```
000.000                 1  H84IO   EQU     0               ASSEMBLE FOR H8-4 CARD INTERFACE
                        3  ***     LPDVD - LINE PRINTER DEVICE DRIVER
                        4  *
                        5  *             G. C.           24-AUG-78
                        6  *
                        7  *     Copyright 79,11,15 for:
                        8  *
                        9  *             Heath Co.
                       10  *             Benton Harbor, MI
                       11  *             49022
                       12  *


                       14  **      LPDVD IS THE DEVICE DRIVER FOR THE DEVICE
                       15  *
                       16  *              LP:
                       17  *
                       18  *      LP: is a H-24 printer interfaced via an H-8-4 card (or equivalent,)
                       19  *      at the confisured port which may be chansed by the set option.
                       20  *


000.000                22          XTEXT   HOSDEF


                       24X **       HOSDEF - DEFINE HOS PARAMETER.
                       25X *
                       26X
                       27X
000.040                28X VERS     EQU     2*16+0          VERSION 2.0
                       29X
000.377                30X SYSCALL  EQU     377Q            SYSCALL INSTRUCTION
                       31X
                       32X
000.000                33X          ORG     0
                       34X
                       35X *        RESIDENT FUNCTIONS
                       36X
000.000                37X .EXIT    DS      1               EXIT (MUST BE FIRST)
000.001                38X .SCIN    DS      1               SCIN
000.002                39X .SCOUT   DS      1               SCOUT
000.003                40X .PRINT   DS      1               PRINT
000.004                41X .READ    DS      1               READ
000.005                42X .WRITE   DS      1               WRITE
000.006                43X .CONSL   DS      1               SET/CLEAR CONSOLE OPTIONS
000.007                44X .CLRCO   DS      1               CLEAR CONSOLE BUFFER
000.010                45X .LOADO   DS      1               LOAD AN OVERLAY
000.011                46X .VERS    DS      1               RETURN HDOS VERSION NUMBER
000.012                47X .SYSRES  DS      1               PRECEDING FUNCTIONS ARE RESIDENT
                       48X
                       49X
```

```
                        50X *       *HDOSOVL0.SYS*  FUNCTIONS
                        51X
000.040                 52X         ORG     40A
                        53X
000.040                 54X .LINK   DS      1               LINK  (MUST BE FIRST)
000.041                 55X .CTLC   DS      1               CTL-C
000.042                 56X .OPENR  DS      1               OPENR
000.043                 57X .OPENW  DS      1               OPENW
000.044                 58X .OPENU  DS      1               OPENU
000.045                 59X .OPENC  DS      1               OPENC
000.046                 60X .CLOSE  DS      1               CLOSE
000.047                 61X .POSIT  DS      1               POSITION
000.050                 62X .DELET  DS      1               DELETE
000.051                 63X .RENAM  DS      1               RENAME
000.052                 64X .SETTP  DS      1               SETTOP
000.053                 65X .DECODE DS      1               NAME DECODE
000.054                 66X .NAME   DS      1               GET FILE NAME FROM CHANNEL
000.055                 67X .CLEAR  DS      1               CLEAR CHAN
000.056                 68X .CLEARA DS      1               CLEAR ALL CHANS
000.057                 69X .ERROR  DS      1               LOOKUP ERROR
000.060                 70X .CHFLG  DS      1               CHANGE FLAGS
000.061                 71X .DISMT  DS      1               FLAG SYSTEM DISK DISMOUNTED
000.062                 72X .LOADD  DS      1               LOAD DEVICE DRIVER
000.063                 73X .OPEN   DS      1               Parametrized Open
                        74X
                        75X
                        76X *       *HDOSOVL1.SYS*  FUNCTIONS
                        77X
000.200                 78X         ORG     200Q
                        79X
000.200                 80X .MOUNT  DS      1               MOUNT  (MUST BE FIRST)
000.201                 81X .DMOUN  DS      1               DISMOUNT
000.202                 82X .MONMS  DS      1               MOUNT/NO MESSAGE
000.203                 83X .DMNMS  DS      1               DISMOUNT/NO MESSAGE
000.204                 84X .RESET  DS      1               RESET = DISMOUNT/MOUNT OF UNIT
000.205                 85X .CLEAN  DS      1               Clean device
000.206                 86X .DAD    DS      1               Dismount All Disks              /80.08.sc/
000.207                 87          XTEXT   ASCII

                        89X **      ASCII CHARACTER EQUIVALENCES.
                        90X
000.015                 91X CR      EQU     13              CARRIAGE RETURN
000.012                 92X LF      EQU     10              LINE FEED
000.200                 93X NULL    EQU     200Q            PAD CHARACTER
000.000                 94X NUL2    EQU     0
000.007                 95X BELL    EQU     7               BELL CHARACTER
000.177                 96X RUBOUT  EQU     177Q
000.010                 97X BKSP    EQU     10Q             CTL-H
000.026                 98X C.SYN   EQU     26Q             SYNC
000.002                 99X C.STX   EQU     2               STX
000.047                100X QUOTE   EQU     47Q
000.011                101X TAB     EQU     11Q
000.033                102X ESC     EQU     33Q
000.012                103X NL      EQU     12Q             NEW LINE (HDOS SYSTEMS)
000.212                104X ENL     EQU     NL+200Q         NL + END-OF-LINE-FLAG
```

```
000.014                 105X FF      EQU     14Q             FORM FEED
000.001                 106X CTLA    EQU     01Q             CTL-A
000.002                 107X CTLB    EQU     02Q             CTL-B
000.003                 108X CTLC    EQU     03Q             CTL-C
000.004                 109X CTLD    EQU     04Q             CTL-D
000.017                 110X CTLO    EQU     17Q             CTL-O
000.020                 111X CTLP    EQU     20Q             CTL-P
000.021                 112X CTLQ    EQU     21Q             CTL-Q
000.023                 113X CTLS    EQU     23Q             CTL-S
000.032                 114X CTLZ    EQU     32Q             CTL-Z
000.207                 115          XTEXT   DDDEF


                        117X **      DEVICE DRIVER COMMUNICATION FLAGS.
                        118X *
                        119X
000.000                 120X         ORG     0
                        121X
000.000                 122X DC.REA  DS      1               READ
000.001                 123X DC.WRI  DS      1               WRITE
000.002                 124X DC.RER  DS      1               READ REGARDLESS
000.003                 125X DC.OPR  DS      1               OPEN FOR READ
000.004                 126X DC.OPW  DS      1               OPEN FOR WRITE
000.005                 127X DC.OPU  DS      1               OPEN FOR UPDATE
000.006                 128X DC.CLO  DS      1               CLOSE
000.007                 129X DC.ABT  DS      1               ABORT
000.010                 130X DC.MOU  DS      1               MOUNT DEVICE
000.011                 131X DC.LOD  DS      1               LOAD DEVICE DRIVER
000.012                 132X DC.RDY  DS      1               Device Ready                    /80.04.GC/
000.013                 133X DC.MAX  DS      1               MAXIMUM ENTRY INDEX
000.014                 134          XTEXT   MTR
```

```
                        137X **     MTR - PAM/8 EQUIVALENCES.
                        138X *
                        139X *      THIS DECK CONTAINS SYMBOLIC DEFINITIONS USED TO
                        140X *      MAKE USE OF THE PAM/8 CODE AND CONTROL BYTES.

                        142X **     IO PORTS
                        143X
    000.360             144X IP.PAD  EQU    360Q        PAD INPUT PORT
    000.360             145X OP.CTL  EQU    360Q        CONTROL OUTPUT PORT
    000.360             146X OP.DIG  EQU    360Q        DIGIT SELECT OUTPUT PORT
    000.361             147X OP.SEG  EQU    361Q        SEGMENT SELECT OUTPUT PORT
    000.362             148X IP.CON  EQU    362Q        H-88/H-89/HA-8-8 Configuration  /80.07.sc/
    000.362             149X OP2.CTL EQU    362Q        H-88/H-89/HA-8-8 Control Port   /80.07.sc/

                        151X **     FRONT PANEL CONTROL BITS.                           /80.07.sc/
                        152X *
                        153X *      CB.*  set in OP.CTL
                        154X *      CB2.* set in OP2.CTL
                        155X *
                        156X
    000.020             157X CB.SSI  EQU    00010000B   SINGLE STEP INTERRUPT
    000.040             158X CB.MTL  EQU    00100000B   MONITOR LIGHT
    000.100             159X CB.CLI  EQU    01000000B   CLOCK INTERRUPT ENABLE
    000.200             160X CB.SPK  EQU    10000000B   SPEAKER ENABLE
                        161X
    000.001             162X CB2.SSI EQU    00000001B   Single Step Interrupt
    000.002             163X CB2.CLI EQU    00000010B   Clock Interrupt Enable
    000.040             164X CB2.ORG EQU    00100000B   ORG 0 Select
    000.100             165X CB2.SID EQU    01000000B   Side 1 Select

                        167X **     Secondary Control Bits
                        168X

                        170X **     MONITOR MODE FLAGS.
                        171X
    000.000             172X DM.MR   EQU    0           MEMORY READ
    000.001             173X DM.MW   EQU    1           MEMORY WRITE
    000.002             174X DM.RR   EQU    2           REGISTER READ
    000.003             175X DM.RW   EQU    3           REGISTER WRITE
```

```
                        177X **     USER OPTION BITS.
                        178X *
                        179X *      THESE BITS ARE SET IN CELL .MFLAG.
                        180X
    000.200             181X UO.HLT EQU     10000000B       DISABLE HALT PROCESSING
    000.100             182X UO.NFR EQU     CB.CLI          NO REFRESH OF FRONT PANEL
    000.002             183X UO.DDU EQU     00000010B       DISABLE DISPLAY UPDATE
    000.001             184X UO.CLK EQU     00000001B       ALLOW PRIVATE INTERRUPT PROCESSING


                        186X **     MONITOR IDENTIFICATION FLAGS
                        187X *
                        188X *      THESE BYTES IDENTIFY THE ROM MONITOR.
                        189X *      THEY ARE THE VARIOUS VALUES OF LOCATION .IDENT
                        190X
    000.021             191X M.PAM8 EQU     021Q            'LXI' INSTRUCTION AT 000.000 IN PAM-8
    000.303             192X M.FOX  EQU     303Q            'JMP' INSTRUCTION AT 000.000 IN FOX ROM


                        194X **     Confisuration Flass                                 /80.07.sc/
                        195X *
                        196X *      These bits are read in IP.CON.
                        197X *
                        198X
    000.003             199X CN.174M EQU    00000011B       Port 174Q Device-Type Mask
    000.014             200X CN.170M EQU    00001100B       Port 170Q Device-Type Mask
    000.020             201X CN.PRI  EQU    00010000B       Primary/Secondary:  1=>Primary == 170Q
    000.040             202X CN.MEM  EQU    00100000B       Memory Test/Normal Switch:  0=>Test; 1=>Normal
    000.100             203X CN.BAU  EQU    01000000B       Baud Rate:  0=>9600; 1=>19,200
    000.200             204X CN.ABO  EQU    10000000B       Auto-Boot:  1=>Auto-Boot
                        205X
    000.000             206X CND.H17 EQU    00B             H-17 Disk,                  Valid only in CN.174M
    000.000             207X CND.NDI EQU    00B             No Device Installed,  Valid only in CN.170M
    000.001             208X CND.H47 EQU    01B             H-47 Disk


                        210X **     ROUTINE ENTRY POINTS.
                        211X *
                        212X
    000.000             213X .IDENT  EQU    0000A           IDENTIFICATION LOCATION
    000.053             214X .DLY    EQU    0053A           DELAY
    001.267             215X .LOAD   EQU    1267A           TAPE LOAD
    001.374             216X .DUMP   EQU    1374A           TAPE DUMP
    002.136             217X .ALARM  EQU    2136A           ALARM ROUTINE
    002.140             218X .HORN   EQU    2140A           HORN
    002.172             219X .CTC    EQU    2172A           CHECK TAPE CHECKSUM
    002.205             220X .TPERR  EQU    2205A           TAPE ERROR ROUTINE
    002.264             221X .PCHL   EQU    2264A           PCHL INSTRUCTION
    002.265             222X .SRS    EQU    2265A           SCAN RECORD START
    002.325             223X .RNP    EQU    2325A           READ NEXT PAIR
    002.331             224X .RNB    EQU    2331A           READ NEXT BYTE
```

```
002.347                 225X .CRC    EQU     2347A           CRC-16 CALCULATOR
003.017                 226X .WNP    EQU     3017A           WRITE NEXT PAIR
003.024                 227X .WNB    EQU     3024A           WRITE NEXT BYTE
003.122                 228X .DOD    EQU     3122A           DECODE FOR OCTAL DISPLAY
003.260                 229X .RCK    EQU     3260A           READ CONSOLE KEYSET
003.356                 230X .DODA   EQU     3356A           SEGMENT CODE TABLE


                        232X **      RAM CELLS USED BY H8MTR.
                        233X *
                        234X
040.000                 235X .START  EQU     40000A          START DUMP ADDRESS
040.002                 236X .IOWRK  EQU     40002A          IN OR OUT INSTRUCTION
040.005                 237X .REGI   EQU     40005A          DISPLAYED REGISTER INDEX
040.006                 238X .DSPROT EQU     40006A          PERIOD FLAG BYTE
040.007                 239X .DSPMOD EQU     40007A          DISPLAY MODE
040.010                 240X .MFLAG  EQU     40010A          USER OPTION BYTE
040.011                 241X .CTLFLG EQU     40011A          PANEL CONTROL BYTE
040.013                 242X .ALEDS  EQU     40013A          ABUSS LEDS
040.021                 243X .DLEDS  EQU     40021A          DBUSS LEDS
040.024                 244X .ABUSS  EQU     40024A          ABUSS REGISTER
040.027                 245X .CRCSUM EQU     40027A          CRCSUM WORD
040.031                 246X .TPERRX EQU     40031A          TAPE ERROR EXIT VECTOR
040.033                 247X .TICCNT EQU     40033A          CLOCK TICK COUNTER
040.035                 248X .REGPTR EQU     40035A          REGISTER POINTER
040.037                 249X .UIVEC  EQU     40037A          USER INTERRUPT VECTORS
040.064                 250X .NMIRET EQU     40064A          H88/H89 NMI Return Address      /80.07.sc/
040.066                 251X .CTLZFL EQU     40066A          OP2.CTL Control Byte            /80.07.sc/
000.014                 252          XTEXT   HOSEQU


                        254X **      HDOS SYSTEM EQUIVALENCES.
                        255X *
                        256X
024.000                 257X S.GRT0  EQU     24000A          SYSTEM AREA FOR  GRT0
025.000                 258X S.GRT1  EQU     25000A          SYSTEM AREA FOR  GRT1
026.000                 259X S.GRT2  EQU     26000A          SYSTEM AREA FOR  GRT2
                        260X
030.000                 261X ROMBOOT EQU     30000A          ROM BOOT ENTRY
                        262X
040.100                 263X         ORG     40100A          FREE SPACE FROM PAM-8
                        264X
040.100                 265X         DS      8               JUMP TO SYSTEM EXIT
040.110                 266X D.CON   DS      16              DISK CONSTANTS
040.130                 267X SYDD    EQU     *               SYSTEM DISK ENTRY POINT
040.130                 268X D.VEC   DS      24*3            SYSTEM ROM ENTRY VECTORS
040.240                 269X D.RAM   DS      31              SYSTEM ROM WORK AREA
040.277                 270X S.VAL   DS      36              SYSTEM VALUES
040.343                 271X S.INT   DS      115             SYSTEM INTERNAL WORK AREAS
041.126                 272X         DS      16
041.146                 273X S.SOVR  DS      2               STACK OVERFLOW WARNING
041.150                 274X         DS      42200A-*        SYSTEM STACK
001.032                 275X STACKL  EQU     *-S.SOVR        STACK SIZE
```

```
                    276X
042.200             277X STACK   EQU     *               LWA+1 SYSTEM STACK
042.200             278X USERFWA EQU     *               USER FWA
042.200             279          XTEXT   DIRDEF


                    281X **      DIRECTORY ENTRY FORMAT.
                    282X
000.000             283X         ORG     0
                    284X
