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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DTTCR-B
PRODUCT NAME: TC11 DEVICE ROUTINE FOR MPG
DATE: APRIL 1976
MAINTAINER: SYSTEMS RELIABILITY
AUTHOR: G. E. HARPER

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DTTCR8.P11

.SBTTL REVISION HISTORY

APR 76 DTTCR-8 RELEASE

DEC 75 WILL NOW DISPLAY THE UNIT # BYTE IN OCTAL FOR
INVALID UNIT # ERROR MESSAGES.

DEC 75 MADE CHANGES REQUIRED FOR THE MEMORY MANAGEMENT
VERSION OF MPG.

AUG 75 DTTCR-A INITIAL RELEASE

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.SBTTL STANDARD DEVICE ROUTINE TABLE

.TITLE MAINDEC-11-DTTCA-B TC11/TUS6 DEVICE ROUTINE FOR MPG

;REVISION 'B'

;FILENAME OF "TTCABO.MPG" ON MPG/XXDP MEDIA

;MACY11: DTTCA? DTTCA?/CRF:SYM/DOC=DTTCA?.P11

;LNKX11: DTTCA?.MPG/B:0=DTTCA?/E

;PAPER TAPE: PUNCH DTTCA?.MPG/FILE:ELEV

000000'

.OSECT TC11

.DSABL GBL

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

000000' 005276
000002' 000000

LOCZ: .WORD DVREND-
DFLGWD: .WORD 0

:DEVICE ROUT SIZE IN BYTES
:DEVICE FOOT FLAGWORD
: BIT 15 = "NOWAIT" FLAG
: BIT 11 = 0 - FWD, 1 - REV
: BIT 3 = BLK SRCH ERROR
: BIT 1 = DO I/O TERMINATION
: BIT 0 = ERROR ON I/O CMND
:CURRENT STARTING BLOCK NUMBER
:INTERFACE WORD # 2 (NOT USED)
:INTERFACE WORD # 3 (NOT USED)
:INTERFACE WORD # 4 (NOT USED)
:INTERFACE WORD # 5 (NOT USED)
:INTERFACE WORD # 6 (NOT USED)
: # OF BYTES TRANSFERRED / UNIMAP FLG
:ERROR ON LAST I/O INDICATOR
:FIRST DEVICE REGISTER ADR
:INTERRUPT VECTOR ADR
:INT PROC STATUS WORD (BR 6)
:NOT USED
:HOUSEKEEPING ROUT REL ADR
:REPORT ROUT REL ADR
:KILL ROUT REL ADR
:DATA ERROR COUNTER REL ADR
:TIME OUT ERROR ROUT REL ADR
:I/O BUSY BRANCH ADR
:DEVICE ERROR BRANCH ADR
:USER MODE PRINT ROUTINE BRANCH ADR
:CMND MODE PRINT ROUTINE BRANCH ADR
:CONVERT BINARY TO ASCII ROUT BR ADR
:CONVERT BINARY TO DECIMAL ASCII BR ADR
:CONVERT PACKED DECIMAL TO ASCII BR ADR
:MPG SYSTEM FLAGWORD ADR
:SET INT VECT ROUT BR ADR
:CLEAR INT VECTOR ROUT BR ADR
:TEST INT VECTOR ROUT BR ADR

000004' 000000
000006' 000000
000010' 000000
000012' 000000
000014' 000000
000016' 000000
000020' 000001
000022' 000000
000024' 177340
000026' 000214
000030' 000300
000032' 000000
000034' 000710
000036' 000742
000040' 001360
000042' 000654
000044' 001254
000046' 000000
000050' 000000
000052' 000000
000054' 000000
000056' 000000
000060' 000000
000062' 000000
000064' 000000
000066' 000000
000070' 000000
000072' 000000

BLK: .WORD 0
:WORD 0
:WORD 0
:WORD 0
:WORD 0
:WORD 0
:WORD 0
:WORD 0
SIZE: .WORD 1
ERR: .WORD 0
DREGAD: .WORD 177340
IVCTAD: .WORD 214
PSWD: .WORD 300
:WORD 0
:WORD HSKEEP-
:WORD REPORT-
:WORD KILL-
:WORD DATAER-
:WORD TOUTER-
CIOBSY: .WORD 0
CUPGER: .WORD 0
ULIST: .WORD 0
CLIST: .WORD 0
BINASC: .WORD 0
BTASLZ: .WORD 0
DECASC: .WORD 0
CSYSFW: .WORD 0
SETVEC: .WORD 0
CLRVEC: .WORD 0
TSTVEC: .WORD 0

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MAINDEC-11-DITCA-8 TC11/TU56 DEVICE ROUTINE FOR MPG
DITCAR.P11 STANDARD DEVICE ROUTINE TABLE

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SEQ 0357

112	000074	000000		RTNINT:	.WORD	0		:RETURN FROM INT ROUT BR ADR
113	000076	000000		GETBYT:	.WORD	0		:GET DATA BYTE ROUT BR ADR
114	000100	000000		PUTBYT:	.WORD	0		:PUT DATA BYTE ROUT BR ADR
115	000102	000014			.WORD	DVREGS-		:ADR OF DEVICE REGISTER NAMES
116	000104	000050			.WORD	DVCMS-		:ADR OF DEVICE FUNCTIONS
117	000106	000140			.WORD	DVPKTE-		:ADR OF PACK TBL EXTENSION
118	000110	000276			.WORD	DVMVTE-		:ADR OF MODEL VECTOR TBL EXTEN.
119	000112	000354			.WORD	DVCPTE-		:ADR OF COMPILER TBL EXTEN.
120	000114	000506			.WORD	DVIWST-		:ADR OF DEV INTERFACE WD SYM TBL
121								
122								
123	000116	041524	052123	DVREGS:	.ASCII	/TCST/		:VALID DEVICE REGISTER NAMES &
124	000122	000000			.WORD	0		:THEIR POSITIONS RELATIVE TO
125	000124	041524	046503		.ASCII	/TCOM/		:THE DEVICE REGISTERS BASE ADDRESS.
126	000130	000002			.WORD	2		
127	000132	041524	041527		.ASCII	/TCWC/		
128	000136	000004			.WORD	4		
129	000140	041524	040502		.ASCII	/TCBA/		
130	000144	000006			.WORD	6		
131	000146	041524	052104		.ASCII	/TCDT/		
132	000152	000010			.WORD	10		
133		000154		DVREGE=	.			
134								
135	000154	120	201	DVCMS:	.BYTE	120,201		:VALID DEVICE FUNCTIONS
136	000156	001340			.WORD	READ-		:FLAG BYTE:
137	000160	130	201		.BYTE	130,201		:BIT 7 = NPR DEV
138	000162	001364			.WORD	WRITE-		:BIT 3 = MASSBUS DEV
139	000164	376	000		.BYTE	376,0		:BIT 0 = 2 WORDS FOR ADR
140	000166	001300			.WORD	NOWAIT-		: (18 BIT ADRS)
141	000170	375	000		.BYTE	375,0		
142	000172	001254			.WORD	WAIT-		
143	000174	374	000		.BYTE	374,0		
144	000176	000602			.WORD	REPORT-		
145	000200	373	000		.BYTE	373,0		
146	000202	000576			.WORD	REPORT-		
147	000204	372	000		.BYTE	372,0		
148	000206	001270			.WORD	FWD-		
149	000210	371	000		.BYTE	371,0		
150	000212	001274			.WORD	REV-		
151	000214	370	000		.BYTE	370,0		
152	000216	001360			.WORD	RDNUM-		
153	000220	367	000		.BYTE	367,0		
154	000222	001366			.WORD	RDALL-		
155	000224	366	000		.BYTE	366,0		
156	000226	001374			.WORD	WRALL-		
157	000230	365	000		.BYTE	365,0		
158	000232	001402			.WORD	WRTM-		
159	000234	364	000		.BYTE	364,0		
160	000236	001410			.WORD	STOP-		
161	000240	363	000		.BYTE	363,0		
162	000242	001426			.WORD	STPALL-		
163	000244	177777			.WORD	177777		:TABLE TERMINATOR
164								
165	000246	047516	040527	052111	DVPKTE:	.ASCII	/NOWAIT/	:PACK TABLE EXTENSION
166	000254	376	000		.BYTE	376,0		
167	000256	020040	040527	052111	.ASCII	/WAIT/		

168	000264'	375	000		.BYTE	375,0	
169	000265'	052123	052101	051525	.ASCII	/STATUS/	
170	000274'	374	000		.BYTE	374,0	
171	000276'	047503	047125	051524	.ASCII	/COUNTS/	
172	000304'	373	000		.BYTE	373,0	
173	000306'	020040	043040	042127	.ASCII	/ FWD/	
174	000314'	372	000		.BYTE	372,0	
175	000316'	020040	051040	053105	.ASCII	/ REV/	
176	000324'	371	000		.BYTE	371,0	
177	000326'	051040	047104	046525	.ASCII	/ RDNUM/	
178	000334'	370	000		.BYTE	370,0	
179	000336'	051040	040504	046114	.ASCII	/ RDALL/	
180	000344'	367	000		.BYTE	367,0	
181	000346'	053440	040522	046114	.ASCII	/ WRALL/	
182	000354'	366	000		.BYTE	366,0	
183	000356'	020040	051127	046524	.ASCII	/ WRTM/	
184	000364'	365	000		.BYTE	365,0	
185	000366'	020040	052123	050117	.ASCII	/ STOP/	
186	000374'	364	000		.BYTE	364,0	
187	000376'	052123	040520	046114	.ASCII	/ STPALL/	
188	000404'	363	000		.BYTE	363,0	
189							
190	000406'	000376	000632		DVMVTE: .WORD	376,LNWAIT-LOCZ	:MODEL VECTOR TABLE EXTEN.
191	000412'	000375	000632		.WORD	375,LWAIT-LOCZ	
192	000416'	000374	000632		.WORD	374,LSTATS-LOCZ	
193	000422'	000373	000632		.WORD	373,LCOUNT-LOCZ	
194	000426'	000372	000632		.WORD	372,LFWD-LOCZ	
195	000432'	000371	000632		.WORD	371,LREV-LOCZ	
196	000436'	000370	000633		.WORD	370,LRDNUM-LOCZ	
197	000442'	000367	000633		.WORD	367,LRDALL-LOCZ	
198	000446'	000366	000642		.WORD	366,LWRALL-LOCZ	
199	000452'	000365	000642		.WORD	365,LWRTM-LOCZ	
200	000456'	000364	000632		.WORD	364,LSTOP-LOCZ	
201	000462'	000363	000632		.WORD	363,LSTALL-LOCZ	
202							
203							
204					...	COMPILER TABLE EXTENSION	
205							
206	000466'	003	376		DVCPT: .BYTE	3,376	:NO WAIT
207	000470'	004537	000012		.WORD	4537,10.	
208	000474'	003	375		.BYTE	3,375	:WAIT
209	000476'	004537	000012		.WORD	4537,10.	
210	000502'	004	374		.BYTE	4,374	:STATUS
211	000504'	004537	000012	001002	.WORD	4537,10.,1002	
212	000512'	004	373		.BYTE	4,373	:COUNTS
213	000514'	004537	000012	001001	.WORD	4537,10.,1001	
214	000522'	003	372		.BYTE	3,372	:FORWARD
215	000524'	004537	000012		.WORD	4537,10.	
216	000530'	003	371		.BYTE	3,371	:REVERSE
217	000532'	004537	000012		.WORD	4537,10.	
218	000536'	005	370		.BYTE	5,370	:READ NUMBER
219	000540'	004537	000012	000000	.WORD	4537,10.,0,2	
	000546'	000002					
220	000550'	005	367		.BYTE	5,367	:READ ALL
221	000552'	004537	000012	000000	.WORD	4537,10.,0,2	
	000560'	000002					

