DJ11

DEVICE ROUTINE (MPG)

MD-11-DTDJA-B

EP-DTDJA-B-DL-A

FICHE 1 OF 1

NOV 1976

digital

MADE IN U.S.A.

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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DTDJA-B

PRODUCT NAME: DJ11 DEVICE ROUTINE FOR MPG

DATE: APRIL 1976

MAINTAINER: DIAGNOSTIC GROUP

AUTHOR: W. R. GREENE


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                                        .SBTTL  REVISION HISTORY

                                ;       APR 76          DTDJA-B RELEASE
                                ;       JAN 76          ADDED MEMORY MANAGEMENT SUPPORT
                                ;       AUG 75          DTDJA-A INITIAL RELEASE
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                                        .SBTTL  STANDARD DEVICE ROUTINE TABLE
                                        .TITLE  MAINDEC-11-DTDJA-B      DJ11 DEVICE ROUTINE FOR MPG

                                        ;REVISION B

                                        ;FILENAME OF "TDJAB0.MPG" ON MPG/XXDP MEDIA

                                        ;MACY11:  DTDJA?,DTDJA?/CRF:SYM/DOC=DTDJA?.P11
                                        ;LNKX11:  DTDJA?.MPG/B:0-DTDJA?/E
                                        ;PAPER TAPE:  PUNCH DTDJA?.MPG/FILE:ELEV


000000'                                 .CSECT  DJ11
                                        .DSABL  GBL
177776                                  PS=     177776


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

000000' 005362                  LOCZ:   .WORD   DVREND-.                ;DEVICE ROUT SIZE IN BYTES
000002' 000000                  FLAGWD: .WORD   0                       ;DEVICE ROUT FLAGWORD

100000                                  DRWAIT= 100000                  ;  DEVICE ROUTINE WAIT FLAG
040000                                  WRBSY=  40000                   ;  WRITE BUSY FLAG
020000                                  RDBSY=  20000                   ;  READ BUSY FLAG
000010                                  BRFLG=  10                      ;  BREAK INST FLAG
000004                                  CLWVCT= 4                       ;  CLEAR WRITE VECTOR FLAG
000002                                  CLRVCT= 2                       ;  CLEAR READ VECTOR FLAG

000004' 000000                          .WORD   0                       ;INTERFACE WORD # 1 (NOT USED)
000006' 000000                          .WORD   0                       ;INTERFACE WORD # 2 (NOT USED)
000010' 000000                          .WORD   0                       ;INTERFACE WORD # 3 (NOT USED)
000012' 000000                          .WORD   0                       ;INTERFACE WORD # 4 (NOT USED)
000014' 000000                          .WORD   0                       ;INTERFACE WORD # 5 (NOT USED)
000016' 000000                          .WORD   0                       ;INTERFACE WORD # 6 (NOT USED)
000020' 000000                  SIZE:   .WORD   0                       ;# OF BYTES TRANSFERRED / UNIMAP FLG
000022' 000000                  ERR:    .WORD   0                       ;ERROR ON LAST I/O INDICATOR
000024' 160010                  DREGAD: .WORD   160010                  ;FIRST DEVICE REGISTER ADR
000026' 000300                  IVCTAD: .WORD   300                     ;INTERRUPT VECTOR ADR
000030' 000240                  RBUSRQ: .WORD   240                     ;INT PROC STATUS WORD (BR 5)
000032' 000240                  WBUSRQ: .WORD   240                     ;INT PROC STATUS WORD (BR 5)
000034' 003254                          .WORD   HSKEEP-.                ;HOUSEKEEPING ROUT REL ADR
000036' 003306                          .WORD   REPORT-.                ;REPORT ROUT REL ADR
000040' 000572                          .WORD   KILL-.                  ;KILL ROUT REL ADR
000042' 000450                          .WORD   DATAER-.                ;DATA ERROR COUNTER REL ADR
000044' 000454                          .WORD   TOUTER-.                ;TIME OUT ERROR ROUT REL ADR
000046' 000000                  CIOBSY: .WORD   0                       ;I/O BUSY BRANCH ADR
000050' 000000                  CUPGER: .WORD   0                       ;DEVICE ERROR BRANCH ADR
000052' 000000                  ULIST:  .WORD   0                       ;USER MODE PRINT ROUTINE BRANCH ADR
000054' 000000                  CLIST:  .WORD   0                       ;CMND MODE PRINT ROUTINE BRANCH ADR
000056' 000000                  BINASC: .WORD   0                       ;CONVERT BINARY TO ASCII ROUT BR ADR
000060' 000000                  BTASLZ: .WORD   0                       ;CONVERT BINARY TO DECIMAL ASCII BR ADR
000062' 000000                  DECASC: .WORD   0                       ;CONVERT PACKED DECIMAL TO ASCII BR ADR
000064' 000000                  CSYSFW: .WORD   0                       ;MPG SYSTEM FLAGWORD ADR
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                                SETVEC: .WORD   0                       ;SET INT VECT ROUT BR ADR
                                CLRVEC: .WORD   0                       ;CLEAR INT VECTOR ROUT BR ADR
                                TSTVEC: .WORD   0                       ;TEST INT VECTOR ROUT BR ADR
                                RTNINT: .WORD   0                       ;RETURN FROM INT ROUT BR ADR
                                GETBYT: .WORD   0                       ;GET DATA BYTE ROUT BR ADR
                                PUTBYT: .WORD   0                       ;PUT DATA BYTE ROUT BR ADR
                                        .WORD   DVREGS-.                ;ADR OF DEVICE REGISTER NAMES
                                        .WORD   DVCMDS-.                ;ADR OF DEVICE FUNCTIONS
                                        .WORD   DVPKTE-.                ;ADR OF PACK TBL EXTENSION
                                        .WORD   DVMVTE-.                ;ADR OF MODEL VECTOR TBL EXTEN.
                                        .WORD   DVCPTE-.                ;ADR OF COMPILER TBL EXTEN.
                                        .WORD   DVIWST-.                ;ADR OF DEV INTERFACE WD SYM TBL

                                DVREGS: .ASCII  /CSR /                  ;VALID DEVICE REGISTER NAMES &
                                        .WORD   0                       ;THEIR POSITIONS RELATIVE TO
                                        .ASCII  /RBUF/                  ;THE DEVICE REGISTERS BASE ADDRESS.
                                        .WORD   2
                                        .ASCII  /TCR /
                                        .WORD   4
                                        .ASCII  /BCR /
                                        .WORD   4
                                        .ASCII  /TBUF/
                                        .WORD   6
                                DVREGE= .

                                DVCMDS: .BYTE   120,1                   ;VALID DEVICE FUNCTIONS
                                        .WORD   READ-.                  ;  FLAG BYTE:
                                        .BYTE   130,1                   ;     BIT 7 = NPR DEV
                                        .WORD   WRITE-.                 ;     BIT 3 = MASSBUS DEV
                                        .BYTE   160,1                   ;     BIT 0 = 2 WORDS FOR ADR
                                        .WORD   BREAK-.                 ;             (18 BIT ADRS)
                                        .BYTE   376,0
                                        .WORD   CRESET-.
                                        .BYTE   375,0
                                        .WORD   NOWAIT-.
                                        .BYTE   374,0
                                        .WORD   WAIT-.
                                        .BYTE   373,0
                                        .WORD   REPORT-.
                                        .BYTE   372,0
                                        .WORD   REPORT-.
                                        .BYTE   371,0
                                        .WORD   FDUPLX-.
                                        .BYTE   370,0
                                        .WORD   HDUPLX-.
                                        .WORD   177777                  ;TABLE TERMINATOR

                                DVPKTE: .ASCII  /CRESET/                ;PACK TABLE EXTENSION
                                        .BYTE   376,0
                                        .ASCII  /NOWAIT/
                                        .BYTE   375,0
                                        .ASCII  /  WAIT/
                                        .BYTE   374,0
                                        .ASCII  /STATUS/
                                        .BYTE   373,0
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                                                .ASCII  /COUNTS/
                                                .BYTE   372,0
                                                .ASCII  /FDUPLX/
                                                .BYTE   371,0
                                                .ASCII  /HDUPLX/
                                                .BYTE   370,0

                        DVMVTE: .WORD   376,LCRST-LOCZ          ;MODEL VECTOR TABLE EXTEN.
                                .WORD   375,LNWAIT-LOCZ
                                .WORD   374,LWAIT-LOCZ
                                .WORD   373,LCOUNT-LOCZ
                                .WORD   372,LCOUNT-LOCZ
                                .WORD   371,LFDPLX-LOCZ
                                .WORD   370,LHDPLX-LOCZ


                        ;       COMPILER TABLE EXTENSION

                        DVCPTE: .BYTE   3,376                   ;CONTROL RESET
                                .WORD   4537,10.
                                .BYTE   3,375                   ;NO WAIT
                                .WORD   4537,10.
                                .BYTE   3,374                   ;WAIT
                                .WORD   4537,10.
                                .BYTE   4,373                   ;STATUS
                                .WORD   4537,10.,1002
                                .BYTE   4,372                   ;COUNTS
                                .WORD   4537,10.,1001
                                .BYTE   3,371                   ;FULL DUPLEX
                                .WORD   4537,10.
                                .BYTE   3,370                   ;HALF DUPLEX
                                .WORD   4537,10.


                        ;       DEVICE INTERFACE WORD SYMBOL TABLE

000430' 177777          DVIWST: .WORD   177777


                        ;       MODEL STATEMENT TABLE EXTENSION

000432'                 LCRST:
000432'                 LNWAIT:
000432'                 LWAIT:
000432'                 LSTATS:
000432'                 LCOUNT:
000432'                 LFDPLX:
000432'     000         LHDPLX: .BYTE   0
            000434'             .EVEN

            000434'     HSKPST= .
            000434'     ISTAT=  .                                   ;STORAGE FOR DEV REG'S AT INT
000434' 000000          CSR:    .WORD   0
000436' 000000          RBUF:   .WORD   0
000440' 000000          TCR:    .WORD   0
000442' 000000          BCR:    .WORD   0
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000444' 000000          TBUF:   .WORD   0

000446' 000005          CSTAT:  .BLKW   5               ;DEV REG CURRENT VALUE STORAGE

000460' 000000          BYRD:   .WORD   0               ;BYTES READ COUNT
000462' 000000                  .WORD   0
000464' 000000          BYWR:   .WORD   0               ;BYTES WRITTEN COUNT
000466' 000000                  .WORD   0
000470' 000000          RDCNT:  .WORD   0               ;READ CMND COUNT
000472' 000000          WRCNT:  .WORD   0               ;WRITE CMND COUNT
000474' 000000          BKCNT:  .WORD   0               ;BREAK CMND COUNT
000476' 000000          MISCNT: .WORD   0               ;MISC. CMND COUNT (CRESET,
                                                        ;FDUPLX,HDUPLX)
000500' 000000          RICNT:  .WORD   0               ;READ INTERRUPT COUNT
000502' 000000          WICNT:  .WORD   0               ;WRITE INTERRUPT COUNT
000504' 000000          OVRRUN: .WORD   0               ;OVERRUN ERRORS COUNT
000506' 000000          FRAMER: .WORD   0               ;FRAMING ERRORS COUNT
000510' 000000          PARERR: .WORD   0               ;PARITY ERRORS COUNT
000512' 000000          DATAER: .WORD   0               ;DATA ERROR COUNT
000514' 000000          TOECNT: .WORD   0               ;# OF ENTRIES INTO T/O ERROR ROUT

000516' 000000          FLAG:   .WORD   0               ;FLAGWORD STORAGE


000520'                 HSKPEN= .