                    285X
000.377             286X DF.EMP  EQU     377Q            FLAGS ENTRY EMPTY
000.376             287X DF.CLR  EQU     376Q            FLAGS ENTRY EMPTY, REST OF DIR ALSO CLEAR
                    288X
000.000             289X DIR.NAM DS      8               NAME
000.010             290X DIR.EXT DS      3               EXTENSION
000.013             291X DIR.PRO DS      1               PROJECT
000.014             292X DIR.VER DS      1               VERSION
000.015             293X DIRIDL  EQU     *               FILE IDENTIFICATION LENGTH
                    294X
000.015             295X DIR.CLU DS      1               CLUSTER FACTOR
000.016             296X DIR.FLG DS      1               FLAGS
000.017             297X         DS      1               RESERVED
000.020             298X DIR.FGN DS      1               FIRST GROUP NUMBER
000.021             299X DIR.LGN DS      1               LAST GROUP NUMBER
000.022             300X DIR.LSI DS      1               LAST SECTOR INDEX (IN LAST GROUP)
000.023             301X DIR.CRD DS      2               CREATION DATE
000.025             302X DIR.ALD DS      2               LAST ALTERATION DATE
                    303X
000.027             304X DIRELEN EQU     *               DIRECTORY ENTRY LENGTH
000.027             305          XTEXT   ESINT


                    307X **      S.INT - SYSTEM INTERNAL WORKAREA DEFINITIONS.
                    308X *
                    309X *       THESE CELLS ARE REFERENCED BY OVERLAYS AND MAIN CODE, AND
                    310X *       MUST THEREFORE RESIDE IN FIXED LOW MEMORY.
                    311X
                    312X
040.343             313X         ORG     S.INT
                    314X
                    315X **      CONSOLE STATUS FLAGS
                    316X
040.343             317X S.CDB   DS      1               CONSOLE DESCRIPTOR BYTE
000.000             318X CDB.H85 EQU     00000000B
000.001             319X CDB.H84 EQU     00000001B       =0 IF H8-5, =1 IF H8-4
040.344             320X S.BAUD  DS      2               [0-14]  H8-4 BAUD RATE, =0 IF H8-5
                    321X *                               [15]    =1 IF BAUD RATE => 2 STOP BITS
                    322X
                    323X **      TABLE ADDRESS WORDS
                    324X
040.346             325X S.DLINK DS      2               ADDRESS OF DATA IN HDOS CODE
040.350             326X S.OFWA  DS      2               FWA  OVERLAY  TABLE
```

```
040.352                 327X S.CFWA  DS      2               FWA  CHANNEL  TABLE
040.354                 328X S.DFWA  DS      2               FWA  DEVICE   TABLE
040.356                 329X S.RFWA  DS      2               FWA  RESIDENT HDOS CODE
                        330X
                        331X **      DEVICE DRIVER DELAYED LOAD FLAGS
                        332X
040.360                 333X S.DDLDA DS      2               DRIVER LOAD ADDRESS (HIGH BYTE=0 IF NO LOAD PENDING)
040.362                 334X S.DDLEN DS      2               CODE LENGTH IN BYTES
040.364                 335X S.DDGRP DS      1               GROUP NUMBER FOR DRIVER
040.365                 336X         DS      1               HOLD PLACE
                        337X *S.DDSEC        DS      2               SECTOR NUMBER FOR DRIVER ( * OBSOLETE ! * )
040.366                 338X S.DDDTA DS      2               DEVICE/S ADDRESS IN DEVLST +DEV.RES
040.370                 339X S.DDOPC DS      1               OPEN OPCODE PENDEDING
                        340X
                        341X **      OVERLAY MANAGEMENT FLAGS
                        342X
000.001                 343X OVL.IN  EQU     00000001B       IN MEMORY
000.002                 344X OVL.RES EQU     00000010B       PERMINANTLY RESIDENT
000.014                 345X OVL.NUM EQU     00001100B       OVERLAY NUMBER MASK
000.200                 346X OVL.UCS EQU     10000000B       USER CODE SWAPPED FOR OVERLAY
                        347X
040.371                 348X S.OVLFL DS      1               OVERLAY FLAG
040.372                 349X S.UCSF  DS      2               FWA SWAPPED USER CODE
040.374                 350X S.UCSL  DS      2               LENGTH SWAPPED USER CODE
040.376                 351X S.OVLS  DS      2               SIZE OF OVERLAY CODE
041.000                 352X S.OVLE  DS      2               ENTRY POINT OF OVERLAY CODE
                        353X
041.002                 354X S.SSN   DS      2               SWAP AREA SECTOR NUMBER
041.004                 355X S.OSN   DS      2               OVERLAY SECTOR NUMBER
                        356X
                        357X *       SYSCALL PROCESSING WORK AREAS
                        358X
041.006                 359X S.CACC  DS      1               (ACC) UPON SYSCALL
041.007                 360X S.CODE  DS      1               SYSCALL INDEX IN PROGRESS
                        361X
                        362X *       JUMPS TO ROUTINES IN RESIDENT HDOS CODE
                        363X
041.010                 364X S.JUMPS DS      0               START OF DUMP VECTORS
041.010                 365X S.SDD   DS      3               JUMP TO STAND-IN DEVICE DRIVER
041.013                 366X S.FASER DS      3               JUMP TO FATSERR (FATAL SYSTEM ERROR)
041.016                 367X S.DIREA DS      3               JUMP TO DIREAD (DISK FILE READ)
041.021                 368X S.FCI   DS      3               JUMP TO FCI (FETCH CHANNEL INFO)
041.024                 369X S.SCI   DS      3               JUMP TO SCI (STORE CHANNEL INFO)
041.027                 370X S.GUP   DS      3               JUMP TO GUP (GET UNIT POINTER)
                        371X
041.032                 372X S.MOUNT DS      1               <>0 IF THE SYSTEM DISK IS MOUNTED
041.033                 373X S.DCS   DS      1               DEFAULT CLUSTER SIZE-1
                        374X
041.034                 375X S.BOOTF DS      1               BOOT FLAGS
000.001                 376X BOOT.P  EQU     00000001B       EXECUTE PROLOGUE UPON BOOTUP
                        377X
                        378X *       STACK VALUE SAVED FOR OVERLAY SYSCALLS
                        379X
041.035                 380X S.OVSTK DS      2               VALUE OF SP UPON SYSCALLS USING OVERLAY
                        381X
041.037                 382X         DS      1               RESERVED
```

```
                        384X **     ACTIVE I/O AREA.
                        385X *
                        386X *      THE AIO.XXX AREA CONTAINS INFORMATION ABOUT THE I/O OPERATION
                        387X *      CURRENTLY BEING PERFORMED.  THE INFORMATION IS OBTAINED FROM
                        388X *      THE CHANNEL TABLE, AND WILL BE RESTORED THERE WHEN DONE.
                        389X *
                        390X *      NORMALLY, THE AIO.XXX INFORMATION WOULD BE OBTAINED DIRECTLY
                        391X *      FROM VARIOUS SYSTEM TABLES VIA POINTER REGISTERS.  SINCE THE
                        392X *      8080 HAS NO GOOD INDEXED ADDRESSING, THE DATA IS MANUALLY
                        393X *      COPIED INTO THE AIO.XXX CELLS BEFORE PROCESSING, AND
                        394X *      BACKDATED AFTER PROCESSING.
                        395X
041.040                 396X AIO.VEC DS     3           JUMP INSTRUCTION
041.041                 397X AIO.DDA EQU    *-2         DEVICE DRIVER ADDRESS
041.043                 398X AIO.FLG DS     1           FLAG BYTE
041.044                 399X AIO.GRT DS     2           ADDRESS OF GROUP RESERV TABLE
041.046                 400X AIO.SPG DS     1           SECTORS PER GROUP
041.047                 401X AIO.CGN DS     1           CURRENT GROUP NUMBER
041.050                 402X AIO.CSI DS     1           CURRENT SECTOR INDEX
041.051                 403X AIO.LGN DS     1           LAST GROUP NUMBER
041.052                 404X AIO.LSI DS     1           LAST SECTOR INDEX
041.053                 405X AIO.DTA DS     2           DEVICE TABLE ADDRESS
041.055                 406X AIO.DES DS     2           DIRECTORY SECTOR
041.057                 407X AIO.DEV DS     2           DEVICE CODE
041.061                 408X AIO.UNI DS     1           UNIT NUMBER (0-9)
                        409X
041.062                 410X AIO.DIR DS     DIRELEN     DIRECTORY ENTRY
                        411X
041.111                 412X AIO.CNT DS     1           SECTOR COUNT
041.112                 413X AIO.EOM DS     1           END OF MEDIA FLAG
041.113                 414X AIO.EOF DS     1           END OF FILE FLAG
041.114                 415X AIO.TFP DS     2           TEMP FILE POINTERS
041.116                 416X AIO.CHA DS     2           ADDRESS OF CHANNEL BLOCK (IOC.DDA)


041.120                 418X S.BDA   DS     1           Boot Device Address (Setup by ROM) /80.09.sc/
041.121                 419X S.SCR   DS     2           SYSTEM SCRATCH AREA ADDRESS
041.123                 420          XTEXT  ESVAL


                        422X **     S.VAL - SYSTEM VALUE DEFINTIONS.
                        423X *
                        424X *      THESE VALUES ARE SET AND MAINTAINED BY THE SYSTEM.
                        425X *
                        426X *      THE DECK HOSEQU MUST BE MODIFIED WHEN THIS IS MODIFIED.
                        427X
                        428X
040.277                 429X         ORG    S.VAL
                        430X
040.277                 431X S.DATE  DS     9           SYSTEM DATE (IN ASCII)
040.310                 432X S.DATC  DS     2           CODED DATE
040.312                 433X S.TIME  DS     4           TIME FROM MIDNIGHT (IN TICS)
```

```
040.316                 434X S.HIMEM DS      2               HARDWARE HIGH MEMORY ADRESS+1
                        435X
040.320                 436X S.SYSM  DS      2               FWA RESIDENT SYSTEM
                        437X
040.322                 438X S.USRM  DS      2               LWA USER MEMORY
                        439X
040.324                 440X S.OMAX  DS      2               MAX OVERLAY SIZE FOR SYSTEM
                        441X
                        442X
                        443X **      THE FOLLOWING FIVE CELLS SHOULD BE MODIFIED/READ ONLY VIA THE .CONSL SYSCALL
                        444X
000.200                 445X CSL.ECH EQU     10000000B       SUPPRESS ECHO
000.004                 446X CSL.RAW EQU     00000100B       Raw Mode I/O                    /80.09.sc/
000.002                 447X CSL.WRP EQU     00000010B       WRAP LINES AT WIDTH
000.001                 448X CSL.CHR EQU     00000001B       OPERATE IN CHARACTER MODE
                        449X
000.000                 450X I.CSLMD EQU     0               S.CSLMD IS FIRST BYTE
040.326                 451X S.CSLMD DS      1               CONSOLE MODE
                        452X
000.200                 453X CTP.BKS EQU     10000000B       TERMINAL PROCESSES BACKSPACES
000.100                 454X CTP.FF  EQU     01000000B       Terminal Processes Form-Feed    /80.09.sc/
000.040                 455X CTP.MLI EQU     00100000B       MAP LOWER CASE TO UPPER ON INPUT
000.020                 456X CTP.MLO EQU     00010000B       MAP LOWER CASE TO UPPER ON OUTPUT
000.010                 457X CTP.2SB EQU     00001000B       TERMINAL NEEDS TWO STOP BITS
000.002                 458X CTP.BKM EQU     00000010B       MAP BKSP (UPON INPUT) TO RUBOUT
000.001                 459X CTP.TAB EQU     00000001B       TERMINAL SUPPORTS TAB CHARACTERS
                        460X
000.001                 461X I.CONTY EQU     1               S.CONTY IS 2ND BYTE
000.000                 462X         ERRNZ   *-S.CSLMD-I.CONTY
040.327                 463X S.CONTY DS      1               CONSOLE TYPE FLAGS
000.002                 464X I.CUSOR EQU     2               S.CUSOR IS 3RD BYTE
000.000                 465X         ERRNZ   *-S.CSLMD-I.CUSOR
040.330                 466X S.CUSOR DS      1               CURRENT CURSOR POSITION
000.003                 467X I.CONWI EQU     3               S.CONWI IS 4TH BYTE
000.000                 468X         ERRNZ   *-S.CSLMD-I.CONWI
040.331                 469X S.CONWI DS      1               CONSOLE WIDTH
                        470X
000.001                 471X CO.FLG  EQU     00000001B       CTL-O FLAG
000.200                 472X CS.FLG  EQU     10000000B       CTL-S FLAG
                        473X
000.004                 474X I.CONFL EQU     4               S.CONFL IS 5TH BYTE
000.000                 475X         ERRNZ   *-S.CSLMD-I.CONFL
040.332                 476X S.CONFL DS      1               CONSOLE FLAGS
                        477X
040.333                 478X S.CAADR DS      2               ADDRESS FOR ABORT PROCESSING (>256 IF VALID)
040.335                 479X S.CCTAB DS      6               ADDR FOR CTL-A, CTL-B, CTL-C PROCESSING
040.343                 480          XTEXT   ECDEF
```

```
                        482X **     ERROR CODE DEFINITIONS.
                        483X
000.000                 484X        ORG     0
000.000                 485X        DS      1           NO ERROR #0
000.001                 486X EC.EOF DS      1           END OF FILE
000.002                 487X EC.EOM DS      1           END OF MEDIA
000.003                 488X EC.ILC DS      1           ILLEGAL SYSCALL CODE
000.004                 489X EC.CNA DS      1           CHANNEL NOT AVAILABLE
000.005                 490X EC.DNS DS      1           DEVICE NOT SUITABLE
000.006                 491X EC.IDN DS      1           ILLEGAL DEVICE NAME
000.007                 492X EC.IFN DS      1           ILLEGAL FILE NAME
000.010                 493X EC.NRD DS      1           NO ROOM FOR DEVICE DRIVER
000.011                 494X EC.FNO DS      1           CHANNEL NOT OPEN
000.012                 495X EC.ILR DS      1           ILLEGAL REQUEST
000.013                 496X EC.FUC DS      1           FILE USAGE CONFLICT
000.014                 497X EC.FNF DS      1           FILE NAME NOT FOUND
000.015                 498X EC.UND DS      1           UNKNOWN DEVICE
000.016                 499X EC.ICN DS      1           ILLEGAL CHANNEL NUMBER
000.017                 500X EC.DIF DS      1           DIRECTORY FULL
000.020                 501X EC.IFC DS      1           ILLEGAL FILE CONTENTS
000.021                 502X EC.NEM DS      1           NOT ENOUGH MEMORY
000.022                 503X EC.RF  DS      1           READ FAILURE
000.023                 504X EC.WF  DS      1           WRITE FAILURE
000.024                 505X EC.WPV DS      1           WRITE PROTECTION VIOLATION
000.025                 506X EC.WP  DS      1           DISK WRITE PROTECTED
000.026                 507X EC.FAP DS      1           FILE ALREADY PRESENT
000.027                 508X EC.DDA DS      1           DEVICE DRIVER ABORT
000.030                 509X EC.FL  DS      1           FILE LOCKED
000.031                 510X EC.FAO DS      1           FILE ALREADY OPEN
000.032                 511X EC.IS  DS      1           ILLEGAL SWITCH
000.033                 512X EC.UUN DS      1           UNKNOWN UNIT NUMBER
000.034                 513X EC.FNR DS      1           FILE NAME REQUIRED
000.035                 514X EC.DIW DS      1           DEVICE IS NOT WRITABLE (OR WRITE LOCKED)
000.036                 515X EC.UNA DS      1           UNIT NOT AVAILABLE
000.037                 516X EC.ILV DS      1           ILLEGAL VALUE
000.040                 517X EC.ILO DS      1           ILLEGAL OPTION
000.041                 518X EC.VPM DS      1           VOLUME PRESENTLY MOUNTED ON DEVICE
000.042                 519X EC.NVM DS      1           NO VOLUME PRESENTLY MOUNTED
000.043                 520X EC.FOD DS      1           FILE OPEN ON DEVICE
000.044                 521X EC.NPM DS      1           NO PROVISIONS MADE FOR REMOUNTING MORE DISKS
000.045                 522X EC.DNI DS      1           DISK NOT INITIALIZED
000.046                 523X EC.DNR DS      1           DISK IS NOT READABLE
000.047                 524X EC.DSC DS      1           DISK STRUCTURE IS CORRUPT
000.050                 525X EC.NCV DS      1           NOT CORRECT VERSION OF HDOS
000.051                 526X EC.NOS DS      1           NO OPERATING SYSTEM MOUNTED
000.052                 527X EC.IOI DS      1           ILLEGAL OVERLAY INDEX
000.053                 528X EC.OTL DS      1           OVERLAY TO LARGE
000.054                 529         XTEXT   PICDEF
```

```
                        531X **     PIC FORMAT EQUIVALENCES.
                        532X
000.000                 533X        ORG     0
                        534X
000.000                 535X PIC.ID DS      1           377Q = BINARY FILE FLAG
000.001                 536X        DS      1           FILE TYPE (FT.PIC)
000.002                 537X PIC.LEN DS     2           LENGTH OF ENTIRE RECORD
000.004                 538X PIC.PTR DS     2           INDEX OF START OF PIC TABLE
                        539X
000.006                 540X PIC.COD DS     0           CODE STARTS HERE