222	000562'	005	366		.BYTE	5,366		;WRITE ALL
223	000564'	004537	000012	000000	.WORD	4537,10.,0,2		
	000572'	000002						
224	000574'	005	365		.BYTE	5,365		;WRITE TIMING & MARK
225	000576'	004537	000012	000000	.WORD	4537,10.,0,2		
	000604'	000002						
226	000606'	003	364		.BYTE	3,364		;STOP
227	000610'	004537	000012		.WORD	4537,10.		
228	000614'	003	363		.BYTE	3,363		;STOP ALL
229	000616'	004537	000012		.WORD	4537,10.		
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231								
232								
233								
234	000622'	046102	020113		DEVIWST:	.ASCII /BLK /		
235	000626'	000004				.WORD DEVIW1		
236	000630'	177777				.WORD 177777		;END OF TABLE
237								
238								
239								
240								
241	000632'				LNWAIT:			
242	000632'				LWAIT:			
243	000632'				LSTATS:			
244	000632'				LCOUNT:			
245	000632'				LFWD:			
246	000632'				LREV:			
247	000632'				LSTOP:			
248	000632'	000			LSTALL:	.BYTE 0		
249	000633'				LRDNUM:			
250	000633'	377	047111	047524	LRDALL:	.ASCIZ <377>/INT0/<377>		
	000640'	000377						
251	000642'				LWRALL:			
252	000642'	043377	047522	177515	LWRTM:	.ASCIZ <377>/FROM/<377>		
	000650'	000						
253		000652'				.EVEN		
254								
255		000652'			HSKPST=	.		
256		000652'			ISTAT=	.		;STORAGE FOR DEV REG'S AT INT
257	000652'	000000				.WORD 0		
258	000654'	000000				.WORD 0		
259	000656'	000000				.WORD 0		
260	000660'	000000				.WORD 0		
261	000662'	000000				.WORD 0		
262								
263	000664'	000005			CSTAT:	.BLKW 5		;DEV REG CURRENT VALUES STORAGE
264								
265	000676'	000000			BYRD:	.WORD 0		;BYTES READ COUNT (READ, RDALL, & RDNUM)
266	000700'	000000				.WORD 0		
267	000702'	000000			BYWR:	.WORD 0		;BYTES WRITTEN COUNT (WRITE, WRALL, &
268	000704'	000000				.WORD 0		; WRTM)
269	000706'	000000			RDCNT:	.WORD 0		;READ CMND COUNT (READ, RDALL, & RDNUM)
270	000710'	000000			WRCNT:	.WORD 0		;WRITE CMND COUNT (WRITE, WRALL, & WRTM)
271	000712'	000000			MISCNT:	.WORD 0		;MISC. CMND COUNT (STOP & STPAL)
272	000714'	000000			ERRCNT:	.WORD 0		;DEVICE ERRORS COUNT
273	000716'	000000			DATAER:	.WORD 0		;DATA ERRORS COUNT

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MAINDEC-11-DTTCB-B TO11/TU56 DEVICE ROUTINE FOR MPG
DTTCAB.P11 STANDARD DEVICE ROUTINE TABLE

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SEQ 0360

274	000720'	000000	INTCNT: .WORD	0	;INTERRUPTS COUNT
275					
276	000722'	000000	TOECNT: .WORD	0	;# OF ENTRIES INTO T/O ERROR ROUT
277	000724'	000000	ERRADR: .WORD	0	;CURR ADR IN USER PROG
278	000726'	000000	CNTADR: .WORD	0	;ADR OF BYTE COUNT TOTALS
279	000730'	000000	CURFLG: .WORD	0	;FLAG WORD OF CURR CMND
280	000732'	000000	CURCNT: .WORD	0	;WORD CNT FOR CURR CMND
281	000734'	000000	CURCMD: .WORD	0	;CURRENT BLK ORIENTED CMND
282	000736'	000000	INBLKN: .WORD	0	;INITIAL BLK # FOR SEARCH
283	000740'	000000	FINCNT: .WORD	0	;FINAL WORD COUNT (TCWC)
284	000742'	000000	REVCNT: .WORD	0	;TAPE DIRECTION REVERSAL CNT
285		000744'	HSKPEN= .		
286					
287		000000	XXXX=	0	;VALUE TO BE TAILORED BY DEV ROUT

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.SBTTL TC11 SUPPORT ROUTINES ENTERED FROM MPG

;DEVICE ROUTINE HOUSEKEEPING

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;JSR   R5,HSKEEP      S/R CALL
;.WORD 0 OR 1         0 = DO HSKP PER OPSW
;                                     1 = UNCOND. DO HSKP
;R2 = PROG'S OPSW
;DESTROYS R0,R1
    
```

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HSKEEP: TST   (R5)+      ;UNCONDITIONALLY DO HSKP?
        BNE   10$      ;N,Y-10$
        BIT   #HSKPEP,R2 ;OPSW SPECIFY EACH PASS HSKP?
        BNE   30$      ;Y,N-30$
10$:    MOV   PC,R0      ;SET UP FIRST WD ADR
        ADD   #HSKPST-.,R0
        MOV   #HSKPEN-HSKPST/2,R1 ;SET UP # OF WORDS
20$:    CLR   (R0)+     ;HSKP ALL NECESSARY AREAS
        DEC   R1
        BNE   20$
30$:    RTS   R5        ;EXIT IN-LINE
    
```

;TC11 REPORT ROUTINE

```

;JSR   R5,REPORT     S/R CALL
;.WORD FLAGWORD
;                                     BIT 15 = CMND MODE CALL
;                                     BIT 9 = PROG STMT CALL
;                                     BIT 1 = DO STATUS REPORT
;                                     BIT 0 = DO COUNTS REPORT
    
```

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REPORT: JSR   R0,SAVREG ;SAVE REG'S R0 - R5
        BIT   #177776,(R5) ;DISPLAYING CNTS AT END OF
        BNE   10$      ;PROG PASS? (Y,N-10$)
        MOV   PC,R0      ;SET UP ADR OF CNTS
        ADD   #BYRD-.,R0
        MOV   #10.,R1
5$:     TST   (R0)+     ;GET # OF CNT WORDS
        BNE   10$      ;THIS CNT WORD = 0?
        DEC   R1        ;Y,N-10$
        DEC   WORD CNT ;DECR WORD CNT
        BNE   5$       ;CK'ED ALL WORDS? (Y,N-5$)
10$:    JSR   PC,SUPTAD ;GO TO EXIT -- ALL CNTS ARE 0'S
        MOV   (R5)+,R4 ;SET UP PROG TBL ADR IN R3
        BIT   #2,R4    ;GET FLAGWORD
        BEQ   DISCNT   ;GOING TO DO STATUS DISPLAY?
        JSR   R5,STSTAT ;Y,N-DISCNT
        .WORD CSTAT- ;GO STORE STATUS REG'S
30$:    MOV   PC,R0      ;SET UP ADR OF REG'S AT
        ADD   #1STAT-.,R0 ;LAST INT
        MOV   #5,R1    ;SET UP # OF REG'S
20$:    TST   (R0)+     ;ALL REG'S = 0?
        BNE   30$      ;N,Y-40$
        DEC   R1
    
```


345	001100'	001374		BNE	20\$	
346	001102'	000412		BR	40\$	
347	001104'	004767	003116	30\$: JSR	PC,DISUNM	:DISPLAY CURR UNIT #
348	001110'	004567	003316	JSR	RS,PRINT	:ISSUE 'AT LAST INT' MSG
349	001114'	003437		.WORD	ATMSG-	
350	001116'	000031		.WORD	25	
351	001120'	004567	003172	JSR	RS,DISPST	:GO DISPLAY STATUS AT LAST INT
352	001124'	177526		.WORD	ISTAT-	
353	001126'	000402		BR	45\$:CONTINUE DISPLAY
354	001130'	004767	003072	40\$: JSR	PC,DISUNM	:DISPLAY CURR UNIT #
355	001134'	004567	003272	45\$: JSR	RS,PRINT	:ISSUE 'CURRENTLY' MSG
356	001140'	003444		.WORD	CURMSG-	
357	001142'	000012		.WORD	10	
358	001144'	004567	003146	JSR	RS,DISPST	:GO DISPLAY CURRENT STATUS
359	001150'	177514		.WORD	CSTAT-	
360	001152'	004767	003230	JSR	PC,PRTIWD	:GO DISPLAY INFO WORDS
361	001156'	000402		BR	DISCT1	:CHECK FOR COUNTS DISPLAY
362	001160'	004767	003042	DISCNT: JSR	PC,DISUNM	:DISPLAY CURR UNIT #
363	001164'	032704	000001	DISCT1: BIT	#1,R4	:DISPLAY COUNTS?
364	001170'	001431		BEQ	RPTEND	:Y,N-RPTEND
365	001172'	012700	000012	MOV	#10,R0	:SET UP # OF WORDS
366	001176'	010701		MOV	PC,R1	:SET UP ADR OF CNTS
367	001200'	062701	177476	ADD	#BYRD-. ,R1	
368	001204'	010702		MOV	PC,R2	:SET UP TBL ADR
369	001206'	062702	000066	ADD	#REPTBL-. ,R2	
370	001212'	012267	000012	RPTLP: MOV	(R2)+,RPTBAS	:MOV MSG ADR TO S/R LINKAGE
371	001216'	004067	002702	JSR	RO,SAVEG	:SAVE ALL REG'S
372	001222'	011100		MOV	(R1),RO	:GET CURRENT COUNT
373	001224'	004577	176626	JSR	RS,ABINASC	:CONVERT IT TO ASCII
374	001230'	000000		RPTBAS: .WORD	XXXX	
375	001232'	004067	002702	JSR	RO,RESREG	:RESTORE REG'S
376	001236'	005721		TST	(R1)+	:POINT AT NXT CNT
377	001240'	005300		DEC	RO	:DONE ALL WORDS?
378	001242'	001363		BNE	RPTLP	:Y,N-RPTLP
379	001244'	004567	003162	JSR	RS,PRINT	:GO ISSUE COUNTS MSG
380	001250'	003434		.WORD	CNTSMG-	
381	001252'	000221		.WORD	CNTSEN-CNTSMG	
382	001254'	004567	003152	RPTEND: JSR	RS,PRINT	:ISSUE "END OF REPORT" MSG
383	001260'	003336		.WORD	RENDMG-	
384	001262'	177763		.WORD	-13	
385	001264'	004067	002650	DVREX: JSR	RO,RESREG	:RESTORE REGISTERS
386	001270'	005725		TST	(R5)+	:SET UP RETURN POINT
387	001272'	000205		RTS	R5	:EXIT IN-LINE
388						
389						
390	001274'	003470		REPTBL: .WORD	BCMRD-RPTBAS	
391	001276'	003476		.WORD	BCMRD+6-RPTBAS	
392	001300'	003512		.WORD	BCMWR-RPTBAS	
393	001302'	003520		.WORD	BCMWR+6-RPTBAS	
394	001304'	003545		.WORD	CMDCRD-RPTBAS	
395	001306'	003560		.WORD	CMDCWR-RPTBAS	
396	001310'	003575		.WORD	CMDCMS-RPTBAS	
397	001312'	003624		.WORD	CNTERR-RPTBAS	
398	001314'	003641		.WORD	CNTDER-RPTBAS	
399	001316'	003667		.WORD	CNTINT-RPTBAS	
400						

K01

```

401
402
403
404
405
406 001320' 005267 177376
407 001324' 026727 177372 000007
408 001332' 001031
409 001334' 004067 002564
410 001340' 004767 002612
411 001344' 004567 002632
412 001350' 177314
413 001352' 004567 002516
414 001356' 000404
415 001360' 112714 000011
416 001364' 004767 002460
417 001370' 042713 000010
418 001374' 004567 001674
419 001400' 001553
420 001402' 000016
421 001404' 004067 002530
422 001410' 012605
423 001412' 000177 176432
424 001416' 000205
425
426
427
428
429
430
431
432
433 001420' 004567 002450
434 001424' 000407
435 001426' 016701 176372
436 001432' 112761 000011 000002
437 001440' 004767 002404
438 001444' 000205

;TIMEOUT ERROR ROUTINE
;JSR R5,TOUTER S/R CALL
TOUTER: INC TOECNT ;INCR # OF TIMEOUTS THAT OCCURRED
CMP TOECNT,#7 ;THIS SEVENTH TIMEOUT IN A ROW?
BNE TOUTEX ;Y N-TOUTEX
JSR R0,SAVREG ;SAVE ALL REGISTERS
JSR PC,SUPTAD ;SET UP TCCM : PROG TBL ADR'S
JSR R5,STSTAT ;STORE CURRENT STATUS
;WORD CSTAT-
JSR R5,TVECT ;OK IF I HAVE VECTOR CONTROL
BR 10$ ;BR IF I DON'T
MOVB #11,(R4) ;RESET INT ENABLE & STOP THE TAPE
JSR PC,RINTV ;RESET THE INTERRUPT VECTOR
10$: BIC #WT4IOT,(R3) ;RESET WAITING FOR I/O FLAG
JSR R5,ERRCSI ;ISSUE TIMEOUT ERROR MSG
;WORD ITO-ERMBAS
;WORD 14
JSR R0,RESREG ;RESTORE REGISTERS
MOV (SP)+,R5 ;REMOVE RETURN ADR
JMP @CUPGER ;GO TO ERROR EXIT
TOUTEX: RTS R5 ;EXIT IN-LINE