000000                  XXXX=   0                       ;VALUE TO BE TAILORED BY DEV ROUT

000001                  MMVER=  1                       ;SYSTEM FLGWD BIT DEF.
120000                  PSCONS= 120000                  ;INT SRVC VIRT PAGE BASE
000002                  USMTPS= 2                       ;MTPS INST LEGAL FLAG
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                                        .SBTTL  DJ11 FUNCTION ROUTINES
                                        ;TIMEOUT ERROR HANDLER
000520' 005267  177770          TOUTER: INC     TOECNT                  ;INCR TIME OUT ERROR COUNT
000524' 026727  177764  000010          CMP     TOECNT,#8.              ;EXCEEDED 8 TIMEOUTS?
000532' 001401                          BEQ     2$                      ;YES - CONTINUE
000534' 000205                          RTS     R5                      ;NO - RETURN
000536' 004067  003424          2$:     JSR     R0,SAVREG               ;SAVE REGISTERS
000542' 004767  003452                  JSR     PC,SUPTAD               ;P TBL ADR TO R3
000546' 042713  000010                  BIC     #WT4IOT,(R3)            ;RESET WAIT FOR I/O TERM
000552' 005004                          CLR     R4
000554' 004567  003736                  JSR     R5,PRINT                ;PRINT TIMEOUT ERR MSG
000560' 000026                          .WORD   TOEMSG-.
000562' 000023                          .WORD   19.
000564' 004567  000042                  JSR     R5,KILL                 ;KILL THE PROGRAM
000570' 004767  003152                  JSR     PC,ERDIRG               ;DISPLAY STATUS & STMNT #
000574' 004067  003402                  JSR     R0,RESREG               ;RESTORE REGISTERS
000600' 012605                  TOUTEX: MOV     (SP)+,R5                ;GO DISPLAY DEVICE REGS
000602' 000177  177242                  JMP     @CUPGER

000606' 045104  030461  052040  TOEMSG: .ASCII  'DJ11 TIMEOUT ON I/O'
000614' 046511  047505  052125
000622' 047440  020116  027511
000630' 117
        000632'                         .EVEN
                                        ;KILL USER PROGRAM ROUTINE
000632' 016702  177166          KILL:   MOV     DREGAD,R2               ;GET DEV REG ADR
000636' 032762  040100  000004          BIT     #40100,4(R2)            ;ANY INT EBLS SET ?
000644' 001426                          BEQ     KILLEX                  ;NO-EXIT
000646' 004567  003760          1$:     JSR     R5,TRVECT               ;TEST READ INT VECTOR
000652' 000410                          BR      CWRINT                  ;BRANCH IF NOT ME
000654' 042762  000100  000004          BIC     #100,4(R2)              ;RESET RD INT EBL
000662' 042767  020000  177112          BIC     #RDBSY,FLAGWD           ;RESET READ BSY IN FLAG WD
000670' 004767  002350                  JSR     PC,RRINTV               ;RESET INT VECTOR INFO
000674' 004567  003762          CWRINT: JSR     R5,TWVECT               ;TEST WRITE INT VECTOR
000700' 000410                          BR      KILLEX                  ;BRANCH IF NOT ME
000702' 042762  040000  000004          BIC     #40000,4(R2)            ;RESET WR INT EBL
000710' 042767  040000  177064          BIC     #WRBSY,FLAGWD           ;RESET WRITE BSY IN FLAG WD
000716' 004767  002340                  JSR     PC,RWINTV               ;RESET INT VECTOR INFO
000722' 005067  177074          KILLEX: CLR     ERR                     ;CLEAR ERROR INDICATOR
000726' 000205                          RTS     R5                      ;RETURN

                                        ;READ COMMAND HANDLER

000730' 010567  003126          READ:   MOV     R5,STMNT                ;SAVE R5
000734' 162767  000004  003120          SUB     #4,STMNT                ;FOR STMNT # REFERENCE
000742' 016704  177056                  MOV     DREGAD,R4               ;DEV REG ADDR TO R4
000746' 032767  020000  177026          BIT     #RDBSY,FLAGWD           ;TEST READ BUSY
000754' 001030                          BNE     GTPTBS                  ;BRANCH IF SET
000756' 032714  000100                  BIT     #100,(R4)               ;TEST RECV INT EBL
000762' 001403                          BEQ     SRDBSY                  ;CONTINUE IF NOT SET
000764' 004567  177056                  JSR     R5,@CIOBSY              ;OTHERWISE RELEASE CONTROL
000770' 000757                          BR      READ
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                                                SRDBSY: BIS     #RDBSY,FLAGWD           ;SET READ BUSY
                                                        MOV     IVCTAD,10$              ;INT VECTOR ADDR TO CALL
                                                        MOV     RBUSRQ,20$              ;ALSO BUS PRIORITY
                                                        JSR     R5,@SETVEC              ;GO SET THE VECTOR
                                                10$:    .WORD   XXXX
                                                20$:    .WORD   XXXX
                                                        .WORD   RDINT-.
                                                        CLR     TOECNT                  ;CLEAR TIME OUT ERR CNT
                                                        BIS     #100,(R4)               ;SET RECV INT EBL
                                                GTPTBS: JSR     PC,SUPTAD               ;GET P TBL BASE IN R3
                                                        CLR     ERR                     ;CLEAR ERROR INDICATOR
                                                        INC     RDCNT                   ;INCR READ CMD COUNT
                                                        BIT     #SPOPER,POPSW(R3)       ;TEST MAINT BIT IN OPSW
                                                        BEQ     RDMNCL
                                                        BIS     #4,(R4)                 ;SET CSR BIT TO SAME STATE
                                                        BR      RDMNST
                                                RDMNCL: BIC     #4,(R4)
                                                RDMNST: MOV     (R5)+,R0                ;GET ADDRESS
                                                        MOV     (R5)+,ADDR
                                                        MOV     (R5)+,BYTES             ;BYTE COUNT AND
                                                        MOV     (R5)+,R0                ;LINE NBR FROM CALL
                                                        BNE     TESTRC                  ;BR IF LINE SPECIFIED
                                                        MOVB    PCURDV(R3),R1           ;GET CURRENT DEV NBR
                                                        MOV     #1,R0
                                                        TSTB    R1
                                                        BEQ     TESTRC
                                                CALDNL: ASL     R0
                                                        DEC     R1
                                                        BNE     CALDNL
                                                TESTRC: BIT     R0,4(R4)                ;ANY DESIRED LINE IN USE ?
                                                        BEQ     LOADRC                  ;NO - KICK OFF THIS READ
                                                        JSR     R5,@CIOBSY              ;YES - WAIT
                                                        SUB     #6,R5
                                                        BR      READ
                                                LOADRC: BIS     R0,RCR                  ;SET LINE NBRS IN RCR
                                                        MOV     PC,R2
                                                        ADD     #RCVTBL-.,R2
                                                        MOV     #16.,R1
                                                FRCVTL: ROR     R0                      ;FILL RECEIVE TABLE
                                                        BCC     DRCVTL
                                                        MOV     ADDR,(R2)+              ;WITH ADDRESS
                                                        MOV     BYTES,(R2)+             ;AND BYTE COUNT
                                                        DEC     R1
                                                        BNE     FRCVTL
                                                        BR      SETRSE
                                                DRCVTL: ADD     #4,R2
                                                        DEC     R1
                                                        BNE     FRCVTL
                                                        BIS     #WT4IOT,PFLGWD(R3)      ;SET WAIT FOR I/O TERM
                                                SETRSE: BIS     #1,(R4)                 ;SET RECEIVE SCAN ENABLE
                                                        BIT     #DRWAIT,FLAGWD          ;TEST DEV ROUT NOWAIT
                                                        BNE     RDNOWT                  ;BRANCH IF SET
                                                        JMP     TSTIEB                  ;OTHERWISE WAIT
                                                RDNOWT: BIC     #WT4IOT,PFLGWD(R3)      ;CLEAR WAIT FOR I/O TERM
                                                        RTS     R5                      ;RETURN INLINE
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                                                ;WRITE AND BREAK COMMAND HANDLER
                                                