000.006                 541         XTEXT   DEVDEF


                        543X **     DEVICE TABLE ENTRYS.
                        544X
000.000                 545X        ORG     0
                        546X
000.000                 547X DEV.NAM DS     2           DEVICE NAME
000.000                 548X DV.EL  EQU     00000000B   END OF DEVICE LIST FLAG
000.001                 549X DV.NU  EQU     00000001B   DEVICE ENTRY NOT IN USE
                        550X
000.002                 551X DEV.RES DS     1           DRIVER RESIDENSE CODE
000.001                 552X DR.IM  EQU     00000001B   DRIVER IN MEMORY
000.002                 553X DR.PR  EQU     00000010B   DRIVER PERMINANTLY RESIDENT
                        554X
000.003                 555X DEV.JMP DS     1           JMP TO PROCESSOR
000.004                 556X DEV.DDA DS     2           DRIVER ADDRESS
000.006                 557X DEV.FLG DS     1           FLAG BYTE
000.001                 558X DT.DD  EQU     00000001B   DIRECTORY DEVICE
000.002                 559X DT.CR  EQU     00000010B   CAPABLE OF READ OPERATION
000.004                 560X DT.CW  EQU     00000100B   CAPABLE OF WRITE OPERATION
000.010                 561X DT.RN  EQU     00001000B   Capable of random access        /80.02.sc/
000.020                 562X DT.CH  EQU     00010000B   Capable of Character mode       /80.02.sc/
                        563X
000.007                 564X DEV.MUM DS     1           MOUNTED UNIT MASK
000.010                 565X DEV.MNU DS     1           MAXIMUM NUMBER OF UNITS
000.011                 566X DEV.UNT DS     2           ADDRESS OF UNIT SPECIFIC DATA TABLE
                        567X
000.013                 568X DEV.DVL DS     2           DRIVER BYTE LENGTH
000.015                 569X DEV.DVG DS     1           DRIVER ROUTINE GROUP ADDRESS
                        570X
000.016                 571X DEVELEN EQU    *           DEVICE TABLE ENTRY LENGTH


                        573X **     UNIT SPECIFIC DEVICE DATA TABLE ENTRIES
                        574X
000.000                 575X        ORG     0
                        576X
000.000                 577X UNT.FLG DS     1           UNIT SPECIFIC  *DEV.FLG*
000.001                 578X UNT.SPG DS     1           Sectors Per Group               /80.04.GC/
000.002                 579X UNT.GRT DS     2           ADDRESS OF GROUP RESERVATION TABLE (IF DT.DD)
000.004                 580X UNT.GTS DS     2           GRT SECTOR NUMBER
```

```
000.006                 581X UNT.DIS DS      2               DIRECTORY FIRST SECTOR NUMBER
                        582X
000.010                 583X UNT.SIZ EQU     *               SIZE OF UNIT SPECIFIC DATA TABLE PER UNIT
000.010                 584          XTEXT   DVDDEF


                        586X **      DEVICE DRIVER EQUIVALENCES.
                        587X
000.307                 588X DVDFLV  EQU     307Q            DEVICE DRIVER FLAG VALUE
                        589X
000.006                 590X         ORG     PIC.COD         STARTS AT PIC CODE AREA
                        591X
000.006                 592X DVD.DVD DS      1               MUST BE DVDFLV, FLAGS TO HDOS AS DRIVER
000.007                 593X DVD.CAP DS      1               DEVICE CAPABILITY FLAG
000.010                 594X DVD.MUM DS      1               MOUNTED UNIT MASK
000.011                 595X DVD.MNU DS      1               MAXIMUM NUMBER OF UNITS
000.012                 596X DVD.UFL DS      8               UNIT SUB-CAPABILITY FLAGS FOR UNITS 0-7
000.022                 597X DVD.SET DS      1               = DVDFLV IFF DRIVER WILL TAKE SET OPTIONS
000.023                 598X DVD.INP DS      2               Pointer to Init Code                /80.07,sc/
000.025                 599X         DS      22              RESERVED, MUST BE 0                 /80.07,sc/
000.053                 600X DVD.STE EQU     *               ENTRY FOR 'SET' INVOCATION
                        601X
002.000                 602X DVD.ENT EQU     2000A           DRIVER ENTRY POINT (MUST BE MULT OF 256)
000.053                 603          XTEXT   U8250


                        605X **      8250 UART CONTROL AND BIT DEFINITIONS.
                        606X
000.350                 607X SC.ACE  EQU     350Q            SYSTEM CONSOLE PORT IF 8250 ACE
000.156                 608X AC.DLY  EQU     110             220 MIL. SEC. DELAY FOR 8250
                        609X
000.000                 610X UR.RBR  EQU     0               RECEIVER BUFFER REGISTER (READ ONLY)
                        611X
000.000                 612X UR.THR  EQU     0               TRANSMITTER HOLDING REGISTER (WRITE ONLY)
                        613X
000.000                 614X UR.DLL  EQU     0               DIVISOR LATCH (LEAST SIGNIFICANT)
                        615X
000.001                 616X UR.DLM  EQU     1               DIVISOR LATCH (MOST SIGNIFICANT)
                        617X
000.001                 618X UR.IER  EQU     1               INTERRUPT ENABLE REGISTER
000.001                 619X UC.EDA  EQU     00000001B        ENABLE RECEIVED DATA AVAILABLE INTERRUPT
000.002                 620X UC.TRE  EQU     00000010B        ENABLE TRANSMIT HOLD REGISTER EMPTY INTERRUPT
000.004                 621X UC.RSI  EQU     00000100B        ENABLE RECEIVE STATUS INTERRUPT
000.010                 622X UC.MSI  EQU     00001000B        ENABLE MODEM STATUS INTERRUPT
                        623X
000.002                 624X UR.IIR  EQU     2               INTERRUPT IDENTIFICATION REGISTER
000.001                 625X UC.IIP  EQU     00000001B        INVERTED INTERRUPT PENDING (0 MEANS PENDING)
000.006                 626X UC.IID  EQU     00000110B        INTERRUPT ID
                        627X
000.003                 628X UR.LCR  EQU     3               LINE CONTROL REGISTER
000.000                 629X UC.5BW  EQU     00000000B        5 BIT WORDS
000.001                 630X UC.6BW  EQU     00000001B        6 BIT WORDS
```

```
000.002                631X UC.7BW   EQU     00000010B       7 BIT WORDS
000.003                632X UC.8BW   EQU     00000011B       8 BIT WORDS
000.004                633X UC.2SB   EQU     00000100B       TWO STOP BITS SELECTED
000.010                634X UC.PEN   EQU     00001000B       PARITY COMPUTATION ENABLED
000.020                635X UC.EPS   EQU     00010000B       EVEN PARITY SELECT
000.040                636X UC.SKP   EQU     00100000B       STICK PARITY
000.100                637X UC.SB    EQU     01000000B       SET BREAK
000.200                638X UC.DLA   EQU     10000000B       DIVISOR LATCH ACCESS
                       639X
000.004                640X UR.MCR   EQU     4               MODEM CONTROL REGISTER
000.001                641X UC.DTR   EQU     00000001B       DATA TERMINAL READY
000.002                642X UC.RTS   EQU     00000010B       REQUEST TO SEND
000.004                643X UC.OU1   EQU     00000100B       OUT 1
000.010                644X UC.OU2   EQU     00001000B       OUT 2
000.020                645X UC.LOO   EQU     00010000B       LOOP
                       646X
000.005                647X UR.LSR   EQU     5               LINE STATUS REGISTER
000.001                648X UC.DR    EQU     00000001B       DATA READY
000.002                649X UC.OR    EQU     00000010B       OVERRUN
000.004                650X UC.PE    EQU     00000100B       PARITY ERROR
000.010                651X UC.FE    EQU     00001000B       FRAMING ERROR
000.020                652X UC.BI    EQU     00010000B       BREAK INTERRUPT
000.040                653X UC.THE   EQU     00100000B       TRANSMITTER HOLDING REGISTER EMPTY
000.100                654X UC.TSE   EQU     01000000B       TRANSMITTER SHIFT REGISTER EMPTY
                       655X
000.006                656X UR.MSR   EQU     6               MODEM STATUS REGISTER
000.001                657X UC.DCS   EQU     00000001B       DELTA CLEAR TO SEND
000.002                658X UC.DDR   EQU     00000010B       DELTA DATA SET READY
000.004                659X UC.TER   EQU     00000100B       TRAILING EDGE OF RING
000.010                660X UC.DRL   EQU     00001000B       DELTA RECEIVE LINE SIGNAL DETECT
000.020                661X UC.CTS   EQU     00010000B       CLEAR TO SEND
000.040                662X UC.DSR   EQU     00100000B       DATA SET READY
000.100                663X UC.RI    EQU     01000000B       RING INDICATOR
000.200                664X UC.RLS   EQU     10000000B       RECEIVED LINE SIGNAL DETECT
000.053                665           XTEXT   U8251
```

```
                        668X **     8251 USART BIT DEFINITIONS.
                        669X *
                        670X
                        671X **     PORT ADDRESSES
                        672X
000.000                 673X UDR    EQU     0           DATA REGISTER IS EVEN
000.001                 674X USR    EQU     1           STATUS REGISTER IS NEXT
                        675X
000.372                 676X SC.UART EQU    372Q        CONSOLE USART ADDRESS (IFF 8251)
                        677X
                        678X
                        679X **     MODE INSTRUCTION CONTROL BITS.
                        680X
000.100                 681X UMI.1B EQU     01000000B   1 STOP BIT
000.200                 682X UMI.HB EQU     10000000B   1 1/2 STOP BITS
000.300                 683X UMI.2B EQU     11000000B   2 STOP BITS
000.040                 684X UMI.PE EQU     00100000B   EVEN PARITY
000.020                 685X UMI.PA EQU     00010000B   USE PARITY
000.000                 686X UMI.L5 EQU     00000000B   5 BIT CHARACTERS
000.004                 687X UMI.L6 EQU     00000100B   6 BIT CHARACTERS
000.010                 688X UMI.L7 EQU     00001000B   7 BIT CHARACTERS
000.014                 689X UMI.L8 EQU     00001100B   8 BIT CHARACTERS
000.001                 690X UMI.1X EQU     00000001B   CLOCK X 1
000.002                 691X UMI.16X EQU    00000010B   CLOCK X 16
000.003                 692X UMI.64X EQU    00000011B   CLOCK X 64
                        693X
                        694X **     COMMAND INSTRUCTION BITS.
                        695X
000.100                 696X UCI.IR EQU     01000000B   INTERNAL RESET
000.040                 697X UCI.RO EQU     00100000B   READER-ON CONTROL FLAG
000.020                 698X UCI.ER EQU     00010000B   ERROR RESET
000.004                 699X UCI.RE EQU     00000100B   RECEIVE ENABLE
000.002                 700X UCI.IE EQU     00000010B   ENABLE INTERRUPTS FLAG
000.001                 701X UCI.TE EQU     00000001B   TRANSMIT ENABLE
                        702X
                        703X **     STATUS READ COMMAND BITS.
                        704X
000.100                 705X USR.BD EQU     01000000B   Break Detect                /80.08.sc/
000.040                 706X USR.FE EQU     00100000B   FRAMING ERROR
000.020                 707X USR.OE EQU     00010000B   OVERRUN ERROR
000.010                 708X USR.PE EQU     00001000B   PARITY ERROR
000.004                 709X USR.TXE EQU    00000100B   TRANSMITTER EMPTY
000.002                 710X USR.RXR EQU    00000010B   RECEIVER READY
000.001                 711X USR.TXR EQU    00000001B   TRANSMITTER READY
000.053                 712         XTEXT   SETCAL
```

```
                        714X **     SETCAL - FIXED ADDRESS ROUTINES IN SET
                        715X *
                        716X *      THESE VECTORS ARE FIXED ENTRY POINTS INTO THE
                        717X *      SET PROGRAM TO UTILIZED BY DEVICE DRIVERS IN
                        718X *      PROCESSING SET COMMANDS.
                        719X *
                        720X
```

```
042.201                 721X          ORG     USERFWA+1
                        722X
042.201                 723X $SNA     DS      3
                        724X
042.204                 725X $DCS     DS      3
                        726X
042.207                 727X $CNA     DS      3
                        728X
042.212                 729X $FST     DS      3
                        730X
042.215                 731X $TBLS    DS      3
                        732X
042.220                 733X $WTBLS   DS      3
                        734X
042.223                 735X $LBD     DS      3
                        736X
042.226                 737X $SOP     DS      3
                        738X
042.231                 739X $PBF     DS      3
                        740X
042.234                 741X $PBV     DS      3
                        742X
042.237                 743X          DS      60      RESERVED
                        744           CODE    PIC
                        745
                        746 *         CODE HEADER
                        747
000.006  307            748           DB      DVDFLV                  DEVICE DRIVER FLAG VALUE
000.007  004            749           DB      DT.CW                   DEVICE CAPABILITY:  WRITE
000.010  001            750           DB      00000001B               MOUNTED UNIT MASK
000.011  001            751           DB      1                       ONLY 1 UNIT
000.012  004            752           DB      DT.CW                   0:   CAPABLE OF WRITE
000.013                 753           DS      7                       1-7:  IGNORED
000.022  307            754           DB      DVDFLV
000.023  000 000        755           DW      0                                               /80.09.sc/
                        756
000.025                 757 .         SET     025Q                                            /80.09.sc/
000.000                 758           ERRNZ   *-.                                             /80.09.sc/
000.025                 759           DS      DVD.STE-.               RESERVED AREAS          /80.09.sc/
```

```
                        762  ***     ASSEMBLY CONSTANTS
                        763  *
                        764  *
                        765
                        766  **      FLAG DEFINITIONS
                        767  *
                        768
000.001                 769  F.FORM  EQU     00000001B       FORM-FEED UPON CLOSE


                        771  **      DEFAULT DEVICE DEFINITIONS
                        772  *
000.340                 773  DFLT.LP         EQU     340Q            DEFAULT LPO: ADDRESS
000.030                 774  DFLT.BD         EQU     30A             DEFAULT BAUD RATE = 4800 BAUD
                        775
000.001                 776  DFLT.FG         EQU     F.FORM          DEFAULT FLAG: FORM
000.006                 777  DFLT.LI         EQU     6               LINES/INCH
000.204                 778  DFLT.WD         EQU     132             CHARACTERS/LINE
000.102                 779  DFLT.FL         EQU     66              11 INCH FORM
000.074                 780  DFLT.LC         EQU     60              LINE COUNT = 60 LINES/PAGE
                        781
000.001                 782  DFLT.LX         EQU     1               INITIAL LINE INDEX
000.001                 783  DFLT.CX         EQU     1               INITIAL COLUMN INDEX
```

```
                                786  ***     SET CODE ENTRY POINT
                                787  *
                                788  *       SET COMMANDS ENTER HERE
                                789  *
                                790  *       ENTRY:  (DE)    = LINE POINTER
                                791  *               (A)     = UNIT NUMBER
                                792  *
                                793  *       EXIT:   'C' CLEAR IF OK
                                794  *               'C' SET IF ERROR
                                795  *                (A) = ERROR CODE
                                796  *
                                797  *       USES:   ALL
                                798  *
                                799
000.053                         800  SETNTR  EQU     *
000.000                         801          ERRNZ   *-DVD.STE
000.053  247                    802          ANA     A
000.054  302 103 000            803          JNZ     SET1
000.057  102                    804          MOV     B,D
000.060  113                    805          MOV     C,E             (BC) = PARAMETER LIST ADDRESS
000.061  021 342 001            806          LXI     D,PRCTAB        (DE) = PROCESSOR TABLE ADDRESS
000.064  041 200 001            807          LXI     H,OPTTAB        (HL) = OPTION TABLE ADDRESS
000.067  315 226 042            808          CALL    $SOP
000.072  330                    809          RC
000.073  315 201 042            810          CALL    $SNA
000.076  310                    811          RZ                      AT END OF LINE
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.UUN
000.105  067                    817          STC
000.106  311                    818          RET


                                820  ***     PROCESSORS
                                821  *


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