;KILL USER PROGRAM ROUTINE
;JSR R5,KILL S/R CALL
;R3 MUST CONTAIN PROG TBL ADR
;DESTROYS R0,R1
KILL: JSR R5,TVECT ;OK IF I HAVE VECTOR CONTROL
BR KILLEX ;BR IF I DON'T
MOV DREGAD,R1 ;GET DEV REG ADR
MOVB #11,2(R1) ;RESET INT ENABLE & STOP THE TAPE
JSR PC,RINTV ;RESET INT VECTOR INFO
KILLEX: RTS R5 ;EXIT IN-LINE

```

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440          .SBTTL  TC11 FUNCTION ROUTINES
441
442
443          ;"WAIT" FUNCTION ROUTINE
444
445          :JSR    RS,WAIT          FUNCTION CALL
446
447 001446' 042767 100000 176326 WAIT: BIC    #100000,DFLGWD      ;RESET THE "NOWAIT" FLAG
448 001454' 004767 001506          JSR    PC,CKDBSY        ;WAIT IF BUSY & DO TERMINATION
449 001460' 004767 002364          JSR    PC,RINTV        ;RESET THE INTERRUPT VECTOR
450 001464' 000205          RTS     RS              ;EXIT IN-LINE
451
452
453          ;"NOWAIT" FUNCTION ROUTINE
454
455          :JSR    RS,NOWAIT       FUNCTION CALL
456
457 001466' 052767 100000 176306 NOWAIT: BIS    #100000,DFLGWD      ;SET THE "NOWAIT" FLAG
458 001474' 000205          FUNCEX: RTS     RS              ;EXIT IN-LINE
459
460
461          ;"FWD" FUNCTION ROUTINE
462
463          :JSR    RS,FWD          FUNCTION CALL
464
465 001476' 042767 004000 176276 FWD:  BIC    #4000,DFLGWD      ;RESET THE REVERSE FLAG
466 001504' 000205          RTS     RS              ;EXIT IN-LINE
467
468
469          ;"REV" FUNCTION ROUTINE
470
471          :JSR    RS,REV          FUNCTION CALL
472
473 001506' 052767 004000 176266 REV:  BIS    #4000,DFLGWD      ;SET THE REVERSE FLAG
474 001514' 000205          RTS     RS              ;EXIT IN-LINE
475
476
477          ;"READ" FUNCTION ROUTINE
478
479          :JSR    RS,READ         FUNCTION CALL
480          :.WORD  ADR            DATA ADDRESS (BITS 16 & 17)
481          :.WORD  ADR            DATA ADDRESS (BITS 0 - 15)
482          :.WORD  CNT            BYTE COUNT
483          :.WORD  DEV            (NOT USED)
484
485 001516' 012701 000105          READ:  MOV    #105,R1        ;SET UP READ CMND CODE
486 001522' 012702 000011          RDCOM: MOV    #011,R2        ;SET UP READ FLAG WORD
487 001526' 004767 001434          JSR    PC,CKDBSY        ;GO CK IF DEV IS BUSY
488 001532' 005267 177150          INC    RDCNT          ;ADD 1 TO READ CMND CNT
489 001536' 010700          MOV    PC,RO          ;SET UP ADR OF BYTES READ CNT
490 001540' 062700 177140          ADD    #BYRD+2-.,RO
491 001544' 000456          BR     CMDCOM         ;GO TO CMND COMMON PROCESSING

```

MO1

MAINDEC-11-DTTCAB-B TC11/TUSS DEVICE ROUTINE FOR MPG
DTTCAB.P11 TC11 FUNCTION ROUTINES

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SEQ 0365

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493                                     ;"WRITE" FUNCTION ROUTINE
494
495                                     ;JSR    R5,WRITE      FUNCTION CALL
496                                     ;.WORD  ADR          DATA ADDRESS (BITS 16 & 17)
497                                     ;.WORD  ADR          DATA ADDRESS (BITS 0 - 15)
498                                     ;.WORD  CNT          BYTE COUNT
499                                     ;.WORD  DEV          (NOT USED)
500
501 001546' 012701 000115  WRITE:  MOV    #115,R1      ;SET UP WRITE CMND CODE
502 001552' 012702 000011      MOV    #011,R2      ;SET UP CMND FLAG WORD
503 001555' 004767 001404  WRCOM:  JSR    PC,CKDBSY   ;GO CK IF DEV IS BUSY
504 001562' 005267 177122      INC    WRCNT        ;ADD 1 TO WRITE CMND CNT
505 001566' 010700              MOV    PC,RD        ;SET UP ADR OF BYTES WRITTEN CNT
506 001570' 052700 177114      ADD    #BYWR+2-.,RD
507 001574' 000442              BR     CMDCOM       ;GO TO CMND COMMON PROCESSING
508
509                                     ;"RDNUM" FUNCTION ROUTINE
510
511                                     ;JSR    R5,RDNUM     FUNCTION CALL
512                                     ;.WORD  ADR          DATA ADDRESS
513                                     ;.WORD  CNT          BYTE COUNT
514
515
516 001576' 012701 000103  RDNUM:  MOV    #103,R1    ;SET UP RDNUM CMND CODE
517 001602' 012702 000102      MOV    #102,R2    ;SET UP CMND FLAG WORD
518 001606' 000747              BR     RDCOM       ;GO TO COMMON READ PROCESSING
519
520                                     ;"RDALL" FUNCTION ROUTINE
521
522                                     ;JSR    R5,RDALL     FUNCTION CALL
523                                     ;.WORD  ADR          DATA ADDRESS
524                                     ;.WORD  CNT          BYTE COUNT
525
526
527 001610' 012701 000007  RDALL:  MOV    #007,R1    ;SET UP RDALL CMND CODE
528 001614' 012702 000232      MOV    #232,R2    ;SET UP CMND FLAG WORD
529 001620' 000742              BR     RDCOM       ;GO TO COMMON READ PROCESSING
530
531                                     ;"WRALL" FUNCTION ROUTINE
532
533                                     ;JSR    R5,WRALL     FUNCTION CALL
534                                     ;.WORD  ADR          DATA ADDRESS
535                                     ;.WORD  CNT          BYTE COUNT
536
537
538 001622' 012701 000017  WRALL:  MOV    #017,R1    ;SET UP WRALL CMND CODE
539 001626' 012702 000032      MOV    #032,R2    ;SET UP CMND FLAG WORD
540 001632' 000751              BR     WRCOM       ;GO TO COMMON WRITE PROCESSING

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542 ;"WRTM" FUNCTION ROUTINE
543
544 ;JSR R5,WRTM FUNCTION CALL
545 ;.WORD ADR DATA ADDRESS
546 ;.WORD CNT BYTE COUNT
547
548 001634' 012701 000013 WRTM: MOV #013,R1 ;SET UP WRTM CMND CODE
549 001640' 012702 000022 MOV #022,R2 ;SET UP CMND FLAG WORD
550 001644' 000744 BR WRCOM ;GO TO COMMON WRITE PROCESSING
551
552
553 ;"STOP" FUNCTION ROUTINE
554
555 ;JSR R5,STOP FUNCTION CALL
556
557 001646' 012701 000111 STOP: MOV #111,R1 ;SET UP STOP CMND CODE
558 001652' 012702 000044 MOV #044,R2 ;SET UP CMND FLAG WORD
559 001656' 004767 001304 MISC0M: JSR PC,CKDRSY ;GO OK IF DEV IS BUSY
560 001662' 005267 177024 INC MISCNT ;ADD 1 TO MISC. CMND CNT
561 001666' 000405 BR CMDCOM ;GO TO CMND COMMON PROCESSING
562
563
564 ;"STPALL" FUNCTION ROUTINE
565
566 ;JSR R5,STPALL FUNCTION CALL
567
568 001670' 012701 000101 STPALL: MOV #101,R1 ;SET UP STPALL CMND CODE
569 001674' 012702 000044 MOV #044,R2 ;SET UP CMND FLAG WORD
570 001700' 000766 BR MISC0M ;GO TO MISC. CMND COM PROCESSING
    
