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.SBTTL REVISION HISTORY

- APR 76 DTECA-B RELEASE
- JAN 76 ELIMINATED THE PRELIMINARY FILE SEARCH FUNCTION FOR THE DELETE COMMAND.
- NOV 75 ADDED TEST FOR MEMORY MANAGEMENT AND THE MESSAGE THAT ASKS IF IT IS TO BE USED. ALSO MADE CHANGES THAT WILL LOAD THE CORRECT VERSION OF THE MPG PROGRAM.
- NOV 75 CHANGED CONSOLE TERMINAL AND PRINTER HANDLERS SO THAT THEY GO TO MPG WHEN THEY NEED TO ACCESS THE USER PROGRAM FLAGWORD. ALSO ADDED NECESSARY INTERFACE ADDRESSES IN THE MPG INTERFACE ADDRESS TABLE.
- NOV 75 REMOVED THE CODE FOR THE USER READ FUNCTION IN THE CONSOLE TERMINAL CONTROL ROUTINE AND INTERRUPT SERVICING. THIS FUNCTION WAS NOT BEING USED.
- NOV 75 IN "IC" PROCESSING CODE AND ONE TIME HOUSEKEEPING, CHANGED PSM ACCESS TO BE COMPATIBLE WITH THE LSI-11.
- NOV 75 UPDATED INTERNAL AND EXTERNAL GLOBAL NAMES FOR COMPATIBILITY WITH THE NEW DIRECTORY ROUTINES IN THE DEVICE HANDLERS.
- NOV 75 MADE MISC. CHANGES TO REDUCE CORE SIZE. FLAG WORDS WERE MOVED IN-LINE WITH THEIR CODE. FLAG BITS WERE CHANGED TO MAKE USE OF "TST/TSTB/BMI/BPL" INSTRUCTIONS INSTEAD OF "BIT" INSTRUCTIONS.
- NOV 75 ADDED CODE THAT STORES THE FILENAME FOUND WHEN SEARCHING FOR A FILE WHOSE SUPPLIED NAME MAY HAVE CONTAINED WILD CHARACTERS (?). THE ADDRESS OF THE STORAGE AREA WAS ADDED TO MPG'S EXEC INTERFACE TABLE.
- NOV 75 MOVED HOUSEKEEPING OF VECTOR LOCATIONS 300 THRU 776 TO MPG'S ONE TIME HOUSEKEEPING.
- NOV 75 REMOVED ALL "RESET" INSTRUCTIONS.
- NOV 75 ADDED COMMENTS CONCERNING THE NEW RPO4/RPO5/RPO6 AND RX11 HANDLERS.
- OCT 75 CONSOLE TERMINAL NOW ECHOES "S" FOR AN ALTMODE.
- OCT 75 REMOVED HARDWARE TAB CODE FROM THE CONSOLE TERMINAL ROUTINES. WILL NOW ALWAYS SIMULATE A TAB WITH SPACES.

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- OCT 75 REMOVED TYPING OF A CR/LF WHEN ENCOUNTERING A 00 BYTE ON THE CONSOLE TERMINAL.
- OCT 75 REMOVED 'DEV NOT RDY' MESSAGE FROM THE PAPER TAPE HANDLER. WILL NOW REPORT 'DEV ERR'. ALSO ADDED CODE THAT IGNORES LEADING 0'S ON THE FIRST DATA BLOCK.
- OCT 75 CORRECTED BUGS THAT CAUSED INCORRECT PRINTING WHEN THE LIST DEVICE WAS AN LV11.
- AUG 75 INITIAL RELEASE

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:SBITL MPG EXEC BUILD INFORMATION
:TITLE MAINTDEC-11-DTECA-B COMMON SECTION FOR ALL MPG EXECUTIVES
;REVISION "B"

MACY11:

DTECA?,DTECA?/CRF:SYM/DOC=DTECA?.P11

OR FOR MIMIC, DTECH?,DTECH?/CRF:SYM/EQ:MIMIC/DOC=DTECA?.P11

NOTE: "/EQ:NLIST" WILL SUPPRESS DISPLAY OF ALL
UNUSED CONDITIONAL CODE IN THE LISTING.

LNKX11:

TC11 = TCMPG.BIN/B:0,TCMPG.MAP+DTECA?,DTEA?/E
RK11 = RKMPG.BIN/B:0,RKMPG.MAP+DTECA?,DTE1A?/E
TM11 = TMMPG.BIN/B:0,TMMPG.MAP+DTECA?,DTE2A?/E
TM02 = THMPG.BIN/B:0,THMPG.MAP+DTECA?,DTE3A?/E
RX11 = RXMPG.BIN/B:0,RXMPG.MAP+DTECA?,DTE4A?/E
RPO4 = RBMPG.BIN/B:0,RBMPG.MAP+DTECA?,DTE5A?/E

OR FOR UNDER MIMIC:

RK11 = RKMPG.BIN/B:0,RKMPG.MAP+DTECH?,DTE1A?,DTMGA?,XXXX/E

FOR RK11 THIS RESULTS IN A 578 BLOCK DISK.
WHERE XXXX IS AN OPTIONAL DEVICE ROUTINE.

THE LINK MAPS, WHICH ARE IN MAINDEC DOCUMENT #
11-DTEMA-?, PROVIDE THE ACTUAL MEMORY ADDRESSES
OF THE VARIOUS MODULES IN EACH VERSION OF THE
EXECUTIVE.

FOR PAPER TAPE OUTPUT:

PUNCH TCMPG.BIN/FILE:ELEV
PUNCH RKMPG.BIN/FILE:ELEV
PUNCH TMMPG.BIN/FILE:ELEV
PUNCH THMPG.BIN/FILE:ELEV
PUNCH RXMPG.BIN/FILE:ELEV
PUNCH RBMPG.BIN/FILE:ELEV

TCMPG UNIQUE MODULES = MAINDEC # DTE0A-?
RKMPG UNIQUE MODULES = MAINDEC # DTE1A-?
TMMPG UNIQUE MODULES = MAINDEC # DTE2A-?
THMPG UNIQUE MODULES = MAINDEC # DTE3A-?
RXMPG UNIQUE MODULES = MAINDEC # DTE4A-?
RBMPG UNIQUE MODULES = MAINDEC # DTE5A-?

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.SBTTL MPG EXEC GLOBALS AND EQUATES

.DSABL GBL
.IIF DF NLIST, .NLIST CND

;NOTE: THE SIZE OF THE LINKER OUTPUT OF ANY VERSION OF THE
; EXECUTIVE CANNOT EXCEED OCTAL 20000 BYTES.

;EXTERNAL GLOBAL NAMES

.GLOBL CFTCHI,CSAVEI,DIRBLK,EXCID

;INTERNAL GLOBAL NAMES

.GLOBL BCDCV,BCLEAR,BKREAD,BLKWRT,BMOVE
.GLOBL BUF,CHROUT,CLRBUF,CMPNAM,CRLF,CRPMAP
.GLOBL DATUPK,DELAY,DELEARR,DELFI
.GLOBL DEVERR,DEVFUL,EXECST
.GLOBL FLNOTF,FSTMOD,ITOA,LDUNUM,LSTFLG,MAPBUF
.GLOBL MBUF,MES,MMAP,NXTBLK
.GLOBL PAKNAM,PIPFLG,READBK,RSTO4,SAVO4
.GLOBL TAB,TEXT,TXNAM,UPKNAM,WRTBLK
.GLOBL WRTLC,SBUF,SBUF10,SBUF2
.GLOBL SMAPBF,SMBUF,SMAP,STPNM1,STXNAM,STYPNM

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000003
000004
000005
000006
000006
000007
001200

000020
000040

000001
000040
002000
004000
010000
020000
040000
100000

177572
172516

R0 =%0
R1 =%1
R2 =%2
R3 =%3
R4 =%4
R5 =%5
R6 =%6
SP =%6
PC =%7
STACK =1200

CTPRIO =20 ;BIT DEF. FOR USER PROG FLGWD
SETDED =40

MMVER =1 ;BIT DEF. FOR MPG SYSTEM FLGWD

UNIMAP =40
CUSPGR =2000
CHPINT =4000
CNTRLO =10000
CTUDED =20000
CRUDED =40000
CTRQBP =100000

MMR0 =177572
MMR3 =172516

;DEVICE DESCRIPTOR BLOCK EQUATES

225				
226				
227				
228	177714	XDHSU	== -64	:: INDEX TO DEV HANDLER SET UP
229	177716	XWCTR	== -62	:: INDEX TO WRITE COUNTER.
230	177720	XFLMOD	== -60	:: INDEX TO FILE MODE INDICATOR
231	177722	XFLCNT	== -56	:: INDEX TO FILE COUNT
232	177724	XSVMAP	== -54	:: INDEX TO BLOCK # FOR MAP BLOCK
233	177726	XSVCNT	== -52	:: INDEX TO ENTRY # IN UFD BLOCK
234	177730	XSVBLK	== -50	:: INDEX TO BLK # OF UFD FOR CURR FILE
235	177732	XSVNAM	== -46	:: INDEX TO FILE NAME IN RAD50 (2 WORDS)
236	177736	XSVEXT	== -42	:: INDEX TO FILE EXTENSION NAME IN RAD50
237	177740	XSVDAT	== -40	:: INDEX TO DATE IN DOS FORMAT
238	177742	XSVXX	== -36	:: INDEX TO (NOT USED?)
239	177744	XISTBK	== -34	:: INDEX TO BLK # OF FILE'S FIRST DATA BLOCK
240	177746	XBKLG	== -32	:: INDEX TO # OF BLOCKS IN THE FILE
241	177750	XLSTBK	== -30	:: INDEX TO # OF LAST BLK WRITTEN
242	177752	XSVUPT	== -26	:: INDEX TO (NOT USED?)
243	177754	XBT	== -24	:: INDEX TO BOOT ROUTINE.
244	177756	DRT	== -22	:: INDEX TO DIRECTORY ROUTINE
245	177760	ZER	== -20	:: INDEX TO ZERO ROUTINE
246	177762	DLT	== -16	:: INDEX TO DELETE ROUTINE
247	177764	CLS	== -14	:: INDEX TO CLOSE ROUTINE
248	177766	ETR	== -12	:: INDEX TO ENTER ROUTINE
249	177770	SRH	== -10	:: INDEX TO LOOKUP ROUTINE
250	177772	ALC	== -6	:: INDEX TO ALLOCATE ROUTINE
251	177774	XSV	== -4	:: INDEX TO SERVICE ROUTINE (DRIVER).
252	177776	XDN	== -2	:: INDEX TO DRIVE NUMBER
253	000000	XCM	= 0	:: INDEX TO COMMAND REGISTER
254	000002	XWC	= 2	:: INDEX TO WORD COUNT
255	000004	XBA	= 4	:: INDEX TO BUS ADDRESS
256	000006	XDT	= 6	:: INDEX TO BLOCK NUMBER
257	000010	XCO	= 10	:: INDEX TO COMMAND
258	000012	XRD	= 12	:: INDEX TO READ COMMAND
259	000014	XWT	= 14	:: INDEX TO WRITE COMMAND
260	000016	XBC	= 16	:: INDEX TO REQUESTED BLOCK COUNT
261	000020	XDR	= 20	:: INDEX TO 1ST DIR BLOCK POINTER.
262	000022	XNB	= 22	:: INDEX TO LAST BLOCK # ALLOCATED.
263	000024	XXNAM	= 24	:: INDEX TO ASCII NAME IN DDB

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.SBTTL LOAD MEDIA BOOTSTRAP LOADER

.CSECT LOADER

: THE SELECTED DEVICE LOADER RESIDES IN THIS
: AREA BETWEEN OCTAL ADR'S 0 TO 577.

: THE LISTINGS THAT CONTAIN THE VARIOUS LOADERS WHICH
: MAY OCCUPY THIS AREA ARE:

: TCMPG = DTE0A-? - TC11 BOOT LOADER
: RKMPG = DTE1A-? - RK11 BOOT LOADER
: TMMPG = DTE2A-? - TM11 BOOT LOADER
: THMPG = DTE3A-? - TM02 BOOT LOADER
: RXMPG = DTE4A-? - RX11 BOOT LOADER
: RBMPG = DTE5A-? - RPO4 BOOT LOADER


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284 .SBTTL HOUSEKEEPING EXTENSION & INITIAL ENTRY
285
286
287 000000' .CSECT EXEC
288
289
290 ;INITIAL ENTRY AND HOUSEKEEPING EXTENSION
291
292 000000' LOC600:
293 001 .IF DF MIMIC
294 .JMP DISKWR ;GO TO DISK CREATE
295 .ENDC
296 000000' 012706 001200 EXECST: MOV #STACK,R6 ;SET UP STACK POINTER
297 000004' 004567 000016' JSR R5,EITHKP ;GO DO 1 TIME HOUSEKEEPING
298 001 .IF NDF MIMIC
299 000010' 016700 000456 MOV MPGST,R0 ;GET ADR OF WHERE MPG WILL GO
300 000014' 016701 000446 MOV ENDMEM,R1 ;GET END OF MEM ADR
301 000020' 160001 SUB R0,R1 ;CALC AMNT OF MEM AFTER THE EXEC
302 000022' 010167 000022 MOV R1,EFMSZ ;STORE IT IN LINK INFO
303 000026' 012720 046524 MOV #TM,(R0)+ ;STORE MPG'S FILE NAME WHICH
304 000032' 012720 MOV (PC)+,(R0)+ ;IS 'TMGA??' OR 'TMMA??'
305 000034' 040507 MPGID: .ASCII /GA/
306 000036' 012710 037477 MOV #??? (R0)
307 000042' 004567 003176 JSR R5,LOADVR ;GO LOAD MPG
308 000046' 000016' MPGADR: .WORD MPGBGN ;MEM ADR
309 000050' 000000 EFMSZ: .WORD XXXX ;MAX BYTE CNT
310 000052' 000060 .WORD LMPGDE- ;DEV ERR ADR
311 000054' 000050 .WORD LMPGIM- ;INSUF MEM ERR ADR
312 000056' 000002 .WORD LMPGIN- ;NORMAL RET ADR
313 .ENDC
314 000060' 012700 LMPGIN: MOV (PC)+,R0 ;GET STORED ADR OF INTERFACE ADR'S
315 000062' 000000 ESGADR: .WORD XXXX
316 000064' 016701 000402 MOV MPGST,R1 ;SET UP ADR IN MPG FOR THEM
317 000070' 062701 000006 ADD #6,R1
318 000074' 012702 MOV (PC)+,R2 ;GET # OF ADR'S STORED
319 000076' 000000 ESGCNT: .WORD XXXX
320 000100' 012021 10$: MOV (R0)+,(R1)+ ;MOVE INTERFACE ADR TO MPG
321 000102' 005302 DEC R2 ;DECR COUNT
322 000104' 001375 BNE 10$ ;DONE ALL? (Y,N-10$)
323 ;R1 IS NOW POINTING AT MPG'S
324 ;ENTRY POINT
325 000106' 012706 001200 MOV #STACK,R6 ;SET UP STACK ADR TO BE SURE
326 000112' 016700 000350 MOV ENDMEM,R0 ;SET UP END OF MEM ADR
327 000116' 012702 MOV (PC)+,R2 ;SET UP MPG'S POSITION ADJ FACTOR
328 000120' 000000 POSADJ: .WORD 0 ;MAY BE CHANGED IF MEM MGMNT
329 000122' 000111 JMP (R1) ;GO TO MPG
330
331
332 000124' 004567 005524 LMPGIM: JSR R5,MES ;ISSUE INSUFF MEM ERR MSG
333 000130' 000136' .WORD ISUFM
334 000132' 000000 LMPGDE: HALT ;ERROR DURING MPG LOAD
335 000134' 000721 BR EXECST ;GO TRY AGAIN
336
337 000136' 042452 025122 044440 ISUFM: .ASCIZ /*ER* INSUF MEM FOR MPG/<015><012>
000144' 051516 043125 046440
000152' 046505 043040 051117

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000160' 046440 043520 005015
000166'      000
338      000170'          .EVEN
339
340
341
342          ;LIGHT THE LIGHTS S/R
343
344      000400'          .=      LOC600+400
345
346      000400' 012701      LIGHTS: MOV      (PC)+,R1          ;GET CURRENT BIT PATTERN
347      000402' 000000      LTSPAT: .WORD    0          ;BIT PATTERN STORAGE
348      000404' 012702 000240      MOV      #160.,R2          ;SET UP LOOP CNT
349      000410' 050101      10$:  BIS      R1,R1          ;BIT PATTERN TO THE LIGHTS
350      000412' 050101      BIS      R1,R1
351      000414' 050101      BIS      R1,R1
352      000416' 005302      DEC      R2          ;DECR LOOP CNT
353      000420' 001373      BNE     10$          ;CNT = 0? (Y,N-10$)
354      000422' 005327      DEC     (PC)+        ;DECR 100 X COUNT
355      000424' 000144      L2MCNT: .WORD    100.    ;100X CNT
356      000426' 001016      BNE     LTSEX        ;CNT = 0? (Y,N-LTSEX)
357      000430' 012767 000144 177766      MOV     #100.,L2MCNT ;RESTORE 100 X CNT
358      000436' 005701      TST     R1          ;BIT PATTERN FULL?
359      000440' 100003      BPL     20$          ;Y,N-20$
360      000442' 005067 177734      CLR     LTSPAT      ;INITIALIZE THE PATTERN
361      000446' 000406      BR      LTSEX        ;GO TO EXIT
362      000450' 000261      20$:  SEC          ;EXPAND BIT PATTERN
363      000452' 106067 177724      RORB    LTSPAT
364      000456' 000261      SEC
365      000460' 106167 177717      ROLB    LTSPAT+1
366      000464' 000207      LTSEX: RTS          PC          ;EXIT IN-LINE

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368                                     .SBTTL  MPG EXEC CONSTANTS & BUFFER AREAS
369
370
371 000466' 000000      ENDMEM: .WORD  0      ;LAST MEM WORD ADR STORAGE
372 000470' 000000      TODAY:  .WORD  0      ;TODAY'S DATE CODE
373 000472' 000016'     MPGST:  .WORD  MPGBGN   ;MPG'S MEM START ADR
374
375          000000      XXXX=   0          ;DATA THAT WILL BE TAILORED
376
377 000474' 001144'     $BUF:   .WORD  BUF      ;ADDRESSES NEEDED BY HANDLERS
378 000476' 001146'     $BUF2:  .WORD  BUF+2
379 000500' 001154'     $BUF10: .WORD  BUF+10
380 000502' 000544'     $MAPBF: .WORD  MAPBUF
381 000504' 000744'     $MBUF:  .WORD  MBUF
382 000506' 000754'     $MMAP:  .WORD  MMAP
383 000510' 000524'     $TXNAM: .WORD  TXNAM
384
385 000512' 001200      STKADR: .WORD  STACK
386 000514' 000       LSTFLG: .BYTE  0      ;DIRECTORY "ALL" FLAG
387 000515' 000       FSTMOD: .BYTE  0      ;DIRECTORY "FAST MODE" FLAG
388 000516' 000       PRTFLG: .BYTE  0      ;USE TTY OR PRNTR FLG
389 000517' 000
390
391 000520' 000000      CHKSUM: .WORD  0      ;COMPUTED CKSUM WD STORAGE
392 000522' 000       PIPFLG: .BYTE  0      ;PIP MODE FLAG
393 000523' 000
394 000524' 000       000 000 TXNAM: .BYTE  0,0,0,0,0,0 ;ASCII FILENAME STORAGE
395 000527' 000       000 000
396 000532' 000       000 000 TXEXT: .BYTE  0,0,0
397          000536'     .EVEN
398 000536' 000006      REALNM: .BLKB  6      ;FILENAME OF FILE ON A MATCH
399
400 000544' 000100      MAPBUF: .BLKW  64.     ;MAP BUFFER
401
402 000744' 000004      MBUF:   .BLKW  4      ;ANOTHER MAP BUFFER
403 000754' 000074      MMAP:   .BLKW  60.
404
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407 001144'             BUF:                                     ;MAIN READ - WRITE BUFFER
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:
THIS BUFFER AREA (256 WORDS) IS INITIALLY OCCUPIED BY ONE
TIME HOUSEKEEPING S/R'S AND MESSAGES. THE FOLLOWING CODE AND
MESSAGES UP TO 'BUFEND' WILL BE DESTROYED WHEN THE EXEC
LOADS THE MPG PROGRAM FILE.

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.SBTTL TEMPORARY ONE TIME HOUSEKEEPING S/R'S

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*****
ASCII TO BINARY CONVERSION ROUTINE
      JSR      PC,ATOI          S/R CALL
      USES VALUE AT "EKBPTR" AS INPUT DATA ADR
      R2 CONTAINS RESULT UPON EXIT
*****
ATOI:  JSR      R4,SAV04        ;SAVE WORK REG'S
      CLR      R2              ;CLEAR RESULT REG
      MOV      EKBPTR,R0       ;GET ASCII DATA ADR
10$:   MOVB    (R0)+,R3        ;GET ASCII CHAR
      CMPB    R3,#40          ;IS IT A SPACE?
      BEQ     10$             ;N,Y-10$
      SUB     #'0,R3          ;CONVERT IT TO BINARY
      BMI    30$             ;LESS THAN ASCII 0? (N,Y-30$)
      CMPB    R3,#9.         ;GREATER THAN ASCII 9?
      BHI    30$             ;N,Y-30$
      ASL     R2              ;MULT RUNNING TOTAL BY 10
      ADD     R2,R3           ;AND INCLUDE NEW DIGIT'S VALUE
      ASL     R2
      ASL     R2
      ADD     R3,R2
      MOVB    (R0)+,R3        ;GET NXT ASCII CHAR
      BR     20$             ;GO CHECK IT
      DEC     R0              ;BACK UP DATA PNTR
30$:   MOV     R0,EKBPTR      ;STORE IT
      MOV     R2,4(SP)        ;STORE RESULT ON STACK
      JSR     PC,RST04        ;RESTORE REG'S
      RTS     PC              ;EXIT IN-LINE

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001144' 004467 003546
001150' 005002
001152' 016700 001312'
001156' 112003
001160' 120327 000040
001164' 001774
001166' 162703 000060
001172' 100412
001174' 120327 000011
001200' 101007
001202' 006302
001204' 060203
001206' 006302
001210' 006302
001212' 060302
001214' 112003
001216' 000763
001220' 005300
001222' 010067 001312'
001226' 010266 000004
001232' 004767 003472
001236' 000207

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*****
READ AND CONVERT OCTAL ASCII TO BINARY S/R
      JSR      PC,OATOB        S/R CALL
      BR     LABEL           EXECUTED IF A DATA ERROR
      ON EXIT:
      R0 = 0 = NO DATA RECEIVED
      R1 = DATA RECEIVED IN BINARY
*****

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001240' 012700 001314'
001244' 162700 001260'
001250' 010067 000004
001254' 004567 005644
001260' 000000
001262' 000025

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OATOB: MOV     #EKYBUF,R0      ;SET UP REL ADR OF
      SUB     #5$,R0          ;KEYBOARD BUFFER
      MOV     R0,5$
      JSR     R5,CTRD         ;ISSUE READ FOR DATA
5$:   .WORD   XXXX
      .WORD   21.

