

# LP11

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

EP-DTLPA-B-DL-A  
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FICHE 1 OF 1

NOV 1976  
**digital**  
MADE IN U.S.A.

NO	NAME	ADDRESS	DATA
0000	START	000000	000000
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DTLPA8.P11

.SBTTL REVISION HISTORY

- APR 76 DTLPA-B RELEASE
- DEC 75 ADDED MEMORY MANAGEMENT SUPPORT.
- OCT 75 CREATED FULL SUPPORT DEVICE ROUTINE
- AUG 75 DTLPA-A INITIAL RELEASE (MINIMUM SUPPORT DEVICE ROUTINE)

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.SBTTL STANDARD DEVICE ROUTINE TABLE

.TITLE MAINDEC-11-DTLPA-B LP11/LS11/LV11 DEVICE ROUTINE FOR MPG

;REVISION 'B'

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

;MACY11: DTLPA?,DTLPA?/CRF:SYN/DOC=DTLPA?.P11

;LNKX11: DTLPA?.MPG/B:0-DTLPA?/E

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

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.CSECT LP11

.DSABL GBL

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

000000' 004120  
000002' 000000

LOCZ: .WORD DVREND--  
DFLGMD: .WORD 0

:DEVICE ROUT SIZE IN BYTES  
:DEVICE ROUT FLAGWORD  
:BIT 15 = "NOWAIT" FLAG  
:BIT 14 = "PLOT" FLAG  
:BIT 4 = 'ISSUED TRAILING CR/LF' FLG  
:BIT 3 = "TOP/EOT" CMD FLAG  
:BIT 2 = "SPACE" CMD FLAG  
:BIT 1 = 00 I/O TERMINATION  
:INTERFACE WORD # 1 (NOT USED)  
: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 4)  
: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  
:CMD 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

000004' 000000  
000006' 000000  
000010' 000000  
000012' 000000  
000014' 000000  
000016' 000000  
000020' 000000  
000022' 000000  
000024' 177514  
000026' 000200  
000030' 000200  
000032' 000000  
000034' 000566  
000036' 000620  
000040' 001172  
000042' 000534  
000044' 001106  
000046' 000000  
000050' 000000  
000052' 000000  
000054' 000000  
000056' 000000  
000060' 000000  
000062' 000000  
000064' 000000  
000066' 000000  
000070' 000000

.WORD 0  
.WORD 0  
.WORD 0  
.WORD 0  
.WORD 0  
.WORD 0  
.WORD 0  
SIZE: .WORD 0  
ERR: .WORD 0  
DREGAD: .WORD 177514  
IVCTAD: .WORD 200  
PSMD: .WORD 200  
.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

112	000072	000000			TSTVEC:	.WORD	0
113	000074	000000			RTNINT:	.WORD	0
114	000076	000000			GETBYT:	.WORD	0
115	000100	000000			PUTBYT:	.WORD	0
116	000102	000014				.WORD	DVREGS--
117	000104	000072				.WORD	DVCHDS--
118	000106	000146				.WORD	DVPKTE--
119	000110	000264				.WORD	DVMVTE--
120	000112	000332				.WORD	DVCPTA--
121	000114	000432				.WORD	DVINST--
122							
123							
124	000116	050114	051503		DVREGS:	.ASCII	/LPCS/
125	000122	000000				.WORD	0
126	000124	050114	041104			.ASCII	/LPDB/
127	000130	000002				.WORD	2
128	000132	051514	051503			.ASCII	/LSCS/
129	000136	000000				.WORD	0
130	000140	051514	041104			.ASCII	/LSDB/
131	000144	000002				.WORD	2
132	000146	053114	051503			.ASCII	/LVCS/
133	000150	000000				.WORD	0
134	000154	053114	041104			.ASCII	/LVDB/
135	000160	000002				.WORD	2
136	000162	050114	020123			.ASCII	/LPS /
137	000166	000000				.WORD	0
138	000170	050114	020102			.ASCII	/LPB /
139	000174	000002				.WORD	2
140		000176			DVREGE=	.	
141							
142	000176	130	001		DVCHDS:	.BYTE	130,1
143	000200	001170	001			.WORD	WRITE--
144	000202	376	000			.BYTE	376,0
145	000204	001066	000			.WORD	NOWAIT--
146	000206	375	000			.BYTE	375,0
147	000210	001042	000			.WORD	WAIT--
148	000212	374	000			.BYTE	374,0
149	000214	000442	000			.WORD	REPORT--
150	000216	373	000			.BYTE	373,0
151	000220	000436	000			.WORD	REPORT--
152	000222	372	000			.BYTE	372,0
153	000224	001270	000			.WORD	TOP--
154	000226	371	000			.BYTE	371,0
155	000230	001056	000			.WORD	PLOT--
156	000232	370	000			.BYTE	370,0
157	000234	001124	000			.WORD	NOPLT--
158	000236	367	000			.BYTE	367,0
159	000240	001340	000			.WORD	EOT--
160	000242	366	000			.BYTE	366,0
161	000244	001402	000			.WORD	BUFCLR--
162	000246	365	000			.BYTE	365,0
163	000250	001154	000			.WORD	SPACE--
164	000252	177777	000			.WORD	177777
165							
166	000254	047516	040527	052111	DVPKTE:	.ASCII	/NOWAIT/
167	000262	376	000			.BYTE	376,0

:TEST INT VECTOR ROUT BR ADR  
 :RETURN FROM INT ROUT BR ADR  
 :GET DATA BYTE ROUT BR ADR  
 :PUT DATA BYTE ROUT BR ADR  
 :ADR OF DEVICE REGISTER NAMES  
 :ADR OF DEVICE FUNCTIONS  
 :ADR OF PACK TBL EXTENSION  
 :ADR OF MODEL VECTOR TBL EXTEN.  
 :ADR OF COMPILER TBL EXTEN.  
 :ADR OF DEV INTERFACE MD SYN TBL

:VALID DEVICE REGISTER NAMES &  
 :THEIR POSITIONS RELATIVE TO  
 :THE DEVICE REGISTERS BASE ADDRESS.

:VALID DEVICE FUNCTIONS  
 :FLAG BYTE:  
 :BIT 7 = NPR DEV  
 :BIT 3 = MASSBUS DEV  
 :BIT 0 = 2 WORDS FOR ADR  
 : (18 BIT ADRS)

:TABLE TERMINATOR

:PACK TABLE EXTENSION

```

168 000264' 020040 040527 052111
169 000272' 375 000
170 000274' 052123 052101 051525
171 000302' 374 000
172 000304' 047503 047125 051524
173 000312' 373 000
174 000314' 020040 052040 043117
175 000322' 372 000
176 000324' 020040 046120 052117
177 000332' 371 000
178 000334' 047516 046120 052117
179 000342' 370 000
180 000344' 020040 042440 052117
181 000352' 367 000
182 000354' 052502 041506 051114
183 000362' 366 000
184 000364' 051440 040520 042503
185 000372' 365 000

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.ASCII / WAIT/
.BYTE 375,0
.ASCII /STATUS/
.BYTE 374,0
.ASCII /COUNTS/
.BYTE 373,0
.ASCII / TOF/
.BYTE 372,0
.ASCII / PLOT/
.BYTE 371,0
.ASCII /NO PLOT/
.BYTE 370,0
.ASCII / EOT/
.BYTE 367,0
.ASCII /BUF CLR/
.BYTE 366,0
.ASCII / SPACE/
.BYTE 365,0

