IF I DON'T
745	003130'	142714	000100			BICB	#100, (R4)	;RESET INT ENABLE
746	003134'	004767	004470			JSR	PC, RINTV	;RESET THE INTERRUPT VECTOR
747	003140'	042713	000010		10\$:	BIC	#MT410T, (R3)	;RESET WAITING FOR I/O FLG
748	003144'	032767	000010	174630		BIT	#SMOVR, DFLGWD	;T/O WHILE TRYING TO ACQUIRE DISK?
749	003152'	001004				BNE	20\$	;N.Y-20\$
750	003154'	004567	004532			JSR	RS, ERRCS1	;ISSUE I/O TIMEOUT ERROR MSG
751	003160'	003315				.WORD	IOT0-ERMBAS	
752	003162'	000406				BR	30\$	;GO TO EXIT
753	003164'	052767	000040	174610	20\$:	BIS	#SMOVT0, DFLGWD	;SET SWITCH OVER T/O ERROR FLAG
754	003172'	004567	004514			JSR	RS, ERRCS1	;ISSUE T/O ON DISK ACQUIRE ERR MSG
755	003176'	003334				.WORD	ACOT0-ERMBAS	
756	003200'	004067	006150		30\$:	JSR	RO, RESREG	;RESTORE REGISTERS
757	003204'	012605				MOV	(SP)+, RS	;REMOVE RETURN ADR
758	003206'	000177	174636			JMP	ACUPGER	;GO TO ERROR EXIT
759								
760	003212'	032777	000002	174644	CKUNLD:	BIT	#USMTPS, ACSYSFW	;NEED TO USE MTPS INST?
761	003220'	001007				BNE	32\$	;N.Y-32\$
762	003222'	113767	177776	177140		MOVB	#MPS, CURPSW	;SAVE CURRENT PRIORITY
763	003230'	152737	000340	177776		BISB	#340, #MPS	;SET PRIORITY TO 7
764	003236'	000404				BR	34\$	;GO SET UP UNIT #
765	003240'	106767	177124		32\$:	MFPS	CURPSW	;SAVE CURR PRIORITY
766	003244'	106427	000340			MTPS	#340	;SET PRIORITY TO 7
767	003250'	016400	000010		34\$:	MOV	RPCS2(R4), RO	;GET CURR UNIT #
768	003254'	010001				MOV	RO, R1	;SAVE IT
769	003256'	042700	177747			BIC	#177747, RO	;RESET UNIT # & OTHER BITS
770	003262'	156300	000035			BISB	PCURDV(R3), RO	;SET IN MY UNIT #

771	003266'	110064	000010		MOV	RD, RPCS2(R4)	: MOVE UNIT 8 TO RH11
772	003272'	005714			TST	(R4)	: SELECT MY DRIVE
773	003274'	016400	000012		MOV	RPDS(R4), RD	: GET DRIVE'S STATUS
774	003300'	005100			COM	RD	: FLIP THE BITS
775	003302'	032700	010200		BIT	#10200, RD	: WERE MOL & DRY BOTH SET?
776	003306'	001005			BNE	40\$	: Y, N-40\$
777	003310'	042713	000010		BIC	#MT4IOT, (R3)	: RESET WAITING FOR I/O TERM FLAG
778	003314'	042767	000004	174460	BIC	#UNLDIP, DFLGWD	: RESET UNLOAD IN PROGRESS FLAG
779	003322'	012763	005670	000030	MOV	#3000, PTOCNT(R3)	: RESTORE 1 SECOND T/O COUNT
780	003330'	110164	000010		MOV	R1, RPCS2(R4)	: RESTORE ORIG UNIT 8
781	003334'	005714			TST	(R4)	: RESELECT ORIG DRIVE
782	003336'	032777	000002	174520	BIT	#USMTPS, ACSYSFW	: NEED TO USE MTPS INST?
783	003344'	001004			BNE	50\$	: N, Y-50\$
784	003346'	116737	177016	177776	MOV	CURPSW, #8PS	: RESTORE ORIG PRIORITY
785	003354'	000402			BR	60\$	: GO TO EXIT
786	003356'	106467	177006	50\$:	MTPS	CURPSW	: RESTORE ORIG PRIORITY
787	003362'	004067	005766	60\$:	JSR	RD, RESREG	: RESTORE REGISTERS
788	003366'	000205			RTS	RS	: RETURN IN-LINE
789							
790							
791							
792							
793							
794							
795							
796							
797	003370'	016701	174430		KILL:	MOV	DREGAD, R1
798	003374'	004567	004254			JSR	RS, TVECT
799	003400'	000407				BR	KILLEX
800	003402'	132711	000100			BITB	#100, (R1)
801	003406'	001402				BEQ	10\$
802	003410'	142711	000100			BICB	#100, (R1)
803	003414'	004767	004210	10\$:		JSR	PC, RINTV
804	003420'	000205			KILLEX:	RTS	RS