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472 001264' 005000          CLR      R0          ;RESET DATA FND FLAG
473 001266' 005001          CLR      R1          ;CLEAR ACCUM REG
474 001270' 012702 001314'  MOV      #EKYBUF,R2 ;INITIALIZE READ DATA PNTR
475 001274' 112203          10$:    MOVB   (R2)+,R3 ;GET DATA CHAR
476 001276' 122703 000040   CMPB   #40,R3       ;IS IT A SPACE?
477 001302' 001774          BEQ     10$         ;N,Y-10$
478 001304' 122703 000015   20$:    CMPB   #015,R3 ;IS IT A C/R?
479 001310' 001420          BEQ     40$         ;N,Y-40$
480 001312' 122703 000012   CMPB   #012,R3     ;IS IT A L/F?
481 001316' 001415          BEQ     40$         ;N,Y-40$
482 001320' 162703 000060   SUB    #60,R3      ;MAKE CHAR A BINARY VALUE
483 001324' 100420          BMI    80$         ;LESS THAN ASCII 0? (N,Y-80$)
484 001326' 020327 000007   CMP    R3,#07      ;GREATER THAN 7?
485 001332' 101015          BHI    80$         ;N,Y-80$
486 001334' 005200          INC    R0          ;SET DATA FND FLAG
487 001336' 006301          ASL    R1          ;MULT ANY PREV CHAR'S BY 8
488 001340' 006301          ASL    R1
489 001342' 006301          ASL    R1
490 001344' 060301          ADD    R3,R1       ;ADD IN CURRENT CHAR
491 001346' 112203          MOVB   (R2)+,R3    ;GET NEXT CHAR
492 001350' 000755          BR     20$         ;GO PROCESS IT
493 001352' 020127 000377   40$:    CMP    R1,#377   ;VALUE TOO LARGE?
494 001356' 101003          BHI    80$         ;N,Y-80$
495 001360' 062716 000002   ADD    #2,(SP)     ;SET UP NORMAL RET POINT
496 001364' 000207          50$:    RTS    PC       ;EXIT
497 001366' 004567 004262   80$:    JSR    R5,MES  ;ISSUE ERROR MSG
498 001372' 001725'          .WORD  INVDMG
499 001374' 000773          BR     50$
500          001          .IF DF MIMIC

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501
502
503 *****
504 OCTAL BINARY TO ASCII S/R
505
506 JSR    PC,OBTOA      S/R CALL
507
508 R1 = BINARY WORD TO CONVERT
509 R2 = ADR TO STORE 6 ASCII DIGITS
510 DESTROYS R0,R1,R2,R3
511 *****
512

```

```

513 *****
514
515 OBTOA: CLR      R0          ;CLEAR ACCUM REG
516        MOV     #6,R3      ;SET UP DIGIT CNT
517        BR     20$        ;GO DO BIT 15
518 10$:   CLR      R0          ;CLEAR ACCUM REG
519        ROL    R1          ;SHIFT 3 BITS INTO R0
520        ROL    R0
521        ROL    R1
522        ROL    R0
523 20$:   ROL    R1
524        ROL    R0
525        BIS    #60,R0      ;MAKE CHAR ASCII
526        MOVB   R0,(R2)+   ;STORE IT IN OUTPUT AREA
527        DEC    R3         ;DECR DIGIT CNT

```



```

528
529
530      000
531
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543
544 001376' 012702 001314'
545 001402' 112203
546 001404' 122703 000040
547 001410' 001774
548 001412' 122703 000015
549 001416' 001413
550 001420' 122703 000012
551 001424' 001410
552 001426' 122703 000131
553 001432' 001405
554 001434' 122703 000116
555 001440' 001004
556 001442' 062716 000002
557 001446' 062716 000002
558 001452' 000207

```

```

BNE      10$
RTS      PC
.ENDC

```

```

;DONE ALL? (Y,N-10$)
;EXIT IN-LINE

```

```

*****
CHECK KEYBOARD REPLY S/R

```

```

JSR      PC,CKRPLY
BR       LABEL
BR       LABEL

```

```

S/R CALL
EXECUTED IF INV DATA
EXECUTED IF Y, CR, OR LF
IN-LINE IF N

```

```

*****

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```

CKRPLY:  MOV      #EKYBUF,R2
10$:     MOVB     (R2)+,R3
        CMPB     #40,R3
        BEQ      10$
        CMPB     #015,R3
        BEQ      20$
        CMPB     #012,R3
        BEQ      20$
        CMPB     #'Y,R3
        BEQ      20$
        CMPB     #'N,R3
        BNE      30$
        ADD      #2,(SP)
20$:     ADD      #2,(SP)
30$:     RTS      PC

```

```

;INITIALIZE READ DATA POINTER
;GET DATA BYTE
;IS IT A SPACE?
;N,Y-10$
;IS IT A C/R?
;N,Y-20$
;IS IT A L/F?
;N,Y-20$
;IS IT A "Y"?
;N,Y-20$
;IS IT AN "N"?
;Y,N-30$
;BYPASS SECOND BR
;BYPASS FIRST BR
;EXIT

```

```

560 .SBTTL TEMPORARY ONE TIME HOUSEKEEPING MESSAGE STORAGE AREA
561
562 001454' 005015 042077 052101 EDMSG: .ASCIZ <015><012>'?DATE (DD-MMM-YY)/<015><012>'*/
    001462' 020105 024040 042104
    001470' 046455 046515 054455
    001476' 024531 005015 000052
563 001504' 042452 025122 044440 EDERMG: .ASCIZ /*ER* INV DATE/
    001512' 053116 042040 052101
    001520' 000105
564 001522' 005015 047503 051516 CON1MG: .ASCII <015><012>'CONS TERMINAL CONSTANTS:'<015><012><015><012>
    001530' 052040 051105 044515
    001536' 040516 020114 047503
    001544' 051516 040524 052116
    001552' 035123 005015 005015
565 001560' 043077 046111 020114 .ASCIZ '?FILL AFTER: 012 / '
    001566' 043101 042524 035122
    001574' 020040 030460 020062
    001602' 020057 000
566 001605' 077 044506 046114 CON2MG: .ASCIZ '?FILL WITH: 000 / '
    001612' 053440 052111 035110
    001620' 020040 030040 030060
    001626' 027440 000040
567 001632' 043077 046111 020114 CON3MG: .ASCIZ '?FILL COUNT: 002 / '
    001640' 047503 047125 035124
    001646' 020040 030060 020062
    001654' 020057 000
568 001657' 077 047503 053116 CON4MG: .ASCIZ '?CONVERT LOWER CASE TO UPPER (Y/N) / '
    001664' 051105 020124 047514
    001672' 042527 020122 040503
    001700' 042523 052040 020117
    001706' 050125 042520 020122
    001714' 054450 047057 020051
    001722' 020057 000
569 001725' 052 051105 020052 INVDMG: .ASCIZ '*ER* INV DATA'<015><012>
    001732' 047111 020126 040504
    001740' 040524 005015 000
570 001745' 015 037412 047514 LDUREQ: .ASCIZ <015><012>'?LOAD/SAVE/FETCH DEV UNIT # / '
    001752' 042101 051457 053101
    001760' 027505 042506 041524
    001766' 020110 042504 020126
    001774' 047125 052111 021440
    002002' 027440 000040
571 002006' 005015 052477 042523 USEMM: .ASCIZ <015><012>'?USE MEM MGMNT (Y/N) / '
    002014' 046440 046505 046440
    002022' 046507 052116 024040
    002030' 027531 024516 027440
    002036' 000040
572 002040' 042440 042530 052503 EXCIDT: .ASCIZ ' EXECUTIVE FOR MPG'<015><012>
    002046' 044524 042526 043040
    002054' 051117 046440 043520
    002062' 005015 000
573 .EVEN
574 .= BUF+512.
575 002144' 000000 BUFEND: .WORD 0

```



```

577                                     .SBTTL INPUT DEVICE DESCRIPTOR BLOCK (DOB)
578
579
580 002146' 000000 IDHSU: .WORD 0 ;XDHSU DEVICE HANDLER SET UP ADDRESS
581 002150' 000000 DOBSTR:
582 002150' 000000 IWCTR: .WORD 0 ;XMCTR OUTPUT FILE OPEN FLAG
583 002152' 000000 IFLMOD: .WORD 0 ;XFLMOD FILE MODE FLAG
584 002154' 000000 IFLCNT: .WORD 0 ;XFLCNT FILE COUNT
585 002156' 000000 ISVMAP: .WORD 0 ;XSVMAP BLK # OF FILE'S MAP BLOCK
586 002160' 000000 ISVCNT: .WORD 0 ;XSVCNT ENTRY # OF CURR FILE IN UFD
587 002162' 000000 ISVBLK: .WORD 0 ;XSVBLK BLK # OF CURR FILE'S UFD
588                                     UFD DIRECTORY ENTRY DATA FOR FILE
589 002164' 000000 000000 ISVNAM: .WORD 0,0 ;XSVNAM FILE'S FILENAME IN RAD50 (2 WORDS)
590 002170' 000000 ISVEXT: .WORD 0 ;XSVEXT FILE'S EXTENSION IN RAD50
591 002172' 000000 ISVDAT: .WORD 0 ;XSVDAT FILE'S CREATION DATE IN DOS FORMAT
592 002174' 000000 ISVXX: .WORD 0 ;XSVXX (NOT USED?)
593 002176' 000000 IISTBK: .WORD 0 ;XISTBK BLOCK # OF FILE'S FIRST DATA BLK
594 002200' 000000 IBKLG: .WORD 0 ;XIBKLG # OF BLOCKS IN THE FILE
595 002202' 000000 ILSTBK: .WORD 0 ;XLSTBK BLOCK # OF LAST DATA BLOCK WRITTEN
596 002204' 000000 ISVUPT: .WORD 0 ;XSVUPT (NOT USED?)
597                                     END OF DIRECTORY ENTRIES
598 002206' 000000 INBOOT: .WORD 0 ;XBT ADDRESS OF "BOOT" ROUTINE
599 002210' 000000 INDRT: .WORD 0 ;DRT ADDRESS OF "DIRECTORY" ROUTINE
600 002212' 000000 INZER: .WORD 0 ;ZER ADDRESS OF "ZERO" ROUTINE
601 002214' 000000 INDLT: .WORD 0 ;DLT ADDRESS OF "DELETE" ROUTINE
602 002216' 000000 INCLS: .WORD 0 ;CLS ADDRESS OF "CLOSE" ROUTINE
603 002220' 000000 INETR: .WORD 0 ;ETR ADDRESS OF "ENTER" (CREATE) ROUTINE
604 002222' 000000 INSRH: .WORD 0 ;SRH ADDRESS OF "LOOKUP" (SEARCH) ROUTINE
605 002224' 000000 INALC: .WORD 0 ;ALC ADDRESS OF "ALLOCATE" ROUTINE
606 002226' 000000 INSRV: .WORD 0 ;XSV ADDRESS OF DEVICE DRIVER ROUTINE
607 002230' 000000 INDRV: .WORD 0 ;XDN CURRENT DRIVE (UNIT) NUMBER
608 002232' 000000 INDEV: ;RS POINTS HERE
609 002232' 000000 INCM: .WORD 0 ;XCM ADDRESS OF DEVICE'S COMMAND REGISTER
610 002234' 000000 INWC: .WORD 0 ;XWC CURRENT WORD COUNT
611 002236' 000000 INBA: .WORD 0 ;XBA CURRENT BUS (MEMORY) ADDRESS
612 002240' 000000 INBLK:
613 002240' 000000 IND: .WORD 0 ;XDT CURRENT BLOCK NUMBER
614 002242' 000000 INCOM: .WORD 0 ;XCO CURRENT COMMAND CODE
615 002244' 000000 INPRC: .WORD 0 ;XRD READ COMMAND CODE
616 002246' 000000 INPWC: .WORD 0 ;XWT WRITE COMMAND CODE
617 002250' 000000 INBKCT: .WORD 0 ;XBC REQUESTED BLOCK COUNT
618 002252' 000000 INDIR: .WORD 0 ;XDR ADDRESS OF FIRST DIRECTORY BLK #
619 002254' 000000 INNBK: .WORD 0 ;XNB LAST BLOCK # ALLOCATED (NEXT BLK #)
620 002256' 000 000 000 IFNAM: .BYTE 0,0,0 ;XXNAM FILE'S NAME IN ASCII (9 CHAR'S)
621 002261' 000 000 000 .BYTE 0,0,0
622 002264' 000 000 000 .BYTE 0,0,0
623 002270' .EVEN
624 002270' INDEND= .

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.SBTTL FILE ROUTINES REQUIRED FOR MPG

;512 BYTE DATA BLOCK FORMAT

;NEXT BLOCK # (NOT USED FOR PAPER TAPE) - 1 WORD
;SYNC WORD (WORD OF 000001) - 1 WORD
;BYTE COUNT (# OF DATA BYTES + 6) - 1 WORD
;REL MEMORY ADR FOR DATA - 1 WORD
;DATA BYTES - MAX OF 492.
;CHECKSUM BYTE - 1 BYTE
;UNUSED BYTES - 2 WORDS (GAP IF PAPER TAPE)
;UNUSED BYTES - 7 BYTES (WILL CONTAIN THE "EOF" BLK
; IF LAST BLOCK OF THE FILE.)

;READ LINKED FILE BLOCK

;JSR R5,GET S/R CALL
;.WORD ERRADR-. REL ERROR RET ADR
;.WORD XXXX ABS DATA START ADR ON RETURN
;.WORD XXXX DATA BYTE COUNT ON RETURN

GET: JSR R5,CREGSV ;SAVE REG'S R0-R5
TSTB EPARBK ;PARTIAL BLOCK FLAG SET?
BNE B5\$;N,Y-B5\$
10\$: JSR PC,ERDLNK ;READ A LINKED BLOCK
BR EGERT ;ERROR ON READ? (N,Y-EXERET)
MOV #BUF+2,R0 ;SET UP BUFFER ADR
20\$: CLR EUSRCT ;CLEAR USER DATA BYTE COUNT
CLR CHKSUM ;INITIALIZE CHECKSUM VALUE
JSR PC,EGETBY ;GET A BYTE (WILL BE IN R3)
DEC R3 ;IS IT THE 1 OF A POSSIBLE SYNC WORD?
BNE 20\$;Y,N-20\$
JSR PC,EGETBY ;GET ANOTHER BYTE (SYNC IS WORD OF 1)
TSTB R3 ;IS IT THE 0 OF A SYNC WD?
BNE 20\$;Y,N-20\$
711: JSR PC,EGETWD ;GET DATA BYTE COUNT
712: SUB #6,R3 ;ALLOW FOR THE 3 HEADER WORDS
713: MOV R3,EDTACT ;SAVE DATA COUNT
714: BNE 30\$;THIS THE EOF BLK? (Y,N-30\$)
715: INCB ERDEOF ;SET THE EOF BLK FLAG
30\$: JSR PC,EGETWD ;GET MEM ADR/START ADR WORD
MOV R3,EMSADR ;SAVE IT
718: MOV R0,EUSRSA ;SAVE BUF POINTER AS USER START ADR
50\$: MOVB (R0)+,R3 ;GET A DATA BYTE
ADD R3,CHKSUM ;INCLUDE IT IN THE CKSUM
DEC EDTACT ;DECR BLOCK DATA COUNT
722: BPL B5\$;WAS IT CKSUM BYTE? (Y,N-B5\$)
723: TSTB CHKSUM ;IS THE CHECK SUM CORRECT?
724: BEQ B5\$;N,Y-B5\$
725: JMP CKSMER ;GO REPORT CKECK SUM ERROR
55\$: TSTB ERDEOF ;IS THIS THE EOF BLK?
RNE B0\$;N,Y-B0\$
728: CMP R0,#BUF+512. ;AT THE END OF THE BUFFER?
729: BNE B0\$;Y,N-B0\$


```

784                                     ;OPEN LINKED INPUT FILE
785
786                                     ;JSR   R5,OPENL           S/R CALL
787                                     ;.WORD ERRADR-.        RELATIVE ERROR RETURN ADR
788                                     ;NEEDS 1-6 CHAR FILENAME AT "MPGBGN"
789
790 003006' 004767 001040      OPENL: JSR   PC,ESUFNM           ;SET UP ".USR" EXT & FTCH I.D.
791 003012' 004567 001154      LDROPN: JSR  R5,CREGSV          ;SAVE REG'S R0-R5
792 003016' 005067 177762      CLR    EPARBK                ;RESET PARTIAL BLK & EOF BLK FLAGS
793 003022' 004767 001006      JSR   PC,ESUFT1             ;DO COMMON SET UP FUNCTIONS
794 003026' 012765 000001 177744  MOV    #1,X1STBK(R5)         ;SET UP DUMMY BLK #
795 003034' 012767 002256' 003322  MOV    #IFNAM,NFNAME        ;INIT FILENAME ADR
796 003042' 004775 177770      JSR   PC,JSRH(R5)           ;GO TO DEV HDLR & LOOK FOR FILE
797 003046' 000417              BR    EJNFND                 ;FILE FOUND? (Y,N-FLNOTF)
798 003050' 016565 177744 000006  MOV    X1STBK(R5),XDT(R5)    ;MOVE 1ST BLK # TO CURR BLK #
799 003056' 016706 175430      EXNRET: MOV  STKADR,R6        ;RESTORE STACK POINTER
800 003062' 004567 005752      JSR   R5,CRTREG             ;RESTORE REGISTERS
801 003066' 005725      EXDRET: TST  (R5)+           ;INCR PAST ERROR RET ADR
802 003070' 000205      RTS    R5                   ;EXIT TO MPG
803
804 003072' 016706 175414      EXERET: MOV  STKADR,R6        ;RESTORE STACK POINTER
805 003076' 004567 005736      JSR   R5,CRTREG             ;RESTORE REGISTERS
806 003102' 061505      ADD   (R5),R5               ;SET UP ERROR RETURN ADR
807 003104' 000205      RTS    R5                   ;EXIT TO MPG ERROR ADR
808
809 003106' 000167 003244      EJNFND: JMP  FLNOTF          ;GO TO NOT FOUND ERROR
810
811                                     ;CREATE OUTPUT LINKED FILE
812
813                                     ;JSR   R5,CREATE           S/R CALL
814                                     ;.WORD NN'N           # OF BLOCKS NEEDED
815                                     ;.WORD ERRADR-.        REL ERR RET ADR
816                                     ;NEEDS 1-6 CHAR FILENAME AT "MPGBGN"
817
818 003112' 005725      CREATE: TST  (R5)+           ;BYPASS # OF BLOCKS
819 003114' 004567 001052      JSR   R5,CREGSV            ;SAVE REG'S R0-R5
820 003120' 004767 001700      JSR   PC,CLRBUF            ;CLEAR BUFFER AREA
821 003124' 004767 000632      JSR   PC,ESUSAV            ;DO COMMON SETUP FUNCTIONS
822 003130' 004767 001156      JSR   PC,EINTOL            ;INITIALIZE FOR OUTPUT LINKED FILE
823 003134' 000750      BR    EXNRET                ;EXIT TO MPG VIA NORMAL RETURN
824
825
826                                     ;WRITE LINKED ABS. FORMAT BLOCK
827                                     ;CLOSE LINKED ABS. FORMAT FILE
828
829                                     ;JSR   R5,PUT           PUT S/R CALL
830                                     ;.WORD ERRADR-.        CLOSE S/R CALL
831                                     ;NEEDS 1-6 CHAR FILENAME AT "MPGBGN"
832
833 003136' 005067 176002      CLOSE: CLR  BUF              ;INDICATE THIS IS THE LAST BLOCK
834 003142' 004567 001024      PUT:   JSR  R5,CREGSV         ;SAVE REG'S R0-R5
835 003146' 005003      CLR    R3                    ;INITIALIZE CHECKSUM VALUE
836 003150' 012700 001146'      MOV    #BUF+2,R0             ;GET BUFFER START ADR
837 003154' 016002 000002      MOV    2(R0),R2              ;GET BYTE COUNT
838 003160' 012710 000001      MOV    #1,(R0)              ;PLACE SYNC WORD IN BLOCK

```

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840 003164' 112004          10$:  MOVB  (R0)+,R4          ;GET BYTE OF BLOCK
841 003166' 060403          ADD   R4,R3          ;ADD IT INTO CKSUM
842 003170' 005302          DEC   R2             ;DECR BYTE COUNT
843 003172' 001374          BNE  10$           ;CNT = 0? (Y,N-10$)
844 003174' 105403          NEGB R3             ;NEGATE THE CKSUM
845 003176' 110320          MOVB  R3,(R0)+      ;STORE CKSUM IN THE BLOCK
846 003200' 005767 175740   TST  BUF           ;THIS THE LAST BLOCK?
847 003204' 001014          BNE  20$           ;Y,N-20$
848 003206' 062700 000004   ADD  #4,R0         ;ALLOW FOR 4 BLANKS
849 003212' 112720 000001   MOVB #1,(R0)+      ;STORE EOF BLOCK DATA
850 003216' 105020          CLRB (R0)+         ; SYNC WORD
851 003220' 112720 000006   MOVB #6,(R0)+      ; CNT OF 6
852 003224' 105020          CLRB (R0)+
853 003226' 105020          CLRB (R0)+         ; START ADR OF 0
854 003230' 105020          CLRB (R0)+
855 003232' 112720 000371   MOVB #371,(R0)+    ; CKSUM
856 003236' 004767 001272   20$: JSR  PC,EWRITL    ;GO WRITE LINKED BLOCK
857 003242' 000705          BR   EXNRET        ;EXIT TO MPG VIA NORMAL RETURN
858
859
860          ;LOAD DEVICE ROUTINE
861
862          ;ALSO USED TO LOAD THE MPG PROGRAM FILE AND
863          ;THE VALID DEVICES FILE
864
865          ;JSR  R5,LOADVR      S/R CALL
866          ;.WORD MEMADR      ABS STARTING MEM ADR FOR DATA
867          ;.WORD BYTCNT     SIZE OF MEM AREA IN BYTES
868          ;.WORD DEVERR-    REL RET ADR IF DEVICE ERR
869          ;.WORD INSFADR-   REL RET ADR IF INSUFF MEM
870          ;.WORD NORMADR-   REL NORMAL RET ADR
871          ;NEEDS 1-6 CHAR FILENAME AT "MPGBGN"
872
873 003244' 012527          LOADVR: MOV  (R5)+,(PC)+      ;GET STARTING MEM ADR
874 003246' 000000          LDRMST: .WORD 0           ;STARTING & CURR MEM ADR
875 003250' 012527          MOV  (R5)+,(PC)+      ;GET BYTE COUNT
876 003252' 000000          LDRBYC: .WORD 0         ;MEM AREA BYTE COUNT
877 003254' 004567 000712   JSR  R5,CREGSV        ;SAVE ALL REG'S
878 003260' 012700 000004G  MOV  #CFTCHI+4,R0     ;GET FETCH INFO ADR
879 003264' 012046          MOV  (R0)+,-(SP)      ;SAVE FETCH'S MDL CODE &
880 003266' 011046          MOV  (R0)-,(SP)      ;UNIT #
881 003270' 016010 177774   MOV  -4(R0),(R0)      ;SET FETCH TO THE LOAD DEV
882 003274' 016040 177772   MOV  -6(R0),-(R0)
883 003300' 016746 175206   MOV  STKADR,-(SP)     ;SAVE STORED STACK POINTER
884 003304' 012767 050115 176752   MOV  #'MP,IFNAM+6     ;SET UP ".MPG" FILENAME EXT
885 003312' 112767 000107 176746   MOVB #'G,IFNAM+8.
886 003320' 012767 047514 003314   MOV  #'L0,EFDEVN
887 003326' 012767 042101 003310   MOV  #'AD,EFDEVN+2
888 003334' 004567 177452   JSR  R5,LDRPN
889 003340' 000134          .WORD LDEVER-
890 003342' 005077 177700   CLR  #LDRMST
891 003346' 004567 177040   LDRGET: JSR  R5,GET
892 003352' 000122          .WORD LDEVER-
893 003354' 000000          LDRDTA: .WORD XXXX
894 003356' 000000          LDRDTC: .WORD XXXX
895 003360' 016700 177770   MOV  LDRDTA,R0
; ADR OF DATA IN BUF
; # OF DATA BYTES IN BUF
; GET ADR OF DATA IN BUF