```

CO1

MAINDEC-11-DTCA-B TO11/TU56 DEVICE ROUTINE FOR MPG
DTTCA-B.P11 REVISION HISTORY

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SEQ 0355

DTTCA-B.P11

.SBTTL REVISION HISTORY
APR 76 DTTCA-B RELEASE
DEC 75 WILL NOW DISPLAY THE UNIT * BYTE IN OCTAL FOR
INVALID UNIT * ERROR MESSAGES.
DEC 75 MADE CHANGES REQUIRED FOR THE MEMORY MANAGEMENT
VERSION OF MPG.
AUG 75 DTTCA-A INITIAL RELEASE

C02

MAINDEC-11-DTTCAB-B TC11/TU56 DEVICE ROUTINE FOR MPG
DTTCAB.P11 TC11 FUNCTION ROUTINES

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SEQ 0368

628	002052'	032702	000010		BIT	#10,R2	: THIS A BLK SEARCH TYPE OF CMND?
629	002056'	001426			BEQ	50\$: Y,N-50\$
630	002060'	016767	175720	176650	MOV	BLK,INBLKN	: INITIALIZE BLK # FOR SEARCH S/R
631	002066'	012701	000103		MOV	#103,R1	: SET UP "RDNUM" CMND CODE
632	002072'	026727	175706	001101	CMP	BLK,#577.	: IS BLOCK # VALID?
633	002100'	101415			BLOS	50\$: N,Y-50\$
634	002102'	004567	001100		JSR	R5,ERRCS	: REPORT INV BLK # ERROR
635	002106'	001713			.WORD	INVBKN-ERMBAS	
636	002110'	000011			.WORD	9.	
637	002112'	005267	176600		INC	DATAER	: ADD 1 TO DATA ERR CNT
638	002116'	012767	000001	175676	MOV	#1,ERR	: SET THE ERROR INDICATOR
639	002124'	005367	176564		DEC	ERRCNT	: REMOVE THE 1 ADDED TO DEV ERR CNT
640	002130'	000177	175714		JMP	@CUPGR	: GO TO MPG ERR RETN POINT
641	002134'	042767	000011	175640	BIC	#11,DFLGWD	: RESET THE ERROR FLAGS
642	002142'	005067	176574		CLR	REVCNT	: RESET TAPE REVERSAL CNT
643	002146'	032702	000020		BIT	#20,R2	: NON-INTERRUPT SERVICING?
644	002152'	001025			BNE	NONINT	: N,Y-NONINT
645	002154'	005063	000030		CLR	PTOCNT(R3)	: INITIALIZE TIMEOUT COUNTER
646	002160'	005067	176536		CLR	TOECNT	: RESET # OF TIMEOUTS
647	002164'	052767	000002	175610	BIS	#2,DFLGWD	: SET THE "PROCESS TERMINATION" FLAG
648	002172'	052713	000010		BIS	#WT4IOT,(R3)	: SET WAITING FOR I/O TERM FLAG
649	002176'	110114			MOVB	R1,(R4)	: ISSUE THE CMND
650	002200'	005767	175576		TST	DFLGWD	: "NOWAIT" BIT SET?
651	002204'	100405			BMI	WTNOT	: N,Y-WTNOT
652	002206'	004577	175634		JSR	R5,@CIOBSY	: WAIT FOR I/O TO COMPLETE
653	002212'	004767	001252		CMDEND: JSR	PC,PROCTM	: GO PROCESS TERMINATION
654	002216'	000205			CMDEX: RTS	R5	: EXIT IN-LINE TO USER PROG
655							
656	002220'	042713	000010		WTNOT: BIC	#WT4IOT,(R3)	: RESET WAITING FOR I/O TERM
657	002224'	000774			BR	CMDEX	: GO TO EXIT

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        .SBTTL TC11 NON-INTERRUPT COMMAND & DATA SERVICING
559
560
561
562 002226' 042701 000100      NONINT: BIC      #100,R1      ;RESET INT ENABLE IN CMND
563 002232' 110114          MOVB     R1,(R4)  ;ISSUE RDNUM/WRTM CMND
564 002234' 032702 000010      BIT      #10,R2  ;BLK SEARCH TYPE OF CMND?
565 002240' 001506          BEQ      70$    ;Y,N-70$
566 002242' 105714          10$:  TSTL   (R4)    ;READY SET?
567 002244' 100376          BPL     10$    ;Y,N-10$
568 002246' 012701 000003      MOV     #3,R1   ;SET UP RDNUM CMND CODE
569 002252' 004767 000454      JSR     PC,SEARCH ;GO SEARCH FOR BLK
570 002256' 000430          BR      25$    ;ERROR ? (N,Y-25$)
571 002260' 032767 000010 176442 BIT     #10,CURFLG ;FOUND THE BLK?
572 002266' 001365          BNE     10$    ;Y,N-10$
573 002270' 004767 000222      JSR     PC,NINTSU ;GO SET UP REGISTERS
574 002274' 032702 000200      BIT     #200,R2 ;"RDALL" CMND?
575 002300' 001443          BEQ     50$    ;Y,N-50$
576
577                          ;"RDALL" SERVICING
578
579 002302' 105714          20$:  TSTB   (R4)    ;READY SET?
580 002304' 100376          BPL     20$    ;Y,N-20$
581 002306' 005714          TST    (R4)    ;ERROR BIT SET?
582 002310' 100415          BMI     30$    ;N,Y-30$
583 002312' 016402 177776      MOV     -2(R4),R2 ;GET TCST REG WITH BITS 16 & 17
584 002316' 042702 177774      BIC     #177774,R2 ;RESET OTHER BITS
585 002322' 010220          MOV     R2,(R0)+ ;STORE WORD WITH BITS 16 & 17
586 002324' 005201          INC     R1     ;DECR NEG WORD CNT
587 002326' 001411          BEQ     40$    ;CNT = 0? (N,Y-40$)
588 002330' 011320          MOV     (R3),(R0)+ ;STORE BITS 0-15 FROM TCST
589 002332' 005201          INC     R1     ;DECR NEG WORD CNT
590 002334' 001362          BNE     20$    ;CNT = 0? (Y,N-20$)
591 002336' 000405          BR      40$    ;GO TO TERMINATION
592
593                          ;NON-INT CMND TERMINATION
594
595 002340' 004767 000152      25$:  JSR     PC,NINTSU ;SET UP CORRECT REG VALUES
596 002344' 052767 000001 175430 30$:  BIS     #1,DFLGWD ;SET THE "ERROR" FLAG
597 002352' 010167 176362      40$:  MOV     R1,FINCNT ;STORE FINAL WORD CNT
598 002356' 010164 000002      MOV     R1,2(R4) ;MOVE FINAL CNT TO TCWC
599 002362' 010064 000004      MOV     R0,4(R4) ;MOVE FINAL BUS ADR TO TCBA
700 002366' 004567 001610      JSR     R5,STSTAT ;STORE ALL STATUS REGISTERS
701 002372' 176260          .WORD  ISTAT-
702 002374' 005713          TST    (R3)    ;KNOCK DOWN READY IF STILL UP
703 002376' 112714 000011      MOVB   #011,(R4) ;ISSUE "STOP" CMND
704 002402' 004767 001550      JSR     PC,SUPTAD ;RESTORE PROG TBL ADR
705 002406' 000701          BR      CMDEND ;GO PROCESS TERMINATION & EXIT
706
707                          ;"WRALL" SERVICING
708
709 002410' 105714          50$:  TSTB   (R4)    ;READY SET?
710 002412' 100376          BPL     50$    ;Y,N-50$
711 002414' 005714          TST    (R4)    ;ERROR BIT SET?
712 002416' 100752          BMI     30$    ;N,Y-30$
713 002420' 012002          MOV     (R0)+,R2 ;GET WORD WITH BITS 16 & 17
714 002422' 042702 177774      BIC     #177774,R2 ;RESET OTHER BITS

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E02

MAINDEC-11-DTTCR-B TC11/TUS6 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:00 PAGE 6-1
 DTTCR8.P11 TC11 NON-INTERRUPT COMMAND & DATA SERVICING

SEQ 0370

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715 002426' 010264 177776      MOV      R2,-2(R4)      ;SET BITS 16 & 17 INTO TCST
716 002432' 005201              INC      R1             ;DECR NEG WORD CNT
717 002434' 001403              BEQ     60$            ;CNT = 0? (N,Y-60$)
718 002436' 012013              MOV     (R0)+,(R3)     ;MOVE BITS 0-15 WORD TO TCDT
719 002440' 005201              INC     R1             ;DECR NEG WORD CNT
720 002442' 001362              BNE    50$            ;CNT = 0? (Y,N-50$)
721 002444' 032754 001000 177776 60$: BIT     #1000,-2(R4)    ;DATA MISSED SET YET?
722 002452' 001774              BEQ     60$            ;Y,N-60$
723 002454' 000736              BR     40$            ;GO TO TERMINATION
724
725                                ;"WRTM" SERVICING
726
727 002456' 004767 000034      70$:   JSR     PC,NINTSU  ;SET UP REGISTERS
728 002462' 105714      80$:   TSTB   (R4)         ;READY SET YET?
729 002464' 100376              BPL    80$           ;Y,N-80$
730 002466' 005714              TST   (R4)         ;ERROR BIT SET?
731 002470' 100725              BMI   30$           ;N,Y-30$
732 002472' 005701              TST   R1           ;WORD CNT = 0?
733 002474' 001403              BEQ   90$           ;N,Y-90$
734 002476' 012013              MOV   (R0)+,(R3)   ;MOVE DATA WORD TO TCDT
735 002500' 005201              INC   R1           ;DECR NEG WORD CNT
736 002502' 000767              BR    80$          ;GO WAIT FOR NEXT WORD
737 002504' 012702 000310      90$:   MOV    #200.,R2    ;SET UP DELAY CNT
738 002510' 005302      100$:  DEC    R2          ;DELAY FEW HUNDRED MICROSEC'S
739 002512' 001376              BNE   100$         ;
740 002514' 000716              BR    40$          ;GO TO TERMINATION
741
742                                ;NON-INT REGISTER SETUP S/R
743
744
745 002516' 016400 000004      NINTSU: MOV   4(R4),R0    ;MOVE BUS ADR TO R0
746 002522' 016401 000002      MOV   2(R4),R1    ;MOVE NEG WORD CNT TO R1
747 002526' 010403              MOV   R4,R3       ;SET UP TCDT ADR IN R3
748 002530' 062703 000006      ADD   #6,R3
749 002534' 000207              RTS    PC          ;EXIT IN-LINE

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751          .SBTTL  TC11 INTERRUPT SERVICE ROUTINE
752
753
754 002536' 004067 001362          TCINT: JSR    R0, SAVREG      ;SAVE ALL REGISTERS
755 002542' 005267 176152          INC    INTCNT      ;ADD 1 TO INTERRUPT CNT
756 002546' 004767 001404          JSR    PC, SUPTAD  ;SET UP PROG TBL & TCCM ADR'S
757 002552' 004567 001424          JSR    R5, STSTAT ;STORE ALL DEV REG'S
758 002556' 176074          .WORD  ISTAT-
759 002560' 016702 176144          MOV    CURFLG, R2 ;GET THIS CMND'S FLGWD
760 002564' 032702 000010          BIT    #10, R2    ;IN BLOCK SEARCH MODE?
761 002570' 001406          BEQ    5$         ;Y, N-5$
762 002572' 012701 000103          MOV    #103, R1   ;SET UP RDNUM WITH INT ENABLE
763 002576' 004767 000130          JSR    PC, SEARCH ;GO SEARCH FOR SPECIFIED BLK
764 002602' 000403          BR     10$        ;ERROR ON SEARCH? (N, Y-10$)
765 002604' 000446          BR     60$        ;GO TO INT EXIT
766 002606' 005714          5$:  TST    (R4)      ;IS THERE AN ERR CONDITION?
767 002610' 100006          BPL    30$        ;Y, N-30$
768 002612' 052767 000001 175162 10$:  BIS    #1, DFLGWD ;SET THE ERROR FLAG
769 002620' 112714 000011 20$:  MOVB  #011, (R4) ;STOP TAPE & RESET INT ENABLE
770 002624' 000431          BR     50$        ;GO TO CMND TERMINATION
771
772          ;"RDNUM" USER CMND INT
773
774 002626' 032702 000100          30$:  BIT    #100, R2  ;DOING A USER "RDNUM" CMND?
775 002632' 001421          BEQ    40$        ;Y, N-40$
776 002634' 016401 000006          MOV    6(R4), R1  ;GET BLK # READ
777 002640' 016400 000004          MOV    4(R4), R0  ;GET CURRENT DATA ADR
778 002644' 004777 175230          JSR    PC, @PUTBYT ;HAVE MPG STORE 1 BYTE
779 002650' 000301          SWAB  R1         ;SET UP FOR 2ND BYTE
780 002652' 004777 175222          JSR    PC, @PUTBYT ;STORE IT TOO
781 002656' 010064 000004          MOV    R0, 4(R4)  ;STORE NEW DATA ADR
782 002662' 005264 000002          INC    2(R4)      ;DECR NEG WORD CNT
783 002666' 001754          BEQ    20$        ;CNT = 0? (N, Y-20$)