;KILL USER PROGRAM ROUTINE

 :JSR RS, KILL S/R CALL
 :R3 MUST CONTAIN PROG TBL ADR
 :DESTROYS RD, R1

 :GET DEV REG ADR
 :DO I HAVE VECTOR CONTROL?
 :BR IF I DON'T
 :IS INT ENABLE SET?
 :Y, N-10\$
 :RESET INT ENABLE
 :RESET INT VECTOR INFO
 :EXIT IN-LINE


```

862 003606' 000773          BR      40$          ;GO CK NEW SECT # VALUE
863 003610' 020127 000023    45$: CMP      R1,#19.  ;HEAD # IN RANGE?
864 003614' 103404          BLO      50$          ;N.Y-50$
865 003616' 062701 000023    ADD      #19.,R1      ;ADJ IT UPWARDS
866 003622' 005300          DEC      R0          ;DECR CYL # BY 1
867 003624' 000771          BR      45$          ;GO CHECK NEW HEAD #
868 003626' 020004          50$: CMP      R0,R4      ;CYL # IN RANGE?
869 003630' 103717          BLO      STEPEX        ;N.Y-STEPEX
870 003632' 060400          ADD      R4,R0        ;ADJ IT UPWARDS
871 003634' 000774          BR      50$          ;GO CK IT NOW
872
873
874          ;"WAIT" FUNCTION ROUTINE
875
876          ;JSR      RS,WAIT          FUNCTION CALL
877
878 003636' 042767 100000 174136 WAIT: BIC      #WAITMD,DFLGWD ;RESET THE "NOWAIT" FLAG
879 003644' 004767 003464          JSR      PC,CKDBSY ;WAIT IF BUSY & DO TERMINATION
880 003650' 004767 003754          JSR      PC,RINTV  ;RESET THE INTERRUPT VECTOR
881 003654' 000205          RTS      R5          ;EXIT IN-LINE
882
883          ;"NOWAIT" FUNCTION ROUTINE
884
885          ;JSR      RS,NOWAIT        FUNCTION CALL
886
887
888 003656' 052767 100000 174116 NOWAIT: BIS      #WAITMD,DFLGWD ;SET THE "NOWAIT" FLAG
889 003664' 000205          RTS      R5          ;EXIT IN-LINE
890
891          ;"APORT" FUNCTION ROUTINE
892
893          ;JSR      RS,APORT        FUNCTION CALL
894
895
896 003666' 042767 002000 176476 APORT: BIC      #PORT,RPCS1V ;RESET THE PORT BIT
897 003674' 000205          RTS      R5          ;EXIT IN-LINE
898
899          ;"BPORT" FUNCTION ROUTINE
900
901          ;JSR      RS,BPORT        FUNCTION CALL
902
903
904 003676' 052767 002000 176466 BPORT: BIS      #PORT,RPCS1V ;SET THE PORT BIT TO B PORT
905 003704' 000205          RTS      R5          ;EXIT IN-LINE
906
907          ;"ODD" FUNCTION ROUTINE
908
909          ;JSR      RS,ODD          FUNCTION CALL
910
911
912 003706' 042767 000020 176460 ODD:  BIC      #PARITY,RPCS2V ;RESET THE PARITY BIT
913 003714' 000205          RTS      R5          ;EXIT IN-LINE

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915                                     ;"EVEN" FUNCTION ROUTINE
916
917                                     ;JSR    RS,EVEN          FUNCTION CALL
918
919 003716' 052767 000020 176450 EVEN: BIS    #PARITY,RPCS2V      ;SET THE PARITY BIT FOR EVEN
920 003724' 000205 RTS      RS      ;EXIT IN-LINE
921
922                                     ;"ECION" FUNCTION ROUTINE
923
924                                     ;JSR    RS,ECION          FUNCTION CALL
925
926 003726' 052767 004000 176442 ECION: BIS    #ECI,RPOFV          ;SET THE ECI BIT
927 003734' 000205 RTS      RS      ;EXIT IN-LINE
928
929                                     ;"ECIOFF" FUNCTION ROUTINE
930
931                                     ;JSR    RS,ECIOFF          FUNCTION CALL
932
933 003736' 042767 004000 176432 ECIOFF: BIC    #ECI,RPOFV          ;RESET THE ECI BIT
934 003744' 000205 RTS      RS      ;EXIT IN-LINE
935
936                                     ;"HCION" FUNCTION ROUTINE
937
938                                     ;JSR    RS,HCION          FUNCTION CALL
939
940 003746' 052767 002000 176422 HCION: BIS    #HCI,RPOFV          ;SET THE HCI BIT
941 003754' 000205 RTS      RS      ;EXIT IN-LINE
942
943                                     ;"HCIOFF" FUNCTION ROUTINE
944
945                                     ;JSR    RS,HCIOFF          FUNCTION CALL
946
947 003756' 042767 002000 176412 HCIOFF: BIC    #HCI,RPOFV          ;RESET THE HCI BIT
948 003764' 000205 RTS      RS      ;EXIT IN-LINE
949
950                                     ;"BAION" FUNCTION ROUTINE
951
952                                     ;JSR    RS,BAION          FUNCTION CALL
953
954 003766' 052767 000010 176400 BAION: BIS    #BAI,RPCS2V          ;SET THE BAI BIT
955 003774' 000205 RTS      RS      ;EXIT IN-LINE
956
957                                     ;"BAIOFF" FUNCTION ROUTINE
958
959                                     ;JSR    RS,BAIOFF          FUNCTION CALL
960
961 003776' 042767 000010 176370 BAIOFF: BIC    #BAI,RPCS2V          ;RESET THE BAI BIT
962 004004' 000205 RTS      RS      ;EXIT IN-LINE
963
964
965
966
967
968

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970                                     ;"CORON" FUNCTION ROUTINE
971
972                                     ;JSR    R5,CORON          FUNCTION CALL
973
974 004006' 042767 002000 173766 CORON: BIC    #CORFLG,DFLGWD    ;RESET THE COR INH FLAG
975 004014' 000205                RTS    R5                    ;EXIT IN-LINE
976
977                                     ;"COROFF" FUNCTION ROUTINE
978
979                                     ;JSR    R5,COROFF        FUNCTION CALL
980
981 004016' 052767 002000 173756 COROFF: BIS    #CORFLG,DFLGWD    ;SET THE COR INH FLAG
982 004024' 000205                RTS    R5                    ;EXIT IN-LINE
983
984                                     ;"VVON" FUNCTION ROUTINE
985
986                                     ;JSR    R5,VVON          FUNCTION CALL
987
988 004026' 042767 001000 173746 VVON:  BIC    #VVFLG,DFLGWD    ;RESET THE VV INH FLAG
989 004034' 000205                RTS    R5                    ;EXIT IN-LINE
990
991                                     ;"VVOFF" FUNCTION ROUTINE
992
993                                     ;JSR    R5,VVOFF        FUNCTION CALL
994
995 004036' 052767 001000 173736 VVOFF: BIS    #VVFLG,DFLGWD    ;SET THE VV INH FLAG
996 004044' 000205                RTS    R5                    ;EXIT IN-LINE
997
998                                     ;"FMT22" FUNCTION ROUTINE
999
1000                                    ;JSR    R5,FMT22          FUNCTION CALL
1001
1002 004046' 052767 010000 176322 FMT22: BIS    #FMT22B,RPOFV    ;SET THE FORMAT 22 BIT
1003 004054' 000205                RTS    R5                    ;EXIT IN-LINE
1004
1005                                     ;"FMT20" FUNCTION ROUTINE
1006
1007                                    ;JSR    R5,FMT20          FUNCTION CALL
1008
1009 004056' 042767 010000 176312 FMT20: BIC    #FMT22B,RPOFV    ;RESET THE FORMAT 22 BIT
1010 004064' 000205                RTS    R5                    ;EXIT IN-LINE
1011
1012
1013
1014
1015

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1017 .SBTTL RP04/RP05/RP06 NON-INTERRUPT TYPE I/O FUNCTION ROUTINES
1018
1019
1020 ;"CRESET" FUNCTION ROUTINE
1021
1022 ;JSR RS,CRESET FUNCTION CALL
1023
1024 004066' 004767 003242 CRESET: JSR PC,CKDBSY ;GO CK IF DEV IS BUSY
1025 004072' 005267 176212 INC MISCNT ;ADD 1 TO MISC. CMND CNT
1026 004076' 005067 173720 CLR EARI ;RESET THE ERROR INDICATOR
1027 004102' 005000 CLR RO ;INITIALIZE TIME OUT COUNT
1028 004104' 052764 000040 000010 BIS #40,RPCS2(R4) ;SET THE CLR BIT IN RPCS2
1029 004112' 105714 10$: TSTB (R4) ;READY SET YET?
1030 004114' 100407 BMI 20$ ;N,Y-20$
1031 004116' 005300 DEC RO ;TIMED OUT?
1032 004120' 100774 BMI 10$ ;Y,N-10$
1033 004122' 004567 003556 JSR RS,ERRCS ;GO ISSUE CRESET TIMEOUT ERROR
1034 004126' 003277 .WORD CRT0-ERMBAS
1035 004130' 000177 173714 JMP @CUPGER ;GO TO ERR RET POINT IN MPG
1036 004134' 000205 20$: RTS RS ;EXIT IN-LINE TO USER'S PROG
1037
1038
1039 ;"DRESET" FUNCTION ROUTINE
1040
1041 ;JSR RS,DRESET FUNCTION CALL
1042
1043 004136' 012702 000011 DRESET: MOV #011,R2 ;SET UP DRESET CMND CODE
1044 004142' 000414 BR NOICOM ;GO TO NO INT CMND COM PROCESSING
1045
1046
1047 ;"UNLOAD" FUNCTION ROUTINE
1048
1049 ;JSR RS,UNLOAD FUNCTION CALL
1050
1051 004144' 012702 000003 UNLOAD: MOV #003,R2 ;SET UP UNLOAD CMND CODE
1052 004150' 000411 BR NOICOM ;GO TO NO INT CMND COM PROCESSING
1053
1054
1055 ;"PAKACK" FUNCTION ROUTINE
1056
1057 ;JSR RS,PAKACK FUNCTION CALL
1058
1059 004152' 012702 000023 PAKACK: MOV #023,R2 ;SET UP PACK ACKNOWLEDGE CMND CODE
1060 004156' 000406 BR NOICOM ;GO TO NO INT CMND COM PROCESSING
1061
1062
1063 ;"RDPSET" FUNCTION ROUTINE
1064
1065 ;JSR RS,RDPSET FUNCTION CALL
1066
1067 004160' 012702 000021 RDPSET: MOV #021,R2 ;SET UP READ IN PRESET CMND CODE
1068 004164' 000403 BR NOICOM ;GO TO NO INT CMND COM PROCESSING

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K02

MAINDEC-11-DTRPA-B RH11/RH70 - RPO4/RPO5/RPO6 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:21 PAGE 7-1
 DTRPAB.P11 RPO4/RPO5/RPO6 NON-INTERRUPT TYPE I/O FUNCTION ROUTINES

SEQ 0023

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1070                                ;"REL" FUNCTION ROUTINE
1071
1072                                ;JSR    R5,REL          FUNCTION CALL
1073
1074    004166' 012702 000013      REL:  MOV    #013,R2      ;SET UP RELEASE CMND CODE
1075    004172' 000400              BR     NOICOM           ;GO TO NO INT CMND COM PROCESSING
1076
1077
1078                                ;NON INTERRUPT I/O FUNCTION COMMON PROCESSING
1079
1080                                ;R5 = USER PROGRAM RETURN ADR
1081                                ;R4 = RPCS1 ADR
1082                                ;R3 = PROG TBL ADR
1083                                ;R2 = FUNCTION'S COMMAND CODE
1084
1085    004174' 004767 003134      NOICOM: JSR    PC,CKDBSY      ;GO CK IF DEV IS BUSY
1086    004200' 005267 176104      INC    MISCNT             ;ADD 1 TO MISC. CMND CNT
1087    004204' 004767 000202      JSR    PC,ACQHSK          ;ACQUIRE & HOUSEKEEP THE DISK
1088    004210' 016764 176162 000032  MOV    RPOFV,RPOF(R4)    ;SET UP BITS IN RPOF
1089    004216' 020227 000003      CMP     R2,#003           ;UNLOAD CMND?
1090    004222' 001403              BEQ     10$              ;N,Y-10$
1091    004224' 020227 000013      CMP     R2,#013           ;RELEASE CMND?
1092    004230' 001012              BNE     20$              ;Y,N-20$
1093    004232' 032767 001000 173542 10$: BIT    #VVFLG,DFLGWD    ;VVON STATEMENT IN EFFECT?
1094    004240' 001006              BNE     20$              ;Y,N-20$
1095    004242' 032764 000100 000012  BIT    #VV,RPDS(R4)      ;IS THE VV BIT SET?
1096    004250' 001002              BNE     20$              ;N,Y-20$
1097    004252' 112714 000023      MOV     #023,(R4)          ;ISSUE THE PACK ACKNOWLEDGE CMND
1098    004256' 056702 176110 20$: BIS    RPCS1V,R2          ;SET PORT SELECT BIT INTO CMND WORD
1099    004262' 052767 000300 173512  BIS    #CMDISU+ANYIOI,DFLGWD ;SET CMND ISSUED FLAGS
1100    004270' 010214              MOV     R2,(R4)          ;ISSUE SPECIFIED CMND
1101    004272' 012700 000012      MOV     #10.,R0           ;SET UP DELAY CNT
1102    004276' 005300 30$: DEC     R0                      ;DELAY FOR A FEW MICROSECONDS
1103    004300' 001376              BNE     30$
1104    004302' 005714              TST     (R4)
1105    004304' 100021              BPL     50$
1106    004306' 032714 060000      BIT     #TRE+MCPE,(R4)      ;IS 'SC' ERROR BIT SET?
1107    004312' 001011              BNE     40$              ;Y,N-50$
1108    004314' 032764 040000 000012  BIT     #ERR,RPDS(R4)    ;TRE OR MCPE ERR BITS SET?
1109    004322' 001005              BNE     40$              ;N,Y-40$
1110    004324' 016400 000016      MOV     RPAS(R4),R0        ;ERROR SUMMARY BIT SET?
1111    004330' 036700 000622      BIT     MYATA,R0          ;GET ATA SUMMARY REG
1112    004334' 001405              BEQ     50$              ;IS IT MY ATA LINE?
1113    004336' 004567 003342 40$: JSR     R5,ERRCS          ;Y,N-50$
1114    004342' 003473              .WORD  NOITER-ERMBAS      ;REPORT NON-INT TERM ERROR
1115    004344' 000177 173500      JMP     @CUPGER
1116    004350' 120227 000003 50$: CMP     R2,#003           ;GO TO MPG'S ERROR RETURN POINT
1117    004354' 001015              BNE     60$              ;IS THIS THE UNLOAD CMND?
1118    004356' 012763 005670 000030  MOV     #3000,PTOCNT(R3)  ;Y,N-60$
1119    004364' 052767 000004 173410  BIS     #UNLDIP,DFLGWD  ;INITIALIZE 1 SECOND T/O CNT
1120    004372' 005767 173404      TST     DFLGWD          ;SET UNLOAD IN PROGRESS FLAG
1121    004376' 100404              BMI     60$              ;"NOWAIT" FLAG SET?
1122    004400' 052713 000010      BIS     #WT4IOT,(R3)      ;N,Y-60$
1123    004404' 004577 173436      JSR     R5,@CIOBSY    ;SET WAITING FOR I/O TERM FLAG
1124    004410' 000205 60$: RTS     R5                      ;RELEASE CNTRL UNTIL UNIT IS ON-LINE
                                ;EXIT TO USER PROG

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1126                                     ;ACQUIRE DISK AND HOUSEKEEP IT
1127
1128                                     ;JSR    PC,ACQHSK      S/R CALL
1129
1130                                     ;R5 = ADR AFTER USER PROG JSR
1131                                     ;R4 = RPCS1 ADR
1132                                     ;R3 = PROG TBL ADR
1133
1134                                     ;DESTROYS R0
1135
1136 004412' 010146 ACQHSK: MOV R1, -(SP) ;SAVE R1
1137 004414' 005063 ACQRTY: CLR PTOCNT(R3) ;SET T/O CNT TO MAX VALUE
1138 004420' 042767 000174 173354 BIC #SWOVER+SWOIER+SMOVT0+UNLDIP+CMDISU,DFLGWD ;HMKP FLAG BITS
1139 004426' 116300 000035 MOV PCURDV(R3),R0 ;GET MY UNIT #
1140 004432' 020027 000007 CMP R0,#7 ;VALID UNIT #?
1141 004436' 101411 BLOS 10$ ;N,Y-10$
1142 004440' 012767 003663 000446 MOV #INVDVN-ERMBAS,ACQEAD ;SET UP ADR OF INV UNIT # ERR MSG
1143 004446' 005267 175644 INC DATAER ;ADJ ERROR COUNTS
1144 004452' 005367 175634 DEC ERRCNT
1145 004456' 000167 000422 JMP ACQERR ;GO REPORT THE ERROR
1146 004462' 010001 10$: MOV R0,R1 ;GET DISPLACEMENT INTO
1147 004464' 006301 ASL R1 ;THE ATA TABLE FOR
1148 004466' 060701 ADD PC,R1 ;THIS UNIT #
1149 004470' 062701 ADD #ATATBL-. ,R1
1150 004474' 112167 000456 MOVB (R1)+,MYATA ;STORE ATA BIT MASKS FOR
1151 004500' 111167 000454 MOVB (R1),OTHATA ;THIS UNIT #
1152 004504' 056700 175664 BIS RPCS2V,R0 ;SET PAT & BAI BITS IN UNIT #
1153 004510' 005001 CLR R1 ;HMKP 1ST TIME FLAG
1154 004512' 010064 000010 12$: MOV R0,RPCS2(R4) ;MOVE UNIT # TO RH11
1155 004516' 005714 TST (R4) ;SELECT THE DRIVE
1156 004520' 032764 010000 000010 BIT #NED,RPCS2(R4) ;NON-EXISTENT DRIVE?
1157 004526' 001413 BEQ 20$ ;Y,N-20$
1158 004530' 005701 TST R1 ;FIRST TIME?
1159 004532' 001005 BNE 16$ ;Y,N-16$
1160 004534' 005201 INC R1 ;RESET FIRST TIME
1161 004536' 112764 000100 000001 MOVB #100,1(R4) ;DO RH11 ERROR CLEAR
1162 004544' 000762 BR 12$ ;GO LOAD UNIT # AGAIN
1163 004546' 012767 003360 000340 16$: MOV #NONEXD-ERMBAS,ACQEAD ;SET UP ADR OF NON-EXIST DRIVE ERR MSG
1164 004554' 000553 BR ACQERR ;GO REPORT THE ERROR
1165 004556' 005064 000012 20$: CLR RPDS(R4) ;WRITE TO A DRIVE REG
1166 004562' 032714 004000 BIT #DVA,(R4) ;DRIVE AVAILABLE SET?
1167 004566' 001035 BNE GOTDSK ;N,Y-GOTDSK
1168 004570' 112764 000100 000001 MOVB #100,1(R4) ;HMKP ANY RH11 ERRORS
1169 004576' 052713 000010 BIS #WT410T,(R3) ;SET WAITING FOR I/O TERM FLAG
1170 004602' 052767 000010 173172 BIS #SWOVER,DFLGWD ;SET WAITING FOR SWITCH OVER FLAG
1171 004610' 112714 000101 MOVB #101,(R4) ;ISSUE NOP & SET INT ENABLE
1172 004614' 004577 173226 JSR R5,ACIOBSY ;RELEASE CONTROL UNTIL DISK IS SEIZED
1173 004620' 032767 000020 173154 BIT #SWOIER,DFLGWD ;ERROR IN INT DURING SWITCH OVER?
1174 004626' 001007 BNE 30$ ;N,Y-30$
1175 004630' 032767 000040 173144 BIT #SMOVT0,DFLGWD ;TIME OUT ERROR ON SWITCH OVER?
1176 004636' 001133 BNE ACQGDK ;N,Y-ACQGDK
1177 004640' 112714 000001 MOVB #1,(R4) ;RESET INT ENABLE
1178 004644' 000744 BR 20$ ;GO MAKE SURE WE STILL HAVE IT
1179 004646' 010146 30$: MOV R1, -(SP) ;SAVE R1 & R2
1180 004650' 010246 MOV R2, -(SP)
1181 004652' 004567 003052 JSR R5,ERRIS ;REPORT INT'S ERROR MSG

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1182	004656'	003531		ACQIAD:	WORD	NOATA-ERMBAS	
1183	004660'	000516			BR	ACQERC	:GO TO COMMON ERROR RETURN
1184	004662'	042767	000030 173112	GOTDSK:	BIC	#SMOVR+SMOIER,DFLGWD	:RESET SWITCH OVER FLAGS
1185	004670'	005063	000030		CLR	PTOCNT(R3)	:HSPK T/O CNT
1186	004674'	032764	010000 000012		BIT	#MOL,RPDS(R4)	:DISK ON-LINE?
1187	004702'	001004			BNE	40\$	:N,Y-40\$
1188	004704'	012767	003436 000202		MOV	#OFFLIN-ERMBAS,ACQEAD	:SET UP ADR OF DISK OFFLINE ERR MSG
1189	004712'	000474			BR	ACQERR	:GO REPORT THE ERROR
1190	004714'	005001		40\$:	CLR	R1	:RESET ERROR LOOP CNT
1191	004716'	005714		50\$:	TST	(R4)	:IS 'SC' ERROR BIT SET?
1192	004720'	100062			BPL	100\$	:Y,N-100\$
1193	004722'	032764	040000 000014		BIT	#UNS,RPER1(R4)	:IS THERE AN UNSAFE ERROR?
1194	004730'	001033			BNE	80\$	:N,Y-80\$
1195	004732'	020127	000005		CMP	R1,#5	:5TH TIME THRU ON THIS ERROR?
1196	004736'	001004			BNE	60\$	:Y,N-60\$
1197	004740'	012767	003412 000146		MOV	#INITDE-ERMBAS,ACQEAD	:SET UP ADR OF INITIATION ERR MSG
1198	004746'	000456			BR	ACQERR	:GO REPORT THE ERROR
1199	004750'	005201		60\$:	INC	R1	:ADD 1 TO ERROR LOOP CNT
1200	004752'	016400	000016		MOV	RPAS(R4),R0	:GET ATA REG
1201	004756'	105700			TSTB	R0	:IS THERE AN ATTENTION?
1202	004760'	001432			BEQ	90\$	:Y,N-90\$
1203	004762'	036700	000172		BIT	OTHATA,R0	:MY ATA ONLY?
1204	004766'	001427			BEQ	90\$	:N,Y-90\$
1205	004770'	036700	000162		BIT	MYATA,R0	:MY ATA LINE ALSO?
1206	004774'	001006			BNE	70\$	:N,Y-70\$
1207	004776'	010064	000016		MOV	R0,RPAS(R4)	:RESET OTHER ATA LINES
1208	005002'	112764	000100 000001		MOVB	#100,1(R4)	:DO RH11 ERROR CLEAR
1209	005010'	000742			BR	50\$	:GO CK 'SC' AGAIN
1210	005012'	010064	000016	70\$:	MOV	R0,RPAS(R4)	:RESET OTHER ATA LINES
1211	005016'	000413			BR	90\$	:GO CLEAR MY DRIVE
1212	005020'	005767	172776	80\$:	TST	ERRI	:ERROR ON PREVIOUS I/O?
1213	005024'	001010			BNE	90\$	:N,Y-90\$
1214	005026'	032767	0002.) 172746		BIT	#ANYIOI,DFLGWD	:ANY I/O CMDS BEEN ISSUED?
1215	005034'	001404			BEQ	90\$	:Y,N-90\$
1216	005036'	012767	003403 000050		MOV	#INITUS-ERMBAS,ACQEAD	:SET UP ADR OF UNSAFE ERROR MSG
1217	005044'	000417			BR	ACQERR	:GO REPORT THE ERROR
1218	005046'	005067	172750	90\$:	CLR	ERRI	:RESET PREV I/O ERR FLAG
1219	005052'	052767	000200 172722		BIS	#ANYIOI,DFLGWD	:SET FLAG TO PREVENT LOOP
1220	005060'	012714	040011		MOV	#TRE+011,(R4)	:DO RH11 & DRIVE CLEAR
1221	005064'	000714			BR	50\$	:GO CK 'SC' AGAIN
1222	005066'	005067	172730	100\$:	CLR	ERRI	:HSPK ERROR INDICATOR
1223	005072'	042767	000001 172702		BIC	#IOERR,DFLGWD	: & FLAGS
1224	005100'	012601			MOV	(SP)+,R1	:RESTORE R1
1225	005102'	000207			RTS	PC	:EXIT IN-LINE
1226							
1227	005104'	010146		ACQERR:	MOV	R1,-(SP)	:SAVE R1 & R2
1228	005106'	010246			MOV	R2,-(SP)	
1229	005110'	004567	002570		JSR	R5,ERRCS	:STORE CURR STATUS & REPORT
1230	005114'	003412		ACQEAD:	WORD	INITDE-ERMBAS	:THE ERROR
1231	005116'	012602		ACQERC:	MOV	(SP)+,R2	:RESTORE R1 & R2
1232	005120'	012601			MOV	(SP)+,R1	
1233	005122'	004577	172722		JSR	R5,ACUPGER	:GO TO MPG'S ERROR RETURN POINT
1234	005126'	004767	002202	ACQGDK:	JSR	PC,CKDBSY	:GO CK IF DEV IS BUSY NOW
1235	005132'	000167	177256		JMP	ACQRTY	:GO TRY AGAIN
1236							
1237							

N02

MAINDEC-11-DTRPA-B RH11/RH70 - RPO4/RPO5/RPO6 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:21 PAGE 7-4 SEQ 0026
DTRPAB.P11 RPO4/RPO5/RPO6 NON-INTERRUPT TYPE I/O FUNCTION ROUTINES

1238	005136'	001	376	ATATBL: .BYTE	001,376
1239	005140'	002	375	.BYTE	002,375
1240	005142'	004	373	.BYTE	004,373
1241	005144'	010	367	.BYTE	010,367
1242	005146'	020	357	.BYTE	020,357
1243	005150'	040	337	.BYTE	040,337
1244	005152'	100	277	.BYTE	100,277
1245	005154'	200	177	.BYTE	200,177
1246					
1247	005156'	000000		MYATA: .WORD	0
1248	005160'	000000		OTHATA: .WORD	0

803

.SBTTL RP04/RP05/RP06 INTERRUPT TYPE I/O FUNCTION ROUTINES

;"READ" FUNCTION ROUTINE

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005162' 012702 000171
005166' 012701 000635
005172' 004767 002136
005176' 005267 175076
005202' 010700
005204' 062700 175062
005210' 000502

005212' 012702 000161
005216' 012701 000235
005222' 004767 002106
005226' 005267 175050
005232' 010700
005234' 062700 175036
005240' 000466

005242' 012702 000173
005246' 012701 001636
005252' 000747

READ: MOV #171,R2
RDCOM: MOV #635,R1
JSR PC,CKDBSY
INC RDCNT
MOV PC,R0
ADD #BYRD+2-.,R0
BR CMDCOM

WRITE: MOV #161,R2
WRCOM: MOV #235,R1
JSR PC,CKDBSY
INC WRcnt
MOV PC,R0
ADD #BYWR+2-.,R0
BR CMDCOM

RDHD: MOV #173,R2
MOV #1636,R1
BR RDCOM

FUNCTION CALL
DATA ADDRESS (BITS 16 - 21)
DATA ADDRESS (BITS 0 - 15)
BYTE COUNT
(NOT USED)

;SET UP READ DATA CMND CODE
;SET UP CMND FLAG WORD
;GO CK IF DEV IS BUSY
;ADD 1 TO READ CMND CNT
;SET UP ADR OF BYTES READ CNT
;GO TO CMND COMMON PROCESSING

FUNCTION CALL
DATA ADDRESS (BITS 16 - 21)
DATA ADDRESS (BITS 0 - 15)
BYTE COUNT
(NOT USED)

;SET UP WRITE DATA CMND CODE
;SET UP CMND FLAG WORD
;GO CK IF DEV IS BUSY
;ADD 1 TO WRITE CMND CNT
;SET UP ADR OF BYTES WRITTEN CNT
;GO TO CMND COMMON PROCESSING

