```
000.000                1  .AT.    EQU     0                       ASSEMBLE AS ALTERNATE TERMINAL
000.000                2  H84IO   EQU     0                       ASSEMBLE FOR 8250 INTERFACE
000.000                3          IF      .AT.                                                    /WCZ092980/
                       5          ELSE
                       6          TITLE   'HDOS LP: DEVICE DRIVER, H-44 (DIABLO)'
                       7          ENDIF                                                           /WCZ092980/
                       8  ***     DBDVD   -  DIABLO DEVICE DRIVER
                       9  *
                      10  *       G. C.,                          /79.07.17/
                      11  *       W. Z.,                          /80.09.02/
                      12  *       W. Z.,                          /80.09.29/
                      13  *
                      14  *       COPYRIGHT JULY 17, 1979 FOR:
                      15  *
                      16  *               HEATH CO.
                      17  *               BENTON HARBOR, MI
                      18  *               49022
                      19  *
                      20  *
                      21  *       Copyright November 1979         /79.11.sc/
                      22  *


                      24  **      DBDVD IS THE DEVICE DRIVER FOR DEVICE
                      25  *
                      26  *               DB:
                      27  *
000.000               28          IF      .AT.                                                    /WCZ092980/
                      29  *       DB: IS A DIABLO PRINTER AND KEYBOARD                            /WCZ090280/
                      30  *       INTERFACED VIA AN H88-3, H-8-4                                  /WCZ090280/
                      31          ELSE
                      32  *       DB: IS A DIABLO PRINTER INTERFACED VIA AN H88-3, H-8-4
                      33          ENDIF                                                           /WCZ092980/
                      34  *
                      35  *                                                                       /WCZ092980/
                      36  *       ASSEMBLY TIME CONSTANT /.AT./ DETERMINES IF
                      37  *       THIS DEVICE DRIVER IS ASSEMBLED AS AN ALTERNATE
                      38  *       TERMINAL (.AT. EQU 0) OR AS A PRINTER ONLY
                      39  *       (.AT. EQU 1).                                                   /WCZ092980/


000.000               41          XTEXT   FILDEF
```

```
                        43X **      FILDEF - FILE TYPE DEFINITIONS.
                        44X *
                        45X *       DB      377Q,FT.XXX
                        46X
                        47X
000.000                 48X FT.ABS  EQU     0           ABSOLUTE BINARY
000.001                 49X FT.PIC  EQU     1           POSITION INDEPENDANT CODE
000.002                 50X FT.REL  EQU     2           RELOCATABLE CODE
000.003                 51X FT.BAC  EQU     3           COMPILED BASIC CODE
000.000                 52          XTEXT   PICDEF


                        54X **      PIC FORMAT EQUIVALENCES.
                        55X
000.000                 56X         ORG     0
                        57X
000.000                 58X PIC.ID  DS      1           377Q = BINARY FILE FLAG
000.001                 59X         DS      1           FILE TYPE (FT.PIC)
000.002                 60X PIC.LEN DS      2           LENGTH OF ENTIRE RECORD
000.004                 61X PIC.PTR DS      2           INDEX OF START OF PIC TABLE
                        62X
000.006                 63X PIC.COD DS      0           CODE STARTS HERE
000.006                 64          XTEXT   DIRDEF


                        66X **      DIRECTORY ENTRY FORMAT.
                        67X
000.000                 68X         ORG     0
                        69X
                        70X
000.377                 71X DF.EMP  EQU     377Q        FLAGS ENTRY EMPTY
000.376                 72X DF.CLR  EQU     376Q        FLAGS ENTRY EMPTY, REST OF DIR ALSO CLEAR
                        73X
000.000                 74X DIR.NAM DS      8           NAME
000.010                 75X DIR.EXT DS      3           EXTENSION
000.013                 76X DIR.PRO DS      1           PROJECT
000.014                 77X DIR.VER DS      1           VERSION
000.015                 78X DIRIDL  EQU     *           FILE IDENTIFICATION LENGTH
                        79X
000.015                 80X DIR.CLU DS      1           CLUSTER FACTOR
000.016                 81X DIR.FLG DS      1           FLAGS
000.017                 82X         DS      1           RESERVED
000.020                 83X DIR.FGN DS      1           FIRST GROUP NUMBER
000.021                 84X DIR.LGN DS      1           LAST GROUP NUMBER
000.022                 85X DIR.LSI DS      1           LAST SECTOR INDEX (IN LAST GROUP)
000.023                 86X DIR.CRD DS      2           CREATION DATE
000.025                 87X DIR.ALD DS      2           LAST ALTERATION DATE
                        88X
000.027                 89X DIRELEN EQU     *           DIRECTORY ENTRY LENGTH
000.027                 90          XTEXT   HOSEQU
```

```
                        92X **      HDOS SYSTEM EQUIVALENCES.
                        93X *
                        94X
024.000                 95X S.GRT0  EQU   24000A          SYSTEM AREA FOR  GRT0
025.000                 96X S.GRT1  EQU   25000A          SYSTEM AREA FOR  GRT1
026.000                 97X S.GRT2  EQU   26000A          SYSTEM AREA FOR  GRT2
                        98X
030.000                 99X ROMBOOT EQU   30000A          ROM BOOT ENTRY
                       100X
040.100                101X        ORG   40100A          FREE SPACE FROM PAM-8
                       102X
040.100                103X        DS    8               JUMP TO SYSTEM EXIT
040.110                104X D.CON  DS    16              DISK CONSTANTS
040.130                105X SYDD   EQU   *               SYSTEM DISK ENTRY POINT
040.130                106X D.VEC  DS    24*3            SYSTEM ROM ENTRY VECTORS
040.240                107X D.RAM  DS    31              SYSTEM ROM WORK AREA
040.277                108X S.VAL  DS    36              SYSTEM VALUES
040.343                109X S.INT  DS    115             SYSTEM INTERNAL WORK AREAS
041.126                110X        DS    16
041.146                111X S.SOVR DS    2               STACK OVERFLOW WARNING
041.150                112X        DS    42200A-*        SYSTEM STACK
001.032                113X STACKL EQU   *-S.SOVR        STACK SIZE
                       114X
042.200                115X STACK  EQU   *               LWA+1 SYSTEM STACK
042.200                116X USERFWA EQU  *               USER FWA
042.200                117         XTEXT ESINT


                       119X **      S.INT - SYSTEM INTERNAL WORKAREA DEFINITIONS.
                       120X *
                       121X *       THESE CELLS ARE REFERENCED BY OVERLAYS AND MAIN CODE, AND
                       122X *       MUST THEREFORE RESIDE IN FIXED LOW MEMORY.
                       123X
                       124X
040.343                125X        ORG   S.INT
                       126X
                       127X **      CONSOLE STATUS FLAGS
                       128X
040.343                129X S.CDB   DS    1               CONSOLE DESCRIPTOR BYTE
000.000                130X CDB.H85 EQU   00000000B
000.001                131X CDB.H84 EQU   00000001B       =0 IF H8-5, =1 IF H8-4
040.344                132X S.BAUD  DS    2               [0-14]  H8-4 BAUD RATE, =0 IF H8-5
                       133X *                             [15]    =1 IF BAUD RATE => 2 STOP BITS
                       134X
                       135X **      TABLE ADDRESS WORDS
                       136X
040.346                137X S.DLINK DS    2               ADDRESS OF DATA IN HDOS CODE
040.350                138X S.OFWA  DS    2               FWA OVERLAY TABLE
040.352                139X S.CFWA  DS    2               FWA CHANNEL TABLE
040.354                140X S.DFWA  DS    2               FWA DEVICE TABLE
040.356                141X S.RFWA  DS    2               FWA RESIDENT HDOS CODE
                       142X
                       143X **      DEVICE DRIVER DELAYED LOAD FLAGS
                       144X
```

```
040.360                 145X S.DDLDA DS      2              DRIVER LOAD ADDRESS (HIGH BYTE=0 IF NO LOAD PENDING)
040.362                 146X S.DDLEN DS      2              CODE LENGTH IN BYTES
040.364                 147X S.DDGRP DS      1              GROUP NUMBER FOR DRIVER
040.365                 148X         DS      1              HOLD PLACE
                        149X *S.DDSEC        DS      2              SECTOR NUMBER FOR DRIVER ( * OBSOLETE ! * )
040.366                 150X S.DDDTA DS      2              DEVICE'S ADDRESS IN DEVLST +DEV.RES
040.370                 151X S.DDOPC DS      1              OPEN OPCODE PENDEDING
                        152X
                        153X **      OVERLAY MANAGEMENT FLAGS
                        154X
000.001                 155X OVL.IN  EQU     00000001B      IN MEMORY
000.002                 156X OVL.RES EQU     00000010B      PERMINANTLY RESIDENT
000.014                 157X OVL.NUM EQU     00001100B      OVERLAY NUMBER MASK
000.200                 158X OVL.UCS EQU     10000000B      USER CODE SWAPPED FOR OVERLAY
                        159X
040.371                 160X S.OVLFL DS      1              OVERLAY FLAG
040.372                 161X S.UCSF  DS      2              FWA SWAPPED USER CODE
040.374                 162X S.UCSL  DS      2              LENGTH SWAPPED USER CODE
040.376                 163X S.OVLS  DS      2              SIZE OF OVERLAY CODE
041.000                 164X S.OVLE  DS      2              ENTRY POINT OF OVERLAY CODE
                        165X
041.002                 166X S.SSN   DS      2              SWAP AREA SECTOR NUMBER
041.004                 167X S.OSN   DS      2              OVERLAY SECTOR NUMBER
                        168X
                        169X *       SYSCALL PROCESSING WORK AREAS
                        170X
041.006                 171X S.CACC  DS      1              (ACC) UPON SYSCALL
041.007                 172X S.CODE  DS      1              SYSCALL INDEX IN PROGRESS
                        173X
                        174X *       JUMPS TO ROUTINES IN RESIDENT HDOS CODE
                        175X
041.010                 176X S.JUMPS DS      0              START OF DUMP VECTORS
041.010                 177X S.SDD   DS      3              JUMP TO STAND-IN DEVICE DRIVER
041.013                 178X S.FASER DS      3              JUMP TO FATSERR (FATAL SYSTEM ERROR)
041.016                 179X S.DIREA DS      3              JUMP TO DIREAD (DISK FILE READ)
041.021                 180X S.FCI   DS      3              JUMP TO FCI (FETCH CHANNEL INFO)
041.024                 181X S.SCI   DS      3              JUMP TO SCI (STORE CHANNEL INFO)
041.027                 182X S.GUP   DS      3              JUMP TO GUP (GET UNIT POINTER)
                        183X
041.032                 184X S.MOUNT DS      1              <>0 IF THE SYSTEM DISK IS MOUNTED
041.033                 185X S.DCS   DS      1              DEFAULT CLUSTER SIZE-1
                        186X
041.034                 187X S.BOOTF DS      1              BOOT FLAGS
000.001                 188X BOOT.P  EQU     00000001B      EXECUTE PROLOGUE UPON BOOTUP
                        189X
                        190X *       STACK VALUE SAVED FOR OVERLAY SYSCALLS
                        191X
041.035                 192X S.OVSTK DS      2              VALUE OF SP UPON SYSCALLS USING OVERLAY
                        193X
041.037                 194X         DS      1              RESERVED
```

```
                        196X **      ACTIVE I/O AREA.
                        197X *
                        198X *       THE AIO.XXX AREA CONTAINS INFORMATION ABOUT THE I/O OPERATION
                        199X *       CURRENTLY BEING PERFORMED.  THE INFORMATION IS OBTAINED FROM
                        200X *       THE CHANNEL TABLE, AND WILL BE RESTORED THERE WHEN DONE.
                        201X *
                        202X *       NORMALLY, THE AIO.XXX INFORMATION WOULD BE OBTAINED DIRECTLY
                        203X *       FROM VARIOUS SYSTEM TABLES VIA POINTER REGISTERS.  SINCE THE
                        204X *       8080 HAS NO GOOD INDEXED ADDRESSING, THE DATA IS MANUALLY
                        205X *       COPIED INTO THE AIO.XXX CELLS BEFORE PROCESSING, AND
                        206X *       BACKDATED AFTER PROCESSING.
                        207X
041.040                 208X AIO.VEC DS      3              JUMP INSTRUCTION
041.041                 209X AIO.DDA EQU     *-2            DEVICE DRIVER ADDRESS
041.043                 210X AIO.FLG DS      1              FLAG BYTE
041.044                 211X AIO.GRT DS      2              ADDRESS OF GROUP RESERV TABLE
041.046                 212X AIO.SPG DS      1              SECTORS PER GROUP
041.047                 213X AIO.CGN DS      1              CURRENT GROUP NUMBER
041.050                 214X AIO.CSI DS      1              CURRENT SECTOR INDEX
041.051                 215X AIO.LGN DS      1              LAST GROUP NUMBER
041.052                 216X AIO.LSI DS      1              LAST SECTOR INDEX
041.053                 217X AIO.DTA DS      2              DEVICE TABLE ADDRESS
041.055                 218X AIO.DES DS      2              DIRECTORY SECTOR
041.057                 219X AIO.DEV DS      2              DEVICE CODE
041.061                 220X AIO.UNI DS      1              UNIT NUMBER (0-9)
                        221X
041.062                 222X AIO.DIR DS      DIRELEN        DIRECTORY ENTRY
                        223X
041.111                 224X AIO.CNT DS      1              SECTOR COUNT
041.112                 225X AIO.EOM DS      1              END OF MEDIA FLAG
041.113                 226X AIO.EOF DS      1              END OF FILE FLAG
041.114                 227X AIO.TFP DS      2              TEMP FILE POINTERS
041.116                 228X AIO.CHA DS      2              ADDRESS OF CHANNEL BLOCK (IOC.DDA)


041.120                 230X S.BDA   DS      1              Boot Device Address (Setup by ROM) /80.09.sc/
041.121                 231X S.SCR   DS      2              SYSTEM SCRATCH AREA ADDRESS
041.123                 232          XTEXT   ESVAL


                        234X **      S.VAL - SYSTEM VALUE DEFINTIONS.
                        235X *
                        236X *       THESE VALUES ARE SET AND MAINTAINED BY THE SYSTEM.
                        237X *
                        238X *       THE DECK HOSEQU MUST BE MODIFIED WHEN THIS IS MODIFIED.
                        239X
                        240X
040.277                 241X         ORG     S.VAL
                        242X
040.277                 243X S.DATE  DS      9              SYSTEM DATE (IN ASCII)
040.310                 244X S.DATC  DS      2              CODED DATE
040.312                 245X S.TIME  DS      4              TIME FROM MIDNIGHT (IN TICS)
```