```
                                832  **      VAL - PROCESS VALUE OPTIONS
                                833  *
                                834  *       PROCESS VALUE TYPE OPTION SPECIFICATIONS
                                835  *
                                836  *
                                837  *       ENTRY, EXIT, AND USE SAME AS PBV
                                838
042,234                         839  VAL     EQU     $PBV            PROCESS BYTE VALUES


                                841  **      BAUD - PROCESS BAUD RATE
                                842  *
                                843  *       PROCESS BAUD RATE OPTION SPECIFICATION.
                                844  *
                                845  *
                                846  *       ENTRY:  (BC)    = TEXT ADDRESS
                                847  *
                                848  *       EXIT:   (BC)    = TEXT ADDRESS UPDATED
                                849  *               'C' CLEAR IF OK
                                850  *               'C' SET IF ERROR
                                851  *                (A) = ERROR CODE
                                852  *
                                853  *       USES:   ALL
                                854  *
                                855
000,107  076 012               856  BAUD    MVI     A,10            (A) = DEFAULT RADIX
000,111  315 207 042           857          CALL    $CNA
000,114  332 132 000           858          JC      BAU1
000,117  353                   859          XCHG                    (DE) = BAUD RATE
000,120  315 223 042           860          CALL    $LBD
000,123  302 132 000           861          JNZ     BAU1
000,126  042 037 004           862          SHLD    TLP.BAU         SET BAUD RATE WORD
000,131  311                   863          RET
                                864
000,132  076 037               865  BAU1    MVI     A,EC.ILV        ILLEGAL VALUE
000,134  067                   866          STC
000,135  311                   867          RET