784 002670' 112714 000103          MOVB  #103, (R4)  ;ISSUE "RDNUM" CMND AGAIN
785 002674' 000412          BR     60$        ;GO TO INTERRUPT EXIT
786
787          ;FINAL INTERRUPT PROCESSING
788
789 002676' 032702 000040          40$:  BIT    #40, R2   ;ISSUE "STOP" CMND AT FINAL INT?
790 002702' 001746          BEQ    20$        ;N, Y-20$
791 002704' 042714 000100          BIC    #100, (R4) ;RESET INT ENABLE
792 002710' 016467 000002 176022 50$:  MOV    2(R4), FINCNT ;STORE FINAL WORD COUNT
793 002716' 042713 000010          BIC    #WT4IOT, (R3) ;RESET WAITING FOR I/O TERM
794 002722' 004067 001212          60$:  JSR    R0, RESREG ;RESTORE ALL REGISTERS
795 002726' 000177 175142          JMP    @RTNINT    ;EXIT FROM INTERRUPT

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797                                     .SBTTL TC11 SEARCH FOR DECTAPE BLOCK S/R
798
799
800                                     ;SEARCH FOR SPECIFIED BLOCK
801
802                                     ;JSR   PC_SEARCH   S/R CALL
803                                     ;BR    LABEL       EXECUTED IF AN ERROR
804
805                                     ;R1 = RNUM CMND WITH OR W/O INT ENABLE
806                                     ;R3 = PROG TBL ADR
807                                     ;R4 = TCCM ADR
808                                     ;DESTROYS R0,R1
809
810 002732' 116300 000035 SEARCH: MOVB PCURDV(R3),R0 ;GET CURR DEV #
811 002735' 000300 SWAB R0 ;ALIGN DEV # BITS
812 002740' 050001 BIS RO,R1 ;SET DEV # INTO CMND
813 002742' 016700 175036 MOV BLK,R0 ;GET DESIRED BLOCK #
814 002746' 005714 TST (R4) ;ERROR BIT SET?
815 002750' 100475 BMI 110$ ;N,Y-110$
816 002752' 032767 004000 175022 BIT #4000,DFLGWD ;DOING I/O'S IN REVERSE?
817 002760' 001046 BNE 100$ ;N,Y-100$
818
819                                     ;SEARCH FOR BLK FOR FWD I/O
820
821 002762' 026467 000006 175746 CMP 6(R4),INBLKN ;AT THE BLK WE'RE LOOKING FOR?
822 002770' 001430 BEQ 90$ ;N,Y-90$
823 002772' 002421 BLT 80$ ;PAST THE BLOCK? (Y,N-80$)
824 002774' 162700 000002 60$: SUB #2,R0 ;SUB 2 FROM ORG BLK #
825 003000' 052701 004000 BIS #4000,R1 ;SET REV BIT IN CMND
826 003004' 032714 004000 BIT #4000,(R4) ;ALREADY GOING REV?
827 003010' 001012 BNE 80$ ;N,Y-80$
828 003012' 005267 175724 70$: INC REVCNT ;INCR REVERSAL CNT
829 003016' 026727 175720 000006 CMP REVCNT,#6 ;DONE 6 DIRECTION REVERSALS?
830 003024' 103404 BLO 80$ ;Y,N-80$
831 003026' 052767 000010 174746 BIS #10,DFLGWD ;SET BLK SRCH ERR FLG
832 003034' 000405 BR 88$ ;GO TO ERROR EXIT
833 003036' 010067 175674 80$: MOV RO,INBLKN ;SAVE BLK # (ORG OR ADJUSTED)
834 003042' 010114 85$: MOV R1,(R4) ;ISSUE DECTAPE CMND
835 003044' 062716 000002 ADD #2,(SP) ;SET UP NORMAL RET ADR
836 003050' 000207 88$: RTS PC ;EXIT IN-LINE
837 003052' 032714 004000 90$: BIT #4000,(R4) ;ARE WE GOING FWD?
838 003056' 001346 BNE 60$ ;Y,N-60$
839 003060' 105001 95$: CLRB R1 ;CLEAR CMND CODE FIELD
840 003062' 156701 175646 BISB CURCMD,R1 ;SET IN REQUESTED CMND CODE
841 003066' 042767 000010 175634 BIC #10,CURFLG ;RESET BLK SEARCH MODE FLAG
842 003074' 000762 BR 85$ ;GO ISSUE CMND
843
844                                     ;SEARCH FOR BLK FOR REV I/O
845
846 003076' 052701 004000 100$: BIS #4000,R1 ;INITIALIZE TO REV DIRECTION
847 003102' 026467 000006 175626 CMP 6(R4),INBLKN ;THIS THE BLOCK WE WANT?
848 003110' 001411 BEQ 105$ ;N,Y-105$
849 003112' 003351 BGT 80$ ;IN FRONT OF THE BLK? (Y,N-80$)
850 003114' 042701 004000 102$: BIC #4000,R1 ;SET DIR TO FWD
851 003120' 062700 000002 ADD #2,R0 ;ALLOW FOR TURN AROUND
852 003124' 032714 004000 BIT #4000,(R4) ;ALREADY GOING FWD?

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H02

MAINDEC-11-DTTCB-B TC11/TU56 DEVICE ROUTINE FOR MPG
DTTCB.P11 TC11 SEARCH FOR DECTAPE BLOCK S/R

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SEQ 0373

853	003130'	001742			BEQ	30\$:N,Y-80\$
854	003132'	000727			BR	70\$:GO CK REVERSAL CNT
855	003134'	032714	004000	105\$:	BIT	#4000,(R4)		:ARE WE GOING REV?
856	003140'	001347			BNE	95\$:N,Y-95\$
857	003142'	000764			BR	102\$:GO STORE ADJUSTED BLK #
858								
859	003144'	005764	177776	110\$:	TST	-2(R4)		:END ZONE?
860	003150'	100337			BPL	88\$:Y,N-88\$
861	003152'	032714	004000		BIT	#4000,(R4)		:GOING REV?
862	003156'	001315			BNE	70\$:N,Y-70\$
863	003160'	052701	004000		BIS	#4000,R1		:SET DIRECTION TO REV
864	003164'	000712			BR	70\$:GO CK REVERSAL CNT

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866                                     .SBTTL SUBROUTINES FOR TC11 FUNCTION ROUTINES
867
868
869                                     ;CHECK IF DEVICE IS BUSY AND WAIT IF IT IS
870
871                                     ;JSR   PC,CKDBSY      S/R CALL
872
873                                     ;DESTROYS R0,R3,R4
874                                     ;ON EXIT:
875                                     ;R3 = PROG TBL ADR
876                                     ;R4 = TCCM ADR
877
878 003166' 004767 000764      CKDBSY: JSR   PC,SUPTAD      ;SET UP PROG TBL & TCCM ADR'S
879 003172' 032714 000100      10$: BIT   #100,(R4)    ;INT ENABLE ON?
880 003175' 001403              BEQ   20$           ;Y,N-20$
881 003200' 004577 174642      JSR   R5,DCIOBSY    ;RELEASE CONTROL
882 003204' 000772              BR    10$           ;GO OK AGAIN
883 003206' 032757 000002 174566 20$: BIT   #2,DFLGWD    ;HAVE TO PROCESS PREV TERMINATION?
884 003214' 001403              BEQ   30$           ;Y,N-30$
885 003216' 004767 000246      JSR   PC,PROCTM    ;GO PROCESS TERMINATION
886 003222' 000763              BR    10$           ;GO RECHECK INT ENABLE
887 003224' 016767 174576 000012 30$: MOV   IVCTAD,40$   ;STORE INT VECTOR ADR
888 003232' 016767 174572 000006  MOV   PSWD,45$     ;STORE PROC STATUS WORD
889 003240' 004577 174622      JSR   R5,SETVEC    ;GO SET UP THE VECTOR
890 003244' 000000              40$: .WORD  XXXX    ; INT VECTOR ADR
891 003246' 000000              45$: .WORD  XXXX    ; PSW
892 003250' 177266              .WORD  TCINT-    ; REL INT ROUT ADR
893 003252' 010567 175446      MOV   R5,ERRADR    ;SAVE CURR USER STMT ADR
894 003256' 162767 000004 175440  SUB   #4,ERRADR
895 003264' 000207              RTS    PC          ;EXIT IN-LINE
896
897
898                                     ;ERROR INFORMATION DISPLAY S/R
899
900                                     ;JSR   R5,LRRCS      S/R CALL FOR CURR STATUS
901                                     ;JSR   R5,ERRIS      S/R CALL FOR INT STATUS
902                                     ;.WORD MSGADR-ERMBAS REL ADR OF ERROR MSG
903                                     ;.WORD MSGCNT      # OF BYTES IN ERROR MSG
904                                     ;DESTROYS R0,R1,R2
905
906 003266' 004567 000710      ERRCS: JSR   R5,STSTAT ;STORE CURR STATUS
907 003272' 175372              .WORD  CSTAT-
908 003274' 012767 175262 000100  ERRCS1: MOV   #CSTAT-ERSTAD,ERSTAD ;STORE ADR OF CURR STATUS
909 003302' 000403              BR    ERRCOM      ;GO TO COMMON POINT
910 003304' 012767 175250 000070  ERRIS: MOV   #ISTAT-ERSTAD,ERSTAD ;STORE ADR OF LAST INT STATUS
911 003312' 012567 000034      ERRCOM: MOV   (R5)+,ERMBAS ;STORE MSG ADR
912 003316' 012567 000032      MOV   (R5)+,ERMBAS+2 ;STORE MSG CNT
913 003322' 005267 175366      INC   ERRCNT      ;ADD 1 TO ERROR CNT
914 003326' 032763 020000 000002  BIT   #PRONER,POPSW(R3) ;ERROR PRINTING INHIBITED?
915 003334' 001054              BNE   ERREX      ;N,Y-ERREX
916 003336' 010446              MOV   R4,-(SP)   ;SAVE R4
917 003340' 005004              CLR   R4         ;SET USER MODE PRINT FLAG
918 003342' 004767 000660      JSR   PC,DISUNM   ;DISPLAY UNIT #
919 003346' 004567 001060      JSR   R5,PRINT    ;PRINT ERROR MSG SPECIFIED
920 003352' 000000              ERMBAS: .WORD  XXXX
921 003354' 000000              .WORD  XXXX

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922 003356' 026727 177770 001701      CMP      ERMBAS, #INVDVN-ERMBAS  ;INVALID UNIT # ERROR?
923 003364' 001411                      BEQ      ERRSNM                ;N, Y-ERRSNM
924 003366' 026727 177760 001713      CMP      ERMBAS, #INVBKN-ERMBAS ;INVALID BLOCK # ERROR?
925 003374' 001403                      BEQ      ERPBKN                ;N, Y-ERPBKN
926 003376' 004567 000714                      JSR      R5, DISPST           ;DISPLAY STATUS REG'S
927 003402' 000000                      ERSTAD: .WORD XXXX
928 003404' 004767 000776      ERPBKN: JSR      PC, PRIWD      ;DISPLAY CURR BLK #
929 003410' 016300 000022      ERRSNM: MOV      PSRCT(R3), R0   ;GET ADR OF SRC STMENTS
930 003414' 111001                      10$:   MOVB     (R0), R1       ;SAVE STMT LENGTH
931 003416' 026067 000004 175300      CMP      4(R0), ERRADR       ;ERROR OCCUR ON THIS STMT?
932 003424' 001402                      BEQ      20$                 ;N, Y-20$
933 003426' 060100                      ADD      R1, R0              ;POINT AT NXT STMT
934 003430' 000771                      BR       10$                 ;GO CK NXT STMT
935 003432' 005720                      20$:   TST      (R0)+          ;SET UP ADR OF STMT # DATA
936 003434' 010701                      MOV      PC, R1              ;SET UP DATA OUTPUT ADR
937 003436' 062701 001546                      ADD      #STNUM-, R1
938 003442' 004577 174414                      JSR      R5, @DECASC         ;CONVERT IT TO ASCII
939 003446' 012767 020040 001534      MOV      #20040, STNUM+4     ;SET 2 LOW DIGITS TO SPACES
940 003454' 004567 000752                      JSR      R5, PRINT          ;ISSUE STMT # MSG
941 003460' 001514                      .WORD   STNMNG-
942 003462' 177762                      .WORD   -14
943 003464' 012604                      MOV      (SP)+, R4          ;RESTORE R4
944 003466' 000205      ERREX:  RTS      R5          ;EXIT IN-LINE
945
946
947                                     ;PROCESS TERMINATION OF PREVIOUS I/O FUNCTION
948
949                                     ;JSR      PC, PROCTM      S/R CALL
950
951 003470' 004067 000430      PROCTM: JSR      R0, SAVREG     ;SAVE ALL REG'S
952 003474' 042767 000002 174300      BIC      #2, DFLGWD         ;RESET PROCESS TERMINATION FLAG