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040.316                246X S.HIMEM DS      2               HARDWARE HIGH MEMORY ADRESS+1
                       247X
040.320                248X S.SYSM  DS      2               FWA RESIDENT SYSTEM
                       249X
040.322                250X S.USRM  DS      2               LWA USER MEMORY
                       251X
040.324                252X S.OMAX  DS      2               MAX OVERLAY SIZE FOR SYSTEM
                       253X
                       254X
                       255X **      THE FOLLOWING FIVE CELLS SHOULD BE MODIFIED/READ ONLY VIA THE .CONSL SYSCALL
                       256X
000.200                257X CSL.ECH EQU     10000000B       SUPPRESS ECHO
000.004                258X CSL.RAW EQU     00000100B       Raw Mode I/O                    /80.09.sc/
000.002                259X CSL.WRP EQU     00000010B       WRAP LINES AT WIDTH
000.001                260X CSL.CHR EQU     00000001B       OPERATE IN CHARACTER MODE
                       261X
000.000                262X I.CSLMD EQU     0               S.CSLMD IS FIRST BYTE
040.326                263X S.CSLMD DS      1               CONSOLE MODE
                       264X
000.200                265X CTP.BKS EQU     10000000B       TERMINAL PROCESSES BACKSPACES
000.100                266X CTP.FF  EQU     01000000B       Terminal Processes Form-Feed    /80.09.sc/
000.040                267X CTP.MLI EQU     00100000B       MAP LOWER CASE TO UPPER ON INPUT
000.020                268X CTP.MLO EQU     00010000B       MAP LOWER CASE TO UPPER ON OUTPUT
000.010                269X CTP.2SB EQU     00001000B       TERMINAL NEEDS TWO STOP BITS
000.002                270X CTP.BKM EQU     00000010B       MAP BKSP (UPON INPUT) TO RUBOUT
000.001                271X CTP.TAB EQU     00000001B       TERMINAL SUPPORTS TAB CHARACTERS
                       272X
000.001                273X I.CONTY EQU     1               S.CONTY IS 2ND BYTE
000.000                274X         ERRNZ   *-S.CSLMD-I.CONTY
040.327                275X S.CONTY DS      1               CONSOLE TYPE FLAGS
000.002                276X I.CUSOR EQU     2               S.CUSOR IS 3RD BYTE
000.000                277X         ERRNZ   *-S.CSLMD-I.CUSOR
040.330                278X S.CUSOR DS      1               CURRENT CURSOR POSITION
000.003                279X I.CONWI EQU     3               S.CONWI IS 4TH BYTE
000.000                280X         ERRNZ   *-S.CSLMD-I.CONWI
040.331                281X S.CONWI DS      1               CONSOLE WIDTH
                       282X
000.001                283X CO.FLG  EQU     00000001B       CTL-O FLAG
000.200                284X CS.FLG  EQU     10000000B       CTL-S FLAG
                       285X
000.004                286X I.CONFL EQU     4               S.CONFL IS 5TH BYTE
000.000                287X         ERRNZ   *-S.CSLMD-I.CONFL
040.332                288X S.CONFL DS      1               CONSOLE FLAGS
                       289X
040.333                290X S.CAADR DS      2               ADDRESS FOR ABORT PROCESSING (<>256 IF VALID)
040.335                291X S.CCTAB DS      6               ADDR FOR CTL-A, CTL-B, CTL-C PROCESSING
                       292
040.343                293          XTEXT   ASCII
```

```
                        295X **     ASCII CHARACTER EQUIVALENCES.
                        296X
    000.015             297X CR     EQU     13              CARRIAGE RETURN
    000.012             298X LF     EQU     10              LINE FEED
    000.200             299X NULL   EQU     200Q            PAD CHARACTER
    000.000             300X NUL2   EQU     0
    000.007             301X BELL   EQU     7               BELL CHARACTER
    000.177             302X RUBOUT EQU     177Q
    000.010             303X BKSP   EQU     10Q             CTL-H
    000.026             304X C.SYN  EQU     26Q             SYNC
    000.002             305X C.STX  EQU     2               STX
    000.047             306X QUOTE  EQU     47Q
    000.011             307X TAB    EQU     11Q
    000.033             308X ESC    EQU     33Q
    000.012             309X NL     EQU     12Q             NEW LINE (HDOS SYSTEMS)
    000.212             310X ENL    EQU     NL+200Q         NL + END-OF-LINE-FLAG
    000.014             311X FF     EQU     14Q             FORM FEED
    000.001             312X CTLA   EQU     01Q             CTL-A
    000.002             313X CTLB   EQU     02Q             CTL-B
    000.003             314X CTLC   EQU     03Q             CTL-C
    000.004             315X CTLD   EQU     04Q             CTL-D
    000.017             316X CTLO   EQU     17Q             CTL-O
    000.020             317X CTLP   EQU     20Q             CTL-P
    000.021             318X CTLQ   EQU     21Q             CTL-Q
    000.023             319X CTLS   EQU     23Q             CTL-S
    000.032             320X CTLZ   EQU     32Q             CTL-Z
    040.343             321         XTEXT   DDDEF


                        323X **     DEVICE DRIVER COMMUNICATION FLAGS.
                        324X *
                        325X
    000.000             326X        ORG     0
                        327X
    000.000             328X DC.REA DS      1               READ
    000.001             329X DC.WRI DS      1               WRITE
    000.002             330X DC.RER DS      1               READ REGARDLESS
    000.003             331X DC.OPR DS      1               OPEN FOR READ
    000.004             332X DC.OPW DS      1               OPEN FOR WRITE
    000.005             333X DC.OPU DS      1               OPEN FOR UPDATE
    000.006             334X DC.CLO DS      1               CLOSE
    000.007             335X DC.ABT DS      1               ABORT
    000.010             336X DC.MOU DS      1               MOUNT DEVICE
    000.011             337X DC.LOD DS      1               LOAD DEVICE DRIVER
    000.012             338X DC.RDY DS      1               Device Ready                    /80.04.GC/
    000.013             339X DC.MAX DS      1               MAXIMUM ENTRY INDEX
    000.014             340         XTEXT   DEVDEF
```

```
                    342X **     DEVICE TABLE ENTRYS.
                    343X
000.000             344X        ORG     0
                    345X
000.000             346X DEV.NAM DS     2           DEVICE NAME
000.000             347X DV.EL  EQU     00000000B   END OF DEVICE LIST FLAG
000.001             348X DV.NU  EQU     00000001B   DEVICE ENTRY NOT IN USE
                    349X
000.002             350X DEV.RES DS     1           DRIVER RESIDENSE CODE
000.001             351X DR.IM  EQU     00000001B   DRIVER IN MEMORY
000.002             352X DR.PR  EQU     00000010B   DRIVER PERMINANTLY RESIDENT
                    353X
000.003             354X DEV.JMP DS     1           JMP TO PROCESSOR
000.004             355X DEV.DDA DS     2           DRIVER ADDRESS
000.006             356X DEV.FLG DS     1           FLAG BYTE
000.001             357X DT.DD  EQU     00000001B   DIRECTORY DEVICE
000.002             358X DT.CR  EQU     00000010B   CAPABLE OF READ OPERATION
000.004             359X DT.CW  EQU     00000100B   CAPABLE OF WRITE OPERATION
000.010             360X DT.RN  EQU     00001000B   Capable of random access      /80.02.sc/
000.020             361X DT.CH  EQU     00010000B   Capable of Character mode     /80.02.sc/
                    362X
000.007             363X DEV.MUM DS     1           MOUNTED UNIT MASK
000.010             364X DEV.MNU DS     1           MAXIMUM NUMBER OF UNITS
000.011             365X DEV.UNT DS     2           ADDRESS OF UNIT SPECIFIC DATA TABLE
                    366X
000.013             367X DEV.DVL DS     2           DRIVER BYTE LENGTH
000.015             368X DEV.DVG DS     1           DRIVER ROUTINE GROUP ADDRESS
                    369X
000.016             370X DEVELEN EQU    *           DEVICE TABLE ENTRY LENGTH



                    372X **     UNIT SPECIFIC DEVICE DATA TABLE ENTRIES
                    373X
000.000             374X        ORG     0
                    375X
000.000             376X UNT.FLG DS     1           UNIT SPECIFIC  *DEV.FLG*
000.001             377X UNT.SPG DS     1           Sectors Per Group             /80.04.GC/
000.002             378X UNT.GRT DS     2           ADDRESS OF GROUP RESERVATION TABLE (IF DT.DD)
000.004             379X UNT.GTS DS     2           GRT SECTOR NUMBER
000.006             380X UNT.DIS DS     2           DIRECTORY FIRST SECTOR NUMBER
                    381X
000.010             382X UNT.SIZ EQU    *           SIZE OF UNIT SPECIFIC DATA TABLE PER UNIT
000.010             383         XTEXT   DVDDEF



                    385X **     DEVICE DRIVER EQUIVALENCES.
                    386X
000.307             387X DVDFLV EQU     307Q        DEVICE DRIVER FLAG VALUE
                    388X
000.006             389X        ORG     PIC.COD     STARTS AT PIC CODE AREA
                    390X
000.006             391X DVD.DVD DS     1           MUST BE DVDFLV, FLAGS TO HDOS AS DRIVER
```

```
000.007                392X DVD.CAP DS      1          DEVICE CAPABILITY FLAG
000.010                393X DVD.MUM DS      1          MOUNTED UNIT MASK
000.011                394X DVD.MNU DS      1          MAXIMUM NUMBER OF UNITS
000.012                395X DVD.UFL DS      8          UNIT SUB-CAPABILITY FLAGS FOR UNITS 0-7
000.022                396X DVD.SET DS      1          = DVDFLV IFF DRIVER WILL TAKE SET OPTIONS
000.023                397X DVD.INP DS      2          Pointer to Init Code              /80.07.sc/
000.025                398X         DS      22         RESERVED, MUST BE 0               /80.07.sc/
000.053                399X DVD.STE EQU     *          ENTRY FOR 'SET' INVOCATION
                       400X
002.000                401X DVD.ENT EQU     2000A      DRIVER ENTRY POINT (MUST BE MULT OF 256)
000.053                402          XTEXT   ECDEF


                       404X **      ERROR CODE DEFINITIONS.
                       405X
000.000                406X         ORG     0
000.000                407X         DS      1          NO ERROR #0
000.001                408X EC.EOF  DS      1          END OF FILE
000.002                409X EC.EOM  DS      1          END OF MEDIA
000.003                410X EC.ILC  DS      1          ILLEGAL SYSCALL CODE
000.004                411X EC.CNA  DS      1          CHANNEL NOT AVAILABLE
000.005                412X EC.DNS  DS      1          DEVICE NOT SUITABLE
000.006                413X EC.IDN  DS      1          ILLEGAL DEVICE NAME
000.007                414X EC.IFN  DS      1          ILLEGAL FILE NAME
000.010                415X EC.NRD  DS      1          NO ROOM FOR DEVICE DRIVER
000.011                416X EC.FNO  DS      1          CHANNEL NOT OPEN
000.012                417X EC.ILR  DS      1          ILLEGAL REQUEST
000.013                418X EC.FUC  DS      1          FILE USAGE CONFLICT
000.014                419X EC.FNF  DS      1          FILE NAME NOT FOUND
000.015                420X EC.UND  DS      1          UNKNOWN DEVICE
000.016                421X EC.ICN  DS      1          ILLEGAL CHANNEL NUMBER
000.017                422X EC.DIF  DS      1          DIRECTORY FULL
000.020                423X EC.IFC  DS      1          ILLEGAL FILE CONTENTS
000.021                424X EC.NEM  DS      1          NOT ENOUGH MEMORY
000.022                425X EC.RF   DS      1          READ FAILURE
000.023                426X EC.WF   DS      1          WRITE FAILURE
000.024                427X EC.WPV  DS      1          WRITE PROTECTION VIOLATION
000.025                428X EC.WP   DS      1          DISK WRITE PROTECTED
000.026                429X EC.FAP  DS      1          FILE ALREADY PRESENT
000.027                430X EC.DDA  DS      1          DEVICE DRIVER ABORT
000.030                431X EC.FL   DS      1          FILE LOCKED
000.031                432X EC.FAO  DS      1          FILE ALREADY OPEN
000.032                433X EC.IS   DS      1          ILLEGAL SWITCH
000.033                434X EC.UUN  DS      1          UNKNOWN UNIT NUMBER
000.034                435X EC.FNR  DS      1          FILE NAME REQUIRED
000.035                436X EC.DIW  DS      1          DEVICE IS NOT WRITABLE (OR WRITE LOCKED)
000.036                437X EC.UNA  DS      1          UNIT NOT AVAILABLE
000.037                438X EC.ILV  DS      1          ILLEGAL VALUE
000.040                439X EC.ILO  DS      1          ILLEGAL OPTION
000.041                440X EC.VPM  DS      1          VOLUME PRESENTLY MOUNTED ON DEVICE
000.042                441X EC.NVM  DS      1          NO VOLUME PRESENTLY MOUNTED
000.043                442X EC.FOD  DS      1          FILE OPEN ON DEVICE
000.044                443X EC.NPM  DS      1          NO PROVISIONS MADE FOR REMOUNTING MORE DISKS
000.045                444X EC.DNI  DS      1          DISK NOT INITIALIZED
000.046                445X EC.DNR  DS      1          DISK IS NOT READABLE
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000.047                446X EC.DSC  DS      1               DISK STRUCTURE IS CORRUPT
000.050                447X EC.NCV  DS      1               NOT CORRECT VERSION OF HDOS
000.051                448X EC.NOS  DS      1               NO OPERATING SYSTEM MOUNTED
000.052                449X EC.IOI  DS      1               ILLEGAL OVERLAY INDEX
000.053                450X EC.OTL  DS      1               OVERLAY TO LARGE
000.054                451          XTEXT   HOSDEF

                       453X **      HOSDEF - DEFINE HOS PARAMETER.
                       454X *
                       455X
                       456X
000.040                457X VERS    EQU     2*16+0          VERSION 2.0
                       458X
000.377                459X SYSCALL EQU     377Q            SYSCALL INSTRUCTION
                       460X
                       461X
000.000                462X         ORG     0
                       463X
                       464X *       RESIDENT FUNCTIONS
                       465X
000.000                466X .EXIT   DS      1               EXIT (MUST BE FIRST)
000.001                467X .SCIN   DS      1               SCIN
000.002                468X .SCOUT  DS      1               SCOUT
000.003                469X .PRINT  DS      1               PRINT
000.004                470X .READ   DS      1               READ
000.005                471X .WRITE  DS      1               WRITE
000.006                472X .CONSL  DS      1               SET/CLEAR CONSOLE OPTIONS
000.007                473X .CLRCO  DS      1               CLEAR CONSOLE BUFFER
000.010                474X .LOADO  DS      1               LOAD AN OVERLAY
000.011                475X .VERS   DS      1               RETURN HDOS VERSION NUMBER
000.012                476X .SYSRES DS      1               PRECEDING FUNCTIONS ARE RESIDENT
                       477X
                       478X
                       479X *       *HDOSOVL0.SYS*  FUNCTIONS
                       480X
000.040                481X         ORG     40A
                       482X
000.040                483X .LINK   DS      1               LINK  (MUST BE FIRST)
000.041                484X .CTLC   DS      1               CTL-C
000.042                485X .OPENR  DS      1               OPENR
000.043                486X .OPENW  DS      1               OPENW
000.044                487X .OPENU  DS      1               OPENU
000.045                488X .OPENC  DS      1               OPENC
000.046                489X .CLOSE  DS      1               CLOSE
000.047                490X .POSIT  DS      1               POSITION
000.050                491X .DELET  DS      1               DELETE
000.051                492X .RENAM  DS      1               RENAME
000.052                493X .SETTP  DS      1               SETTOP
000.053                494X .DECODE DS      1               NAME DECODE
000.054                495X .NAME   DS      1               GET FILE NAME FROM CHANNEL
000.055                496X .CLEAR  DS      1               CLEAR CHAN
000.056                497X .CLEARA DS      1               CLEAR ALL CHANS
000.057                498X .ERROR  DS      1               LOOKUP ERROR
000.060                499X .CHFLG  DS      1               CHANGE FLAGS
```

```
000.061                 500X .DISMT  DS      1               FLAG SYSTEM DISK DISMOUNTED
000.062                 501X .LOADD  DS      1               LOAD DEVICE DRIVER
000.063                 502X .OPEN   DS      1               Parametrized Open
                        503X
                        504X
                        505X *       *HDOSOVL1.SYS*  FUNCTIONS
                        506X
000.200                 507X         ORG     200Q
                        508X
000.200                 509X .MOUNT  DS      1               MOUNT  (MUST BE FIRST)
000.201                 510X .DMOUN  DS      1               DISMOUNT
000.202                 511X .MONMS  DS      1               MOUNT/NO MESSAGE
000.203                 512X .DMNMS  DS      1               DISMOUNT/NO MESSAGE
000.204                 513X .RESET  DS      1               RESET = DISMOUNT/MOUNT OF UNIT
000.205                 514X .CLEAN  DS      1               Clean device
000.206                 515X .DAD    DS      1               Dismount All Disks              /80.08.sc/
000.207                 516          XTEXT   MTR
```

```
                        519X **     MTR - PAM/8 EQUIVALENCES.
                        520X *
                        521X *      THIS DECK CONTAINS SYMBOLIC DEFINITIONS USED TO
                        522X *      MAKE USE OF THE PAM/8 CODE AND CONTROL BYTES.