001262' 042767 000010 176512  WRITE:  BIC   #BRFLG,FLAGWD        ;CLEAR BREAK FLAG
001270' 000403                        BR    XMIT
001272' 052767 000010 176502  BREAK:  BIS   #BRFLG,FLAGWD        ;SET BREAK FLAG
001300' 010567 002556         XMIT:   MOV   R5,STMNT            ;SAVE R5
001304' 162767 000004 002550          SUB   #4,STMNT            ;FOR STMNT # REFERENCE
001312' 016704 176506                 MOV   DREGAD,R4           ;DEV REG ADDR TO R4
001316' 032767 040000 176456          BIT   #WRBSY,FLAGWD       ;TEST WRITE BUSY
001324' 001033                        BNE   CLRBRK              ;BRANCH IF SET
001326' 032714 040000                 BIT   #40000,(R4)         ;TEST XMIT INT EBL
001332' 001403                        BEQ   SETBSY              ;CONTINUE IF NOT SET
001334' 004577 176506                 JSR   R5,@CIOBSY          ;OTHERWISE RELEASE CONTROL
001340' 000757                        BR    XMIT
001342' 052767 040000 176432  SETBSY: BIS   #WRBSY,FLAGWD        ;SET WRITE BUSY
001350' 016767 176452 000020          MOV   IVCTAD,10$          ;INT VECTOR ADDR TO CALL
001356' 062767 000004 000012          ADD   #4,10$              ;ADJUST FOR WRITE INT
001364' 016767 176442 000006          MOV   WBUSRQ,20$          ;ALSO PASS BUS PRIORITY
001372' 004577 176470                 JSR   R5,@SETVEC          ;GO SET THE VECTOR
001376' 000000                10$:    .WORD XXXX
001400' 000000                20$:    .WORD XXXX
001402' 001044                        .WORD WRINT-.
001404' 005067 177104                 CLR   TOECNT              ;CLEAR TIME OUT ERR CNT
001410' 052714 040000                 BIS   #40000,(R4)         ;SET XMIT INT EBL
001414' 042714 002000         CLRBRK: BIC   #2000,(R4)          ;CLEAR BREAK REG SELECT
001420' 005067 176376                 CLR   ERR                 ;CLEAR ERROR INDICATOR
001424' 004767 002570                 JSR   PC,SUPTAD           ;GET P TBL BASE IN R3
001430' 032763 000200 000002          BIT   #SPOPER,POPSW(R3)   ;TEST MAINT BIT IN OPSW
001436' 001403                        BEQ   WRMNCL
001440' 052714 000004                 BIS   #4,(R4)             ;SET CSR BIT TO SAME STATE
001444' 000402                        BR    WRMNST
001446' 042714 000004         WRMNCL: BIC   #4,(R4)
001452' 012500                WRMNST: MOV   (R5)+,R0            ;GET ADDRESS
001454' 012567 000654                 MOV   (R5)+,ADDR
001460' 012567 000652                 MOV   (R5)+,BYTES         ;BYTE COUNT AND
001464' 012500                        MOV   (R5)+,R0            ;LINE NBR FROM CALL
001466' 001011                        BNE   TESTTC              ;BR IF LINE SPECIFIED
001470' 116301 000035                 MOVB  PCURDV(R3),R1       ;GET CURRENT DEV NBR
001474' 012700 000001                 MOV   #1,R0
001500' 105701                        TSTB  R1
001502' 001403                        BEQ   TESTTC
001504' 006300                DVNMLP: ASL   R0
001506' 005301                        DEC   R1
001510' 001375                        BNE   DVNMLP
001512' 030064 000004         TESTTC: BIT   R0,4(R4)             ;ANY DESIRED LINE IN USE ?
001516' 001405                        BEQ   LOADTC              ;NO - KICK OFF THIS WRITE
001520' 004577 176322                 JSR   R5,@CIOBSY          ;YES - WAIT
001524' 162705 000006                 SUB   #6,R5
001530' 000663                        BR    XMIT
001532' 010067 000602         LOADTC: MOV   R0,STCR             ;SET LINE NBRS IN SOFT TCR
001536' 032777 000002 176320          BIT   #USMTPS,@CSYSFW     ;SAVE PS AND INH INT
001544' 001007                        BNE   10$
001546' 113767 177776 000556          MOVB  @#PS,PSSAVE
001554' 152737 000340 177776          BISB  #340,@#PS
001562' 000404                        BR    FSNDTB
001564' 106767 000542         10$:    MFPS  PSSAVE
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                                                MTPS    #340
                                FSNDTB:         MOV     PC,R2
                                                ADD     #SNDTBL-.,R2
                                                MOV     #16.,R1
                                FSNDTL:         ROR     R0              ;FILL SEND TABLE
                                                BCC     DSNDTL
                                                MOV     ADDR,(R2)+      ;WITH ADDRESS
                                                MOV     BYTES,(R2)+     ;AND BYTE COUNT
                                                DEC     R1
                                                BNE     FSNDTL
                                                BR      SETTSE
                                DSNDTL:         ADD     #4,R2
                                                DEC     R1
                                                BNE     FSNDTL
                                SETTSE:         BIS     #WT4IOT,PFLGWD(R3)      ;SET WAIT FOR I/O TERM
                                                BIS     STCR,4(R4)              ;SET LINE NBRS IN HARD TCR
                                                BIT     #BRFLG,FLAGWD           ;IF BREAK FLAG SET
                                                BEQ     INCWRC
                                                BIS     #2000,(R4)              ;SELECT BREAK REG
                                                BIS     STCR,4(R4)              ;SET LINE NBRS IN BCR
                                                INC     BKCNT                   ;INCR BREAK CMD COUNT
                                                BR      SETSCN
                                INCWRC:         INC     WRCNT                   ;INCR WRITE CMD COUNT
                                SETSCN:         BIS     #400,(R4)               ;SET MASTER SCAN EBL
                                                BIT     #USMTPS,@CSYSFW         ;RESTORE PS AND EBL INT
                                                BNE     10$
                                                MOVB    PSSAVE,@#PS
                                                BR      20$
                                10$:            MTPS    PSSAVE
                                20$:            BIT     #DRWAIT,FLAGWD          ;TEST DEV ROUT NOWAIT
                                                BEQ     TSTIEB                  ;IF RESET TEST INT EBL
                                                BIC     #WT4IOT,PFLGWD(R3)      ;CLEAR WAIT FOR I/O TERM
                                RETURN:         RTS     R5                      ;OTHERWISE RETURN

                                ;WAIT COMMAND HANDLER

                                WAIT:           BIC     #DRWAIT,FLAGWD          ;CLEAR DEV ROUT NOWAIT
                                                MOV     DREGAD,R4               ;POINT R4 AT REG ADDR
                                TSTIEB:         BIT     #40100,(R4)             ;TEST INT EBLS
                                                BNE     RELEAS                  ;IF SET, RELEASE CONTROL
                                TRMTST:         BIT     #CLRVCT,FLAGWD          ;TEST IF VECTOR CLR REQD
                                                BEQ     10$                     ;BRANCH IF NOT
                                                JSR     R5,TRVECT               ;TEST READ VECTOR
                                                BR      10$                     ;BRANCH IF NOT ME
                                                JSR     PC,RRINTV               ;GO RESET THE VECTOR
                                                BIC     #CLRVCT,FLAGWD          ;CLEAR THE REQ FLAG
                                10$:            BIT     #CLWVCT,FLAGWD          ;TEST IF VECTOR CLR REQD
                                                BEQ     ERRTST                  ;BRANCH IF NOT
                                                JSR     R5,TWVECT               ;TEST WRITE VECTOR
                                                BR      ERRTST                  ;BRANCH IF NOT ME
                                                JSR     PC,RWINTV               ;GO RESET THE VECTOR
                                                BIC     #CLWVCT,FLAGWD          ;CLEAR THE REQ FLAG
                                ERRTST:         TST     ERRFLG                  ;TEST FOR ANY ERROR
                                                BEQ     RETURN                  ;RETURN IF NONE
                                                MOV     #1,ERR                  ;SET ERROR INDICATOR
                                                JSR     PC,SUPTAD
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                                        BIT     #PRONER,POPSW(R3)       ;TEST DONT PRINT ON ERR BIT
                                        BNE     ERREXT                  ;EXIT IF SET
                                        INC     ABBREV                  ;SET ABBREVIATED RPT FLG
                                        CLR     R4
                                        JMP     ERRRPT
                                ERREXT: JMP     @CUPGER
                                RELEAS: JSR     R5,@CIOBSY              ;OTHERWISE RELEASE CONTROL
                                        BR      TSTIEB

                                        ;NOWAIT COMMAND HANDLER

                                NOWAIT: BIS     #DRWAIT,FLAGWD          ;SET NOWAIT FLAG
                                        BR      RETURN

                                        ;HALF DUPLEX COMMAND HANDLER

                                HDUPLX: MOV     DREGAD,R4
                                        BIS     #2,(R4)                 ;SET HALF DUPLEX BIT
                                        INC     MISCNT                  ;INCR MISC CMD COUNT
                                        RTS     R5                      ;RETURN

                                        ;FULL DUPLEX COMMAND HANDLER

                                FDUPLX: MOV     DREGAD,R4
                                        BIC     #2,(R4)                 ;CLEAR HALF DUPLEX BIT
                                        INC     MISCNT                  ;INCR MISC CMD COUNT
                                        RTS     R5                      ;RETURN

                                        ;CRESET COMMAND HANDLER

                                CRESET: MOV     DREGAD,R4
                                        BIS     #4,(R4)                 ;SET MOS CLEAR
                                        INC     MISCNT                  ;INCR MISC CMD COUNT
                                CLRBSY: BIT     #10,(R4)
                                        BNE     CLRBSY                  ;WAIT UNTIL DONE
                                        CLR     (R4)                    ;CLEAR ALL CONTROL BITS
                                        CLR     ERR                     ;CLEAR ERROR INDICATOR
                                        RTS     R5                      ;RETURN
```

```
                                        ;WRITE & READ CONTROL TABLES

002232' 000000  000000          SNDTBL: .WORD   0,0                     ;LINE   0   ADDR/BYTE CNT
002236' 000000  000000                  .WORD   0,0                     ;       1
002242' 000000  000000                  .WORD   0,0                     ;       2
002246' 000000  000000                  .WORD   0,0                     ;       3
002252' 000000  000000                  .WORD   0,0                     ;       4
002256' 000000  000000                  .WORD   0,0                     ;       5
002262' 000000  000000                  .WORD   0,0                     ;       6
002266' 000000  000000                  .WORD   0,0                     ;       7
002272' 000000  000000                  .WORD   0,0                     ;       8
002276' 000000  000000                  .WORD   0,0                     ;       9
002302' 000000  000000                  .WORD   0,0                     ;       10
002306' 000000  000000                  .WORD   0,0                     ;       11
002312' 000000  000000                  .WORD   0,0                     ;       12
002316' 000000  000000                  .WORD   0,0                     ;       13
002322' 000000  000000                  .WORD   0,0                     ;       14
002326' 000000  000000                  .WORD   0,0                     ;       15

002332' 000000                  PSSAVE: .WORD   0                       ;PROC STATUS SAVE
002334' 000000                  ADDR:   .WORD   0
002336' 000000                  BYTES:  .WORD   0
002340' 000000                  STCR:   .WORD   0                       ;XMIT SOFT CONT REG
002342' 000000                  RCR:    .WORD   0                       ;RECEIVE CONT REG
002344' 000000                  ERRFLG: .WORD   0                       ;ERROR FLAG


002346' 000000  000000          RCVTBL: .WORD   0,0                     ;LINE   0   ADDR/BYTE CNT
002352' 000000  000000                  .WORD   0,0                     ;       1
002356' 000000  000000                  .WORD   0,0                     ;       2
002362' 000000  000000                  .WORD   0,0                     ;       3
002366' 000000  000000                  .WORD   0,0                     ;       4
002372' 000000  000000                  .WORD   0,0                     ;       5
002376' 000000  000000                  .WORD   0,0                     ;       6
002402' 000000  000000                  .WORD   0,0                     ;       7
002406' 000000  000000                  .WORD   0,0                     ;       8
002412' 000000  000000                  .WORD   0,0                     ;       9
002416' 000000  000000                  .WORD   0,0                     ;       10
002422' 000000  000000                  .WORD   0,0                     ;       11
002426' 000000  000000                  .WORD   0,0                     ;       12
002432' 000000  000000                  .WORD   0,0                     ;       13
002436' 000000  000000                  .WORD   0,0                     ;       14
002442' 000000  000000                  .WORD   0,0                     ;       15
```