FUNCTION CALL
DATA ADDRESS (BITS 16 - 21)
DATA ADDRESS (BITS 0 - 15)
BYTE COUNT

;SET UP RDHD CMND CODE
;SET UP CMND FLAG WORD
;GO TO COMMON READ PROCESSING


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1298                                     ;"WRHD" FUNCTION ROUTINE
1299
1300                                     ;JSR      RS,WRHD      FUNCTION CALL
1301                                     ;..WORD   ADR          DATA ADDRESS (BITS 16 - 21)
1302                                     ;..WORD   ADR          DATA ADDRESS (BITS 0 - 15)
1303                                     ;..WORD   CNT          BYTE COUNT
1304
1305 005254' 012702 000163      WRHD:  MOV      #163,R2      ;SET UP WRHD CMND CODE
1306 005260' 012701 000236      MOV      #236,R1      ;SET UP CMND FLAG WORD
1307 005264' 000756      BR          WRCOM      ;GO TO WRITE COMMON PROCESSING
1308
1309                                     ;"WRCK" FUNCTION ROUTINE
1310
1311                                     ;JSR      RS,WRCK      FUNCTION CALL
1312                                     ;..WORD   ADR          DATA ADDRESS (BITS 16 - 21)
1313                                     ;..WORD   ADR          DATA ADDRESS (BITS 0 - 15)
1314                                     ;..WORD   CNT          BYTE COUNT
1315
1316
1317 005266' 012702 000151      WRCK:  MOV      #151,R2      ;SET UP WRCK CMND CODE
1318 005272' 012701 000236      CKCOM: MOV      #236,R1      ;SET UP CMND FLAG WORD
1319 005276' 004767 002032      JSR      PC,CKDBSY      ;GO CK IF DEV IS BUSY
1320 005302' 005267 174776      INC      CKCNT      ;ADD 1 TO CHECK CMND COUNT
1321 005306' 010700      MOV      PC,R0      ;SET UP ADR OF BYTES
1322 005310' 062700 174766      ADD      #BYCK+2-.,R0      ;CHECKED COUNT
1323 005314' 000440      BR          CMDCOM      ;GO TO CMND COM PROCESSING
1324
1325                                     ;"WRCKHD" FUNCTION ROUTINE
1326
1327                                     ;JSR      RS,WRCKHD      FUNCTION CALL
1328                                     ;..WORD   ADR          DATA ADDRESS (BITS 16 - 21)
1329                                     ;..WORD   ADR          DATA ADDRESS (BITS 0 - 15)
1330                                     ;..WORD   CNT          BYTE COUNT
1331
1332
1333 005316' 012702 000153      WRCKHD: MOV      #153,R2      ;SET UP WRCKHD CMND CODE
1334 005322' 000763      BR          CKCOM      ;GO TO CHECK CMND COM PROCESSING
1335
1336                                     ;"SEEK" FUNCTION ROUTINE
1337
1338                                     ;JSR      RS,SEEK      FUNCTION CALL
1339
1340
1341 005324' 012702 000105      SEEK:  MOV      #105,R2      ;SET UP SEEK CMND CODE
1342 005330' 012701 000060      MOV      #060,R1      ;SET UP CMND FLAG WORD
1343 005334' 004767 001774      SKCOM: JSR      PC,CKDBSY      ;GO CK IF DEV IS BUSY
1344 005340' 005267 174742      INC      SKCNT      ;ADD 1 TO SEEK CMND COUNT
1345 005344' 000424      BR          CMDCOM      ;GO TO CMND COMMON PROCESSING

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1347                                     ;"SEARCH" FUNCTION ROUTINE
1348
1349                                     ;JSR    RS,SEARCH      FUNCTION CALL
1350
1351 005346' 012702 000131      SEARCH: MOV    #131,R2      ;SET UP SRCH CMND CODE
1352 005352' 012701 000060      MOV    #060,R1      ;SET UP CMND FLAG WORD
1353 005356' 000766      BR      SKCOM      ;GO TO SEEK CMND COM PROCESSING
1354
1355                                     ;"OFFSET" FUNCTION ROUTINE
1356
1357                                     ;JSR    RS,OFFSET      FUNCTION CALL
1358                                     ;.WORD  VALUE      BINARY OFFSET VALUE
1359
1360
1361 005360' 012702 000115      OFFSET: MOV    #115,R2      ;SET UP OFFSET CMND CODE
1362 005364' 012701 000140      MOV    #140,R1      ;SET UP CMND FLAG WORD
1363 005370' 000761      BR      SKCOM      ;GO TO SEEK CMND COM PROCESSING
1364
1365                                     ;"RETCTR" FUNCTION ROUTINE
1366
1367                                     ;JSR    RS,RETCTR      FUNCTION CALL
1368
1369
1370 005372' 012702 000117      RETCTR: MOV    #117,R2      ;SET UP RETURN TO CENTERLINE CMND CODE
1371 005376' 012701 000040      MOV    #040,R1      ;SET UP CMND FLAG WORD
1372 005402' 000754      BR      SKCOM      ;GO TO SEEK CMND COM PROCESSING
1373
1374                                     ;"RECAL" FUNCTION ROUTINE
1375
1376                                     ;JSR    RS,RECAL      FUNCTION CALL
1377
1378
1379 005404' 012702 000107      RECAL:  MOV    #107,R2      ;SET UP RECALIBRATE CMND CODE
1380 005410' 012701 000040      MOV    #040,R1      ;SET UP CMND FLAG WORD
1381 005414' 000747      BR      SKCOM      ;GO TO SEEK CMND COM PROCESSING

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; INTERRUPT TYPE I/O FUNCTION COMMON PROCESSING ROUTINE

; R4 = ADR OF RPS1 DEV REG
 ; R3 = PROG TBL ADR
 ; R2 = COMMAND CODE
 ; R1 = COMMAND FLAG WORD
 ; R0 = ADR OF BYTE COUNT, IF APPLICABLE

; CMND FLAGWORD FORMAT:

; BIT 9 = 1000 = RDHD COMMAND
 ; BIT 8 = 400 = DO ECC CORRECTION IF ALLOWED
 ; BIT 7 = 200 = PERFORM RETRIES ON CMND
 ; BIT 6 = 100 = OFFSET COMMAND
 ; BIT 5 = 040 = CMND TERMINATES WITH ATA
 ; BIT 4 = 020 = SET UP CYL/HD/SECT #
 ; BIT 3 = 010 = INCREMENT BYTE COUNTS
 ; BIT 2 = 004 = DATA TRANSFER CMND
 ; BIT 1 = 002 = 3 ARGUMENT CMND
 ; BIT 0 = 001 = 4 ARGUMENT CMND

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005416' 010067 174722
 005422' 004767 176764
 005426' 010167 174714
 005432' 056702 174734
 005436' 010267 174706
 005442' 032701 000003
 005446' 001422
 005450' 012567 174676
 005454' 012567 174674
 005460' 012500
 005462' 042700 000001
 005466' 010067 174666
 005472' 000241
 005474' 006000
 005476' 005400
 005500' 010067 174652
 005504' 032701 000001
 005510' 001401
 005512' 005725
 005514' 032767 001000 172260 10\$:
 005522' 001006
 005524' 032764 000100 000012
 005532' 001002
 005534' 112714 000023
 005540' 004767 000112 20\$:
 005544' 016700 174626
 005550' 032701 000100
 005554' 001402
 005556' 012546
 005560' 152600
 005562' 010064 000032 30\$:
 005566' 016767 172220 174570
 005574' 005067 174566

CMDCON: MOV R0, CNTADR
 JSR PC, ACQHSK
 MOV R1, CURFLG
 BIS RPS1V, R2
 MOV R2, CURCMD
 BIT #3, R1
 BEQ 10\$
 MOV (R5)+, CURADR
 MOV (R5)+, CURADR+2
 MOV (R5)+, R0
 BIC #1, R0
 MOV R0, CURPBC
 CLC
 ROR R0
 NEG R0
 MOV R0, CURCNT
 BIT #1, R1
 BEQ 10\$
 TST (R5)+
 BIT #VVFLG, DFLGWD
 BNE 20\$
 BIT #VV, RPS1(R4)
 BNE 20\$
 MOVB #023, (R4)
 JSR PC, SUIORG
 MOV RPOFV, R0
 BIT #100, R1
 BEQ 30\$
 MOV (R5)+, -(SP)
 BISB (SP)+, R0
 MOV R0, RPOF(R4)
 MOV RTRY, CURRTY
 CLR RTRYIP

; SAVE ADR OF BYTE COUNT
 ; ACQUIRE & HOUSEKEEP THE DISK
 ; SAVE FLAGWD FOR TERMINATION
 ; SET PORT SELECT BIT IN CMND CODE
 ; SAVE CURR CMND CODE
 ; THIS CMND HAVE BUS ADR & WD CNT?
 ; Y N-10\$
 ; STORE 2 WORD BUS ADR
 ; GET BYTE COUNT
 ; MAKE SURE ITS EVEN
 ; SAVE POSITIVE BYTE CNT
 ; MAKE IT A WORD COUNT
 ; MAKE IT NEGATIVE
 ; SAVE IT
 ; THERE A 4TH WORD?
 ; Y, N-10\$
 ; BYPASS IT
 ; VVON STATEMENT IN EFFECT?
 ; Y N-20\$
 ; IS THE VV BIT SET?
 ; N Y-20\$
 ; ISSUE PACK ACKNOWLEDGE CMND
 ; GO SET UP REGS FOR I/O
 ; GET RPOF BIT VALUES
 ; THIS THE OFFSET CMND?
 ; Y N-30\$
 ; RETRIEVE OFFSET VALUE
 ; SET IT IN RPOF VALUE
 ; LOAD UP RPOF REGISTER
 ; INITIALIZE RETRY COUNT
 ; CLEAR RETRY IN PROGRESS FLAG

MAINDEC-11-DTRPA-B RH11/RH70 - RPO4/RPO5/RPO6 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:21 PAGE 8-4 SEQ 0031
DTRPAB.P11 RPO4/RPO5/RPO6 INTERRUPT TYPE I/O FUNCTION ROUTINES

1439	005600'	012767	003503	001770		MOV	#IOTERM-ERMBAS,INTEAD	:INIT TERMINATION ERROR MSG
1440	005606'	052767	000002	172166		BIS	#DOTERM,DFLGWD	:SET THE "PROCESS TERMINATION" FLAG
1441	005614'	052713	000010			BIS	#WT4IOT,(R3)	:SET WAITING FOR I/O TERM FLAG
1442	005620'	052767	000300	172154		BIS	#CMDISU+ANYIOI,DFLGWD	:SET CMD ISSUED FLAG
1443	005626'	010214				MOV	R2,(R4)	:ISSUE SPECIFIED CMD
1444	005630'	005767	172146			TST	DFLGWD	: "NOWAIT" BIT SET?
1445	005634'	100003				BPL	40\$	:Y,N-40\$
1446	005636'	042713	000010			BIC	#WT4IOT,(R3)	:RESET WAITING FOR I/O TERM
1447	005642'	000404				BR	50\$	:GO TO EXIT
1448	005644'	004577	172176		40\$:	JSR	R5,ACIOSBY	:WAIT FOR I/O TO COMPLETE
1449	005650'	004767	001626			JSR	PC,PROCTM	:GO PROCESS TERMINATION
1450	005654'	000205			50\$:	RTS	R5	:EXIT IN-LINE TO USER PROG
1451								
1452								
1453								
1454								
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1461								
1462								
1463								
1464								
1465								
1466	005656'	032701	000020		SUIORG:	BIT	#20,R1	:NEED TO SET UP CYL/HEAD/SECT?
1467	005662'	001412				BEQ	10\$	:Y,N-10\$
1468	005664'	016764	172114	000034		MOV	CYL,RPDC(R4)	:LOAD CYL #
1469	005672'	016746	172110			MOV	HEAD,-(SP)	:GET HEAD #
1470	005676'	000316				SWAB	(SP)	:PUT IN CORRECT BIT POSITION
1471	005700'	116716	172104			MOVB	SECT,(SP)	:SET IN SECT #
1472	005704'	012664	000006			MOV	(SP)+,RPDA(R4)	:LOAD HEAD & SECT #'S
1473	005710'	032701	000004		10\$:	BIT	#4,R1	:DATA XFER CMD?
1474	005714'	001423				BEQ	30\$	:Y,N-30\$
1475	005716'	016700	174430			MOV	CURADR,R0	:GET HIGH BITS OF ADR
1476	005722'	042700	177774			BIC	#177774,R0	:RESET BITS ABOVE A17
1477	005726'	000300				SWAB	R0	:ALIGN BITS A16 & A17
1478	005730'	050002				BIS	R0,R2	:SET THEM INTO CMD CODE WORD
1479	005732'	016764	174416	000004		MOV	CURADR+2,RPBA(R4)	:LOAD BITS 0-15 OF ADR
1480	005740'	032777	000010	172116		BIT	#CPU70,ACSYSFW	:RUNNING ON AN 11/70?
1481	005746'	001403				BEQ	20\$	:Y,N-20\$
1482	005750'	016764	174376	000050		MOV	CURADR,RPBAE(R4)	:MOVE BITS A16-A21 TO ADR EXT
1483	005756'	016764	174374	000002	20\$:	MOV	CURCNT,RPWC(R4)	:LOAD WORD COUNT
1484	005764'	000207			30\$:	RTS	PC	:EXIT IN-LINE

.SBTTL RPO4/RPO5/RPO6 INTERRUPT SERVICE ROUTINE

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1489 005766' 004067 003346      RHPINT: JSR      RD, SAVREG      ;SAVE ALL REGISTERS
1490 005772' 004567 003414      JSR      RS, STSTAT    ;GO STORE ALL DEV REG'S
1491 005776' 174136              .WORD      ISTAT-
1492 006000' 005267 174334      INC      INT CNT      ;ADD 1 TO INTERRUPT CNT
1493 006004' 004767 003362      JSR      PC, SUPTAD    ;SET UP PROG TEL & RPCS1 ADR'S
1494 006010' 032767 000010 171764 BIT      #SMOVR, DFLGWD ;WAITING FOR SWITCH OVER INT?
1495 006016' 001457              BEQ      TRMINT      ;Y, N-TRMINT
1496 006020' 016400 000016      MOV      RPAS(R4), RO    ;GET ATA REG CONTENTS
1497 006024' 105700              TSTB     RO            ;ANY ATA LINES SET?
1498 006026' 001011              BNE      10$          ;N, Y-10$
1499 006030' 012767 003531 176620 MOV      #NOATA-ERMBAS, ACQIAD ;SET UP ADR OF NO ATA ON INT ERR
1500 006036' 042713 000010      BIC      #WT4IOT, (R3)    ;RESET WAITING FOR I/O TERM FLAG
1501 006042' 052767 000020 171732 BIS      #SMOIER, DFLGWD ;SET ERROR ON SWITCH OVER INT
1502 006050' 000470              BR       INTEX        ;GO TO INT EXIT
1503 006052' 036700 177100      10$: BIT      MYATA, RO    ;IS IT MY ATA?
1504 006056' 001003              BNE      15$          ;N, Y-15$
1505 006060' 010064 000016      MOV      RO, RPAS(R4)    ;RESET OTHER ATA
1506 006064' 000431              BR       25$          ;GO SET INT ENABLE
1507 006066' 032764 100000 000012 15$: BIT      #ATA, RPO5(R4) ;DO I HAVE THE DISK?
1508 006074' 001004              BNE      17$          ;N, Y-17$
1509 006076' 116764 177054 000016 MOVB     MYATA, RPAS(R4) ;RESET MY ATA LINE
1510 006104' 000421              BR       25$          ;GO SET INT ENB & EXIT
1511 006106' 036700 177046      17$: BIT      OTHATA, RO   ;OTHER ATA LINES SET?
1512 006112' 001402              BEQ      18$          ;Y, N-18$
1513 006114' 010064 000016      MOV      RO, RPAS(R4)    ;RESET OTHER ATA
1514 006120' 032764 000400 000012 18$: BIT      #DPR, RPO5(R4) ;DRIVE PRESENT SET?
1515 006126' 001004              BNE      20$          ;N, Y-20$
1516 006130' 012767 003457 176520 MOV      #DPNSET-ERMBAS, ACQIAD ;SET UP ADR OF DRV NOT PRES ERR MSG
1517 006136' 000737              BR       5$           ;GO CLEAR FLAGS
1518 006140' 112714 000011      20$: MOVB     #011, (R4)    ;RESET MY ATA WITH DRIVE CLEAR
1519 006144' 042713 000010      BIC      #WT4IOT, (R3)    ;RESET WAITING FOR I/O TERM FLAG
1520 006150' 112714 000101      25$: MOVB     #101, (R4)    ;SET INT ENABLE WITH NOP CMND
1521 006154' 000426              BR       INTEX        ;GO TO INT EXIT
1522
1523 006156' 016701 174164      TRMINT: MOV      CURFLG, R1  ;GET THIS CMND'S FLGWD
1524 006162' 005714              TST      (R4)          ;IS 'SC' BIT SET?
1525 006164' 100426              BMI      CKSC          ;N, Y-CKSC
1526 006166' 032701 000040      BIT      #40, R1        ;CMND SUPPOSED TO SET ATA?
1527 006172' 001406              BEQ      CLRWTF       ;Y, N-CLRWTF
1528 006174' 012767 003531 001374 MOV      #NOATA-ERMBAS, INTEAD ;SET UP NO ATA ERR MSG ADR
1529 006202' 052767 000001 171572 SETERR: BIS      #IOERR, DFLGWD ;SET THE TERMINATION I/O ERR FLAG
1530 006210' 042713 000010      CLRWTF: BIC      #WT4IOT, (R3) ;RESET WAITING FOR I/O TERM
1531 006214' 032767 000004 174124 BIT      #4, CURFLG   ;THIS A DATA TRANSFER CMND?
1532 006222' 001403              BEQ      INTEX        ;Y, N-INTEX
1533 006224' 016467 000002 174130 MOV      RPOC(R4), FINCNT ;SAVE FINAL WORD COUNT
1534 006232' 004067 003116      INTEX: JSR      RO, RESREG  ;RESTORE ALL REGISTERS
1535 006236' 000177 171632      JMP      @RTNINT    ;EXIT FROM INTERRUPT
1536
1537 006242' 032714 020000      CKSC:  BIT      #MCPE, (R4)    ;MCPE ERROR SET?
1538 006246' 001402              BEQ      28$          ;N, Y-HARDER
1539 006250' 000167 000400      JMP      HARDER      ;TRE ERROR BIT SET?
1540 006254' 032714 040000      28$: BIT      #TRE, (R4)    ;N, Y-ERRFND
1541 006260' 001031              BNE      ERRFND

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MAINDEC-11-DTRPA-B RH11/RH70 - RPO4/RPO5/RPO6 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:21 PAGE 9-1 SEQ 0033
DTRPAB.P11 RPO4/RPO5/RPO6 INTERRUPT SERVICE ROUTINE

1542	006262'	032764	040000	000012		BIT	#ERR, RPO5(R4)	:ERROR SUMMARY BIT SET?
1543	006270'	001025				BNE	ERRFND	:N,Y-ERRFND
1544	006272'	016400	000016			MOV	RPAS(R4),R0	:GET ATA REG
1545	006276'	036700	176654			BIT	MYATA,R0	:MY ATA BIT SET?
1546	006302'	001011				BNE	40S	:N,Y-40S
1547	006304'	010064	000016			MOV	R0,RPAS(R4)	:RESET OTHER ATA BITS
1548	006310'	032701	000004			BIT	#4,R1	:DATA XFER CMND?
1549	006314'	001335				BNE	CLWTF	:N,Y-CLWTF
1550	006316'	036764	176634	000016	30S:	BIT	MYATA,RPAS(R4)	:MY ATA SET?
1551	006324'	001774				BEQ	30S	:Y,N-30S
1552	006326'	032701	000040		40S:	BIT	#40,R1	:CMND SUPPOSED TO SET ATA?
1553	006332'	001326				BNE	CLWTF	:N,Y-CLWTF
1554	006334'	012767	003551	001234		MOV	#UXPATA-ERMBAS,INTEAD	:SET UP UNEXP ATA ERR MSG ADR
1555	006342'	000717				BR	SETERR	:GO TO ERROR EXIT
1556								
1557	006344'	032764	037400	000010	ERRFND:	BIT	#037400,RPCS2(R4)	:UPE/NED/NEH/PGE/MXF/MOPE
1558	006352'	001140				BNE	HARDER	:IN RPCS2? (N,Y-HARDER)
1559	006354'	032764	067057	000014		BIT	#067057,RPER1(R4)	:UNS/OPI/MLE/IAE/AOE/MCF/PAR/RMR/
1560	006362'	001134				BNE	HARDER	:ILR/ILF IN RPER1? (N,Y-HARDER)
1561	006364'	032764	137777	000040		BIT	#137777,RPER2(R4)	:ACU/PLU/30VU/IXE/MHS/MHS/MRU/ABS/
1562								:FEN/TUF/TDF/RAW/MSE/CSU/MSU/CSF/
1563	006372'	001130				BNE	HARDER	:MCU IN RPER2? (N,Y-HARDER)
1564	006374'	032764	160153	000042		BIT	#160153,RPER3(R4)	:OCYL/SKI/OPE/DCL/ACL/UMR/MAO/VUF/
1565	006402'	001124				BNE	HARDER	:DCU/PSU IN RPER3? (N,Y-HARDER)
1566	006404'	032764	140000	000010		BIT	#140000,RPCS2(R4)	:DLT OR MCE IN RPCS2?
1567	006412'	001004				BNE	CKRTRY	:N,Y-CKRTRY
1568	006414'	032764	010720	000014		BIT	#010720,RPER1(R4)	:DTE/MCRC/MCE/ECH/FER IN RPER1?
1569	006422'	001524				BEQ	CKCORR	:Y,N-CKCORR
1570	006424'	005767	173736		CKRTRY:	TST	RTRYIP	:ALREADY DONE RETRIES ON THIS CMND?
1571	006430'	001063				BNE	55S	:N,Y-55S
1572	006432'	005767	173726			TST	CURTY	:ARE RETRIES SPECIFIED?
1573	006436'	001506				BEQ	HARDER	:Y,N-HARDER
1574	006440'	032764	100000	000010		BIT	#100000,RPCS2(R4)	:DLT ERROR?
1575	006446'	001403				BEQ	42S	:Y,N-42S
1576	006450'	005267	173644			INC	DLTCNT	:ADD 1 TO DLT COUNT
1577	006454'	000451				BR	55S	:GO CK RETRY COUNT
1578	006456'	032764	010000	000014	42S:	BIT	#10000,RPER1(R4)	:DTE ERROR?
1579	006464'	001403				BEQ	44S	:Y,N-44S
1580	006466'	005267	173630			INC	DTECNT	:ADD 1 TO DTE COUNT
1581	006472'	000442				BR	55S	:GO CK RETRY COUNT
1582	006474'	032764	000400	000014	44S:	BIT	#400,RPER1(R4)	:MCRC ERROR?
1583	006502'	001403				BEQ	46S	:Y,N-46S
1584	006504'	005267	173614			INC	MCRCNT	:ADD 1 TO MCRC COUNT
1585	006510'	000433				BR	55S	:GO CK RETRY COUNT
1586	006512'	032764	000020	000014	46S:	BIT	#20,RPER1(R4)	:FER ERROR?
1587	006520'	001403				BEQ	48S	:Y,N-48S
1588	006522'	005267	173600			INC	FERCNT	:ADD 1 TO FER COUNT
1589	006526'	000424				BR	55S	:GO CK RETRY COUNT
1590	006530'	032764	000200	000014	48S:	BIT	#200,RPER1(R4)	:HCE ERROR?
1591	006536'	001403				BEQ	50S	:Y,N-50S
1592	006540'	005267	173564			INC	HCECNT	:ADD 1 TO HCE COUNT
1593	006544'	000415				BR	55S	:GO CK RETRY COUNT
1594	006546'	032764	100000	000014	50S:	BIT	#100000,RPER1(R4)	:DCK ERROR?
1595	006554'	001403				BEQ	52S	:Y,N-52S
1596	006556'	005267	173550			INC	DCKCNT	:ADD 1 TO DCK COUNT
1597	006562'	000406				BR	55S	:GO CK RETRY COUNT

1598	006564'	032764	040000	000010	52\$:	BIT	#40000,RPCS2(R4)	:WCE ERROR?
1599	006572'	001402				BEQ	55\$	:Y,N-55\$
1600	006574'	005267	173534			INC	WCECNT	:ADD 1 TO WCE COUNT
1601	006600'	005367	173560		55\$:	DEC	CURRTY	:DECREMENT RETRY COUNT
1602	006604'	100004				BPL	60\$	:CNT EXHAUSTED? (Y,N-60\$)
1603	006606'	012767	003570	000762		MOV	#RTYEXH-ERMBAS,INTEAD	:SET UP EXHAUSTED RETRIES ERR MSG ADR
1604	006614'	000425				BR	JSETER	:GO TO ERROR EXIT
1605	006616'	005267	173514		60\$:	INC	RETRY\$	:ADD 1 TO RETRY TOTAL CNT
1606	006622'	005267	173540			INC	RTRYIP	:SET RETRY IN PROGRESS FLAG
1607	006626'	012714	040011			MOV	#40011,(R4)	:ISSUE RH11 & DRIVE CLEAR
1608	006632'	016702	173512			MOV	CURCMD,R2	:GET CURR CMND IN R2
1609	006636'	004767	177014			JSR	PC,SUIORG	:SET UP DEV REGS
1610	006642'	005063	000030			CLR	PTOCNT(R3)	:H\$K\$P T/O COUNT
1611	006646'	010214				MOV	R2,(R4)	:RE-ISSUE THE ORIG CMND
1612	006650'	000167	177356		JINTEX:	JMP	INTEX	:GO TO INT EXIT
1613								
1614	006654'	032764	040000	000014	HARDER:	BIT	#UNS,RPER1(R4)	:IS THE UNSAFE BIT SET?
1615	006662'	001402				BEQ	JSETER	:Y,N-SETERR
1616	006664'	112714	000011			MOVB	#011,(R4)	:ISSUE DRIVE CLEAR FOR UNSAFE COND
1617	006670'	000167	177306		JSETER:	JMP	SETERR	:GO TO ERROR EXIT
1618								
1619	006674'	032764	100000	000014	CKCORR:	BIT	#100000,RPER1(R4)	:DCK SHD BE SET - IS IT?
1620	006702'	001764				BEQ	HARDER	:Y,N-HARDER (NO ERROR BITS SET)
1621	006704'	032767	002000	171070		BIT	#CORFLG,DFLGWD	:CORON STATEMENT IN EFFECT?
1622	006712'	001244				BNE	CKRTRY	:Y,N-CKRTRY
1623	006714'	032764	010000	000032		BIT	#10000,RPOF(R4)	:IN 18 BIT WORD MODE?
1624	006722'	001640				BEQ	CKRTRY	:N,Y-CKRTRY
1625	006724'	032764	004000	000032		BIT	#4000,RPOF(R4)	:IS THE ECI BIT SET?
1626	006732'	001234				BNE	CKRTRY	:N,Y-CKRTRY
1627	006734'	005764	000046			TST	RPEC2(R4)	:ECC BIT PATTERN = 0?
1628	006740'	001004				BNE	70\$	:Y,N-70\$
1629	006742'	012767	003612	000626		MOV	#INVPAT-ERMBAS,INTEAD	:SET UP INV BIT PATTERN ERR MSG ADR
1630	006750'	000747				BR	JSETER	:GO TO ERROR EXIT
1631	006752'	026427	000044	010041	70\$:	CMP	RPEC1(R4),#10041	:ECC BIT POSITION TOO BIG?
1632	006760'	101404				BLOS	80\$	:Y,N-80\$
1633	006762'	012767	003636	000606		MOV	#INVPOS-ERMBAS,INTEAD	:SET UP INV BIT POSITION ERR MSG ADR
1634	006770'	000737				BR	JSETER	:GO TO ERROR EXIT
1635	006772'	016405	000002		80\$:	MOV	RPWC(R4),R5	:GET REMAINING NEG WORD CNT
1636	006776'	006305				ASL	R5	:MAKE IT A BYTE CNT
1637	007000'	066705	173354			ADD	CURPBC,R5	:ADD IN ORIG POS BYTE CNT
1638	007004'	001607				BEQ	CKRTRY	:ANY BYTES READ? (Y,N-CKRTRY)
1639	007006'	005001				CLR	R1	:RESET DATA START DISPL VALUE
1640	007010'	012746	001000			MOV	#512,-(SP)	:INITIALIZE BLOCK LENGTH
1641	007014'	032767	001000	173324		BIT	#1000,CURFLG	:READ HEADER AND DATA CMND?
1642	007022'	001402				BEQ	85\$	:Y,N-85\$
1643	007024'	062716	000010			ADD	#8,(SP)	:ALLOW FOR HEADER WORDS
1644	007030'	020516			85\$:	CMP	R5,(SP)	:REACHED START OF BAD BLOCK?
1645	007032'	101403				BLOS	90\$	:N,Y-90\$
1646	007034'	061601				ADD	(SP),R1	:ADD BLK LGTH TO DATA DISPL
1647	007036'	161605				SUB	(SP),R5	:REDUCE BYTE READ CNT
1648	007040'	000773				BR	85\$	:GO CK IT NOW
1649	007042'	162716	001000		90\$:	SUB	#512,-(SP)	:REMOVE CNT FOR DATA WORDS
1650	007046'	062601				ADD	(SP)+,R1	:ALLOW FOR HEADER WDS IF NEEDED
1651	007050'	016400	000044			MOV	RPEC1(R4),R0	:GET ECC BIT POSITION VALUE
1652	007054'	005300				DEC	R0	:ADJ IT FOR SHIFTING
1653	007056'	010002				MOV	R0,R2	:SET UP A SHIFT COUNT