                        524X **     IO PORTS
                        525X
000,360                 526X IP.PAD EQU   360Q          PAD INPUT PORT
000,360                 527X OP.CTL EQU   360Q          CONTROL OUTPUT PORT
000,360                 528X OP.DIG EQU   360Q          DIGIT SELECT OUTPUT PORT
000,361                 529X OP.SEG EQU   361Q          SEGMENT SELECT OUTPUT PORT
000,362                 530X IP.CON EQU   362Q          H-88/H-89/HA-8-8 Confisuration  /80.07.sc/
000,362                 531X OP2.CTL EQU  362Q          H-88/H-89/HA-8-8 Control Port   /80.07.sc/


                        533X **     FRONT PANEL CONTROL BITS.                           /80.07.sc/
                        534X *
                        535X *      CB.* set in OP.CTL
                        536X *      CB2.* set in OP2.CTL
                        537X *
                        538X
000,020                 539X CB.SSI EQU   00010000B     SINGLE STEP INTERRUPT
000,040                 540X CB.MTL EQU   00100000B     MONITOR LIGHT
000,100                 541X CB.CLI EQU   01000000B     CLOCK INTERRUPT ENABLE
000,200                 542X CB.SPK EQU   10000000B     SPEAKER ENABLE
                        543X
000,001                 544X CB2.SSI EQU  00000001B     Single Step Interrupt
000,002                 545X CB2.CLI EQU  00000010B     Clock Interrupt Enable
000,040                 546X CB2.ORG EQU  00100000B     ORG 0 Select
000,100                 547X CB2.SID EQU  01000000B     Side 1 Select


                        549X **     Secondary Control Bits
                        550X


                        552X **     MONITOR MODE FLAGS.
                        553X
000,000                 554X DM.MR  EQU   0             MEMORY READ
000,001                 555X DM.MW  EQU   1             MEMORY WRITE
000,002                 556X DM.RR  EQU   2             REGISTER READ
000,003                 557X DM.RW  EQU   3             REGISTER WRITE
```

```
                        559X **      USER OPTION BITS.
                        560X *
                        561X *       THESE BITS ARE SET IN CELL .MFLAG.
                        562X
    000.200             563X UO.HLT  EQU     10000000B       DISABLE HALT PROCESSING
    000.100             564X UO.NFR  EQU     CB.CLI          NO REFRESH OF FRONT PANEL
    000.002             565X UO.DDU  EQU     00000010B       DISABLE DISPLAY UPDATE
    000.001             566X UO.CLK  EQU     00000001B       ALLOW PRIVATE INTERRUPT PROCESSING


                        568X **      MONITOR IDENTIFICATION FLAGS
                        569X *
                        570X *       THESE BYTES IDENTIFY THE ROM MONITOR.
                        571X *       THEY ARE THE VARIOUS VALUES OF LOCATION .IDENT
                        572X
    000.021             573X M.PAM8  EQU     021Q            'LXI' INSTRUCTION AT 000.000 IN PAM-8
    000.303             574X M.FOX   EQU     303Q            'JMP' INSTRUCTION AT 000.000 IN FOX ROM


                        576X **      Confisuration Flass                                    /80.07.sc/
                        577X *
                        578X *       These bits are read in IP.CON.
                        579X *
                        580X
    000.003             581X CN.174M EQU     00000011B       Port 174Q Device-Type Mask
    000.014             582X CN.170M EQU     00001100B       Port 170Q Device-Type Mask
    000.020             583X CN.PRI  EQU     00010000B       Primary/Secondary:  1=>Primary == 170Q
    000.040             584X CN.MEM  EQU     00100000B       Memory Test/Normal Switch:  0=>Test; 1=>Normal
    000.100             585X CN.BAU  EQU     01000000B       Baud Rate:  0=>9600; 1=>19,200
    000.200             586X CN.ABO  EQU     10000000B       Auto-Boot:  1=>Auto-Boot
                        587X
    000.000             588X CND.H17 EQU     00B             H-17 Disk,              Valid only in CN.174M
    000.000             589X CND.NDI EQU     00B             No Device Installed,    Valid only in CN.170M
    000.001             590X CND.H47 EQU     01B             H-47 Disk


                        592X **      ROUTINE ENTRY POINTS.
                        593X *
                        594X
    000.000             595X .IDENT  EQU     0000A           IDENTIFICATION LOCATION
    000.053             596X .DLY    EQU     0053A           DELAY
    001.267             597X .LOAD   EQU     1267A           TAPE LOAD
    001.374             598X .DUMP   EQU     1374A           TAPE DUMP
    002.136             599X .ALARM  EQU     2136A           ALARM ROUTINE
    002.140             600X .HORN   EQU     2140A           HORN
    002.172             601X .CTC    EQU     2172A           CHECK TAPE CHECKSUM
    002.205             602X .TPERR  EQU     2205A           TAPE ERROR ROUTINE
    002.264             603X .PCHL   EQU     2264A           PCHL INSTRUCTION
    002.265             604X .SRS    EQU     2265A           SCAN RECORD START
    002.325             605X .RNP    EQU     2325A           READ NEXT PAIR
    002.331             606X .RNB    EQU     2331A           READ NEXT BYTE
```

```
002.347                 607X .CRC    EQU     2347A           CRC-16 CALCULATOR
003.017                 608X .WNP    EQU     3017A           WRITE NEXT PAIR
003.024                 609X .WNB    EQU     3024A           WRITE NEXT BYTE
003.122                 610X .DOD    EQU     3122A           DECODE FOR OCTAL DISPLAY
003.260                 611X .RCK    EQU     3260A           READ CONSOLE KEYSET
003.356                 612X .DODA   EQU     3356A           SEGMENT CODE TABLE


                        614X **      RAM CELLS USED BY H8MTR.
                        615X *
                        616X
040.000                 617X .START  EQU     40000A          START DUMP ADDRESS
040.002                 618X .IOWRK  EQU     40002A          IN OR OUT INSTRUCTION
040.005                 619X .REGI   EQU     40005A          DISPLAYED REGISTER INDEX
040.006                 620X .DSPROT EQU     40006A          PERIOD FLAG BYTE
040.007                 621X .DSPMOD EQU     40007A          DISPLAY MODE
040.010                 622X .MFLAG  EQU     40010A          USER OPTION BYTE
040.011                 623X .CTLFLG EQU     40011A          PANEL CONTROL BYTE
040.013                 624X .ALEDS  EQU     40013A          ABUSS LEDS
040.021                 625X .DLEDS  EQU     40021A          DBUSS LEDS
040.024                 626X .ABUSS  EQU     40024A          ABUSS REGISTER
040.027                 627X .CRCSUM EQU     40027A          CRCSUM WORD
040.031                 628X .TPERRX EQU     40031A          TAPE ERROR EXIT VECTOR
040.033                 629X .TICCNT EQU     40033A          CLOCK TICK COUNTER
040.035                 630X .REGPTR EQU     40035A          REGISTER POINTER
040.037                 631X .UIVEC  EQU     40037A          USER INTERRUPT VECTORS
040.064                 632X .NMIRET EQU     40064A          H88/H89 NMI Return Address      /80.07.sc/
040.066                 633X .CTL2FL EQU     40066A          OP2.CTL Control Byte            /80.07.sc/
000.207                 634          XTEXT   SETCAL


                        636X **      SETCAL - FIXED ADDRESS ROUTINES IN SET
                        637X *
                        638X *       THESE VECTORS ARE FIXED ENTRY POINTS INTO THE
                        639X *       SET PROGRAM TO UTILIZED BY DEVICE DRIVERS IN
                        640X *       PROCESSING SET COMMANDS.
                        641X *
                        642X
042.201                 643X         ORG     USERFWA+1
                        644X
042.201                 645X $SNA    DS      3
                        646X
042.204                 647X $DCS    DS      3
                        648X
042.207                 649X $CNA    DS      3
                        650X
042.212                 651X $FST    DS      3
                        652X
042.215                 653X $TBLS   DS      3
                        654X
042.220                 655X $WTBLS  DS      3
                        656X
042.223                 657X $LBD    DS      3
```

```
                    658X
042.226             659X $SOP    DS      3
                    660X
042.231             661X $PBF    DS      3
                    662X
042.234             663X $PBV    DS      3
                    664X
042.237             665X         DS      60      RESERVED
042.333             666          XTEXT   U8250


                    668X **      8250 UART CONTROL AND BIT DEFINITIONS.
                    669X
000.350             670X SC.ACE  EQU     3500            SYSTEM CONSOLE PORT IF 8250 ACE
000.156             671X AC.DLY  EQU     110             220 MIL. SEC. DELAY FOR 8250
                    672X
000.000             673X UR.RBR  EQU     0               RECEIVER BUFFER REGISTER (READ ONLY)
                    674X
000.000             675X UR.THR  EQU     0               TRANSMITTER HOLDING REGISTER (WRITE ONLY)
                    676X
000.000             677X UR.DLL  EQU     0               DIVISOR LATCH (LEAST SIGNIFICANT)
                    678X
000.001             679X UR.DLM  EQU     1               DIVISOR LATCH (MOST SIGNIFICANT)
                    680X
000.001             681X UR.IER  EQU     1               INTERRUPT ENABLE REGISTER
000.001             682X UC.EDA  EQU     00000001B        ENABLE RECEIVED DATA AVAILABLE INTERRUPT
000.002             683X UC.TRE  EQU     00000010B        ENABLE TRANSMIT HOLD REGISTER EMPTY INTERRUPT
000.004             684X UC.RSI  EQU     00000100B        ENABLE RECEIVE STATUS INTERRUPT
000.010             685X UC.MSI  EQU     00001000B        ENABLE MODEM STATUS INTERRUPT
                    686X
000.002             687X UR.IIR  EQU     2               INTERRUPT IDENTIFICATION REGISTER
000.001             688X UC.IIP  EQU     00000001B        INVERTED INTERRUPT PENDING (0 MEANS PENDING)
000.006             689X UC.IID  EQU     00000110B        INTERRUPT ID
                    690X
000.003             691X UR.LCR  EQU     3               LINE CONTROL REGISTER
000.000             692X UC.5BW  EQU     00000000B        5 BIT WORDS
000.001             693X UC.6BW  EQU     00000001B        6 BIT WORDS
000.002             694X UC.7BW  EQU     00000010B        7 BIT WORDS
000.003             695X UC.8BW  EQU     00000011B        8 BIT WORDS
000.004             696X UC.2SB  EQU     00000100B        TWO STOP BITS SELECTED
000.010             697X UC.PEN  EQU     00001000B        PARITY COMPUTATION ENABLED
000.020             698X UC.EPS  EQU     00010000B        EVEN PARITY SELECT
000.040             699X UC.SKP  EQU     00100000B        STICK PARITY
000.100             700X UC.SB   EQU     01000000B        SET BREAK
000.200             701X UC.DLA  EQU     10000000B        DIVISOR LATCH ACCESS
                    702X
000.004             703X UR.MCR  EQU     4               MODEM CONTROL REGISTER
000.001             704X UC.DTR  EQU     00000001B        DATA TERMINAL READY
000.002             705X UC.RTS  EQU     00000010B        REQUEST TO SEND
000.004             706X UC.OU1  EQU     00000100B        OUT 1
000.010             707X UC.OU2  EQU     00001000B        OUT 2
000.020             708X UC.LOO  EQU     00010000B        LOOP
                    709X
000.005             710X UR.LSR  EQU     5               LINE STATUS REGISTER
```

```
000.001                 711X UC.DR   EQU   00000001B     DATA READY
000.002                 712X UC.OR   EQU   00000010B     OVERRUN
000.004                 713X UC.PE   EQU   00000100B     PARITY ERROR
000.010                 714X UC.FE   EQU   00001000B     FRAMING ERROR
000.020                 715X UC.BI   EQU   00010000B     BREAK INTERRUPT
000.040                 716X UC.THE  EQU   00100000B     TRANSMITTER HOLDING REGISTER EMPTY
000.100                 717X UC.TSE  EQU   01000000B     TRANSMITTER SHIFT REGISTER EMPTY
                        718X
000.006                 719X UR.MSR  EQU   6             MODEM STATUS REGISTER
000.001                 720X UC.DCS  EQU   00000001B     DELTA CLEAR TO SEND
000.002                 721X UC.DDR  EQU   00000010B     DELTA DATA SET READY
000.004                 722X UC.TER  EQU   00000100B     TRAILING EDGE OF RING
000.010                 723X UC.DRL  EQU   00001000B     DELTA RECEIVE LINE SIGNAL DETECT
000.020                 724X UC.CTS  EQU   00010000B     CLEAR TO SEND
000.040                 725X UC.DSR  EQU   00100000B     DATA SET READY
000.100                 726X UC.RI   EQU   01000000B     RING INDICATOR
000.200                 727X UC.RLS  EQU   10000000B     RECEIVED LINE SIGNAL DETECT
                        728          CODE  PIC
                        729
                        730  *       CODE HEADER
                        731
000.006  307            732          DB    DVDFLV
000.000                 733          IF    .AT.                                          /WCZ092980/
000.007  006            734          DB    DT.CW+DT.CR     DEVICE CAPABILITY:  READ/WRITE  /WCZ090280/
                        735          ELSE
                        736          DB    DT.CW                 DEVICE CAPABILITY:  WRITE
                        737          ENDIF                                               /WCZ092980/
000.010  001            738          DB    00000001B             MOUNTED UNIT MASK
000.011  001            739          DB    1                     MAXIMUM OF ONE UNIT
000.000                 740          IF    .AT.                                          /WCZ092980/
000.012  006            741          DB    DT.CW+DT.CR           0: CAPABLE OF READ/WRITE/WCZ090280/
                        742          ELSE
                        743          DB    DT.CW                 0: CAPABLE OF WRITE
                        744          ENDIF                                               /WCZ092980/
000.013                 745          DS    7                     1-7: IGNORED
000.022  307            746          DB    DVDFLV
000.000                 747          ERRNZ *-023Q
000.023                 748          DS    DVD.STE-023Q          RESERVED AREAS
```