```
                                        ;WRITE INTERRUPT HANDLER
                                        
002446' 004067 001514   WRINT:  JSR     R0,SAVREG               ;SAVE REGISTERS
002452' 004567 001562           JSR     R5,STSTAT               ;STORE DEVICE REG CONTENTS
002456' 175756                  .WORD   ISTAT-.
002460' 005267 176016           INC     WICNT                   ;INCR WRITE INTERRUPT COUNT
002464' 004767 001530           JSR     PC,SUPTAD               ;SET INTERNAL PTRS
002470' 116401 000007           MOVB    7(R4),R1                ;GET LINE NBR FROM TBUF
002474' 110102                  MOVB    R1,R2                   ;SAVE IN  R2
002476' 006301                  ASL     R1
002500' 006301                  ASL     R1                      ;USE AS TABLE INDEX
002502' 010703                  MOV     PC,R3
002504' 062703 177526           ADD     #SNDTBL-.,R3            ;POINT R3 AT TBL ENTRY
002510' 060103                  ADD     R1,R3                   ;ADD INDEX
002512' 005763 000002           TST     2(R3)                   ;TEST BYTE COUNT
002516' 001417                  BEQ     WTERM                   ;BRANCH IF ZERO
002520' 010701                  MOV     PC,R1
002522' 062701 175744           ADD     #BYWR+2-.,R1
002526' 062711 000001           ADD     #1,(R1)                 ;INCR BYTES WRITTEN BY 1
002532' 005541                  ADC     -(R1)
002534' 011300                  MOV     (R3),R0
002536' 105733                  TSTB    @(R3)+
002540' 004777 175332           JSR     PC,@GETBYT              ;GET BYTE FROM MEM
002544' 110164 000006           MOVB    R1,6(R4)
002550' 005313                  DEC     (R3)                    ;DECREMENT BYTE COUNT
002552' 005243                  INC     -(R3)                   ;INCREMENT ADDRESS
002554' 000450                  BR      INTEXT                  ;RETURN FROM INTERRUPT
002556' 010701          WTERM:  MOV     PC,R1
002560' 062701 175706           ADD     #BYWR+2-.,R1
002564' 011167 175230           MOV     (R1),SIZE               ;UPDATE ACTUAL BYTES XFERRED
002570' 012701 000001           MOV     #1,R1
002574' 105702          WTRMLP: TSTB    R2
002576' 001403                  BEQ     CLRSCN
002600' 006301                  ASL     R1                      ;SET BIT AS PER LINE NBR
002602' 005302                  DEC     R2
002604' 001373                  BNE     WTRMLP
002606' 052714 002000   CLRSCN: BIS     #2000,(R4)              ;SELECT BREAK REGISTER
002612' 040164 000004           BIC     R1,4(R4)                ;RESET LINE NBR BIT
002616' 042714 002000           BIC     #2000,(R4)              ;SELECT TCR
002622' 040164 000004           BIC     R1,4(R4)                ;RESET LINE NBR BIT
002626' 005764 000004           TST     4(R4)                   ;ALL LINES DISABLED ?
002632' 001401                  BEQ     STOPWR                  ;YES - STOP ALL WRITES
002634' 000420                  BR      INTEXT                  ;RETURN FROM INTERRUPT
002636' 042767 040000 175136 STOPWR: BIC  #WRBSY,FLAGWD         ;RESET WRITE BUSY
002644' 042714 040400           BIC     #40400,(R4)             ;RESET XMIT SCN & INT EBL
002650' 004767 001344           JSR     PC,SUPTAD
002654' 032714 000100           BIT     #100,(R4)               ;RECEIVE INT STILL UP ?
002660' 001003                  BNE     GVECAD                  ;YES - CONTINUE
002662' 042763 000010 000000           BIC  #WT4IOT,PFLGWD(R3)  ;NO - RESET WAIT FOR IOT
002670' 052767 000004 175104 GVECAD: BIS  #CLWVCT,FLAGWD        ;SET CLR VECT REQUEST
002676' 004067 001300        INTEXT: JSR  R0,RESREG             ;RESTORE REGISTERS
002702' 000177 175166                JMP  @RTNINT               ;RETURN FROM INTERRUPT
002706' 000000                LNUM:  .WORD 0
```