```

```

DVMVTE: .WORD 376,LWAIT-LOC2 ;MODEL VECTOR TABLE EXTEN.
         .WORD 375,LWAIT-LOC2
         .WORD 374,LSTATS-LOC2
         .WORD 373,LCOUNT-LOC2
         .WORD 372,LTOF-LOC2
         .WORD 371,L PLOT-LOC2
         .WORD 370,LN PLOT-LOC2
         .WORD 367,LEOT-LOC2
         .WORD 366,LBUF CLR-LOC2
         .WORD 365,LSPACE-LOC2

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COMPILER TABLE EXTENSION

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201 000444' 003 376
202 000446' 004537 000012
203 000452' 003 375
204 000454' 004537 000012
205 000460' 004 374
206 000462' 004537 000012 001002
207 000470' 004 373
208 000472' 004537 000012 001001
209 000500' 003 372
210 000502' 004537 000012
211 000506' 003 371
212 000510' 004537 000012
213 000514' 003 370
214 000516' 004537 000012
215 000522' 003 367
216 000524' 004537 000012
217 000530' 003 366
218 000532' 004537 000012
219 000536' 004 365
220 000540' 004537 000012 000000
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DVCPT: .BYTE 3,376 ;NO WAIT
        .WORD 4537,10.
        .BYTE 3,375 ;WAIT
        .WORD 4537,10.
        .BYTE 4,374 ;STATUS
        .WORD 4537,10.,1002
        .BYTE 4,373 ;COUNTS
        .WORD 4537,10.,1001
        .BYTE 3,372 ;TOF
        .WORD 4537,10.
        .BYTE 3,371 ;PLOT
        .WORD 4537,10.
        .BYTE 3,370 ;NO PLOT
        .WORD 4537,10.
        .BYTE 3,367 ;EOT
        .WORD 4537,10.
        .BYTE 3,366 ;BUF CLR
        .WORD 4537,10.
        .BYTE 4,365 ;SPACE V
        .WORD 4537,10.,0

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DEVICE INTERFACE WORD SYMBOL TABLE





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369 000760' 001002 BNE 305 ;N,Y-405
370 000762' 005710 TST (R0)
371 000764' 001407 BEQ 405
372 000766' 004567 002322 305: JSR RS,PRINT ;ISSUE 'AT LAST INT' MSG
373 000772' 002443 .WORD ATMSG-.
374 000774' 000014 .WORD 12.
375 000776' 004567 002240 JSR RS,DISPST ;GO DISPLAY STATUS AT LAST INT
376 001002' 177552 .WORD ISTAT-.
377 001004' 004567 002304 405: JSR RS,PRINT ;ISSUE 'CURRENTLY' MSG
378 001010' 002441 .WORD CURMSG-.
379 001012' 000012 .WORD 10.
380 001014' 004567 002222 JSR RS,DISPST ;GO DISPLAY CURRENT STATUS
381 001020' 177540 .WORD CSTAT-.
382 001022' 032704 000001 DISCNT: BIT 81,R4 ;DISPLAY COUNTS?
383 001026' 001431 BEQ RPTEND ;Y,N-RPTEND
384 001030' 012700 000010 MOV #CNTNUM,R0 ;SET UP # OF WORDS
385 001034' 010701 MOV PC,R1 ;SET UP ADR OF CNTS
386 001036' 062701 177526 ADD #COUNTS-.,R1
387 001042' 010702 MOV PC,R2 ;SET UP TBL ADR
388 001044' 062702 000066 RPTLP: ADD #REPTBL-,R2
389 001050' 012267 000012 MOV (R2)+,RPTBAS ;MOV MSG ADR TO S/R LINKAGE
390 001054' 004067 002010 JSR R0,SAVEG ;SAVE ALL REG'S
391 001060' 011100 MOV (R1),R0 ;GET CURRENT COUNT
392 001062' 004577 176770 JSR RS,#BINASC ;CONVERT IT TO ASCII
393 001066' 000000 RPTBAS: .WORD XXXX
394 001070' 004067 002010 JSR R0,RESREG ;RESTORE REG'S
395 001074' 005721 TST (R1)+ ;POINT AT NXT CNT
396 001076' 005300 DEC R0 ;DONE ALL WORDS?
397 001100' 001363 BNE RPTLP ;Y,N-RPTLP
398 001102' 004567 002206 JSR RS,PRINT ;GO ISSUE COUNTS MSG
399 001106' 002442 .WORD CNTSMG-.
400 001110' 000233 .WORD CNTSEN-CNTSMG
401 001112' 004567 002176 RPTEND: JSR RS,PRINT ;ISSUE "END OF REPORT" MSG
402 001116' 002345 .WORD RENDMG-.
403 001120' 177763 .WORD -13.
404 001122' 004067 001756 DVREX: JSR R0,RESREG ;RESTORE REGISTERS
405 001126' 005725 TST (R5)+ ;SET UP RETURN POINT
406 001130' 000205 RTS RS ;EXIT IN-LINE

407 001132' 002476 REPTBL: .WORD BCHNR-RPTBAS
408 001134' 002504 .WORD BCHNR+6-RPTBAS
409 001136' 002531 .WORD CHDCNR-RPTBAS
410 001140' 002546 .WORD CHDCMS-RPTBAS
411 001142' 002575 .WORD CNTERR-RPTBAS
412 001144' 002612 .WORD CNTDER-RPTBAS
413 001146' 002640 .WORD CNTINT-RPTBAS
414 001150' 002707 .WORD CNTXFR-RPTBAS

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378                                     ;TIMEOUT ERROR ROUTINE
379
380                                     ;JSR   RS,TOUTER           S/R CALL
381
382 TOUTER: JSR   RD,SAYREG           ;SAVE ALL REGISTERS
383         JSR   PC,SUPTAD          ;SET UP C/S REG & PROG TBL ADR'S
384         JSR   RS,STSTAT         ;STORE CURRENT STATUS
385         .WORD CSSTAT-
386         JSR   RS,TVECT          ;CK IF I HAVE VECTOR CONTROL
387         BR    10$              ;BR IF I DON'T
388         CLR   (R4)             ;RESET INT ENABLE
389         JSR   PC,RINTV          ;RESET INT VECTOR INFO
390         BIC   INT4IOT,(R3)      ;RESET WAITING FOR I/O FLAG
391         JSR   RS,ERACS1         ;ISSUE TIMEOUT ERROR MSG
392         .WORD IOTO-ERMBAS
393         .WORD 14.
394         JSR   RD,RESREG         ;RESTORE REGISTERS
395         MOV   (SP)+,RS          ;REMOVE RETURN ADR
396         JMP   @CUPGER          ;GO TO ERROR EXIT
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401                                     ;KILL USER PROGRAM ROUTINE
402                                     ;JSR   RS,KILL           S/R CALL
403                                     ;R3 MUST CONTAIN PROG TBL ADR
404                                     ;DESTROYS RD,R1
405 KILL:   JSR   RS,TVECT          ;CK IF I HAVE VECTOR CONTROL
406         BR    KILLEX           ;BR IF I DON'T
407         CLR   @DREGAD          ;RESET INT ENABLE
408         JSR   PC,RINTV          ;RESET INT VECTOR INFO
409 KILLEX: RTS                    ;EXIT IN-LINE
    
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.SBTTL LP11/LS11/LV11 FUNCTION ROUTINES

;"WAIT" FUNCTION ROUTINE

;JSR RS,WAIT FUNCTION CALL

001252' 042767 100000 176522 WAIT: BIC #100000,DFLGMD ;RESET THE "NOWAIT" FLAG  
001260' 004767 001114 JSR PC,CKDBSY ;WAIT IF BUSY & DO TERMINATION  
001264' 004767 001524 JSR PC,RINTV ;RESET THE INTERRUPT VECTOR  
001270' 000205 RTS RS ;EXIT IN-LINE

;"NOWAIT" FUNCTION ROUTINE

;JSR RS,NOWAIT FUNCTION CALL

001272' 052767 100000 176502 NOWAIT: BIS #100000,DFLGMD ;SET THE "NOWAIT" FLAG  
001300' 005067 176516 NOIOEX: CLR ERR ;RESET THE ERROR INDICATOR  
001304' 000205 RTS RS ;EXIT IN-LINE

;"PLOT" FUNCTION ROUTINE

;JSR RS,PLOT FUNCTION CALL

001306' 004767 001610 000032 PLOT: JSR PC,SUPTAD ;SET UP PROG TBL & C/S REG ADR  
001312' 032763 000040 BIT #40,PHDLCD(R3) ;THIS A LV11?  
001320' 001404 BEQ PLTERR ;Y,N-PLTERR  
001322' 052767 040000 176452 BIS #40000,DFLGMD ;SET THE PLOT FLAG  
001330' 000763 BR NOIOEX ;GO TO EXIT  
001332' 004767 001140 PLTERR: JSR PC,STSADR ;STORE THIS STMT'S ADR  
001336' 004567 001156 JSR RS,ERRCSI ;ISSUE INV CHND ERR  
001342' 001271 .WORD INVCHD-ERMBAS  
001344' 000030 .WORD 24  
001346' 005267 177224 INC DATAER ;INCREMENT DATA ERROR COUNT  
001352' 005367 177216 DEC ERRCNT ;RE-ADJUST DEV ERROR CNT  
001356' 000567 BR LPERR ;GO TO ERROR EXIT

;"NO PLOT" FUNCTION ROUTINE

;JSR RS,NO PLOT FUNCTION CALL

001360' 042767 040000 176414 NO PLOT: BIC #40000,DFLGMD ;RESET THE PLOT FLAG  
001366' 000744 BR NOIOEX ;GO TO EXIT

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;"WRITE" FUNCTION ROUTINE

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;JSR    RS,WRITE          FUNCTION CALL
;.WORD  ADR              DATA ADDRESS (NOT USED)
;.WORD  ADR              DATA ADDRESS (BITS 0 - 15)
;.WORD  CNT              BYTE COUNT
;.WORD  DEV              (NOT USED)

WRITE:  JSR    PC,CKDBSY   ;GO CK IF DEV IS BUSY
        INC    WRCNT      ;ADD 1 TO WRITE CMD CNT
        TST   (RS)+      ;BYPASS UNUSED ADDRESS WORD
        MOV   (RS)+,DATAADR ;STORE DATA ADR
        MOV   (RS)+,BYTCNT ;STORE BYTE COUNT
        TST   (RS)+      ;BYPASS UNUSED LINK WORD
        WRCOM: MOV   @100,CURCMD ;SET UP C/S REG VALUE
        BR    CHDCOM     ;GO TO CMD COMMON PROCESSING
    
```