953 003502' 032767 000004 175220      BIT      #4, CURFLG        ;INCR BYTE COUNT?
954 003510' 001016                      BNE     6$                  ;Y, N-6$
955 003512' 016700 175214      MOV      CURCNT, R0        ;GET INITIAL WORD CNT
956 003516' 016701 175216      MOV      FINCNT, R1        ;GET FINAL WORD CNT
957 003522' 100001                      BPL     2$                  ;IS IT NEGATIVE? (Y, N-2$)
958 003524' 005401                      NEG     R1                  ;MAKE IT POSITIVE
959 003526' 160100                      2$:   SUB      R1, R0          ;SUB REMAINING CNT FROM INITIAL CNT
960 003530' 006300                      ASL     R0                  ;MAKE IT A BYTE CNT
961 003532' 010067 174262      MOV      R0, SIZE         ;STORE # OF BYTES ACTUALLY XFERRED
962 003536' 016701 175164      MOV      CNTADR, R1       ;GET ADR OF BYTE CNT TOTALS
963 003542' 060011                      ADD     R0, (R1)           ;ADD IN THIS CNT
964 003544' 005541                      ADC     -(R1)              ;UPDATE MOST SIGNF WORD OF CNT
965 003546' 032767 000001 174276      6$:   BIT      #1, DFLGWD       ;WAS THERE AN ERROR?
966 003554' 001476                      BEQ     80$                 ;Y, N-80$
967 003556' 012767 000001 174236      MOV     #1, ERR           ;SET THE ERROR INDICATOR
968 003564' 032763 000400 000002      BIT     #DOERCK, POPSW(R3) ;SUPPOSED TO DO ERROR CHECKING?
969 003572' 001065                      BNE     70$                 ;Y, N-70$
970 003574' 032767 000010 174200      BIT     #10, DFLGWD        ;BLOCK SEARCH ERROR?
971 003602' 001070                      BNE     90$                 ;N, Y-90$
972 003604' 010701                      MOV     PC, R1             ;GET ADR OF CODE AREA IN ERR MSG
973 003606' 062701 001422                      ADD     #CODFLD-, R1
974 003612' 010102                      MOV     R1, R2             ;MOVE IT TO WORK REG
975 003614' 012700 000023                      MOV     #19, R0            ;SET UP AREA SIZE
976 003620' 112722 000040      10$:   MOVB     #40, (R2)+      ;CLEAR AREA TO SPACES
977 003624' 005300                      DEC     R0

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K02

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978 003626' 001374      BNE      10$
979 003630' 010700      MOV      PC,RO      ;SET UP ADR OF ERROR CODE TBL
980 003632' 062700      ADD      #ERCDTB--,RO
981 003636' 010702      MOV      PC,R2      ;SET UP ADR OF STORED DEV REG'S
982 003640' 062702      ADD      #ISTAT+1--,R2
983 003644' 005046      CLR      -(SP)      ;INITIALIZE CODE CNT
984 003646' 112004      20$:    MOVB   (RO)+,R4      ;GET ERROR BIT MASK CODE
985 003650' 005704      TST     R4          ;END OF THE CODE TBL?
986 003652' 001421      BEQ     60$        ;N,Y-60$
987 003654' 130412      30$:    BITB   R4,(R2)    ;THIS ERROR BIT SET IN STATUS BYTE?
988 003656' 001003      BNE     40$        ;N,Y-40$
989 003660' 062700      ADD     #4,RO      ;POINT AT NXT CODE TBL ENTRY
990 003664' 000770      BR     20$        ;GO CK FOR NXT CODE
991 003666' 005716      40$:    TST     (SP)      ;FIRST ERROR CODE IN MSG?
992 003670' 001402      BEQ     50$        ;N,Y-50$
993 003672' 112721      MOVB   #'',(R1)+   ;MOVE COMMA TO MSG
994 003676' 005216      50$:    INC     (SP)      ;INC # OF CODES IN THE MSG
995 003700' 112021      MOVB   (RO)+,(R1)+ ;MOVE ERROR CODE TO MSG
996 003702' 112021      MOVB   (RO)+,(R1)+
997 003704' 112021      MOVB   (RO)+,(R1)+
998 003706' 112021      MOVB   (RO)+,(R1)+
999 003710' 022716      CMF    #4,(SP)    ;PUT 4 CODES IN THE MSG?
1000 003714' 001354      BNE     20$        ;N,Y-20$
1001 003716' 005726      60$:    TST     (SP)+     ;RESTORE STACK
1002 003720' 004567      JSR    RS,ERRIS   ;GO ISSUE STATUS ERROR MSG
1003 003724' 001640      .WORD  TCMSG-ERMBAS
1004 003726' 000041      .WORD  33
1005 003730' 004767      65$:    JSR    PC,RINTV   ;GO RESET INT VECTOR
1006 003734' 004067      JSP    RO,RESREG  ;RESTORE REG'S
1007 003740' 004577      JSR    RS,JCUPGER ;GO TO MPG ERR RETN POINT
1008 003744' 000207      RTS    PC         ;EXIT IN-LINE
1009 003746' 005267      70$:    INC     ERRCNT   ;ADD 1 TO ERROR CNT
1010 003752' 004767      80$:    JSR    PC,RINTV   ;GO RESET INT VECTOR
1011 003756' 004067      JSR    RO,RESREG  ;RESTORE REG'S
1012 003762' 000207      RTS    PC         ;EXIT IN-LINE
1013 003764' 004567      90$:    JSR    RS,ERRIS   ;ISSUE BLK SRCH ERR MSG
1014 003770' 001571      .WORD  BSCHER-ERMBAS
1015 003772' 000016      .WORD  14
1016 003774' 000755      BR     65$        ;GO TO ERROR RETURN
1017
1018
1019 003776' 042600 042116 132  ERCDTB: .ASCII <20>/ENDZ/ ;ERROR MSG CODE TABLE
1020 004003' 100 040520 042522 .ASCII <100>/PARE/
1021 004010' 046440 052113 105 .ASCII <040>/MKTE/
1022 004015' 020 046111 050117 .ASCII <020>/ILOP/
1023 004022' 051410 046105 105 .ASCII <010>/SELE/
1024 004027' 004 046102 046513 .ASCII <004>/BLKM/
1025 004034' 042002 052101 115 .ASCII <002>/DATM/
1026 004041' 001 042516 046530 .ASCII <001>/NEXM/
1027 004046' 000 .BYTE 0 ;TABLE TERMINATOR
1028 004050' .EVEN

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L02

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1030                                     ;RESET INTERRUPT VECTOR S/R
1031
1032                                     ;JSR   PC,RINTV      S/R CALL
1033                                     ;R3 MUST CONTAIN PROG TBL ADR
1034                                     ;DESTROYS R0
1035
1036 004050' 004567 000020      RINTV: JSR   RS,TVECT      ;GO OK IF I HAVE VECTOR CONTROL
1037 004054' 000406              BR    RINTEX      ;BR IF I DON'T
1038 004056' 016767 173744 000004  MOV   IVCTAD,10$ ;GET CURR INT VECT ADR
1039 004064' 004577 174000      JSR   RS,@CLAVEC ;GO HAVE MPG CLEAR IT
1040 004070' 000000      10$: .WORD XXXX
1041 004072' 000207      RINTEX: RTS   PC          ;EXIT IN-LINE
1042
1043
1044                                     ;TEST INTERRUPT VECTOR S/R
1045
1046                                     ;JSR   RS,TVECT      S/R CALL
1047                                     ;BR    LABEL        EXECUTED IF NOT SAME
1048                                     ;R3 MUST CONTAIN PROG TBL ADR
1049                                     ;DESTROYS R0
1050
1051 004074' 016767 173726 000010  TVECT: MOV   IVCTAD,20$ ;GET CURR INT VECT ADR
1052 004102' 016346 000004              MOV   PFWADR(R3),-(SP) ;STORE FLGMD ADR TO IDENTIFY ME
1053 004106' 004577 17376C              JSR   RS,@TSTVEC ;DO I HAVE VECTOR CONTROL?
1054 004112' 000000      20$: .WORD XXXX ;MPG WILL TELL ME SINCE I CAN'T
1055 004114' 176422              .WORD TCINT- ;GET AT LOWER MEM IF MEM MGMT
1056 004116' 000401              BR    TVECTX      ;BR IF I DON'T HAVE CNTRL
1057 004120' 005725              TST   (R5)+ ;BYPASS BR INST IN S/R CALL
1058 004122' 000205      TVECTX: RTS   RS          ;EXIT IN-LINE

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M02

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1060          .SBTTL  SUBROUTINES FOR TC11 DEVICE ROUTINE
1061
1062          ;SAVE REGISTERS R0 THRU R5
1063
1064          ;JSR    R0,SAVREG      S/R CALL
1065
1066          SAVREG: MOV    R1,-(SP)      ;SAVE R0 THRU R5
1067                   MOV    R2,-(SP)
1068                   MOV    R3,-(SP)
1069                   MOV    R4,-(SP)
1070                   MOV    R5,-(SP)
1071                   MOV    R0,PC      ;EXIT IN-LINE
1072
1073          ;RESTORE REGISTERS R0 THRU R5
1074
1075          ;JSR    R0,RESREG      S/R CALL
1076
1077          RESREG: TST    (SP)+      ;RESTORE R5 THRU R0
1078                   MOV    (SP)+,R5
1079                   MOV    (SP)+,R4
1080                   MOV    (SP)+,R3
1081                   MOV    (SP)+,R2
1082                   MOV    (SP)+,R1
1083                   RTS    R0      ;EXIT IN-LINE
1084
1085          ;SET PROGRAM'S PROG TABLE ADR IN R3 & TOCM ADR IN R4
1086
1087          ;JSR    PC,SUPTAD      S/R CALL
1088
1089          SUPTAD: MOV    R0,R3      ;SET UP LOCATION ZERO ADR
1090                   ADD    #LOC2-,R3
1091                   SUB    -2(R3),R3  ;SUBTRACT PROG TBL LENGTH
1092                   MOV    #DREGADR,R4 ;GET DEV REG BASE ADR
1093                   ADD    #2,R4      ;POINT AT TOCM
1094                   RTS    PC      ;EXIT IN-LINE
1095
1096          ;CORE DEVICE'S STATUS REGISTERS
1097
1098          ;JSR    R5,S1STAT      S/R CALL
1099                   ;WV    S1ADR-    REL STORAGE ADR
1100                   ;LESTPLYS R0,R1
1101
1102          S1STAT: MOV    R5,R1      ;GET REL STORAGE ADR & MAKE
1103                   ADD    #DREGADR,R1 ;IT ABSOLUTE
1104                   MOV    #DREGADR,R0 ;GET ADR OF DEV REG'S
1105                   MOV    (R0)+,(R1)+ ;STORE ALL DEV REG'S
1106                   MOV    (R0)+,(R1)+
1107                   MOV    (R0)+,(R1)+
1108                   MOV    (R0)+,(R1)+
1109                   MOV    (R0)+,(R1)+
1110                   MOV    (R0)+,(R1)+
1111                   MOV    (R0)+,(R1)+
1112                   MOV    (R0)+,(R1)+
1113                   MOV    (R0)+,(R1)+
1114                   MOV    (R0)+,(R1)+
1115                   RTS    R5      ;EXIT IN-LINE

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1116
1117
1118 ;DISPL: CURRENT UNIT #
1119
1120 ;JSR PC,DISUMM S/R CALL
1121 ;R3 MUST CONTAIN PROG TBL ADDR
1122 ;DESTROYS R0,R1,R2
1123
1124 004226' 012767 000031 000056 DISUMM: MOV #25,DISUML ;INITIALIZE TO NORMAL MSG LENGTH
1125 004234' 116300 000035 MOV PCURON(R3),R0 ;GET CURR UNIT #
1126 004240' 020027 000007 CMP R0,#7 ;VALID UNIT #?
1127 004244' 101007 BHI DISUPR ;Y/N-DISUIV
1128 004246' 004577 173606 JSR RS,DISUPR ;CONVERT # TO DECIMAL ASCII
1129 004252' 000410 .WORD UNASCI-
1130 004254' 016767 000406 000400 MOV UNASCI,+4,UNASCI ;MOVE ASCII # TO 1ST TWO DIGITS
1131 004262' 000410 BR DISUPR ;GO ISSUE MSG
1132 004264' 012767 000035 000020 DISUIV: MOV #29,DISUML ;SET UP ERR COND MSG LENGTH
1133 004272' 042700 177400 BIC #177400,R0 ;RESET HIGH BYTE