```
                                        ;READ INTERRUPT HANDLER

002710' 004067 001252          RDINT:   JSR     R0,SAVREG              ;SAVE REGISTERS
002714' 004567 001320                   JSR     R5,STSTAT              ;STORE DEVICE REG CONTENTS
002720' 175514                          .WORD   ISTAT-.
002722' 005267 175552                   INC     RICNT
002726' 004767 001266                   JSR     PC,SUPTAD              ;SET INTERNAL PTRS
002732' 016401 000002                   MOV     2(R4),R1               ;GET DATA FROM RBUF
002736' 010102                          MOV     R1,R2                  ;SAVE IN R2
002740' 000301                          SWAB    R1
002742' 042701 177760                   BIC     #177760,R1             ;FILTER OUT OTHER BITS
002746' 010167 000334                   MOV     R1,UNITNM              ;SAVE UNIT NUMBER
002752' 006301                          ASL     R1
002754' 006301                          ASL     R1                     ;USE AS TABLE INDEX
002756' 010703                          MOV     PC,R3
002760' 062703 177366                   ADD     #RCVTBL-.,R3           ;POINT R3 AT TBL ENTRY
002764' 060103                          ADD     R1,R3                  ;ADD INDEX
002766' 005763 000002                   TST     2(R3)                  ;TEST BYTE COUNT
002772' 001451                          BEQ     RTERM                  ;BRANCH IF ZERO
002774' 010701                          MOV     PC,R1
002776' 062701 175464                   ADD     #BYRD+2-.,R1
003002' 062711 000001                   ADD     #1,(R1)                ;INCR BYTES READ BY 1
003006' 005541                          ADC     -(R1)
003010' 005067 177330                   CLR     ERRFLG
003014' 032702 010000                   BIT     #10000,R2              ;TEST FOR PARITY ERROR
003020' 001405                          BEQ     NOPERR                 ;BRANCH IF NOT
003022' 005267 175462                   INC     PARERR                 ;OTHERWISE INCR COUNT
003026' 152767 000001 177310            BISB    #1,ERRFLG              ;REMEMBER PARITY ERROR
003034' 032702 020000          NOPERR:  BIT     #20000,R2              ;TEST FOR FRAMING ERROR
003040' 001405                          BEQ     NOFERR                 ;BRANCH IF NOT
003042' 005267 175440                   INC     FRAMER                 ;OTHERWISE INCR COUNT
003046' 152767 000002 177270            BISB    #2,ERRFLG              ;REMEMBER FRAMING ERROR
003054' 032702 040000          NOFERR:  BIT     #40000,R2              ;TEST FOR OVERRUN ERROR
003060' 001405                          BEQ     NOOERR                 ;BRANCH IF NOT
003062' 005267 175416                   INC     OVRRUN                 ;OTHERWISE INCR COUNT
003066' 152767 000004 177250            BISB    #4,ERRFLG              ;REMEMBER OVERRUN ERROR
003074' 110201                 NOOERR:  MOVB    R2,R1
003076' 012300                          MOV     (R3)+,R0
003100' 004777 174774                   JSR     PC,@PUTBYT             ;PUT BYTE IN MEM
003104' 005263 177776                   INC     -2(R3)                 ;INCREMENT ADDRESS
003110' 005313                          DEC     (R3)                   ;DECREMENT BYTE COUNT
003112' 001401                          BEQ     RTERM                  ;TERMINATE IF BC ZERO
003114' 000670                          BR      INTEXT
003116' 010701                 RTERM:   MOV     PC,R1
003120' 062701 175342                   ADD     #BYRD+2-.,R1
003124' 011167 174670                   MOV     (R1),SIZE              ;UPDATE ACTUAL BYTES XFERRED
003130' 012701 000001                   MOV     #1,R1
003134' 000302                          SWAB    R2
003136' 042702 177760                   BIC     #177760,R2             ;FILTER ALL BUT LINE NBR
003142' 105702                 RTRMLP:  TSTB    R2
003144' 001403                          BEQ     STRSCN
003146' 006301                          ASL     R1                     ;SET BIT AS PER LINE NBR
003150' 005302                          DEC     R2
003152' 001373                          BNE     RTRMLP
003154' 040167 177162          STRSCN:  BIC     R1,RCR                 ;RESET LINE NBR BIT
003160' 005767 177156                   TST     RCR                    ;ALL LINES DISABLED ?
```

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668  003164' 001401                          BEQ     STOPRD                  ;YES - STOP ALL READS
669  003166' 000643                          BR      INTEXT                  ;RETURN FROM INTERRUPT
670  003170' 042767  020000  174604  STOPRD: BIC     #RDBSY,FLAGWD           ;RESET READ BUSY
671  003176' 042714  000101                  BIC     #101,(R4)               ;RESET READ & READ INT EBL
672  003202' 004767  001012                  JSR     PC,SUPTAD
673  003206' 032714  040000                  BIT     #40000,(R4)             ;TEST IF WRITE STILL UP
674  003212' 001003                          BNE     COMBER                  ;IF YES-GO COMBINE ERRORS
675  003214' 042763  0000:0  000000          BIC     #WT4IOT,PFLGWD(R3)      ;RESET WAIT FOR IOT
676  003222' 032763  000400  000002  COMBER: BIT     #DOERCK,POPSW(R3)       ;TEST DONT ERROR CK BIT
677  003230' 001000                          BNE     RERVEC                  ;BRANCH IF SET
678  003232' 052767  000002  174542  RERVEC: BIS     #CLRVCT,FLAGWD          ;SET CLR RD VECT REQUEST
679  003240' 000167  177432                  JMP     INTEXT                  ;EXIT
680
681
682
683  003244' 016767  174556  000004  RRINTV: MOV     IVCTAD,10$              ;RESET READ VECT SUBR
684  003252' 004577  174612                  JSR     R5,@CLRVEC
685  003256' 000000                  10$:     .WORD   XXXX
686  003260' 000207                          RTS     PC
687
688
689  003262' 016767  174540  000012  RWINTV: MOV     IVCTAD,10$              ;RESET WRITE VECT SUBR
690  003270' 062767  000004  000004          ADD     #4,10$
691  003276' 004577  174565                  JSR     R5,@CLRVEC
692  003302' 000000                  10$:     .WORD   XXXX
693  003304' 000207                          RTS     PC
694  003306' 000000                  UNITNM: .WORD   0                       ;UNIT NBR AT LAST REC INT
```

```
                                        .SBTTL  DJ11 SUPPORT ROUTINES


                                        ;DEVICE ROUTINE HOUSEKEEPING

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

003310' 005725                  HSKEEP: TST     (R5)+                   ;UNCONDITIONALLY DO HSKP?
003312' 001003                          BNE     10$                     ;N,Y-10$
003314' 032702  000004                  BIT     #HSKPEP,R2              ;OPSW SPECIFY EACH PASS HSKP?
003320' 001010                          BNE     30$                     ;Y,N-30$
003322' 010700                  10$:    MOV     PC,R0                   ;SET UP FIRST WD ADR
003324' 062700  175110                  ADD     #HSKPST-.,R0
003330' 012701  000032                  MOV     #HSKPEN-HSKPST/2,R1     ;SET UP # OF WORDS
003334' 005020                  20$:    CLR     (R0)+                   ;HSKP ALL NECESSARY AREAS
003336' 005301                          DEC     R1
003340' 001375                          BNE     20$
003342' 000205                  30$:    RTS     R5                      ;EXIT IN-LINE


                                        ;DJ11 REPORT ROUTINE

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

003344' 005067  000236          REPORT: CLR     ABBREV                  ;CLR ABBREVIATED RPT FLAG
003350' 004067  000612                  JSR     R0,SAVREG               ;SAVE REG'S R0 - R5
003354' 032715  177776                  BIT     #177776,(R5)            ;DISPLAYING CNTS AT END OF
003360' 001012                          BNE     8$                      ;PROG PASS? (Y,N-8$)
003362' 010700                          MOV     PC,R0                   ;SET UP ADR OF CNTS
003364' 062700  175074                  ADD     #BYRD-.,R0
003370' 012701  000016                  MOV     #14.,R1                 ;GET # OF CNT WORDS
003374' 005720                  2$:     TST     (R0)+                   ;THIS CNT WORD = 0?
003376' 001003                          BNE     8$                      ;Y,N-8$
003400' 005301                          DEC     R1                      ;DECR WORD CNT
003402' 001374                          BNE     2$                      ;CK'ED ALL WORDS? (Y,N-2$)
003404' 000474                          BR      DVREX                   ;GO TO EXIT -- ALL CNTS ARE 0'S
003406' 004767  000606          8$:     JSR     PC,SUPTAD               ;SET UP PROG TBL ADR IN R3
003412' 012504                          MOV     (R5)+,R4                ;GET FLAGWORD
003414' 032704  000002                  BIT     #2,R4                   ;GOING TO DO STATUS DISPLAY?
003420' 001403                          BEQ     10$                     ;Y,N-10$
003422' 004567  000612                  JSR     R5,STSTAT               ;GO STORE STATUS REG'S
003426' 175020                          .WORD   CSTAT-.
003430' 004767  000702          10$:    JSR     PC,DISUNM               ;DISPLAY CURR UNIT #
003434' 032704  000002                  BIT     #2,R4                   ;DISPLAY DEV STATUS?
003440' 001416                          BEQ     DISCNT                  ;Y,N-DISCNT
003442' 004567  001050                  JSR     R5,PRINT                ;ISSUE 'AT INT' MSG
003446' 001257                          .WORD   ATIMSG-.
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003450' 000014                             .WORD   12.
003452' 004567  000750                     JSR     R5,DISPST              ;GO DISPLAY STATUS AT LAST INT
003456' 174756                             .WORD   ISTAT-.
003460' 004567  001032                     JSR     R5,PRINT               ;ISSUE 'CURRENTLY' MSG
003464' 001255                             .WORD   CURMSG-.
003466' 000012                             .WORD   10.
003470' 004567  000732                     JSR     R5,DISPST              ;GO DISPLAY CURRENT STATUS
003474' 174752                             .WORD   CSTAT-.
003476' 032704  000001     DISCNT: BIT     #1,R4                  ;DISPLAY COUNTS?
003502' 001431                             BEQ     RPTEND                 ;Y,N-RPTEND
003504' 012700  000016                     MOV     #14.,R0                ;SET UP # OF WORDS
003510' 010701                             MOV     PC,R1                  ;SET UP ADR OF CNTS
003512' 062701  174746                     ADD     #BYRD-.,R1
003516' 010702                             MOV     PC,R2                  ;SET UP TBL ADR
003520' 062702  000070                     ADD     #REPTBL-.,R2
003524' 012267  000012     RPTLP:  MOV     (R2)+,RPTBAS           ;MOV MSG ADR TO S/R LINKAGE
003530' 004067  000432                     JSR     R0,SAVREG              ;SAVE ALL REG'S
003534' 011100                             MOV     (R1),R0                ;GET CURRENT COUNT
003536' 004577  174314                     JSR     R5,@BINASC             ;CONVERT IT TO ASCII
003542' 000000             RPTBAS: .WORD   XXXX
003544' 004067  000432                     JSR     R0,RESREG              ;RESTORE REG'S
003550' 005721                             TST     (R1)+                  ;POINT AT NXT CNT
003552' 005300                             DEC     R0                     ;DONE ALL WORDS?
003554' 001363                             BNE     RPTLP                  ;Y,N-RPTLP
003556' 004567  000734                     JSR     R5,PRINT               ;GO ISSUE COUNTS MSG
003562' 001250                             .WORD   CNTSMG-.
003564' 000330                             .WORD   CNTSEN-CNTSMG
003566' 004567  000724     RPTEND: JSR     R5,PRINT               ;ISSUE "END OF REPORT" MSG
003572' 001161                             .WORD   RENDMG-.
003574' 177763                             .WORD   -13.
003576' 004067  000400     DVREX:  JSR     R0,RESREG              ;RESTORE REGISTERS
003602' 005725                             TST     (R5)+                  ;SET UP RETURN POINT
003604' 000205                             RTS     R5                     ;EXIT IN-LINE

003606' 000000             ABBREV: .WORD   0


003610' 001304             REPTBL: .WORD   BCMRD-RPTBAS
003612' 001312                     .WORD   BCMRD+6-RPTBAS
003614' 001326                     .WORD   BCMWR-RPTBAS
003616' 001334                     .WORD   BCMWR+6-RPTBAS
003620' 001361                     .WORD   CMDCRD-RPTBAS
003622' 001374                     .WORD   CMDCWR-RPTBAS
003624' 001410                     .WORD   CMDCBK-RPTBAS
003626' 001425                     .WORD   CMDCMS-RPTBAS
003630' 001456                     .WORD   RDINMS-RPTBAS
003632' 001471                     .WORD   WRINMS-RPTBAS
003634' 001524                     .WORD   ERCOVR-RPTBAS
003636' 001544                     .WORD   ERCFRM-RPTBAS
003640' 001563                     .WORD   ERCPAR-RPTBAS
003642' 001612                     .WORD   ERCDTA-RPTBAS
```

```
                                        ;DJ11 ERROR REPORT ROUTINE

003644' 004767 000004          ERRPPT: JSR     PC,ERRDIS
003650' 000177 174174                  JMP     @CUPGER
003654' 010701                 ERRDIS: MOV     PC,R1                   ;POINT R1 AT ERR MSG
003656' 062701 000222                  ADD     #EMSGBF-.,R1
003662' 012767 000014 000054           MOV     #12.,ERMBCT
003670' 010700                         MOV     PC,R0                   ;POINT R0 AT ERR MSG TBL
003672' 062700 000144                  ADD     #ERCDTB-.,R0
003676' 105710                 1$:     TSTB    (R0)
003700' 001416                         BEQ     ERTBEN                  ;BRANCH IF R0 AT TBL END
003702' 132067 176436                  BITB    (R0)+,ERRFLG            ;TEST FOR PARTICULAR ERR
003706' 001003                         BNE     3$                      ;BRANCH IF FOUND
003710' 062700 000005          2$:     ADD     #5,R0
003714' 000770                         BR      1$
003716' 012702 000005          3$:     MOV     #5,R2
003722' 112021                 4$:     MOVB    (R0)+,(R1)+             ;MOVE MSG CODE TO ERR MSG
003724' 005267 000014                  INC     ERMBCT                  ;BUMP BYTE COUNT
003730' 005302                         DEC     R2
003732' 001373                         BNE     4$
003734' 000760                         BR      1$                      ;CHECK IF MORE
003736' 004567 000554          ERTBEN: JSR     R5,PRINT                ;PRINT ERROR MSG
003742' 000122                         .WORD   EMSGHD-.
003744' 000014                 ERMBCT: .WORD   12.
003746' 004567 000454          ERDIRG: JSR     R5,DISPST               ;DISPLAY DEVICE REGS
003752' 174462                         .WORD   ISTAT-.
003754' 016300 000022          ERRSNM: MOV     PSRCST(R3),R0           ;GET ADDR OF SRC STMNTS
003760' 111001                 10$:    MOVB    (R0),R1                 ;SAVE STMNT LENGTH
003762' 026067 000004 000072           CMP     4(R0),STMNT             ;ERROR OCCUR ON THIS STMNT?
003770' 001402                         BEQ     20$                     ;YES - BRANCH
003772' 060100                         ADD     R1,R0                   ;POINT AT NEXT STATEMENT
003774' 000771                         BR      10$                     ;GO CK NEXT STMNT
003776' 005720                 20$:    TST     (R0)+                   ;SET UP ADR OF STMNT # DATA
004000' 010701                         MOV     PC,R1                   ;SET UP DATA OUTPUT ADDR
004002' 062701 000156                  ADD     #STMNUM-.,R1
004006' 004577 174050                  JSR     R5,@DECASC              ;CONVERT IT TO ASCII
004012' 012767 020040 000144           MOV     #20040,STMNUM+4         ;SET 2 LOW DIGITS TO SPACES
004020' 004567 000472                  JSR     R5,PRINT                ;ISSUE STMNT # MSG
004024' 000124                         .WORD   STMNMG-.
004026' 177762                         .WORD   -14.
004030' 005067 176310                  CLR     ERRFLG                  ;CLEAR ERROR FLAG
004034' 000207                         RTS     PC

004036' 020001 050040 051101   ERCDTB: .ASCII  <001>/  PAR/            ;ERROR MSG  CODE TABLE
004044' 020002 043040 046522           .ASCII  <002>/  FRM/
004052' 020004 047440 051126           .ASCII  <004>/  OVR/
004060'    000                         .BYTE   0
           004062'                     .EVEN
004062' 000000                 STMNT:  .WORD   0                       ;SAVED R5 FOR STMNT #
004064' 045104 030461 042440   EMSGHD: .ASCII  /DJ11 ERROR: /
004072' 051122 051117 020072
                               EMSGBF: .BLKB   40.
004100' 000050
004150' 052123 047115 020124   STMNMG: .ASCII  /STMNT # /
004156' 020043
004160' 054130 054130 054130   STMNUM: .ASCII  /XXXXXX/
```