                                869  **      LPI     -  PROCESS LINES/INCH OPTION
                                870  *
                                071  *       INPUT EITHER 6 OR 8 FOR THE LINES/INCH
                                872  *
                                873
000,136                         874  LPI     EQU     *
                                875
000,136  076 012               876          MVI     A,10            DEFAULT BASE = 10
000,140  315 207 042           877          CALL    $CNA
000,143  332 200 000           878          JC      LPI1            NOT A GOOD NUMERIC VALUE
                                879
000,146  174                   880          MOV     A,H
000,147  247                   881          ANA     A
```

```
000.150 302 200 000   882          JNZ     LPI1            VALUE IS TOO BIG
                      883
000.153 175           884          MOV     A,L
000.154 376 006       885          CPI     6
000.156 332 200 000   886          JC      LPI1            VALUE IS TOO SMALL
                      887
000.161 376 007       888          CPI     7
000.163 312 200 000   889          JZ      LPI1            7 IS NOT LEGAL
                      890
000.166 376 011       891          CPI     8+1
000.170 322 200 000   892          JNC     LPI1            STILL TOO BIG
                      893
                      894  *       PROCESS A LEGAL WIDTH
                      895
000.173 062 041 004   896          STA     TLP.LPI
000.176 247           897          ANA     A               CLEAR CARRY
000.177 311           898          RET
                      899
                      900  *       PROCESS AN ILLEGAL WIDTH
                      901
000.200 076 037       902  LPI1    MVI     A,EC.ILV
000.202 067           903          STC
000.203 311           904          RET


                      906  **      HELP - PROCESS HELP OPTION
                      907  *
                      908  *       TYPE VALID OPTIONS ON USER CONSOLE
                      909  *
                      910  *
                      911  *       NOTE:   IF MORE SPACE IS NECESSARY, MANY OF THE SPACES IN THIS
                      912  *               MESSAGE MAY BE REPLACED BY TABS, THIS WAS DONE FOR THE
                      913  *               EASY PREPARATION.
                      914  *
                      915
000.204 315 136 031   916  HELP    CALL    $TYPTX
000.207 012 012 123   917          DB      NL,NL,'Set Options:',NL,NL
000.227 102 101 125   918          DB      'BAUD    n      Baud rate',NL
000.253 106 117 122   919          DB      'FORM           Form Feed at Close',NL
000.310 110 105 114   920          DB      'HELP           Type this text',NL
000.335 116 117 106   921          DB      'NOFORM         No Form Feed at Close',NL
000.375 114 105 116   922          DB      'LENGTH  n      Lines/Form [4-112]',NL
001.032 114 120 111   923          DB      'LPI     n      Lines/Inch',NL
001.057 120 101 107   924          DB      'PAGE    n      Lines/Page',NL
001.104 120 117 122   925          DB      'PORT    n      Port Number',NL
001.132 127 111 104   926          DB      'WIDTH   n      Characters/Line [0-132]',NL
001.174 012 212       927          DB      NL,ENL
001.176 257           928          XRA     A               CLEAR CARRY
001.177 311           929          RET
```

```
                                931  ***     TABLES
                                932  *
                                933  *


                                935  **      OPTTAB - OPTION TABLE
                                936  *
                                937
001,200  341 001               938  OPTTAB  DW      OPTTABE
001,202  006                   939          DB      6
                                940
001,203  106 117 122           941          DB      'FOR','M'+200Q,FLAGI,F.FORM,F.FORM
001,212  035 004               942          DW      TLP.FLG
001,214  000                   943          DB      0
                                944
001,215  116 117 106           945          DB      'NOFOR','M'+200Q,FLAGI,F.FORM,0
001,226  035 004               946          DW      TLP.FLG
001,230  000                   947          DB      0
                                948
001,231  114 105 116           949          DB      'LENGT','H'+200Q,VALI,10,4,112
001,243  043 004               950          DW      TLP.LEN
                                951
001,245  120 101 107           952          DB      'PAG','E'+200Q,VALI,10,0,255
001,255  044 004               953          DW      TLP.LC
                                954
001,257  120 117 122           955          DB      'POR','T'+200Q,VALI,8,0,377Q
001,267  036 004               956          DW      TLP.POR
                                957
001,271  127 111 104           958          DB      'WIDT','H'+200Q,VALI,10,0,132
001,302  042 004               959          DW      TLP.WID
                                960
001,304  102 101 125           961          DB      'BAU','D'+200Q,BAUDI
001,311  000 000 000           962          DB      0,0,0,0,0
                                963
001,316  114 120 311           964          DB      'LP','I'+200Q,LPII
001,322  000 000 000           965          DB      0,0,0,0,0
                                966
001,327  110 105 114           967          DB      'HEL','P'+200Q,HELPI
001,334  000 000 000           968          DB      0,0,0,0,0
                                969
001,341  000                   970  OPTTABE DB      0