```
                        751  ***     ASSEMBLY CONSTANTS
                        752  *
                        753  *
                        754
000.303                 755  MI.JMP  EQU     303Q            JUMP
000.302                 756  MI.JNZ  EQU     302Q            JUMP-NON-ZERO
000.315                 757  MI.CALL EQU     315Q            UNCONDITIONAL CALL
000.314                 758  MI.CZ   EQU     314Q            CALL-ZERO


                        760  **      FLAG DEFINITIONS
                        761  *
                        762
000.001                 763  F.FORM  EQU     00000001B       FORM-FEED UPON CLOSE


                        765  **      DEFAULT DEVICE DEFINITIONS
                        766  *
                        767
000.340                 768  DFLT.PN EQU     340Q            DEFAULT DBO: ADDRESS
000.140                 769  DFLT.BD EQU     000140A         1200 BAUD
                        770
000.001                 771  DFLT.FG EQU     F.FORM          DEFAULT FLAG:  FORM
000.006                 772  DFLT.LI EQU     6               LINES/INCH
000.120                 773  DFLT.WD EQU     80              WIDTH
000.074                 774  DFLT.LP EQU     60              LINES/PAGE


                        776  **      SPECIAL CHARACTERS
                        777  *
                        778
000.003                 779  ETX     EQU     3               DIABLO END-OF-TEXT HANDSHAKE
000.006                 780  ACK     EQU     6               DIABLO ACKNOWLEDGE HANDSHAKE
000.040                 781  BURST   EQU     32              DIABLO BURST COUNT
```

```
                                784  ***     SET ENTRY
                                785  *
                                786  *       SET COMMANDS ENTER HERE
                                787  *
                                788  *       ENTRY:  (DE)    = LINE POINTER
                                789  *               (A)     = UNIT NUMBER
                                790  *
                                791  *       EXIT:   (PSW)   = 'C' CLEAR IF NO ERROR
                                792  *                       = 'C' SET   IF    ERROR
                                793  *                         (A) = ERROR CODE
                                794  *
                                795  *       USES:   ALL
                                796  *
                                797
000.053                         798  SETNTR  EQU     *
000.000                         799          ERRNZ   *-DVD.STE
000.053  247                    800          ANA     A
000.054  302 103 000            801          JNZ     SET1            ALLOW ONLY UNIT 0
                                802
000.057  102                    803          MOV     B,D
000.060  113                    804          MOV     C,E
000.061  021 367 001            805          LXI     D,PRCTAB
000.064  041 170 001            806          LXI     H,OPTTAB
000.067  315 226 042            807          CALL    $SOP
000.072  330                    808          RC                      ERROR
000.073  315 201 042            809          CALL    $SNA
000.076  310                    810          RZ                      AT THE END OF THE LINE
                                811
000.077  076 040                812          MVI     A,EC.ILO        ILLEGAL OPTION
000.101  067                    813          STC
000.102  311                    814          RET
                                815
000.103  076 033                816  SET1    MVI     A,EC.UON
000.105  067                    817          STC
000.106  311                    818          RET
```

```
                                822  **      FLAG    -  PROCESS FLAG OPTIONS
                                823  *
                                824  *       PROCESS FLAG TYPE OPTION SPECIFICATIONS
                                825  *
                                826  *
                                827  *       ENTRY, EXIT, AND USE SAME AS PBF
                                828  *
                                829
042.231                         830  FLAG    EQU     $PBF



                                832  **      VAL     -  PROCESS VALUE OPTIONS
                                833  *
                                834  *       PROCESS BYTE VALUE OPTIONS
                                835  *
                                836  *
                                837  *       ENTRY, EXIT, AND USE SAME AS PBV
                                838  *
                                839
042.234                         840  VAL     EQU     $PBV



                                842  **      BAUD    -  PROCESS BAUD RATE OPTION
                                843  *
                                844  *       PROCESS BAUD RATE OPTION SPECIFICATION
                                845  *
                                846  *       ENTRY:  (BC)    = TEXT ADDRESS
                                847  *               (PSW)   = 'C' CLEAR IF NO ERROR
                                848  *                         'C' SET   IF    ERROR
                                849  *                          (A) = ERROR CODE
                                850  *
                                851  *       EXIT:   (BC)    = UPDATED TEXT ADDRESS
                                852  *
                                853  *       USES:   ALL
                                854  *
                                855
000.107  076 012                856  BAUD    MVI     A,10            DEFAULT RADIX IS 10
000.111  315 207 042            857          CALL    $CNA            GET BAUD RATE
000.114  076 037                858          MVI     A,EC.ILV        ASSUME ILLEGAL VALUE
000.116  330                    859          RC                      THERE WAS AN ERROR GETTING VALUE
                                860
000.117  353                    861          XCHG                    (DE) = BAUD RATE
000.120  315 223 042            862          CALL    $LBD            (HL) = BAUD RATE DIVISOR
000.123  076 037                863          MVI     A,EC.ILV        ASSUME ILLEGAL VALUE
000.125  067                    864          STC
000.126  300                    865          RNZ                     THE BAUD RATE WAS NOT FOUND IN THE TABLE
                                866
000.127  042 211 004            867          SHLD    D.BAUD          SET UP THE BAUD RATE IN THE TABLE
000.132  257                    868          XRA     A               CLEAR THE CARRY, ETC.
000.133  311                    869          RET
```

```
                                871  **      HELP    -  PROCESS HELP SET OPTION
                                872  *
                                873  *       LIST THE VALID SET OPTIONS FOR THIS DEVICE ON THE
                                874  *       SYSTEM CONSOLE.
                                875  *
                                876  *       ENTRY:  NONE
                                877  *
                                878  *       EXIT:   NONE
                                879  *
                                880  *       USES:   (PSW)
                                881  *
                                882
000.134                         883  HELP    EQU     *
000.134  315 136 031            884          CALL    $TYPTX
000.137  012 012 123            885          DB      NL,NL,'Set Options:',NL,NL
000.157  101 125 124            886          DB      'AUTO-CR                Map Newline Character to <CR><LF>',NL
000.232  106 117 122            887          DB      'FORM           Form-Feed at Close',NL
000.263  124 101 102            888          DB      'TABX           Expand Tabs',NL
000.305  012 116 157            889          DB      NL,'Note:       The above options may be preceded',NL
000.356  011 142 171            890          DB      '       by NO to cancel their effect.',NL,NL
001.016  102 101 125            891          DB      'BAUD   n       Baud Rate',NL
001.037  110 105 114            892          DB      'HELP           Type this Text',NL
001.064  120 101 107            893          DB      'PAGE   n       Lines/Page',NL
001.106  120 117 122            894          DB      'PORT   n       Port Number',NL
001.131  127 111 104            895          DB      'WIDTH  n       Chars/Line [0-158]',NL
001.164  012 212                896          DB      NL,ENL
001.166  257                    897          XRA     A               CLEAR CARRY
001.167  311                    898          RET
```

```
                                    901  ***     TABLES
                                    902  *
                                    903  *


                                    905  **      OPTTAB - OPTION TABLE
                                    906  *
                                    907
001.170  366 001                   908  OPTTAB  DW      OPTTABE
001.172  006                       909          DB      6
                                    910
001.173  101 125 124               911          DB      'AUTO-C','R'+200Q,FLAGI
001.203  377 302                   912          DB      377Q,MI,JNZ
001.205  140 003                   913          DW      DBOA
001.207  000                       914          DB      0
                                    915
001.210  116 117 101               916          DB      'NOAUTO-C','R'+200Q,FLAGI
001.222  377 303                   917          DB      377Q,MI,JMP
001.224  140 003                   918          DW      DBOA
001.226  000                       919          DB      0
                                    920
001.227  106 117 122               921          DB      'FOR','M'+200Q,FLAGI,F.FORM,F.FORM
001.236  210 004                   922          DW      D.FLAG
001.240  000                       923          DB      0
                                    924
001.241  116 117 106               925          DB      'NOFOR','M'+200Q,FLAGI,F.FORM,0
001.252  210 004                   926          DW      D.FLAG
001.254  000                       927          DB      0
                                    928
001.255  124 101 102               929          DB      'TAB','X'+200Q,FLAGI,377Q,MI,JNZ
001.264  107 003                   930          DW      DBOB
001.266  000                       931          DB      0
                                    932
001.267  116 117 124               933          DB      'NOTAB','X'+200Q,FLAGI,377Q,MI,JMP
001.300  107 003                   934          DW      DBOB
001.302  000                       935          DB      0
                                    936
001.303  120 101 107               937          DB      'PAG','E'+200Q,VALI,10,0,255
001.313  217 004                   938          DW      D.LNPG
                                    939
001.315  120 117 122               940          DB      'POR','T'+200Q,VALI,8,0,377Q
001.325  214 004                   941          DW      D.PORT
                                    942
001.327  127 111 104               943          DB      'WIDT','H'+200Q,VALI,10,0,158
001.340  216 004                   944          DW      D.WID
                                    945
001.342  102 101 125               946          DB      'BAU','D'+200Q,BAUDI
001.347  000 000 000               947          DB      0,0,0,0,0
                                    948
001.354  110 105 114               949          DB      'HEL','P'+200Q,HELPI
001.361  000 000 000               950          DB      0,0,0,0,0
                                    951
001.366  000                       952  OPTTABE DB      0
```

```
                        954  **      PRCTAB  -  PROCESSOR TABLE
                        955  *
                        956
001.367                 957  PRCTAB  DS      0
                        958
000.000                 959  BAUDI   EQU     *-PRCTAB/2
001.367  107 000        960          DW      BAUD
                        961
000.001                 962  FLAGI   EQU     *-PRCTAB/2
001.371  231 042        963          DW      FLAG
                        964
000.002                 965  HELPI   EQU     *-PRCTAB/2
001.373  134 000        966          DW      HELP
                        967
000.003                 968  VALI    EQU     *-PRCTAB/2
001.375  234 042        969          DW      VAL


001.377                 971  .       SET     1377A
000.000                 972          ERRNZ   *-.
001.377                 973          DS      DVD.ENT-.
```

```
                                    976  ***     DBDVD ENTRY POINT
                                    977  *
                                    978  *       ENTRY:  (A)     = PROCESS CODE
                                    979  *               (BC)    = BYTE COUNT
                                    980  *               (DE)    = BUFFER ADDRESS
                                    981  *
                                    982  *       EXIT:   (PSW)   = 'C' CLEAR IF NO ERROR
                                    983  *                       = 'C' SET   IF   ERROR
                                    984  *                           (A) = ERROR CODE
                                    985  *
                                    986  *       USES:   ALL
                                    987  *
                                    988
002.000                             989  DBDVD   EQU     *
000.000                             990          ERRNZ   *-DVD.ENT
002.000  376 011                    991          CPI     9
002.002  322 022 002                992          JNC     DBD1            ILLEGAL PROCESS CODE
                                    993
002.005  315 076 031                994          CALL    $TBRA           ENTRY PROCESSOR
000.000                             995          IF      .AT.                                    /WCZ092980/
002.010  201                        996          DB      READ-*          READ                    /WCZ090280/
                                    997          ELSE
                                    998          DB      NSUIT-*         READ
                                    999          ENDIF                                           /WCZ092980/
002.011  265                       1000          DB      WRITE-*         WRITE
002.012  014                       1001          DB      NSUIT-*         READR
000.000                            1002          IF      .AT.                                    /WCZ092980/
002.013  024                       1003          DB      OPENR-*         OPENR                   /WCZ090280/
                                   1004          ELSE
                                   1005          DB      NSUIT-*         OPENR
                                   1006          ENDIF                                           /WCZ092980/
002.014  035                       1007          DB      OPENW-*         OPENW
002.015  011                       1008          DB      NSUIT-*         OPENU
002.016  132                       1009          DB      CLOSE-*         CLOSE
002.017  013                       1010          DB      ABORT-*         ABORT
002.020  006                       1011          DB      NSUIT-*         MOUNT
002.021  014                       1012          DB      LOADD-*         LOADD
                                   1013
002.022  076 012                   1014  DBD1    MVI     A,EC.ILR        ILLEGAL REQUEST
002.024  067                       1015          STC
002.025  311                       1016          RET
```

```
                                1019  ***     NSUIT   -  NOT SUITABLE
                                1020  *
                                1021  *       ROUTINE TO HANDLE UNSUITABLE DEVICE DRIVER REQUESTS.
                                1022  *
                                1023  *       ENTRY:  NONE
                                1024  *
                                1025  *       EXIT:   (PSW)   = 'C' SET TO FLAG ERROR
                                1026  *                         (A) = ILLEGAL REQUEST ERROR CODE
                                1027  *
                                1028  *       USES:   (PSW)
                                1029  *
                                1030
002.026                         1031  NSUIT   EQU     *
002.026  076 005                1032          MVI     A,EC.DNS        DEVICE NOT SUITABLE
002.030  067                   1033          STC
002.031  311                   1034          RET


                                1036  ***     ABORT   -  ABORT DEVICE
                                1037  *
                                1038  *       ROUTINE TO HANDLE ABORT DEVICE DRIVER REQUESTS.
                                1039  *
                                1040  *       ENTRY:  NONE
                                1041  *
                                1042  *       EXIT:   NONE
                                1043  *
                                1044  *       USES:   (PSW)
                                1045  *
                                1046
002.032                         1047  ABORT   EQU     *
002.032  303 150 002            1048          JMP     CLOSE


                                1050  ***     LOADD   -  LOAD DEVICE DRIVER
                                1051  *
                                1052  *       LOADD PROCESSES THE DEVICE DRIVER LOAD
                                1053  *
                                1054  *       ENTRY:  NONE
                                1055  *
                                1056  *       EXIT:   NONE
                                1057  *
                                1058  *       USES:   (PSW)
                                1059  *
                                1060
002.035  247                   1061  LOADD   ANA     A
002.036  311                   1062          RET
000.000                         1063          IF      .AT.                            /WCZ092980/
```