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                                        .SBTTL  SUBROUTINES FOR DJ11 DEVICE ROUTINE
                                        ;SAVE REGISTERS R0 THRU R5
                                                ;JSR    R0,SAVREG       S/R CALL
004166' 010146                  SAVREG: MOV     R1,-(SP)                ;SAVE R0 THRU R5
004170' 010246                          MOV     R2,-(SP)
004172' 010346                          MOV     R3,-(SP)
004174' 010446                          MOV     R4,-(SP)
004176' 010546                          MOV     R5,-(SP)
004200' 010007                          MOV     R0,PC                   ;EXIT IN-LINE

                                        ;RESTORE REGISTERS R0 THRU R5
                                                ;JSR    R0,RESREG       S/R CALL
004202' 005726                  RESREG: TST     (SP)+                   ;RESTORE R4 THRU R0
004204' 012605                          MOV     (SP)+,R5
004206' 012604                          MOV     (SP)+,R4
004210' 012603                          MOV     (SP)+,R3
004212' 012602                          MOV     (SP)+,R2
004214' 012601                          MOV     (SP)+,R1
004216' 000200                          RTS     R0                      ;EXIT IN-LINE

                                        ;SET PROGRAM'S PROG TABLE ADR IN R3
                                                ;JSR    PC,SUPTAD       S/R CALL
004220' 010703                  SUPTAD: MOV     PC,R3                   ;SET UP LOCATION ZERO ADR
004222' 062703  173556                  ADD     #LOCZ-.,R3
004226' 166303  177776                  SUB     -2(R3),R3               ;SUBTRACT PROG TBL LENGTH
004232' 016704  173566                  MOV     DREGAD,R4               ;PUT DEV REG ADR IN R4
004236' 000207                          RTS     PC                      ;EXIT IN-LINE

                                        ;STORE DEVICE'S STATUS REGISTERS
                                                ;JSR    R5,STSTAT       S/R CALL
                                                ;.WORD  STADR-.         REL STORAGE ADR
                                                ;DESTROYS R0,R1,R2
004240' 016701  173560          STSTAT: MOV     DREGAD,R1
004244' 042711  002000                  BIC     #2000,(R1)              ;SELECT TCR
004250' 010500                          MOV     R5,R0                   ;GET REL STORAGE ADR & MAKE
004252' 062500                          ADD     (R5)+,R0                ;IT ABSOLUTE
004254' 012746  000005                  MOV     #DVREGE-DVREGS/6,-(SP)  ;GET # OF REG'S TO STORE
004260' 010702                          MOV     PC,R2                   ;GET ADR OF 1ST REG DISPLACEMENT
004262' 062702  173640                  ADD     #DVREGS+4-.,R2
004266' 011201                  10$:    MOV     (R2),R1                 ;GET REG DISPLACEMENT
004270' 066701  173530                  ADD     DREGAD,R1               ;ADD IN REG'S BASE ADR
004274' 011120                          MOV     (R1),(R0)+              ;STORE REGISTER VALUE
004276' 062702  000006                  ADD     #6,R2                   ;POINT AT NXT DISPLACEMENT
004302' 005316                          DEC     (SP)                    ;DECR REG CNT
```

```
004304' 001370                          BNE     10$                     ;DONE ALL? (Y,N-10$)
004306' 005726                          TST     (SP)+                   ;CLEAN UP THE STACK
004310' 162700  000004                  SUB     #4,R0
004314' 016701  173504                  MOV     DREGAD,R1
004320' 052711  002000                  BIS     #2000,(R1)              ;SELECT BCR
004324' 016110  000004                  MOV     4(R1),(R0)              ;STORE BCR CONTENTS
004330' 042711  002000                  BIC     #2000,(R1)              ;SELECT TCR
004334' 000205                          RTS     R5                      ;EXIT IN-LINE


                                        ;DISPLAY CURRENT UNIT #

                                                ;JSR    PC,DISUNM       S/R CALL
                                                ;R3 MUST CONTAIN PROG TBL ADR
                                                ;DESTROYS R0,R1,R2

004336' 012767  000022  000056  DISUNM: MOV     #18.,DISUML             ;INIT TO NORM MSG LNTH
004344' 116300  000035                  MOVB    PCURDV(R3),R0           ;GET CURRENT UNIT #
004350' 020027  000020                  CMP     R0,#15.                 ;VALID UNIT #?
004354' 101007                          BHI     DISUIV                  ;Y,N-DISUIV
004356' 004577  173476                  JSR     R5,@BTASLZ              ;CONVERT # TODECIMAL ASCII
004362' 000426                          .WORD   UNASCI-.
004364' 016767  000424  000416          MOV     UNASCI+4,UNASCI         ;MOVE ASCII # TO 1ST TWO DIGITS
004372' 000410                          BR      DISUPR
004374' 012767  000026  000020  DISUIV: MOV     #22.,DISUML             ;SET UP ERR COND MSG LNTH
004402' 042700  177400                  BIC     #177400,R0              ;RESET HIGH BYTE
004406' 004577  173444                  JSR     R5,@BINASC              ;CONVERT BINARY TO ASCII
004412' 000376                          .WORD   UNASCI-.
004414' 004567  000076          DISUPR: JSR     R5,PRINT                ;GO ISSUE UNIT # MSG
004420' 000350                          .WORD   UNITMG-.
004422' 000020                  DISUML: .WORD   16.
004424' 000207                          RTS     PC                      ;EXIT INLINE


                                        ;TAILOR STATUS MSG & PRINT IT

                                                ;JSR    R5,DISPST       S/R CALL
                                                ;WORD   STATADR-.       REL ADR OF STATUS DATA
                                                ;DESTROYS R0,R1,R2

004426' 010502                  DISPST: MOV     R5,R2                   ;GET REL DATA ADR
004430' 062502                          ADD     (R5)+,R2                ;MAKE IT ABS
004432' 010701                          MOV     PC,R1                   ;SET UP ADR OF REG NAMES IN ASCII
004434' 062701  173462                  ADD     #DVREGS-.,R1
004440' 012700  000005                  MOV     #DVREGE-DVREGS/6,R0     ;GET # OF REGISTERS TO DISPLAY
004444' 012167  000346          10$:    MOV     (R1)+,DVRGMG            ;MOVE REG NAME TO MSG
004450' 012167  000344                  MOV     (R1)+,DVRGMG+2
004454' 005721                          TST     (R1)+                   ;BYPASS DISP VALUE
004456' 004067  177504                  JSR     R0,SAVREG               ;SAVE REG'S R0 - R5
004462' 011200                          MOV     (R2),R0                 ;GET REG'S STORED VALUE
004464' 004577  173366                  JSR     R5,@BINASC              ;CONVERT IT TO ASCII
004470' 000334                          .WORD   DVRGDT-.
004472' 004567  000020                  JSR     R5,PRINT                ;PRINT THE STATUS MSG
004476' 000320                          .WORD   DVRGMG-.
004500' 000014                          .WORD   12.
004502' 004067  177474                  JSR     R0,RESREG               ;RESTORE R0 - R4
```

```
   970  004506' 005722                    TST     (R2)+           ;POINT AT NXT REG VALUE
   971  004510' 005300                    DEC     R0              ;DECR REG CNT
   972  004512' 001354                    BNE     10$             ;DONE ALL? (Y,N-10$)
   973  004514' 000205                    RTS     R5              ;EXIT IN-LINE
```

```
                                        ;ISSUE MSG TO LIST DEVICE
                                        ;
                                        ;JSR    R5,PRINT        S/R CALL
                                        ;.WORD  MSGADR-.        REL ADR OF MSG
                                        ;.WORD  BYTCNT          MSG BYTE CNT (IF NEGATIVE,
                                        ;                         RESET PRT DEV DEDICATED.)
                                        ;R3 = PROG TBL ADR
                                        ;R4 = FLAGWORD -- IF NEGATIVE, USE CMND MODE PRINT
                                        ;DESTROYS R0,R1,R2
                                        ;
004516' 010500          PRINT:  MOV     R5,R0                   ;GET MSG ADR & MAKE IT ABS
004520' 062500                  ADD     (R5)+,R0
004522' 012501                  MOV     (R5)+,R1                ;GET BYTE COUNT
004524' 005704                  TST     R4                      ;USE CMND MODE PRINT?
004526' 100030                  BPL     40$                     ;Y,N-40$
004530' 010702                  MOV     PC,R2                   ;SET UP LINK INFO ADR
004532' 062702  000040          ADD     #20$-.,R2
004536' 160200                  SUB     R2,R0                   ;MAKE MSG ADR REL
004540' 010022                  MOV     R0,(R2)+                ;STORE MSG ADR
004542' 010112                  MOV     R1,(R2)                 ;STORE MSG'S BYTE COUNT
004544' 100001                  BPL     10$                     ;CNT NEG? (Y,N-10$)
004546' 005412                  NEG     (R2)                    ;MAKE IT POSITIVE
004550' 016367  000006  000144  10$:    MOV     PASCIN(R3),PROGNM       ;STORE PROG'S # IN MSG
004556' 004577  173272                  JSR     R5,@CLIST               ;ISSUE PROG #
004562' 000136                          .WORD   PNMMSG-.
004564' 000005                          .WORD   5
004566' 004577  173262                  JSR     R5,@CLIST               ;ISSUE MSG SPECIFIED
004572' 000000                  20$:    .WORD   XXXX
004574' 000000                          .WORD   XXXX
004576' 004577  173252                  JSR     R5,@CLIST               ;ISSUE A <CR> & <LF>
004602' 000302                          .WORD   CRLF-.
004604' 000002                          .WORD   2
004606' 000410                  BR      PRTEX                   ;GO TO EXIT
004610' 010067  000010          40$:    MOV     R0,50$                  ;STORE MSG'S ABS ADR
004614' 010167  000006                  MOV     R1,60$                  ;STORE ITS BYTE CNT
004620' 004577  173226                  JSR     R5,@ULIST               ;GO TO MPG TO ISSUE THE MSG
004624' 000000                  50$:    .WORD   XXXX
004626' 000000                  60$:    .WORD   XXXX
004630' 000205                  PRTEX:  RTS     R5                      ;EXIT IN-LINE
                                        ;TEST READ INTERRUPT VECTOR S/R
004632' 016767  173170  000010  TRVECT: MOV     IVCTAD,20$              ;GET CURR INT VECT ADR
004640' 016346  000004                  MOV     PFWADR(R3),-(SP)        ;STORE FLGWD ADR TO IDENTIFY ME
004644' 004577  173222                  JSR     R5,@TSTVEC              ;DO I HAVE VECTOR CONTROL?
004650' 000000                  20$:    .WORD   XXXX                    ;  MPG WILL TELL ME SINCE I CAN'T
004652' 176036                          .WORD   RDINT-.                 ;  GET AT LOWER MEM IF MEM MGMT
004654' 000401                          BR      TRVEXT                  ;BR IF I DONT HAVE CONTROL
004656' 005725                          TST     (R5)+                   ;BYPASS BR INST IN S/R CALL
004660' 000205                  TRVEXT: RTS     R5                      ;EXIT IN-LINE
                                        ;TEST WRITE INTERRUPT VECTOR S/R
004662' 016767  173140  000016  TWVECT: MOV     IVCTAD,20$              ;GET CURR INT VECT ADR
004670' 062767  000004  000010          ADD     #4,20$                  ;ADJUST FOR WRITE INT
```

K02