                                972  **      PRCTAB - PROCESSOR TABLE
                                973  *
                                974
001,342                         975  PRCTAB  DS      0
                                976
000,000                         977  FLAGI   EQU     *-PRCTAB/2
001,342  231 042               978          DW      FLAG
                                979
000,001                         980  VALI    EQU     *-PRCTAB/2
```

```
001.344  234 042        981          DW      VAL
                         982
000.002                  983  BAUDI   EQU     *-PRCTAB/2
001.346  107 000        984          DW      BAUD
                         985
000.003                  986  LPII    EQU     *-PRCTAB/2
001.350  136 000        987          DW      LPI
                         988
000.004                  989  HELPI   EQU     *-PRCTAB/2
001.352  204 000        990          DW      HELP


001.354                  992  .       SET     1354A
000.000                  993          ERRNZ   *-.
001.354                  994          DS      DVD.ENT-.
```

```
                                997  ***     LPDVD ENTRY POINT
                                998  *
                                999  *       ENTRY:  (A)   = PROCESS CODE
                               1000  *               (BC)  = BYTE COUNT
                               1001  *               (DE)  = BUFFER ADDRESS  AS PER ROUTINE
                               1002  *
                               1003  *       EXIT:   (PSW) = 'C' CLEAR IF NO ERRORS
                               1004  *                     = 'C' SET IF ERROR
                               1005  *                       (A)   = ERROR CODE
                               1006  *
                               1007  *       USES:   ALL
                               1008  *
                               1009
                               1010
                               1011
002.000                        1012  LPDVD   EQU     *
000.000                        1013          ERRNZ   *-DVD.ENT
002.000  376 013               1014          CPI     DC.MAX
002.002  322 022 002           1015          JNC     LPDVD1          IF ILLEGAL PROCESS CODE
                               1016
002.005  315 076 031           1017          CALL    $TBRA           ENTRY PROCESSOR
002.010  016                  1018          DB      LPNSUIT-*       READ
002.011  113                  1019          DB      LPWRITE-*       WRITE
002.012  014                  1020          DB      LPNSUIT-*       READR
002.013  013                  1021          DB      LPNSUIT-*       OPENR
002.014  027                  1022          DB      LPOPENW-*       OPENW
002.015  011                  1023          DB      LPNSUIT-*       OPENU
002.016  150                  1024          DB      LPCLOSE-*       CLOSE
002.017  013                  1025          DB      LPABORT-*       ABORT
002.020  012                  1026          DB      LPABORT-*       MOUNT
002.021  020                  1027          DB      LPLOADD-*       LOADD
                               1028
002.022  076 012              1029  LPDVD1  MVI     A,EC.ILR                ILLEGAL REQUEST
002.024  067                  1030          STC
002.025  311                  1031          RET
                               1032
```

```
                                1035  ***     LPNSUIT - LINE PRINTER NOT SUITABLE
                                1036  *
                                1037  *       ENTRY:  NONE
                                1038  *
                                1039  *       EXIT:   (PSW) = 'C' SET FLAGGING ERROR
                                1040  *                       (A)   = ERROR CODE
                                1041  *
                                1042  *       USES:   PSW
                                1043  *
                                1044
002.026                         1045  LPNSUIT EQU   *
002.026  076 005                1046          MVI   A,EC.DNS                  DEVICE NOT SUITABLE ERROR CODE
002.030  067                    1047          STC
002.031  311                    1048          RET


                                1050  ***     LPABORT - LINE PRINTER ABORT
                                1051  *
                                1052  *       ENTRY:  NONE
                                1053  *
                                1054  *       EXIT:   (PSW) = 'C' SET FLAGGING ERROR
                                1055  *                       (A)   = ERROR CODE
                                1056  *
                                1057  *       USES:   PSW
                                1058  *
                                1059
002.032                         1060  LPABORT EQU   *
002.032  315 166 002            1061          CALL  LPCLOSE
002.035  076 027                1062          MVI   A,EC.DDA                  DEVICE DRIVER ABORT ERROR CODE
002.037  067                    1063          STC
002.040  311                    1064          RET


                                1066  ***     LPLOADD -  LOAD LP:
                                1067  *
                                1068  *       LPLOADD PROCESS THE LOAD DEVICE DRIVER ENTRY POINT.
                                1069  *
                                1070  *
                                1071  *       ENTRY:  NONE
                                1072  *
                                1073  *       EXIT:   NONE
                                1074  *
                                1075  *       USES:   (F)
                                1076  *
                                1077
002.041                         1078  LPLOADD EQU   *
002.041  247                    1079          ANA   A         CLEAR CARRY
002.042  311                    1080          RET
```

```
                        1083  ***     LPOPENW - LINE PRINTER OPEN FOR WRITE
                        1084  *
                        1085  *       SET UP LINE PRINTER FOR OUTPUT
                        1086  *
                        1087  *       ENTRY   NONE
                        1088  *
                        1089  *       EXIT    (PSW) = 'C' CLEAR => NO ERROR
                        1090  *                       'C' SET => ERROR
                        1091  *                     (A)  = ERROR CODE
                        1092  *
                        1093  *       USES    ALL
                        1094  *
                        1095
002.043                 1096  LPOPENW EQU   *
                        1097
002.043  315 072 003    1098          CALL    UNITASS
002.046  067            1099          STC                     ASSUME ERROR
002.047  076 036        1100          MVI     A,EC.UNA
002.051  300            1101          RNZ                     ALREADY ASSIGNED
                        1102
                        1103  *       FLAG ASSIGNED, INITIALIZE INDICES, AND CTL-S FLAG
                        1104
002.052  076 200        1105          MVI     A,10000000B
002.054  062 034 004    1106          STA     TLP.AS
002.057  076 001        1107          MVI     A,1
002.061  062 045 004    1108          STA     TLP.LX
002.064  062 046 004    1109          STA     TLP.CX
                        1110
                        1111
                        1112  *       INITIALIZE PORT
                        1113
002.067  072 036 004    1114          LDA     TLP.POR
002.072  052 037 004    1115          LHLD    TLP.BAU
002.075  315 302 003    1116          CALL    I8250
                        1117
002.100  072 036 004    1118          LDA     TLP.POR
002.103  147            1119          MOV     H,A
002.104  056 004        1120          MVI     L,UR.MCR
002.106  076 013        1121          MVI     A,UC.DTR+UC.RTS+UC.OU2
002.110  315 022 004    1122          CALL    OUT             SET UP FOR HAND-SHAKE
                        1123
                        1124  *       INITIALIZE LP:
                        1125
002.113  315 130 003    1126          CALL  INITLP
002.116  076 015        1127          MVI   A,CR
002.120  315 241 002    1128          CALL  LPOUTCH
002.123  311            1129          RET
```

```
                                1132  ***     LPWRITE - LINE PRINTER WRITE
                                1133  *
                                1134  *       WRITE BYTES TO LP: DEVICE
                                1135  *
                                1136  *
                                1137  *       ENTRY:  (BC)  = BYTE COUNT
                                1138  *               (DE)  = ADDRESS OF DATA BUFFER
                                1139  *
                                1140  *       EXIT:   (PSW) = 'C' CLEAR => NO ERROR
                                1141  *                     = 'C' SET   =>    ERROR
                                1142  *                       (A)   = ERROR CODE
                                1143  *                       (BC)  = UNUSED BYTE COUNT
                                1144  *                       (DE)  = ADDRESS OF NEXT BYTE TO BE WRITTEN
                                1145  *
                                1146  *       USES:   ALL
                                1147  *
                                1148
        002.124                 1149  LPWRITE EQU   *
                                1150
        002.124  315 072 003    1151          CALL    UNITASS
        002.127  067            1152          STC                     ASSUME ERROR
        002.130  076 036        1153          MVI     A,EC.UNA
        002.132  310            1154          RZ                      NOT ASSIGNED
                                1155
        002.133  170            1156  LPW1    MOV     A,B
        002.134  261            1157          ORA     C
        002.135  310            1158          RZ                      LAST BYTE WRITTEN
                                1159
        002.136  072 334 040    1160          LDA     S.CAADR+1
        002.141  247            1161          ANA     A
        002.142  302 156 002    1162          JNZ     LPW5                    CTL-Z,-A,-B,-C HIT
        002.145  032            1163          LDAX    D               (A) = BYTE TO BE WRITTEN
        002.146  315 241 002    1164          CALL    LPOUTCH
        002.151  023            1165          INX     D               INCREMENT ADDRESS
        002.152  013            1166          DCX     B               DECREMENT COUNT
        002.153  303 133 002    1167          JMP     LPW1
                                1168
        002.156                 1169  LPW5    EQU     *
        002.156  345            1170          PUSH    H
        002.157  365            1171          PUSH    PSW
        002.160  315 205 002    1172          CALL    LPCLOS.                 OUTPUT FORM-FEED
        002.163  361            1173          POP     PSW
        002.164  341            1174          POP     H
        002.165  311            1175          RET
```

```
                                1178  ***     LPCLOSE - CLOSE LINE PRINTER FOR OUTPUT
                                1179  *
                                1180  *       REMOVE SELECTED LP: DEVICE FROM TABLE OF CURRENTLY ACTIVE DEVICES.
                                1181  *
                                1182  *       ENTRY   NONE
                                1183  *
                                1184  *       EXIT    (PSW) = 'C' CLEAR => NO ERROR
                                1185  *                     = 'C' SET   =>    ERROR
                                1186  *                       (A)   = ERROR CODE
                                1187  *
                                1188  *       USES    ALL
                                1189  *
                                1190
002.166                         1191  LPCLOSE EQU   *
                                1192
002.166  315 072 003            1193          CALL    UNITASS
002.171  076 036               1194          MVI     A,EC.UNA                        UNIT NOT AVAILABLE
002.173  067                   1195          STC
002.174  310                   1196          RZ                                      UNIT NOT ASSIGNED
                                1197
002.175  072 034 004            1198          LDA   TLP.AS
002.200  346 177               1199          ANI   #01111111B                      CLEAR ASSIGNED BIT
002.202  062 034 004            1200          STA   TLP.AS
                                1201
002.205  072 035 004            1202  LPCLOS. LDA     TLP.FLG
002.210  346 001               1203          ANI     F.FORM
002.212  310                   1204          RZ                                      NO FORM-FEED UPON CLOSE
                                1205
002.213  072 036 004            1206          LDA   TLP.POR
002.216  147                   1207          MOV   H,A
002.217  056 005               1208          MVI   L,UR.LSR
                                1209
002.221  315 012 004            1210  LPC1    CALL    IN
002.224  346 040               1211          ANI     UC.THE
002.226  312 221 002            1212          JZ      LPC1                            NOT READY FOR TRANSMIT
                                1213
002.231  056 000               1214          MVI     L,UR.THR
002.233  076 014               1215          MVI   A,FF
002.235  315 022 004            1216          CALL  OUT                             OUTPUT FORM-FEED
                                1217
002.240  311                   1218          RET
```