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896 003364' 016702 177766      MOV      LDRDTC,R2      ;GET # OF DATA BYTES IN BUF
897 003370' 001415      BEQ      LDRNEX      ;EOF BLK? (N,Y-LDRNEX)
898 003372' 016701 177650      MOV      LDRMST,R1      ;GET CURR MEM ADR FOR DATA
899 003376' 005767 177650      20$:    TST      LDRBYC      ;MEMORY AREA FILLED?
900 003402' 001440      BEQ      LDRISM      ;N,Y-LDRISM
901 003404' 112021      MOVB     (R0)+,(R1)+    ;MOVE DATA BYTE TO DESIGNATED AREA
902 003406' 005367 177640      DEC      LDRBYC      ;DECR MEMORY AREA BYTE CNT
903 003412' 005302      DEC      R2          ;DECR BUF DATA BYTE CNT
904 003414' 001370      BNE      20$        ;CNT = 0? (Y,N-20$)
905 003416' 010167 177624      MOV      R1,LDRMST    ;STORE NEW CURR MEM ADR
906 003422' 000751      BR      LDRGET      ;GO GET NEXT FILE BLOCK
907 003424' 012767 000003 177270 LDRNEX: MOV      #3,ETMP    ;SET EXIT ADR TO NORMAL RET
908 003432' 012667 175054      LDREXC: MOV     (SP)+,STKADR ;GET ORG STACK POINTER
909 003436' 012667 000006G      MOV      (SP)+,CFTCHI+6 ;RESTORE FETCH UNIT # &
910 003442' 012667 000004G      MOV      (SP)+,CFTCHI+4 ;MDL CODE
911 003446' 016706 175040      MOV      STKADR,R6    ;RESTORE STACK POINTER
912 003452' 004567 005362      JSR      R5,CRTREG    ;RESTORE REGISTERS
913 003456' 005367 177240      30$:    DEC      ETMP      ;DECR EXIT RETURN ADR CNT
914 003462' 001402      BEQ      40$        ;POINTING AT CORR ADR? (N,Y-40$)
915 003464' 005725      TST      (R5)+      ;INCR PAST CURR ADR
916 003466' 000773      BR      30$        ;GO CK IF THIS IS THE ADR
917 003470' 061505      40$:    ADD      (R5),R5    ;SET UP RETURN ADR
918 003472' 000205      RTS      R5          ;RETURN TO CALLER
919
920 003474' 012767 000001 177220 LDEVER: MOV      #1,ETMP    ;SET RET ADR TO DEV ERROR ADR
921 003502' 000753      BR      LDREXC      ;GO TO COMMON EXIT
922 003504' 012767 000002 177210 LDRISM: MOV      #2,ETMP    ;SET RET ADR TO INSUFF MEM ADR
923 003512' 000747      BR      LDREXC      ;GO TO COMMON EXIT
924
925
926      ;DELETE LINKED ".USR" FILE
927
928      ;JSR      R5,DELETE      S/R CALL
929      ;.WORD  ERRADR-.      REL ERR RET ADR
930      ;NEEDS 1-6 CHAR FILENAME AT "MPGBGN"
931
932 003514' 004567 000452      DELETE: JSR     R5,CREGSV    ;SAVE REG'S R0-R5
933 003520' 004767 000236      JSR      PC,ESUSAV      ;DO COMMON SETUP FUNCTIONS
934 003524' 012767 002400' 002632      MOV      #OFNAM,NFNAME  ;INIT FILENAME ADR
935 003532' 004775 177762      JSR      PC,ADLT(R5)    ;GO TO DEVICE'S DELETE ROUT
936 003536' 000167 177314      EJRRET: JMP     EXNRET    ;EXIT TO MPG VIA NORMAL RETURN
937
938
939      ;ZERO SAVE DEVICE'S DIRECTORY
940
941      ;JSR      R5,ZERO      S/R CALL
942      ;.WORD  ERRADR-.      REL ERR RET ADR
943
944 003542' 004567 000424      ZERO:   JSR      R5,CREGSV    ;SAVE REG'S R0-R5
945 003546' 004767 001252      JSR      PC,CLABUF      ;INITIALIZE BUFFER AREA
946 003552' 004567 001222      JSR      R5,BCLEAR      ;CLEAR OUTPUT DDB
947 003556' 002270'      .WORD   ODHSU
948 003560' 000000      .WORD   0
949 003562' 000122      .WORD   DDBEND-ODHSU
950 003564' 004767 000172      JSR      PC,ESUSAV      ;DO COMMON SETUP FUNCTIONS
951 003570' 004775 177760      JSR      PC,ZER(R5)    ;GO TO ZERO DIR ROUTINE

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952 003574' 000760          BR      EJRNET          ;EXIT VIA NORMAL RETURN
953
954
955                          ;LIST FETCH DEV DIRECTORY
956
957                          ;JSR      R5,LIST          S/R CALL
958                          ;.WORD   ERRADR-.        REL ERR RET ADR
959
960 003576' 012567 174712    LIST:  MOV      (R5)+,LSTFLG      ;GET "ALL" & "FAST" FLAGS FROM MPG
961 003602' 004567 000364    JSR      R5,CREGSV        ;SAVE REG'S R0-R5
962 003606' 105267 174704    INCB    PRIFLG           ;SET PRINTER/TTY FLAG
963 003612' 004767 001730    JSR      PC,CRLF          ;ISSUE CR/LF
964 003616' 004767 000206    JSR      PC,ESUFTH        ;DO COMMON SET UP
965 003622' 016703 174642    MOV      TODAY,R3        ;GET TODAY'S DATE CODE
966 003626' 004567 001146    JSR      R5,BCLEAR        ;SET FILENAME TO ALL '?'S
967 003632' 002256'
968 003634' 037477          .WORD   IFNAM
969 003636' 000011          .ASCII  '??/'
970 003640' 004767 002172    .WORD   9.
971 003644' 004775 177756    JSR      PC,DATUPK        ;CONVERT & DISPLAY IT
972 003650' 004767 001672    JSR      PC,@DRT(R5)     ;GO TO DIRECTORY LIST ROUT
973 003654' 000730          JSR      PC,CRLF          ;ISSUE A CR/LF
974
975                          BR      EJRNET          ;EXIT VIA NORMAL RETURN
976
977                          ;BOOT FROM FETCH DEVICE
978
979                          ;JSR      R5,BOOT          S/R CALL
980                          ;.WORD   ERRADR-.        REL ERR RET ADR
981 003656' 004567 000310    BOOT:  JSR      R5,CREGSV        ;SAVE REG'S R0-R5
982 003662' 004767 000142    JSR      PC,ESUFTH        ;DO COMMON SET UP
983 003666' 004775 177754    JSR      PC,@XBT(R5)     ;DO PARTIAL BOOT
984 003672' 005065 000004    CLR      XBA(R5)         ;SET READ'S MEM ADR TO 0
985 003676' 010065 000006    MOV      RO,XDT(R5)      ;STORE BOOT BLOCK #
986 003702' 004767 000610    JSR      PC,BKRDO        ;DO READ OF THE BOOT BLK
987 003706' 016500 000012    MOV      XRD(R5),RO      ;GET DEVICE'S READ CMND
988 003712' 042700 000001    BIC     #1,RO            ;RESET THE "GO" BIT
989 003716' 010075 000000    MOV      RO,@(R5)        ;LOAD DEV CSR WITH UNIT #
990 003722' 011500          MOV      (R5),RO        ;STORE CSR ADR IN RO
991 003724' 005077 005210    CLR     @CTRORA         ;RESET TTY INT ENABLE
992 003730' 032777 000001 000012' BIT     #MMVER,@CSYSFW   ;RUNNING UNDER MEM MGMNT?
993 003736' 001410          BEQ     10$,             ;Y,N-10$
994 003740' 005037 177572    CLR     @#MMMR0         ;DISABLE MEM MGMNT
995 003744' 032777 000040 000012' BIT     #UNIMAP,@CSYSFW ;USING THE UNIBUS MAP?
996 003752' 001402          BEQ     10$,             ;Y,N-10$
997 003754' 005037 172516    CLR     @#MMMR3         ;DISABLE IT
998 003760' 005007          10$:  CLR     PC           ;BRANCH TO CODE JUST READ - (LOC 0)

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1000 .SBTTL SUBROUTINES FOR REQUIRED MPG FILE ROUTINES
1001
1002
1003 ;"SAVE" & OUTPUT DDB COMMON SETUP
1004
1005 ;JSR PC,ESETUP S/R CALL
1006
1007 ESUSAV: MOV #US,OFNAM+6 ;SET ".USR" EXT IN OUTPUT DDB
1008 MOVB #R,OFNAM+8.
1009 MOV #SA,EFDEVN ;SET FUNCT DEV NAME TO "SAVE"
1010 MOV #VE,EFDEVN+2
1011 JSR PC,ESUOS ;SET UP FOR SAVE DEV HNDLR
1012 MOV CSAVEI+6,R2 ;GET SAVE'S UNIT #
1013 JSR PC,ESUOPT ;INITIALIZE OUTPUT DDB
1014 RTS PC ;EXIT IN-LINE
1015
1016
1017 ;"FETCH" & INPUT DDB COMMON SET UP
1018
1019 ;JSR PC,ESUFTH S/R CALL
1020 ;JSR PC,ESUFT1 S/R CALL
1021 ;JSR PC,ESUFNM S/R CALL
1022
1023 ESUFTH: JSR PC,ESUFNM ;SET UP "USR" EXT & FTCH I.D.
1024 ESUFT1: JSR PC,ESUIF ;SET UP FOR FETCH DEV HNDLR
1025 MOV CFTCHI+6,R2 ;GET FETCH'S UNIT #
1026 JSR PC,ESUIPT ;INITIALIZE INPUT DDB
1027 RTS PC ;EXIT IN-LINE
1028
1029 ESUFNM: MOV #US,IFNAM+6 ;SET ".USR" EXT IN INPUT DDB
1030 MOVB #R,IFNAM+8.
1031 MOV #FT,EFDEVN ;SET FUNCT DEV NAME TO "FTCH"
1032 MOV #CH,EFDEVN+2
1033 RTS PC ;EXIT IN-LINE
1034
1035
1036 ;SET UP DEVICE HANDLER ADR IN INPUT OR OUTPUT DDB
1037
1038 ;JSR PC,ESUIF S/R CALL
1039 ;JSR PC,ESUOS S/R CALL
1040
1041 ESUIF: MOV #CFTCHI+4,R0 ;SET UP "FETCH" MDL CODE ADR
1042 MOV #IDHSU,R1 ;SET UP INPUT DDB ADR
1043 BR ESUCOM ;GO TO COMMON PROCESSING
1044
1045 ESUOS: MOV #CSAVEI+4,R0 ;SET UP "SAVE" MDL CODE ADR
1046 MOV #ODHSU,R1 ;SET UP OUTPUT DDB ADR
1047 ESUCOM: MOV #EMDLTB,R2 ;GET ADR OF MDL TBL
1048 20$: CMP (R0),(R2)+ ;THIS THE DEV'S MDL?
1049 BEQ 30$ ;N,Y-30$
1050 TST (R2)+ ;POINT TO NXT ENTRY
1051 TST (R2) ;END OF THE TBL?
1052 BEQ 40$ ;N,Y-40$ -- GO TO EXIT
1053 BR 20$ ;GO CK NXT ENTRY
1054 30$: MOV (R2),(R1) ;STORE DEVICE'S SET UP ADR
1055 40$: CMP R2,#PTSUAD ;IS THIS PAPER TAPE?

```


.SBTTL FILE INITIALIZATION S/R'S REQUIRED FOR LOAD MEDIA HANDLERS

;INITIALIZE INPUT OR OUTPUT DDB S/R

;JSR PC,ESUIPT S/R CALL
 ;R2 CONTAINS UNIT # UPON ENTRY

1076							
1077							
1078							
1079							
1080							
1081							
1082							
1083							
1084	004216'	012705	002232'	ESUIPT:	MOV	#INDEV,R5	;SET UP INPUT DDB ADR
1085	004222'	000402			BR	ESUIOC	;GO TO COMMON POINT
1086	004224'	012705	002354'	ESUOPT:	MOV	#OUTDEV,R5	;SET UP OUTPUT DDB ADR
1087	004230'	004775	177714	ESUIOC:	JSR	PC,2XDHSU(R5)	;GO TO HANDLER'S SET UP ADR
1088	004234'	010067	000020		MOV	R0,12\$;SET DEV PARAM INFO ADR
1089	004240'	010567	000012		MOV	R5,10\$;SET DDB ADR
1090	004244'	062767	177754	000004	ADD	#XBT,10\$	
1091	004252'	004567	000466		JSR	R5,BMOVE	;MOVE DEV INFO TO DDB
1092	004256'	000000		10\$:	.WORD	XXXX	;DEST
1093	004260'	000000		12\$:	.WORD	XXXX	;SRC
1094	004262'	000050			.WORD	40.	;CNT
1095	004264'	010504			MOV	R5,R4	;MOVE ASCII FILENAME TO DDB
1096	004266'	062704	000024		ADD	#XXNAM,R4	
1097	004272'	016703	174174		MOV	MPGST,R3	
1098	004276'	012324			MOV	(R3)+,(R4)+	
1099	004300'	012324			MOV	(R3)+,(R4)+	
1100	004302'	011314			MOV	(R3),(R4)	
1101	004304'	005065	177722		CLR	XFLCNT(R5)	;RESET FILES PROCESSED CNT
1102	004310'	000207			RTS	PC	;EXIT IN-LINE

;INITIALIZE OUTPUT FOR LINKED FILE

;JSR PC,EINTOL S/R CALL

1103							
1104							
1105							
1106							
1107							
1108							
1109	004312'	012705	002354'	EINTOL:	MOV	#OUTDEV,R5	;SET UP OUTPUT DDB ADR
1110	004316'	005065	177716		CLR	XWCTR(R5)	;RESET BLOCKS WRITTEN CNT
1111	004322'	016767	174142	175764	MOV	TODAY,OSVDAT	;SET TODAY'S DATE IN DDB
1112	004330'	005067	175766		CLR	OBKLG1	;CLEAR FILE LENGTH
1113	004334'	004775	177766		JSR	PC,2ETR(R5)	;GO TO DEV'S "ENTER" ROUT
1114	004340'	012767	177777	176024	MOV	#-1,0UBKCT	;SET UP LINKED FILE CODE
1115	004346'	004775	177772		JSR	PC,2ALC(R5)	;ALLOCATE THE FIRST BLOCK
1116	004352'	005265	177716		INC	XWCTR(R5)	;INCR BLOCKS WRITTEN CNT
1117	004356'	016767	175742	175734	MOV	0LSTBK,01STBK	;STORE FIRST BLOCK #
1118	004364'	005267	175732		INC	OBKLG1	;INCR # OF BLKS USED CNT
1119	004370'	012767	000001	174546	MOV	#1,BUF	;INITIALIZE BLOCK # IN BUF
1120	004376'	000207			RTS	PC	;EXIT IN-LINE

```

1122 .SBTTL FILE READ S/R'S FOR LOAD MEDIA HANDLERS
1123
1124
1125 ;READ LINKED FILE BLOCK INTO BUF
1126
1127 ;JSR PC,ERDLNK S/R CALL
1128 ;BR ERRADR EXECUTED IF AN ERROR
1129
1130 004400' 012705 002232' ERDLNK: MOV #INDEV,R5 ;GET INPUT DDB ADR
1131 004404' 112767 000001 174110 MOVB #1,PIPFLG ;SET LINK MODE FLAG
1132 004412' 005765 000006 TST XDT(R5) ;IS THERE ANOTHER BLOCK?
1133 004416' 001410 BEQ ERDERR ;Y,N-ERDERR
1134 004420' 004767 000060 JSR PC,BKREAD ;GO READ THE BLOCK
1135 004424' 016765 174514 000006 MOV BUF,XDT(R5) ;SAVE NEXT BLOCK ADDRESS
1136 004432' 062716 000002 ENMRET: ADD #2,(SP) ;SET RET ADR FOR NORMAL +2 POINT
1137 004436' 000207 ERET: RTS PC ;EXIT IN-LINE
1138
1139 004440' 012705 006626' ERDERR: MOV #EOFMSG,R5 ;SET UP END OF FILE MSG ADR
1140 004444' 004767 002062 JSR PC,EXERPT ;ISSUE EOF ERROR MSG
1141 004450' 000565 BR CLRBUF ;CLEAR THE BUFFER & EXIT
1142
1143
1144 ;INPUT OR OUTPUT NEXT BLOCK IN FILE
1145
1146 ;JSR PC,NXTBLK S/R CALL
1147
1148 004452' 012765 000400 000002 NXTBLK: MOV #256,XWC(R5) ;SET UP WORD COUNT
1149 004460' 012765 001144' 000004 MOV #BUF,XBA(R5) ;SET UP DATA ADR
1150 004466' 016765 174452 000006 MOV BUF,XDT(R5) ;GET NEXT BLOCK #
1151 004474' 001760 BEQ ERET ;THIS LAST BLOCK? (N,Y-ERET)
1152 004476' 062716 000002 ADD #2,(SP) ;SET UP FOR NORMAL RETURN
1153 004502' 000471 BR EXYBK ;GO DO READ OR WRITE
1154
1155
1156 ;READ A BLOCK INTO THE BUFFER
1157
1158 ;JSR PC,BKREAD S/R CALL
1159 ;JSR PC,READBK S/R CALL
1160
1161 004504' 004767 000314 BKREAD: JSR PC,CLRBUF ;CLEAR THE BUFFER
1162 004510' 012765 001144' 000004 MOV #BUF,XBA(R5) ;SET UP READ DATA ADR
1163 004516' 012765 000400 000002 BKRD0: MOV #256,XWC(R5) ;SET UP WORD COUNT
1164 004524' 016565 000012 000010 READBK: MOV XRD(R5),XCO(R5) ;SET UP THIS DEV'S READ CMND
1165 004532' 000455 BR EXYBK ;GO DO READ OR WRITE

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1167 .SBTTL FILE WRITE S/R'S FOR LOAD MEDIA HANDLERS
1168
1169
1170 ;WRITE A LINKED FILE BLOCK
1171
1172 ;JSR PC,EWRITL S/R CALL
1173
1174 EWRITL: JSR R4, SAVO4 ;SAVE WORK REGISTERS
1175 MOV #OUTDEV, R5 ;GET OUTPUT DOB ADR
1176 MOV# #1, PIPFLG ;SET LINK MODE FLAG
1177 MOV OLSTBK, OUTDT ;SET UP BLOCK NUMBER
1178 TST BUF ;THIS LAST BLK TO BE WRITTEN?
1179 BEQ IOS ;N, Y-10S
1180 MOV #1, OUBKCT ;SET ALLOCATE LINKED FILE CODE
1181 JSR PC, JALC(R5) ;GO HAVE DEV ALLOCATE NXT BLK
1182 INC OUKLGT ;INCR REQUESTED BLOCK COUNT
1183 MOV OLSTBK, BUF ;LINK CURR BLOCK TO NEXT
1184 JSR PC, WRTLC ;GO WRITE LINKED BLOCK & CLEAR BUF
1185 BR BKWRT1 ;GO TO EXIT
1186 IOS: JSR PC, WRTLC ;GO WRITE LINKED BLOCK & CLEAR BUF
1187 JSR PC, FCLOSE ;GO CLOSE THE FILE
1188 BR BKWRT1 ;GO TO EXIT
1189
1190
1191 ;WRITE 256 WORD BLK, INCR BLK CNT, & CLEAR BUFFER
1192
1193 ;JSR PC,WRTLC S/R CALL
1194
1195 WRTLC: JSR PC, BLKWRT ;GO WRITE THE BLOCK.
1196 INC XWCTR(R5) ;INCR BLKS WRITTEN CNT
1197 BR CLRBUF ;GO CLEAR BUF & EXIT
1198
1199
1200 ;WRITE 256 WORD BLOCK FROM BUF (BLK # ALREADY SET)
1201
1202 ;JSR PC, BLKWRT S/R CALL
1203 ;JSR PC, WRTBLK S/R CALL
1204
1205 BLKWRT: MOV #BUF, XBA(R5) ;SET UP DATA ADR
1206 BKWRTD: MOV #256., XWC(R5) ;SET UP WORD COUNT
1207 WRTDIR:
1208 WRTBLK: MOV XWT(R5), XCO(R5) ;SET UP THIS DEV'S WRITE CMND
1209 EXYBK: JSR R4, SAVO4 ;SAVE REGISTERS
1210 JSR PC, JXSV(R5) ;GO READ OR WRITE THIS BLOCK
1211 BKWRT1: JSR PC, RSTO4 ;RESTORE REG'S 0-4
1212 RTS PC ;EXIT IN-LINE
1213
1214
1215 ;CLOSE OUTPUT FILE
1216
1217 ;JSR PC, FCLOSE S/R CALL
1218
1219 FCLOSE: JSR PC, JCLS(R5) ;GO TO DEVICE'S CLOSE ROUT
1220 CLR XWCTR(R5) ;CLEAR "OUTPUT FILE OPEN" FLAG
1221 RTS PC ;EXIT IN-LINE

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.SBTTL DATA S/R'S REQUIRED FOR LOAD MEDIA HANDLERS

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004716' 010346
004720' 010246
004722' 010146
004724' 010046
004726' 010407

004730' 012604
004732' 012600
004734' 012601
004736' 012602
004740' 012603
004742' 000204

004744' 012767 112120 000012
004752' 004467 177740
004756' 012500
004760' 012501
004762' 012502
004764' 000000