```
                                1066  ***     OPENR   - OPEN DEVICE FOR READ                                  /WCZ090280/
                                1067  *                                                                       /WCZ090280/
                                1068  *       SET UP DEVICE AND NECESSARY FLAGS FOR READ.                    /WCZ090280/
                                1069  *                                                                       /WCZ090280/
                                1070  *       CLEAR END-OF-FILE FLAG AND SHOW OPEN FOR READ                  /WCZ090280/
                                1071  *       THEN MERGE WITH 'OPENW' CODE.                                  /WCZ090280/
                                1072  *                                                                       /WCZ090280/
                                1073  *       ENTRY   NONE                                                   /WCZ090280/
                                1074  *                                                                       /WCZ090280/
                                1075  *       EXIT    NONE                                                   /WCZ090280/
                                1076  *                                                                       /WCZ090280/
                                1077  *       USES    ALL                                                    /WCZ090280/
                                1078  *                                                                       /WCZ090280/
                                1079
002.037                         1080  OPENR   EQU     *                                                      /WCZ090280/
002.037  257                    1081          XRA     A                                                      /WCZ090280/
002.040  062 275 002            1082          STA     EOFFLG          CLEAR EOF FLAG                         /WCZ090280/
                                1083
002.043  062 225 004            1084          STA     D.OPN           SHOW OPEN FOR READ                     /WCZ090280/
                                1085
002.046  303 056 002            1086          JMP     OPENW1          MERGE WITH 'OPENW' CODE                /WCZ090280/
                                1087          ENDIF                                                          /WCZ092980/
```

```
                                1090  ***     OPENW   -  OPEN DEVICE FOR WRITE
                                1091  *
                                1092  *       SET UP DEVICE AND NECESSARY FLAGS FOR WRITE, THIS INCLUDES
                                1093  *       INITIALIZING THE 8250/8251.
                                1094  *
                                1095  *       ENTRY:  NONE
                                1096  *
                                1097  *       EXIT:   NONE
                                1098  *
                                1099  *       USES:   ALL
                                1100
002.051                         1101  OPENW   EQU     *
000.000                         1102          IF      .AT.                                    /WCZ092980/
002.051  076 001               1103          MVI     A,1             SHOW OPENING FOR WRITE  /WCZ090280/
002.053  062 225 004           1104          STA     D.OPN                                   /WCZ090280/
                                1105
002.056                         1106  OPENW1  EQU     *                                       /WCZ090280/
                                1107          ENDIF                                           /WCZ092980/
002.056  315 201 004           1108          CALL    UAS
002.061  076 036               1109          MVI     A,EC.UNA        UNIT NOT AVAILABLE
002.063  067                   1110          STC
002.064  300                   1111          RNZ                     UNIT ALREADY ASSIGNED
                                1112
                                1113  *       FLAG ASSIGNED, INITIALIZE INDICES, ETC.
                                1114
002.065  072 207 004           1115          LDA     D.ASGN
002.070  366 200               1116          ORI     10000000B
002.072  062 207 004           1117          STA     D.ASGN          FLAG DEVICE ASSIGNED
                                1118
002.075  257                   1119          XRA     A
002.076  062 223 004           1120          STA     D.NOC           ZERO NEED ONE ESC. SEQ. CHAR. FLAG
002.101  062 222 004           1121          STA     D.LWE           ZERO LAST CHAR. WAS ESCAPE FLAG
                                1122
002.104  076 040               1123          MVI     A,BURST
002.106  062 224 004           1124          STA     D.BURC          INITIALIZE BURST COUNTER
                                1125
                                1126  *       INITIALIZE UART
                                1127
002.111  072 214 004           1128          LDA     D.PORT
002.114  052 211 004           1129          LHLD    D.BAUD
                                1130
002.117  315 047 004           1131          CALL    I8250
002.122  072 214 004           1132          LDA     D.PORT
002.125  147                   1133          MOV     H,A
002.126  056 004               1134          MVI     L,UR.MCR
002.130  076 013               1135          MVI     A,UC.DTR+UC.RTS+UC.OU2  SET DATA TERM. READY, REQ. SEND, RSLD
002.132  315 167 004           1136          CALL    OUT
                                1137
                                1138  *       INITIALIZE CARRIAGE INDICES
                                1139
002.135  076 001               1140          MVI     A,1
002.137  062 220 004           1141          STA     D.LINX          INITIALIZE LINE INDEX
002.142  076 015               1142          MVI     A,CR
002.144  315 066 003           1143          CALL    DBOUT           RETURN HEAD, AND INITIALIZE COLUMN COUNTER
                                1144
002.147  311                   1145          RET
```

```
                                1148  ***     CLOSE   -  CLOSE THE OUTPUT DEVICE
                                1149  *
                                1150  *       UNASSIGN THE DEVICE
                                1151  *
                                1152  *       ENTRY:  NONE
                                1153  *
                                1154  *       EXIT:   (PSW)   = 'C' CLEAR IF NO ERROR
                                1155  *                       = 'C' SET   IF   ERROR
                                1156  *                         (A) = ERROR CODE
                                1157  *
                                1158  *       USES:   ALL
                                1159  *
                                1160
002.150                         1161  CLOSE   ERU     *
002.150  315 201 004            1162          CALL    UAS
002.153  076 036                1163          MVI     A,EC.UNA        UNIT NOT AVAILABLE
002.155  067                    1164          STC
002.156  310                    1165          RZ                      UNIT WAS NOT ASSIGNED
                                1166
002.157  072 207 004            1167          LDA     D.ASGN
002.162  346 177                1168          ANI     01111111B
002.164  062 207 004            1169          STA     D.ASGN          FLAG UNIT AVAILABLE
                                1170
000.000                         1171          IF      .AT.                                    /WCZ092980/
002.167  072 225 004            1172          LDA     D.OPN           Q. OPEN FOR READ        /WCZ090280/
002.172  247                    1173          ANA     A                                       /WCZ090280/
002.173  310                    1174          RZ                        RETURN IF YES         /WCZ090280/
                                1175          ENDIF                                           /WCZ092980/
                                1176
002.174  072 210 004            1177          LDA     D.FLAG
002.177  346 001                1178          ANI     F.FORM
002.201  310                    1179          RZ                      NO FORM-FEED AT CLOSE
                                1180
002.202  076 014                1181          MVI     A,FF
002.204  315 066 003            1182          CALL    DBOUT
002.207  247                    1183          ANA     A               CLEAR ERROR FLAG
002.210  311                    1184          RET
000.000                         1185          IF      .AT.                                    /WCZ092980/
```

```
                                1188  ***     READ    - READ FROM DEVICE                                      /WCZ090280/
                                1189  *                                                                       /WCZ090280/
                                1190  *       READ BYTES UNTIL THE REQUEST IS SATISFIED                        /WCZ090280/
                                1191  *       OR A CTL-D IS STRUCK.  THE CTL-D IS TAKEN AS EOF.                /WCZ090280/
                                1192  *                                                                       /WCZ090280/
                                1193  *       ENTRY   (BC) = BYTE COUNT REQEUSTED                             /WCZ090280/
                                1194  *               (DE) = BUFFER FWA                                       /WCZ090280/
                                1195  *                                                                       /WCZ090280/
                                1196  *       EXIT    'C' = 0 IF NO ERROR                                     /WCZ090280/
                                1197  *               'C' = 1 IF ERROR                                        /WCZ090280/
                                1198  *                     (A) = ERROR CODE                                  /WCZ090280/
                                1199  *                   (BC) = UNUSED BYTE COUNT                            /WCZ090280/
                                1200  *                   (DE) = ADDRESS OF NEXT BYTE TO BE READ              /WCZ090280/
                                1201  *                                                                       /WCZ090280/
                                1202  *       USES    ALL                                                     /WCZ090280/
                                1203  *                                                                       /WCZ090280/
                                1204
002.211                         1205  READ    EQU     *                                                       /WCZ090280/
002.211  315 201 004            1206          CALL    UAS             Q. UNIT ASSIGNED                        /WCZ090280/
002.214  076 036                1207          MVI     A,EC.UNA        INDICATE UNIT NOT AVAILABLE             /WCZ090280/
002.216  067                    1208          STC                                                             /WCZ090280/
002.217  310                    1209          RZ                      RETURN IF UNIT NOT AVAILABLE            /WCZ090280/
                                1210
002.220  072 275 002            1211          LDA     EOFFLG          Q. EOF ENCOUNTERED                      /WCZ090280/
002.223  247                    1212          ANA     A                                                       /WCZ090280/
002.224  302 271 002            1213          JNZ     READ4             BR IF EOF                             /WCZ090280/
                                1214
002.227                         1215  READ1   EQU     *                                                       /WCZ090280/
002.227  170                    1216          MOV     A,B             CHECK REMAINING COUNT                   /WCZ090280/
002.230  261                    1217          ORA     C                                                       /WCZ090280/
002.231  310                    1218          RZ                      RETURN IF DONE                          /WCZ090280/
                                1219
002.232  315 320 003            1220          CALL    RCHAR           READ A CHARACTER                        /WCZ090280/
002.235  332 253 002            1221          JC      READ2           BR IF EOF                               /WCZ090280/
002.240  376 004                1222          CPI     CTLD                                                    /WCZ090280/
002.242  312 253 002            1223          JE      READ2           BR IF CTL-D                             /WCZ090280/
                                1224
002.245  022                    1225          STAX    D               STORE CHARACTER IN BUFFER               /WCZ090280/
002.246  023                    1226          INX     D               INCREMENT BUFFER POINTER                /WCZ090280/
002.247  013                    1227          DCX     B               DECREMENT BYTE COUNT                    /WCZ090280/
                                1228
002.250  303 227 002            1229          JMP     READ1           LOOP AND READ                           /WCZ090280/
                                1230
                                1231  *       EOF ENCOUNTERED.  FILL REST OF BUFFER WITH NULLS.               /WCZ090280/
                                1232
002.253                         1233  READ2   EQU     *                                                       /WCZ090280/
002.253  076 001                1234          MVI     A,1             SET EOF FLAG                            /WCZ090280/
002.255  062 275 002            1235          STA     EOFFLG                                                  /WCZ090280/
                                1236
002.260                         1237  READ3   EQU     *                                                       /WCZ090280/
002.260  257                    1238          XRA     A                                                       /WCZ090280/
002.261  022                    1239          STAX    D               STORE NULL IN BUFFER                    /WCZ090280/
002.262  023                    1240          INX     D               INCREMENT BUFFER POINTER                /WCZ090280/
002.263  013                    1241          DCX     B               DECREMENT BYTE COUNT                    /WCZ090280/
002.264  170                    1242          MOV     A,B                                                     /WCZ090280/
002.265  261                    1243          ORA     C                                                       /WCZ090280/
```

```
002.266  302 260 002  1244          JNZ     READ3           LOOP AND FILL                   /WCZ090280/
                      1245
002.271               1246  READ4   EQU     *                                               /WCZ090280/
002.271  076 001      1247          MVI     A,EC,EOF        INDICATE EOF                    /WCZ090280/
002.273  067          1248          STC                                                     /WCZ090280/
002.274  311          1249          RET                                                     /WCZ090280/
                      1250
002.275  000          1251  EOFFLG  DB      0               EOF FLAG                        /WCZ090280/
                      1252          ENDIF                                                   /WCZ092980/
```

```
                                1255  ***     WRITE   -  WRITE TO DEVICE
                                1256  *
                                1257  *       WRITE A BUFFER FULL OF CHARACTERS TO THE OUTPUT DEVICE
                                1258  *
                                1259  *       ENTRY:  (BC)    = BYTE COUNT
                                1260  *               (DE)    = ADDRESS OF DATA BUFFER
                                1261  *
                                1262  *       EXIT:   (PSW)   = 'C' CLEAR IF NO ERROR
                                1263  *                         'C' SET   IF    ERROR
                                1264  *                         (A)  = ERROR CODE
                                1265  *                         (BC) = UNUSED BYTE COUNT
                                1266  *                         (DE) = ADDRESS OF NEXT BYTE TO BE WRITTEN
                                1267  *
                                1268  *       USES:   ALL
                                1269  *
                                1270
002.276                         1271  WRITE   EQU     *
002.276  315 201 004            1272          CALL    UAS
002.301  076 036                1273          MVI     A,EC.UNA        UNIT NOT AVAILABLE
002.303  067                    1274          STC
002.304  310                    1275          RZ                      UNIT WAS NOT ASSIGNED
                                1276
002.305  170                    1277  WRI1    MOV     A,B
002.306  261                    1278          ORA     C
002.307  310                    1279          RZ                      THE LAST BYTE HAS BEEN WRITTEN
                                1280
002.310  315 313 003            1281          CALL    CFA
002.313  302 032 002            1282          JNZ     ABORT           AN ABORT WAS HIT ON THE CONSOLE
                                1283
002.316  315 324 002            1284          CALL    WRI2
002.321  303 305 002            1285          JMP     WRI1


                                1287  **      WRI2
                                1288  *
                                1289  *       (DE) = BUFFER
                                1290  *       (BC) = COUNT
                                1291
002.324  315 341 002            1292  WRI2    CALL    CES             CHECK ESCAPE SEQUENCE FLAGS AND CHARS.
002.327  032                    1293          LDAX    D               (A) = CHARACTER TO OUTPUT
002.330  315 066 003            1294          CALL    DBOUT
002.333  013                    1295          DCX     B               *** THIS RETURNING COUNT MAY NOT BE GOOD ***
002.334  023                    1296          INX     D               *** IF AN ABORT CHARACTER IS HIT AT  THE ***
002.335  315 013 003            1297          CALL    CHP             *** CORRECT TIME.                       ***
002.340  311                    1298          RET
```

```
                                1300  **      CES     -  CHECK ESCAPE SEQUENCES
                                1301  *
                                1302  *       SET THE ESCAPE SEQUENCE MONITORING FLAGS
                                1303  *
                                1304  *       ENTRY:  (DE)    = BUFFER POINTER
                                1305  *
                                1306  *       EXIT:   NONE
                                1307  *
                                1308  *       USES:   PSW
                                1309  *
                                1310
002,341 072 222 004             1311  CES     LDA     D,LWE
002,344 247                     1312          ANA     A
002,345 302 374 002             1313          JNZ     CES2            LAST CHARACTER WAS ESCAPE
                                1314
002,350 072 223 004             1315          LDA     D,NOC
002,353 247                     1316          ANA     A
002,354 302 367 002             1317          JNZ     CES1            NEED ONE CHARACTER
                                1318
002,357 032                     1319          LDAX    D
002,360 376 033                 1320          CPI     ESC
002,362 300                     1321          RNZ                     LET A NORMAL CHARACTER SLIP THROUGH
                                1322
002,363 062 222 004             1323          STA     D,LWE           FLAG LAST CHARACTER AS ESCAPE
002,366 311                     1324          RET
                                1325
002,367 257                     1326  CES1    XRA     A
002,370 062 223 004             1327          STA     D,NOC           ZERO NEED ONE CHARACTER FLAG
002,373 311                     1328          RET
                                1329
002,374 032                     1330  CES2    LDAX    D
002,375 376 040                 1331          CPI     ' '
002,377 332 003 003             1332          JC      CES3
003,002 257                     1333          XRA     A
003,003 062 223 004             1334  CES3    STA     D,NOC           SET NOC FLAG, TRUE FOR ESC. SEQ. < ' '
003,006 257                     1335          XRA     A
003,007 062 222 004             1336          STA     D,LWE           ZERO LAST CHARACTER WAS ESCAPE FLAG
003,012 311                     1337          RET