;"SPACE" FUNCTION ROUTINE

```

;JSR    RS,SPACE          FUNCTION CALL
;.WORD  NBR              # OF LINES TO SPACE

SPACE:  JSR    PC,CKDBSY   ;GO CK IF DEV IS BUSY
        INC    MISCNT     ;ADD 1 TO MISC. CMD CNT
        MOV   (RS)+,SPCNT ;GET # OF LINES TO SPACE
        BEQ   NOIOEX     ;CNT = 0? (N.Y-NOIOEX)
        BIS   @4,DFLGMD  ;SET THE "SPACE" CMD FLAG
        CLR   SPDATA     ;SET SPACE DATA FOR PLOT MODE
        BIT   @40000,DFLGMD ;IN "PLOT" MODE?
        BNE   10S       ;N.Y-10S
        MOV   @5015,SPDATA ;SET SPACE DATA FOR A PRINTER
        10S:  MOV   PC,RO  ;STORE ADR OF SPACE DATA
        ADD   @SPDATA-,,RO
        MOV   RO,DATAADR
        MOV   @2,BYTCNT
        BR    WRCOM     ;SET UP DATA BYTE CNT OF 2
                        ;GO SET UP CMD
    
```

;"TOF" FUNCTION ROUTINE

```

;JSR    RS,TOF           FUNCTION CALL

TOF:    JSR    PC,CKDBSY   ;GO CK IF DEV BUSY
        INC    MISCNT     ;ADD 1 TO MISC. CMD CNT
        BIT   @40000,DFLGMD ;IN "PLOT" MODE?
        BNE   PLTTOF     ;N.Y-PLTTOF
        MOV   PC,RO      ;SET UP ADR OF FORM FEED CHAR
        ADD   @FORMFD-,,RO
        TOFEOT: MOV   RO,DATAADR ;STORE CHAR'S ADR
        MOV   @1,BYTCNT  ;SET UP BYTE CNT OF 1
        BIS   @10,DFLGMD ;SET THE "TOF/EOT" CMD FLAG
        BR    WRCOM     ;GO SET UP CMD CODE
        PLTTOF: MOV   @104,CURCMD ;SET UP PLOT FORM FD CMD
        CLR   BYTCNT    ;RESET THE BYTE CNT
        BR    CHDCOM     ;GO TO CMD COMMON PROCESSING
    
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;"EOT" FUNCTION ROUTINE

;JSR RS,EOT

FUNCTION CALL

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EOT: JSR PC,CKDBSY ;GO CK IF DEV BUSY
      INC MISCNT ;ADD 1 TO MISC. CMD CNT
      BIT #40000,DFLGND ;IN "PLOT" MODE?
      BNE PLTEOT ;N,Y-PLTEOT
      MOV PC,RO ;SET UP ADR OF EOT CHAR
      ADD #EOTBYT--,RO
      BR TOFEOT ;GO TO TOF/EOT COMMON PROC
PLTEOT: MOV #110,CURCMD ;SET UP PLOT EOT CMD
        CLR BYTCNT ;RESET BYTE CNT
        BR CHDCOM ;GO RO CMD COMMON PROCESSING

FORMFD: .BYTE 014
EOTBYT: .BYTE 004

```

;"BUFCLR" FUNCTION ROUTINE

;JSR RS,BUFCLR

FUNCTION CALL

```

BUFCLR: JSR PC,CKDBSY ;GO CK IF DEV BUSY
        INC MISCNT ;ADD 1 TO MISC. CMD CNT
        MOV #20,RO ;SET UP BUFFER CLEAR BIT
        BIT #40000,DFLGND ;IN "PLOT" MODE?
        BEQ 10S ;Y,N-10S
        INC RO ;SET PLOT MODE BIT
10S: MOV RO,(R4) ;ISSUE BUFFER CLEAR
     JSR PC,RINTV ;RESET INT VECT INFO
     RTS RS ;EXIT TO USER'S PROG

```

;COMMAND COMMON PROCESSING ROUTINE

;R4 = ADR OF C/S REG DEV REG  
;R3 = PROG TBL ADR

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553 001704' 042767 000020 176070 CMDCOM: BIC      #20,DFLGND      ;RESET "ISSUED TRAILING CR/LF" FLG
554 001712' 005063 000030          CLR      PTOCNT(R3) ;INITIALIZE TIMEOUT COUNTER
555 001716' 005067 176672          CLR      CURCNT    ;RESET # OF BYTES XFERRED
556 001722' 005714          TST      (R4)      ;IS THE PRINTER ERROR BIT SET?
557 001724' 100011          BPL      CKRDY     ;Y,N-CKRDY
558 001726' 004567 000560          JSR      R5,ERRCS ;ISSUE STATUS ERROR MSG
559 001732' 001242          .WORD   LPMSG-ERMBAS
360 001734' 000014          .WORD   12.
561 001736' 012767 000001 176056 LPERR: MOV      #1,ERR    ;SET THE ERROR INDICATOR
562 001744' 000177 176100          JMP      @CUPGER   ;GO TO MPG ERR RTN POINT
563 001750' 105714          CKRDY: TSTB     (R4) ;IS READY SET?
564 001752' 100405          BMI     PRTOK    ;N,Y-PRTOK
565 001754' 004567 000532          JSR      R5,ERRCS ;ISSUE RDY NOT SET ERROR MSG
566 001760' 001256          .WORD   NRDYMG-ERMBAS
567 001762' 000013          .WORD   11.
568 001764' 000764          BR      LPERR     ;GO TO ERROR EXIT
569 001766' 032767 040000 176006 PRTOK: BIT      #40000,DFLGND ;IN "PLOT" MODE?
570 001774' 001402          BZ     10$       ;Y,N-10$
571 001776' 005267 176610          INC     CURCMD   ;SET THE PLOT MODE BIT
572 002002' 052767 000002 175772 10$: BIS      #2,DFLGND ;SET THE "PROCESS TERMINATION" FLAG
573 002010' 052713 000010          BIS     #WT4IOT,(R3) ;SET WAITING FOR I/O TERM FLAG
574 002014' 016714 176572          MOV     CURCMD,(R4) ;ISSUE THE CMD
575 002020' 005767 175756          TST     DFLGND   ;"NOWAIT" BIT SET?
576 002024' 100405          BMI     WTNOT    ;N,Y-WTNOT
577 002026' 004577 176014          JSR     R5,@CIOBSY ;WAIT FOR I/O TO COMPLETE
578 002032' 004767 000642          JSR     PC,PROCTM ;GO PROCESS TERMINATION
579 002036' 000205          CMDEX: RTS      R5 ;EXIT IN-LINE TO USER PROG
580
581 002040' 042713 000010          WTNOT: BIC     #WT4IOT,(R3) ;RESET WAITING FOR I/O TERM
582 002044' 000774          BR      CMDEX    ;GO TO EXIT

```

.SBTTL LP11/LS11/LV11 INTERRUPT SERVICE ROUTINE

```

584
585
586
587 002046' 004067 001016      LPINT: JSR   RD, SAVREG      ;SAVE ALL REGISTERS
588 002052' 005267 176522      INC   INTCNT             ;ADD 1 TO INTERRUPT CNT
589 002056' 004767 001040      JSR   PC, SUPTAD        ;SET UP PROG TBL & C/S REG ADR'S
590 002062' 004567 001054      JSR   RS, STSTAT       ;STORE ALL DEV REG'S
591 002066' 176466      .WORD  ISTAT-           ;
592 002070' 016700 176512      MOV   DATADR, R0       ;GET DATA ADDRESS
593 002074' 016702 176510      MOV   BYTCNT, R2      ;GET BYTE COUNT
594 002100' 005714      TST   (R4)             ;PRINTER'S ERROR BIT SET?
595 002102' 100004      BPL   10S              ;Y, N-10S
596 002104' 012767 000001 175710  MOV   #1, ERR          ;SET THE ERROR INDICATOR
597 002112' 000516      BR    INTEX2           ;GO TO INT EXIT
598 002114' 005702      10S: TST   R2             ;BYTE CNT = 0?
599 002116' 001500      BEQ   INTEX1           ;N, Y-INTEX1
600
601      ;TRANSFER DATA TO PRINTER
602
603 002120' 004777 175752      SNDBYT: JSR  PC, GETBYT    ;HAVE MPG GET DATA BYTE IN R1
604 002124' 110164 000002      MOVB  R1, 2(R4)        ;SHIP A BYTE TO THE PRINTER
605 002130' 005267 176460      INC   CURCNT          ;INCR BYTES XFERRED CNT
606 002134' 005302      DEC   R2              ;SUB 1 FROM BYTE COUNT
607 002136' 001405      BEQ   CK4LTH          ;CNT = 0? (N, Y-CK4LTH)
608 002140' 105714      TSTB  (R4)            ;READY SET AGAIN?
609 002142' 100106      BPL   INTEX3          ;Y, N-INTEX3
610 002144' 005267 176432      INC   XFRCNT          ;ADD 1 TO ADDITIONAL XFER CNT
611 002150' 000763      BR    SNDBYT          ;GO ISSUE NXT BYTE
612
613 002152' 032767 000010 175622  CK4LTH: BIT  #10, DFLGMD      ;THIS A TOF OR EOT CMD?
614 002160' 001077      BNE   INTEX3          ;N, Y-INTEX3
615 002162' 032714 000001      BIT  #1, (R4)         ;IN "PLOT" MODE?
616 002166' 001421      BEQ   40S             ;Y, N-40S
617
618      ;CHECK FOR ISSUING PLOTTER LINE TERMINATE
619
620 002170' 032767 000004 175604      BIT  #4, DFLGMD      ;THIS A "SPACE" CMD?
621 002176' 001012      BNE   30S            ;N, Y-30S
622 002200' 032763 000200 000002      BIT  #SPOPER, POPSW(R3) ;SUPPOSED TO ISSUE LINE TERM?
623 002206' 001064      BNE   INTEX3          ;Y, N-INTEX3
624 002210' 016701 176400      MOV   CURCNT, R1      ;GET BYTES XFERRED CNT
625 002214' 162701 000200      20S: SUB  #128, R1       ;CNT A MULTIPLE OF 128?
626 002220' 001457      BEQ   INTEX3          ;N, Y-INTEX3
627 002222' 100374      BPL  20S              ;
628 002224' 052714 000002      30S: BIS  #2, (R4)     ;ISSUE A PLOTTER LINE TERMINATE
629 002230' 000453      BR    INTEX3          ;WAIT FOR LINE TO PRINT
630
631      ;CHECK FOR ISSUING PRINTER CR/LF
632
633 002232' 032767 000004 175542  40S: BIT  #4, DFLGMD      ;THIS A "SPACE" CMD?
634 002240' 001047      BNE   INTEX3          ;N, Y-INTEX3
635 002242' 032763 000200 000002      BIT  #SPOPER, POPSW(R3) ;SUPPOSED TO ISSUE CR/LF?
636 002250' 001043      BNE   INTEX3          ;Y, N-INTEX3
637 002252' 032767 000020 175522      BIT  #20, DFLGMD     ;"TRAILING CR/LF" FLG SET?
638 002260' 001037      BNE   INTEX3          ;N, Y-INTEX3
639 002262' 010700      MOV   PC, R0          ;SET UP ADR OF CR/LF DATA