004766' 005302
004770' 001375
004772' 004767 177732
004776' 000205

```
*****  
: SAV04: SAVE REGISTERS R0 THRU R4 ON THE STACK  
: LINK: JSR R4, SAV04 S/R CALL  
*****  
SAV04: MOV R3, -(SP) ;SAVE R3 THRU R0  
: MOV R2, -(SP)  
: MOV R1, -(SP)  
: MOV R0, -(SP)  
: MOV R4, PC ;EXIT -- R4 IS ALREADY SAVED  
  
*****  
: RST04: RESTORE REGISTERS R0 THRU R4 SAVED BY SAV04 S/R  
: LINK: JSR PC, RST04 S/R CALL  
*****  
RST04: MOV (SP)+, R4 ;SET UP RETURN ADR  
: MOV (SP)+, R0 ;RELOAD R0 THRU R3  
: MOV (SP)+, R1  
: MOV (SP)+, R2  
: MOV (SP)+, R3  
: RTS R4 ;EXIT IN-LINE & RELOAD R4  
  
*****  
: BMOVE: MOVE BYTE FIELDS S/R  
: LINK: JSR R5, BMOVE S/R CALL  
: .WORD DESTADR DESTINATION ADR (ABSOLUTE)  
: .WORD SRCADR SOURCE ADR (ABSOLUTE)  
: .WORD COUNT NUMBER OF BYTES TO MOVE  
*****  
BMOVE: MOV #112120, EMINST ;SET UP "MOVB (R1)+, (R0)+" INST  
EMCOM: JSR R4, SAV04 ;SAVE REGISTERS  
: MOV (R5)+, R0 ;GET DESTINATION ADR  
: MOV (R5)+, R1 ;GET SOURCE ADR OR CLEAR DATA  
: MOV (R5)+, R2 ;GET BYTE COUNT  
EMINST: .WORD XXXX ;"MOVB (R1)+, (R0)+" OR  
: ;"MOVB R1, (R0)+" INST  
: DEC R2 ;DECR BYTE COUNT  
: BNE EMINST ;CNT = 0? (Y, N-EMINST)  
ECOMEX: JSR PC, RST04 ;RESTORE SAVED REGISTERS  
: RTS R5 ;EXIT IN-LINE
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*****
BCLEAR: CLEAR BYTE FIELDS TO A SPECIFIC VALUE S/R
LINK: JSR RS,BCLEAR S/R CALL
      .WORD DEST,ADR DESTINATION ADR (ABSOLUTE)
      .WORD DATA DATA BYTE TO CLEAR WITH
      .WORD COUNT NUMBER OF BYTES TO CLEAR
      USES "BMOVE" S/R

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```

*****
005000' 012767 110120 177756 BCLEAR: MOV #110120,EMINST ;SET UP "MOVB R1,(R0)+" INST
005006' 000761 BR EMCOM ;GO TO "BMOVE" S/R

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*****
CRPMAP: CLEAR 128 BYTES TO 0'S STARTING AT "MAPBUF"
LINK: JSR PC,CRPMAP S/R CALL
*****

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005010' 004567 177764 CRPMAP: JSR RS,BCLEAR ;GO CLEAR THE MAPBUF
005014' 000544 .WORD MAPBUF
005016' 000000 .WORD 0
005020' 000200 .WORD 128.
005022' 000207 RTS PC ;EXIT IN-LINE

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*****
CLRBUF: CLEAR 510 BYTES TO 0'S STARTING AT "BUF+2"
LINK: JSR PC,CLRBUF S/R CALL
*****

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005024' 004567 177750 CLRBUF: JSR RS,BCLEAR ;GO CLEAR THE BUFFER
005030' 001146 .WORD BUF+2
005032' 000000 .WORD 0
005034' 000776 .WORD 510.
005036' 000207 RTS PC ;EXIT IN-LINE

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CMPNAM: COMPARE TWO 9 BYTE FIELDS

LINK: JSR R5,CMPNAM S/R CALL
BR XXXX BR IF UNEQUAL

IF DATA IS UNEQUAL, RETURN WILL BE SO THAT THE BR
INST IS EXECUTED. IF EQUAL, RETURN WILL BE IN-LINE AFTER
THE BR INST.

005040' 004467 177652
005044' 012700 000024
005050' 066600 000012
005054' 012701 000524
005060' 012702 000011
005064' 122021
005066' 001011
005070' 005302
005072' 001374
005074' 004567 177644
005100' 000536
005102' 000524
005104' 000006
005106' 005725
005110' 000730
005112' 126027 177777 000077
005120' 001324
005122' 000762

CMPNAM: JSR R4,SAV04 ;SAVE WORK REGISTERS
MOV #XXNAM,R0 ;SET UP DOB DISPLACEMENT
ADD 12(SP),R0 ;ADD IN CURR DOB ADR
MOV #TXNAM,R1 ;SET UP SECOND FILENAME ADR
MOV #9,R2 ;SET CNT TO 9
10\$: CMPB (R0)+,(R1)+ ;DATA CHAR MATCH?
BNE 30\$;Y,N-30\$
20\$: DEC R2 ;DECR CHAR CNT
BNE 10\$;CNT = 0? (Y,N-10\$)
JSR R5,BMOVE ;SAVE FILE'S NAME IN CASE THERE
.WORD REALNM ;WERE '?'S IN DOB'S FILE NAME
.WORD TXNAM
.WORD 6.
TST (R5)+ ;INCR PAST BR INST
BR ECOMEX ;GO TO EXIT AFTER BR
30\$: CMPB -1(R0),#'? ;THIS A "DON'T CARE" CHAR?
BNE ECOMEX ;Y,N-ECOMEX
BR 20\$;GO CK NEXT CHAR

DELAY: THIS S/R PERFORMS A COMPUTE BOUND DELAY

LINK: JSR PC,DELAY S/R CALL

005124' 005046
005126' 005316
005130' 100776
005132' 005726
005134' 000207

DELAY: CLR -(SP) ;INITIALIZE LOOP COUNT
40\$: DEC (SP) ;DECR LOOP CNT
BMI 40\$;DONE LOOP 32K TIMES? (Y,N-40\$)
TST (SP)+ ;CLEAR CNTR OFF STACK
RTS PC ;EXIT IN-LINE

1429	005260'	006302		ASL	R2		
1430	005262'	006302		ASL	R2		:MULTIPLY CURRENT CHAR TOTAL
1431	005264'	006302		ASL	R2		:BY DECIMAL 40
1432	005266'	010246		MOV	R2,-(SP)		
1433	005270'	006302		ASL	R2		
1434	005272'	006302		ASL	R2		
1435	005274'	062602		ADD	(SP)+,R2		
1436	005276'	060302		ADD	R3,R2		:INCLUDE CURR CHAR
1437	005300'	005204		INC	R4		:DONE 3 CHAR'S?
1438	005302'	002744		BLT	20\$:Y,N-20\$
1439	005304'	010220		MOV	R2,(R0)+		:STORE RAD50 WORD
1440	005306'	005267	177666	INC	EPKCNT		:DONE # OF WORDS SPECIFIED?
1441	005312'	002735		BLT	10\$:Y,N-10\$
1442	005314'	010166	000002	EPKPEX: MOV	R1,2(SP)		:REPLACE R1 ON STK WITH FINAL ASCII ADR
1443	005320'	004767	177404	EPKEX: JSR	PC,RST04		:RESTORE REG'S
1444	005324'	000205		RTS	R5		:EXIT IN-LINE

1502	005454'	062703	000011	60\$:	ADD	#11,R3	
1503	005460'	110321			MOVB	R3,(R1)+	:STORE OUTPUT ASCII CHAR
1504	005462'	005722			TST	(R2)+	:POINT TO NXT COEFF
1505	005464'	005204			INC	R4	:DONE 3 OUTPUT CHAR'S?
1506	005466'	002750			BLT	10\$:Y,N-10\$
1507	005470'	011600			MOV	(SP),R0	:RESTORE ORG RAD50 WORD ADR
1508	005472'	005720			TST	(R0)+	:POINT IT AT NEXT WORD
1509	005474'	005267	177500		INC	EPKCNT	:DONE # OF WORDS SPECIFIED?
1510	005500'	002736			BLT	5\$:Y,N-5\$
1511	005502'	000704			BR	EPKPEX	:GO TO EXIT
1512							
1513	005504'	003100		ECOEFF:	.WORD	1600.	
1514	005506'	000050			.WORD	40.	
1515	005510'	000001			.WORD	1	

.SBTTL TYPE S/R'S REQUIRED FOR LOAD MEDIA HANDLERS

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*****
:
:   CHROUT:  TYPE THE ASCII CHAR IN REG R2 S/R
:
:   LINK:    JSR      PC,CHROUT      S/R CALL
:
*****
:
:   CHROUT:  MOVB     R2,ETYPWK      ;STORE CHAR AT COMMON LOC
:   ECOMTY:  JSR      R4,SAV04      ;SAVE WORK REGISTERS
:           JSR      R5,CLIST      ;GO DO THE WRITE OF ONE CHAR
:           .WORD    ETYPWK-.
:           .WORD    1
:           BR       ETYEX          ;GO TO EXIT
:
:   ETYPWK:  .BLKW   5              ;TYPE WORK/CHAR AREA
:
*****
:
:   CRLF:    THESE TWO S/R'S ARE USED TO TYPE A CARRIAGE
:   TAB:     RETURN/LINE FEED AND TAB, RESPECTIVELY
:
:   LINK:    JSR      PC,CRLF       S/R CALL
:   LINK:    JSR      PC,TAB        S/R CALL
:
*****
:
:   CRLF:    JSR      R4,SAV04      ;SAVE REGISTERS
:           JSR      R5,CLIST      ;ISSUE CR/LF CHARACTERS
:           .WORD    EXERM-.
:           .WORD    2
:           BR       ETYEX          ;GO TO EXIT
:
:   TAB:     MOVB     #011,ETYPWK   ;SET UP TAB CHAR
:           BR       ECOMTY        ;GO TYPE IT
:
*****
:
:   STYPNM:  STYPNM WILL TYPE A CR/LF FOLLOWED BY THE NINE
:   STPNM1:  CHARACTER FILENAME STARTING AT THE ADDRESS STORED AT
:           LOCATION "STXNAM".  IN THE DISPLAYED DATA A PERIOD WILL BE
:           INSERTED BETWEEN THE FILENAME AND ITS EXTENSION.
:           STPNM1 DOES THE SAME FUNCTION BUT WITHOUT THE
:           LEADING CR/LF.
:
:   LINK:    JSR      PC,STYPNAM    S/R CALL
:           ,STPNM1
:
*****
:
:   STYPNM:  JSR      PC,CRLF       ;ISSUE CR/LF
:   STPNM1:  JSR      R4,SAV04      ;SAVE WORK REGISTERS
:           MOV      STXNAM,R0     ;GET FILENAME ADR
:

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005512' 110267 000016
005516' 004467 177174
005522' 004567 001512
005526' 000006
005530' 000001
005532' 000536
005534' 000005
005546' 004467 177144
005552' 004567 001462
005556' 001026
005560' 000002
005562' 000522
005564' 112767 000011 177742
005572' 000751

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1573 005610' 012701 005534'      MOV      #ETYPWK,R1      ;GET CHAR WORK AREA ADR
1574 005614' 012702 001406      MOV      #1406,R2      ;SET UP TWO LOOP COUNTS
1575 005620' 112021      10$:  MOVB   (R0)+,(R1)+  ;MOVE CHAR OF FILENAME
1576 005622' 105302      DECB   R2              ;DONE 6 CHAR FILENAME?
1577 005624' 001375      BNE    10$            ;Y,N-10$
1578 005626' 112721 000056      MOVB   #'',(R1)+     ;PUT PERIOD IN TYPE DATA
1579 005632' 000302      SWAB   R2              ;GET SECOND LOOP COUNT
1580 005634' 112021      20$:  MOVB   (R0)+,(R1)+  ;MOVE CHAR OF EXT
1581 005636' 105302      DECB   R2              ;DONE 3 CHAR EXT?
1582 005640' 001375      BNE    20$            ;Y,N-20$
1583 005642' 004567 001372      JSR    R5,CLIST       ;TYPE THE FILENAME & EXT
1584 005646' 177666      .WORD  ETYPWK-        ;
1585 005650' 000012      .WORD  10             ;
1586 005652' 000466      BR     ETYEX          ;GO TO S/R EXIT
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:*****
:
: MES:  THIS S/R WILL TYPE THE ASCII DATA STARTING AT THE
:        SUPPLIED ADDRESS AND UP TO BUT NOT INCLUDING
:        THE FIRST 00 CHARACTER.
:
: LINK:  JSR    R5,MES      S/R CALL
:        .WORD  DATADR     DATA ADR (ABSOLUTE)
:*****

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1600 005654' 004467 177036      MES:  JSR    R4,SAV04   ;SAVE WORK REG'S
1601 005660' 012500      MOV    (R5)+,R0       ;GET DATA ADR
1602 005662' 010001      MOV    R0,R1          ;COMPUTE CHAR CNT
1603 005664' 105721      40$:  TSTB   (R1)+
1604 005666' 001376      BNE    40$
1605 005670' 160001      SUB    R0,R1
1606 005672' 005301      DEC   R1
1607 005674' 005701      TST   R1
1608 005676' 001411      BEQ   EMESEX         ;CHAR CNT = 0?
1609 005700' 012702 005716'      MOV    #44$,R2       ;N,Y-EMESX
1610 005704' 160200      SUB    R2,R0          ;GET S/R INFO STORAGE ADR
1611 005706' 010022      MOV    R0,(R2)+      ;MAKE DATA ADR RELATIVE
1612 005710' 010112      MOV    R1,(R2)       ;STORE DATA ADR
1613 005712' 004567 001322      JSR    R5,CLIST       ;STORE CHAR CNT
1614 005716' 000000      44$:  .WORD  XXXX        ;TYPE THE MSG
1615 005720' 000000      .WORD  XXXX
1616 005722' 004767 177002      EMESEX: JSR   PC,RST04  ;RESTORE WORK REG'S
1617 005726' 000205      RTS    R5             ;EXIT IN-LINE

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1632 005730' 004467 176762
1633 005734' 010300
1634 005736' 004577 000010'
1635 005742' 000034
1636 005744' 012500
1637 005746' 012701 000006
1638 005752' 160001
1639 005754' 012703 005776'
1640 005760' 060103
1641 005762' 112302
1642 005764' 004767 177522
1643 005770' 005300
1644 005772' 001373
1645 005774' 000752
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1647 005776' 000003
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1659 006004' 004467 176706
1660 006010' 010300
1661 006012' 004577 000006'
1662 006016' 177760
1663 006020' 004567 001214
1664 006024' 177752
1665 006026' 000006
1666 006030' 004767 176674
1667 006034' 000207

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*****
BCDCV: CONVERTS THE BINARY NUMBER IN R3 TO THE NUMBER OF
        DECIMAL ASCII DIGITS SPECIFIED BY THE COUNT WHICH FOLLOWS
        THE JSR. ALSO TYPE THESE DIGITS.

        LINK: JSR    R5,BCDCV    S/R CALL
              .WORD  DIGITCNT    # OF DIGITS TO PRINT

        R3 CONTAINS BINARY # TO CONVERT
*****
BCDCV: JSR    R4,SAV04    ;SAVE WORK REGISTERS
        MOV    R3,R0      ;SET WORD UP FOR S/R
        JSR    R5,@BTASLB ;CONVERT # TO DECIMAL ASCII
        .WORD  EBCDWA-
        MOV    (R5)+,R0   ;GET # OF DIGITS WANTED
        MOV    #6,R1     ;SET UP MAX # OF DIGITS
        SUB    R0,R1     ;GET THE DIFFERENCE
        MOV    #EBCDWA,R3 ;GET ASCII DATA ADR
        ADD    R1,R3     ;INDEX UP TO DESIRED DIGITS
10$:  MOVB    (R3)+,R2   ;GET DIGIT TO TYPE
        JSR    PC,CHROUT ;TYPE IT
        DEC    R0        ;DONE ALL DIGITS?
        BNE   10$       ;Y N-10$
        BR    EMESEX    ;GO TO EXIT

EBCDWA: .BLKW  3

*****
ITOA: CONVERT BINARY WORD IN REG R3 TO SIX ASCII DIGITS
        AND TYPE THEM.

        LINK: JSR    PC,ITOA    S/R CALL
*****
ITOA: JSR    R4,SAV04    ;SAVE WORK REG'S
        MOV    R3,R0      ;SET WORD UP FOR S/R
        JSR    R5,@BINASC ;CONVERT IT TO ASCII
        .WORD  EBCDWA-
        JSR    R5,CLIST   ;TYPE THE 6 DIGITS
        .WORD  EBCDWA-
        .WORD  6
ETYEX: JSR    PC,RST04   ;RESTORE WORK REG'S
        RTS    PC        ;EXIT IN-LINE
    
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006036' 004467 176654
006042' 012704 000105
006046' 042703 100000
006052' 005204
006054' 162703 001750
006060' 003374
006062' 062703 001750
006066' 005046
006070' 032704 000003
006074' 001005
006076' 020327 000073
006102' 101402
006104' 005216
006106' 005303
006110' 012700 006217'
006114' 111001
006116' 020301
006120' 101404
006122' 160103
006124' 062700 000004
006130' 000771
006132' 005726
006134' 001404
006136' 020027 006223'
006142' 001001
006144' 005203
006146' 004567 177556
006152' 000002
006154' 012703 006212'
006160' 114043
006162' 114043
006164' 114043
006166' 004567 177462
006172' 006206'
006174' 010403
006176' 004567 177526
006202' 000002
006204' 000711
006206' 054055 054130 000055
006214' 040512 017516
006220' 042506 016102
006224' 040515 017522

: DATUPK:
: DATE UNPACK AND TYPE S/R
: LINK: JSR PC,DATUPK S/R CALL
: REG R3 CONTAINS PACKED DATE
:*****

DATUPK: JSR R4, SAV04
MOV #69, R4
BIC #100000, R3
10\$: INC R4
SUB #1000., R3
BGT 10\$
ADD #1000., R3
CLR -(SP)
BIT #3, R4
BNE 20\$
CMP R3, #59.
BLOS 20\$
INC (SP)
DEC R3
20\$: MOV #EMONTB+3, R0
30\$: MOVB (R0), R1
CMP R3, R1
BLOS 40\$
SUB R1, R3
ADD #4, R0
BR 30\$
40\$: TST (SP)+
BEQ 50\$
CMP R0, #EMONTB+7
BNE 50\$
INC R3
50\$: JSR R5, BCDCV
.WORD 2
MOV #EMONMG+4, R3
MOVB -(R0), -(R3)
MOVB -(R0), -(R3)
MOVB -(R0), -(R3)
JSR R5, MES
.WORD EMONMG
MOV R4, R3
JSR R5, BCDCV
.WORD 2
BR ETYEX

: SAVE WORK REGISTERS
: INITIALIZE YEAR TO BASE -1
: RESET CONTIG BIT
: ADD 1 TO YEAR VALUE
: DECR DATE VALUE BY YEAR INCR
: YEAR FOUND? (Y,N-10\$)
: RESTORE DAY & MONTH
: CLEAR LEAP YEAR FLAG
: THIS A LEAP YEAR?
: Y,N-30\$
: IS DAY LATER THAN FEB 28?
: Y,N-20\$
: SET LEAP YEAR FLAG
: ADJUST FOR FEB 29
: SET UP MONTH TABLE ADR
: GET # OF DAYS IN CURR MONTH
: DAY VALUE =/< CURR MONTH?
: N,Y-40\$
: DECR DAY VALUE BY CURR MONTH
: POINT TO NEXT MONTH
: GO PROCESS NXT MONTH
: LEAP YEAR FLAG SET?
: Y,N-50\$
: IS MONTH = FEB?
: Y,N-50\$
: INCR DAY FOR FEB 29
: CONVERT & PRINT 2 DAY DIGITS
: SET UP MSG ADR
: MOV ASCII MONTH NAME TO MSG
: PRINT MONTH IN -XXX- FORMAT
: SET YEAR VALUE IN REG FOR S/R
: CONVERT & PRINT YEAR VALUE
: GO TO EXIT

EMONMG: .ASCIZ /-XXX-/
EMONTB: .ASCII /JAN/<31.>
.ASCII /FEB/<28.>
.ASCII /MAR/<31.>

1725	006230'	050101	017122	.ASCII	/APR/<30.>
1726	006234'	040515	017531	.ASCII	/MAY/<31.>
1727	006240'	052512	017116	.ASCII	/JUN/<30.>
1729	006244'	052512	017514	.ASCII	/JUL/<31.>
1729	006250'	052501	017507	.ASCII	/AUG/<31.>
1730	006254'	042523	017120	.ASCII	/SEP/<30.>
1731	006260'	041517	017524	.ASCII	/OCT/<31.>
1732	006264'	047516	017126	.ASCII	/NOV/<30.>
1733	006270'	042504	017503	.ASCII	/DEC/<31.>
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1778                                     ;ERROR COMMON PROCESSING
1779
1780 006462' 004767 176436      ERRCOM: JSR    PC,DELAY      ;DELAY A LITTLE BIT
1781 006466' 004767 000040      JSR    PC,EXERPT    ;GO REPORT THE ERROR
1782 006472' 005727              TST    (PC)+        ;THIS AN ERROR ON A FORCED CLOSE?
1783 006474' 000000      ECFORC: .WORD    0
1784 006476' 001011              BNE    10$          ;N.Y-10$
1785 006500' 005767 173566      TST    0MCTR        ;HAS A FILE BEEN LEFT OPEN?
1786 006504' 001410              BEQ    20$          ;Y.N-20$
1787 006506' 005267 177762      INC    ECFORC       ;SET "FORCING A CLOSE" FLAG
1788 006512' 012705 002354'      MOV    #OUTDEV,RS   ;SET UP OUTPUT DOB ADR
1789 006516' 004767 176162      JSR    PC,FCLOSE    ;GO CLOSE THE FILE
1790 006522' 005067 177746      10$: CLR    ECFORC   ;RESET FORCED CLOSE FLAG
1791 006526' 000167 174340      20$: JMP    EXERET   ;GO TO ERROR EXIT
1792
1793
1794                                     ;ISSUE STANDARD ERROR MSG S/R
1795
1796                                     ;JSR    PC,EXERPT    S/R CALL
1797                                     ;RS MUST CONTAIN ABS ADR OF ERROR MSG
1798
1799 006532' 010567 000036      EXERPT: MOV    RS,10$      ;STORE MSG ADR
1800 006536' 105067 171754      CLR    PRIFLG       ;RESET PRINTER/TTY FLAG
1801 006542' 042777 010000 000012' BIC    #CNTRLO,DCSYSFW ;RESET TYPING SUPPRESS FLAG
1802 006550' 004567 176170      JSR    RS,BMOVE     ;SET FUNCTIONAL DEV NAME IN MSG
1803 006554' 006613'          .WORD    ERMFDN
1804 006556' 006642'          .WORD    EFDEVN
1805 006560' 000004          .WORD    4
1806 006562' 004567 177066      JSR    RS,MES       ;ISSUE STANDARD PORTION OF
1807 006566' 006604'          .WORD    EXERM       ;ERR MSG
1808 006570' 004567 177060      JSR    RS,MES       ;ISSUE ERROR I.D.
1809 006574' 000000      10$: .WORD    XXXX
1810 006576' 004767 176744      JSR    PC,CRLF      ;ISSUE CR/LF
1811 006602' 000207          RTS    PC           ;EXIT IN-LINE
1812
1813 006604' 005015 042452 025122 EXERM: .ASCII <015><012> /*ER* /
1814 006612' 040          ERMFDN: .ASCIZ /XXXX DEV: /
1815 006620' 042504 035126 000040 EOFMSG: .ASCIZ /END OF FILE/
1816 006626' 047105 020104 043117 .EVEN
1817 006634' 043040 046111 000105
1818 006642' 047514 042101      EFDEVN: .ASCII /LOAD/      ;CURRENT DEVICE'S FUNCTIONAL NAME

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.SBTTL CONSOLE TERMINAL CONTROL ROUTINES

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*****
THESE ROUTINES CONTROL THE ACCESS TO THE CONSOLE TERMINAL
(READ AND WRITE) FOR BOTH MPG AND USER PROGRAM I/O
FUNCTIONS. THESE ROUTINES SET UP THE NECESSARY INFORMATION
REQUIRED BY THE INTERRUPT ROUTINES AND IN THE CASE OF THE
WRITE, THE I/O TRANSFER IS ALSO INITIATED.

IF THE CONSOLE TERMINAL IS ALREADY BUSY WHEN ENTERED FOR
AN MPG FUNCTION, THESE ROUTINES WILL AUTOMATICALLY WAIT
UNTIL THE TERMINAL BECOMES FREE. THE I/O WILL THEN BE
PERFORMED WITH RETURN BEING MADE IN-LINE ONLY AFTER THE ENTIRE
I/O FUNCTION HAS BEEN COMPLETED.

FOR USER PROGRAM WRITE FUNCTIONS, RETURN WILL BE MADE TO THE
SUPPLIED BUSY ADDRESS IF THE TERMINAL IS BUSY UPON ENTRY.
NO OTHER ACTIONS WILL TAKE PLACE. IF THE TERMINAL IS FREE,
THE USER I/O WILL BE INITIATED AND THEN THE 'WAIT FOR
I/O TERM' FLAG WILL BE SET IN THE USER PROGRAM'S FLAGWORD
AT THE ADDRESS SUPPLIED. RETURN WILL THEN BE MADE IN-LINE.

MPG LINKAGE:   JSR      R5,CTWR      MPG WRITE
                .WORD   TAG-        MPG READ WITH ECHO
                .WORD   COUNT      MPG READ WITHOUT ECHO
                .WORD   COUNT      RELATIVE ADR OF I/O AREA
                .WORD   COUNT      # OF CHARACTERS TO TRANSFER

USER LINKAGE:  JSR      R5,CTUSWR   USER WRITE
                .WORD   TAG-        RELATIVE ADR OF I/O AREA
                .WORD   COUNT      # OF CHARS TO XFER
                .WORD   BADR-      RELATIVE RETURN ADR IF BUSY
                .WORD   FWADR      ABSOLUTE ADR OF PROG'S FLGWD

DESTROYS REG'S: R0,R1,R2

RETURN WILL BE IN-LINE FOLLOWING THE ARGUMENTS UNLESS THE CONSOLE
TERMINAL IS BUSY AND A USER I/O IS BEING ATTEMPTED.
*****

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;USER WRITE ENTRY POINT

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1866 006646' 032777 010000 000012' CTUSWR: BIT      #CNTRLO,ACSYSFW      ;IS TYPING SUPPRESSED?
1867 006654' 001421          BEQ      30$              ;Y,N-30$
1868 006656' 032777 040000 000012' BIT      #CRUDED,ACSYSFW      ;S'PPPOSED TO RESET USER DEDICATED?
1869 006664' 001412          BEQ      20$              ;Y,N-20$
1870 006666' 042777 060000 000012' BIC      #CRUDED+CTUDED,ACSYSFW      ;RESET SYSTEM DEDICATED FLGS
1871 006674' 016567 000006 002554 MOV      6(R5),UFWHLD      ;GET FLAGWORD ADR
1872 006702' 004577 000002' JSR      R5,UFWCLR        ;RESET USER'S DEDICATED FLAG
1873 006706' 000040          .WORD   SETDED
1874 006710' 002546          .WORD   UFWHLD-
1875 006712' 062705 000010 20$: ADD      #8.,R5              ;SET UP RETURN ADR

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1876 006716' 000205          RTS      RS      ;EXIT IN-LINE
1877 006720' 032767 002042 002130 30$: BIT      #CTWBSY+CTEBSY+CTWAIT,CTFLGW ;MR BUSY OR ECHO BUSY SET?
1878 006726' 001404          BEQ      CTDUWR ;(Y,N-CTDUWR)
1879 006730' 062705 000004          CTBRET: ADD     #4,RS ;INCR RET ADR PAST ARGUMENTS
1880 006734' 061505          ADD     (RS),RS ;SET UP USER BUSY RET ADR
1881 006736' 000205          RTS      RS      ;EXIT TO USER'S BUSY ADR
1882 006740' 052767 100002 002110 CTDUWR: BIS     #CTWUSR+CTWBSY,CTFLGW ;SET USER WR & WR BUSY FLAGS
1883 006746' 000421          BR       CTWCOM ;GO TO COMMON PROCESSING
1884
1885                               ;EXEC WRITE ENTRY POINT
1886
1887 006750' 032777 010000 000012' CTWR: BIT      #CNTRLO,ACSYSFW ;IS TYPING SUPPRESSED?
1888 006756' 001403          BEQ      40$ ;Y,N-40$
1889 006760' 062705 000004          ADD     #4,RS ;SET UP RETURN ADR
1890 006764' 000205          RTS      RS      ;EXIT IN-LINE
1891 006766' 032767 002042 002062 40$: BIT      #CTWBSY+CTEBSY+CTWAIT,CTFLGW ;MR BUSY OR ECHO BUSY FLAGS SET?
1892 006774' 001365          BNE     CTWR ;(N,Y-CTWR)
1893 006776' 042767 100000 002052          BIC     #CTWUSR,CTFLGW ;RESET USER WRITE FLAG
1894 007004' 052767 000002 002044          BIS     #CTWBSY,CTFLGW ;SET THE WRITE BUSY FLAG
1895 007012' 010500          CTWCOM: MOV     RS,RO ;GET DATA ADR INDEX VALUE AND
1896 007014' 062500          ADD     (RS)+,RO ;ADJUST TO ABSOLUTE ADR
1897 007016' 010067 002040          MOV     RO,CTWADR ;STORE DATA ADR FOR INT ROUTINE
1898 007022' 012567 002032          MOV     (RS)+,CTWCNT ;GET & STORE CHAR CNT
1899 007026' 005767 002024          TST     CTFLGW ;DOING A USER WRITE?
1900 007032' 100007          BPL     2$ ;(Y,N-2$)
1901 007034' 005725          TST     (RS)+ ;INCR PAST BUSY ADR
1902 007036' 012567 002022          MOV     (RS)+,CTWUFW ;MOVE USER FLGMD ADR TO INT ROUT
1903 007042' 004577 000000'          JSR     RS,CTWUFWSET ;SET USER'S WAIT FOR
1904 007046' 000020          .WORD  CTRDNE ;CONSOLE/PRINTER I/O FLAG
1905 007050' 002014          .WORD  CTWUFW-
1906 007052' 052777 000100 002066 2$: BIS     #100,ACTWDRA ;SET WRITE INT ENABLE BIT
1907 007060' 005767 001772          TST     CTFLGW ;IS THIS A USER WRITE?
1908 007064' 100406          BMI     4$ ;(N,Y-4$)
1909 007066' 004767 171306 3$: JSR     PC,LIGHTS ;DISPLAY IDLE BIT PATTERN
1910 007072' 032767 000002 001756          BIT     #CTWBSY,CTFLGW ;IS 'MR BUSY' FLAG STILL SET?
1911 007100' 001372          BNE     3$ ;(N,Y-3$)
1912 007102' 000205          RTS      RS      ;EXIT IN-LINE
1913
1914
1915                               ;EXEC READ WITHOUT ECHO ENTRY POINT
1916
1917
1918 007104' 032767 000003 001744 CTRDNE: BIT     #CTRBSY+CTWBSY,CTFLGW ;READ BUSY OR WRITE BUSY?
1919 007112' 001374          BNE     CTRDNE ;(N,Y-CTRDNE)
1920 007114' 042767 000200 001734          BIC     #CTRDEC,CTFLGW ;RESET THE ECHO FLAG
1921 007122' 000407          BR       CTRCOM ;GO TO COMMON PROCESSING
1922
1923                               ;EXEC READ WITH ECHO ENTRY POINT
1924
1925 007124' 032767 000003 001724 CTRD: BIT     #CTRBSY+CTWBSY,CTFLGW ;READ BUSY OR WRITE BUSY?
1926 007132' 001374          BNE     CTRD ;(N,Y-CTRD)
1927          001          .IF DF MIMIC
1928          000          BR       CTRDNE ;DO NOT ECHO IF MIMIC
1929          000          .ENDC
1930 007134' 052767 000200 001714          BIS     #CTRDEC,CTFLGW ;SET THE ECHO FLAG
1931 007142' 042767 000040 001706 CTRCOM: BIC     #CTEBSY,CTFLGW ;RESET THE ECHO BUSY FLAG

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1932 007150' 010500      MOV      R5,RO      ;GET DATA ADR INDEX VALUE AND
1933 007152' 062500      ADD      (R5)+,RO   ;ADJUST TO AN ABSOLUTE ADR
1934 007154' 012501      MOV      (R5)+,R1   ;GET CHARACTER COUNT
1935 007156' 012702      MOV      #CTRCNT,R2 ;SET UP ADR OF RD STORAGE AREA
1936 007162' 010122      MOV      R1,(R2)+   ;STORE COUNT AND DATA ADR
1937 007164' 010022      MOV      RO,(R2)+   ;IN THE INT ROUT
1938 007166' 010122      MOV      R1,(R2)+
1939 007170' 010022      MOV      RO,(R2)+
1940 007172' 105767      TSTB     CTFLGW     ;ECHO FLAG SET?
1941 007176' 100003      BPL      12$        ;(Y,N-12$)
1942 007200' 052767      BIS      #CTEBSY,CTFLGW ;SET THE ECHO BUSY FLAG
1943 007206' 052767      BIS      #CTRBSY,CTFLGW ;SET THE READ BUSY FLAG
1944 007214' 012777      MOV      #100,CTRORA ;SET TTY RD INT ENABLE
1945                001      .IF DF MIMIC
1946                .IFT
1947                CTRMLP: MOV      #12,RO      ;*** MIMIC ***
1948                .IFTF
1949 007222' 004767      JSR      PC,LIGHTS ;DISPLAY IDLE BIT PATTERN
1950 007226' 032767      BIT      #CTRBSY,CTFLGW ;IS READ BUSY STILL SET?
1951                .IFF
1952 007234' 001372      BNE      CTRTRB     ;(N,Y-CTRTRB)
1953                .IFT
1954                BNE      CTRMCD     ;*** MIMIC ***
1955                .IFTF
1956 007236' 000205      RTS      R5        ;EXIT IN-LINE
1957                .IFT
1958
1959                CTRMCD: DEC      RO        ;*** MIMIC ***
1960                BNE      CTRTRB     ;*** MIMIC ***
1961                SLPBKP: NOP          ;*** MIMIC ***
1962                BR       CTRMLP     ;*** MIMIC ***
1963                .ENDC
    
```