```

1654 007060' 042702 177760      BIC      #177760,R2      ;ISOLATE SHIFT CNT BITS
1655 007064' 040200      BIC      R2,R0      ;CLEAR SHIFT CNT BITS IN BIT POSITION
1656 007066' 006200      ASR      R0      ;CONVERT BIT POSITION TO A WORD
1657 007070' 006200      ASR      R0      ;DISPL INTO THE DATA IN THIS
1658 007072' 006200      ASR      R0      ;BLOCK
1659 007074' 060001      ADD      R0,R1      ;ADD IT TO DATA DISPL VALUE
1660 007076' 020167 173256      CMP      R1,CURPBC      ;CORRECTION WITHIN USER'S DATA?
1661 007102' 103026      BHIS     110$      ;Y,N-110$
1662 007104' 005267 173204      INC      CECCER      ;ADD 1 TO CORRECTABLE ECC ERROR CNT
1663 007110' 016405 000046      MOV      RPEC2(R4),R5      ;GET ECC BIT PATTERN
1664 007114' 005046      CLR      -(SP)      ;CLEAR SHIFT INTO WORD
1665 007116' 005302      95$: DEC      R2      ;DECREMENT SHIFT COUNT
1666 007120' 002403      BLT      100$      ;FINISHED SHIFTING? (N,Y-100$)
1667 007122' 006305      ASL      R5      ;DO A BIT SHIFT ON 2 WORDS
1668 007124' 006116      ROL      (SP)
1669 007126' 000773      BR      95$
1670 007130' 004767 000052      100$: JSR      PC,DOCORR      ;GO CK SHIFT CNT
1671 007134' 012605      MOV      (SP)+,R5      ;CORRECT 1ST WORD OF PAIR
1672 007136' 062701 000002      ADD      #2,R1      ;GET 2ND CORRECTION WORD
1673 007142' 020167 173212      CMP      R1,CURPBC      ;INCR DATA DISPL VALUE
1674 007146' 103002      BHIS     105$      ;STILL WITHIN HIS DATA?
1675 007150' 004767 000032      JSR      PC,DOCORR      ;Y,N-105$
1676 007154' 004767 002212      105$: JSR      PC,SUPTAD      ;CORRECT 2ND WORD OF PAIR
1677 007160' 005764 000002      110$: TST      RPEC(R4)      ;SET UP R3 & R4 AGAIN
1678 007164' 001002      BNE      115$      ;ANY MORE DATA TO READ?
1679 007166' 000167 177016      JMP      CLRWTF      ;Y,N-115$
1680 007172' 112714 000011      115$: MOVB   #011,(R4)      ;GO CLEAR WAIT FLG & EXIT
1681 007176' 116714 173146      MOVB   CURCMD,(R4)      ;ISSUE DRIVE CLEAR CMND
1682 007202' 000167 177024      JMP      INTX      ;RESUME ORIG CMND
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1693 007206' 016703 173140      DOCORR: MOV   CURADR,R3      ;GET DATA'S ABS STARTING ADR
1694 007212' 016704 173136      MOV   CURADR+2,R4
1695 007216' 060104      ADD   R1,R4      ;ADD DATA DISPL INTO IT
1696 007220' 005503      ADC   R3
1697 007222' 032777 000001 170634      BIT   #MMVER,2CSYSFW      ;RUNNING UNDER MEM MGMNT?
1698 007230' 001424      BEQ   20$      ;Y,N-20$
1699 007232' 010400      MOV   R4,R0      ;LOW 16 BITS TO A WORK REG
1700 007234' 042704 177700      BIC   #177700,R4      ;ISOLATE UP TO 32 WORD OFFSET
1701 007240' 052704 100000      BIS   #P4CONS,R4      ;SET ADR TO SELECT PAGE 4
1702 007244' 012702 000006      MOV   #6,R2      ;SET UP SHIFT CNT
1703 007250' 006203      10$: ASR   R3      ;SHIFT ADR 1 BIT
1704 007252' 006000      ROR   R0
1705 007254' 005302      DEC   R2
1706 007256' 001374      BNE   10$      ;GOT HI 16 BITS IN 1 WORD?
1707 007260' 013746 172350      MOV   @#KPAR4,-(SP)      ;Y,N-10$
1708 007264' 013746 172310      MOV   @#KPR4,-(SP)      ;SAVE PAGE 4 STUFF
1709 007270' 010037 172350      MOV   R0,@#KPAR4      ;SET PAGE 4 TO USER'S AREA

```

;DO ECC DATA CORRECTION

;JSR PC,DOCORR S/R CALL

;R1 = DATA WORD DISPLACEMENT

;R5 = BIT PATTERN

;GET DATA'S ABS STARTING ADR

;ADD DATA DISPL INTO IT

;RUNNING UNDER MEM MGMNT?

;Y,N-20\$

;LOW 16 BITS TO A WORK REG

;ISOLATE UP TO 32 WORD OFFSET

;SET ADR TO SELECT PAGE 4

;SET UP SHIFT CNT

;SHIFT ADR 1 BIT

;GOT HI 16 BITS IN 1 WORD?

;Y,N-10\$

;SAVE PAGE 4 STUFF

;SET PAGE 4 TO USER'S AREA

K03

MAINDEC-11-DTRPA-B RH11/RH70 - RPO4/RPO5/RPO6 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:21 PAGE 9-4
 DTRPAB.P11 RPO4/RPO5/RPO6 INTERRUPT SERVICE ROUTINE

SEQ 0036

1710	007274'	012737	077406	172310	MOV	#PDRCON, @#KPDR4	
1711	007302'	011400			MOV	(R4), R0	: GET DATA WORD READ
1712	007304'	040514			BIC	R5, (R4)	: RESET PATTERN'S BITS IN WORD READ
1713	007306'	040005			BIC	R0, R5	: RESET WORD READ BITS IN PAT WORD
1714	007310'	050514			BIS	R5, (R4)	: SET REMAINING SINGLE BITS BACK IN
1715	007312'	032777	000001	170544	BIT	#MAVER, @CSYSFW	: RUNNING UNDER MEM MGMT?
1716	007320'	001404			BEQ	30\$	: Y, N-30\$
1717	007322'	012637	172310		MOV	(SP)+, @#KPDR4	: RESTORE PAGE 4'S REGS
1718	007326'	012637	172350		MOV	(SP)+, @#KPAR4	
1719	007332'	000207			RTS	PC	: EXIT IN-LINE