                                1339  **      CHP     -  CHECK HANDSHAKE PROTOCOL
                                1340  *
                                1341  *       WAIT ON THE HANDSHAKE PROTOCOL IF TIME TO TRY, AND NOT IN ESCAPE
                                1342  *       SEQUENCE.
                                1343  *
                                1344  *       ENTRY:  NONE
                                1345  *
                                1346  *       EXIT:   (PSW)   = 'Z' CLEAR IF EXITED VIA AN ABORT
                                1347  *                         'Z' SET   IF HANDSHAKE RECEIVED
                                1348  *
                                1349  *       USES:   (PSW)
                                1350  *
                                1351
003,013 072 224 004             1352  CHP     LDA     D,BURC
```

```
003.016  247            1353          ANA     A                                          /79.12.GC/
                         1354  *       DCR     A
                         1355  *       STA     D.BURC          UPDATE THE NUMBER OF CHARACTERS OUTPUT
003.017  360            1356          RP                      NOT TIME TO SEND ETX              /JWT 06SEP79/
000.142                  1357          ERRMI   130-BURST       BURST MUST BE <= 130 TO INSURE IT IS POSITIVE
                         1358
003.020  072 223 004     1359          LDA     D.NOC
003.023  247             1360          ANA     A
003.024  300             1361          RNZ                     NEED ONE MORE CHAR. FOR ESC. SEQ.
                         1362
003.025  072 222 004     1363          LDA     D.LWE
003.030  247             1364          ANA     A
003.031  300             1365          RNZ                     LAST CHAR. WAS START OF ESC. SEQ.
                         1366
003.032  076 003         1367          MVI     A,ETX
003.034  315 066 003     1368          CALL    DBOUT
                         1369
003.037  315 313 003     1370  CHP1    CALL    CFA
003.042  300             1371          RNZ                     RETURN IF ABORT CHARACTER WAS HIT
                         1372
003.043  315 347 003     1373          CALL    INCHAR
003.046  312 037 003     1374          JZ      CHP1            NO CHARACTER HAS BEEN RECEIVED YET
                         1375
003.051  346 177         1376          ANI     7FH             STRIP PARITY
003.053  376 006         1377          CPI     ACK
003.055  302 037 003     1378          JNZ     CHP1            WAIT FOR AN  *ACK*  CHARACTER
                         1379
003.060  076 037         1380          MVI     A,BURST-1                                  /JWT 06SEP79/
003.062  062 224 004     1381          STA     D.BURC          RESET BURST COUNTER
003.065  311             1382          RET


                         1384  **      DBOUT   -  DIABLO OUTPUT ROUTINE
                         1385  *
                         1386  *       MAP HDOS FORMAT TO DIABLO FORMAT IN OUTPUTING CHARACTERS TO THE
                         1387  *       DIABLO.
                         1388  *
                         1389  *       ENTRY:  (A)     = CHARACTER
                         1390  *
                         1391  *       EXIT:   NONE
                         1392  *
                         1393  *       USES:   (PSW)
                         1394  *
                         1395
003.066                  1396  DBOUT   EQU     *
                         1397
003.066  376 015         1398          CPI     CR
003.070  302 105 003     1399          JNZ     DBO1
003.073  076 001         1400          MVI     A,1
003.075  062 221 004     1401          STA     D.COLX          SET COLUMN INDEX TO 1
003.100  076 015         1402          MVI     A,CR
003.102  303 206 003     1403          JMP     DBO.
                         1404
003.105  376 011         1405  DBO1    CPI     TAB
```

```
003.107  302 136 003  1406          JNZ     DBO3
003.107               1407  DBOB    EQU     *-3             MODIFIED TO CHANGE 'TAB' PROCESSING
003.112  076 040      1408          MVI     A,' '
003.114  315 066 003  1409          CALL    DBOUT
003.117  072 221 004  1410  DBO2    LDA     D.COLX
003.122  075          1411          DCR     A
003.123  346 007      1412          ANI     7
003.125  310          1413          RZ
                      1414
003.126  076 040      1415          MVI     A,' '
003.130  315 066 003  1416          CALL    DBOUT           OUTPUT ANOTHER SPACE
003.133  303 117 003  1417          JMP     DBO2
                      1418
                      1419
003.136  376 012      1420  DBO3    CPI     NL
003.140  302 164 003  1421          JNZ     DBO4
003.140               1422  DBOA    EQU     *-3             TO CHANGE 'NL' PROC., (CHANGE TO JMP)
003.143  076 015      1423          MVI     A,CR
003.145  315 066 003  1424          CALL    DBOUT
003.150  072 220 004  1425          LDA     D.LINX
003.153  074          1426          INR     A
003.154  062 220 004  1427          STA     D.LINX          NOTE:  IF NOAUTO-CR IS SET, THE LINE COUNT
003.157  076 012      1428          MVI     A,NL                   WILL BE MESSED UP.
003.161  303 206 003  1429          JMP     DBO.
                      1430
003.164  376 014      1431  DBO4    CPI     FF
003.166  302 206 003  1432          JNZ     DBO5
003.171  076 001      1433          MVI     A,1
003.173  062 221 004  1434          STA     D.COLX
003.176  062 220 004  1435          STA     D.LINX
003.201  076 014      1436          MVI     A,FF
003.203  303 206 003  1437          JMP     DBO.
                      1438
003.206               1439  DBO5    EQU     *
                      1440
003.206  376 040      1441  DBO.    CPI     ' '
003.210  332 253 003  1442          JC      DBO9            NON-PRINTING CHARACTER
003.213  376 177      1443          CPI     RUBOUT
003.215  322 253 003  1444          JNC     DBO9            NON-PRINTING CHARACTER
                      1445
003.220  365          1446          PUSH    PSW
003.221  345          1447          PUSH    H
                      1448
003.222  072 216 004  1449          LDA     D.WID
003.225  247          1450          ANA     A
003.226  312 242 003  1451          JZ      DBO8            DON'T WRAP AT ALL
                      1452
003.231  041 221 004  1453          LXI     H,D.COLX
003.234  276          1454          CMP     M
003.235  076 012      1455          MVI     A,NL
003.237  334 066 003  1456          CC      DBOUT           OUTPUT NEWLINE IF  WIDTH < INDEX
                      1457
003.242  041 221 004  1458  DBO8    LXI     H,D.COLX
003.245  064          1459          INR     M
                      1460
003.246  315 270 003  1461          CALL    DBO10           CHECK FOR PAGE WRAP (ONLY IF NON-PRINTING)
```

```
                                1462
003.251  341                   1463            POP     H
003.252  361                   1464            POP     PSW
                                1465
003.253  346 177               1466  DBO9      ANI     177Q            MAP OUT HIGH ORDER BIT, POSSIBLY SET FOR QUOTE
003.255  315 001 004           1467            CALL    OUTCHAR
                                1468
003.260  072 224 004           1469            LDA     D.BURC
003.263  075                   1470            DCR     A
003.264  062 224 004           1471            STA     D.BURC          DECREMENT BURST COUNT (HERE FOR ALL CHARS.!)
                                1472
003.267  311                   1473            RET
                                1474
003.270  345                   1475  DBO10     PUSH    H
003.271  072 217 004           1476            LDA     D.LNPG
003.274  247                   1477            ANA     A
003.275  312 311 003           1478            JZ      DBO11           DON'T DO ANY FORM-FEED STUFF
003.300  041 220 004           1479            LXI     H,D.LINX
003.303  276                   1480            CMP     M
003.304  076 014               1481            MVI     A,FF
003.306  334 066 003           1482            CC      DBOUT           OUTPUT FORM-FEED IF LINES/PAGE < INDEX
003.311  341                   1483  DBO11     POP     H
003.312  311                   1484            RET
```

```
                                1488  **      CFA     -  CHECK FOR ABORT
                                1489  *
                                1490  *       CHECK FOR AN ABORT CHARACTER STRUCK UPON THE CONSOLE
                                1491  *
                                1492  *       ENTRY:  NONE
                                1493  *
                                1494  *       EXIT:   (PSW)   = 'Z' SET   IF ABORT NOT STRUCK
                                1495  *                         'Z' CLEAR IF ABORT     STRUCK
                                1496  *
                                1497  *       USES:   (PSW)
                                1498  *
                                1499
003.313  072 334 040           1500  CFA     LDA     S.CAADR+1
003.316  247                   1501          ANA     A               SET/RESET THE ZERO FLAG
003.317  311                   1502          RET
000.000                        1503          IF      .AT.                                    /WCZ092980/


                                1505  **      RCHAR   - READ CHARACTER.                       /WCZ090280/
                                1506  *                                                       /WCZ090280/
                                1507  *       ENTRY   NONE                                    /WCZ090280/
                                1508  *                                                       /WCZ090280/
                                1509  *       EXIT    'C' = 0 IF CHARACTER READ               /WCZ090280/
                                1510  *                   (A) = CHARACTER                     /WCZ090280/
                                1511  *                 'C' = 1 IF CTL-A,B,C, OR Z STRUCK     /WCZ090280/
                                1512  *                                                       /WCZ090280/
                                1513  *       USES    A,PSW                                   /WCZ090280/
                                1514  *                                                       /WCZ090280/
                                1515
003.320                        1516  RCHAR   EQU     *                                       /WCZ090280/
003.320  315 313 003           1517          CALL    CFA             CHECK FOR CTL-A,B,C, OR Z /WCZ090280/
003.323  067                   1518          STC                                             /WCZ090280/
003.324  300                   1519          RNZ                     RET IF CTL-A,B,C, OR Z STRUCK /WCZ090280/
                                1520
003.325  315 347 003           1521          CALL    INCHAR          INPUT CHARACTER         /WCZ090280/
003.330  312 320 003           1522          JZ      RCHAR           BR IF NONE PRESENT      /WCZ090280/
003.333  346 177               1523          ANI     177Q            MASK OFF PARITY BIT     /WCZ090280/
                                1524
003.335  376 015               1525          CPI     CR              CHECK FOR CR            /WCZ090280/
003.337  302 344 003           1526          JNE     RCHAR1            BR IF NOT             /WCZ090280/
003.342  076 012               1527          MVI     A,NL            MAP CR TO NL            /WCZ090280/
                                1528
003.344                        1529  RCHAR1  EQU     *                                       /WCZ090280/
003.344  247                   1530          ANA     A               CLEAR CARRY BIT         /WCZ090280/
003.345  311                   1531          RET                                             /WCZ090280/
                                1532          ENDIF                                           /WCZ092980/
```

```
                                1534  **      WAIT    -  WAIT FOR HANDSHAKE
                                1535  *
                                1536  *       DUMMY WAIT FOR HANDSHAKE ROUTINE.
                                1537  *
                                1538
003.346                         1539  WAIT    EQU     *
003.346  311                    1540          RET
003.347                         1541          XTEXT   DVDIO


                                1543X **      INCHAR - INPUT CHARACTER
                                1544X *
                                1545X *       INPUT CHARACTER FROM SPECIFIED DEVICE
                                1546X *
                                1547X *       ENTRY   NONE
                                1548X *
                                1549X *       EXIT    (PSW) = 'Z' CLEAR IF THERE IS A CHARACTER
                                1550X *                       (A) = CHARACTER
                                1551X *                     = 'Z' SET   IF THERE IS NOT A CHARACTER
                                1552X *
                                1553X *       USES    (PSW)
                                1554X *
                                1555X
003.347                         1556X INCHAR  EQU     *
003.347  345                    1557X         PUSH    H
003.350  072 214 004            1558X         LDA     D.PORT
003.353  147                    1559X         MOV     H,A
                                1560X
                                1561X *       CHECK FOR DATA
                                1562X
000.000                         1563X         IF      H8410
                                1564X
003.354  056 005                1565X         MVI     L,UR.LSR
003.356  315 157 004            1566X         CALL    IN
003.361  346 001                1567X         ANI     UC.DR                   'Z' SET IF THERE IS DATA
003.363  312 376 003            1568X         JZ      INC1                    NO DATA
003.366  056 000                1569X         MVI     L,UR.RBR
003.370  315 157 004            1570X         CALL    IN
003.373  303 377 003            1571X         JMP     INC2
                                1572X
                                1573X         ELSE
                                1574X
                                1575X         MVI     L,USR
                                1576X         CALL    IN
                                1577X         ANI     USR.RXR                 'Z' SET IF THERE IS NO DATA
                                1578X         JZ      INC1                    NO DATA
                                1579X         MVI     L,UDR
                                1580X         CALL    IN
                                1581X         ANA     A                       IGNORE NULL CHARACTERS
                                1582X         JMP     INC2
                                1583X
                                1584X         ENDIF
                                1585X
003.376  067                    1586X INC1    STC
```

```
                        1587X
003.377  341           1588X INC2    POP   H
004.000  311           1589X         RET


                        1591X **      OUTCHAR - OUTPUT CHARACTER
                        1592X *
                        1593X *       OUTPUT CHARACTER TO SPECIFIED DEVICE
                        1594X *
                        1595X *       ENTRY   (A)   = CHARACTER
                        1596X *
                        1597X *       EXIT    NONE
                        1598X *
                        1599X *       USES    (PSW)
                        1600X *
                        1601X
004.001                 1602X OUTCHAR EQU   *
004.001  345            1603X         PUSH  H
                        1604X
004.002  365            1605X         PUSH  PSW
004.003  072 214 004    1606X         LDA   D.PORT
004.006  147            1607X         MOV   H,A
                        1608X
000.000                 1609X         IF      H84IO
                        1610X
004.007  056 005        1611X         MVI   L,UR.LSR
004.011  315 346 003    1612X         CALL  WAIT                  WAIT FOR THE HAND-SHAKE!/79.11.GC/
004.014  072 334 040    1613X OUTC0   LDA   S.CAADR+1
004.017  247            1614X         ANA   A
004.020  302 044 004    1615X         JNZ   OUTC1                 IF  CTL-Z,-A,-B,-C HIT
004.023  315 157 004    1616X         CALL  IN
004.026  346 040        1617X         ANI   UC.THE
004.030  312 014 004    1618X         JZ    OUTC0                 IF  NOT READY FOR TRANSMIT
004.033  361            1619X         POP   PSW
004.034  056 000        1620X         MVI   L,UR.THR
004.036  315 167 004    1621X         CALL  OUT
004.041  303 045 004    1622X         JMP   OUTC2
                        1623X
                        1624X         ELSE
                        1625X
                        1626X         MVI   L,USR
                        1627X         CALL  WAIT                  WAIT FOR THE HAND-SHAKE /79.11.GC/
                        1628X OUTC0   LDA   S.CAADR+1
                        1629X         ANA   A
                        1630X         JNZ   OUTC1                 IF  CTL-Z,-A,-B,-C HIT
                        1631X         CALL  IN
                        1632X         ANI   USR.TXR
                        1633X         JZ    OUTC0                 IF  NOT READY FOR TRANSMIT
                        1634X         POP   PSW
                        1635X         MVI   L,UDR
                        1636X         CALL  OUT
                        1637X         JMP   OUTC2
                        1638X
                        1639X         ENDIF
```

```
                        1640X
004.044  361           1641X OUTC1   POP   PSW
                        1642X
004.045  341           1643X OUTC2   POP   H
004.046  311           1644X         RET
000.000                1645X         IF    H84IO