.SBTTL LIST DEVICE CONTROL ROUTINE

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007240' 105767 171252
007244' 001641
007246' 005767 002170
007252' 001636
007254' 000400

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*****
THIS ROUTINE DETERMINES IF A LIST DEVICE HAS BEEN ASSIGNED
AND THEN BRANCHES TO EITHER THE CONSOLE TERMINAL ROUTINE
OR TO THE PRINTER ROUTINE. IF THE PRINTER/TTY FLAG IS RESET
IT WILL ALWAYS GO TO THE CONSOLE TERMINAL.

LINKAGE:      JSR      RS,CLIST      ROUTINE CALL
              .WORD   MSGADR-.     REL ADR OF MSG DATA
              .WORD   COUNT        MSG BYTE COUNT

EXITS TO EITHER CTWR OR CPRT

*****
CLIST:  TSTB      PRTFLG      ;PRINTER/TTY FLAG SET?
        BEQ      CTWR        ;Y,N-CTWR
        TST      CLISTI+4    ;A PRINTER BEEN ASSIGNED?
        BEQ      CTWR        ;Y,N-CTWR
        BR       CPRT        ;GO TO PRINTER ROUTINE

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.SBTTL PRINTER CONTROL ROUTINE

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*****
THIS ROUTINE CONTROLS WRITE OPERATIONS TO THE MPG LIST
DEVICE FOR BOTH MPG AND USER FUNCTIONS. IF AN MPG
FUNCTION, THIS ROUTINE WILL WAIT FOR THE PRINTER IF IT IS
ALREADY BUSY UPON ENTRY AND WILL WAIT UNTIL THE PRINTER
COMPLETES THE SPECIFIED OPERATION BEFORE RETURNING.

FOR USER FUNCTIONS, RETURN WILL BE MADE TO THE SUPPLIED BUSY
ADDRESS IF THE PRINTER IS BUSY UPON ENTRY. NO OTHER ACTIONS WILL
TAKE PLACE. IF THE PRINTER IS FREE, THE USER'S WRITE WILL BE
INITIATED AND THEN THE 'WAIT FOR I/O TERM' FLAG WILL BE SET
IN THE USER PROGRAM'S FLAGWORD AT THE ADDRESS SUPPLIED. RETURN
WILL THEN BE IMMEDIATELY MADE IN-LINE.

MPG LINKAGE: JSR    R5,CPRT      MPG PRINT
              .WORD TAG-      REL ADR OF I/O AREA
              .WORD COUNT     # OF CHARS TO TRANSFER

USER LINKAGE: JSR    R5,CUSPRT   USER PRINT
              .WORD TAG-      REL ADR OF I/O AREA
              .WORD COUNT     # OF CHARS TO XFER
              .WORD BADR-     REL RETURN ADR IF BUSY
              .WORD FWADR     ABSOLUTE ADR OF PROG'S FLGWD

DESTROYS REGISTERS: R0,R1,R2
*****

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;MPG ENTRY POINT

```

007256' 032777 000100 002162 CPRT: BIT    #100, @PRTDRA      ;IS THE PRINTER BUSY?
007264' 001404          BEQ    1$                    ;Y,N-1$
007266' 032777 004000 000012' BIT    #CHPINT, @CSYSFW    ;INT ENABLE BEING HELD SET?
007274' 001770          BEQ    CPRT                    ;Y,N-CPRT
007276' 042767 100000 002122 1$: BIC    #CPRUSR, CPRFWD    ;RESET USER PRINT FLAG
007304' 000432          BR     CPRCOM                    ;GO TO COMMON PROCESSING

```

;USER ENTRY POINT

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007306' 032777 000100 002132 CUSPRT: BIT    #100, @PRTDRA      ;PRINTER BUSY?
007314' 001423          BEQ    5$                    ;Y,N-5$
007316' 032777 004000 000012' BIT    #CHPINT, @CSYSFW    ;INT ENABLE BEING HELD SET?
007324' 001415          BEQ    3$                    ;Y,N-3$
007326' 016567 000006 002122 MOV    6(R5), UFWHLD    ;GET FLAGWORD ADR
007334' 004577 000004' JSR    R5, @UFWTST    ;BEING HELD SET FOR THIS USER?
007340' 000040          .WORD SETDED
007342' 002114          .WORD UFWHLD-
007344' 000405          BR     3$                    ;Y,N-3$
007346' 004577 000004' JSR    R5, @UFWTST    ;USER'S PREV PRINT COMPLETED?
007352' 000020          .WORD CTPRIO
007354' 002102          .WORD UFWHLD-
007356' 000402          BR     5$                    ;N,Y-5$

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2044 007360' 000167 177344 3$: JMP CTBRET ;GO TO BUSY RETURN
2045 007364' 052767 100000 002034 5$: BIS #CPRUSR,CPRFWD ;SET USER PRINT FLAG
2046 007372' 012702 011426' CPRCOM: MOV #CPRFWD,R2 ;SET UP FLAGWORD ADR
2047 007376' 105777 002044 10$: TSTB @PRTDRA ;PRINTER READY SET?
2048 007402' 100003 BPL 15$ ;Y,N-15$
2049 007404' 005777 002036 TST @PRTDRA ;PRINTER ERROR?
2050 007410' 100021 BPL 30$ ;Y,N-30$
2051 007412' 105712 15$: TSTB (R2) ;PRINTER ERROR FLAG SET?
2052 007414' 100413 BMI 20$ ;N,Y-20$
2053 007416' 052712 000200 BIS #CPRERR,(R2) ;SET ERROR FLAG
2054 007422' 010246 MOV R2,-(SP) ;SAVE FLGWD ADR
2055 007424' 042777 010000 000012' BIC #CNTRLO,@CSYSFW ;RESET SUPPRESS TYPING FLAG
2056 007432' 004567 177312 JSR R5,CTWR ;ISSUE PRINTER ERROR MSG
2057 007436' 000142 .WORD CPRTER-.
2058 007440' 000026 .WORD 22.
2059 007442' 012602 MOV (SP)+,R2 ;RESTORE FLGWD ADR
2060 007444' 005712 20$: TST (R2) ;THIS A USER PRINT?
2061 007446' 100353 BPL 10$ ;Y,N-10$
2062 007450' 000167 177254 JMP CTBRET ;GO TAKE BUSY RETURN
2063 007454' 112712 000001' 30$: MOVB #1,(R2) ;RESET PRT ERR & SET PRT BSY FLGS
2064 007460' 012700 011430' MOV #CPRADR,R0 ;SET UP ADR OF STORAGE AREA
2065 007464' 010510 MOV R5,(R0) ;GET DATA ADR & MAKE IT
2066 007466' 062520 ADD (R5)+,(R0)+ ;ABSOLUTE
2067 007470' 012520 MOV (R5)+,(R0)+ ;STORE CHAR CNT
2068 007472' 005712 TST (R2) ;USER PRINT?
2069 007474' 100015 BPL 40$ ;Y,N-40$
2070 007476' 005725 TST (R5)+ ;INCR PAST BUSY RET ADR
2071 007500' 012510 MOV (R5)+,(R0) ;STORE USER'S FLGWD ADR
2072 007502' 004577 000000' JSR R5,@UFWSET ;SET USER'S WAIT FOR
2073 007506' 000020 .WORD CTPRIO ;CONSOLE/PRINTER I/O FLAG
2074 007510' 001724 .WORD CPRUFW-.
2075 007512' 032777 020000 000012' BIT #CTUDED,@CSYSFW ;PRINTER DEDICATED TO USER?
2076 007520' 001403 BEQ 40$ ;Y,N-40$
2077 007522' 052777 004000 000012' BIS #CHPINT,@CSYSFW ;SET 'HOLD INT ENB SET' FLAG
2078 007530' 016701 001714 40$: MOV PRTIVA,R1 ;GET PRINTER'S INT VEC ADR
2079 007534' 012721 011162' MOV #CPRINT,(R1)+ ;STORE INT ROUT ADR AT VECTOR
2080 007540' 016711 001706 MOV PRTPSW,(R1) ;STORE PS WORD AT VECTOR
2081 007544' 005077 001676 CLR @PRTDRA ;MAY HAVE TO TOGGLE INT ENABLE
2082 007550' 012777 000100 001670 MOV #100,@PRTDRA ;SET PRINTER'S INT ENABLE
2083 007556' 005712 TST (R2) ;THIS A USER PRINT?
2084 007560' 100406 BMI 60$ ;N,Y-60$
2085 007562' 004767 170612 50$: JSR PC,LIGHTS ;DISPLAY IDLE BIT PATTERN
2086 007566' 032767 000001 001632 BIT #CPRBSY,CPRFWD ;PRINTER STILL BUSY?
2087 007574' 001372 BNE 50$ ;N,Y-50$
2088 007576' 000205 60$: RTS R5 ;EXIT TO IN-LINE ADR
2089
2090 007600' 042452 025122 046040 CPRTER: .ASCII /*ER* LST DEV: HW ERR/<015><012>
007606' 052123 042040 053105
007614' 020072 053510 042440
007622' 051122 005015
2091 .EVEN

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2149	010054'	103023		BHIS	8\$;(Y,N-8\$)
2150	010056'	122700	000011	CMPB	#011,R0		;IS CHAR A TAB?
2151	010062'	001010		BNE	7\$;(Y,N-7\$)
2152	010064'	005315		DEC	(R5)		;DECR CURR TAB CNT BY 1
2153	010066'	011565	177774	MOV	(R5),-4(R5)		;MOVE CURR TAB CNT TO TAB/FILL CNT
2154	010072'	012715	000010	MOV	#10,(R5)		;RESTORE CURR TAB COUNT
2155	010076'	012745	000040	MOV	#40,-(R5)		;MOVE A SPACE TO FILL/SPACE CHAR
2156	010102'	000663		BR	CTWFOT		;GO BEGIN ISSUING SPACES
2157	010104'	122700	000015	7\$: CMPB	#015,R0		;IS IT A CARRIAGE RETURN?
2158	010110'	001407		BEQ	9\$;(N,Y-9\$)
2159	010112'	122700	000033	CMPB	#033,R0		;IS IT AN ALTMODE?
2160	010116'	001006		BNE	11\$;(Y,N-11\$)
2161	010120'	112700	000044	MOVB	#044,R0		;SET UP "S" CHARACTER
2162	010124'	005315		8\$: DEC	(R5)		;DECR CURR TAB CNT BY 1
2163	010126'	001002		BNE	11\$;CNT = ZERO? (Y,N-11\$)
2164	010130'	012715	000010	9\$: MOV	#10,(R5)		;RESTORE CURR TAB CNT TO 8
2165	010134'	120067	001020	11\$: CMPB	R0,CTFID		;FILLS AFTER THIS CHAR?
2166	010140'	001006		BNE	13\$;(Y,N-13\$)
2167	010142'	016767	001006	000726	MOV	CTFCNT,CTFCT	;SET UP FILL COUNT
2168	010150'	016767	001002	000722	MOV	CTFCAR,CTFSCH	;SET UP FILL CHAR
2169	010156'	110012		13\$: MOVB	R0,(R2)		;MOVE CHAR TO DEVICE BUF
2170	010160'	000712		BR	CTWREX		;GO TO INT ROUT EXIT

;CONSOLE TERMINAL READ INTERRUPT ROUTINE

2171							
2172							
2173							
2174							
2175							
2176	010162'	004567	000636	CTRINT:	JSR	R5,CSVREG	;GO SAVE ALL REGISTERS
2177	010166'	012704	011056'		MOV	#CTFLGW,R4	;SET UP ADR OF CONS TERM FLGWD
2178	010172'	016702	000742		MOV	CTRDRA,R2	;SET UP DEV REG'S ADR
2179	010176'	016200	000002		MOV	2(R2),R0	;GET READ DATA CHARACTER
2180	010202'	042700	000200		BIC	#200,R0	;RESET HIGH ORDER BIT
2181	010206'	120027	000141	LOWCAS:	CMPB	R0,#141	;THIS A LOWER CASE ALPHA?
2182	010212'	103405			BLO	10\$;Y,N-10\$
2183	010214'	120027	000172		CMPB	R0,#172	
2184	010220'	101002			BHI	10\$	
2185	010222'	042700	000040		BIC	#40,R0	;RESET LOWER CASE BIT
2186	010226'	120027	000023	10\$:	CMPB	R0,#023	;THIS A CNTRL/S?
2187	010232'	001003			BNE	20\$;Y,N-20\$
2188	010234'	052714	002000		BIS	#CTWAIT,(R4)	;SET SOFTWARE "WAIT" FLAG
2189	010240'	000503			BR	CTRDEX	;GO TO INT EXIT
2190	010242'	032714	002000	20\$:	BIT	#CTWAIT,(R4)	;SOFTWARE "WAIT" FLAG SET?
2191	010246'	001403			BEQ	30\$;Y,N-30\$
2192	010250'	042714	002000		BIC	#CTWAIT,(R4)	;RESET THE "WAIT" FLAG
2193	010254'	000475			BR	CTRDEX	;GO TO INT EXIT
2194	010256'	120027	000017	30\$:	CMPB	R0,#017	;THIS A CNTRL/O?
2195	010262'	001004			BNE	40\$;Y,N-40\$
2196	010264'	052777	010000	000012'	BIS	#CNTRLO,ACSYSFW	;SET THE SUPPRESS TYPING FLAG
2197	010272'	000466			BR	CTRDEX	;GO TO INT EXIT
2198	010274'	032714	001000	40\$:	BIT	#CTCREQ,(R4)	;IS CONSOLE REQUEST FLAG SET?
2199	010300'	001063			BNE	CTRDEX	;(N,Y-CTRDEX)
2200	010302'	120027	000003		CMPB	R0,#003	;THIS CHAR A CNTRL/C?
2201	010306'	001527			BEQ	CTRLC	;(N,Y-CTRLC)
2202	010310'	032714	000001		BIT	#CTRBSY,(R4)	;IS RD BUSY FLAG SET?
2203	010314'	001455			BEQ	CTRDEX	;(Y,N-CTRDEX)
2204	010316'	012705	011070'		MOV	#CTRADR,R5	;SET UP ADR OF READ INFO

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2205 010322' 120027 000025      CMPB    RO,#025      ;IS IT A CTRL/U?
2206 010326' 001502              BEQ     CTRCTU      ;(N,Y-CTRCTU)
2207 010330' 122700 000177      CMPB    #177,RO    ;RD DATA A RUBOUT?
2208 010334' 001450              BEQ     CTRRKY      ;(N,Y-CTRRKY)
2209 010336' 032714 000100      BIT     #CTRRUB,(R4);RUBOUT FLAG SET?
2210 010342' 001405              BEQ     50$        ;(Y,N-50$)
2211 010344' 004567 000376      JSR     R5,CTRPEB  ;PUT A BACKSLASH IN ECHO BUF
2212 010350' 134 000          .BYTE  134,0
2213 010352' 042714 000100      BIC     #CTRRUB,(R4);RESET RUBOUT FLAG
2214 010356' 110035 50$:      MOVB   RO,2(R5)+  ;MOVE RD DATA CHAR TO USER ADR
2215 010360' 005245              INC     -(R5)      ;INCR RD DATA ADR BY 1
2216 010362' 122700 000015      CMPB    #015,RO    ;IS THIS A CARR RET?
2217 010366' 001004              BNE     52$        ;(Y,N-52$)
2218 001                          .IF DF MIMIC
2219 .IFF
2220 010370' 004567 000352      JSR     R5,CTRPEB  ;PUT CR/LF IN ECHO BUF
2221 010374' 015 012          .BYTE  015,012
2222 .IFT
2223 51$:      MOV     #5015,R3  ;SET UP CR/LF DATA
2224 JSR     R5,CTWPEB  ;PUT THEM IN THE ECHO BUF
2225 .ENDC
2226 010376' 000416              BR      54$        ;GO PROCESS RD END
2227 010400' 122700 000012      CMPB    #012,RO    ;IS IT A LINE FEED?
2228 010404' 001771              BEQ     51$        ;N,Y-51$
2229 010406' 110067 000004      MOVB   RO,53$     ;SET UP RD DATA FOR ECHO S/R
2230 010412' 004567 000330      JSR     R5,CTRPEB  ;PUT CHAR IN ECHO BUF
2231 010416' 000000      53$:      .WORD  XXXX
2232 010420' 005345              DEC     -(R5)      ;DECR DATA COUNT BY ONE
2233 010422' 001012              BNE     CTRDEX     ;DATA CNT = 0? (Y,N-CTRDEX)
2234 010424' 112775 000015 000002  MOVB   #015,2(R5) ;STORE CARR RET IN USER'S AREA
2235 001                          .IF DF MIMIC
2236 .IFF
2237 010432' 000756              BR      51$        ;GO ECHO CR/LF & TERMINATE READ
2238 .IFT
2239 NOP                          ;REPLACE CODE IS 000755
2240 .ENDC
2241 010434' 052714 000400      54$:      BIS     #CTRDON,(R4);SET READ DONE FLAG
2242 010440' 105714              TSTB   (R4)        ;IS ECHO FLAG SET?
2243 010442' 100402              BMI     CTRDEX     ;(N,Y-CTRDEX)
2244 010444' 004567 000256      JSR     R5,CTRTRM  ;GO TERMINATE THIS READ
2245 010450' 004567 000364      CTRDEX: JSR     R5,CRTREG;RESTORE ALL REG'S
2246 010454' 000002              RTI
2247
2248 ;RUBOUT KEY PROCESSING
2249
2250 010456' 032714 000100      CTRRKY: BIT     #CTRRUB,(R4);RUBOUT FLAG ALREADY SET?
2251 010462' 001005              BNE     56$        ;(N,Y-56$)
2252 010464' 052714 000100      BIS     #CTRRUB,(R4);SET THE RUBOUT FLAG
2253 010470' 004567 000252      JSR     R5,CTRPEB  ;GO PUT BACKSLASH IN ECHO BUF
2254 010474' 134 000          .BYTE  134,0
2255 010476' 021565 000004      56$:      CMP     (R5),4(R5) ;CURR DATA ADR = ORG DATA ADR?
2256 010502' 001004              BNE     58$        ;(Y,N-58$)
2257 010504' 004567 000236      JSR     R5,CTRPEB  ;SET UP BACKSLASH FOR ECHO
2258 010510' 134 000          .BYTE  134,0
2259 010512' 000417              BR      CTRÉCL    ;GO DO CARR RET & LINE FEED
2260 010514' 005325      58$:      DEC     (R5)+     ;DECR DATA ADR BY 1