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640 002264' 062700 001314      ADD      @CRLF-. ,R0
641 002270' 032777 000001 175566  BIT      @MVER,@CSYSFW      ;RUNNING UNDER MEM MGMT?
642 002276' 001402          BEQ      SOS              ;Y,N-SOS
643 002300' 162700 120000      SUB      @PSCONS,R0        ;ADJ ADR TO VIRTUAL SPACE
644 002304' 012702 000002          MOV      @2,R2             ;SET UP BYTE COUNT OF 2
645 002310' 052767 000020 175464  BIS      @20,DFLGND        ;SET "ISSUED TRAILING CR/LF" FLAG
646 002316' 000420          BR       INTX3            ;GO TO INT EXIT
647
648                                ;INTERRUPT SERVICE EXITS
649
650 002320' 032767 000004 175454  INTX1: BIT      @4,DFLGND        ;THIS A "SPACE" CHND?
651 002326' 001410          BEQ      INTX2            ;Y,N-INTX2
652 002330' 005367 176264      DEC      @PCNT             ;DECR SPACE LINE CNT
653 002334' 001405          BEQ      INTX2            ;DONE ALL LINES? (N,Y-INTX2)
654 002336' 162700 000002      SUB      @2,R0             ;BACK UP DATA ADR
655 002342' 012702 000002      MOV      @2,R2             ;RESTORE BYTE CNT
656 002346' 000664          BR       @NOBYT          ;GO ISSUE BYTES AGAIN
657 002350' 042714 000100          BIC      @100,(R4)        ;RESET INT ENABLE
658 002354' 042713 000010          BIC      @MT410T,(R3)    ;RESET WAIT FOR I/O TERM FLAG
659 002360' 010067 176222      INTX2: MOV      @R0,DATAADR ;STORE NEW DATA ADR
660 002364' 010267 176220      INTX3: MOV      @R2,BYTCNT ;STORE NEW BYTE CNT
661 002370' 004067 000510      JSR      @R0,RESREG       ;RESTORE ALL REGISTERS
662 002374' 000177 175474      JMP      @RTNINT         ;EXIT FROM INTERRUPT

```

.SBTTL SUBROUTINES FOR LP11/LS11/LV11 FUNCTION ROUTINES

;CHECK IF DEVICE IS BUSY AND WAIT IF IT IS

;JSR PC,CKDBSY S/R CALL

;DESTROYS R0,R3,R4  
;ON EXIT:  
;R3 = PROG TBL ADR  
;R4 = C/S REG ADR

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002400' 004767 000516  
002404' 032714 000100  
002410' 001403  
002412' 004577 175430  
002416' 000772  
002420' 032767 000002 175354 20S:  
002426' 001403  
002430' 004767 000244  
002434' 000763  
002436' 016767 175364 000012 30S:  
002444' 016767 175360 000006  
002452' 004577 175410  
002456' 000000 40S:  
002460' 000000 45S:  
002462' 177364  
002464' 005067 175332  
002470' 042767 000014 175304  
002476' 010567 176102  
002502' 162767 000004 176074  
002510' 000207

CKDBSY: JSR PC,SUPTAD  
10S: BIT #100,(R4)  
BEQ 20S  
JSR R5,ACKIOBSY  
BR 10S  
BIT #2,DFLGMD 20S:  
BEQ 30S  
JSR PC,PROCTH  
BR 10S  
MOV IVCTAD,40S 30S:  
MOV PSM,45S  
JSR R5,ASETVEC  
40S: .WORD XXXX  
45S: .WORD XXXX  
.WORD LPINT-  
CLR ERR  
BIC #14,DFLGMD  
STSADR: MOV R5,ERRADR  
SUB #4,ERRADR  
RTS PC

;SET UP PROG TBL & C/S REG ADR'S  
;INT ENABLE ON?  
;Y,N-20S  
;RELEASE CONTROL  
;GO CK AGAIN  
;HAVE TO PROCESS PREV TERMINATION?  
;Y,N-30S  
;GO PROCESS TERMINATION  
;GO RECHECK INT ENABLE  
;STORE INT VECTOR ADR  
;STORE PROG STATUS WORD  
;GO SET UP THE VECTOR  
;INT VECTOR ADR  
;PSW  
;REL INT ROUT ADR  
;RESET THE ERROR INDICATOR  
;RESET "SPACE" & "TOF/EOT" FLAGS  
;SAVE CURR USER STANT ADR  
;EXIT IN-LINE

;ERROR INFORMATION DISPLAY S/R

;JSR R5,ERRCS  
;JSR R5,ERRIS  
;.WORD MSGADR-ERRBAS  
;.WORD MSGCNT  
;R3 = PROG TBL ADR  
;DESTROYS R0,R1,R2

S/R CALL FOR CURR STATUS  
S/R CALL FOR INT STATUS  
REL ADR OF ERROR MSG  
# OF BYTES IN ERROR MSG

002512' 004567 000424  
002516' 176042  
002520' 012767 175742 000070  
002526' 000403  
002530' 012767 175736 000060  
002536' 012567 000034  
002542' 012567 000032  
002546' 005267 176022  
002552' 032763 020000 000002  
002560' 001046  
002562' 010446  
002564' 005004  
002566' 004767 000366

ERRCS: JSR R5,STSTAT  
.WORD CSTAT-  
ERRCS1: MOV #CSTAT-ERSTAD,ERSTAD  
BR ERRCOM  
ERRIS: MOV #I1STAT-ERSTAD,ERSTAD  
ERRCOM: MOV (R5)+,ERRBAS  
MOV (R5)+,ERRBAS+2  
INC ERRCNT  
BIT #PRIMER,POPSW(R3)  
BNE ERREX  
MOV R4,-(SP)  
CLR R4  
JSR PC,DEVID

;STORE CURR STATUS  
;STORE ADR OF CURR STATUS  
;GO TO COMMON POINT  
;STORE ADR OF LAST INT STATUS  
;STORE MSG ADR  
;STORE MSG CNT  
;ADD 1 TO ERROR CNT  
;ERROR PRINTING INHIBITED?  
;N,Y-ERREX  
;SAVE R4  
;SET USER MODE PRINT FLAG  
;DISPLAY DEVICE I.D.

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720 002572' 004567 000516          SS:   JSR    RS,PRINT          ;PRINT ERROR MSG SPECIFIED
721 002576' 000000                    ERMBAS: .WORD  XXXX
722 002580' 000000                    .WORD  XXXX
723 002582' 026727 177770 001271    CMP    ERMBAS,8INVCHD-ERMBAS ;INVALID FUNCTION?
724 002586' 103003                    BHS    ERRSNM              ;N,Y-ERRSNM
725 002590' 004567 000424          JSR    RS,DISPST          ;DISPLAY STATUS REG'S
726 002594' 000000                    ERSTAD: .WORD  XXXX
727 002598' 016300 000022          ERSNM:  MOV    PSRCST(R3),R0 ;GET ADR OF SRC STMTS
728 002602' 111001                    10S:   MOVB   (R0),R1         ;SAVE STMT LENGTH
729 002606' 026067 000004 175750    CMP    4(R0),ERRADR      ;ERROR OCCUR ON THIS STMT?
730 002610' 001402                    BEQ    20S                ;N,Y-20S
731 002614' 060100                    ADD    R1,R0             ;POINT AT NXT STMT
732 002618' 000771                    BR     10S               ;GO CK NXT STMT
733 002622' 005720                    20S:   TST    (R0)+        ;SET UP ADR OF STMT & DATA
734 002626' 010701                    MOV    PC,R1             ;SET UP DATA OUTPUT ADR
735 002630' 062701 001164          ADD    8STNUM-,R1
736 002634' 004577 175204          JSR    RS,DECRSC         ;CONVERT IT TO ASCII
737 002638' 012767 020040 001152    MOV    820040,STNUM+4    ;SET 2 LOW DIGITS TO SPACES
738 002642' 004567 000424          JSR    RS,PRINT          ;ISSUE STMT & MSG
739 002646' 001132                    .WORD  STNUM-
740 002650' 177762                    .WORD  -14
741 002654' 012604                    MOV    (SP)+,R4         ;RESTORE R4
742 002658' 000205                    ERREX: RTS    RS         ;EXIT IN-LINE
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;PROCESS TERMINATION OF PREVIOUS I/O FUNCTION