                        1647X **      I8250 - INITIALIZE 8250
                        1648X *
                        1649X *       INITIALIZE AN 8250 PORT.  STOLEN AS CAP FROM CONSL. DRIVER.
                        1650X *
                        1651X *       ENTRY   (A)         =  PORT ADDRESS
                        1652X *               (HL)[0-14]  =  NEW BAUD RATE
                        1653X *               (HL)[15]    =  1 IF TWO STOP BITS
                        1654X *
                        1655X *       EXIT    NONE
                        1656X *
                        1657X *       USES    (A)
                        1658X *
                        1659X
004.047                 1660X I8250   EQU   *
004.047  325           1661X         PUSH  D
                        1662X
004.050  353           1663X         XCHG
004.051  147           1664X         MOV   H,A
004.052  056 001       1665X         MVI   L,UR.IER                                  /79.02.GC/
004.054  257           1666X         XRA   A                                         /79.02.GC/
004.055  315 167 004   1667X         CALL  OUT                                       /79.02.GC/
004.060  056 004       1668X         MVI   L,UR.MCR                                  /79.01.GC/
004.062  076 020       1669X         MVI   A,UC.LOO                                  /79.01.GC/
004.064  315 167 004   1670X         CALL  OUT                 SET LOOP-BACK         /79.01.GC/
004.067  056 003       1671X         MVI   L,UR.LCR
004.071  076 200       1672X         MVI   A,UC.DLA
004.073  315 167 004   1673X         CALL  OUT
004.076  056 000       1674X         MVI   L,UR.DLL
004.100  173           1675X         MOV   A,E
004.101  315 167 004   1676X         CALL  OUT
004.104  056 001       1677X         MVI   L,UR.DLM
004.106  172           1678X         MOV   A,D
004.107  346 177       1679X         ANI   177Q
004.111  315 167 004   1680X         CALL  OUT
004.114  056 003       1681X         MVI   L,UR.LCR
004.116  172           1682X         MOV   A,D
004.117  007           1683X         RLC
004.120  007           1684X         RLC
004.121  007           1685X         RLC
000.000                1686X         ERRNZ UC.2SB-4
004.122  346 004       1687X         ANI   UC.2SB
004.124  366 003       1688X         ORI   UC.8BW                    8 BIT WORDS
004.126  315 167 004   1689X         CALL  OUT
004.131  056 000       1690X         MVI   L,UR.RBR
004.133  315 157 004   1691X         CALL  IN                        REMOVE GARBAGE
004.136  076 156       1692X         MVI   A,AC.DLY                                  /79.01.GC/
```

```
004.140  315 053 000  1693X          CALL  .DLY                                          /79.01.GC/
004.143  056 004      1694X          MVI   L,UR+MCR                                     /79.01.GC/
004.145  315 157 004  1695X          CALL  IN                                          /79.01.GC/
004.150  346 357      1696X          ANI   377Q-UC+LOO                                  /79.01.GC/
004.152  315 167 004  1697X          CALL  OUT              TURN OFF LOOP-BACK         /79.01.GC/
                      1698X
004.155  321         1699X          POP   D
004.156  311         1700X          RET
                      1701X          ELSE
                      1702X I8251    SPACE 4,10
                      1703X **       I8251 - INITIALIZE 8251
                      1704X *
                      1705X *        INITIALIZE AN 8251 PORT
                      1706X *
                      1707X *        ENTRY   (A)       = PORT ADDRESS
                      1708X *                (HL)[15] = 1 IF TWO STOP BITS
                      1709X *
                      1710X *        EXIT    NONE
                      1711X *
                      1712X *        USES    ALL
                      1713X *
                      1714X
                      1715X I8251    EQU   *
                      1716X          XCHG
                      1717X          MOV   H,A
                      1718X          MVI   L,USR
                      1719X          MOV   A,D
                      1720X          ANI   200Q                          (A) = 200Q IF TWO STOP BITS
                      1721X          ERRNZ   200Q+UMI.1B-UMI.2B
                      1722X          ORI   UMI.1B+UMI.L8+UMI.16X
                      1723X          STA   I8251.B
                      1724X          LXI   B,I8251.A
                      1725X I8251.1  LDAX  B
                      1726X          CPI   #377Q
                      1727X          JZ    I8251.2
                      1728X          CALL  OUT
                      1729X          INX   B
                      1730X          JMP   I8251.1
                      1731X I8251.2  MVI   A,UCI.ER+UCI.TE+UCI.RE
                      1732X          CALL  OUT
                      1733X          MVI   L,UDR
                      1734X          CALL  IN
                      1735X          RET
                      1736X I8251.A  DB    0,0,0,0,0,0
                      1737X          DB      UCI.IR
                      1738X I8251.B  DB    0                                  CONFIGURATION BYTE
                      1739X          DB    377Q
                      1740X          ENDIF
```

```
                                1742X **      IN - INPUT
                                1743X *
                                1744X *       INPUT BYTE FROM SPECIFIED PORT
                                1745X *
                                1746X *       ENTRY   (H)   = PORT ADDRESS
                                1747X *                 (L)   = OFFSET
                                1748X *
                                1749X *       EXIT    (A)   = BYTE READ
                                1750X *
                                1751X *       USES    (PSW)
                                1752X *
                                1753X
004.157                         1754X IN      EQU   *
004.157  174                    1755X         MOV   A,H
004.160  205                    1756X         ADD   L
004.161  062 165 004            1757X         STA   IN.ADD
004.164  333 000                1758X         IN    *-*
004.165                         1759X IN.ADD  EQU   *-1
004.166  311                    1760X         RET


                                1762X **      OUT - OUTPUT
                                1763X *
                                1764X *       OUTPUT BYTE TO SPECIFIED PORT
                                1765X *
                                1766X *       ENTRY   (A)   = BYTE TO BE WRITTEN
                                1767X *                 (H)   = PORT ADDRESS
                                1768X *                 (L)   = OFFSET
                                1769X *
                                1770X *       EXIT    NONE
                                1771X *
                                1772X *       USES    NONE
                                1773X *
                                1774X
004.167                         1775X OUT     EQU   *
004.167  365                    1776X         PUSH  PSW
004.170  174                    1777X         MOV   A,H
004.171  205                    1778X         ADD   L
004.172  062 177 004            1779X         STA   OUT.ADD
004.175  361                    1780X         POP   PSW
004.176  323 000                1781X         OUT   *-*
004.177                         1782X OUT.ADD EQU   *-1
004.200  311                    1783X         RET


                                1785  **      UAS     -  UNIT ASSIGNED?
                                1786  *
                                1787  *       CHECK TO SEE IF THE UNIT IS ASSIGNED
                                1788  *
                                1789  *       ENTRY   NONE
                                1790  *
                                1791  *       EXIT    (PSW)   = 'Z' CLEAR IF UNIT     ASSIGNED
```

```
                                1792  *                    'Z' SET   IF UNIT NOT ASSIGNED
                                1793  *
                                1794  *       USES    (PSW)
                                1795  *
                                1796
004.201  072 207 004           1797  UAS     LDA     D.ASGN
004.204  346 200               1798          ANI     10000000B               D.AS.[7]=1  =>  ASSIGNED
004.206  311                   1799          RET
```

```
004.207                 1802          XTEXT   TBRA


                        1804X **      $TBRA - BRANCH RELATIVE THOUGH TABLE.
                        1805X *
                        1806X *       $TBRA USES THE SUPPLIED INDEX TO SELECT A BYTE FROM THE
                        1807X *       JUMP TABLE. THE CONTENTS OF THIS BYTE ARE ADDED TO THE
                        1808X *       ADDRESS OF THE BYTE, YEILDING THE PROCESSOR ADDRESS.
                        1809X *
                        1810X *       CALL    $TBRA
                        1811X *       DB      LAB1-*          INDEX = 0 FOR LAB1
                        1812X *       DB      LAB2-*          INDEX = 1 FOR LAB2
                        1813X *       DB      LABN-*          INDEX = N-1 FOR LABN
                        1814X *
                        1815X *       ENTRY   (A) = INDEX
                        1816X *               (RET) = TABLE FWA
                        1817X *       EXIT    TO COMPUTED ADDRESS
                        1818X *       USES    F,H,L
                        1819X
                        1820X
031.076                 1821X $TBRA   EQU     31076A          IN H17 ROM
004.207                 1822          XTEXT   TYPTX


                        1824X **      $TYPTX - TYPE TEXT.
                        1825X *
                        1826X *       $TYPTX IS CALLED TO TYPE A BLOCK OF TEXT ON THE SYSTEM CONSOLE.
                        1827X *
                        1828X *       IMBEDDED ZERO BYTES INDICATE A CARRIAGE RETURN LINE FEED,
                        1829X *       A BYTE WITH THE 200Q BIT SET IS THE LAST BYTE IN THE MESSAGE.
                        1830X *
                        1831X *       ENTRY   (RET) = TEXT
                        1832X *       EXIT    TO (RET+LENGTH)
                        1833X *       USES    A,F
                        1834X
                        1835X
031.136                 1836X $TYPTX  EQU     31136A          IN H17 ROM
                        1837X
031.144                 1838X $TYPTX. EQU     31144A          IN H17 ROM
                        1840  ***     TABLE OF DEVICE AND UNIT VARIABLES
                        1841  *
                        1842
004.207  000            1843  D.UNIT  DB      0                       [6-0] := UNIT NUMBER
                        1844
004.207                 1845  D.ASGN  EQU     D.UNIT                  [7]   := UNIT ASSIGNED FLAG
                        1846
004.210  001           1847  D.FLAG  DB      DFLT.FG                 FLAGS
                        1848
004.211  140 000       1849  D.BAUD  DW      DFLT.BD                 BAUD RATE, [15] := TWO STOP BIT FLAG
                        1850
004.213  000           1851  D.WAIT  DB      0                       WAIT FOR I/O FLAG
                        1852
```

```
004.214  340          1853  D.PORT  DB      DFLT.PN                 PORT NUMBER
                       1854
004.215  006          1855  D.LPI   DB      DFLT.LI                 LINES/INCH
                       1856
004.216  120          1857  D.WID   DB      DFLT.WD                 CHARACTERS/LINE
                       1858
004.217  074          1859  D.LNPG  DB      DFLT.LP                 LINES/PAGE
                       1860
004.220  000          1861  D.LINX  DB      0                       LINE INDEX
                       1862
004.221  000          1863  D.COLX  DB      0                       COLUMN INDEX
                       1864
004.222  000          1865  D.LWE   DB      0                       LAST CHARACTER WAS AN ESCAPE IF != 0
                       1866
004.223  000          1867  D.NOC   DB      0                       NEED ONE MORE ESC. CHAR. IF != 0
                       1868
004.224  000          1869  D.BURC  DB      0                       BURST COUNT
                       1870
000.000                1871          IF      .AT.                                            /WCZ092980/
004.225  000          1872  D.OPN   DB      0       OPEN FOR: 0=READ  1=WRITE             /WCZ090280/
                       1873          ENDIF                                                 /WCZ092980/
```

```
                                1875            LON     G
004.226  055 000 062  1876            END
         000 065 000
         130 000 170
         001 205 001
         224 001 236
         001 252 001
         264 001 300
         001 313 001
         325 001 340
         001 367 001
         373 001 003
         002 033 002
         041 002 044
         002 047 002
         054 002 057
         002 066 002
         073 002 077
         002 102 002
         107 002 112
         002 115 002
         120 002 123
         002 133 002
         140 002 145
         002 151 002
         160 002 165
         002 170 002
         175 002 205
         002 212 002
         221 002 225
         002 233 002
         236 002 243
         002 251 002
         256 002 267
         002 277 002
         311 002 314
         002 317 002
         322 002 325
         002 331 002
         336 002 342
         002 346 002
         351 002 355
         002 364 002
         371 002 000
         003 004 003
         010 003 014
         003 021 003
         026 003 035
         003 040 003
         044 003 047
         003 056 003
         063 003 071
         003 076 003
         103 003 110
         003 115 003
         120 003 131
```

003 134 003
141 003 146
003 151 003
155 003 162
003 167 003
174 003 177
003 204 003
211 003 216
003 223 003
227 003 232
003 240 003
243 003 247
003 256 003
261 003 265
003 272 003
276 003 301
003 307 003
321 003 326
003 331 003
340 003 351
003 357 003
364 003 371
003 374 003
004 004 012
004 021 004
024 004 031
004 037 004
042 004 056
004 065 004
074 004 102
004 112 004
127 004 134
004 146 004
153 004 162
004 173 004
202 004 000
000

ASSEMBLY COMPLETE
1876 STATEMENTS
0 ERRORS DETECTED
11400 BYTES FREE