```

PROCTM:  MOV      R1,-(SP)                ;SAVE R1 & R2
         MOV      R2,-(SP)
         BIC      #DTERM,DFLGWD           ;RESET PROCESS TERMINATION FLAG
         BIT      #10,CURFLG              ;INCR BYTE COUNT?
         BEQ      20$                     ;Y,N-20$
         MOV      CURCNT,R0               ;GET INITIAL WORD CNT

```



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1777 007530' 005400      NEG      R0      ;MAKE IT POSITIVE AGAIN
1778 007532' 016701 172624  MOV      FINCNT,R1 ;GET FINAL WORD CNT
1779 007536' 100001      BPL      10$      ;IS IT NEGATIVE? (Y,N-10$)
1780 007540' 005401      NEG      R1      ;MAKE IT POSITIVE
1781 007542' 160100      10$: SUB      R1,R0 ;SUB REMAINING CNT FROM INITIAL CNT
1782 007544' 006300      ASL      R0      ;MAKE IT A BYTE CNT
1783 007546' 010067 170246  MOV      R0,SIZE ;STORE # OF BYTES ACTUALLY XFERRED
1784 007552' 016701 172566  MOV      CNTADR,R1 ;GET ADR OF BYTE CNT TOTALS
1785 007556' 060011      ADD      R0,(R1) ;ADD IN THIS CNT
1786 007560' 005541      ADC      -(R1) ;UPDATE MOST SIGNF WORD OF CNT
1787 007562' 032767 000001 170212 20$: BIT      #IOERR,DFLGWD ;WAS THERE AN ERROR?
1788 007570' 001412      BEQ      PROCEX ;Y N-PROCEX
1789 007572' 004567 000132      JSR      R5,ERRIS ;GO ISSUE I/O TERMINATION
1790 007576' 003503      INTEAD: .WORD  IOERM-ERMBAS ;ERROR MSG
1791 007600' 004767 000024      JSR      PC,RINTV ;RESET THE INT VECTOR
1792 007604' 012602      MOV      (SP)+,R2 ;RESTORE R1 & R2
1793 007606' 012601      MOV      (SP)+,R1
1794 007610' 004577 170234      JSR      R5,JCUPGER ;GO TO MPG ERR RETN POINT
1795 007614' 000207      RTS      PC      ;RETURN IN-LINE
1796 007616' 004767 000006  PROCEX: JSR      PC,RINTV ;GO RESET INT VECTOR
1797 007622' 012602      MOV      (SP)+,R2 ;RESTORE R1 & R2
1798 007624' 012601      MOV      (SP)+,R1
1799 007626' 000207      RTS      PC      ;EXIT IN-LINE
1800
1801
1802      ;RESET INTERRUPT VECTOR S/R
1803
1804      ;JSR      PC,RINTV      S/R CALL
1805      ;R3 MUST CONTAIN PROG TBL ADR
1806      ;DESTROYS R0
1807
1808 007630' 004567 000020      RINTV: JSR      R5,TVECT ;GO CK IF I HAVE VECTOR CONTROL
1809 007634' 000406      BR      RINTEX ;BR IF I DON'T
1810 007636' 016767 170164 000004  MOV      IVCTAD,10$ ;GET CURR INT VECT ADR
1811 007644' 004577 170220      JSR      R5,JCLAVEC ;GO HAVE MPG CLEAR IT
1812 007650' 000000      10$: .WORD  XXXX
1813 007652' 000207      RINTEX: RTS      PC      ;EXIT IN-LINE
1814
1815      ;TEST INTERRUPT VECTOR S/R
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1818      ;JSR      R5,TVECT      S/R CALL
1819      ;BR      LABEL      EXECUTED IF NOT SAME
1820      ;R3 MUST CONTAIN PROG TBL ADR
1821      ;DESTROYS R0
1822
1823 007654' 016767 170146 000010  TVECT: MOV      IVCTAD,20$ ;GET CURR INT VECT ADR
1824 007662' 016346 000004      MOV      PFWADR(R3),-(SP) ;STORE FLGWD ADR TO IDENTIFY ME
1825 007666' 004577 170200      JSR      R5,JTSTVEC ;DO I HAVE VECTOR CONTROL?
1826 007672' 000000      20$: .WORD  XXXX ;MPG WILL TELL ME SINCE I CAN'T
1827 007674' 176072      .WORD  RHPINT- ;GET AT LOWER MEM IF MEM MGMT
1828 007676' 000401      BR      TVECTX ;BR IF I DON'T HAVE CNTRL
1829 007700' 005725      TST      (R5)+ ;BYPASS BR INST IN S/R CALL
1830 007702' 000205      TVECTX: RTS      R5 ;EXIT IN-LINE

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007704'	004567	001502
007710'	172300	
007712'	012767	171606
007720'	012767	172052
007726'	000406	
007730'	012767	171532
007736'	012767	171776
007744'	012567	000131
007750'	005267	172336
007754'	012767	000001
007762'	032763	000400
007770'	001004	
007772'	032763	020000
010000'	001402	
010002'	000167	000462
010006'	010446	
010010'	010546	
010012'	005004	
010014'	004767	001502
010020'	032767	000100
010026'	001005	
010030'	004567	002066
010034'	003270	
010036'	000030	
010040'	000404	
010042'	004567	002054
010046'	003306	
010050'	000027	
010052'	010700	
010054'	062700	000030
010060'	061000	
010062'	012701	177777
010066'	005201	
010070'	105720	
010072'	001375	
010074'	010167	000006
010100'	004567	002016
010104'	000000	
010106'	000000	
010110'	026727	177770
010116'	103134	
010120'	010701	
010122'	062701	003102
010126'	010700	
010130'	062700	000342
010134'	010702	

000462
000212
000444
000174
170040
000002
000002
167754
003663

ERRCS:
ERRCS1:

ERRIS:
ERRCOM:

2S:
4S:

6S:

8S:

10S:

ERMBAS:

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JSR      RS,STAT
.WORD    CSTAT-
MOV      #CSTAT-ERSTAD,ERSTAD
MOV      #CSTAT-EBSBAS,EBSTAT
BR       ERRCOM
MOV      #ISTAT-ERSTAD,ERSTAD
MOV      #ISTAT-EBSBAS,EBSTAT
M.       (R5)+,ERMBAS
I.       ERRCNT
MOV      #1,ERRI
MOV      #DOERCK,POPSW(R3)
BNE      2$
BIT      #PRONER,POPSW(R3)
BEQ      4$
JMP      ERREX
MOV      R4,-(SP)
MOV      R5,-(SP)
CLR      R4
JSR      PC,DEVID
BIT      #CMDISU,DFLGWD
BNE      6$
JSR      R5,PRINT
.WORD    BEF10-.
.WORD    24.
BR       8$
JSR      R5,PRINT
.WORD    AFT10-.
.WORD    23.
MOV      PC,R0
ADD      #ERMBAS-.,R0
ADD      (R0),R0
MOV      #-1,R1
INC      R1
TSTB     (R0)+
BNE      10$
MOV      R1,ERMBAS+2
JSR      R5,PRINT
.WORD    XXXX
.WORD    XXXX
CMP      ERMBAS,#INVDVN-ERMBAS
BHS      ERRSNM
MOV      PC,R1
ADD      #CODFLD-.,R1
MOV      PC,R0
ADD      #ERCDTB-.,R0
MOV      PC,R2

```

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S/R CALL FOR CURR STATUS
S/R CALL FOR CURR STATUS W/O STORING
S/R CALL FOR INT STATUS
REL ADR OF ERROR MSG

;STORE CURR STATUS

;STORE ADR OF CURR STATUS

;GO TO COMMON POINT
;STORE ADR OF LAST INT STATUS

;STORE MSG ADR
;ADD 1 TO ERROR CNT
;SET THE ERROR INDICATOR
;SUPPOSED TO DO ERROR CHECKING?
;Y N-2$
;ERROR PRINTING INHIBITED?
;N Y-4$
;GO TO EXIT
;SAVE R4 & R5