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;JSR    PC,PROCTH      S/R CALL
PROCTH: JSR    R0,SAVREG  ;SAVE ALL REG'S
        BIC    82,DFLGND ;RESET PROCESS TERMINATION FLAG
        MOV    CURCNT,SIZE ;STORE # OF BYTES ACTUALLY XFERRD
        ADD    CURCNT,BYMR+2 ;ADD THEM INTO TOTAL BYTE CNT
        ADC    BYMR      ;UPDATE MOST SIGNF WORD OF CNT
        TST    ERR       ;WAS THERE AN ERROR?
        BEQ    80S       ;Y,N-80S
        BIT    800ERCK,POPSH(R3) ;SUPPOSED TO DO ERROR CHECKING?
        BNE    70S       ;Y,N-70S
        JSR    RS,ERRIS   ;GO ISSUE STATUS ERROR MSG
        .WORD  LPENSG-ERMBAS
        .WORD  12
65S:   JSR    PC,RINTV    ;GO RESET INT VECTOR
        JSR    R0,RESREG  ;RESTORE REG'S
        JSR    RS,2CUPGER ;GO TO MPG ERR RETN POINT
        RTS    PC         ;EXIT IN-LINE
70S:   INC    ERRCNT     ;ADD 1 TO ERROR CNT
80S:   JSR    PC,RINTV    ;GO RESET INT VECTOR
        JSR    R0,RESREG  ;RESTORE REG'S
        RTS    PC         ;EXIT IN-LINE

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770                                     ;RESET INTERRUPT VECTOR S/R
771
772                                     ;JSR PC,RINTV S/R CALL
773                                     ;R3 MUST CONTAIN PROG TBL ADR
774                                     ;DESTROYS R0
775
776 003014' 004567 000020 RINTV: JSR RS,TVECT ;GO CK IF I HAVE VECTOR CONTROL
777 003020' 000406 BR RINTEX ;BR IF I DON'T
778 003022' 016767 175000 000004 MOV IVCTAD,106 ;GET CURR INT VECT ADR
779 003030' 004577 175034 JSR RS,@CLAVEC ;GO HAVE MPG CLEAR IT
780 003034' 000000 106: .WORD XXXX
781 003036' 000207 RINTEX: RTS PC ;EXIT IN-LINE
782
783
784                                     ;TEST INTERRUPT VECTOR S/R
785
786                                     ;JSR RS,TVECT S/R CALL
787                                     ;BR LABEL EXECUTED IF NOT SAME
788                                     ;R3 MUST CONTAIN PROG TBL ADR
789                                     ;DESTROYS R0
790
791 003040' 016767 174762 000010 TVECT: MOV IVCTAD,206 ;GET CURR INT VECT ADR
792 003046' 016346 000004 MOV PFMADR(R3),-(SP) ;STORE FLGND ADR TO IDENTIFY ME
793 003052' 004577 175014 JSR RS,@TSTVEC ;DO I HAVE VECTOR CONTROL?
794 003056' 000000 206: .WORD XXXX ;MPG WILL TELL ME SINCE I CAN'T
795 003060' 176766 .WORD LPINT- ;GET AT LOWER MEM IF MEM NGHNT
796 003062' 000401 BR TVECTX ;BR IF I DON'T HAVE CNTRL
797 003064' 005725 TST (RS)+ ;BYPASS BR INST IN S/R CALL
798 003066' 000205 TVECTX: RTS RS ;EXIT IN-LINE
    
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800          .SBTTL SUBROUTINES FOR LP11/LS11/LV11 DEVICE ROUTINE
801
802
803
804          ;SAVE REGISTERS R0 THRU R5
805
806          ;JSR    R0,SAVREG          S/R CALL
807
808 SAVREG: MOV    R1,-(SP)          ;SAVE R0 THRU R5
809          MOV    R2,-(SP)
810          MOV    R3,-(SP)
811          MOV    R4,-(SP)
812          MOV    R5,-(SP)
813          MOV    R0,PC          ;EXIT IN-LINE
814
815
816          ;RESTORE REGISTERS R0 THRU R5
817
818          ;JSR    R0,RESREG          S/R CALL
819
820 RESREG: TST    (SP)+          ;RESTORE R5 THRU R0
821          MOV    (SP)+,R5
822          MOV    (SP)+,R4
823          MOV    (SP)+,R3
824          MOV    (SP)+,R2
825          MOV    (SP)+,R1
826          RTS    R0          ;EXIT IN-LINE
827
828
829          ;SET PROGRAM'S PROG TABLE ADR IN R3 & C/S REG ADR IN R4
830
831          ;JSR    PC,SUPTAD          S/R CALL
832
833 SUPTAD: MOV    PC,R3          ;SET UP LOCATION ZERO ADR
834          ADD    @LOCZ-,,R3
835          SUB    -2(R3),R3          ;SUBTRACT PROG TBL LENGTH
836          MOV    DREGAD,R4          ;PUT C/S REG ADR IN R4
837          RTS    PC          ;EXIT IN-LINE
838
839
840          ;STORE DEVICE'S STATUS REGISTERS
841
842          ;JSR    R5,STSTAT          S/R CALL
843          ;WORD STADR-          REL STORAGE ADR
844          ;DESTROYS R0,R1
845
846 STSTAT: MOV    R5,R1          ;GET REL STORAGE ADR & MAKE
847          ADD    (R5)+,R1          ;IT ABSOLUTE
848          MOV    DREGAD,R0          ;GET ADR OF DEV REG'S
849          MOV    (R0)+,(R1)+          ;STORE BOTH DEV REG'S
850          MOV    (R0),(R1)
851          RTS    R5          ;EXIT IN-LINE

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853                                     ;TAILOR & DISPLAY DEVICE I.D.
854
855                                     ;JSR   PC,DEVID           S/R CALL
856                                     ;R3 MUST CONTAIN PROG TBL ADR
857                                     ;DESTROYS R0,R1,R2
858
859 003160' 012700 050114   DEVID:  MOV   8"LP,R0           ;SET UP LP11 I.D.
860 003164' 032763 000060 000032  BIT   860,PHDLCD(R3)   ;THIS A LP11?
861 003172' 001410                BEQ   10S              ;N.Y-10S
862 003174' 012700 051514                MOV   8"LS,R0           ;SET UP LS11 I.D.
863 003200' 032763 000020 000032  BIT   820,PHDLCD(R3)   ;THIS A LS11?
864 003206' 001002                BNE   10S              ;N.Y-10S
865 003210' 012700 053114                MOV   8"LV,R0           ;SET UP LV11 I.D.
866 003214' 010067 000264                MOV   R0,DVRGMG+4     ;TAILOR PRINTER'S MODEL CODE
867 003220' 010067 000274                MOV   R0,DVRGMG       ;TAILOR DEV REG NAMES
868 003224' 010067 000304                MOV   R0,DVRGM2
869 003230' 004567 000060                JSR   R5,PRINT        ;GO ISSUE DEVICE I.D. MSG
870 003234' 000244                .WORD DVRGMG-
871 003236' 000020                .WORD 16.
872 003240' 000207                RTS   PC              ;EXIT IN-LINE
873
874
875                                     ;TAILOR STATUS MSG & PRINT IT
876
877                                     ;JSR   R5,DISPST        S/R CALL
878                                     ;WORD  STATADR-      REL ADR OF STATUS DATA
879                                     ;DESTROYS R0,R1,R2
880
881 003242' 010502   DISPST: MOV   R5,R2           ;GET REL DATA ADR
882 003244' 062502   ADD   (R5)+,R2       ;MAKE IT ABS
883 003246' 012200   MOV   (R2)+,R0       ;GET REG'S STORED VALUE