```
                        1222  ***     LPOUTCH - LINE PRINTER OUTPUT CHARACTER
                        1223  *
                        1224  *       The special characters processed are:
                        1225  *
                        1226  *                       NULL
                        1227  *                       TAB
                        1228  *
                        1229  *       ENTRY:  (A)   = BYTE TO BE WRITTEN
                        1230  *               (HL)  = UNIT NUMBER OF OUTPUT DEVICE
                        1231  *
                        1232  *       EXIT:   Column Index updated
                        1233  *
                        1234  *       USES:   (PSW)
                        1235  *
                        1236
002.241                 1237  LPOUTCH EQU   *
002.241  345           1238          PUSH  H
                        1239
                        1240
002.242  376 014       1241          CPI   FF
002.244  302 265 002   1242          JNZ   LPOT1                   IF  NOT FORM FEED
002.247  315 234 003   1243          CALL  OUTCHAR
002.252  076 001       1244          MVI   A,#1
002.254  062 045 004   1245          STA   TLP.LX                  UNIT LINE INDEX = 1
002.257  062 046 004   1246          STA   TLP.CX                  UNIT COLUMN INDEX = 1
002.262  303 070 003   1247          JMP   LPOT9
                        1248
                        1249
                        1250  *       CHECK FOR LINE OVER-FLOW
                        1251
002.265  345           1252  LPOT1   PUSH  H
002.266  365           1253          PUSH  PSW
002.267  072 044 004   1254          LDA   TLP.LC
002.272  267           1255          ORA   A
002.273  312 312 002   1256          JZ    LPOT2                   LINES/PAGE = 0
002.276  041 045 004   1257          LXI   H,TLP.LX
002.301  276           1258          CMP   M
002.302  322 312 002   1259          JNC   LPOT2                   TLP.LC >= TLP.LX
002.305  076 014       1260          MVI   A,FF
002.307  315 241 002   1261          CALL  LPOUTCH
002.312  361           1262  LPOT2   POP   PSW
002.313  341           1263          POP   H
                        1264
002.314  376 011       1265          CPI   TAB
002.316  302 347 002   1266          JNZ   LPOT5                   IF  NOT TAB
002.321  076 040       1267          MVI   A,' '                   IF PRESENTLY AT TAB STOP FORCE
002.323  315 241 002   1268          CALL  LPOUTCH                   TO THE NEXT ONE
002.326  072 046 004   1269  LPOT3   LDA   TLP.CX
002.331  075           1270          DCR   A
002.332  346 007       1271          ANI   7                       CHECK FOR MULTIPLE OF 8
002.334  312 070 003   1272          JZ    LPOT9
002.337  076 040       1273          MVI   A,' '
002.341  315 241 002   1274          CALL  LPOUTCH
002.344  303 326 002   1275          JMP   LPOT3
                        1276
002.347  376 015       1277  LPOT5   CPI   CR
```

```
002.351  302 367 002  1278          JNZ   LPOT6                    NOT CARRIAGE RETURN
002.354  315 234 003  1279          CALL  OUTCHAR
002.357  076 001      1280          MVI   A,1
002.361  062 046 004  1281          STA   TLP.CX                    COLUMN INDEX = 1
002.364  303 070 003  1282          JMP   LPOT9
                      1283
002.367  376 012      1284  LPOT6   CPI   NL
002.371  302 020 003  1285          JNZ   LPOT7
002.374  076 015      1286          MVI   A,CR
002.376  315 241 002  1287          CALL  LPOUTCH
003.001  076 212      1288          MVI   A,LF+200Q       AVOID THE INFINITE RECURSE
003.003  315 241 002  1289          CALL  LPOUTCH
003.006  072 045 004  1290          LDA   TLP.LX
003.011  074          1291          INR   A                         UPDATE LINE INDEX
003.012  062 045 004  1292          STA   TLP.LX
003.015  303 070 003  1293          JMP   LPOT9
                      1294
003.020  376 040      1295  LPOT7   CPI   ' '
003.022  332 065 003  1296          JC    LPOT8                     (A) < ' '  => NON-PRINT
003.025  376 177      1297          CPI   RUBOUT
003.027  322 065 003  1298          JNC   LPOT8                     (A) >= RUBOUT  => NON-PRINT
                      1299
003.032  365          1300          PUSH  PSW
003.033  345          1301          PUSH  H
003.034  072 042 004  1302          LDA   TLP.WID
003.037  247          1303          ANA   A
003.040  312 054 003  1304          JZ    LPOT7.5                   DON'T DO ANY WRAP
                      1305
003.043  041 046 004  1306          LXI   H,TLP.CX
003.046  276          1307          CMP   M
003.047  076 012      1308          MVI   A,NL
003.051  334 241 002  1309          CC    LPOUTCH                   OUPUT IF  WIDTH < INDEX
                      1310
003.054  072 046 004  1311  LPOT7.5 LDA   TLP.CX
003.057  074          1312          INR   A
003.060  062 046 004  1313          STA   TLP.CX                    INCREMENT LINE COUNTER
003.063  341          1314          POP   H
003.064  361          1315          POP   PSW
                      1316
003.065  315 234 003  1317  LPOT8   CALL  OUTCHAR                   OUTPUT THE CHARACTER
                      1318
003.070  341          1319  LPOT9   POP   H
003.071  311          1320          RET
```

```
                                1323  **      UNITASS - UNIT ASSIGNED
                                1324  *
                                1325  *       CHECK LP: DEVICE TABLE TO SEE IF SPECIFIED UNIT IS ASSIGNED.
                                1326  *
                                1327  *       ENTRY   (HL) = UNIT NUMBER
                                1328  *
                                1329  *       EXIT    (PSW) = 'Z' SET   => UNIT FREE
                                1330  *                     = 'Z' CLEAR => UNIT ASSIGNED
                                1331  *
                                1332  *       USES    (PSW)
                                1333  *
                                1334
003.072                         1335  UNITASS EQU   *
                                1336
003.072  072 034 004            1337          LDA   TLP.AS
003.075  346 200                1338          ANI   10000000B                         [7] = 1  =>  ASSIGNED
                                1339
003.077  311                    1340          RET


                                1342  **      WAIT - WAIT FOR H14
                                1343  *
                                1344  *       WAIT UNTIL DEVICE READY FOR OUTPUT
                                1345  *
                                1346  *       ENTRY   NONE
                                1347  *
                                1348  *       EXIT    NONE
                                1349  *
                                1350  *       USES    (PSW)
                                1351  *
                                1352
003.100                         1353  WAIT    EQU   *
003.100  345                    1354          PUSH  H
                                1355
003.101  072 334 040            1356  WAIT0   LDA   S.CAADR+1
003.104  247                    1357          ANA   A
003.105  302 126 003            1358          JNZ   WAIT3                             IF  CTL-Z,-A,-B,-C  HIT
                                1359
003.110  072 036 004            1360          LDA   TLP.POR
003.113  147                    1361          MOV   H,A
003.114  056 006                1362          MVI   L,OR.MSR
003.116  315 012 004            1363          CALL  IN
003.121  346 020                1364          ANI   UC.CTS
003.123  302 101 003            1365          JNZ   WAIT0             INVERTED SIGNAL!!!
                                1366
003.126  341                    1367  WAIT3   POP   H
003.127  311                    1368          RET
```

```
                                1371  **      INITLP - INITIALIZE LP:
                                1372  *
                                1373  *       INITIALIZE DEVICE LP: BY:
                                1374  *
                                1375  *               SETTING LINES/INCH
                                1376  *               SETTING FORM LENGTH
                                1377  *
                                1378  *
                                1379  *
                                1380  *       ENTRY   NONE
                                1381  *
                                1382  *       EXIT    NONE
                                1383  *
                                1384  *       USES    (PSW),(HL)
                                1385  *
                                1386
003.130                         1387  INITLP  EQU   *
                                1388
                                1389  *       SET UP LINES/INCH
                                1390
003.130  072 041 004           1391          LDA     TLP.LPI
003.133  376 006               1392          CPI     6
003.135  076 064               1393          MVI     A,'4'           6 LINES/INCH
003.137  312 144 003           1394          JZ      LPIO
                                1395
003.142  076 065               1396          MVI     A,'5'           8 LINES/INCH
                                1397
003.144  062 174 003           1398  LPIO    STA     INIA+1          SET UP LINES/INCH ESCAPE SEQUENCE
                                1399
                                1400  *       SET UP FORM LENGTH
                                1401
003.147  072 043 004           1402          LDA     TLP.LEN
003.152  062 177 003           1403          STA     INIB+2
                                1404
                                1405  *       OUTPUT THE STRING
                                1406
003.155  041 173 003           1407          LXI     H,INIA
003.160  176                   1408  INI1    MOV     A,M
003.161  376 377               1409          CPI     377Q
003.163  310                   1410          RZ                              TO THE END OF THE SEQUENCE
003.164  315 234 003           1411          CALL    OUTCHAR
003.167  043                   1412          INX     H
003.170  303 160 003           1413          JMP     INI1
                                1414
003.173  033 000               1415  INIA    DB      ESC,0                   LINES/INCH (SET UP BY *LPI*)
003.175  033 062 000           1416  INIB    DB      ESC,'2',0,CR            FORM LENGTH
003.201  377                   1417          DB      377Q
```

```
003.202                 1420          XTEXT   DVDIO


                        1422X **      INCHAR - INPUT CHARACTER
                        1423X *
                        1424X *       INPUT CHARACTER FROM SPECIFIED DEVICE
                        1425X *
                        1426X *       ENTRY   NONE
                        1427X *
                        1428X *       EXIT    (PSW) = 'Z' CLEAR IF THERE IS A CHARACTER
                        1429X *                       (A) = CHARACTER
                        1430X *                     = 'Z' SET   IF THERE IS NOT A CHARACTER
                        1431X *
                        1432X *       USES    (PSW)
                        1433X *
                        1434X
003.202                 1435X INCHAR  EQU   *
003.202  345            1436X         PUSH  H
003.203  072 036 004    1437X         LDA   D.PORT
003.206  147            1438X         MOV   H,A
                        1439X
                        1440X *       CHECK FOR DATA
                        1441X
000.000                 1442X         IF      H84IO
                        1443X
003.207  056 005        1444X         MVI   L,UR.LSR
003.211  315 012 004    1445X         CALL  IN
003.214  346 001        1446X         ANI   UC.DR                   'Z' SET IF THERE IS DATA
003.216  312 231 003    1447X         JZ    INC1                    NO DATA
003.221  056 000        1448X         MVI   L,UR.RBR
003.223  315 012 004    1449X         CALL  IN
003.226  303 232 003    1450X         JMP   INC2
                        1451X
                        1452X         ELSE
                        1453X
                        1454X         MVI   L,USR
                        1455X         CALL  IN
                        1456X         ANI   USR.RXR                 'Z' SET IF THERE IS NO DATA
                        1457X         JZ    INC1                    NO DATA
                        1458X         MVI   L,UDR
                        1459X         CALL  IN
                        1460X         ANA   A                       IGNORE NULL CHARACTERS
                        1461X         JMP   INC2
                        1462X
                        1463X         ENDIF
                        1464X
003.231  067            1465X INC1    STC
                        1466X
003.232  341            1467X INC2    POP   H
003.233  311            1468X         RET
```