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2261 010516' 115567 000006          MOVB   2-(R5),70$          ;GET CHAR THAT IS BEING DELETED
2262 010522' 005245                INC    -(R5)              ;INCREMENT DATA COUNT BY 1
2263 010524' 004567 000216          JSR    R5,CTRPEB         ;GO SET UP DELETED CHAR FOR ECHO
2264 010530' 000000                .WORD  0                  ;
2265 010532' 000746                BR     CTRDEX            ;GO TO INT ROUT EXIT
2266
2267                                ;CONTROL 'U' PROCESSING
2268
2269 010534' 016515 000004          CTRCTU: MOV  4(R5),(R5)      ;SET UP ORG DATA ADR
2270 010540' 016545 000002          MOV    2(R5),-(R5)       ;SET UP ORG DATA COUNT
2271 010544' 004567 000176          JSR    R5,CTRPEB         ;PUT "↑" AND "U" IN ECHO BUF
2272 010550'      136      125          .BYTE  136,125
2273 010552' 004567 000170          CTRECL: JSR  R5,CTRPEB    ;PUT "CR/LF" IN ECHO BUF
2274 010556'      015      012          .BYTE  015,012
2275 010560' 042714 000100          BIC    #CTRUB,(R4)       ;RESET RUBOUT FLAG
2276 010564' 000731                BR     CTRDEX            ;GO TO INT ROUT EXIT
2277
2278                                ;CONTROL "C" PROCESSING
2279
2280 010566' 005777 000012'          CTRLC: TST  @CSYSFW        ;CONSOLE REQ BEING PROCESSED?
2281 010572' 100726                BMI    CTRDEX            ;(N,Y-CTRDEX)
2282 010574' 032777 002000 000012'  BIT    #CUSPGR,@CSYSFW   ;USER PROG RUNNING?
2283 010602' 001722                BEQ    CTRDEX            ;(Y,N-CTRDEX)
2284 010604' 032714 000001          BIT    #CTRBSY,(R4)      ;IS RD BUSY FLG SET?
2285 010610' 001404                BEQ    CTRCRQ           ;Y,N-CTRCRQ
2286 010612' 052714 000400          BIS    #CTRDON,(R4)     ;SET READ DONE FLAG
2287 010616' 004567 000104          JSR    R5,CTRTRM        ;GO TERMINATE READ FUNCTION
2288
2289                                ;CONSOLE REQUEST RECEIVED
2290
2291 010622' 012703 041536          CTRCRQ: MOV  #'↑C,R3        ;SET UP "↑" & "C" CHARS
2292 010626' 004567 000122          JSR    R5,CTRPEB        ;GO PUT THEM IN ECHO BUFFER
2293 010632' 052714 001000          BIS    #CTCREQ,(R4)     ;SET THE CONSOLE REQ FLAG
2294 010636' 012746 000022          MOV    #18,-(SP)        ;SET UP STK PNTR ADR
2295 010642' 060616                ADD    SP,(SP)          ;AT TIME OF INT
2296 010644' 032777 000001 000012'  BIT    #M1VER,@CSYSFW   ;RUNNING UNDER MEM MGMNT?
2297 010652' 001406                BEQ    72$              ;Y,N-72$
2298 010654' 032766 140000 000020  BIT    #140000,16.(SP)  ;WERE WE IN USER MODE?
2299 010662' 001402                BEQ    72$              ;Y,N-72$
2300 010664' 005726                TST   (SP)+            ;REMOVE OTHER ADR
2301 010666' 006506                MFPI  SP                ;GET USER'S STK PNTR
2302 010670' 005046                CLR   -(SP)            ;SET PROCESSOR PRIORITY TO ZERO
2303 010672' 012746 010700'          MOV    #74$,-(SP)
2304 010676' 000002                RTI
2305 010700' 032777 000100 000240  74$: BIT    #100,@CTWDRA     ;CONS TERM WRITE INT ENABLE SET?
2306 010706' 001374                BNE   74$              ;(N,Y-74$)
2307 010710' 052777 100000 000012'  BIS    #CTRQBP,@CSYSFW  ;SET CONS REQ BEING PROC FLG
2308 010716' 042714 001000          BIC    #CTCREQ,(R4)     ;RESET CONSOLE REQ FLAG
2309 010722' 000177 000014'          JMP    @USRINT          ;GO TO MPG USER INT ENTRY
2310
2311
2312
2313                                ;CONSOLE TERMINAL READ TERMINATE S/R
2314
2315 010726' 032767 000400 000122  CTRTRM: BIT  #CTRDON,CTFLGW  ;IS THE READER DONE FLAG SET?
2316 010734' 001403                BEQ   1$                ;(Y,N-1$)

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2317 010736' 042767 000441 000112      BIC      #CTRBSY+CTRDON+CTEBSY,CTFLGW      ;RESET READER FLAGS
2318 010744' 000205      1$:      RTS      R5      ;EXIT IN-LINE
2319
2320      ;CONSOLE TERMINAL PUT IN ECHO BUFFER S/R
2321
2322 010746' 012503      CTRPEB: MOV      (R5)+,R3      ;GET CHARACTERS TO STORE
2323 010750' 105714      TSTB     (R4)      ;IS ECHO FLAG SET?
2324 010752' 100023      BPL      CTRPEX     ;(Y,N-CTRPEX)
2325 010754' 010546      CTWPEB: MOV      R5,-(SP)      ;SAVE WORK REG
2326 010756' 012705 011104'      MOV      #CTEIID,R5      ;SU ADR OF ECHO BUF CNTRL WDS
2327 010762' 021565 000006      70$:     CMP      (R5),6(R5)      ;INPUT ADR AT END OF BUF?
2328 010766' 001002      BNE      80$      ;(Y,N-80$)
2329 010770' 162715 000024      SUB      #24,(R5)      ;SET UP BUFFER START ADR
2330 010774' 110335      80$:     MOV      R3,(R5)+      ;MOVE CHAR TO ECHO BUF
2331 010776' 005215      INC      (R5)      ;ADD 1 TO BUFFER COUNT
2332 011000' 005245      INC      -(R5)      ;ADD 1 TO BUFFER ADR
2333 011002' 105003      CLRB    R3      ;CLEAR CHAR JUST STORED
2334 011004' 000303      SWAB    R3      ;SET UP FOR NEXT CHAR
2335 011006' 005703      TST     R3      ;ANOTHER CHAR TO STORE?
2336 011010' 001364      BNE     70$      ;(N,Y-70$)
2337 011012' 012605      MOV     (SP)+,R5      ;RESTORE WORK REG
2338 011014' 052777 000100 000124      BIS     #100,CTWDRA      ;SET WRITE INT ENABLE
2339 011022' 000205      CTRPEX: RTS      R5      ;EXIT IN-LINE
2340
2341
2342
2343
2344      ; INTERRUPT SUBROUTINES
2345
2346
2347      ; SAVE REGISTERS R0 THRU R5
2348
2349 011024' 010446      CSVREG: MOV      R4,-(SP)      ;SAVE REGISTERS 0 THRU 4
2350 011026' 010346      MOV      R3,-(SP)      ;R5 IS SAVED BY JSR TO
2351 011030' 010246      MOV      R2,-(SP)      ;THIS SUBROUTINE
2352 011032' 010146      MOV      R1,-(SP)
2353 011034' 010046      MOV      R0,-(SP)
2354 011036' 010507      MOV      R5,PC      ;EXIT
2355
2356
2357      ; RESTORE REGISTERS R0 THRU R5
2358
2359 011040' 005726      CRTREG: TST     (SP)+      ;TAKE THIS JSR'S R5 OFF STACK
2360 011042' 012600      MOV     (SP)+,R0      ;RELOAD REG'S
2361 011044' 012601      MOV     (SP)+,R1
2362 011046' 012602      MOV     (SP)+,R2
2363 011050' 012603      MOV     (SP)+,R3
2364 011052' 012604      MOV     (SP)+,R4
2365 011054' 000205      RTS     R5      ;RESTORE OLD R5 & EXIT

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2367          .SBTTL  CONSOLE TERMINAL INTERRUPT CONSTANTS
2368
2369
2370 011056' 0C0000          CTFLGW: .WORD  0          ;CONSOLE TERMINAL FLAGWORD
2371
2372          000001          CTRBSY= 1          ; READ BUSY
2373          000002          CTWBSY= 2          ; WRITE BUSY
2374          000040          CTEBSY= 40         ; ECHO BUSY
2375          000100          CTRRUB= 100        ; READ RUBOUT STRING
2376          000200          CTRDEC= 200        ; READ WITH ECHO
2377          000400          CTRDON= 400        ; READ DONE
2378          001000          CTCREQ= 1000       ; CONSOLE REQUEST
2379          002000          CTWAIT= 2000       ; SOFTWARE "WAIT" FLAG
2380          100000          CTWUSR= 100000      ; USER WRITE
2381
2382          ;CTWCNT MUST FOLLOW CTFLGW
2383
2384 011060' 000000          CTWCNT: .WORD  0          ;CONSOLE TERMINAL WRITE COUNT
2385 011062' 000000          CTWADR: .WORD  0          ;CT WR DATA ADR
2386 011064' 000000          CTWUFW: .WORD  0          ;*;CT WRITE USER FLGMD ADR
2387
2388 011066' 000000          CTRCNT: .WORD  0          ;CT RD DATA COUNT (CURRENT)
2389 011070' 000000          CTRADR: .WORD  0          ;CT RD DATA ADR (CURRENT)
2390 011072' 000000          .WORD  0          ;CT RD DATA COUNT (ORIG)
2391 011074' 000000          .WORD  0          ;CT RD DATA ADR (ORIG)
2392
2393
2394 011076' 000000          CTFTCT: .WORD  0          ;CT WR FILL/TAB COUNT
2395 011100' 000000          CTFSCH: .WORD  0          ;CT WR FILL/SPACE CHAR
2396 011102' 000010          .WORD  10         ;CT WR CURR SOFTWARE TAB CNT
2397
2398
2399          000024          CTEBFL= 24
2400 011104' 011114'          CTEIAD: .WORD  CTEBUF      ;ECHO BUFFER INPUT ADR
2401 011106' 000000          CTECNT: .WORD  0          ;ECHO BUF COUNT
2402 011110' 011114'          .WORD  CTEBUF      ;ECHO BUF OUTPUT ADR
2403 011112' 011140'          .WORD  CTEBUF+CTEBFL ;ECHO BUF END ADR
2404 011114' 000024          CTEBUF: .BLKB  CTEBFL      ;ECHO BUFFER
2405
2406
2407          ;CONSOLE TERMINAL CONSTANTS
2408
2409 011140' 177560          CTRDRA: .WORD  177560     ;CONSOLE TERMINAL RD DEV REG ADR
2410 011142' 000060          CTRVEC: .WORD  60        ;CT RD INT VECTOR ADR
2411 011144' 000200          CTRBR:  .WORD  200       ;CT RD PRIORITY LEVEL (BR4)
2412 011146' 177564          CTWDRA: .WORD  177564     ;CT WR DEV REG ADR
2413 011150' 000064          CTWVEC: .WORD  64        ;CT WR INT VECTOR ADR
2414 011152' 000200          CTWBR:  .WORD  200       ;CT WR PRIORITY LEVEL (BR4)
2415
2416 011154' 000002          CTFCNT: .WORD  2          ;CT WR FILL COUNT
2417 011156' 000000          CTFCAR: .WORD  0          ;CT WR FILL CHAR
2418 011160' 000012          CTFID:  .WORD  012       ;CT WR FILL I.D. CHAR
2419

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.SBTTL PRINTER (LP11,LS11,LV11) INTERRUPT ROUTINE

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*****
THIS ROUTINE PROCESSES INTERRUPTS FOR THE LP11, LS11, AND LV11
PRINTERS. AN ERROR CONDITION WILL CAUSE IMMEDIATE TERMINATION
OF THE I/O OPERATION. MAXIMUM LINE LENGTH WILL BE
80 CHARACTERS. ANY ABOVE THAT WILL BE TRUNCATED. TERMINATION
INCLUDES THE RESETTING OF USER 'W410T' & 'CTPR10' FLAGS
IF A USER I/O.
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011162' 004567 177636 CPRINT: JSR R5,CSVREG ;GO SAVE ALL REGISTERS
011166' 012701 011432' MOV #CPRCNT,R1 ;SET UP INFO STORAGE AREA ADR
011172' 016700 000250 MOV PRDRA,R0 ;GET DEV REG ADR
011176' 005710 TST (R0) ;PRINTER ERROR?
011200' 100457 BMI CPRTRM ;N,Y-CPRTRM
011202' 106327 ASLB (PC)+ ;DOING A TAB?
011204' 000000 CPRTFG: .WORD 0
011206' 001051 BNE CPRDOT ;N,Y-CPRDOT
011210' 005711 CPRIGN: TST (R1) ;CHAR CNT = 0?
011212' 001452 BEQ CPRTRM ;N,Y-CPRTRM
011214' 005311 DEC (R1) ;DECR CNT BY 1
011216' 115102 MOVB 2-(R1),R2 ;GET DATA CHAR
011220' 005221 INC (R1)+ ;INCR DATA ADR BY 1
011222' 120227 000040 CMPB R2,#40 ;THIS A CONTROL CHAR?
011226' 103413 BLO CPRCTC ;N,Y-CPRCTC
011230' 005327 CPRMCK: DEC (PC)+ ;DECR LINE CHAR COUNT
011232' 000120 CPRLNC: .WORD 80
011234' 002765 BLT CPRIGN ;ROOM LEFT? (Y,N-CPRIGN)
011236' 106327 ASLB (PC)+ ;UPDATE RUNNING TAB COUNT
011240' 000001 CPRTBC: .WORD 1
011242' 001424 BEQ CPRRTC ;CNT EXHAUSTED? (N,Y-CPRRTC)
011244' 110260 000002 CPRSCH: MOVB R2,2(R0) ;SEND CHAR TO PRINTER
011250' 004567 177564 CPREX: JSR R5,CRTREG ;RESTORE REGISTERS
011254' 000002 RTI ;RETURN AFTER INTERRUPT

011256' 120227 000011 CPRCTC: CMPB R2,#011 ;CHAR A TAB?
011262' 001420 BEQ CPRTAB ;N,Y-CPRTAB
011264' 120227 000015 CMPB R2,#015 ;IS IT A CARR RETURN?
011270' 001406 BEQ CPRSTC ;N,Y-CPRSTC
011272' 120227 000012 CMPB R2,#012 ;A LINE FEED?
011276' 001403 BEQ CPRSTC ;N,Y-CPRSTC
011300' 120227 000014 CMPB R2,#014 ;A FORM FEED?
011304' 001341 BNE CPRIGN ;Y,N-CPRIGN -- IGNORE IT
011306' 012767 000120 177716 CPRSTC: MOV #80,CPRLNC ;INITIALIZE LINE CHAR COUNT
011314' 012767 000001 177716 CPRRTC: MOV #1,CPRTBC ;INITIALIZE TAB COUNT
011322' 000750 BR CPRSCH ;GO SEND THE CHAR
011324' 016767 177710 177652 CPRTAB: MOV CPRTBC,CPRTFG ;SET UP CURR TAB COUNT
011332' 012702 000040 CPRDOT: MOV #40,R2 ;SET UP SPACE CHAR
011336' 000734 BR CPRMCK ;GO CHECK FOR ROOM

011340' 005767 000062 CPRTRM: TST CPRFWD ;THIS A USER PRINT?
011344' 100017 BPL 10$ ;Y,N-10$
011346' 004577 000002' JSR R5,JUFWCLR ;RESET USER'S WAIT FOR

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2577 011352' 000020          .WORD  CTPRIO          ;CONSOLE/PRINTER I/O FLAG
2578 011354' 000060          .WORD  CPRUFW-        ;
2579 011356' 032777 040000 000012' BIT    @CRUDED,@CSYSFW ;SUPPOSED TO RESET USER DEDICATED?
2580 011364' 001731          BEQ    CPREX          ;Y,N-CPREX
2581 011366' 042777 064000 000012' BIC    @CRUDED+CTUDED+CHPINT,@CSYSFW ;RESET SYS'S DED. FLAGS
2582 011374' 004577 000002' JSR    RS,@UFWCLR    ;RESET USER DEDICATED FLAG
2583 011400' 000040          .WORD  SETDED        ;
2584 011402' 000032          .WORD  CPRUFW-        ;
2585 011404' 032777 004000 000012' 10$: BIT    @CHPINT,@CSYSFW ;INT ENB BEING HELD SET?
2586 011412' 001001          BNE    20$          ;N,Y-20$
2587 011414' 005010          CLR    (R0)         ;RESET PRINTER'S INT ENABLE
2588 011416' 042767 000001 000002 20$: BIC    @CPRBSY,CPRFWD ;RESET PRINTER'S BUSY FLAG
2589 011424' 000711          BR     CPREX        ;GO TO EXIT

2590
2591
2592
2593 011426' 000000          CPRFWD: .WORD  0      ;PRINTER FLAG WORD
2594          000001          CPRBSY= 1      ;PRINTER IS BUSY
2595          000200          CPRERR= 200   ;PRINT ERROR MSG ISSUED
2596          100000          CPRUSR= 100000 ;USER PRINT FUNCTION
2597
2598
2599 011430' 000000          CPRADR: .WORD  0      ;CURRENT DATA ADR
2600 011432' 000000          CPRCNT: .WORD  0      ;CURRENT CHAR COUNT
2601 011434' 000000          CPRUFW: .WORD  0      ;*;USER FLAGWORD ADR
2602
2603
2604 011436'          CLISTI:          ;LIST DEVICE INFO STORAGE
2605 011436' 000000          .WORD  0      ;DEFAULT MDL CODE WORD
2606 011440' 000000          .WORD  0      ;DEFAULT UNIT #
2607 011442' 000000          .WORD  0      ;CURRENT MODEL CODE WORD
2608 011444' 000000          .WORD  0      ;CURRENT UNIT #
2609 011446' 177514          PRTDRA: .WORD  177514 ;DEV REG ADR
2610 011450' 000200          PRTIVA: .WORD  200   ;INT VECTOR ADR
2611 011452' 000200          PRTPSW: .WORD  200   ;PS WORD
2612 011454' 000000          .WORD  0      ;
2613
2614 011456' 000000          UFWHLD: .WORD  0      ;*;USER FLGWD ADR HOLD

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2514 .SBTTL PAPER TAPE HANDLER PARAMETER TABLE & ROUTINES
2515
2516
2517 011460' 011532' PTPARM: .WORD PTBOOT ;PAPER TAPE VECTOR TABLE
2518 011462' 011532' .WORD PTDIR
2519 011464' 011532' .WORD PTZERO
2520 011466' 011532' .WORD PTDELT
2521 011470' 011556' .WORD PTCLOS
2522 011472' 011550' .WORD PTENT
2523 011474' 011536' .WORD PTLOOK
2524 011476' 011550' .WORD PTALLC
2525 011500' 011604' .WORD PTDVR
2526
2527 011502' 000000 PTUNIT: .WORD 0 ;UNIT #
2528 011504' 000000 PTCREG: .WORD 0 ;PC11 CMND REG ADR
2529 011506' 000776 PTWCNT: .WORD 510. ;BYTE COUNT
2530 011510' 001146' PTBADR: .WORD BUF+2 ;BUS ADR
2531 011512' 000000 PTBLK: .WORD 0 ;BLOCK #
2532 011514' 000000 PTCMND: .WORD 0 ;COMMAND
2533 011516' 111221 PTRD: .WORD 111221 ;READ COMMAND--MOVB (R2),(R1)+
2534 011520' 112112 PTWR: .WORD 112112 ;WRITE COMMAND--MOVB (R1)+,(R2)
2535 011522' 000000 PTRBCT: .WORD 0 ;REQUESTED BLOCK COUNT
2536 011524' 011530' PTDPTR: .WORD PTDBLK ;POINTS TO 1ST DIR BLOCK
2537 011526' 000000 PTLBLK: .WORD 0 ;LAST BLOCK # ALLOCATED
2538 011530'
2539 011530' 000000 PTDBLK: .WORD 0 ;0 INDICATES NON-DIRECTORY DEVICE
2540
2541 ;PAPER TAPE ROUTINES
2542
2543
2544 011532' PTBOOT:
2545 011532' PTDIR:
2546 011532' PTZERO:
2547 011532' 000167 174660 PTDELT: JMP INVCMD ;ISSUE INVALID CMND ERROR MSG
2548 011536' 012765 000001 177744 PTLOOK: MOV #1,X1STBK(R5) ;SET UP DUMMY BLK # IN DOB
2549 011544' 062716 000002 PTLOOK: ADD #2,(SP) ;SET UP SUCCESSFUL EXIT
2550 011550'
2551 011550' 012765 000001 177750 PTENT:
2552 011556' 000207 PTCLOS: MOV #1,XLSTBK(R5) ;FAKE A BLOCK #
2553 ;EXIT IN-LINE
2554
2555 ;DEV ADDRESS SET UP ROUTINES
2556
2557 011560' 012767 177550 177716 SETPR: MOV #177550,PTCREG ;SET UP PTR DEV REG ADR
2558 011566' 000403 BR PTCOM ;GO TO COMMON POINT
2559 011570' 012767 177554 177706 SETPP: MOV #177554,PTCREG ;SET UP PTP DEV REG ADR
2560 011576' 012700 011460' PTCOM: MOV #PTPARM,R0 ;SET UP PT PARAM TBL ADR
2561 011602' 000207 RTS PC ;EXIT IN-LINE

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2563 .SBTTL PAPER TAPE HANDLER DRIVER
2564
2565
2566 011604' 005027 PTDVR: CLR (PC)+ ;CLEAR DATA XFER FLAG
2567 011606' 000000 PTNOUT: .WORD 0 ;DATA TRANSFER FLAG
2568 011610' 016503 000000 MOV XCM(R5),R3 ;GET STATUS REG ADR
2569 011614' 010302 MOV R3,R2 ;SET UP DATA REG ADR
2570 011616' 005722 TST (R2)+ ;ERROR BIT SET?
2571 011620' 100470 BMI PTERR ;(N,Y-PTERR)
2572 011622' 012701 001146' MOV #BUF+2,R1 ;SET UP BUFFER ADR
2573 011626' 012700 000776 MOV #510,R0 ;SET UP BYTE COUNT
2574 011632' 016567 000010 000006 MOV XCO(R5),PT2 ;SET UP MOV8 INST
2575 011640' 005213 PT1: INC (R3) ;SET THE "GO" BIT IF THERE
2576 011642' 004767 000062 JSR PC,PTIMER ;GO WAIT FOR DONE
2577 011646' 000240 PT2: NOP ;CHANGED TO EITHER 111221 OR 112112
2578 011650' 001014 BNE PT3 ;BR IF DATA IS NON-ZERO
2579 011652' 005767 177730 TST PTNOUT ;ANY DATA TRANSFERRED?
2580 011656' 001011 BNE PT3 ;BR IF YES
2581 011660' 005765 177716 TST XWCTR(R5) ;NO, THIS 1ST BLK?
2582 011664' 001006 BNE PT3 ;BR IF NOT
2583 011666' 026567 000010 177622 CMP XCO(R5),PTRD ;THIS A READ OPERATION?
2584 011674' 001002 BNE PT3 ;BR IF NOT
2585 011676' 005301 DEC R1 ;BKUP XFER ADR, IGNORE LEADING 0'S
2586 011700' 000757 BR PT1 ;GO KEEP I/O GOING
2587 011702' 005267 177700 PT3: INC PTNOUT ;SET DATA XFERRED FLAG
2588 011706' 001405 BEQ PTDONE
2589 011710' 005300 DEC R0 ;DECR BYTE COUNT
2590 011712' 003352 BGT PT1 ;CNT = 0? (Y,N-PT1)
2591 011714' 012767 000001 167222 MOV #1,BUF ;SET UP BLOCK #
2592 011722' 005265 177716 PTDONE: INC XWCTR(R5) ;UP BLKS PROCESSED CNT
2593 011726' 000207 RTS PC ;EXIT IN-LINE
2594
2595 011730' 005027 PTIMER: CLR (PC)+ ;RESET DELAY COUNTER
2596 011732' 000000 PTCNT: .WORD 0 ;DELAY COUNTER
2597 011734' 032713 100200 PTIME1: BIT #100200,(R3) ;TEST FOR ERROR OR DONE
2598 011740' 100415 BMI PTOUT ;ERROR SET? (N,Y-PTOUT)
2599 011742' 003016 BGT PTIMEX ;DONE SET? (N,Y-PTIMEX)
2600 011744' 026767 177762 177760 CMP PTCNT,PTCNT ;DELAY A BIT
2601 011752' 026767 177754 177752 CMP PTCNT,PTCNT
2602 011760' 005267 177746 INC PTCNT ;INCR DELAY COUNTER
2603 011764' 001363 BNE PTIME1 ;TIMED OUT? (Y,N-PTIME1)
2604 011766' 005767 177614 TST PTNOUT ;DONE ANY OUTPUT?
2605 011772' 001403 BEQ PTERR ;Y,N-PTERR
2606 011774' 005067 167144 PTOUT: CLR BUF ;EOF ON THE DEVICE
2607 012000' 000207 PTIMEX: RTS PC ;EXIT IN-LINE FROM S/R
2608
2609 012002' 000167 174316 PTERR: JMP DEVERR ;GO REPORT DEVICE ERROR
2610 001 .IF DF MIMIC
2611
2612
2613 ALPT1= -.LOC600
2614 ALFCT1= ALPT1&000077+8./2
2615 002 .IF NE ALFCT1
2616 ALQUN1= 31.-ALFCT1
2617 .BLKW ALQUN1
2618 .WORD 0 ;ALIGN TO NEXT 32 WORD BNDRY - 8

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MAINTDEC-11-DTECA-B COMMON SECTION FOR ALL MPG EXECUTIVES
DTECAB.P11 PAPER TAPE HANDLER DRIVER

G05
MACY11 27(732) 24-SEP-76 13:56 PAGE 24-2

SEQ 0310

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.ENDC
.ENDC

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.SBTTL LOAD MEDIA HANDLER

012006' 007016'
012010' 011560'
012012' 007014'
012014' 011560'

EMDLTB: .WORD 7016 ; PAPER TAPE (PC11) MDL CODE
PTSUAD: .WORD SETPR ; PAPER TAPE RDR (PC11) SU ADR
.WORD 7014 ; PAPER TAPE RDR (PR11) MDL CODE
.WORD SETPR ; SU ADR

; THE REST OF THIS TABLE IS CONTAINED IN
; THE FIRST PART OF THE LOAD MEDIA HANDLER.