```
1031  004676' 016346 000004            MOV     PFWADR(R3),-(SP)        ;STORE FLGWD ADR TI IDENTIFY ME
1032  004702' 004577 173164            JSR     R5,@TSTVEC              ;DO I HAVE VECTOR CONTROL?
1033  004706' 000000            20$:   .WORD   XXXX                    ;   MPG WILL TELL ME SINCE I CAN'T
1034  004710' 175536                   .WORD   WRINT-.                 ;   GET AT LOWER MEM IF MEM MGMT
1035  004712' 000401                   BR      TWVEXT                  ;BR IF I DONT HAVE CONTROL
1036  004714' 005725                   TST     (R5)+                   ;BYPASS BR INST IN S/R CALL
1037  004716' 000205            TWVEXT: RTS     R5                      ;RETURN IN-LINE
1038
1039
```

```
                                                .SBTTL  MESSAGE STORAGE AREA
                                                .NLIST  BEX
                                                .EVEN
004720' 021520                          PNMMSG: .ASCII  /P#/
004722' 054130      011                 PROGNM: .ASCII  /XX/<011>
004725'    101  020124  040514          ATIMSG: .ASCII  /AT LAST INT:/
004741'    103  051125  042522          CURMSG: .ASCII  /CURRENTLY:/
004753'    105  042116  047440          RENDMG: .ASCII  /END OF REPORT/
                                                .EVEN
004770' 025052  025052  042040          UNITMG: .ASCII  /**** DJ11 UNIT: /
                                                .EVEN
005010' 054130  054130  054130          UNASCI: .ASCII  /XXXXXX/
005016' 054130  054130  020075          DVRGMG: .ASCII  /XXXX= /
005024' 054130  054130  054130          DVRGDT: .ASCII  /XXXXXX/

005032' 054502  042524  035123          CNTSMG: .ASCII  /BYTES:  RD= /
005046' 054130  054130  054130          BCMRD:  .ASCII  /XXXXXXXXXXX  WR= /
005070' 054130  054130  054130          BCMWR:  .ASCII  /XXXXXXXXXXX/
005104' 005015                          CRLF:   .ASCII  <015><012>

005106' 041411  047115  051504                  .ASCII  <011>/CMNDS:  RD= /
005123'    130  054130  054130          CMDCRD: .ASCII  /XXXXXX WR= /
005136' 054130  054130  054130          CMDCWR: .ASCII  /XXXXXX BRK= /
005152' 054130  054130  054130          CMDCBK: .ASCII  /XXXXXX MISC= /
005167'    130  054130  054130          CMDCMS: .ASCII  /XXXXXX/<015><012>
005177'    011  047111  042524                  .ASCII  <011>/INTERRUPTS: RD= /
005220' 054130  054130  054130          RDINMS: .ASCII  /XXXXXX WR= /
005233'    130  054130  054130          WRINMS: .ASCII  /XXXXXX/<015><012>
005243'    011  051105  047522          ERRMSG: .ASCII  <011>/ERRORS:  OVERRUN= /
005266' 054130  054130  054130          ERCOVR: .ASCII  /XXXXXX FRAMING= /
005306' 054130  054130  054130          ERCFRM: .ASCII  /XXXXXX PARITY= /
005325'    130  054130  054130          ERCPAR: .ASCII  /XXXXXX/<015><012>
005335'    011  040504  040524                  .ASCII  <011>/DATA ERRORS = /
005354' 054130  054130  054130          ERCDTA: .ASCII  /XXXXXX/
        005362'                         CNTSEN= .
                                                .EVEN

                                                .LIST   BEX

        005362'                         DVREND= .
```

```
                                .SBTTL  FORMATS FOR PROGRAM & DEVICE ROUTINE TABLES

                        ;       PROGRAM TABLE FORMAT

000242                  PTLGTH= 162.    ;PROGRAM TABLE LENGTH - NON MEM MGMNT VERSION OF MPG

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

000000                  PFLGWD= +0.     ;PROGRAM FLAG WORD - 1 WORD

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

000002                  POPSW=  +2.     ;PROGRAM'S OPERATION SWITCHES - 1 WORD

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

000004                  PFWADR= +4.     ;*;PROGRAM FLAGWORD ADDRESS - 1 WORD

000006                  PASCIN= +6.     ;PROGRAM'S NUMBER IN ASCII - 1 WORD

000010                  PNAME=  +8.     ;PROGRAM'S NAME IN ASCII - 6 BYTES

000016                  PRDIOA= +14.    ;ADDRESS OF READ I/O AREA - 1 WORD

000020                  PWRIOA= +16.    ;ADDRESS OF WRITE I/O AREA - 1 WORD

000022                  PSRCST= +18.    ;SOURCE STATEMENTS START ADDRESS - 1 WORD

000024                  POBJST= +20.    ;OBJECT CODE START ADDRESS - 1 WORD

000026                  PLNGTH= +22.    ;PROG AREA LENGTH (OBJ END MINUS PROG TBL START) - 1 WORD

000030                  PTOCNT= +24.    ;I/O TIMEOUT COUNT - 1 WORD
```

```
1141            000032                  PMDLCD= +26.    ;DEV ROUT MODEL # CODE - 1 WORD
1142
1143            000034                  PDPNTR= +28.    ;CURRENT DEVICE NUMBER POINTER - 1 BYTE
1144
1145            000035                  PCURDV= +29.    ;CURRENT DEVICE # - 1 BYTE
1146
1147            000036                  PDNUMS= +30.    ;DEVICE NUMBERS - 16 BYTES
1148
1149            000056                  PTEM0=  +46.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1150
1151            000060                  PTEM1=  +48.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1152
1153            000062                  PTEM2=  +50.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1154
1155            000064                  PTEM3=  +52.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1156
1157            000066                  PTEM4=  +54.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1158
1159            000070                  PTEM5=  +56.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1160
1161            000072                  PTEM6=  +58.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1162
1163            000074                  PTEM7=  +60.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1164
1165            000076                  PTEM8=  +62.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1166
1167            000100                  PTEM9=  +64.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1168
1169            000102                  PTEM10= +66.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1170
1171            000104                  PTEM11= +68.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1172
1173            000106                  PTEM12= +70.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1174
1175            000110                  PTEM13= +72.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1176
1177            000112                  PTEM14= +74.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1178
1179            000114                  PTEM15= +75.    ;USER PROGRAM TEMPORARY STORAGE - 1 WORD
1180
1181            000116                  PNBR=   +78.    ;NUMBER OF BYTES TO TRANSFER ON MOVE (NBR) - 1 WORD
1182
1183            000120                  PSRC=   +80.    ;DATA SOURCE ADDRESS ON MOVE (SRC) - 1 WORD
1184
1185            000122                  PDST=   +82.    ;DATA DESTINATION ADDRESS ON MOVE (DST) - 1 WORD
1186
1187            000124                  PSTKCT= +84.    ;# OF WORDS (X 2) SAVED OFF STACK - 1 WORD
1188
1189            000126                  PSTKSV= +86.    ;STACK WORDS STORAGE AREA - 30 WORDS
1190
1191            000222                  PSVREG= +146.   ;USER'S R0 THRU R5 REGISTERS STORAGE AREA - 6 WORDS
1192
1193            000236                  PUSRPC= +158.   ;USER'S CURRENT PROGRAM COUNTER - 1 WORD
1194
```

```
                                        ;FOLLOWING ENTRIES (PRDIOX THRU PUBMAP) ARE ONLY IN MEM MGMNT VERSION
                                ;(PRDIOX= +160. ;18/22 BIT ABSOLUTE ADDRESS OF READ I/O AREA - 2 WORDS)
                                ;(PRDIOV= +164. ;18 BIT VIRTUAL ADDRESS OF READ I/O AREA - 2 WORDS)
                                ;(PWRIOX= +168. ;18/22 BIT ABSOLUTE ADDRESS OF WRITE I/O AREA - 2 WORDS)
                                ;(PWRIOV= +172. ;18 BIT VIRTUAL ADDRESS OF WRITE I/O AREA - 2 WORDS)
                                ;(PUPARS= +176. ;STORAGE AREA FOR USER'S PAR'S 0 THRU 7 - 8 WORDS)
                                ;(PUPDRS= +192. ;STORAGE AREA FOR USER'S PDR'S 0 THRU 7 - 8 WORDS)
                                ;(PUBMAP= +208. ;1ST UNIBUS MAP REG # AND # OF REGS USED - 1 WORD)
                                        ;END OF MEM MGMNT ONLY ENTRIES
000240                          PTSIZE= +160.   ;PROGRAM TABLE SIZE IN BYTES - 1 WORD - NON MEM MGMNT
                                ;(PTSIZE= +210. ;PROGRAM TABLE SIZE IN BYTES - 1 WORD - MEM MGMNT VERSION)
000242                          PTEND=  +162.   ;END OF PROGRAM TABLE - NON MEM MGMNT VERSION
                                ;(PTEND=  +212. ;END OF PROGRAM TABLE - MEM MGMNT VERSION)
```

```
                                ;       DEVICE ROUTINE TABLE

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

```
1278            000062                  DVPDTA= +50.    ;CONVERT PACKED DECIMAL TO ASCII BR ADR (DECASC) - 1 WORD
1279
1280            000064                  DVSFWD= +52.    ;MPG SYSTEM FLAGWORD ADDRESS (CSYSFW) - 1 WORD
1281
1282            000066                  DVSVEC= +54.    ;SET INTERRUPT VECTOR BR ADR (SETVEC) - 1 WORD
1283
1284            000070                  DVCVEC= +56.    ;CLEAR INTERRUPT VECTOR BR ADR (CLRVEC) - 1 WORD
1285
1286            000072                  DVTVEC= +58.    ;TEST INTERRUPT VECTOR BR ADR (TSTVEC) - 1 WORD
1287
1288            000074                  DVRINT= +60.    ;RETURN FROM INTERRUPT BR ADR (RTNINT) - 1 WORD
1289
1290            000076                  DVGETB= +62.    ;GET DATA BYTE BR ADR (GETBYT) - 1 WORD
1291
1292            000100                  DVPUTB= +64.    ;PUT DATA BYTE BR ADR (PUTBYT) - 1 WORD
1293
1294            000102                  DEVSTP= +66.    ;DEVICE ROUT REL SYMBOL TABLE POINTER - 1 WORD
1295
1296            000104                  DEVETP= +68.    ;DEVICE ROUT REL ENTRY TABLE POINTER - 1 WORD
1297
1298            000106                  DVPTEP= +70.    ;PACK TABLE EXTEN. REL POINTER - 1 WORD
1299
1300            000110                  DVVTEP= +72.    ;VECTOR TABLE EXTEN. REL POINTER - 1 WORD
1301
1302            000112                  DVCTEP= +74.    ;COMPILER TBL EXTEN. REL POINTER - 1 WORD
1303
1304            000114                  DVIWSP= +76.    ;DEVICE INTERFACE WORD SYMBOL TBL REL POINTER - 1 WORD
1305
1306            000116                  DRTEND= +78.    ;END OF DEVICE ROUTINE TABLE
1307
1308
1309
1310            000001                          .END
```