;SET USER MODE PRINT FLAG
;DISPLAY DEVICE I.D.
;HAS THE CMND BEEN ISSUED?
;N Y-6$
;PRINT THE "BEFORE ISSUING I/O" MSG

;GO CALC MSG LNTH
;PRINT THE "AFTER ISSUING I/O" MSG

;GET START ADR OF ERROR MSG

;INITIALIZE MSG LENGTH
;ADD 1 TO MSG LENGTH
;MSG TERMINATOR?
;Y N-10$
;STORE MSG LENGTH
;PRINT ERROR MSG SPECIFIED

;INVALID UNIT # MSG OR HIGHER?
;N Y-ERRSNM
;GET ADR OF CODE AREA IN ERR MSG

;SET UP ADR OF ERROR CODE TBL

;SET UP ADR OF STORED DEV REG'S

```


1888	010136'	062702			EBSBAS: ADD	(PC)+,R2	
1889	010140'	172052			EBSTAT: .WORD	CSTAT-EBSBAS	
1890	010142'	012767	000015	000224	MOV	#13.,70\$	: INITIALIZE MSG LENGTH
1891	010150'	012746	000100		MOV	#64.,-(SP)	: INITIALIZE CODE FIELD CNT
1892	010154'	012205			15\$: MOV	(R2)+,R5	: GET NEXT DEV REG WORD
1893	010156'	000305			17\$: SWAB	R5	: GET DESIRED BYTE IN LOW BYTE
1894	010160'	112004			20\$: MOVB	(R0)+,R4	: GET FLAG & LENGTH BYTE
1895	010162'	005704			TST	R4	: END OF THE CODE TBL?
1896	010164'	001474			BEQ	60\$	: N,Y-60\$
1897	010166'	122704	000377		CMPS	#377,R4	: GO TO NXT DEV REG WORD?
1898	010172'	001770			BEQ	15\$	: N,Y-15\$
1899	010174'	122704	000376		CMPS	#376,R4	: GO TO NXT BYTE IN DEV REG WORD?
1900	010200'	001766			BEQ	17\$	: N,Y-17\$
1901	010202'	032704	000040		BIT	#40,R4	: THIS AN 11/70 ONLY ERROR BIT?
1902	010206'	001405			BEQ	22\$	: Y,N-22\$
1903	010210'	032777	000010	167646	BIT	#CPU70,ACSYSFW	: RUNNING ON AN 11/70?
1904	010216'	001430			BEQ	35\$	: Y,N-35\$
1905	010220'	000417			BR	26\$	: GO CK ERROR BIT
1906	010222'	032704	000010		22\$: BIT	#10,R4	: THIS AN RPO4 ONLY ERROR BIT?
1907	010226'	001405			BEQ	24\$	: Y,N-24\$
1908	010230'	032763	000060	000032	BIT	#60,PMDLCD(R3)	: THIS AN RPO4?
1909	010236'	001020			BNE	35\$	: Y,N-35\$
1910	010240'	000407			BR	26\$	: GO CK ERROR BIT
1911	010242'	032704	000020		24\$: BIT	#20,R4	: THIS AN RPO5/RPO6 ONLY ERROR BIT?
1912	010246'	001404			BEQ	26\$	: Y,N-26\$
1913	010250'	032763	000060	000032	BIT	#60,PMDLCD(R3)	: THIS AN RPO5/RPO6?
1914	010256'	001410			BEQ	35\$	: Y,N-35\$
1915	010260'	032704	000100		26\$: BIT	#100,R4	: BIT VALUE OF 0 = AN ERROR CONDITION?
1916	010264'	001403			BEQ	30\$	: Y,N-30\$
1917	010266'	131005			BITB	(R0),R5	: THIS BIT RESET IN DEV REG BYTE?
1918	010270'	001407			BEQ	40\$	: N,Y-40\$
1919	010272'	000402			BR	35\$	: GO TO NXT TBL ENTRY
1920	010274'	131005			30\$: BITB	(R0),R5	: THIS ERROR BIT SET IN DEV REG BYTE?
1921	010276'	001004			BNE	40\$	: N,Y-40\$
1922	010300'	042704	177770		35\$: BIC	#177770,R4	: ISOLATE ENTRY LENGTH
1923	010304'	060400			ADD	R4,R0	: POINT AT NXT CODE TBL ENTRY
1924	010306'	000724			BR	20\$	: GO CK FOR NXT CODE
1925	010310'	042704	177770		40\$: BIC	#177770,R4	: ISOLATE I.D. NAME LENGTH + 1
1926	010314'	020416			CMPS	R4,(SP)	: ENOUGH ROOM FOR NAME?
1927	010316'	101017			BHI	60\$	: Y,N-60\$
1928	010320'	060467	000050		ADD	R4,70\$	: ADJ MSG LENGTH FOR NAME
1929	010324'	005304			DEC	R4	: ADJ FOR BIT MASK CHAR
1930	010326'	005200			INC	R0	: POINT PAST BIT MASK
1931	010330'	021627	000100		CMPS	(SP),#64.	: FIRST ERROR CODE IN MSG?
1932	010334'	001403			BEQ	50\$	: N,Y-50\$
1933	010336'	112721	000054		MOVB	#,(R1)+	: MOVE COMMA TO MSG
1934	010342'	005316			DEC	(SP)	: ADJ REMAINING ROOM IN MSG
1935	010344'	112021			50\$: MOVB	(R0)+,(R1)+	: MOVE ERROR CODE TO MSG
1936	010346'	005316			DEC	(SP)	: ADJ REMAINING ROOM IN MSG
1937	010350'	005304			DEC	R4	: MOVED ALL NAME CHARS?
1938	010352'	001374			BNE	50\$	: Y,N-50\$
1939	010354'	000701			BR	20\$	: GO CK FOR MORE ERROR BITS
1940	010356'	005004			60\$: CLR	R4	: SET USER MODE PRINT
1941	010360'	022627	000100		CMPS	(SP)+,#64.	: ANY ERROR CODES PUT IN MSG?
1942	010364'	001404			BEQ	80\$	: Y,N-80\$
1943	010366'	004567	001530		JSR	R5,PRINT	: GO ISSUE ERROR BITS MSG

1944	010372'	002614			.WORD	DKMSG-	
1945	010374'	000116			.WORD	78.	
1946	010376'	004567	001250		70\$:	JSR	RS,DISPST
1947	010402'	000000			80\$:	JSR	RS,DISPST
1948	010404'	004767	001442		ERSTAD:	.WORD	XXXX
1949	010410'	016300	000022		JSR	PC,PTIWD	;DISPLAY CYL,HEAD,SECT VALUES
1950	010414'	111001			ERRSNM:	MOV	PSACST(R3),R0
1951	010416'	026067	000004	171716	110\$:	MOVB	(R0),R1
1952	010424'	001402			CMP	4(R0),ERRADR	;SAVE STMT LENGTH
1953	010426'	060100			BEQ	120\$	;ERROR OCCUR ON THIS STMT?
1954	010430'	000771			ADD	R1,R0	;N Y-120\$
1955	010432'	005720			BR	110\$	;POINT AT NXT STMT
1956	010434'	010701			120\$:	TST	(R0)+
1957	010436'	062701	002542		MOV	PC,R1	;SET UP ADR OF STMT & DATA
1958	010442'	004577	167414		ADD	#STNUM-.R1	;SET UP DATA OUTPUT ADR
1959	010446'	012767	020040	002530	JSR	RS,DECA\$C	;CONVERT IT TO ASCII
1960	010454'	004567	001442		MOV	#20040,STNUM+4	;SET 2 LOW DIGITS TO SPACES
1961	010460'	002510			JSR	RS,PRINT	;ISSUE STMT & MSG
1962	010462'	177762			.WORD	STNUM-	
1963	010464'	012605			.WORD	-14.	
1964	010466'	012604			MOV	(SP)+,RS	;RESTORE RS & R4
1965	010470'	000205			MOV	(SP)+,R4	
1966					ERREX:	RTS	RS
1967							;EXIT IN-LINE

;ERROR MESSAGE CODE TABLE

;377 = GO TO NEXT DEVICE REGISTER WORD
;376 = GO TO NEXT DEVICE REGISTER BYTE
;BYTE 0 CONTAINS FLAG BITS & I.D. NAME LENGTH
;BITS 0-2 = LENGTH OF BIT MASK + I.D. NAME
;BIT 3 = RPO4 ONLY ERROR BIT
;BIT 4 = RPO5/RPO6 ONLY ERROR BIT
;BIT 5 = 11/70 ONLY ERROR BIT
;BIT 6 = BIT = 0 IS AN ERROR CONDITION
;BYTE 1 IS THE BIT MASK
;BYTES 2 THRU ? ARE THE BIT'S ASCII I.D.

1985	010472'	100003	041523		ERCDTB:	.ASCII	<003><200>/SC/	;RPCS1 - BYTE 1
1986	010476'	040004	051124	105		.ASCII	<004><100>/TRE/	
1987	010503'	005	046440	050103		.ASCII	<005><040>/MCPE/	
1988	010511'	104	042010	040526		.ASCII	<104><010>/DVA/	
1989	010516'	377				.BYTE	377	
1990	010517'	377				.BYTE	377	
1991	010520'	377				.BYTE	377	
1992	010521'	377				.BYTE	377	
1993	010522'	100004	046104	124		.ASCII	<004><200>/DLT/	;RPCS2 - BYTE 1
1994	010527'	004	053500	042503		.ASCII	<004><100>/WCE/	
1995	010534'	020004	050125	105		.ASCII	<004><040>/UPE/	
1996	010541'	004	047020	042105		.ASCII	<004><020>/NED/	
1997	010546'	004004	042516	115		.ASCII	<004><010>/NEM/	
1998	010553'	004	050004	042507		.ASCII	<004><004>/PGE/	

1999	010560'	001004	054115	106	.ASCII	<004><002>/MXF/	
2000	010565'	005	046401	050104	.ASCII	<005><001>/MDPE/	
	010572'	105					
2001	010573'	377			.BYTE	377	
2002	010574'	100004	052101	101	.ASCII	<004><200>/ATA/	;RPDS - BYTE 1
2003	010601'	004	042500	051122	.ASCII	<004><100>/ERR/	
2004	010606'	020004	044520	120	.ASCII	<004><040>/PIP/	
2005	010613'	104	046420	046117	.ASCII	<104><020>/MOL/	
2006	010620'	000504	050104	122	.ASCII	<104><001>/DPR/	
2007	010625'	376			.BYTE	376	
2008	010626'	100104	051104	131	.ASCII	<104><200>/DRY/	;RPDS - BYTE 0
2009	010633'	103	053100	126	.ASCII	<103><100>/VV/	
2010	010637'	377			.BYTE	377	
2011	010640'	100004	041504	113	.ASCII	<004><200>/DCK/	;RPER1 - BYTE 1
2012	010645'	004	052500	051516	.ASCII	<004><100>/UNS/	
2013	010652'	020004	050117	111	.ASCII	<004><040>/OPI/	
2014	010657'	004	042020	042524	.ASCII	<004><020>/DTE/	
2015	010664'	004004	046127	105	.ASCII	<004><010>/MLE/	
2016	010671'	004	044404	042501	.ASCII	<004><004>/IAE/	
2017	010676'	001004	047501	105	.ASCII	<004><002>/AOE/	
2018	010703'	005	044001	051103	.ASCII	<005><001>/HCRC/	
	010710'	103					
2019	010711'	376			.BYTE	376	
2020	010712'	100004	041510	105	.ASCII	<004><200>/HCE/	;RPER1 - BYTE 0
2021	010717'	004	042500	044103	.ASCII	<004><100>/ECH/	
2022	010724'	020004	041527	106	.ASCII	<004><040>/MCF/	
2023	010731'	004	043020	051105	.ASCII	<004><020>/FER/	
2024	010736'	004004	040520	122	.ASCII	<004><010>/PAR/	
2025	010743'	004	051004	051115	.ASCII	<004><004>/RMR/	
2026	010750'	001004	046111	122	.ASCII	<004><002>/ILR/	
2027	010755'	004	044401	043114	.ASCII	<004><001>/ILF/	
2028	010762'	377			.BYTE	377	
2029	010763'	376			.BYTE	376	
2030	010764'	100005	052101	033501	.ASCII	<005><200>/ATA7/	;RPAS - BYTE 0
2031	010772'	040005	052101	033101	.ASCII	<005><100>/ATA6/	
2032	011000'	020005	052101	032501	.ASCII	<005><040>/ATA5/	
2033	011006'	010005	052101	032101	.ASCII	<005><020>/ATA4/	
2034	011014'	004005	052101	031501	.ASCII	<005><010>/ATA3/	
2035	011022'	002005	052101	031101	.ASCII	<005><004>/ATA2/	
2036	011030'	001005	052101	030501	.ASCII	<005><002>/ATA1/	
2037	011036'	000405	052101	030101	.ASCII	<005><001>/ATA0/	
2038	011044'	377			.BYTE	377	
2039	011045'	377			.BYTE	377	
2040	011046'	377			.BYTE	377	
2041	011047'	377			.BYTE	377	
2042	011050'	377			.BYTE	377	
2043	011051'	377			.BYTE	377	
2044	011052'	377			.BYTE	377	
2045	011053'	377			.BYTE	377	
2046	011054'	377			.BYTE	377	
2047	011055'	014	040600	052503	.ASCII	<014><200>/ACU/	;RPER2 - BYTE 1
2048	011062'	020004	046120	125	.ASCII	<004><040>/PLU/	
2049	011067'	015	031420	053060	.ASCII	<015><020>/30VU/	
	011074'	125					
2050	011075'	004	044410	042530	.ASCII	<004><010>/IXE/	
2051	011102'	002004	044116	123	.ASCII	<004><004>/NHS/	

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2052	011107'	004	046402	051510	.ASCII	<004><002>/MHS/	
2053	011114'	000404	051127	125	.ASCII	<004><001>/MRU/	
2054	011121'	376			.BYTE	376	
2055	011122'	100024	041101	123	.ASCII	<024><200>/ABS/	;RPER2 - BYTE 0
2056	011127'	014	043200	047105	.ASCII	<014><200>/FEN/	
2057	011134'	040004	052524	106	.ASCII	<004><100>/TUF/	
2058	011141'	004	052040	043104	.ASCII	<004><040>/TDF/	
2059	011146'	010024	040522	127	.ASCII	<024><020>/RAW/	
2060	011153'	014	046420	042523	.ASCII	<014><020>/MSE/	
2061	011160'	004004	051503	125	.ASCII	<004><010>/CSU/	
2062	011165'	004	053404	052523	.ASCII	<004><004>/WSU/	
2063	011172'	001004	051503	106	.ASCII	<004><002>/CSF/	
2064	011177'	004	053401	052503	.ASCII	<004><001>/WCU/	
2065	011204'	377			.BYTE	377	
2066	011205'	005	047600	054503	.ASCII	<005><200>/OCYL/	;RPER3 - BYTE 1
	011212'	114					
2067	011213'	004	051500	044513	.ASCII	<004><100>/SKI/	
2068	011220'	020024	050117	105	.ASCII	<024><040>/OPE/	
2069	011225'	376			.BYTE	376	
2070	011226'	040004	041504	114	.ASCII	<004><100>/DCL/	;RPER3 - BYTE 0
2071	011233'	004	040440	046103	.ASCII	<004><040>/ACL/	
2072	011240'	004014	053525	122	.ASCII	<014><010>/UMR/	
2073	011245'	024	053402	047501	.ASCII	<024><002>/WAO/	
2074	011252'	001014	052526	106	.ASCII	<014><002>/VUF/	
2075	011257'	024	042001	052503	.ASCII	<024><001>/DCU/	
2076	011264'	000414	051520	125	.ASCII	<014><001>/PSU/	
2077	011271'	377			.BYTE	377	
2078	011272'	377			.BYTE	377	
2079	011273'	377			.BYTE	377	
2080	011274'	377			.BYTE	377	
2081	011275'	044	040600	042520	.ASCII	<044><200>/APE/	;RPCS3 - BYTE 1 (11/70 ONLY)
2082	011302'	040046	050104	047505	.ASCII	<046><100>/DPEOW/	
	011310'	127					
2083	011311'	046	042040	042520	.ASCII	<046><040>/DPEEW/	
	011316'	053505					
2084	011320'	010046	041527	047505	.ASCII	<046><020>/WCEOW/	
	011326'	127					
2085	011327'	046	053410	042503	.ASCII	<046><010>/WCEEW/	
	011334'	053505					
2086	011336'	000			.BYTE	0	;TABLE TERMINATOR
2087	011340'				.EVEN		

.SBTTL SUBROUTINES FOR RP04/RP05/RP06 DEVICE ROUTINE

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011340' 010146
011342' 010246
011344' 010346
011346' 010446
011350' 010546
011352' 010007

011354' 005726
011356' 012605
011360' 012604
011362' 012603
011364' 012602
011366' 012601
011370' 000200

011372' 010703
011374' 062703 166404
011400' 166303 177776
011404' 016704 166414
011410' 000207

011412' 010501
011414' 062501
011416' 016700 166402
011422' 010046
011424' 062716 000010
011430' 012702 005011
011434' 032777 000010 166422
011442' 001402
011444' 062702 001000
011450' 012021

;SAVE REGISTERS R0 THRU R5

;JSR R0,SAVREG S/R CALL

SAVREG: MOV R1,-(SP) ;SAVE R0 THRU R5
MOV R2,-(SP)
MOV R3,-(SP)
MOV R4,-(SP)
MOV R5,-(SP)
MOV R0,PC ;EXIT IN-LINE

;RESTORE REGISTERS R0 THRU R5

;JSR R0,RESREG S/R CALL

RESREG: TST (SP)+ ;RESTORE R5 THRU R0
MOV (SP)+,R5
MOV (SP)+,R4
MOV (SP)+,R3
MOV (SP)+,R2
MOV (SP)+,R1
RTS R0 ;EXIT IN-LINE

;SET PROGRAM'S PROG TABLE ADR IN R3 & RPCS1 ADR IN R4

;JSR PC,SUPTAD S/R CALL

SUPTAD: MOV PC,R3 ;SET UP LOCATION ZERO ADR
ADD #LOCZ-,R3
SUB -2(R3),R3 ;SUBTRACT PROG TBL LENGTH
MOV DREGAD,R4 ;GET DEV REG BASE ADR
RTS PC ;EXIT IN-LINE

;STORE DEVICE'S STATUS REGISTERS

;JSR R5,STSTAT S/R CALL
WORD STADR- REL STORAGE ADR
;DESTROYS R0,R1,R2

STSTAT: MOV R5,R1 ;GET REL STORAGE ADR & MAKE
ADD (R5)+,R1 ;IT ABSOLUTE
MOV DREGAD,R0 ;GET DEV REG ADR
MOV R0,-(SP) ;SET UP ADR OF RPCS2 REG
ADD #RPCS2,(SP) ;FOR LATER USE
MOV #5011,R2 ;SET UP TWO LOOP COUNTS
BIT #CPU70,ACSYSFW ;RUNNING ON AN 11/70?
BEQ 10\$;Y,N-10\$
ADD #1000,R2 ;ALLOW FOR 2 MORE REGS
10\$: MOV (R0)+,(R1)+ ;STORE DEV REG

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2145 011452' 105302          DECB      R2          ;FINISHED WITH THIS GROUP OF REGS?
2146 011454' 001375          BNE       10$        ;Y,N-10$
2147 011456' 000302          SWAB      R2          ;SET UP NEXT LOOP CNT
2148 011460' 001417          BEQ       30$        ;DONE 2 PASSES? (N,Y-30$)
2149 011462' 010746          MOV       PC,-(SP)    ;SET UP CURRENT STATUS
2150 011464' 062716 170524   ADD       #CSTAT-.,(SP) ;STORAGE ADR
2151 011470' 020126          CMP       R1,(SP)+    ;STORING STATUS FOR INTERRUPT?
2152 011472' 101005          BHI       15$        ;Y,N-15$
2153 011474' 032736 000200   BIT       #200,2(SP)+ ;OUTPUT READY SET IN RPCS2?
2154 011500' 001403          BEQ       20$        ;Y,N-20$
2155 011502' 012021          MOV       (R0)+,(R1)+ ;STORE RPOB'S CONTENTS
2156 011504' 000761          BR        10$        ;GO DO SECOND PASS
2157 011506' 005726          15$: TST       (SP)+    ;TAKE UNUSED ADR OFF STACK
2158 011510' 062700 000002   20$: ADD       #2,R0    ;BYPASS READ OF RPOB
2159 011514' 005021          CLR       (R1)+    ;SET ITS STORAGE TO 0'S
2160 011516' 000754          BR        10$        ;GO DO SECOND PASS
2161 011520' 000205          30$: RTS       R5      ;EXIT IN-LINE
2162
2163
2164          ;DISPLAY DEVICE I.D. & UNIT #
2165
2166          ;JSR      PC,DEVID      S/R CALL
2167
2168          ;R3 MUST CONTAIN PROG TBL ADR
2169          ;DESTROYS R0,R1,R2
2170
2171 011522' 012700 032060   DEVID: MOV       #04,R0    ;INITIALIZE TO RPO4
2172 011526' 032763 000060 000032   BIT       #60,PMDLCD(R3) ;IS THIS AN RPO4?
2173 011534' 001410          BEQ       10$        ;N,Y-10$
2174 011536' 012700 032460   MOV       #05,R0    ;SET UP FOR AN RPO5
2175 011542' 032763 000020 000032   BIT       #20,PMDLCD(R3) ;IS IT AN RPO5?
2176 011550' 001002          BNE       10$        ;N,Y-10$
2177 011552' 012700 033060   MOV       #06,R0    ;MUST BE AN RPO6
2178 011556' 010067 000532 10$: MOV       R0,UNITMG+6 ;TAILOR DEV I.D. MSG
2179 011562' 012767 000026 000056   MOV       #22,DEVIML ;INITIALIZE TO NORMAL MSG LGTH
2180 011570' 116300 000035   MOVVB     PCURDV(R3),R0 ;GET CURR UNIT #
2181 011574' 020027 000007   CMP       R0,#7      ;VALID UNIT #?
2182 011600' 101007          BHI       DEVIIV    ;Y,N-DEVIIV
2183 011602' 004577 166252   JSR       R5,JBASLZ ;CONVERT # TO DECIMAL ASCII
2184 011606' 000524          .WORD     UNASCI-
2185 011610' 016767 000522 000514   MOV       UNASCI+4,UNASCI ;MOVE ASCII # TO 1ST TWO DIGITS
2186 011616' 000410          BR        DEVIPR    ;GO ISSUE MSG
2187 011620' 012767 000032 000020   DEVIIV: MOV      #26,DEVIML ;SET UP ERR COND MSG LGTH