884 003250' 010246   MOV   R2,-(SP)       ;SAVE R2
885 003252' 004577 174600   JSR   R5,28INASC     ;CONVERT IT TO ASCII
886 003256' 000250   .WORD DVRGM1-
887 003260' 012502   MOV   (SP)+,R2       ;RESTORE R2
888 003262' 011200   MOV   (R2),R0        ;GET SECOND REG VALUE
889 003264' 004577 174566   JSR   R5,28INASC     ;CONVERT IT
890 003270' 000252   .WORD DVRGM2-
891 003272' 004567 000016   JSR   R5,PRINT       ;PRINT THE STATUS MSG
892 003276' 000222   .WORD DVRGMG-
893 003300' 000014   .WORD 12.
894 003302' 004567 000006   JSR   R5,PRINT
895 003306' 000226   .WORD DVRGM2-
896 003310' 000014   .WORD 12.
897 003312' 000205   RTS   R5              ;EXIT IN-LINE

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;ISSUE MSG TO LIST DEVICE
;JSR RS PRINT S/R CALL
;WORD MSGADR-. REL ADR OF MSG
;WORD BYTCNT MSG BYTE CNT (IF NEGATIVE,
; RESET PRT DEV DEDICATED.)
;R3 = PROG TBL ADR
;R4 = FLAGWORD -- IF NEGATIVE, USE CMD MODE PRINT
;DESTROYS RD,R1,R2

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909 003314' 010500 PRINT: MOV RS,R0 ;GET MSG ADR & MAKE IT ABS
910 003316' 062500 ADD (RS)+,R0
911 003320' 012501 MOV (RS)+,R1 ;GET BYTE COUNT
912 003322' 005704 TST R4 ;USE CMD MODE PRINT?
913 003324' 100030 BPL 40S ;Y,N-40S
914 003326' 010702 MOV PC,R2 ;SET UP LINK INFO ADR
915 003330' 062702 000040 ADD #20S--,R2
916 003334' 160200 SUB R2,R0 ;MAKE MSG ADR REL
917 003336' 010022 MOV RD,(R2)+ ;STORE MSG ADR
918 003340' 010112 MOV R1,(R2) ;STORE MSG'S BYTE COUNT
919 003342' 100001 BPL 10S ;CNT NEG? (Y,N-10S)
920 003344' 005412 NEG (R2) ;MAKE IT POSITIVE
921 003346' 016367 000006 000056 10S: MOV PASCIN(R3),PROGM ;STORE PROG'S # IN MSG
922 003354' 004577 174474 JSR RS,ACLIST ;ISSUE PROG #
923 003360' 000050 .WORD PNMMSG-.
924 003362' 000005 .WORD 5
925 003364' 004577 174464 JSR RS,ACLIST ;ISSUE MSG SPECIFIED
926 003370' 000000 20S: .WORD XXXX
927 003372' 000000 .WORD XXXX
928 003374' 004577 174454 JSR RS,ACLIST ;ISSUE A <CR> & <LF>
929 003400' 000200 .WORD CRLF-.
930 003402' 000002 .WORD 2
931 003404' 000410 BR PRTEX ;GO TO EXIT
932 003406' 010067 000010 40S: MOV RD,50S ;STORE MSG'S ABS ADR
933 003412' 010167 000006 MOV R1,60S ;STORE ITS BYTE CNT
934 003416' 004577 174430 JSR RS,JULIST ;GO TO MPG TO ISSUE THE MSG
935 003422' 000000 50S: .WORD XXXX
936 003424' 000000 60S: .WORD XXXX
937 003426' 000205 PRTEX: RTS ;EXIT IN-LINE

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.SBTTL LP11/LS11/LV11 MESSAGE STORAGE AREA

.NLIST BEX

003430'	021520			PNTMSG:	.ASCII	/P#/
003432'	054130	011		PROGMM:	.ASCII	/XX/<011>
003435'	101	020124	040514	ATMSG:	.ASCII	'AT LAST INT:'
003451'	103	051125	042522	CURMSG:	.ASCII	/CURRENTLY:/
003463'	105	042116	047440	RENDMG:	.ASCII	/END OF REPORT/
					.EVEN	
003500'	025052	025052	054130	DVIDMG:	.ASCII	/###XX11 PRINTER/
					.EVEN	
003520'	054130	051503	020075	DVRGMG:	.ASCII	/XXCS= /
003526'	054130	054130	054130	DVRGDT:	.ASCII	/XXXXXX/
003534'	054130	041104	020075	DVRGM2:	.ASCII	/XXDB= /
003542'	054130	054130	054130	DVRGD2:	.ASCII	/XXXXXX/
					.ASCII	
003550'	054502	042524	035123	CNTSMG:	.ASCII	/BYTES: NR= /
003574'	054130	054130	054130	BCMR:	.ASCII	/XXXXXXXXXXXX/
003600'	005015			CRLF:	.ASCII	<015><012>
					.ASCII	
003602'	041411	047115	051504		.ASCII	<011>/CMDS: NR= /
003617'	130	054130	054130	CMDCMR:	.ASCII	/XXXXXX MISC= /
003634'	054130	054130	054130	CMDCMS:	.ASCII	/XXXXXX/<015><012>
					.ASCII	
003644'	042411	051122	051117		.ASCII	<011>/ERRORS: DEV= /
003663'	130	054130	054130	CNTERR:	.ASCII	/XXXXXX DATA= /
003700'	054130	054130	054130	CNTDER:	.ASCII	/XXXXXX/<015><012>
003710'	044411	052116	051105		.ASCII	<011>/INTERRUPTS: /
003726'	054130	054130	054130	CNTINT:	.ASCII	/XXXXXX/<015><012>
003736'	040411	042104	052111		.ASCII	<011>/ADDITIONAL XFRS DURING INT: /
003775'	130	054130	054130	CNTXFR:	.ASCII	/XXXXXX/
					.ASCII	
004003'	004003'			CNTSEN=	.	
	124	046511	047505	IOTO:	.ASCII	'TIMEOUT ON I/O'
	004022'				.EVEN	
004022'	052123	047115	020124	STHMG:	.ASCII	/STHNT # /
004032'	054130	054130	054130	STHLM:	.ASCII	/XXXXXX/
004040'	052123	052101	051525	LPEMSG:	.ASCII	/STATUS ERROR/
004054'	042122	020131	047516	NRDYM:	.ASCII	/RDY NOT SET/
004067'	042	046120	052117	INVCHD:	.ASCII	'PLOT' INV FOR LP11/LS11'
	004120'				.EVEN	

.LIST BEX

DVREND= .

.SBTTL FORMATS FOR PROGRAM & DEVICE ROUTINE TABLES

; PROGRAM TABLE FORMAT

000242

PTLGTH= 162. ;PROGRAM TABLE LENGTH - NON MEM MGMT VERSION OF MPG

;(PTLGTH= 212. ;PROGRAM TABLE LENGTH - MEM MGMT VERSION OF MPG)

000000

PFLGND= +0. ;PROGRAM FLAG WORD - 1 WORD

000002

URSTOP= 2	:	1 = USER HAS STOPPED THIS PROGRAM
ERSTOP= 4	:	1 = AN ERROR HAS STOPPED THIS PROGRAM
WT4IOT= 10	:	1 = WAITING FOR I/O TERMINATION
CTPRIO= 20	:	1 = CONSOLE OR PRINTER I/O IN PROGRESS
SETDED= 40	:	1 = THIS PROG SET THE PRT DEV DEDICATED FLAG
OCPRES= 100	:	1 = OBJ CODE IS PRESENT
USEUBM= 200	:	1 = THIS PROG USES THE UNIBUS MAP (MEM MGMT ONLY)
ACTIVE= 100000	:	1 = PROGRAM IS ACTIVE (SPECIFIED FOR EXECUTION)

000004

000010

000020

000040

000100

000200

100000

000002

POPSM= +2. ;PROGRAM'S OPERATION SWITCHES - 1 WORD

100000

STONER= 100000	:	1 = STOP PROG EXECUTION UPON ERROR
CYCPRG= 40000	:	1 = CYCLE PROGRAM (ON CURRENT DEVICE)
PRONER= 20000	:	1 = DO NOT PRINT ON ERROR
BIT12= 10000	:	0 = NOT USED
BIT11= 4000	:	0 = NOT USED
CYCDVL= 2000	:	1 = CYCLE THE DEVICE LIST
GTXTD= 1000	:	1 = CYCLE ON SAME DEVICE UPON ERROR
DOERCK= 400	:	1 = DON'T DO ERROR CHECKING
SOPER= 200	:	1 = DEVICE SPECIAL OPERATION
BIT6= 100	:	0 = NOT USED
DOIOT= 40	:	1 = DO NOT PERFORM I/O TIMEOUT
AUTORP= 20	:	1 = DO NOT AUTOMATICALLY DISPLAY COUNTS
AURPEP= 10	:	1 = AUTO DISPLAY COUNTS AT END OF FINAL PASS ONLY
HSKPEP= 4	:	1 = HOUSEKEEP COUNTS ONLY AT RUN COMMAND
PFBBOV= 2	:	1 = PRINT FIRST BAD BYTE ONLY ON VERIFY
NOCMP= 1	:	1 = DO NOT PRINT PROG COMPLETED MSG

040000

020000

010000

004000

002000

001000

000400

000200

000100

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000020

000010

000004

000002

000001

000004

PFWADR= +4. ;PROGRAM FLAGWORD ADDRESS - 1 WORD

000006

PASCIN= +6. ;PROGRAM'S NUMBER IN ASCII - 1 WORD

000010