1134 004276' 004577 173554 JSR RS,DISUML ;CONVERT BINARY # TO ASCII
1135 004302' 000360 .WORD UNASCI-
1136 004304' 004567 000122 DISUPR: JSR RS,PRINT ;GO ISSUE UNIT # MSG
1137 004310' 000323 .WORD UNITMG-
1138 004312' 000031 DISUML: .WORD 25
1139 004314' 000207 RTS ;EXIT IN-LINE
1140
1141 ;TAILOR STATUS MSG & PRINT IT
1142
1143
1144 ;JSR RS,DISPST S/R CALL
1145 ;WORD STATOR- REL ADDR OF STATUS DATA
1146 ;DESTROYS R0,R1,R2
1147
1148 004316' 010502 DISPST: MOV RS,R2 ;GET REL DATA ADDR
1149 004320' 062502 ADD (R5)+,R2 ;MAKE IT ABS
1150 004322' 010701 MOV PC,R1 ;SET UP ADDR OF REG NAMES IN ASCII
1151 004324' 062701 173572 ADD #OVRGMS-1,R1
1152 004330' 012746 000005 MOV #OVRGMS-OVRGMS/6,-(SP) ;GET # OF REGISTERS TO DISPLAY
1153 004334' 012167 000330 10$: MOV (R1)+,OVRGMS ;MOVE REG NAME TO MSG
1154 004340' 012167 000326 MOV (R1)+,OVRGMS+2
1155 004344' 005721 TST (R1)+ ;BYPASS DISP VALUE
1156 004346' 012200 MOV (R2)+,R0 ;GET REG'S STORED VALUE
1157 004350' 010146 MOV R1,-(SP) ;SAVE R1 & R2
1158 004352' 010246 MOV R2,-(SP)
1159 004354' 004577 173476 JSR RS,DISUML ;CONVERT IT TO ASCII
1160 004360' 000316 .WORD OVRGMS-
1161 004362' 004567 000044 JSR RS,PRINT ;PRINT THE STATUS MSG
1162 004366' 000302 .WORD OVRGMS-
1163 004370' 000014 .WORD 12
1164 004372' 012602 MOV (SP)+,R2 ;RESTORE R1 & R2
1165 004374' 012601 MOV (SP)+,R1
1166 004376' 005316 DEC (SP) ;DECR REG CNT
1167 004400' 001355 BNE 10$ ;DONE ALL? (Y,N-10$)
1168 004402' 005726 TST (SP)+ ;REMOVE COUNT FROM STACK
1169 004404' 000205 RTS ;EXIT IN-LINE

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```

1171                                     ;PRINT CURRENT "BLK" VALUE
1172
1173                                     ;JSR   PC,PRTIWD      S/R CALL
1174                                     ;DESTROYS R0,R1,R2
1175
1176 004406' 016700 173372      PRTIWD: MOV   BLK,R0      ;GET BLK VALUE
1177 004412' 004577 173440      JSR   RS,ABINASC  ;CONVERT IT TO ASCII
1178 004416' 000550                                     .WORD  INF0BK-
1179 004420' 004567 000006      JSR   RS,PRINT   ;ISSUE BLOCK # MSG
1180 004424' 000535                                     .WORD  INF0MG-
1181 004426' 000013                                     .WORD  11
1182 004430' 000207      RTS   PC          ;EXIT IN-LINE
1183
1184
1185                                     ;ISSUE MSG TO LIST DEVICE
1186
1187                                     ;JSR   RS,PRINT      S/R CALL
1188                                     .WORD  MSGADR-    REL ADR OF MSG
1189                                     .WORD  BYTCNT    MSG BYTE CNT (IF NEGATIVE,
1190                                     ;RESET PRT DEV DEDICATED.)
1191
1192                                     ;R3 = PROG TBL ADR
1193                                     ;R4 = FLAGWORD -- IF NEGATIVE, USE CMND MODE PRINT
1194                                     ;DESTROYS R0,R1,R2
1195
1196 004432' 010500      PRINT: MOV   RS,R0      ;GET MSG ADR & MAKE IT ABS
1197 004434' 062500      ADD   (RS)+,R0
1198 004436' 012501      MOV   (RS)+,R1      ;GET BYTE COUNT
1199 004440' 005704      TST   R4            ;USE CMND MODE PRINT?
1200 004442' 100030      BPL   40$          ;Y,N-40$
1201 004444' 010702      MOV   PC,R2        ;SET UP LINK INFO ADR
1202 004446' 062702 000040  ADD   #20$--,R2
1203 004452' 160200      SUB   R2,R0        ;MAKE MSG ADR REL
1204 004454' 010022      MOV   R0,(R2)+    ;STORE MSG ADR
1205 004456' 010112      MOV   R1,(R2)    ;STORE MSG'S BYTE COUNT
1206 004462' 005412      BPL   10$          ;CNT NEG? (Y,N-10$)
1207 004464' 016367 000006 000056 10$: NEG   (R2)         ;MAKE IT POSITIVE
1208 004472' 004577 173356      MOV   PASCIN(R3),PROGM ;STORE PROG'S # IN MSG
1209 004476' 000050      JSR   RS,DLIST    ;ISSUE PROG #
1210 004500' 000005      .WORD  5
1211 004502' 004577 173346      JSR   RS,DLIST    ;ISSUE MSG SPECIFIED
1212 004506' 000600      .WORD  XXXX
1213 004510' 000000      .WORD  XXXX
1214 004512' 004577 173336      JSR   RS,DLIST    ;ISSUE A (CR) & (LF)
1215 004516' 000240      .WORD  CRLF-
1216 004520' 000002      .WORD  2
1217 004522' 000410      BR    PRTEX       ;GO TO EXIT
1218 004524' 010067 000010 40$: MOV   R0,50$     ;STORE MSG'S ABS ADR
1219 004530' 010167 000006      MOV   R1,60$     ;STORE ITS BYTE CNT
1220 004534' 004577 173312      JSR   RS,DLIST    ;GO TO MPG TO ISSUE THE MSG
1221 004540' 000000      .WORD  XXXX
1222 004542' 000000      .WORD  XXXX
1223 004544' 000205      PRTEX: RTS   RS  ;EXIT IN-LINE

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1225 .SBTTL TC11 MESSAGE STORAGE AREA
1226
1227
1228 .NLIST BEX
1229
1230 .EVEN
1231 004546' 021520 PNMMSG: .ASCII /P#/
1232 004550' 054130 011 PROGMN: .ASCII /XX/<011>
1233 004553' 101 020124 040514 ATIMSG: .ASCII 'AT LAST INT/NON-INT TERM:'
1234 004604' 052503 051122 047105 CURMSG: .ASCII /CURRENTLY:/
1235 004616' 047105 020104 043117 RENDMG: .ASCII /END OF REPORT/
1236 .000
1237 004633' 052 025052 052052 UNITMG: .ASCII /****TC11 DECTAPE UNIT: /
1238 004662' 054130 054130 054130 UNASCI: .ASCII /XXXXXX/
1239 .EVEN
1240 004670' 054130 054130 020075 DVRCMG: .ASCII /XXXX= /
1241 004676' 054130 054130 054130 DVRCGT: .ASCII /XXXXXX/
1242 004704' 054502 042524 035123 CNTSMG: .ASCII /BYTES: RD= /
1243 004720' 054130 054130 054130 BCMRD: .ASCII /XXXXXXXXXXXXX WR= /
1244 004742' 054130 054130 054130 BCMWR: .ASCII /XXXXXXXXXXXXX/
1245 004756' 005015 CRLF: .ASCII <015><012>
1246 004760' 041411 047115 051504 .ASCII <011>/CMNDS: RD= /
1247 004775' 130 054130 054130 CMDCRD: .ASCII /XXXXXX WR= /
1248 005010' 054130 054130 054130 CMDCWR: .ASCII /XXXXXX MISC= /
1249 005025' 130 054130 054130 CMDCMS: .ASCII /XXXXXX/<015><012>
1250 005035' 011 051105 047522 .ASCII <011>/ERRORS: DEV= /
1251 005054' 054130 054130 054130 CNTERR: .ASCII /XXXXXX DATA= /
1252 005071' 130 054130 054130 CNTDER: .ASCII /XXXXXX/<015><012>
1253 005101' 011 047111 042524 .ASCII <011>/INTERRUPTS: /
1254 005117' 130 054130 054130 CNTINT: .ASCII /XXXXXX/
1255 005125' 005125 CNTSEN=
1256 005125' 124 046511 047505 IOTO: .ASCII 'TIMEOUT ON I/O'
1257 005143' 102 045514 051440 BSCHER: .ASCII /BLK SEARCH ERR/
1258 005161' 102 045514 020075 INFOMG: .ASCII /BLK= /
1259 005166' 054130 054130 054130 INFOBK: .ASCII /XXXXXX/
1260 .EVEN
1261 005174' 052123 047115 020124 STNMNG: .ASCII /STNNT # /
1262 005204' 054130 054130 054130 STNMUM: .ASCII /XXXXXX/
1263 005212' 052123 052101 051525 TCMSG: .ASCII /STATUS ERROR: /
1264 005230' 000023 COFLD: .BLKB 19.
1265 005253' 111 053116 052440 INVAVN: .ASCII /INV UNIT #/
1266 005265' 111 053116 041040 INVBKN: .ASCII /INV BLK #/
1267 .EVEN
1268
1269 .LIST BEX
1270
1271 005276' DVREND= .

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1273          .SBTTL  FORMATS FOR PROGRAM & DEVICE ROUTINE TABLES
1274
1275          ;      PROGRAM TABLE FORMAT
1276
1277          000242      PTLGTH= 162.      ;PROGRAM TABLE LENGTH - NON MEM MGMNT VERSION OF MPG
1278
1279          ;(PTLGTH= 212.      ;PROGRAM TABLE LENGTH - MEM MGMNT VERSION OF MPG)
1280
1281          000000      PFLGWD= +0.      ;PROGRAM FLAG WORD - 1 WORD
1282
1283          000002      URSTOP= 2          ; 1 = USER HAS STOPPED THIS PROGRAM
1284          000004      ERSTOP= 4          ; 1 = AN ERROR HAS STOPPED THIS PROGRAM
1285          000010      WT4IOT= 10         ; 1 = WAITING FOR I/O TERMINATION
1286          000020      CTPRIO= 20        ; 1 = CONSOLE OR PRINTER I/O IN PROGRESS
1287          000040      SETDED= 40        ; 1 = THIS PROG SET THE PRT DEV DEDICATED FLAG
1288          000100      OCPRES= 100       ; 1 = OBJ CODE IS PRESENT
1289          000200      USEUBM= 200       ; 1 = THIS PROG USES THE UNIBUS MAP (MEM MGMNT ONLY)
1290          100000      ACTIVE= 100000    ; 1 = PROGRAM IS ACTIVE (SPECIFIED FOR EXECUTION)
1291
1292          000002      POPSW= +2.        ;PROGRAM'S OPERATION SWITCHES - 1 WORD
1293
1294          100000      STONER= 100000     ; 1 = STOP PROG EXECUTION UPON ERROR
1295          040000      CYCPRG= 40000     ; 1 = CYCLE PROGRAM (ON CURRENT DEVICE)
1296          020000      PRONER= 20000     ; 1 = DO NOT PRINT ON ERROR
1297          010000      BIT12= 10000      ; 0 = NOT USED
1298          004000      BIT11= 4000       ; 0 = NOT USED
1299          002000      CYCDVL= 2000      ; 1 = CYCLE THE DEVICE LIST
1300          001000      GTNXTD= 1000     ; 1 = CYCLE ON SAME DEVICE UPON ERROR
1301          000400      DOERCK= 400       ; 1 = DON'T DO ERROR CHECKING
1302          000200      SPOPER= 200       ; 1 = DEVICE SPECIAL OPERATION
1303          000100      BIT6= 100         ; 0 = NOT USED
1304          000040      DOIOT= 40        ; 1 = DO NOT PERFORM I/O TIMEOUT
1305          000020      AUTORP= 20        ; 1 = DO NOT AUTOMATICALLY DISPLAY COUNTS
1306          000010      AURPEP= 10       ; 1 = AUTO DISPLAY COUNTS AT END OF FINAL PASS ONLY
1307          000004      HSKPEP= 4         ; 1 = HOUSEKEEP COUNTS ONLY AT RUN COMMAND
1308          000002      PFBBOV= 2        ; 1 = PRINT FIRST BAD BYTE ONLY ON VERIFY
1309          000001      NOCOMP= 1        ; 1 = DO NOT PRINT PROG COMPLETED MSG
1310
1311          000004      PFWADR= +4.        ;*;PROGRAM FLAGWORD ADDRESS - 1 WORD
1312
1313          000006      PASCIN= +6.        ;PROGRAM'S NUMBER IN ASCII - 1 WORD
1314
1315          000010      PNAME= +8.        ;PROGRAM'S NAME IN ASCII - 6 BYTES
1316
1317          000016      PRDIOA= +14.      ;ADDRESS OF READ I/O AREA - 1 WORD
1318
1319          000020      PWRIOA= +16.      ;ADDRESS OF WRITE I/O AREA - 1 WORD
1320
1321          000022      PSRCST= +18.      ;SOURCE STATEMENTS START ADDRESS - 1 WORD
1322
1323          000024      POBJST= +20.      ;OBJECT CODE START ADDRESS - 1 WORD
1324
1325          000026      PLNGTH= +22.      ;PROG AREA LENGTH (OBJ END MINUS PROG TBL START) - 1 WORD
1326
1327          000030      PTOCNT= +24.      ;I/O TIMEOUT COUNT - 1 WORD
1328

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E03

MAINDEC-11-DTTCAB-S TC11/TUS6 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:00 PAGE 12-1
 DTTCAB.P11 FORMATS FOR PROGRAM & DEVICE ROUTINE TABLES

SEQ 0383