000000'

.CSECT HANDLR

; THE LOAD MEDIA DEVICE HANDLER WILL RESIDE IN THIS
; AREA OF MEMORY AND WILL BE FOLLOWED IN MEMORY
; BY THE ONE TIME HOUSEKEEPING ROUTINE.

; THE LISTINGS THAT CONTAIN THE VARIOUS HANDLERS WHICH
; OCCUPY THIS AREA ARE:

- TCMPG = DTE0A-? - TC11 HANDLER
- RKMPG = DTE1A-? - RK11 HANDLER
- TMMPG = DTE2A-? - TM11 HANDLER
- THMPG = DTE3A-? - TM02 HANDLER
- RXMPG = DTE4A-? - RX11 HANDLER
- RBMPG = DTE5A-? - RP04 HANDLER

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2652 .SBTTL MPG EXEC TEMPORARY ONE TIME HOUSEKEEPING
2653
2654 000000' .CSECT EXHSKP
2655
2656
2657 000000' HKLOCZ:
2658 001 .IF NDF MIMIC
2659
2660
2661 000000' 000000 UFWSET: .WORD XXXX
2662 000002' 000000 UFWCLR: .WORD XXXX
2663 000004' 000000 UFWTST: .WORD XXXX
2664 000006' 000000 BINASC: .WORD XXXX
2665 000010' 000000 BTASLB: .WORD XXXX
2666 000012' 000014' CSYSFW: .WORD USRINT
2667 000014' 000000 USRINT: .WORD XXXX
2668
2669 000016' MPGBGN =. ;MPG WILL BE LOADED STARTING HERE OR THE
2670 000 ;NEXT 32 WORD BOUNDARY IF USING MEM MGMNT.
2671 000 .ENDC
2672
2673 ;THE FOLLOWING CODE IS EXECUTED ONE TIME
2674 ;WHEN THE MPG EXEC IS FIRST LOADED. THIS CODE
2675 ;WILL BE DESTROYED WHEN THE MPG PROGRAM
2676 ;IS LOADED INTO THIS AREA.
2677
2678
2679 ;FORMAT VECTOR LOCATIONS 0 THRU 276.
2680 ;SET THE PSW TO 0.
2681 ;TEST IF CONSOLE TERMINAL IS PRESENT.
2682 ;INITIALIZE CONSOLE TERMINAL ADDRESSES.
2683
2684 000016' 005000 E1THKP: CLR RO ;SET LOCATIONS 0 & 2
2685 000020' 005020 CLR (RO)+ ;TO HALT'S
2686 000022' 005020 CLR (RO)+
2687 000024' 010001 MOV RO,R1 ;SET LOCATIONS 4 THRU 276 TO
2688 000026' 005721 TST (R1)+ ;+2 AND HALT.
2689 000030' 010120 10$: MOV R1,(RO)+ ;DO NOT CHANGE LOCATIONS
2690 000032' 005020 CLR (RO)+ ;40 & 42
2691 000034' 062701 000004 20$: ADD #4,R1
2692 000040' 020027 000300 30$: CMP RO,#300
2693 000044' 001406 BEQ 40$
2694 000046' 020027 000040 CMP RO,#40
2695 000052' 001366 BNE 10$
2696 000054' 062700 000004 ADD #4,RO
2697 000060' 000765 BR 20$
2698 000062' 012737 000002 000102 40$: MOV #2,2#102 ;INIT LSI-11 CLK VECTOR
2699 000070' 005046 CLR -(SP) ;SET UP PSW OF 0
2700 000072' 012746 000100' MOV #TTYTST,-(SP) ;SET UP ADR OF INST AFTER RTI
2701 000076' 000002 RTI ;POP PSW & PC OFF STACK
2702 000100' 012737 000124' 000004 TTYTST: MOV #TTYTRP,2#4 ;SET UP BUS TIMEOUT TRAP
2703 000106' 105777 011146' TSTB 2CTWDRA ;IS A TERMINAL THERE FOR WRITE?
2704 000112' 100407 BMI FMTVCT ;N,Y-FMTVCT
2705 000114' 012700 011140' TTYERR: MOV #CTRDRA,RO ;SET CONS TERM INFO ADR IN RO
2706 000120' 000000 HALT ;STOP; CONSOLE TERM NOT THERE.
2707 ;ALLOW USER TO CHANGE CONS

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2708 ;TERM PRESET INFO
2709 000122' 000766 ;GO TRY WITH NEW DATA
2710 000124' 012716 000114' TTYTRP: BR TTYTST ;SET UP ERR RET ADR
2711 000130' 000002 RTI ;EXIT FROM TRAP
2712 000132' 012700 011142' FMTVCT: MOV #CTRVEC,RO ;SET UP CONS TERM RD & WR
2713 000136' 012001 MOV (RO)+,R1 ;INT VECTOR LOCATIONS
2714 000140' 012721 010162' MOV #CTRINT,(R1)+ ;STORE RD INT ROUT ADR
2715 000144' 012021 MOV (RO)+,(R1)+ ;STORE RD PS WORD
2716 000146' 005720 TST (RO)+ ;BY PASS WR DEV REG ADR
2717 000150' 012001 MOV (RO)+,R1 ;GET WR INT VECT ADR
2718 000152' 012721 007626' MOV #CTWINT,(R1)+ ;STORE WRITE INT ROUT ADR
2719 000156' 012021 MOV (RO)+,(R1)+ ;STORE WR PS WORD
2720
2721
2722 ;ISSUE EXECUTIVE'S TITLE MESSAGE
2723
2724 000160' 004567 005654' JSR R5,MES ;ISSUE PORTION OF MSG THAT
2725 000164' 000000G .WORD EXCID ;IS IN THE LOADER OR HANDLER
2726 000166' 004567 005654' JSR R5,MES ;ISSUE TRAILING PORTION
2727 000172' 002040' .WORD EXCIDT ;OF THE MSG
2728
2729
2730 ;CLEAR MEM & DETERMINE MEM SIZE
2731
2732 000174' 012737 000236' 000004 EHKMEM: MOV #EHKBAT,2#4 ;SET BUS ADR TRAP ROUT ADR
2733 000202' 016700 001136 MOV LIMIT+2,RO ;SET UP END OF EXEC ADR
2734 000206' 005010 10$: CLR (RO) ;CLEAR WORD OF MEMORY
2735 000210' 005720 TST (RO)+ ;POINT TO NEXT LOCATION
2736 000212' 020027 160000 CMP RO,#160000 ;REACHED END OF MAX MEM?
2737 000216' 001373 BNE 10$ ;Y,N-10$
2738 000220' 020027 100000 EMFND: CMP RO,#100000 ;MEM 16K WORDS OR LARGER?
2739 000224' 103407 BLO EINSFM ;Y,N-EINSFM
2740 000226' 005740 TST -(RO) ;SET UP LAST WORD ADR
2741 000230' 010067 000466' MOV RO,ENDMEM ;SAVE IT
2742 000234' 000410 BR EGTDAT ;GO TO GET DATE ROUTINE
2743
2744 000236' 012716 000220' EHKBAT: MOV #EMFND,(SP) ;CHANGE RETURN ADR ON STACK
2745 000242' 000002 RTI ;RETURN AFTER OUT OF MEM TRAP
2746
2747 000244' 004567 005654' EINSFM: JSR R5,MES ;ISSUE INSUFFICIENT MEMORY
2748 000250' 000136' .WORD ISUFM ;ERROR MSG
2749 000252' 000000 HALT ;INSUF MEM HALT
2750 000254' 000747 BR EHKMEM ;GO CK MEM AGAIN
2751
2752
2753 ;GET TODAY'S DATE & PACK INTO DOS COMPATIBLE FORMAT
2754
2755 000256' 004567 005654' EGTDAT: JSR R5,MES ;ISSUE "ENTER DATE" MSG
2756 000262' 001454' .WORD EDMSG
2757 000264' 004567 007124' JSR R5,CTRD ;ISSUE READ FOR THE REPLY
2758 000270' 001024 .WORD EK$BUF-.
2759 000272' 000025 .WORD 21.
2760 000274' 012767 001314' 001010 MOV #EK$BUF,EKBPTR ;INITIALIZE REPLY DATA POINTER
2761 000302' 004767 001144' JSR PC,ATOI ;GO SCAN FOR DAY VALUE
2762 000306' 005702 TST R2 ;IS IT 0?
2763 000310' 001527 BEQ EDATER ;N,Y-EDATER

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2764	000312'	010204		MOV	R2,R4		;SAVE DAY VALUE
2765	000314'	010267	000072	MOV	R2,33\$		
2766	000320'	004767	000212	JSR	PC,EKBDISK		;GO CHECK FOR DATA TO BE SKIPPED
2767	000324'	012701	006214'	MOV	#EMONTB,R1		;SET UP MONTH TABLE START ADR
2768	000330'	012702	000002	MOV	#2,R2		;SET UP COMPARE CNT -1
2769	000334'	122021		10\$: CMPB	(R0)+,(R1)+		;MONTH CHAR'S COMPARE?
2770	000336'	001413		20\$: BEQ	30\$;N,Y-30\$
2771	000340'	060201		ADD	R2,R1		;INCR PAST REST OF CHAR'S
2772	000342'	112103		MOVB	(R1)+,R3		;GET THIS MONTH'S # OF DAYS
2773	000344'	060304		ADD	R3,R4		;ADD IT INTO RUNNING TOTAL
2774	000346'	020127	006274'	CMP	R1,#EMONTB+48.		;CHECKED ALL MONTHS?
2775	000352'	001506		BEQ	EDATER		;N,Y-EDATER
2776	000354'	012703	000003	MOV	#3,R3		;BACKUP KYBD DATA PNTR
2777	000360'	160203		SUB	R2,R3		
2778	000362'	160300		SUB	R3,R0		
2779	000364'	000761		BR	10\$;GO CK NXT MONTH
2780	000366'	005302		30\$: DEC	R2		;DECR COMPARE CNT
2781	000370'	100361		BPL	20\$;COMPARED 3 CHAR'S? (Y,N-20\$)
2782	000372'	010067	000714	MOV	R0,EKBPTR		;STORE NEW DATA PNTR
2783	000376'	004767	000134	JSR	PC,EKBDISK		;DO SELECTED DATA SKIP
2784	000402'	004767	001144'	JSR	PC,ATOI		;SCAN & CONVERT YEAR VALUE
2785	000406'	111103		MOVB	(R1),R3		;GET # OF DAYS IN THIS MONTH
2786	000410'	022703		CMP	(PC)+,R3		;# OF DAYS ENTERED TOO LARGE?
2787	000412'	000000		33\$: .WORD	XXXX		
2788	000414'	101412		BLOS	36\$;Y,N-36\$
2789	000416'	032702	000003	BIT	#3,R2		;THIS A LEAP YEAR?
2790	000422'	001062		BNE	EDATER		;Y,N-EDATER
2791	000424'	020127	006223'	CMP	R1,#EMONTB+7		;IS THIS FEBRUARY?
2792	000430'	001057		BNE	EDATER		;Y,N-EDATER
2793	000432'	026727	177754 000035	CMP	33\$,#29.		;IS DAY = 29?
2794	000440'	001053		BNE	EDATER		;Y,N-EDATER
2795	000442'	032702	000003	36\$: BIT	#3,R2		;THIS A LEAP YEAR?
2796	000446'	001004		BNE	40\$;Y,N-40\$
2797	000450'	020127	006224'	CMP	R1,#EMONTB+8.		;IS MONTH MARCH OR LATER?
2798	000454'	103401		BLO	40\$;Y,N-40\$
2799	000456'	005204		INC	R4		;ADD TO RUN TOT FOR FEB 29
2800	000460'	020227	000143	40\$: CMP	R2,#99.		;YEAR ENTERED > 99?
2801	000464'	101041		BHI	EDATER		;N,Y-EDATER
2802	000466'	162702	000106	SUB	#70.,R2		;SUB BASE VALUE FROM YEAR # ENTERED
2803	000472'	100436		BMI	EDATER		;LESS THAN BASE? (N,Y-DATER)
2804	000474'	001404		50\$: BEQ	60\$;AT BASE YEAR? (N,Y-60\$)
2805	000476'	062704	001750	ADD	#1000.,R4		;ADD YEAR INCR VALUE TO RUN TOT
2806	000502'	005302		DEC	R2		;DECR YEAR VALUE
2807	000504'	000773		BR	50\$;GO CK FOR BASE
2808	000506'	010467	000470'	60\$: MOV	R4,TODAY		;STORE RUN TOT AS M/D/Y CODE
2809	000512'	004767	000020	JSR	PC,EKBDISK		;DO SELECTED DATA SKIP
2810	000516'	005067	000336	CLR	DATELF		;RESET LF TERMINATOR FLAG
2811	000522'	121027	000012	CMPB	(R0),#012		;LF TERMINATE DATE REPLY?
2812	000526'	001002		BNE	70\$;Y,N-70\$
2813	000530'	005267	000324	70\$: INC	DATELF		;SET LF TERMINATOR REPLY FLG
2814	000534'	000421		BR	ESYDSU		;GO SET UP FOR LOAD DEV
2815							
2816	000536'	016700	000550	EKBDISK: MOV	EKBPTR,R0		;GET CURR DATA PNTR
2817	000542'	121027	000040	100\$: CMPB	(R0),#40		;DATA CHAR A SPACE?
2818	000546'	001403		BEQ	110\$;N,Y-110\$
2819	000550'	121027	000055	CMPB	(R0),#'-		;A MINUS SIGN?


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2820 000554' 001002          BNE      120$          ;Y,N-120$
2821 000556' 005200          110$:   INC      RO          ;ADD 1 TO DATA ADR
2822 000560' 000770          BR       100$          ;GO CK NXT CHAR
2823 000562' 010067 000524  120$:   MOV      RO,EKBPTR ;STORE NEW PNTR
2824 000566' 000207          RTS      PC           ;EXIT IN-LINE
2825
2826 000570' 004567 005654'  EDATER: JSR      R5,MES    ;ISSUE 'INV DATE' MSG
2827 000574' 001504'        .WORD   EDERMG
2828 000576' 000627        BR       EGTDAT      ;GO TRY AGAIN
2829
2830
2831          ;INITIALIZE FOR SYSTEM LOAD DEVICE
2832
2833 000600' 005003          ESYDSU: CLR      R3          ;INITIALIZE FOR NO LINE FEED
2834 000602' 012700          MOV      (PC)+,RO    ;GET LOAD DEV UNIT #
2835 000604' 177777          LDUNUM: .WORD   -1     ;LOAD DEV UNIT # STORAGE
2836 000606' 100020          BPL      70$          ;IS THERE ONE? (N,Y-70$)
2837 000610' 004567 005654'  60$:   JSR      R5,MES    ;ISSUE MSG TO REQUEST ONE
2838 000614' 001745'        .WORD   LDUREQ
2839 000616' 004767 001240'  JSR      PC,OATOB    ;GET REPLY & CONVERT TO BINARY
2840 000622' 000772          BR       60$          ;DATA ERROR? (N,Y-60$)
2841 000624' 005700          TST      RO          ;ANY DATA RECEIVED?
2842 000626' 001410          BEQ      70$          ;Y,N-70$
2843 000630' 010100          MOV      R1,RO       ;MOVE DATA RC'VD TO CORRECT REG
2844 000632' 020027 000010  CMP      RO,#8.      ;UNIT # TOO LARGE?
2845 000636' 103404          BLO      70$          ;Y,N-70$
2846 000640' 004567 005654'  JSR      R5,MES    ;ISSUE ERROR MSG
2847 000644' 001725'        .WORD   INVDMG
2848 000646' 000760          BR       60$          ;GO ASK AGAIN
2849 000650' 010067 000002G  70$:   MOV      RO,CFTCHI+2 ;STORE AS LOAD DEV DEFAULT UNIT #
2850 000654' 010067 000002G  MOV      RO,CSAVEI+2
2851 000660' 010067 000006G  MOV      RO,CFTCHI+6 ;STORE AS CURRENT UNIT #
2852 000664' 010067 000006G  MOV      RO,CSAVEI+6
2853 000670' 122703 000012  CMPB    #012,R3     ;LINE FEED TERMINATOR?
2854 000674' 001002          BNE      CK4MM       ;Y,N-CK4MM
2855 000676' 005267 000156  INC      DATELF      ;SET LF TERM FLG
2856
2857
2858          ;DETERMINE IF MEMORY MANAGEMENT IS ON THE SYSTEM AND
2859          ;IF IT IS, ASK IF THEY WANT TO USE IT.
2860          ;IF USING IT, ALIGN MPG START ADR TO A 32 WORD BOUNDARY.
2861
2862 000702' 012737 001050' 000004  CK4MM: MOV      #MMTRAP,#4   ;SET UP BUS ADR TRAP ROUT ADR
2863 000710' 005737 177572          TST      #MMMRO     ;TEST IF MMMRO REG IS THERE
2864
2865          ;IF NO TRAP, WE DO THE FOLLOWING
2866
2867 000714' 004567 005654'          80$:   JSR      R5,MES    ;ASK IF THEY WANT TO USE MEM
2868 000720' 002006'        .WORD   USEMM       ;MGMENT
2869 000722' 004567 007124'        JSR      R5,CTRD    ;ISSUE READ FOR THE REPLY
2870 000726' 000366        .WORD   EK'BUF-.
2871 000730' 000025        .WORD   21.
2872 000732' 004767 001376'        JSR      PC,CKRPLY  ;CHECK FOR A REPLY
2873 000736' 000766        BR       80$        ;BR IF INV DATA
2874 000740' 000401        BR       85$        ;BR IF Y, <CR>, OR <LF>
2875 000742' 000424        BR       MMCKRT     ;BR IF N

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2876          001          .IF DF MIMIC
2877          .IFT
2878          85$: MOV      #MPGBGN,RO          ;GET CURRENT MPG START ADR
2879          .IFF
2880 000744' 012767 040515 000034' 85$: MOV      #'MA,MPGID          ;CHANGE MPG'S FILENAME
2881 000752' 012700 000016'      MOV      #MPGBGN,RO          ;GET CURRENT MPG START ADR
2882          000          .ENDC
2883          001          .IF DF DEBUG
2884          .IFF
2885 000756' 032700 000077      BIT      #77,RO          ;IS IT ON A 32 WD BNDRY?
2886          .IFT
2887          BIT      #7777,RO          ;IS IT ON A 2048 WD BNDRY?
2888          000          .ENDC
2889 000762' 001414      BEQ      MMCKRT          ;N,Y-MMCKRT
2890 000764' 010001      MOV      RO,R1          ;SAVE CURR ADR
2891          001          .IF DF DEBUG
2892          .IFF
2893 000766' 042700 000077      BIC      #77,RO          ;ALIGN ADR TO NXT 32 WD BNDRY
2894 000772' 062700 000100      ADD      #100,RO
2895          .IFT
2896          BIC      #7777,RO          ;ALIGN ADR TO NEXT 2048 WD BNDRY
2897          ADD      #10000,RO
2898          .ENDC
2899 000776' 160100      SUB      R1,RO          ;GET POSITION ADJ FACTOR
2900 001000' 010067 000120'      MOV      RO,POSADJ          ;STORE IT FOR MPG'S 1 TIME HSKP
2901 001004' 060067 000472'      ADD      RO,MPGST          ;UPDATE MPG'S START ADR
2902          001          .IF NDF MIMIC
2903 001010' 060067 000046'      ADD      RO,MPGADR          ;UPDATE MPG'S LOAD ADR
2904          000          .ENDC
2905 001014' 120327 000040      MMCKRT: CMPB     R3,#040          ;REPLY BYTE A LINE TERMINATOR?
2906 001020' 103402      BLO     90$              ;N,Y-90$
2907 001022' 112203      MOVB   (R2)+,R3          ;GET NEXT REPLY BYTE
2908 001024' 000773      BR     MMCKRT           ;GO CK IT
2909 001026' 120327 000012      90$:  CMPB     R3,#012          ;IS IT A LINE FEED?
2910 001032' 001002      BNE     MMCKEX          ;Y,N-MMCKEX
2911 001034' 005267 000020      INC     DATELF          ;SET LF TERM FLAG
2912 001040' 012737 000006 000004 MMCKEX: MOV     #6,2#4          ;RESTORE TRAP VECTOR
2913 001046' 000403      BR     CTCONS          ;GO TO NEXT HSKP FUNCTION
2914
2915 001050' 012716 001040'      MMTRAP: MOV     #MMCKEX,(SP)          ;BYPASS REST OF THIS FUNCTION
2916 001054' 000002      RTI                    ;RETURN AFTER THIS TRAP
2917
2918
2919          ;REQUEST CONSOLE TERMINAL CONSTANTS CHANGE
2920
2921 001056' 005727      CTCONS: TST     (PC)+          ;LF TERMINATOR ON DATE REPLY?
2922 001060' 000000      DATELF: .WORD   0              ;DATE LF TERMINATOR FLAG
2923 001062' 001072      BNE     RELGBL          ;N,Y-RELGBL
2924 001064' 004567 00565+'      5$:  JSR     RS,MES          ;ISSUE TITLE & FIRST REQ MSG
2925 001070' 001522'      .WORD   CON1MG
2926 001072' 004767 001240'      JSR     PC,OATOB          ;GET REPLY & CONVERT TO BINARY
2927 001076' 000772      BR     5$              ;ERROR? (N,Y-5$)
2928 001100' 005700      TST     RO              ;DATA RECEIVED?
2929 001102' 001402      BEQ     10$            ;Y,N-10$
2930 001104' 010167 011160'      MOV     R1,CTFID          ;STORE NEW I.D. CHAR
2931 001110' 122703 000012      10$:  CMPB     #012,R3          ;LINE FEED TERMINATOR?