PNAME= +8. ;PROGRAM'S NAME IN ASCII - 6 BYTES

000016

PRDIOA= +14. ;ADDRESS OF READ I/O AREA - 1 WORD

000020

PWRIOA= +16. ;ADDRESS OF WRITE I/O AREA - 1 WORD

000022

PSRCST= +18. ;SOURCE STATEMENTS START ADDRESS - 1 WORD

000024

POBJST= +20. ;OBJECT CODE START ADDRESS - 1 WORD

000026

PLNGTH= +22. ;PROG AREA LENGTH (OBJ END MINUS PROG TBL START) - 1 WORD

000030

PTOCNT= +24. ;I/O TIMEOUT COUNT - 1 WORD

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1042	000032	PMDLCD= +26.	;DEV ROUT MODEL # CODE - 1 WORD
1043			
1044	000034	PDPNTR= +28.	;CURRENT DEVICE NUMBER POINTER - 1 BYTE
1045			
1046	000035	PCURDV= +29.	;CURRENT DEVICE # - 1 BYTE
1047			
1048	000036	PDNUMS= +30.	;DEVICE NUMBERS - 16 BYTES
1049			
1050	000056	PTEM0= +46.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1051			
1052	000060	PTEM1= +48.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1053			
1054	000062	PTEM2= +50.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1055			
1056	000064	PTEM3= +52.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1057			
1058	000066	PTEM4= +54.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1059			
1060	000070	PTEM5= +56.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1061			
1062	000072	PTEM6= +58.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1063			
1064	000074	PTEM7= +60.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1065			
1066	000076	PTEM8= +62.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1067			
1068	000100	PTEM9= +64.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1069			
1070	000102	PTEM10= +66.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1071			
1072	000104	PTEM11= +68.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1073			
1074	000106	PTEM12= +70.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1075			
1076	000110	PTEM13= +72.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1077			
1078	000112	PTEM14= +74.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1079			
1080	000114	PTEM15= +76.	;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1081			
1082	000116	TNR= +78.	;NUMBER OF BYTES TO TRANSFER ON MOVE (NBR) - 1 WORD
1083			
1084	000120	PSRC= +80.	;DATA SOURCE ADDRESS ON MOVE (SRC) - 1 WORD
1085			
1086	000122	PDST= +82.	;DATA DESTINATION ADDRESS ON MOVE (DST) - 1 WORD
1087			
1088	000124	PSTKCT= +84.	;# OF WORDS (X 2) SAVED OFF STACK - 1 WORD
1089			
1090	000126	PSTKSV= +86.	;STACK WORDS STORAGE AREA - 30 WORDS
1091			
1092	000222	PSVREG= +146.	;USER'S R0 THRU R5 REGISTERS STORAGE AREA - 6 WORDS
1093			
1094	000236	PUSRPC= +158.	;USER'S CURRENT PROGRAM COUNTER - 1 WORD
1095			

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1097          ;FOLLOWING ENTRIES (PRDIOX THRU PUBMAP) ARE ONLY IN MEM MGMT VERSION
1098
1099          ;(PRDIOX= +160. ;18/22 BIT ABSOLUTE ADDRESS OF READ I/O AREA - 2 WORDS)
1100
1101          ;(PRDIOV= +164. ;18 BIT VIRTUAL ADDRESS OF READ I/O AREA - 2 WORDS)
1102
1103          ;(PWRIOX= +168. ;18/22 BIT ABSOLUTE ADDRESS OF WRITE I/O AREA - 2 WORDS)
1104
1105          ;(PWRIOV= +172. ;18 BIT VIRTUAL ADDRESS OF WRITE I/O AREA - 2 WORDS)
1106
1107          ;(PUPARS= +176. ;STORAGE AREA FOR USER'S PAR'S 0 THRU 7 - 8 WORDS)
1108
1109          ;(PUPDRS= +192. ;STORAGE AREA FOR USER'S PDR'S 0 THRU 7 - 8 WORDS)
1110
1111          ;(PUBMAP= +208. ;1ST UNIBUS MAP REG # AND # OF REGS USED - 1 WORD)
1112
1113          ;END OF MEM MGMT ONLY ENTRIES
1114
1115          000240      PFSIZE= +160. ;PROGRAM TABLE SIZE IN BYTES - 1 WORD - NON MEM MGMT
1116
1117          ;(PFSIZE= +210. ;PROGRAM TABLE SIZE IN BYTES - 1 WORD - MEM MGMT VERSION)
1118
1119          000242      PTEND= +162. ;END OF PROGRAM TABLE - NON MEM MGMT VERSION
1120
1121          ;(PTEND= +212. ;END OF PROGRAM TABLE - MEM MGMT VERSION)

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Address	Value	Label	Description
1123		:	DEVICE ROUTINE TABLE
1124			
1125			
1126	000116	DRTLTH= 78.	;DEVICE ROUTINE TABLE LENGTH
1127		:	
1128			
1129	000000	DEVRSZ= +0.	;DEVICE ROUTINE SIZE IN BYTES - 1 WORD
1130			
1131	000002	DEVFWD= +2.	;DEVICE ROUTINE FLAGWORD - 1 WORD
1132			
1133	000004	DEVIW1= +4.	;DEVICE INTERFACE WORD # 1 - 1 WORD
1134			
1135	000006	DEVIW2= +6.	;DEVICE INTERFACE WORD # 2 - 1 WORD
1136			
1137	000010	DEVIW3= +8.	;DEVICE INTERFACE WORD # 3 - 1 WORD
1138			
1139	000012	DEVIW4= +10.	;DEVICE INTERFACE WORD # 4 - 1 WORD
1140			
1141	000014	DEVIW5= +12.	;DEVICE INTERFACE WORD # 5 - 1 WORD
1142			
1143	000016	DEVIW6= +14.	;DEVICE INTERFACE WORD # 6 - 1 WORD
1144			
1145	000020	DEVIW7= +16.	;DEVICE INTERFACE WORD # 7 - 1 WORD (SIZE)
1146			
1147	000022	DEVIW8= +18.	;DEVICE INTERFACE WORD # 8 - 1 WORD (ERR)
1148			
1149	000024	DEVDR= +20.	;DEVICE REGISTERS ADDRESS - 1 WORD
1150			
1151	000026	DEVIVA= +22.	;DEVICE INTERRUPT VECTOR ADDRESS - 1 WORD
1152			
1153	000030	DEVRRS= +24.	;DEVICE READ PROCESSOR STATUS WORD (BUS REQ) - 1 WORD
1154			
1155	000032	DEVWPS= +26.	;DEVICE WRITE PROC STATUS WORD (BUS REQ) - 1 WORD
1156			
1157	000034	DHKPAD= +28.	;DEVICE ROUT HOUSEKEEPING ROUT REL ENTRY ADR - 1 WORD
1158			
1159	000036	DERPAD= +30.	;DEVICE ROUT REPORT ROUT REL ENTRY ADR - 1 WORD
1160			
1161	000040	DKILAD= +32.	;DEVICE ROUT KILL ROUTINE REL ENTRY ADR - 1 WORD
1162			
1163	000042	DECTAD= +34.	;DEVICE ROUT ERROR COUNTER REL ADR - 1 WORD
1164			
1165	000044	DTOEAD= +36.	;DEVICE ROUT TIMEOUT ERR ROUT REL ENTRY ADR - 1 WORD
1166			
1167	000046	DEVI08= +38.	;DEVICE I/O BUSY BRANCH ADDRESS (CIOBSY) - 1 WORD
1168			
1169	000050	DEVDER= +40.	;DEVICE ERROR BRANCH ADDRESS (CUPGER) - 1 WORD
1170			
1171	000052	DVUPRT= +42.	;USER MODE PRINT BRANCH ADDRESS (ULIST) - 1 WORD
1172			
1173	000054	DVCPRT= +44.	;CMND MODE PRINT BRANCH ADDRESS (CLIST) - 1 WORD
1174			
1175	000056	DEVBT= +46.	;CONVERT BINARY TO ASCII BR ADR (BINASC) - 1 WORD
1176			
1177	000060	DVBTD= +48.	;CONVERT BINARY TO DECIMAL ASCII BR ADR (BTASLZ) - 1 WORD
1178			

MAINDEC-11-DTLPA-B LP11/LS11/LV11 DEVICE ROUTINE FOR MPG  
DTLPAB.P11 FORMATS FOR PROGRAM & DEVICE ROUTINE TABLES

1179	000062	DVPDTA= +50.	; CONVERT PACKED DECIMAL TO ASCII BR ADR (DECASC) - 1 WORD