1329	000032	PMDLCD= +26.	;DEV ROUT MODEL * CODE - 1 WORD
1330			
1331	000034	PDPNTR= +28.	;CURRENT DEVICE NUMBER POINTER - 1 BYTE
1332			
1333	000035	PCURDV= +29.	;CURRENT DEVICE * - 1 BYTE
1334			
1335	000036	PDNUMS= +30.	;DEVICE NUMBERS - 16 BYTES
1336			
1337	000056	PTEM0= +46.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1338			
1339	000060	PTEM1= +48.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1340			
1341	000062	PTEM2= +50.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1342			
1343	000064	PTEM3= +52.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1344			
1345	000066	PTEM4= +54.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1346			
1347	000070	PTEM5= +56.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1348			
1349	000072	PTEM6= +58.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1350			
1351	000074	PTEM7= +60.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1352			
1353	000076	PTEM8= +62.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1354			
1355	000100	PTEM9= +64.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1356			
1357	000102	PTEM10= +66.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1358			
1359	000104	PTEM11= +68.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1360			
1361	000106	PTEM12= +70.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1362			
1363	000110	PTEM13= +72.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1364			
1365	000112	PTEM14= +74.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1366			
1367	000114	PTEM15= +76.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1368			
1369	000116	PNBR= +78.	;NUMBER OF BYTES TO TRANSFER ON MOVE (NBR) - 1 WORD
1370			
1371	000120	PSRC= +80.	;DATA SOURCE ADDRESS ON MOVE (SRC) - 1 WORD
1372			
1373	000122	PDST= +82.	;DATA DESTINATION ADDRESS ON MOVE (DST) - 1 WORD
1374			
1375	000124	PSTKCT= +84.	;# OF WORDS (X 2) SAVED OFF STACK - 1 WORD
1376			
1377	000126	PSTKSV= +86.	;STACK WORDS STORAGE AREA - 30 WORDS
1378			
1379	000222	PSVREG= +146.	;USER'S R0 THRU R5 REGISTERS STORAGE AREA - 6 WORDS
1380			
1381	000236	PUSRPC= +158.	;USER'S CURRENT PROGRAM COUNTER - 1 WORD
1382			

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1384           ;FOLLOWING ENTRIES (PRDIOX THRU PUBMAP) ARE ONLY IN MEM MGMNT VERSION
1385
1386           ;(PRDIOX= +160. ;18/22 BIT ABSOLUTE ADDRESS OF READ I/O AREA - 2 WORDS)
1387
1388           ;(PRDIOV= +164. ;18 BIT VIRTUAL ADDRESS OF READ I/O AREA - 2 WORDS)
1389
1390           ;(PWRIOX= +168. ;18/22 BIT ABSOLUTE ADDRESS OF WRITE I/O AREA - 2 WORDS)
1391
1392           ;(PWRIOV= +172. ;18 BIT VIRTUAL ADDRESS OF WRITE I/O AREA - 2 WORDS)
1393
1394           ;(PUPARS= +176. ;STORAGE AREA FOR USER'S PAR'S 0 THRU 7 - 8 WORDS)
1395
1396           ;(PUPDRS= +192. ;STORAGE AREA FOR USER'S PDR'S 0 THRU 7 - 8 WORDS)
1397
1398           ;(PUBMAP= +208. ;1ST UNIBUS MAP REG # AND # OF REGS USED - 1 WORD)
1399
1400           ;END OF MEM MGMNT ONLY ENTRIES
1401
1402           000240      PFSIZE= +160. ;PROGRAM TABLE SIZE IN BYTES - 1 WORD - NON MEM MGMNT
1403
1404           ;(PFSIZE= +210. ;PROGRAM TABLE SIZE IN BYTES - 1 WORD - MEM MGMNT VERSION)
1405
1406           000242      PTEND= +162. ;END OF PROGRAM TABLE - NON MEM MGMNT VERSION
1407
1408           ;(PTEND= +212. ;END OF PROGRAM TABLE - MEM MGMNT VERSION)
  
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; 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	DEVIYA= +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	DEVBTB= +46.	;CONVERT BINARY TO ASCII BR ADR (BINASC) - 1 WORD
000060	DVBTD= +48.	;CONVERT BINARY TO DECIMAL ASCII BR ADR (BTASLZ) - 1 WORD

H03

MAINDEC-11-DTTCR-B T011/T056 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:00 PAGE 12-4
 DTTCAB.P11 FORMATS FOR PROGRAM & DEVICE ROUTINE TABLES

SEQ 0386

1456	000062	DVPDTA= +50.	; CONVERT PACKED DECIMAL TO ASCII BR ADR (DECASC) - 1 WORD
1457			
1468	000064	DVSFWD= +52.	; MPG SYSTEM FLAGWORD ADDRESS (CSYSFW) - 1 WORD
1469			
1470	000066	DVSVEC= +54.	; SET INTERRUPT VECTOR BR ADR (SETVEC) - 1 WORD
1471			
1472	000070	DVCVEC= +56.	; CLEAR INTERRUPT VECTOR BR ADR (CLRVEC) - 1 WORD
1473			
1474	000072	DVTVEC= +58.	; TEST INTERRUPT VECTOR BR ADR (TSTVEC) - 1 WORD
1475			
1476	000074	DVRINT= +60.	; RETURN FROM INTERRUPT BR ADR (RTNINT) - 1 WORD
1477			
1478	000076	DVGETB= +62.	; GET DATA BYTE BR ADR (GETBYT) - 1 WORD
1479			
1480	000100	DVPUTB= +64.	; PUT DATA BYTE BR ADR (PUTBYT) - 1 WORD
1481			
1482	000102	DEVSTP= +66.	; DEVICE ROUT REL SYMBOL TABLE POINTER - 1 WORD
1483			
1484	000104	DEVETP= +68.	; DEVICE ROUT REL ENTRY TABLE POINTER - 1 WORD
1485			
1486	000106	DVPTEP= +70.	; PACK TABLE EXTEN. REL POINTER - 1 WORD
1487			
1488	000110	DVVTEP= +72.	; VECTOR TABLE EXTEN. REL POINTER - 1 WORD
1489			
1490	000112	DVCTEP= +74.	; COMPILER TBL EXTEN. REL POINTER - 1 WORD
1491			
1492	000114	DVIWSP= +76.	; DEVICE INTERFACE WORD SYMBOL TBL REL POINTER - 1 WORD
1493			
1494	000116	DRTEND= +78.	; END OF DEVICE ROUTINE TABLE
1495			
1496			
1497	000001	.END	

ACTIVE=	100000		DEVIVA=	000026		DVUPRT=	000052		NONINT	002226R	002	PUTBYT	000100R	002
ATMSG	004553R	002	DEVIW1=	000004		DVVTEP=	000110		NOWAIT	001466R	002	PWRIOA=	000020	
AURPEP=	000010		DEVIW2=	000006		ERCOTB	003776R	002	OCPRES=	000100		RDALL	001610R	002
AUTORP=	000020		DEVIW3=	000010		ERMBAS	003352R	002	PASCIN=	000006		ROCNT	000706R	002
BCMRD	004720R	002	DEVIW4=	000012		ERPBNK	003404R	002	PC	=%000007		RDCOM	001526R	002
BCMWR	004742R	002	DEVIW5=	000014		ERR	000022R	002	PCURDV=	000035		RDNUM	001576R	002
BINASC	000056R	002	DEVIW6=	000016		ERRADR	000724R	002	PNUMS=	000036		READ	001516R	002
BIT11 =	004000		DEVIW7=	000020		ERRCNT	000714R	002	POPNTN=	000034		RENDMG	004616R	002
BIT12 =	010000		DEVIW8=	000022		ERRCOM	003312R	002	POST =	000122		REPORT	001000R	002
BIT6 =	000100		DEVRS=	000030		ERRCS	003266R	002	PF8BOV=	000002		REPTBL	001274R	002
BLK	000004R	002	DEVRSZ=	000000		ERRCSI	003274R	002	PFLGWD=	000000		RESREG	004140R	002
BSCHER	005143R	002	DEVSTP=	000102		ERREX	003466R	002	FFWADR=	000004		REV	001506R	002
BTASLZ	000060R	002	DEVWPS=	000032		ERRIS	003304R	002	PLNGTH=	000026		REVCNT	000742R	002
BYRD	000676R	002	DFLGWD	000002R	002	ERRSNM	003410R	002	PMDLCD=	000032		RINTEX	004072R	002
BYWR	000702R	002	DHKPAD=	000034		ERSTAD	003402R	002	PNAME =	000010		RINTV	004050R	002
CI0BSY	000046R	002	DISCNT	001160R	002	ERSTOP=	000004		PNBR =	000116		RPTBAS	001230R	002
CK0BSY	003166R	002	DISCT1	001164R	002	FINCNT	000740R	002	PNMMSG	004546R	002	RPTEND	001254R	002
CLIST	000054R	002	DISPST	004316R	002	FUNCEX	001474R	002	POBJST=	000024		RPTLP	001212R	002
CLRVEC	000070R	002	DISUIV	004264R	002	FWD	001476R	002	POPSW =	000002		RTNINT	000074R	002
CMDCMS	005025R	002	DISUML	004312R	002	GETBYT	000076R	002	PRDIOA=	000016		R0	=%000000	
CMDCOM	001702R	002	DISUNL	004226R	002	GTNXT0=	001000		PRINT	004432R	002	R1	=%000001	
CMDCRO	004775R	002	DISUPR	004304R	002	HSKEEP	000744R	002	PROCTM	003470R	002	R2	=%000002	
CMDCNR	005010R	002	DKILAD=	000040		HSKPEN=	000744R	002	PROGNM	004550R	002	R3	=%000003	
CMDEND	002212R	002	DOERCK=	000400		HSKPEP=	000004		PRONER=	020000		R4	=%000004	
CMDEX	002216R	002	DOIOT =	000040		HSKPST=	000652R	002	PRTEX	004544R	002	R5	=%000005	
CNTADR	000726R	002	DREGAD	000024R	002	INBLKN	000736R	002	PRTIWD	004406R	002	SAVREG	004124R	002
CNTDER	005071R	002	DRTEND=	000116		INFOBK	005166R	002	PSRC =	000120		SEARCH	002732R	002
CNTERR	005054R	002	DRTLTH=	000116		INFOMG	005161R	002	PSRCST=	000022		SETDED=	000040	
CNTINT	005117R	002	DTOEAD=	000044		INTCNT	000720R	002	PSTKCT=	000124		SETVEC	000066R	002
CNTSEN=	005125R	002	DVBTD=	000060		INVBKN	005265R	002	PSTKSV=	000126		SIZE	000020R	002
CNTSMG	004704R	002	DVCMDS	000154R	002	INVDVN	005253R	002	PSVREG=	000222		SP	=%000006	
COOFLD	005230R	002	DVCPT=	000054		IOTO	005125R	002	PSWD	000030R	002	SPOPER=	000200	
CRLF	004756R	002	DVCPRTE	000466R	002	ISTAT =	000652R	002	PTEM0 =	000056		STMNG	005174R	002
CSTAT	000664R	002	DVCTEP=	000112		IVCTAD	000026R	002	PTEM1 =	000060		STMNUM	005204R	002
CSYSFW	000064R	002	DVCVEC=	000070		KILL	001420R	002	PTEM10=	000102		STONER=	100000	
CTPRIO=	000020		DVGETB=	000076		KILLEX	001444R	002	PTEM11=	000104		STOP	001646R	002
CUPGER	007050R	002	DVIWSP=	000114		LCOUNT	000632R	002	PTEM12=	000106		STPALL	001670R	002
CURCMD	000734R	002	DVIWST	000622R	002	LFWO	000632R	002	PTEM13=	000110		STSTAT	004202R	002
CURCNT	000732R	002	DVMVTE	000406R	002	LNWAIT	000632R	002	PTEM14=	000112		SUPTAD	004156R	002
CURFLG	000730R	002	DVPDTA=	000062		LOCZ	000000R	002	PTEM15=	000114		TCMSG	005212R	002
CURMSG	004604R	002	DVPKTE	000246R	002	LROALL	000633R	002	PTEM2 =	000062		TCINT	002536R	002
CYCDVL=	002000		DVPTEP=	000106		LRONUM	000633R	002	PTEM3 =	000064		TOECNT	000722R	002
CYCPRG=	040000		DVPUTB=	000100		LREV	000632R	002	PTEM4 =	000066		TOUTER	001320R	002
DATAER	000716R	002	DVREG=	000154R	002	LSTALL	000632R	002	PTEM5 =	000070		TOUTEX	001416R	002
DECASC	000062R	002	DVREGS	000116R	002	LSTATS	000632R	002	PTEM6 =	000072		TSTVEC	000072R	002
DECTAD=	000042		DVREND=	005276R	002	LSTOP	000632R	002	PTEM7 =	000074		TVECT	004074R	002
DERPAD=	000036		DVREX	001264R	002	LWAIT	000632R	002	PTEM8 =	000076		TVECTX	004122R	002
DEVBTA=	000056		DVRGDT	004676R	002	LWRALL	000642R	002	PTEM9 =	000100		ULIST	000652R	002
DEVDER=	000050		DVRGMG	004670R	002	LWRM	000642R	002	PTEND =	000242		UNASCI	004802R	002
DEVDR=	000024		DVRINT=	000074		MISCNT	000712R	002	PTLGTH=	000242		UNITMG	004806R	002
DEVETP=	000104		DVSFWO=	000064		MISCOM	001656R	002	PTCNT=	000030		URSTOP=	000002	
DEVFWD=	000002		DVSVEC=	000066		NINTSU	002516R	002	PTSIZ=	000240		USEUSM=	000200	
DEVI0B=	000046		DVTVEC=	000072		NOCOMP=	000001		PUSRPC=	000236		WAIT	001446R	002

J03

MAINDEC-11-DTTCAB-S TC11/TU56 DEVICE ROUTINE FOR MPG MACY11 27(732) 24-SEP-76 14:00 PAGE 13-1
DTTCAB.P11 SYMBOL TABLE

SEQ 0388

WRALL 001622R 002 WROOM 001556R 002 WRTM 001634R 002 WT4IOT= 000010 . = 005276R 002
. ABS. 000000 000
000000 001
TC11 005276 002

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

*.DTTCAB/NL:TOC/DOC=DTTCAB.P11
RUN-TIME: 4 9 .9 SECONDS
RUN-TIME RATIO: 171/14=11.5
CORE USED: 5K (9 PAGES)

DOCUMENT PAGES: 35