DTDJAB.P11 SYMBOL TABLE

```
ABBREV  003606R  002    DEVDRA= 000024          DVRGDT  005024R  002    LNUM    002706R  002    PTEM2 = 000062
ACTIVE= 100000           DEVETP= 000104          DVRGMG  005016R  002    LNWAIT  000432R  002    PTEM3 = 000064
ADDR    002334R  002    DEVFWD= 000002          DVRINT= 000074           LOADRC  001154R  002    PTEM4 = 000066
ATIMSG  004725R  002    DEVIOB= 000046          DVSFWD= 000064           LOADTC  001532R  002    PTEM5 = 000070
AURPEP= 000010           DEVIVA= 000026          DVSVEC= 000066           LOCZ    000000R  002    PTEM6 = 000072
AUTORP= 000020           DEVIW1= 000004          DVTVEC= 000072           LSTATS  000432R  002    PTEM7 = 000074
BCMRD   005046R  002    DEVIW2= 000006          DVUPRT= 000052           LWAIT   000432R  002    PTEM8 = 000076
BCMWR   005070R  002    DEVIW3= 000010          DVVTEP= 000110           MISCNT  000476R  002    PTEM9 = 000100
BCR     000442R  002    DEVIW4= 000012          EMSGBF  004100R  002    MMVER = 000001           PTEND = 000242
BINASC  000056R  002    DEVIW5= 000014          EMSGHD  004064R  002    NOCOMP= 000001           PTLGTH= 000242
BIT11 = 004000           DEVIW6= 000016          ERCDTA  005354R  002    NOFERR  003054R  002    PTOCNT= 000030
BIT12 = 010000           DEVIW7= 000020          ERCDTP  004036R  002    NOOERR  003074R  002    PTSIZE= 000240
BIT6  = 000100           DEVIW8= 000022          ERCFRM  005306R  002    NOPERR  003034R  002    PUSRPC= 000236
BKCNT   000474R  002    DEVRPS= 000030          ERCOVR  005266R  002    NOWAIT  002134R  002    PUTBYT  000100R  002
BREAK   001272R  002    DEVRSZ= 000000          ERCPAR  005325R  002    OCPRES= 000100           PWRIOA= 000020
BRFLG = 000010           DEVSTP= 000102          ERDIRG  003746R  002    OVRRUN  000504R  002    PSCONS= 120000
BTASLZ  000060R  002    DEVWPS= 000032          ERMBCT  003744R  002    PARERR  000510R  002    RBUF    000436R  002
BYRD    000460R  002    DHKPAD= 000034          ERR     000022R  002    PASCIN= 000006           RBUSRQ  000030R  002
BYTES   002336R  002    DISCNT  003476R  002    ERRDIS  003654R  002    PC    =%000007           RCR     002342R  002
BYWR    000464R  002    DISPST  004426R  002    ERREXT  002122R  002    PCURDV= 000036           RCVTBL  002346R  002
CALDNL  001126R  002    DISUIV  004374R  002    ERRFLG  002344R  002    PDNUMS= 000036           RDBSY = 020000
CIOBSY  000046R  002    DISUML  004422R  002    ERRMSG  005243R  002    PDPNTR= 000034           RDCNT   000470R  002
CLIST   000054R  002    DISUNM  004336R  002    ERRRPT  003644R  002    PDST  = 000122           RDINMS  005220R  002
CLRBRK  001414R  002    DISUPR  004414R  002    ERRSNM  003754R  002    PFBBOV= 000002           RDINT   002710R  002
CLRBSY  002214R  002    DKILAD= 000040          ERRTST  002060R  002    PFLGWD= 000000           RDMNCL  001070R  002
CLRSCN  002606R  002    DOERCK= 000400          ERSTOP= 000004           PFWAOR= 000004           RDMNST  001074R  002
CLRVCT= 000002           DOIOT = 000040          ERTBEN  003736R  002    PLNGTH= 000026           RDNOWT  001252R  002
CLRVEC  000070R  002    DRCVTL  001214R  002    FDUPLX  002162R  002    PMDLCD= 000032           READ    000730R  002
CLWVCT= 000004           DREGAD  000024R  002    FLAG    000516R  002    PNAME = 000010           RELEAS  002126R  002
CMDCBK  005152R  002    DRTEND= 000116          FLAGWD  000002R  002    PNBR  = 000116           RENDMG  004753R  002
CMDCMS  005167R  002    DRTLTH= 000116          FRAMER  000506R  002    PNMMSG  004720R  002    REPORT  003344R  002
CMDCRD  005123R  002    DRWAIT= 100000          FRCVTL  001172R  002    POBJST= 000024           REPTBL  003610R  002
CMDCWR  005136R  002    DSNDTL  001630R  002    FSNDTB  001574R  002    POPSW = 000002           RERVEC  003232R  002
CNTSEN= 005362R  002    DTOEAD= 000044          FSNDTL  001606R  002    PRDIOA= 000016           RESREG  004202R  002
CNTSMG  005032R  002    DVBTDA= 000060          GETBYT  000076R  002    PRINT   004516R  002    RETURN  001756R  002
COMBER  003222R  002    DVCMDS  000154R  002    GTNXTD= 001000           PROGNM  004722R  002    RICNT   000500R  002
CRESET  002200R  002    DVCPRT= 000054          GTPTBS  001036R  002    PRONER= 020000           RPTBAS  003542R  002
CRLF    005104R  002    DVCPTE  000352R  002    GVECAD  002670R  002    PRTEX   004630R  002    RPTEND  003566R  002
CSR     000434R  002    DVCTEP= 000112          HDUPLX  002144R  002    PS    = 177776           RPTLP   003524R  002
CSTAT   000446R  002    DVCVEC= 000070          HSKEEP  003310R  002    PSRC  = 000120           RRINTV  003244R  002
CSYSFW  000064R  002    DVGETB= 000076          HSKPEN= 000520R  002    PSRCST= 000022           RTERM   003116R  002
CTPRIO= 000020           DVIWSP= 000114          HSKPEP= 000004           PSSAVE  002332R  002    RTNINT  000074R  002
CUPGER  000050R  002    DVIWST  000430R  002    HSKPST= 000434R  002    PSTKCT= 000124           RTRMLP  003142R  002
CURMSG  004741R  002    DVMVTE  000316R  002    INCWRC  001704R  002    PSTKSV= 000126           RWINTV  003262R  002
CWRINT  000674R  002    DVNMLP  001504R  002    INTEXT  002676R  002    PSVREG= 000222           R0      =%000000
CYCDVL= 002000           DVPDTA= 000062          ISTAT = 000434R  002    PTEM0 = 000056           R1      =%000001
CYCPRG= 040000           DVPKTE  000226R  002    IVCTAD  000026R  002    PTEM1 = 000060           R2      =%000002
DATAER  000512R  002    DVPTEP= 000106          KILL    000632R  002    PTEM10= 000102           R3      =%000003
DECASC  000062R  002    DVPUTB= 000100          KILLEX  000722R  002    PTEM11= 000104           R4      =%000004
DECTAD= 000042           DVREGE= 000154R  002    LCOUNT  000432R  002    PTEM12= 000106           R5      =%000005
DERPAD= 000036           DVREGS  000116R  002    LCRST   000432R  002    PTEM13= 000110           SAVREG  004166R  002
DEVBTA= 000056           DVREND= 005362R  002    LFDPLX  000432R  002    PTEM14= 000112           SETBSY  001342R  002
DEVDER= 000050           DVREX   003576R  002    LHDPLX  000432R  002    PTEM15= 000114           SETDED= 000040
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F03

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MAINDEC-11-DTDJA-B     DJ11 DEVICE ROUTINE FOR MPG     MACY11 27(732)  24-SEP-76  14:08  PAGE 9-1                    SEQ 0031
DTDJAB.P11      SYMBOL TABLE

SETRSE  001232R     002   STMNUM  004160R     002   TOEMSG  000606R     002   UNITMG  004770R     002   WRITE   001262R     002
SETSCN  001710R     002   STONER= 100000              TOUTER  000520R     002   UNITNM  003306R     002   WRMNCL  001446R     002
SETTSE  001640R     002   STOPRD  003170R     002   TOUTEX  000600R     002   URSTOP= 000002            WRMNST  001452R     002
SETVEC  000066R     002   STOPWR  002636R     002   TRMTST  002000R     002   USEUBM= 000200            WTERM   002556R     002
SIZE    000020R     002   STRSCN  003154R     002   TRVECT  004632R     002   USMTPS= 000002            WTRMLP  002574R     002
SNDTBL  002232R     002   STSTAT  004240R     002   TRVEXT  004660R     002   WAIT    001760R     002   WT4IOT= 000010
SP    =%000006            SUPTAD  004220R     002   TSTIEB  001772R     002   WBUSRQ  000032R     002   XMIT    001300R     002
SPOPER= 000200            TBUF    000444R     002   TSTVEC  000072R     002   WICNT   000502R     002   XXXX  = 000000
SRDBSY  000772R     002   TCR     000440R     002   TWVECT  004662R     002   WRBSY = 040000            .     = 005362R     002

. ABS.  000000      000
        000000      001
DJ11    005362      002


 ERRORS DETECTED:  0
 DEFAULT GLOBALS GENERATED:  0

 *,DTDJAB/NL:TOC/DOC=DTDJAB.P11
 RUN-TIME: 3 8 1 SECONDS
 RUN-TIME RATIO: 32/13=2.4
 CORE USED:  5K  (9 PAGES)

 DOCUMENT PAGES:  31
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G03

Spooler runtime 4 Seconds, 22 MCS, 125 disk reads, 2 disk writes, 21 pages

567890123456789012 #

900000001111111111222222222233333333334444444444555555555566666666667777777777888888888899999999990000000000111111111122222222223331