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2932 001114' 001455          BEQ      RELGBL          ;N,Y-RELGBL
2933 001116' 004567 005654' 15$:     JSR      R5,MES        ;ISSUE SECOND MSG
2934 001122' 001605'        .WORD   CON2MG
2935 001124' 004767 001240' JSR      PC,OATOB      ;GET REPLY & CONVERT
2936 001130' 000772          BR       15$           ;ERROR? (N,Y-15$)
2937 001132' 005700          TST     RO            ;DATA RECEIVED?
2938 001134' 001402          BEQ     20$           ;Y,N-20$
2939 001136' 010167 011156' MOV     R1,CTFCAR     ;STORE NEW FILL CHAR
2940 001142' 122703 000012 20$:     CMPB   #012,R3       ;LINE FEED TERMINATOR?
2941 001146' 001440          BEQ     RELGBL        ;N,Y-RELGBL
2942 001150' 004567 005654' 25$:     JSR      R5,MES        ;ISSUE THIRD MSG
2943 001154' 001632'        .WORD   CON3MG
2944 001156' 004767 001240' JSR      PC,OATCB      ;GET REPLY & CONVERT
2945 001162' 000772          BR       25$           ;ERROR? (N,Y-25$)
2946 001164' 005700          TST     RO            ;DATA RECEIVED?
2947 001166' 001402          BEQ     30$           ;Y,N-30$
2948 001170' 010167 011154' MOV     R1,CTFCNT     ;STORE NEW FILL CNT
2949 001174' 122703 000012 30$:     CMPB   #012,R3       ;LINE FEED TERMINATOR?
2950 001200' 001423          BEQ     RELGBL        ;N,Y-RELGBL
2951 001202' 004567 005654' 35$:     JSR      R5,MES        ;ISSUE LOWER CASE MSG
2952 001206' 001657'        .WORD   CON4MG
2953 001210' 004567 007124' JSR      R5,CTRD      ;ISSUE RD FOR REPLY
2954 001214' 000100        .WORD   EKYBUF-.
2955 001216' 000025        .WORD   21.
2956 001220' 004767 001376' JSR      PC,CKRPLY     ;GO CHECK THE REPLY
2957 001224' 000766          BR       35$           ;BR IF INV DATA
2958 001226' 000410          BR       RELGBL        ;BR IF Y, <CR> OR <LF>
2959 001230' 012702 010206' MOV     #LOWCAS,R2    ;NO, SET UP ADR OF INST'S TO WIPE OUT
2960 001234' 012703 000010 50$:     MOV     #8,R3         ;SET UP # OF WORDS
2961 001240' 012722 000240  MOV     #240,(R2)+    ;CLEAR INST'S TO NOP'S
2962 001244' 005303          DEC     R3
2963 001246' 001374          BNE     50$
2964
2965
2966          ;RELOCATE EXEC INTERFACE ADR'S
2967
2968 001250' 012700 001424' RELGBL: MOV     #EGBLTE,RO   ;GET END ADR OF INTERFACE ADR'S TBL
2969 001254' 016701 000466' MOV     ENDMEM,R1     ;GET END OF MEM ADR
2970 001260' 012702 000027' MOV     #EGBLTE-EGBLTS/2,R2 ;GET # OF ADDRESSES
2971 001264' 010267 000076' MOV     R2,ESGCNT     ;STORE THIS CNT FOR HSKP EXTENSION
2972 001270' 014041 85$:     MOV     -(RO),-(R1)   ;STORE ADR AT TOP OF MEM
2973 001272' 005302          DEC     R2            ;DECR ADDRESS CNT
2974 001274' 001375          BNE     85$           ;STORED ALL? (Y,N-85$)
2975 001276' 010167 000062' MOV     R1,ESGADR     ;STORE ADR OF STORED ADR'S
2976
2977
2978          .IF DF MIMIC
2979          ;DISPLAY SLEEP BREAKPOINT ADDRESS
2980
2981 DSBKPT: MOV     #SLPBKP,R1 ;GET ADR OF BREAKPOINT INST
2982          MOV     #SBKPAD,R2 ;GET ADR OF MSG AREA
2983          JSR     PC,OBTOA ;CONVERT ADR TO BIN & PUT IN MSG
2984          JSR     R5,MES ;ISSUE SLP BKPT ADR MSG
2985          .WORD   SBKPMG
2986
2987
001

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2988          000          .ENDC
2989          .HOUSEKEEPING EXIT
2990
2991 001302' 012745 000240 EXHKEK: MOV      #240,-(R5)          ;SET CALLING JSR TO NOP'S
2992 001306' 011545          MOV      (R5),-(R5)
2993 001310' 000205          RTS        R5          ;EXIT IN-LINE
2994
2995
2996 001312' 001314' EKBPTR: .WORD    EKYBUF          ;KEYBOARD DATA BUFFER POINTER
2997 001314' 000025 EKYBUF: .BLKB   21          ;21 BYTE KEYBOARD BUFFER
2998 001341'      015          .BYTE    015
2999
3000 001342' 000000 000000 LIMIT: .LIMIT          ;EXEC'S START & END ADR --
3001          .TAILORED BY THE LNKX11 PROGRAM
3002          001          .IF DF MIMIC
3003
3004 SBKPMG: .ASCII  <015><012>/SLEEP BKPT = /
3005 SBKPAD: .ASCIZ  /XXXXXX/<015><012>
3006          .EVEN
3007          .PAGE
3008          .SBTTL  ROUTINE THAT CREATES DISK FOR MIMIC DEBUGGING
3009
3010
3011          RKER=    177402
3012          RKCS=    177404
3013          RKWC=    177406
3014          RKBA=    177410
3015          RKDA=    177412
3016
3017
3018 DISKWR: MOV      #37744,R6          ;INITIALIZE STACK POINTER
3019          MOV      LIMIT+2,R0      ;GET END OF EXEC+MPG ADR
3020          ASR      R0              ;MAKE IT A WORD COUNT
3021          NEG      R0              ;MAKE IT NEGATIVE
3022          MOV      R0,(PC)+        ;STORE IT AS EXEC'S WORD COUNT
3023
3024 ESIZE:  .WORD    0
3025          MOV      #-256.,@RKWC    ;SET WORD COUNT TO 1 BLOCK
3026          CLR     @RKBA            ;SET BUSS ADR TO 0
3027          CLR     @RKDA            ;SET BLOCK # TO 0
3028          MOV     @3,@RKCS         ;ISSUE WRITE DATA CMND
3029 10$:   TST      @RKCS            ;ERROR BIT SET?
3030          BMI     40$             ;N,Y-40$
3031          TSTB   @RKCS            ;DONE BIT SET?
3032          BPL     10$             ;Y,N-10$
3033          MOV     ESIZE,@RKWC      ;SET UP EXEC'S WORD COUNT
3034          CLR     @RKBA            ;SET BUSS ADR TO 0
3035          MOV     #40,@RKDA        ;SET BLOCK # TO 30
3036          MOV     @3,@RKCS         ;ISSUE WRITE DATA CMND
3037 20$:   TST      @RKCS            ;ERROR BIT SET?
3038          BMI     50$             ;N,Y-50$
3039          TSTB   @RKCS            ;DONE BIT SET?
3040          BPL     20$             ;Y,N-20$
3041          RESET
3042          HALT
3043          ;ERROR ENCOUNTERED
    
```


3044
3045
3046
3047
3048
3049
3050
3051
3052
3053

000

```

405: CLR R2 ;SET FLAG TO THIS ENTRY POINT
      BR 605
505: MOV 8-R2 ;SET IT TO THIS ENTRY POINT
605: MOV @ARKCS,R0 ;SAVE CONTROL STATUS
      MOV @ARKER,R1 ;SAVE ERROR REG
      MOV @1,@ARKCS ;ISSUE CONTROLLER RESET CMND
      HALT ;ERROR HALT
      BR DISKWR ;GO RETRY
      .ENDC

```

3055 .SBTTL MPG/EXEC INTERFACE ADDRESSES TABLE

3056			
3057	001346'		EGBLTS:
3058	001346'	003656'	.WORD BOOT
3059	001350'	001144'	.WORD BUF
3060	001352'	000000G	.WORD CFTCHI
3061	001354'	011436'	.WORD CLISTI
3062	001356'	003136'	.WORD CLOSE
3063	001360'	007256'	.WORD CPRT
3064	001362'	003112'	.WORD CREATE
3065	001364'	000000G	.WORD CSAVEI
3066	001366'	011056'	.WORD CTFLGW
3067	001370'	007124'	.WORD CTRD
3068	001372'	010450'	.WORD CTRDEX
3069	001374'	007104'	.WORD CTRDNE
3070	001376'	006646'	.WORD CTUSWR
3071	001400'	006750'	.WORD CTWR
3072	001402'	007306'	.WORD CUSPRT
3073	001404'	003514'	.WORD DELETE
3074	001406'	002412'	.WORD GET
3075	001410'	003576'	.WORD LIST
3076	001412'	003244'	.WORD LOADVR
3077	001414'	003006'	.WORD OPENL
3078	001416'	003142'	.WORD PUT
3079	001420'	003542'	.WORD ZERO
3080	001422'	000536'	.WORD REALNM
3081		001424'	EGBLTE =.

3082			
3083			
3084			
3085	001		.IF DF MIMIC
3086			
3087			.BLKW 1.

:MODIFIABLE FILL AREA USED
 :TO FORCE MPG START ADR
 :OF 20000 WHEN UNDER MIMIC
 :AND MEM MGMNT.

3088			
3089			
3090			
3091			
3092			UFWSET: .WORD XXXX
3093			UFWCLR: .WORD XXXX
3094			UFWTST: .WORD XXXX
3095			BINASC: .WORD XXXX
3096			BTASLB: .WORD XXXX
3097			CSYSFW: .WORD USRINT
3098			USRINT: .WORD XXXX

3099			
3100			MPGBGN =.
3101			
3102			ALPT2= .-HKLOCZ
3103			ALFCT2= ALPT2&000077/2
3104	002		.IF NE ALFCT2
3105			ALQUN2= 31.-ALFCT2
3106			.BLKW ALQUN2
3107			.WORD 0
3108	001		.ENDC
3109	000		.ENDC
3110			

:ALIGN TO NEXT 32 WORD BNDRY

3111	001424'	EXCEND =.	
3112			
3113	000000'	.END	EXECST

ALC = 177772			CPRTFG 011204R	003	CTRTRM 010726R	003	EGETWD 002714R	003	EUSRSA 003000R	003
ATOI 001144R	003		CPRTRM 011340R	003	CTRVEC 011142R	003	EGTDAT 000256R	005	EWRTIL 004534R	003
BCDCV 005730R	G 003		CPRUFW 011434R	003	CTUDED= 020000		EHKBAT 000236R	005	EXCEND= 001424R	005
BCLEAR 005000R	G 003		CPRUSR= 100000		CTUSWR 006646R	003	EHKMEM 000174R	005	EXCID = *****	G
BINASC 000006R	005		CREATE 003112R	003	CTWABT 007720R	003	EINSFM 000244R	005	EXCIDT 002040R	003
BKRDO 004516R	003		CREGSV 004172R	003	CTWADR 011052R	003	EINTOL 004312R	003	EXDRET 003066R	003
BKREAD 004504R	G 003		CRLF 005546R	G 003	CTWAIT= 002000		EJNFND 003106R	003	EXECST 000000R	G 003
BKWRTD 004652R	003		CRPMAP 005010R	G 003	CTWBR 011152R	003	EJNRET 003536R	003	EXERET 003072R	003
BKWRTI 004676R	003		CRTREG 011040R	003	CTWBSY= 000002		EKBOSK 000536R	005	EXERM 006604R	003
BLKWRT 004644R	G 003		CRUDED= 040000		CTWCNT 011060R	003	EKBPTR 001312R	005	EXERPT 006532R	003
BMOVE 004744R	G 003		CSAVEI= *****	G	CTWCOM 007012R	003	EKYBUF 001314R	005	EXHKEX 001302R	005
BOOT 003656R	003		CSVREG 011024R	003	CTWDRA 011146R	003	EMCOM 004752R	003	EXNRET 003056R	003
BTASLB 000010R	005		CSYSFW 000012R	005	CTWFOT 007652R	003	EMDLTB 012006R	003	EXYBK 004666R	003
BUF 001144R	G 003		CTBRET 006730R	003	CTWFOT 007652R	003	EMESEX 005722R	003	E1THKP 000016R	005
BUFEND 002144R	003		CTCKCH 010044R	003	CTWINT 007626R	003	EMFND 000220R	005	FCL0SE 004704R	003
CFTCHI= *****	G		CTCONS 001056R	005	CTWPEB 010754R	003	EMINST 004764R	003	FLNOTF 006356R	G 003
CHKSUM 000520R	003		CTCREQ= 001000		CTWR 006750R	003	EMONMG 006206R	003	FMTVCT 000132R	005
CHPINT= 004000			CTD00T 010014R	003	CTWRCD 007710R	003	EMONTB 006214R	003	FSTM00 000515R	G 003
CHR0UT 005512R	G 003		CTDUMR 006740R	003	CTWRCE 007656R	003	EMSADR 002774R	003	GET 002412R	003
CKRPLY 001376R	003		CTEBFL= 000024		CTWREX 010006R	003	ENDMEM 000466R	003	HKLOCZ 000000R	005
CKSMER 006444R	003		CTEBSY= 000040		CTWUFW 011064R	003	ENMRET 004432R	003	IBKLG T 002200R	003
CK4MM 000702R	005		CTEBUF 011114R	003	CTWUSR= 100000		ENX0TA 002776R	003	IDHSU 002146R	003
CLIST 007240R	003		CTECNT 011106R	003	CTWVEC 011150R	003	EOFMSG 006626R	003	IFLCNT 002154R	003
CLISTI 011436R	003		CTE1AD 011104R	003	CUSPCR= 002000		EPARBK 003004R	003	IFLMO0 002152R	003
CLOSE 003136R	003		CTFCAR 011156R	003	CUSPRT 007306R	003	EPKCNT 005200R	003	IFNAM 002256R	003
CLABUF 005024R	G 003		CTFCNT 011154R	003	DATLFF 001060R	005	EPKCOM 005202R	003	ILSTBK 002202R	003
CLS = 177764			CTFID 011160R	003	DATUPK 006036R	G 003	EPKEX 005320R	003	INALC 002224R	003
CMPNAM 005040R	G 003		CTFLGW 011056R	003	DOBEND 002412R	003	EPKPEX 005314R	003	INBA 002236R	003
CNTRLO= 010000			CTFSCH 011100R	003	DOBSTR 002150R	003	ERDEOF 003005R	003	INBKCT 002250R	003
CON1MG 001522R	003		CTFTCT 011076R	003	DELAY 005124R	G 003	ERDERR 004440R	003	INBLK 002240R	003
CON2MG 001605R	003		CTPRIO= 000020		DELERR 006274R	G 003	ERDLNK 004400R	003	INBOOT 002206R	003
CON3MG 001632R	003		CTRADR 011070R	003	DELETE 003514R	003	ERET 004436R	003	INCLS 002216R	003
CON4MG 001657R	003		CTRBR 011144R	003	DELFIL 006310R	G 003	ERMFND 006613R	003	INCM 002232R	003
CPRADR 011430R	003		CTRBSY= 000001		DEVERR 006324R	G 003	ERRCOM 006462R	003	INCOM 002242R	003
CPRBSY= 000001			CTR CNT 011066R	003	DEVFUL 006340R	G 003	ESGADR 000062R	003	INDEND= 002270R	003
CPRCNT 011432R	003		CTRCOM 007142R	003	DIRBLK= *****	G	ESGCNT 000076R	003	INDEV 002232R	003
CPRCOM 007372R	003		CTRCRQ 010622R	003	DLT = 177762		ESUCOM 004126R	003	INDIR 002252R	003
CPRCTC 011256R	003		CTRCTU 010534R	003	DRT = 177756		ESUFNM 004052R	003	INDLT 002214R	003
CPROOT 011332R	003		CTR0 007124R	003	EBCDWA 005776R	003	ESUFTH 004030R	003	INDRT 002210R	003
CPRERR= 000200			CTRDEC= 000200		ECFORC 006474R	003	ESUFT1 004034R	003	INDRV 002230R	003
CPREX 011250R	003		CTRDEX 010450R	003	ECOEFF 005504R	003	ESUIF 004104R	003	INDT 002240R	003
CPRFMD 011426R	003		CTRONE 007104R	003	ECOMEX 004772R	003	ESU10C 004230R	003	INETR 002220R	003
CPRIGN 011210R	003		CTR0N= 000400		ECOMTY 005516R	003	ESUIPT 004216R	003	INNBK 002254R	003
CPRINT 011162R	003		CTRORA 011140R	003	EDATER 000570R	005	ESUOPT 004224R	003	INPRC 002244R	003
CPRLNC 011232R	003		CTRECL 010552R	003	EDRMG 001504R	003	ESU0S 004116R	003	INPWC 002246R	003
CPRMCK 011230R	003		CTRINT 010162R	003	EDMSG 001454R	003	ESUSAV 003762R	003	INSRH 002222R	003
CPRRTC 011314R	003		CTRLC 010566R	003	EDTACT 002772R	003	ESYDSU 000600R	005	INSRV 002226R	003
CPRSCH 011244R	003		CTRPEB 010746R	003	EFDEVN 006642R	003	ETMP 002722R	003	INVCM0 006416R	003
CPRSTC 011306R	003		CTRPEX 011022R	003	EFMSZ 000050R	003	ETR = 177766		INVDMG 001725R	003
CPRT 007256R	003		CTRQBP= 100000		EGBLTE= 001424R	005	ETYEX 006030R	003	INWC 002234R	003
CPRTAB 011324R	003		CTRQKY 010456R	003	EGBLTS 001346R	005	ETYPWK 005534R	003	INZER 002212R	003
CPRTBC 011240R	003		CTRUB= 000100		EGERET 002754R	003	EUPKCM 005372R	003	ISUFM 000136R	003
CPRTER 007630R	003		CTRTRB 007222R	003	EGETBY 002742R	003	EUSRCT 003002R	003	ISVBLK 002162R	003

ISVCNT	002160R	003	MMVER =	000001		OUZER	002334R	003	PTWR	011520R	003	WRTL	004632R	G	003
ISVDAT	002172R	003	MPGADR	000046R	003	OWCTR	002272R	003	PTZERO	011532R	003	XBA =	000004		
ISVEXT	002170R	003	MPGBGN=	000016R	005	O1STBK	002320R	003	PT1	011640R	003	XBC =	000016		
ISVMAP	002156R	003	MPGID	000034R	003	PACK	005164R	003	PT2	011646R	003	XBKLGT=	177746		
ISVNAM	002164R	003	MPGST	000472R	003	PACK1	005174R	003	PT3	011702R	003	XBT =	177754		
ISVUPT	002204R	003	NFNAME	006364R	003	PAKNAM	005136R	G	PUT	003142R	003	XCM =	000000		
ISVXX	002174R	003	NXTBLK	004452R	G	PC	=%000007		READBK	004524R	G	XCO =	000010		
ITOA	006004R	G	OATOB	001240R	003	PIPFLG	000522R	G	REALNM	000536R	003	XDHSU =	177714		
IWCTR	002150R	003	OBKLG	002322R	003	POSADJ	000120R	003	RELGBL	001250R	005	XDN =	177776		
I1STBK	002176R	003	ODHSU	002270R	003	PRTDRA	011446R	003	RST04	004730R	G	XDR =	000020		
LDEVER	003474R	003	OFLCNT	002276R	003	PRTFLG	000516R	003	R0	=%000000		XDT =	000006		
LDRBYC	003252R	003	OFLMOD	002274R	003	PRTIVA	011450R	003	R1	=%000001		XFLCNT=	177722		
LDRDTA	003354R	003	OFNAM	002400R	003	PRTPSW	011452R	003	R2	=%000002		XFLMOD=	177720		
LDRDTC	003356R	003	OLSTBK	002324R	003	PTALLC	011550R	003	R3	=%000003		XLSTBK=	177750		
LDREXC	003432R	003	OPENL	003006R	003	PTBADR	011510R	003	R4	=%000004		XNB =	000022		
LDRGET	003346R	003	OSVBLK	002304R	003	PTBLK	011512R	003	R5	=%000005		XRD =	000012		
LDRISM	003504R	003	OSVCNT	002302R	003	PTBOOT	011532R	003	R6	=%000006		XSV =	177774		
LDRMST	003246R	003	OSVDAT	002314R	003	PTCLOS	011556R	003	SAV04	004716R	G	XSVBLK=	177730		
LDRNEX	003424R	003	OSVEXT	002312R	003	PTCMND	011514R	003	SETDED=	000040		XSVCNT=	177726		
LDRPN	003012R	003	OSVMAP	002300R	003	PTCNT	011732R	003	SETPP	011570R	003	XSVDAT=	177740		
LDUNUM	000604R	G	OSVNAM	002306R	003	PTCOM	011576R	003	SETPR	011560R	003	XSVEXT=	177736		
LDUREG	001745R	003	OSVUPT	002326R	003	PTCREG	011504R	003	SP	=%000006		XSVMAP=	177724		
LIGHTS	000400R	003	OSVXX	002316R	003	PTDBLK	011530R	003	SRH	= 177770		XSVNAM=	177732		
LIMIT	001342R	005	OUALC	002346R	003	PTDELT	011532R	003	STACK	= 001200		XSVUPT=	177752		
LIST	003576R	003	OUBKCT	002372R	003	PTDIR	011532R	003	STKADR	000512R	003	XSVXX =	177742		
LMPGDE	000132R	003	OUBOOT	002330R	003	PTDONE	011722R	003	TAB	005564R	G	XWC =	000002		
LMPGIM	000124R	003	OUCLS	002340R	003	PTDPTR	011524R	003	TODAY	000470R	003	XWCTR =	177716		
LMPGIN	000060R	003	UDLT	002336R	003	PTDVR	011604R	003	TTYERR	000114R	005	XWT =	000014		
LOADVR	003244R	003	UDRT	002332R	003	PTENT	011550R	003	TTYTRP	000124R	005	XXNAM =	000024		
LOC600	000000R	003	UETR	002342R	003	PTERR	012002R	003	TTYTST	000100R	005	XXX =	000000		
LOWCAS	010206R	003	OUPRC	002366R	003	PTIMER	011730R	003	TXEXT	000532R	G	X1STBK=	177744		
LSTFLG	000514R	G	OUPMC	002370R	003	PTIMEX	012000R	003	TXNAM	000524R	G	ZER =	177760		
LTSEX	000464R	003	OUSRH	002344R	003	PTIME1	011734R	003	UFWCLR	000002R	005	ZERO	003542R		003
LTSPAT	000402R	003	OUTBA	002360R	003	PTLCLK	011526R	003	UFWILD	011456R	003	\$BUF	000474R	G	003
L2MCNT	000424R	003	OUTBLK	002362R	003	PTLOOK	011536R	003	UFWSET	000000R	005	\$BUF10	000500R	G	003
MAPBUF	000544R	G	OUTCM	002354R	003	PTNOUT	011606R	003	UFWTST	000004R	005	\$BUF2	000476R	G	003
MBUF	000744R	G	OUTCOM	002364R	003	PTOUT	011774R	003	UNIMAP=	000040		\$MAPBF	000502R	G	003
MES	005654R	G	OUTDEV	002354R	003	PTPARM	011460R	003	UNPACK	005354R	003	\$MBUF	000504R	G	003
MMAP	000754R	G	OUTDIR	002374R	003	PTPEND	011530R	003	UPACK1	005364R	003	\$MMAP	000506R	G	003
MMCKEX	001040R	005	OUTDRV	002352R	003	PTRBCT	011522R	003	UPKNAM	005326R	G	\$TPNM1	005600R	G	003
MMCKRT	001014R	005	OUTDT	002362R	003	PTRD	011516R	003	USEMM	002006R	003	\$TXNAM	000510R	G	003
MMMR0 =	177572		OUTNBK	002376R	003	PTSUAD	012010R	003	USRINT	000014R	005	\$TYPNM	005574R	G	003
MMMR3 =	172516		OUTSRV	002350R	003	PTUNIT	011502R	003	WRTBLK	004660R	G	.	= 001424R		005
. ABS.	000000	000													
	000000	001													
LOADER	000000	002													
EXEC	012016	003													
HANDLR	000000	004													
EXHSKP	001424	005													

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

*,DTECAB/NL:TOC/DOC=DTECAB.P11

MAINTDEC-11-DTECA-B COMMON SECTION FOR ALL MPG EXECUTIVES
DTECAB.P11 SYMBOL TABLE

H06
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SEQ 0324

RUN-TIME: 9 19 1 SECONDS
RUN-TIME RATIO: 54/30=1.7
CORE USED: 6K (11 PAGES)

DOCUMENT PAGES: 72