2188 011626' 042700 177400   BIC       #177400,R0 ;RESET HIGH BYTE
2189 011632' 004577 166220   JSR       R5,JBINASC ;CONVERT BINARY # TO ASCII
2190 011636' 000474          .WORD     UNASCI-
2191 011640' 004567 000256   DEVIPR: JSR       R5,PRINT ;GO ISSUE UNIT # MSG
2192 011644' 000442          .WORD     UNITMG-
2193 011646' 000026          DEVIML: .WORD     22.
2194 011650' 000207          RTS       PC          ;EXIT IN-LINE

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2196                                     ;TAILOR STATUS MSG & PRINT IT
2197
2198                                     ;JSR    R5,DISPST
2199                                     ;WORD   STATADR-
2200                                     ;DESTROYS R0,R1,R2
2201
2202                                     ;SAVE R3
2203                                     ;GET REL DATA ADR
2204                                     ;MAKE IT ABS
2205                                     ;SAVE R5
2206                                     ;SET UP ADR OF REG NAMES IN ASCII
2207
2208                                     ;SET UP # OF REGISTERS TO DISPLAY
2209                                     ;RUNNING ON AN 11/70?
2210                                     ;Y,N-10$
2211                                     ;MAKE IT 22 REGISTERS
2212                                     ;SET UP 3 REG LOOP CNT
2213                                     ;POINT AT REG NAME IN MSG
2214
2215                                     ;MOVE REG NAME TO MSG
2216
2217                                     ;POINT TO NEXT NAME
2218                                     ;POINT TO NEXT FIELD IN MSG
2219                                     ;DONE 3 REGS?
2220                                     ;Y,N-15$
2221                                     ;CONVERT OCTAL REGISTER CONTENTS
2222                                     ;FOR 3 REGISTERS TO ASCII
2223                                     ;AND PLACE IN THE MSG
2224
2225
2226
2227
2228
2229
2230                                     ;INITIALIZE MSG LENGTH TO 3 REGS
2231                                     ;DECR REGISTER CNT
2232                                     ;< 3 REGS? (Y,N-25$)
2233                                     ;SHORTEN MSG LENGTH BY 1 REG
2234                                     ;INCR NEG REG CNT
2235                                     ;CNT BACK TO 0? (Y,N-20$)
2236                                     ;SAVE REG DATA PNTR
2237                                     ;RESTORE PROG TBL ADR
2238                                     ;GO PRINT THE MSG
2239
2240
2241                                     ;RESTORE REG DATA PNTR
2242                                     ;MORE REGS TO GO?
2243                                     ;N,Y-10$
2244                                     ;REMOVE CNT FROM STACK
2245                                     ;RESTORE R5 & R3
2246
2247                                     ;EXIT IN-LINE

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2201	011652'	010346		DISPST:	MOV	R3,-(SP)	
2202	011654'	010503			MOV	R5,R3	
2203	011656'	062503			ADD	(R5)+,R3	
2204	011660'	010546			MOV	R5,-(SP)	
2205	011662'	010705			MOV	PC,R5	
2206	011664'	062705	166232		ADD	#DVRGMS-,R5	
2207	011670'	012746	000024		MOV	#20,-(SP)	
2208	011674'	032777	000010	166162	BIT	#CPU70,ACSYSFW	
2209	011702'	001402			BEQ	10\$	
2210	011704'	062716	000002		ADD	#2,(SP)	
2211	011710'	012700	000003	10\$:	MOV	#3,R0	
2212	011714'	010701			MOV	PC,R1	
2213	011716'	062701	000422		ADD	#DVRGMS-,R1	
2214	011722'	012521		15\$:	MOV	(R5)+,(R1)+	
2215	011724'	012521			MOV	(R5)+,(R1)+	
2216	011726'	005725			TST	(R5)+	
2217	011730'	062701	000012		ADD	#10-,R1	
2218	011734'	005300			DEC	R0	
2219	011736'	001371			BNE	15\$	
2220	011740'	012300			MOV	(R3)+,R0	
2221	011742'	004577	166110		JSR	R5,ABINASC	
2222	011746'	000400			.WORD	DVRDT1-	
2223	011750'	012300			MOV	(R3)+,R0	
2224	011752'	004577	166100		JSR	R5,ABINASC	
2225	011756'	000406			.WORD	DVRDT2-	
2226	011760'	012300			MOV	(R3)+,R0	
2227	011762'	004577	166070		JSR	R5,ABINASC	
2228	011766'	000414			.WORD	DVRDT3-	
2229	011770'	012767	000050	000034	MOV	#40-,30\$	
2230	011776'	162716	000003		SUB	#3,(SP)	
2231	012002'	100005			BPL	25\$	
2232	012004'	162767	000016	000020	20\$:	SUB	#14-,30\$
2233	012012'	005216			INC	(SP)	
2234	012014'	100773			BMI	20\$	
2235	012016'	010346		25\$:	MOV	R3,-(SP)	
2236	012020'	016603	000006		MOV	6(SP),R3	
2237	012024'	004567	000072		JSR	R5,PRINT	
2238	012030'	000310			.WORD	DVRGMS-	
2239	012032'	000050		30\$:	.WORD	40	
2240	012034'	012603			MOV	(SP)+,R3	
2241	012036'	005716			TST	(SP)	
2242	012040'	001323			BNE	10\$	
2243	012042'	005726			TST	(SP)+	
2244	012044'	012605			MOV	(SP)+,R5	
2245	012046'	012603			MOV	(SP)+,R3	
2246	012050'	000205			RTS	R5	

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2249                                     ;DISPLAY CYL/HEAD/SECT WORDS' VALUES
2250
2251                                     ;JSR      PC,PRTIWD      S/R CALL
2252                                     ;DESTROYS R0,R1,R2
2253
2254 012052' 016700 165726      PRTIWD: MOV      CYL,R0      ;GET CYL VALUE
2255 012056' 004577 165774      JSR      R5,JBINASC      ;CONVERT ITS VALUE TO ASCII
2256 012062' 001045      .WORD      IF CYL-
2257 012064' 016700 165716      MOV      HEAD,R0      ;GET & CONVERT HEAD VALUE
2258 012070' 004577 165762      JSR      R5,JBINASC
2259 012074' 001050      .WORD      IF HEAD-
2260 012076' 016700 165706      MOV      SECT,R0      ;GET & CONVERT SECT VALUE
2261 012102' 004577 165750      JSR      R5,JBINASC
2262 012106' 001053      .WORD      IF SECT-
2263 012110' 004567 000006      JSR      R5,PRINT      ;PRINT MSG WITH THEIR VALUES
2264 012114' 001006      .WORD      INFO MG-
2265 012116' 000045      .WORD      37.
2266 012120' 000207      RTS      PC      ;EXIT IN-LINE
2267
2268
2269                                     ;ISSUE MSG TO LIST DEVICE SUBROUTINE
2270
2271                                     ;JSR      R5,PRINT      S/R CALL
2272                                     ;.WORD      MSGADR-      REL ADR OF MSG
2273                                     ;.WORD      BYTCNT      MSG BYTE CNT (IF NEGATIVE,
2274                                     ;                                     RESET PRT DEV DEDICATED.)
2275                                     ;R3 = PROG TBL ADR
2276                                     ;R4 = FLAGWORD -- IF NEGATIVE, USE CMND MODE PRINT
2277                                     ;DESTROYS R0,R1,R2
2278
2279 012122' 010500      PRINT: MOV      R5,R0      ;GET MSG ADR & MAKE IT ABS
2280 012124' 062500      ADD      (R5)+,R0
2281 012126' 012501      MOV      (R5)+,R1      ;GET BYTE COUNT
2282 012130' 005704      TST      R4      ;USE CMND MODE PRINT?
2283 012132' 100030      BPL      40$      ;Y,N-40$
2284 012134' 010702      MOV      PC,R2      ;SET UP LINK INFO ADR
2285 012136' 062702 000040      ADD      #20$--,R2
2286 012142' 160200      SUB      R2,R0      ;MAKE MSG ADR REL
2287 012144' 010022      MOV      R0,(R2)+      ;STORE MSG ADR
2288 012146' 010112      MOV      R1,(R2)      ;STORE MSG'S BYTE COUNT
2289 012150' 100001      BPL      10$      ;CNT NEG? (Y,N-10$)
2290 012152' 005412      NEG      (R2)      ;MAKE IT POSITIVE
2291 012154' 016367 000006 000056 10$: MOV      PASCIN(R3),PROGM      ;STORE PROG'S # IN MSG
2292 012162' 004577 165666      JSR      R5,ACLIST      ;ISSUE PROG #
2293 012166' 000050      .WORD      PNMMSG-
2294 012170' 000005      .WORD      5
2295 012172' 004577 165656      JSR      R5,ACLIST      ;ISSUE MSG SPECIFIED
2296 012176' 000000      .WORD      XXXX
2297 012200' 000000      .WORD      XXXX
2298 012202' 004577 165646      JSR      R5,ACLIST      ;ISSUE A <CR> & <LF>
2299 012206' 000254      .WORD      CRLF-
2300 012210' 000002      .WORD      2
2301 012212' 000410      BR      PRTEX      ;GO TO EXIT
2302 012214' 010067 000010 40$: MOV      R0,50$      ;STORE MSG'S ABS ADR
2303 012220' 010167 000006      MOV      R1,60$      ;STORE ITS BYTE CNT
2304 012224' 004577 165622      JSR      R5,JULIST      ;GO TO MPG TO ISSUE THE MSG

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J04

MAINDEC-11-DTRPA-B RH11/RH70 - RPO4/RPO5/RPO6 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:21 PAGE 11-4 SEQ 0048
DTRPAB.P11 SUBROUTINES FOR RPO4/RPO5/RPO6 DEVICE ROUTINE

2305 012230' 000000
2306 012232' 000000
2307 012234' 000205

50\$: .WORD XXXX
60\$: .WORD XXXX
PRTEX: RTS R5

;EXIT IN-LINE

DTRPAB.P11 RPO4/RPO5/RPO6 MESSAGE STORAGE AREA

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2309                                     .SBTTL  RPO4/RPO5/RPO6 MESSAGE STORAGE AREA
2310
2311
2312                                     .NLIST  BEX
2313
2314                                     .EVEN
2315 012236' 021520          PNMMSG: .ASCII  /P#/
2316 012240' 054130          PROGNM: .ASCII  /XX/<011>
2317 012243' 101 020124 040514 ATMSG: .ASCII  /AT LAST INT:/
2318 012257' 103 051125 042522 CURMSG: .ASCII  /CURRENTLY:/
2319 012271' 105 042116 047440 RENDMG: .ASCII  /END OF REPORT/
2320
2321 012306' 025052 025052 050122 UNITMG: .ASCII  /****RPXX DISK UNIT: /
2322 012332' 054130 054130 054130 UNASCI: .ASCII  /XXXXXX/
2323
2324 012340' 054130 054130 020075 DVRGMG: .ASCII  /XXXX= /
2325 012346' 054130 054130 054130 DVRDT1: .ASCII  /XXXXXX XXXX= /
2326 012364' 054130 054130 054130 DVRDT2: .ASCII  /XXXXXX XXXX= /
2327 012402' 054130 054130 054130 DVRDT3: .ASCII  /XXXXXX/
2328 012410' 054502 042524 035123 CNTSMG: .ASCII  /BYTES: RD= /
2329 012424' 054130 054130 054130 BCMRD: .ASCII  /XXXXXXXXXXXXX WR= /
2330 012446' 054130 054130 054130 BCMWR: .ASCII  /XXXXXXXXXXXXX/
2331 012462' 005015          CRLF: .ASCII  <015><012>
2332 012464' 004411 045503 020075          .ASCII  <011><011>/CK= /
2333 012472' 054130 054130 054130 BCMCK: .ASCII  /XXXXXXXXXXXXX/<015><012><011>/CMNDS: RD= /
2334 012525' 130 054130 054130 CMDCRD: .ASCII  /XXXXXX WR= /
2335 012540' 054130 054130 054130 CMDCWR: .ASCII  /XXXXXX CK= /
2336 012553' 130 054130 054130 CMDCCK: .ASCII  /XXXXXX/<015><012><011><011>/SK= /
2337 012571' 130 054130 054130 CMDCSK: .ASCII  /XXXXXX MISC= /
2338 012606' 054130 054130 054130 CMDCMS: .ASCII  /XXXXXX/<015><012><011>/ERRORS: DEV= /
2339 012634' 054130 054130 054130 CNTERR: .ASCII  /XXXXXX CORR ECC= /
2340 012655' 130 054130 054130 CNTCEC: .ASCII  /XXXXXX DATA= /
2341 012672' 054130 054130 054130 CNTDER: .ASCII  /XXXXXX/<015><012><011>/RETRY: DLT= /
2342 012720' 054130 054130 054130 CNTDLT: .ASCII  /XXXXXX DTE= /
2343 012734' 054130 054130 054130 CNTDTE: .ASCII  /XXXXXX HCRC= /
2344 012751' 130 054130 054130 CNTHCR: .ASCII  /XXXXXX/<015><012><011><011>/FER= /
2345 012770' 054130 054130 054130 CNTFER: .ASCII  /XXXXXX HCE= /
2346 013004' 054130 054130 054130 CNTHCE: .ASCII  /XXXXXX DCK= /
2347 013020' 054130 054130 054130 CNTDCK: .ASCII  /XXXXXX/<015><012><011><011>/WCE= /
2348 013037' 130 054130 054130 CNTWCE: .ASCII  /XXXXXX/<015><012><011>/TOTAL RETRY: /
2349 013066' 054130 054130 054130 CNTRTY: .ASCII  /XXXXXX/<015><012><011>/INTERRUPTS: /
2350 013114' 054130 054130 054130 CNTINT: .ASCII  /XXXXXX/
2351
2352 013122' 013122' 054503 036514 040 INFOMG: .ASCII  /CYL= /
2353 013127' 130 054130 054130 IFCYL: .ASCII  /XXXXXX HEAD= /
2354 013144' 054130 054130 054130 IFHEAD: .ASCII  /XXXXXX SECT= /
2355 013161' 130 054130 054130 IFSECT: .ASCII  /XXXXXX/
2356
2357 013170' 052123 047115 020124 STNMNG: .ASCII  /STMT # /
2358 013200' 054130 054130 054130 STNMUM: .ASCII  /XXXXXX/
2359 013206' 051105 047522 020122 DKEMSG: .ASCII  /ERROR BITS:/<015><012><011>
2360 013224' 000100          CODFLD: .BLKB  64.
2361 013324' 042502 047506 042522 BEFIO: .ASCII  'BEFORE ISSUING I/O CMND:'
2362 013354' 043101 042524 020122 AFTIO: .ASCII  'AFTER ISSUING I/O CMND:'
2363 013403' 124 047457 047440 CRT0: .ASCIZ  'I/O ON CRESET'
2364 013421' 124 046511 047505 IOT0: .ASCIZ  'TIMEOUT ON I/O'

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L04

2365	013440'	027524	020117	047117	ACQTO: .ASCIZ	'T/O ON DISK ACQUIRE'
2366	013464'	047516	026516	054105	NONEXD: .ASCIZ	'NON-EXISTENT DRIVE'
2367	013507'	125	051516	043101	INITUS: .ASCII	'UNSAFE'
2368	013516'	051105	047522	020122	INITDE: .ASCIZ	'ERROR ON INITIATION'
2369	013542'	044504	045523	044440	OFFLIN: .ASCIZ	'DISK IS OFF-LINE'
2370	013563'	104	051120	047040	DPNSET: .ASCIZ	'DPR NOT SET'
2371	013577'	116	047117	044455	NOITER: .ASCII	'NON-INT'
2372	013607'	111	047457	052040	IOTERM: .ASCIZ	'I/O TERMINATION ERROR'
2373	013635'	111	052116	053440	NOATA: .ASCIZ	'INT WITHOUT ATA'
2374	013655'	125	042516	050130	UXPATA: .ASCIZ	'UNEXP ATA COND'
2375	013674'	054105	040510	051525	RTYEXH: .ASCIZ	'EXHAUSTED RETRIES'
2376	013716'	047111	020126	041505	INVPAT: .ASCIZ	'INV ECC BIT PATTERN'
2377	013742'	047111	020126	041505	INVPOS: .ASCIZ	'INV ECC BIT POSITION'
2378	013767'	111	053116	052440	INVDVN: .ASCIZ	'/INV UNIT #/'
2379					.EVEN	
2380					.LIST	BEX
2381						
2382	014002'				DVREND=	.

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2384          .SBTTL  FORMATS FOR PROGRAM & DEVICE ROUTINE TABLES
2385
2386          ;      PROGRAM TABLE FORMAT
2387
2388          000242      PTLGTH= 162.      ;PROGRAM TABLE LENGTH - NON MEM MGMNT VERSION OF MPG
2389
2390          ;(PTLGTH= 212.      ;PROGRAM TABLE LENGTH - MEM MGMNT VERSION OF MPG)
2391
2392          000000      PFLGWD= +0.      ;PROGRAM FLAG WORD - 1 WORD
2393
2394          000002      URSTOP= 2          ; 1 = USER HAS STOPPED THIS PROGRAM
2395          000004      ERSTOP= 4          ; 1 = AN ERROR HAS STOPPED THIS PROGRAM
2396          000010      WT4IOT= 10         ; 1 = WAITING FOR I/O TERMINATION
2397          000020      CTPRIO= 20         ; 1 = CONSOLE OR PRINTER I/O IN PROGRESS
2398          000040      SETDED= 40         ; 1 = THIS PROG SET THE PRT DEV DEDICATED FLAG
2399          000100      OCPRES= 100        ; 1 = OBJ CODE IS PRESENT
2400          000200      USEUBM= 200        ; 1 = THIS PROG USES THE UNIBUS MAP (MEM MGMNT ONLY)
2401          100000      ACTIVE= 100000    ; 1 = PROGRAM IS ACTIVE (SPECIFIED FOR EXECUTION)
2402
2403          000002      POPSW= +2.          ;PROGRAM'S OPERATION SWITCHES - 1 WORD
2404
2405          100000      STONER= 100000     ; 1 = STOP PROG EXECUTION UPON ERROR
2406          040000      CYCPRG= 40000     ; 1 = CYCLE PROGRAM (ON CURRENT DEVICE)
2407          020000      PRONER= 20000     ; 1 = DO NOT PRINT ON ERROR
2408          010000      BIT12= 10000      ; 0 = NOT USED
2409          004000      BIT11= 4000       ; 0 = NOT USED
2410          002000      CYCDVL= 2000      ; 1 = CYCLE THE DEVICE LIST
2411          001000      GTNXTD= 1000      ; 1 = CYCLE ON SAME DEVICE UPON ERROR
2412          000400      DOERCK= 400       ; 1 = DON'T DO ERROR CHECKING
2413          000200      SPOPER= 200       ; 1 = DEVICE SPECIAL OPERATION
2414          000100      BIT6= 100         ; 0 = NOT USED
2415          000040      DOIOT= 40         ; 1 = DO NOT PERFORM I/O TIMEOUT
2416          000020      AUTORP= 20        ; 1 = DO NOT AUTOMATICALLY DISPLAY COUNTS