```
$CNA    042207  649L  857
$DCS    042204  647L
$FST    042212  651L
$LBD    042223  657L  862
$PBF    042231  661L  830
$PBV    042234  663L  840
$SNA    042201  645L  809
$SOP    042226  659L  807
$TBLS   042215  653L
$TBRA   031076  994   1821E
$TYPTX  031136  884   1836E
$TYPTX. 031144 1838E
$WTBLS  042220  655L
.       001377  971S  972   973
.ABUSS  040024  626E
,ALARM  002136  599E
.ALEDS  040013  624E
.AT.    000000    1E    3    28   733   740   995  1002  1063  1102  1171  1185  1503
                1871
.CHFLG  000060  499L
.CLEAN  000205  514L
.CLEAR  000055  496L
.CLEARA 000056  497L
.CLOSE  000046  489L
.CLRCO  000007  473L
.CONSL  000006  472L
.CRC    002347  607E
.CRCSUM 040027  627E
.CTC    002172  601E
.CTL2FL 040066  633E
.CTLC   000041  484L
.CTLFLG 040011  623E
.DAD    000206  515L
.DECODE 000053  494L
.DELET  000050  491L
.DISMT  000061  500L
.DLEDS  040021  625E
.DLY    000053  596E  1693
.DMNMS  000203  512L
.DMOUN  000201  510L
.DOD    003122  610E
.DODA   003356  612E
.DSPMOD 040007  621E
.DSPROT 040006  620E
.DUMP   001374  598E
.ERROR  000057  498L
.EXIT   000000  466L
.HORN   002140  600E
.IDENT  000000  595E
.IOWRK  040002  618E
.LINK   000040  483L
.LOAD   001267  597E
.LOADD  000062  501L
.LOADO  000010  474L
.MFLAG  040010  622E
.MONMS  000202  511L
.MOUNT  000200  509L
.NAME   000054  495L
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.NMIRET 040064      632E
.OPEN   000063      502L
.OPENC  000045      488L
.OPENR  000042      485L
.OPENU  000044      487L
.OPENW  000043      486L
.PCHL   002264      603E
.POSIT  000047      490L
.PRINT  000003      469L
.RCK    003260      611E
.READ   000004      470L
.REGI   040005      619E
.REGPTR 040035      630E
.RENAM  000051      492L
.RESET  000204      513L
.RNB    002331      606E
.RNP    002325      605E
.SCIN   000001      467L
.SCOUT  000002      468L
.SETTP  000052      493L
.SRS    002265      604E
.START  040000      617E
.SYSRES 000012      476L
.TICCNT 040033      629E
.TPERR  002205      602E
.TPERRX 040031      628E
.UIVEC  040037      631E
.VERS   000011      475L
.WNB    003024      609E
.WNP    003017      608E
.WRITE  000005      471L
ABORT   002032'     1010        1047E   1282
AC.DLY  000156      671E        1692
ACK     000006      780E        1377
AIO.CGN 041047      213L
AIO.CHA 041116      228L
AIO.CNT 041111      224L
AIO.CSI 041050      214L
AIO.DDA 041041      209E
AIO.DES 041055      218L
AIO.DEV 041057      219L
AIO.DIR 041062      222L
AIO.DTA 041053      217L
AIO.EOF 041113      226L
AIO.EOM 041112      225L
AIO.FLG 041043      210L
AIO.GRT 041044      211L
AIO.LGN 041051      215L
AIO.LSI 041052      216L
AIO.SPG 041046      212L
AIO.TFP 041114      227L
AIO.UNI 041061      220L
AIO.VEC 041040      208L
BAUD    000107'     856L        960
BAUDI   000000      946         959E
BELL    000007      301E
BKSP    000010      303E
BOOT.P  000001      188E
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BURST   000040      781E    1123    1357    1380
C.STX   000002      305E
C.SYN   000026      304E
CB.CLI  000100      541E     564
CB.MTL  000040      540E
CB.SPK  000200      542E
CB.SSI  000020      539E
CB2.CLI 000002      545E
CB2.ORG 000040      546E
CB2.SID 000100      547E
CB2.SSI 000001      544E
CDB.H84 000001      131E
CDB.H85 000000      130E
CES     002341'    1292     1311L
CES1    002367'    1317     1326L
CES2    002374'    1313     1330L
CES3    003003'    1332     1334L
CFA     003313'    1281     1370    1500L   1517
CHP     003013'    1297     1352L
CHP1    003037'    1370L    1374    1378
CLOSE   002150'    1009     1048    1161E
CN.170M 000014      582E
CN.174M 000003      581E
CN.ABO  000200      586E
CN.BAU  000100      585E
CN.MEM  000040      584E
CN.PRI  000020      583E
CND.H17 000000      588E
CND.H47 000001      590E
CND.NDI 000000      589E
CO.FLG  000001      283E
CR      000015      297E    1142    1398    1402    1423    1525
CS.FLG  000200      284E
CSL.CHR 000001      260E
CSL.ECH 000200      257E
CSL.RAW 000004      258E
CSL.WRP 000002      259E
CTLA    000001      312E
CTLB    000002      313E
CTLC    000003      314E
CTLD    000004      315E    1222
CTLO    000017      316E
CTLP    000020      317E
CTLQ    000021      318E
CTLS    000023      319E
CTLZ    000032      320E
CTP.2SB 000010      269E
CTP.BKM 000002      270E
CTP.BKS 000200      265E
CTP.FF  000100      266E
CTP.MLI 000040      267E
CTP.MLO 000020      268E
CTP.TAB 000001      271E
D.ASGN  004207'    1115     1117    1167    1169    1797    1845E
D.BAUD  004211'     867     1129    1849L
D.BURC  004224'    1124     1352    1381    1469    1471    1869L
D.COLX  004221'    1401     1410    1434    1453    1458    1863L
D.CON   040110      104L
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D.FLAG  004210'    922     926    1177    1847L
D.LINX  004220'   1141    1425    1427    1435    1479    1861L
D.LNPG  004217'    938    1476    1859L
D.LPI   004215'   1855L
D.LWE   004222'   1121    1311    1323    1336    1363    1865L
D.NOC   004223'   1120    1315    1327    1334    1359    1867L
D.OPN   004225'   1084    1104    1172    1872L
D.PORT  004214'    941    1128    1132    1558    1606    1853L
D.RAM   040240     107L
D.UNIT  004207'   1843L   1845
D.VEC   040130     106L
D.WAIT  004213'   1851L
D.WID   004216'    944    1449    1857L
DBD1    002022'    992    1014L
DBDVD   002000'   989E
DBO.    003206'   1403    1429    1437    1441L
DBO1    003105'   1399    1405L
DBO10   003270'   1461    1475L
DBO11   003311'   1478    1483L
DBO2    003117'   1410L   1417
DBO3    003136'   1406    1420L
DBO4    003164'   1421    1431L
DBO5    003206'   1432    1439E
DBO8    003242'   1451    1458L
DBO9    003253'   1442    1444    1466L
DBOA    003140'    913     918    1422E
DBOB    003107'    930     934    1407E
DBOUT   003066'   1143    1182    1294    1368    1396E   1409    1416    1424    1456    1482
DC.ABT  000007     335L
DC.CLO  000006     334L
DC.LOD  000011     337L
DC.MAX  000013     339L
DC.MOU  000010     336L
DC.OPR  000003     331L
DC.OPU  000005     333L
DC.OPW  000004     332L
DC.RDY  000012     338L
DC.REA  000000     328L
DC.RER  000002     330L
DC.WRI  000001     329L
DEV.DDA 000004     355L
DEV.DVG 000015     368L
DEV.DVL 000013     367L
DEV.FLG 000006     356L
DEV.JMP 000003     354L
DEV.MNU 000010     364L
DEV.MUM 000007     363L
DEV.NAM 000000     346L
DEV.RES 000002     350L
DEV.UNT 000011     365L
DEVELEN 000016     370E
DF.CLR  000376      72E
DF.EMP  000377      71E
DFLT.BD 000140     769E   1849
DFLT.FG 000001     771E   1847
DFLT.LI 000006     772E   1855
DFLT.LP 000074     774E   1859
DFLT.PN 000340     768E   1853
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DFLT.WD 000120      773E     1857
DIR.ALD 000025       87L
DIR.CLU 000015       80L
DIR.CRD 000023       86L
DIR.EXT 000010       75L
DIR.FGN 000020       83L
DIR.FLG 000016       81L
DIR.LGN 000021       84L
DIR.LSI 000022       85L
DIR.NAM 000000       74L
DIR.PRO 000013       76L
DIR.VER 000014       77L
DIRELEN 000027       89E      222
DIRIDL  000015       78E
DM.MR   000000      554E
DM.MW   000001      555E
DM.RR   000002      556E
DM.RW   000003      557E
DR.IM   000001      351E
DR.PR   000002      352E
DT.CH   000020      361E
DT.CR   000002      358E      734     741
DT.CW   000004      359E      734     741
DT.DD   000001      357E
DT.RN   000010      360E
DV.EL   000000      347E
DV.NU   000001      348E
DVD.CAP 000007      392L
DVD.DVD 000006      391L
DVD.ENT 002000      401E      973     990
DVD.INP 000023      397L
DVD.MNU 000011      394L
DVD.MUM 000010      393L
DVD.SET 000022      396L
DVD.STE 000053      399E      748     799
DVD.UFL 000012      395L
DVDFLV  000307      387E      732     746
EC.CNA  000004      411L
EC.DDA  000027      430L
EC.DIF  000017      422L
EC.DIW  000035      436L
EC.DNI  000045      444L
EC.DNR  000046      445L
EC.DNS  000005      412L     1032
EC.DSC  000047      446L
EC.EOF  000001      408L     1247
EC.EOM  000002      409L
EC.FAO  000031      432L
EC.FAP  000026      429L
EC.FL   000030      431L
EC.FNF  000014      419L
EC.FNO  000011      416L
EC.FNR  000034      435L
EC.FOD  000043      442L
EC.FUC  000013      418L
EC.ICN  000016      421L
EC.IDN  000006      413L
EC.IFC  000020      423L
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EC.IFN  000007   414L
EC.ILC  000003   410L
EC.ILO  000040   439L   812
EC.ILR  000012   417L  1014
EC.ILV  000037   438L   858   863
EC.IOI  000052   449L
EC.IS   000032   433L
EC.NCV  000050   447L
EC.NEM  000021   424L
EC.NOS  000051   448L
EC.NPM  000044   443L
EC.NRD  000010   415L
EC.NVM  000042   441L
EC.OTL  000053   450L
EC.RF   000022   425L
EC.UNA  000036   437L  1109  1163  1207  1273
EC.UND  000015   420L
EC.UUN  000033   434L   816
EC.VPM  000041   440L
EC.WF   000023   426L
EC.WP   000025   428L
EC.WPV  000024   427L
ENL     000212   310E   896
EOFFLG  002275'  1082  1211  1235  1251L
ESC     000033   308E  1320
ETX     000003   779E  1367
F.FORM  000001   763E   771   921   921   925  1178
FF      000014   311E  1181  1431  1436  1481
FLAG    042231   830E   963
FLAGI   000001   911    916   921   925   929   933  962E
FT.ABS  000000    48E
FT.BAC  000003    51E
FT.PIC  000001    49E
FT.REL  000002    50E
H84IO   000000     2E  1563  1609  1645
HELP    000134'  883E   966
HELPI   000002   949    965E
I.CONFL 000004   286E   287
I.CONTY 000001   273E   274
I.CONWI 000003   279E   280
I.CSLMD 000000   262E
I.CUSOR 000002   276E   277
I8250   004047'  1131  1660E
IN      004157'  1566  1570  1616  1691  1695  1754E
IN.ADD  004165'  1757  1759E
INC1    003376'  1568  1586L
INC2    003377'  1571  1588L
INCHAR  003347'  1373  1521  1556E
IP.CON  000362    530E
IP.PAD  000360    526E
LF      000012    298E
LOADD   002035'  1012  1061L
M.FOX   000303    574E
M.PAMB  000021    573E
MI.CALL 000315    757E
MI.CZ   000314    758E
MI.JMP  000303    755E   917   933
MI.JNZ  000302    756E   912   929
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NL      000012  309E    310     885     885     885     885     886     887     888     889     889     890
                890     891     892     893     894     895     896    1420    1428    1455    1527
NSUIT   002026' 1001    1008    1011    1031E
NUL2    000000  300E
NULL    000200  299E
OP.CTL  000360  527E
OP.DIG  000360  528E
OP.SEG  000361  529E
OP2.CTL 000362  531E
OPENR   002037' 1003    1080E
OPENW   002051' 1007    1101E
OPENW1  002056' 1086    1106E
OPTTAB  001170' 806     908L
OPTTABE 001366' 908     952L
OUT     004167' 1136    1621    1667    1670    1673    1676    1680    1689    1697    1775E
OUT.ADD 004177' 1779    1782E
OUTC0   004014' 1613L   1618
OUTC1   004044' 1615    1641L
OUTC2   004045' 1622    1643L
OUTCHAR 004001' 1467    1602E
OVL.IN  000001  155E
OVL.NUM 000014  157E
OVL.RES 000002  156E
OVL.UCS 000200  158E
PIC.COD 000006  63L     389
PIC.ID  000000  58L
PIC.LEN 000002  60L
PIC.PTR 000004  61L
PRCTAB  001367' 805     957L    959     962     965     968
QUOTE   000047  306E
RCHAR   003320' 1220    1516E   1522
RCHAR1  003344' 1526    1529E
READ    002211' 996     1205E
READ1   002227' 1215E   1229
READ2   002253' 1221    1223    1233E
READ3   002260' 1237E   1244
READ4   002271' 1213    1246E
ROMBOOT 030000  99E
RUBOUT  000177  302E    1443
S.BAUD  040344  132L
S.BDA   041120  230L
S.BOOTF 041034  187L
S.CAADR 040333  290L    1500    1613
S.CACC  041006  171L
S.CCTAB 040335  291L
S.CDB   040343  129L
S.CFWA  040352  139L
S.CODE  041007  172L
S.CONFL 040332  288L
S.CONTY 040327  275L
S.CONWI 040331  281L
S.CSLMD 040326  283L    274     277     280     287
S.CUSOR 040330  278L
S.DATC  040310  244L
S.DATE  040277  243L
S.DCS   041033  185L
S.DDDTA 040366  150L
S.DDGRP 040364  147L
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S.DDLDA 040360       145L
S.DDLEN 040362       146L
S.DDOPC 040370       151L
S.DFWA  040354       140L
S.DIREA 041016       179L
S.DLINK 040346       137L
S.FASER 041013       178L
S.FCI   041021       180L
S.GRT0  024000        95E
S.GRT1  025000        96E
S.GRT2  026000        97E
S.GUP   041027       182L
S.HIMEM 040316       246L
S.INT   040343       109L       125
S.JUMPS 041010       176L
S.MOUNT 041032       184L
S.OFWA  040350       138L
S.OMAX  040324       252L
S.OSN   041004       167L
S.OVLE  041000       164L
S.OVLFL 040371       160L
S.OVLS  040376       163L
S.OVSTK 041035       192L
S.RFWA  040356       141L
S.SCI   041024       181L
S.SCR   041121       231L
S.SDD   041010       177L
S.SOVR  041146       111L       113
S.SSN   041002       166L
S.SYSM  040320       248L
S.TIME  040312       245L
S.UCSF  040372       161L
S.UCSL  040374       162L
S.USRM  040322       250L
S.VAL   040277       108L       241
SC.ACE  000350       670E
SET1    000103'      801        816L
SETNTR  000053'      798E
STACK   042200       115E
STACKL  001032       113E
SYDD    040130       105E
SYSCALL 000377       459E
TAB     000011       307E      1405
UAS     004201'     1108       1162    1206    1272    1797L
UC.2SB  000004       696E      1686    1687
UC.5BW  000000       692E
UC.6BW  000001       693E
UC.7BW  000002       694E
UC.8BW  000003       695E      1688
UC.BI   000020       715E
UC.CTS  000020       724E
UC.DCS  000001       720E
UC.DDR  000002       721E
UC.DLA  000200       701E      1672
UC.DR   000001       711E      1567
UC.DRL  000010       723E
UC.DSR  000040       725E
UC.DTR  000001       704E      1135
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UC.EDA  000001   682E
UC.EFS  000020   698E
UC.FE   000010   714E
UC.IID  000006   689E
UC.IIP  000001   688E
UC.LOO  000020   708E   1669   1696
UC.MSI  000010   685E
UC.OR   000002   712E
UC.OU1  000004   706E
UC.OU2  000010   707E   1135
UC.PE   000004   713E
UC.PEN  000010   697E
UC.RI   000100   726E
UC.RLS  000200   727E
UC.RSI  000004   684E
UC.RTS  000002   705E   1135
UC.SB   000100   700E
UC.SKP  000040   699E
UC.TER  000004   722E
UC.THE  000040   716E   1617
UC.TRE  000002   683E
UC.TSE  000100   717E
UNT.DIS 000006   380L
UNT.FLG 000000   376L
UNT.GRT 000002   378L
UNT.GTS 000004   379L
UNT.SIZ 000010   382E
UNT.SPG 000001   377L
UO.CLK  000001   566E
UO.DDU  000002   565E
UO.HLT  000200   563E
UO.NFR  000100   564E
UR.DLL  000000   677E   1674
UR.DLM  000001   679E   1677
UR.IER  000001   681E   1665
UR.IIR  000002   687E
UR.LCR  000003   691E   1671   1681
UR.LSR  000005   710E   1565   1611
UR.MCR  000004   703E   1134   1668   1694
UR.MSR  000006   719E
UR.RBR  000000   673E   1569   1690
UR.THR  000000   675E   1620
USERFWA 042200    116E    643
VAL     042234    840E    969
VALI    000003    937     940    943    968E
VERS    000040    457E
WAIT    003346'  1539E   1612
WRI1    002305'  1277L   1285
WRI2    002324'  1284    1292L
WRITE   002276'  1000    1271E

24944 BYTES FREE
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