1180			
1181	000064	DVSFMD= +52.	; MPG SYSTEM FLAGWORD ADDRESS (CSYSFW) - 1 WORD
1182			
1183	000066	DVSVEC= +54.	; SET INTERRUPT VECTOR BR ADR (SETVEC) - 1 WORD
1184			
1185	000070	DVCVEC= +56.	; CLEAR INTERRUPT VECTOR BR ADR (CLAVEC) - 1 WORD
1186			
1187	000072	DVTVEC= +58.	; TEST INTERRUPT VECTOR BR ADR (TSTVEC) - 1 WORD
1188			
1189	000074	DVRINT= +60.	; RETURN FROM INTERRUPT BR ADR (RTNINT) - 1 WORD
1190			
1191	000076	DVGETB= +62.	; GET DATA BYTE BR ADR (GETBYT) - 1 WORD
1192			
1193	000100	DVPUTB= +64.	; PUT DATA BYTE BR ADR (PUTBYT) - 1 WORD
1194			
1195	000102	DEVSTP= +66.	; DEVICE ROUT REL SYMBOL TABLE POINTER - 1 WORD
1196			
1197	000104	DEVETP= +68.	; DEVICE ROUT REL ENTRY TABLE POINTER - 1 WORD
1198			
1199	000106	DVPTEP= +70.	; PACK TABLE EXTEN. REL POINTER - 1 WORD
1200			
1201	000110	DVVTEP= +72.	; VECTOR TABLE EXTEN. REL POINTER - 1 WORD
1202			
1203	000112	DVCTEP= +74.	; COMPILER TBL EXTEN. REL POINTER - 1 WORD
1204			
1205	000114	DVIMSP= +76.	; DEVICE INTERFACE WORD SYMBOL TBL REL POINTER - 1 WORD
1206			
1207	000116	DRTEND= +78.	; END OF DEVICE ROUTINE TABLE
1208			
1209			
1210			
1211	000001	.END	

ACTIVE=	100000		DEVIVA=	000026		EOT	001600R	002	PASCIN=	000006		PUSAPC=	000236	
ATINSG	003435R	002	DEVIH1=	000004		EOTBYT	001645R	002	PC	=%000007		PUTBYT	000100R	002
AUTPEP=	000010		DEVIN2=	000006		ERRBAS	002576R	002	PCURDV=	000035		PNR10R=	000020	
AUTORP=	000020		DEVIN3=	000010		ERR	000022R	002	PDNUMS=	000036		PSCONS=	120000	
BCNMR	003564R	002	DEVIN4=	000012		ERRADR	000604R	002	POPNTA=	000034		REGNUM=	000002	
BINASC	000056R	002	DEVIN5=	000014		ERRCNT	000574R	002	POST	= 000122		RENOMG	003463R	002
BIT11	004000		DEVIN6=	000016		ERRCOM	002536R	002	PFBOV=	000002		REPORT	000656R	002
BIT12	010000		DEVIN7=	000020		ERRCS	002512R	002	PFLGND=	000000		REPTBL	001132R	002
BITE	000100		DEVIN8=	000022		ERRCS1	002520R	002	PFMADR=	000004		RESREG	003104R	002
BTASLZ	000060R	002	DE/APS=	000030		ERRX	002576R	002	PLNGTH=	000026		RINTEX	003036R	002
BUFCLR	001646R	002	D/VRSZ=	000000		ERRIS	002530R	002	PLOT	001306R	002	RINTV	003014R	002
BYCNT	000610R	002	DEVSTP=	000102		ERRSNM	002520R	002	PLTEOT	001630R	002	RPTBAS	001066R	002
BYMR	000564R	002	DEWPS=	000032		ERSTAD	002616R	002	PLTEAR	001332R	002	RPTEND	001112R	002
CI08SY	000046R	002	DFLGND	000002R	002	ERSTOP=	000004		PLTTOF	001564R	002	RTNINT	000074R	002
CK08SY	002400R	002	DHAPAD=	000034		FORNFD	001644R	002	PNLCO=	000032		R0	=%000000	
CKRDY	001750R	002	DISCNT	001022R	002	GETBYT	000076R	002	PNR=	000010		R1	=%000001	
CK4LTM	002152R	002	DISPST	003242R	002	GTNXTD=	001000		PNR=	000116	002	R2	=%000002	
CLIST	000054R	002	DKILAD=	000040		HSKEEP	000622R	002	PNRMSG	003430R	002	R3	=%000003	
CLVEC	000070R	002	DOERCK=	000400		HSKPEP=	000622R	002	POBJST=	000024		R4	=%000004	
CHDCMS	003634R	002	DOJOT =	000040		HSKPEP=	000004		POPSM =	000002		R5	=%000005	
CHDCOM	001704R	002	DREGAD	000024R	002	HSKPST=	000554R	002	PROTOR=	000016		SAVREG	003070R	002
CHDCMR	003617R	002	DRTEND=	000116		INTCNT	000600R	002	PRINT	003314R	002	SETDED=	000040	
CHDEX	002036R	002	DRTLTH=	000116		INTEX1	002320R	002	PROCTH	002700R	002	SETVEC	000066R	002
CHTDER	003700R	002	DTOEAD=	000044		INTEX2	002350R	002	PROGMH	003432R	002	SIZE	000020R	002
CHTEAR	003663R	002	DVBTA=	000060		INTEX3	002360R	002	PRONER=	020000		SNDYBT	002120R	002
CHTINT	003726R	002	DVCHDS	000176R	002	INVCHD	004067R	002	PRTX	003426R	002	SP	=%000006	
CHTNUM=	000010		DVCPR1=	000054	002	IOTO	004003R	002	PRTOK	001766R	002	SPACE	001424R	002
CHTSEN=	004003R	002	DVCPT2=	000054	002	ISTAT	000554R	002	PSAC	= 000120		SPCNT	000620R	002
CHTSHG	003550R	002	DVCPT3=	000112		IVCTAD	000026R	002	PSACST=	000022		SPDATA	000616R	002
CHTXFR	003775R	002	DVCVEC=	000070		KILL	001232R	002	PSTKCT=	000124		SPOPER=	000200	
COUNTS	000564R	002	DVGETB=	000076		KILLEX	001250R	002	PSTKSV=	000126		STMMG	004022R	002
CRLF	003600R	002	DVIDMG	003500R	002	LCOUNT	000550R	002	PSVREG=	000222	002	STMMUM	004032R	002
CSTAT	000560R	002	DVINSP=	000114		LEOT	000550R	002	PSMD	000030R		STONER=	100000	
CSYSFM	000064R	002	DVINST	000546R	002	LNPL0T	000550R	002	PTEH0 =	000056		STSADR	002476R	002
CTPRIO=	000020		DVIVTE	000374R	002	LNMAIT	000550R	002	PTEH1 =	000060		STSTAT	003142R	002
CUPGER	000050R	002	DVPDTR=	000062		LOCZ	000000R	002	PTEH10=	000102		SUPTAD	003122R	002
CURCHD	000612R	002	DVPKTE	000254R	002	LPENSG	004040R	002	PTEH11=	000104		TOF	001514R	002
CURCNT	000614R	002	DVPTEP=	000106		LPERR	001736R	002	PTEH12=	000106		TOFEOT	001542R	002
CURMSG	003451R	002	DVPUTB=	000100		LPINT	002046R	002	PTEH13=	000110		TOUTER	001152R	002
CYCVL=	002000		DVREGE=	000176R	002	LPL0T	000550R	002	PTEH14=	000112		TSTVEC	000072R	002
CYCPAG=	040000		DVREGS	000116R	002	LSPACE	000551R	002	PTEH15=	000114		TVECT	003040R	002
DATAOR	000606R	002	DVREND=	004120R	002	LSTATS	000550R	002	PTEH2 =	000062		TVECTX	003066R	002
DATAER	000576R	002	DVREX	001122R	002	LTOF	000550R	002	PTEH3 =	000064		ULIST	000052R	002
DECASC	000062R	002	DVRGDT	003526R	002	LNMAIT	000550R	002	PTEH4 =	000066		URSTOP=	000002	
DECTAD=	000042		DVRGDT2	003542R	002	MISCNT	000572R	002	PTEH5 =	000070		USEUBM=	000200	
DERPAD=	000036		DVRGMG	003520R	002	NAYER =	000001		PTEH6 =	000072		WAIT	001252R	002
DEVBTA=	000056		DVRGM2	003534R	002	NOCMP =	000001		PTEH7 =	000074		WRCNT	000570R	002
DEVDER=	000050		DVRINT=	000074		NOIOEX	001300R	002	PTEH8 =	000076		WRCOM	001414R	002
DEVDR=	000024		DVSFMD=	000064		NOPL0T	001360R	002	PTEH9 =	000100		WRITE	001370R	002
DEVETP=	000104		DVSVEC=	000066		NOWAIT	001272R	002	PTEH0 =	000242		WTNOT	002040R	002
DEVFMD=	000002		DVTVEC=	000072		NRDYM	004054R	002	PTLGH=	000242		WTYIOT=	000010	
DEVIO	003160R	002	DVUPRT=	000052		OCPRES=	000100		PTCNT=	000030		XFRCNT	000602R	002
DEVIOB=	000046		DVVTEP=	000110					PTSIZE=	000240				

MAINDEC-11-DTLPA-B LP11/LS11/LV11 DEVICE ROUTINE FOR MPG  
DTLPAB.P11 SYMBOL TABLE

XXXX = 000000 . = 004120R 002

. ABS.	000000	000
	000000	001
LP11	004120	002

ERRORS DETECTED: 0  
DEFAULT GLOBALS GENERATED: 0

\*DTLPAB/NL:TOC/DOC=DTLPAB.P11  
RUN-TIME: 37.9 SECONDS  
RUN-TIME RATIO: 15/11=1.3  
CORE USED: 5K (9 PAGES)

DOCUMENT PAGES: 29