2417          000010      AURPEP= 10        ; 1 = AUTO DISPLAY COUNTS AT END OF FINAL PASS ONLY
2418          000004      HSKPEP= 4         ; 1 = HOUSEKEEP COUNTS ONLY AT RUN COMMAND
2419          000002      PFBBOV= 2         ; 1 = PRINT FIRST BAD BYTE ONLY ON VERIFY
2420          000001      NOCOMP= 1         ; 1 = DO NOT PRINT PROG COMPLETED MSG
2421
2422          000004      PFWADR= +4.        ;*;PROGRAM FLAGWORD ADDRESS - 1 WORD
2423
2424          000006      PASCIN= +6.        ;PROGRAM'S NUMBER IN ASCII - 1 WORD
2425
2426          000010      PNAME= +8.        ;PROGRAM'S NAME IN ASCII - 6 BYTES
2427
2428          000016      PRDIOA= +14.       ;ADDRESS OF READ I/O AREA - 1 WORD
2429
2430          000020      PWRIOA= +16.       ;ADDRESS OF WRITE I/O AREA - 1 WORD
2431
2432          000022      PSRCST= +18.       ;SOURCE STATEMENTS START ADDRESS - 1 WORD
2433
2434          000024      POBJST= +20.       ;OBJECT CODE START ADDRESS - 1 WORD
2435
2436          000026      PLNGTH= +22.       ;PROG AREA LENGTH (OBJ END MINUS PROG TBL START) - 1 WORD
2437
2438          000030      PTOCNT= +24.       ;I/O TIMEOUT COUNT - 1 WORD
2439

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2440	000032	PMDLCD= +26.	;DEV ROUT MODEL # CODE - 1 WORD
2441			
2442	000034	PDPNTR= +28.	;CURRENT DEVICE NUMBER POINTER - 1 BYTE
2443			
2444	000035	PCURDV= +29.	;CURRENT DEVICE # - 1 BYTE
2445			
2446	000036	PDNUMS= +30.	;DEVICE NUMBERS - 16 BYTES
2447			
2448	000056	PTEM0= +46.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2449			
2450	000060	PTEM1= +48.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2451			
2452	000062	PTEM2= +50.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2453			
2454	000064	PTEM3= +52.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2455			
2456	000066	PTEM4= +54.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2457			
2458	000070	PTEM5= +56.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2459			
2460	000072	PTEM6= +58.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2461			
2462	000074	PTEM7= +60.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2463			
2464	000076	PTEM8= +62.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2465			
2466	000100	PTEM9= +64.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2467			
2468	000102	PTEM10= +66.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2469			
2470	000104	PTEM11= +68.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2471			
2472	000106	PTEM12= +70.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2473			
2474	000110	PTEM13= +72.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2475			
2476	000112	PTEM14= +74.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2477			
2478	000114	PTEM15= +76.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
2479			
2480	000116	PNBR= +78.	;NUMBER OF BYTES TO TRANSFER ON MOVE (NBR) - 1 WORD
2481			
2482	000120	PSRC= +80.	;DATA SOURCE ADDRESS ON MOVE (SRC) - 1 WORD
2483			
2484	000122	PDST= +82.	;DATA DESTINATION ADDRESS ON MOVE (DST) - 1 WORD
2485			
2486	000124	PSTKCT= +84.	;# OF WORDS (X 2) SAVED OFF STACK - 1 WORD
2487			
2488	000126	PSTKSV= +86.	;STACK WORDS STORAGE AREA - 30 WORDS
2489			
2490	000222	PSVREG= +146.	;USER'S R0 THRU R5 REGISTERS STORAGE AREA - 6 WORDS
2491			
2492	000236	PUSRPC= +158.	;USER'S CURRENT PROGRAM COUNTER - 1 WORD
2493			

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;FOLLOWING ENTRIES (PRDIOX THRU PUBMAP) ARE ONLY IN MEM MGMT VERSION

;(PRDIOX= +160. ;18/22 BIT ABSOLUTE ADDRESS OF READ I/O AREA - 2 WORDS)
 ;(PRDIOV= +164. ;18 BIT VIRTUAL ADDRESS OF READ I/O AREA - 2 WORDS)
 ;(PWRIOX= +168. ;18/22 BIT ABSOLUTE ADDRESS OF WRITE I/O AREA - 2 WORDS)
 ;(PWRIOV= +172. ;18 BIT VIRTUAL ADDRESS OF WRITE I/O AREA - 2 WORDS)
 ;(PUPARS= +176. ;STORAGE AREA FOR USER'S PAR'S 0 THRU 7 - 8 WORDS)
 ;(PUPDRS= +192. ;STORAGE AREA FOR USER'S PDR'S 0 THRU 7 - 8 WORDS)
 ;(PUBMAP= +208. ;1ST UNIBUS MAP REG # AND # OF REGS USED - 1 WORD)

;END OF MEM MGMT ONLY ENTRIES

000240

PTSIZE= +160. ;PROGRAM TABLE SIZE IN BYTES - 1 WORD - NON MEM MGMT
 ;(PTSIZE= +210. ;PROGRAM TABLE SIZE IN BYTES - 1 WORD - MEM MGMT VERSION)
 PTEND= +162. ;END OF PROGRAM TABLE - NON MEM MGMT VERSION
 ;(PTEND= +212. ;END OF PROGRAM TABLE - MEM MGMT VERSION)

000242

DTRPA8.P11

FORMATS FOR PROGRAM & DEVICE ROUTINE TABLES

; DEVICE ROUTINE TABLE

000116	DRTLTH= 78.	;DEVICE ROUTINE TABLE LENGTH
	:	
000000	DEVRSZ= +0.	;DEVICE ROUTINE SIZE IN BYTES - 1 WORD
000002	DEVFWD= +2.	;DEVICE ROUTINE FLAGWORD - 1 WORD
000004	DEVIW1= +4.	;DEVICE INTERFACE WORD # 1 - 1 WORD
000006	DEVIW2= +6.	;DEVICE INTERFACE WORD # 2 - 1 WORD
000010	DEVIW3= +8.	;DEVICE INTERFACE WORD # 3 - 1 WORD
000012	DEVIW4= +10.	;DEVICE INTERFACE WORD # 4 - 1 WORD
000014	DEVIW5= +12.	;DEVICE INTERFACE WORD # 5 - 1 WORD
000016	DEVIW6= +14.	;DEVICE INTERFACE WORD # 6 - 1 WORD
000020	DEVIW7= +16.	;DEVICE INTERFACE WORD # 7 - 1 WORD (SIZE)
000022	DEVIW8= +18.	;DEVICE INTERFACE WORD # 8 - 1 WORD (ERR)
000024	DEVDR= +20.	;DEVICE REGISTERS ADDRESS - 1 WORD
000026	DEVIVA= +22.	;DEVICE INTERRUPT VECTOR ADDRESS - 1 WORD
000030	DEVRRS= +24.	;DEVICE READ PROCESSOR STATUS WORD (BUS REQ) - 1 WORD
000032	DEVWPS= +26.	;DEVICE WRITE PROC STATUS WORD (BUS REQ) - 1 WORD
000034	DHMPAD= +28.	;DEVICE ROUT HOUSEKEEPING ROUT REL ENTRY ADR - 1 WORD
000036	DERPAD= +30.	;DEVICE ROUT REPORT ROUT REL ENTRY ADR - 1 WORD
000040	DKILAD= +32.	;DEVICE ROUT KILL ROUTINE REL ENTRY ADR - 1 WORD
000042	DECTAD= +34.	;DEVICE ROUT ERROR COUNTER REL ADR - 1 WORD
000044	DTOEAD= +36.	;DEVICE ROUT TIMEOUT ERR ROUT REL ENTRY ADR - 1 WORD
000046	DEVI0B= +38.	;DEVICE I/O BUSY BRANCH ADDRESS (CIOBSY) - 1 WORD
000050	DEVDER= +40.	;DEVICE ERROR BRANCH ADDRESS (CUPGER) - 1 WORD
000052	DVUPRT= +42.	;USER MODE PRINT BRANCH ADDRESS (ULIST) - 1 WORD
000054	DVCPRT= +44.	;CMND MODE PRINT BRANCH ADDRESS (CLIST) - 1 WORD
000056	DEVBT= +46.	;CONVERT BINARY TO ASCII BR ADR (BINASC) - 1 WORD
000060	DVBTD= +48.	;CONVERT BINARY TO DECIMAL ASCII BR ADR (BTASLZ) - 1 WORD

2577	000062	DVPDTA= +50.	;CONVERT PACKED DECIMAL TO ASCII BR ADR (DECASC) - 1 WORD
2578			
2579	000064	DVSFWD= +52.	;MPG SYSTEM FLAGWORD ADDRESS (CSYSFW) - 1 WORD
2580			
2581	000066	DVSVEC= +54.	;SET INTERRUPT VECTOR BR ADR (SETVEC) - 1 WORD
2582			
2583	000070	DVCVEC= +56.	;CLEAR INTERRUPT VECTOR BR ADR (CLRVEC) - 1 WORD
2584			
2585	000072	DVTVEC= +58.	;TEST INTERRUPT VECTOR BR ADR (TSTVEC) - 1 WORD
2586			
2587	000074	DVRINT= +60.	;RETURN FROM INTERRUPT BR ADR (RTNINT) - 1 WORD
2588			
2589	000076	DVGETB= +62.	;GET DATA BYTE BR ADR (GETBYT) - 1 WORD
2590			
2591	000100	DVPUTB= +64.	;PUT DATA BYTE BR ADR (PUTBYT) - 1 WORD
2592			
2593	000102	DEVSTP= +66.	;DEVICE ROUT REL SYMBOL TABLE POINTER - 1 WORD
2594			
2595	000104	DEVETP= +68.	;DEVICE ROUT REL ENTRY TABLE POINTER - 1 WORD
2596			
2597	000106	DVPTEP= +70.	;PACK TABLE EXTEN. REL POINTER - 1 WORD
2598			
2599	000110	DVVTEP= +72.	;VECTOR TABLE EXTEN. REL POINTER - 1 WORD
2600			
2601	000112	DVCTEP= +74.	;COMPILER TBL EXTEN. REL POINTER - 1 WORD
2602			
2603	000114	DVIWSP= +76.	;DEVICE INTERFACE WORD SYMBOL TBL REL POINTER - 1 WORD
2604			
2605	000116	DRTEND= +78.	;END OF DEVICE ROUTINE TABLE
2606			
2607			
2608	000001	.END	

DTRPA8.P11 SYMBOL TABLE

ACQEAD	005114R	002	CNTCEC	012655R	002	DEVIPR	011640R	002	DVREND=	014002R	002	INITDE	013516R	002
ACQERC	005116R	002	CNTDCK	013020R	002	DEVIVA=	000026	002	DVREX	003006R	002	INITUS	013507R	002
ACQERR	005104R	002	CNTDER	012672R	002	DEVIM1=	000004	002	DVRGMC	012340R	002	INTCNT	002340R	002
ACQGDK	005126R	002	CNTDLT	012720R	002	DEVIM2=	000006	002	DVRINT=	000074	002	INTEAD	007576R	002
ACQMSK	004412R	002	CNTDTE	012734R	002	DEVIM3=	000010	002	DVSFMD=	000064	002	INTEX	006232R	002
ACQIAD	004656R	002	CNTERR	012634R	002	DEVIM4=	000012	002	DVSVEC=	000066	002	INVDVN	013767R	002
ACQRTY	004414R	002	CNTFER	012770R	002	DEVIM5=	000014	002	DVTVEC=	000072	002	INVPAT	013716R	002
ACQTO	013440R	002	CNTHCE	013004R	002	DEVIM6=	000016	002	DVUPRT=	000052	002	INVPOS	013742R	002
ACTIVE=	100000	002	CNTHCR	012751R	002	DEVIM7=	000020	002	DVVTPE=	000110	002	IOERR =	000001	002
AFTIO	013354R	002	CNTINT	013114R	002	DEVIM8=	000022	002	EBSBAS	010136R	002	IOTERM	013607R	002
ANYIOI=	000200	002	CNTNUM=	000027	002	DEVIPS=	000030	002	EBSTAT	010140R	002	IOTO	013421R	002
APORT	003666R	002	CNTRTY	013066R	002	DEVRSZ=	000000	002	ECI =	004000	002	ISTAT =	002134R	002
ATA =	100000	002	CNTSEN=	013122R	002	DEVSTP=	000102	002	ECIOFF	003736R	002	IVCTAD	000026R	002
ATATBL	005136R	002	CNTSMG	012410R	002	DEVMP5=	000032	002	ECION	003726R	002	JINTEX	006650R	002
ATIMSG	012243R	002	CNTHCE	013037R	002	DFLGMD	000002R	002	ERCDTB	010472R	002	JSETER	006670R	002
AURPEP=	000010	002	COOFLD	013224R	002	DHKPAD=	000034	002	ERMBAS	010104R	002	KILL	003370R	002
AUTORP=	000020	002	CORFLG=	002000	002	DISCNT	002706R	002	ERR =	040000	002	KILLEX	003420R	002
BAI =	000010	002	COROFF	004016R	002	DISPST	011652R	002	ERRADR	002342R	002	KPAR4 =	172350	002
BAIOFF	003776R	002	CORON	004006R	002	DKEMSG	013206R	002	ERRCNT	002312R	002	KPAR4 =	172310	002
BAION	003766R	002	COUNTS	002264R	002	DKILAD=	000040	002	ERRCOM	007744R	002	LOCZ	000000R	002
BCMCK	012472R	002	CPU70 =	000010	002	DLTCNT	002320R	002	ERRCS	007704R	002	MCPE =	020000	002
BCMRD	012424R	002	CRESET	004066R	002	DOCORR	007206R	002	ERRCS1	007712R	002	MISCNT	002310R	002
BCMR	012446R	002	CRLF	012462R	002	DOERCK=	000400	002	ERREX	010470R	002	MVER =	000001	002
BEFIO	013324R	002	CRT0	013403R	002	DOIOT =	000040	002	ERRFND	006344R	002	MOL =	010000	002
BINASC	000056R	002	CSTAT	002210R	002	DOTERM=	000002	002	ERRI	000022R	002	MSFHT1	002106R	002
BIT11 =	004000	002	CSYSFW	000064R	002	DPNSET	013563R	002	ERRIS	007730R	002	MSFHT2	002107R	002
BIT12 =	010000	002	CTPRI0=	000020	002	DPR =	000400	002	ERRSNM	010410R	002	MSFHT3	002114R	002
BITE =	000100	002	CUPGER	000050R	002	DREGAD	000024R	002	ERSTAD	010402R	002	MSFHT4	002123R	002
BPORT	003676R	002	CURADR	002352R	002	DRESET	004136R	002	ERSTOP=	000004	002	MSFHT5	002132R	002
BTASLZ	000060R	002	CURCMD	002350R	002	DRTEND=	000116	002	EVEN	003716R	002	MYATA	005156R	002
BYCK	002274R	002	CURCNT	002356R	002	DRTLTH=	000116	002	FERCNT	002326R	002	NED =	010000	002
BYRD	002264R	002	CURFLG	002346R	002	DTECNT	002322R	002	FINCNT	002362R	002	NOATA	013635R	002
BYMR	002270R	002	CURMSG	012257R	002	DT0EAD=	000044	002	FMT20	004056R	002	NOCMP=	000001	002
CECCER	002314R	002	CURPBC	002360R	002	DVA =	004000	002	FMT22	004046R	002	NOICOM	004174R	002
CIOBSY	000046R	002	CURPSM	002370R	002	DVBTD=	000060	002	FMT28=	010000	002	NOITER	013577R	002
CKCNT	002304R	002	CURPTY	002364R	002	DVCMD5	000322R	002	GETBYT	000076R	002	NONEXD	013464R	002
CKCOM	005272R	002	CYCDVL=	002000	002	DVCPRT=	000054	002	GOTDSK	004662R	002	NOWAIT	003656R	002
CKCORR	006674R	002	CYCPRG=	040000	002	DVCPTC	001454R	002	GTNXTD=	001000	002	OCPRES=	000100	002
CKDBSY	007334R	002	CYL	000004R	002	DVCTEP=	000112	002	HARDER	006654R	002	ODD	003706R	002
CKRTRY	006424R	002	DATAER	002316R	002	DVCVEC=	000070	002	HCECNT	002330R	002	OFFLIN	013542R	002
CKSC	006242R	002	DCKCNT	002332R	002	DVGETB=	000076	002	HCI =	002000	002	OFFSET	005360R	002
CKUNLD	003212R	002	DECASC	000062R	002	DVINSP=	000114	002	HCI0FF	003756R	002	OTHATA	005160R	002
CLIST	000054R	002	DECTAD=	000042	002	DVINST	002054R	002	HCI0N	003746R	002	PAKACK	004152R	002
CLRVEC	000070R	002	DERPAD=	000036	002	DVMVTE	001230R	002	HCRCNT	002324R	002	PARITY=	000020	002
CLRWTF	006210R	002	DEVSTA=	000056	002	DVPDTA=	000062	002	HEAD	000006R	002	PASCIN=	000006	002
CHDCCK	012553R	002	DEVDER=	000050	002	DVPKTE	000560R	002	HSKEEP	002450R	002	PATCH	002400R	002
CHDCMS	012606R	002	DEVORA=	000024	002	DVPTEP=	000106	002	HSKPEN=	002372R	002	PC =x000007		002
CHDCOM	005416R	002	DEVETP=	000104	002	DVPUTB=	000100	002	HSKPST=	002134R	002	PCURDV=	000035	002
CHDCRD	012525R	002	DEVFMD=	000002	002	DVRDT1	012346R	002	IFCYL	013127R	002	PONUMS=	000036	002
CHDCSK	012571R	002	DEVID	011522R	002	DVRDT2	012364R	002	IFHEAD	013144R	002	PDPNTR=	000034	002
CHDCMR	012540R	002	DEVIIV	011620R	002	DVRDT3	012402R	002	IFSECT	013161R	002	PDRCON=	077406	002
CHDISU=	000100	002	DEVIML	011646R	002	DVREGE=	000322R	002	INFOMG	013122R	002	PDST =	000122	002
CNTADR	002344R	002	DEVIOB=	000046	002	DVREGS	000116R	002			002	PFBBOV=	000002	002

PFLGND= 000000	PTEN2 = 000062	RPAS = 000016	R1 = %000001	TOUTER 003074R	002
PFWADR= 000004	PTEN3 = 000064	RPBA = 000004	R2 = %000002	TRE = 040000	
PLNGTH= 000026	PTEN4 = 000066	RPBAE = 000050	R3 = %000003	TRMINT 006156R	002
PMDLCD= 000032	PTENS = 000070	RPCC = 000036	R4 = %000004	TSTVEC 000072R	002
PNAME = 000010	PTEN6 = 000072	RPCS1 = 000000	RS = %000005	TVECT 007654R	002
PNBR = 000116	PTEN7 = 000074	RPCS1V 002372R	SAVREG 011340R	TVECTX 007702R	002
PNMSG 012236R	PTEN8 = 000076	RPCS2 = 000010	SEARCH 005346R	ULIST 000052R	002
POBJST= 000024	PTEN9 = 000100	RPCS2V 002374R	SECT 000010R	UNASCI 012332R	002
POPSM = 000002	PTEND = 000242	RPCS3 = 000052	SEEK 005324R	UNITMG 012306R	002
PORT = 002000	PTLGTH= 000242	RPDA = 000006	SETDED= 000040	UNLDIP= 000004	
PRDIOA= 000016	PTOCNT= 000030	RPDB = 000022	SETERR 006202R	UNLOAD 004144R	002
PRINT 012122R	PTSIZE= 000240	RPDC = 000034	SETVEC 000066R	UNS = 040000	
PROCEX 007616R	PUSRPC= 000236	RPDS = 000012	SIZE 000020R	URSTOP= 000002	
PROCTH 007502R	PUTBYT 000100R	RPDT = 000026	SKCNT 002306R	USELEM= 000200	
PROGNM 012240R	PMRIOA= 000020	RPEC1 = 000044	SKCOM 005334R	USMTPS= 000002	
PRONER= 020000	P4CONS= 100000	RPEC2 = 000046	SP = %000006	UXPATA 013655R	002
PRTEX 012234R	RDCNT 002300R	RPER1 = 000014	SOPER= 000200	VV = 000100	
PRTIND 012052R	RDCOM 005172R	RPER2 = 000040	STEPDN 003570R	VVFLG = 001000	
PS = 177776	RDHD 005242R	RPER3 = 000042	STEPEX 003470R	VVUFF 004036R	002
PSRC = 000120	RDPSET 004160R	RPLA = 000020	STEPUP 003422R	VVON 004026R	002
PSRCST= 000022	READ 005162R	RPMR = 000024	STMADR 007466R	WAIT 003636R	002
PSTKCT= 000124	RECAL 005404R	RPOF = 000032	STNMNG 013170R	WAITMD= 100000	
PSTKSV= 000126	REGNUM= 000026	RPOFV 002376R	STNUM 013200R	WCECNT 002334R	002
PSVREG= 000222	REL 004166R	RPSN = 000030	STONER= 100000	WRCK 005266R	002
PSMD 000030R	RENDMG 012271R	RPTBAS 002752R	STPCEX 003566R	WRCKHD 005316R	002
PTEND = 000056	REPORT 002530R	RPTEND 002776R	STPCOM 003506R	WRCNT 002302R	002
PTEN1 = 000060	REPTBL 003016R	RPTLP 002734R	STPC10 003546R	WRCOM 005222R	002
PTEN10= 000102	RESREG 011354R	RPWC = 000002	STSTAT 011412R	WRHD 005254R	002
PTEN11= 000104	RETCTR 005372R	RTNINT 000074R	SUIORG 005656R	WRITE 005212R	002
PTEN12= 000106	RETRY5 002336R	RTRY 000012R	SUPTAD 011372R	WT410T= 000010	
PTEN13= 000110	RHPINT 005766R	RTRYIP 002366R	SWOIER= 000020	XXXX = 000000	
PTEN14= 000112	RINTEX 007652R	RTYEXH 013674R	SWOVER= 000010	. = 014002R	002

. ABS. 000000 000
000000 001
RJP11 014002 002

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

* DTRPAB/NL:TOC/DOC=DTRPAB.P11
RUN-TIME: 8 17 1 SECONDS
RUN-TIME RATIO: 108/27=3.9
CORE USED: 6K (11 PAGES)

DOCUMENT PAGES: 57

Scanner runtime 9 Seconds, 41 KCS, 212 disk reads, 3 disk writes, 57 pages.

0000000011111111222222223333333344444444555555556666666677777777888888889999999900000000111111112222222233312