```
                        1470X **      OUTCHAR - OUTPUT CHARACTER
                        1471X *
                        1472X *       OUTPUT CHARACTER TO SPECIFIED DEVICE
                        1473X *
                        1474X *       ENTRY   (A)   = CHARACTER
                        1475X *
                        1476X *       EXIT    NONE
                        1477X *
                        1478X *       USES    (PSW)
                        1479X *
                        1480X
003.234                 1481X OUTCHAR EQU   *
003.234  345            1482X         PUSH  H
                        1483X
003.235  365            1484X         PUSH  PSW
003.236  072 036 004    1485X         LDA   D.PORT
003.241  147            1486X         MOV   H,A
                        1487X
000.000                 1488X         IF      H84IO
                        1489X
003.242  056 005        1490X         MVI   L,UR.LSR
003.244  315 100 003    1491X         CALL  WAIT                    WAIT FOR THE HAND-SHAKE!/79.11.GC/
003.247  072 334 040    1492X OUTC0   LDA   S.CAADR+1
003.252  247            1493X         ANA   A
003.253  302 277 003    1494X         JNZ   OUTC1                   IF  CTL-Z,-A,-B,-C HIT
003.256  315 012 004    1495X         CALL  IN
003.261  346 040        1496X         ANI   UC.THE
003.263  312 247 003    1497X         JZ    OUTC0                   IF  NOT READY FOR TRANSMIT
003.266  361            1498X         POP   PSW
003.267  056 000        1499X         MVI   L,UR.THR
003.271  315 022 004    1500X         CALL  OUT
003.274  303 300 003    1501X         JMP   OUTC2
                        1502X
                        1503X         ELSE
                        1504X
                        1505X         MVI   L,USR
                        1506X         CALL  WAIT                    WAIT FOR THE HAND-SHAKE /79.11.GC/
                        1507X OUTC0   LDA   S.CAADR+1
                        1508X         ANA   A
                        1509X         JNZ   OUTC1                   IF  CTL-Z,-A,-B,-C HIT
                        1510X         CALL  IN
                        1511X         ANI   USR.TXR
                        1512X         JZ    OUTC0                   IF  NOT READY FOR TRANSMIT
                        1513X         POP   PSW
                        1514X         MVI   L,UDR
                        1515X         CALL  OUT
                        1516X         JMP   OUTC2
                        1517X
                        1518X         ENDIF
                        1519X
003.277  361            1520X OUTC1   POP   PSW
                        1521X
003.300  341            1522X OUTC2   POP   H
003.301  311            1523X         RET
000.000                 1524X         IF      H84IO
```

```
                        1526X **      I8250 - INITIALIZE 8250
                        1527X *
                        1528X *       INITIALIZE AN 8250 PORT.  STOLEN AS CAP FROM CONSL DRIVER.
                        1529X *
                        1530X *       ENTRY   (A)          =  PORT ADDRESS
                        1531X *               (HL)[0-14]   =  NEW BAUD RATE
                        1532X *               (HL)[15]     =  1 IF TWO STOP BITS
                        1533X *
                        1534X *       EXIT    NONE
                        1535X *
                        1536X *       USES    (A)
                        1537X *
                        1538X
    003.302             1539X I8250   EQU   *
    003.302  325        1540X         PUSH  D
                        1541X
    003.303  353        1542X         XCHG
    003.304  147        1543X         MOV   H,A
    003.305  056 001    1544X         MVI   L,UR.IER                                    /79.02.GC/
    003.307  257        1545X         XRA   A                                           /79.02.GC/
    003.310  315 022 004 1546X        CALL   OUT                                         /79.02.GC/
    003.313  056 004    1547X         MVI   L,UR.MCR                                    /79.01.GC/
    003.315  076 020    1548X         MVI   A,UC.LOO                                    /79.01.GC/
    003.317  315 022 004 1549X        CALL   OUT                 SET LOOP-BACK          /79.01.GC/
    003.322  056 003    1550X         MVI   L,UR.LCR
    003.324  076 200    1551X         MVI   A,UC.DLA
    003.326  315 022 004 1552X        CALL   OUT
    003.331  056 000    1553X         MVI   L,UR.DLL
    003.333  173        1554X         MOV   A,E
    003.334  315 022 004 1555X        CALL   OUT
    003.337  056 001    1556X         MVI   L,UR.DLM
    003.341  172        1557X         MOV   A,D
    003.342  346 177    1558X         ANI   177Q
    003.344  315 022 004 1559X        CALL   OUT
    003.347  056 003    1560X         MVI   L,UR.LCR
    003.351  172        1561X         MOV   A,D
    003.352  007        1562X         RLC
    003.353  007        1563X         RLC
    003.354  007        1564X         RLC
    000.000             1565X         ERRNZ UC.2SB-4
    003.355  346 004    1566X         ANI   UC.2SB
    003.357  366 003    1567X         ORI   UC.8BW                    8 BIT WORDS
    003.361  315 022 004 1568X        CALL   OUT
    003.364  056 000    1569X         MVI   L,UR.RBR
    003.366  315 012 004 1570X        CALL   IN                       REMOVE GARBAGE
    003.371  076 156    1571X         MVI   A,AC.DLY                                    /79.01.GC/
    003.373  315 053 000 1572X        CALL   ;DLY                                        /79.01.GC/
    003.376  056 004    1573X         MVI   L,UR.MCR                                    /79.01.GC/
    004.000  315 012 004 1574X        CALL   IN                                          /79.01.GC/
    004.003  346 357    1575X         ANI   377Q-UC.LOO                                 /79.01.GC/
    004.005  315 022 004 1576X        CALL   OUT                 TURN OFF LOOP-BACK     /79.01.GC/
                        1577X
    004.010  321        1578X         POP   D
    004.011  311        1579X         RET
                        1580X         ELSE
                        1581X I8251   SPACE   4,10
```

```
                        1582X **      I8251 - INITIALIZE 8251
                        1583X *
                        1584X *       INITIALIZE AN 8251 PORT
                        1585X *
                        1586X *       ENTRY   (A)       = PORT ADDRESS
                        1587X *               (HL)[15] = 1 IF TWO STOP BITS
                        1588X *
                        1589X *       EXIT    NONE
                        1590X *
                        1591X *       USES    ALL
                        1592X *
                        1593X
                        1594X I8251   EQU   *
                        1595X         XCHG
                        1596X         MOV   H,A
                        1597X         MVI   L,USR
                        1598X         MOV   A,B
                        1599X         ANI   200Q                    (A) = 200Q IF TWO STOP BITS
                        1600X         ERRNZ  2000+UMI.1B-UMI.2B
                        1601X         ORI   UMI.1B+UMI.L8+UMI.16X
                        1602X         STA   I8251.B
                        1603X         LXI   B,I8251.A
                        1604X I8251.1 LDAX  B
                        1605X         CPI   #377Q
                        1606X         JZ    I8251.2
                        1607X         CALL  OUT
                        1608X         INX   B
                        1609X         JMP   I8251.1
                        1610X I8251.2 MVI   A,UCI.ER+UCI.TE+UCI.RE
                        1611X         CALL  OUT
                        1612X         MVI   L,UDR
                        1613X         CALL  IN
                        1614X         RET
                        1615X I8251.A DB      0,0,0,0,0,0
                        1616X         DB      UCI.IR
                        1617X I8251.B DB      0                     CONFIGURATION BYTE
                        1618X         DB      377Q
                        1619X         ENDIF


                        1621X **      IN - INPUT
                        1622X *
                        1623X *       INPUT BYTE FROM SPECIFIED PORT
                        1624X *
                        1625X *       ENTRY   (H)   = PORT ADDRESS
                        1626X *               (L)   = OFFSET
                        1627X *
                        1628X *       EXIT    (A)   = BYTE READ
                        1629X *
                        1630X *       USES    (PSW)
                        1631X *
                        1632X
    004.012             1633X IN      EQU   *
    004.012  174        1634X         MOV   A,H
```

```
004.013  205            1635X          ADD   L
004.014  062 020 004    1636X          STA   IN.ADD
004.017  333 000        1637X          IN    *-*
004.020                 1638X IN.ADD   EQU   *-1
004.021  311            1639X          RET

                        1641X **       OUT - OUTPUT
                        1642X *
                        1643X *        OUTPUT BYTE TO SPECIFIED PORT
                        1644X *
                        1645X *        ENTRY   (A)   = BYTE TO BE WRITTEN
                        1646X *                (H)   = PORT ADDRESS
                        1647X *                (L)   = OFFSET
                        1648X *
                        1649X *        EXIT    NONE
                        1650X *
                        1651X *        USES    NONE
                        1652X *
                        1653X
004.022                 1654X OUT      EQU   *
004.022  365            1655X          PUSH  PSW
004.023  174            1656X          MOV   A,H
004.024  205            1657X          ADD   L
004.025  062 032 004    1658X          STA   OUT.ADD
004.030  361            1659X          POP   PSW
004.031  323 000        1660X          OUT   *-*
004.032                 1661X OUT.ADD  EQU   *-1
004.033  311            1662X          RET
004.034                 1663           XTEXT   TBRA

                        1665X **       $TBRA - BRANCH RELATIVE THOUGH TABLE.
                        1666X *
                        1667X *        $TBRA USES THE SUPPLIED INDEX TO SELECT A BYTE FROM THE
                        1668X *        JUMP TABLE. THE CONTENTS OF THIS BYTE ARE ADDED TO THE
                        1669X *        ADDRESS OF THE BYTE, YEILDING THE PROCESSOR ADDRESS.
                        1670X *
                        1671X *        CALL    $TBRA
                        1672X *        DB      LAB1-*          INDEX = 0 FOR LAB1
                        1673X *        DB      LAB2-*          INDEX = 1 FOR LAB2
                        1674X *        DB      LABN-*          INDEX = N-1 FOR LABN
                        1675X *
                        1676X *        ENTRY   (A) = INDEX
                        1677X *                (RET) = TABLE FWA
                        1678X *        EXIT    TO COMPUTED ADDRESS
                        1679X *        USES    F,H,L
                        1680X
                        1681X
031.076                 1682X $TBRA    EQU     31076A          IN H17 ROM
004.034                 1683           XTEXT   TYPTX
```

```
                        1685X **      $TYPTX - TYPE TEXT.
                        1686X *
                        1687X *       $TYPTX IS CALLED TO TYPE A BLOCK OF TEXT ON THE SYSTEM CONSOLE.
                        1688X *
                        1689X *       IMBEDDED ZERO BYTES INDICATE A CARRIAGE RETURN LINE FEED,
                        1690X *       A BYTE WITH THE 2000 BIT SET IS THE LAST BYTE IN THE MESSAGE.
                        1691X *
                        1692X *       ENTRY   (RET) = TEXT
                        1693X *       EXIT    TO (RET+LENGTH)
                        1694X *       USES    A,F
                        1695X
                        1696X
     031,136            1697X $TYPTX  EQU     31136A          IN H17 ROM
                        1698X
     031,144            1699X $TYPTX. EQU     31144A          IN H17 ROM
```

```
                                1702  ***     TLP.UNT - TABLE OF LP: UNIT CONSTANTS
                                1703  *
                                1704  *
                                1705
004.034                         1706  TLP.UNA EQU   *
                                1707
004.034 000                     1708  TLP.UNT         DB      0               UNIT NUMBER
                                1709
004.034                         1710  TLP.AS          EQU     TLP.UNT         [7] = 1 IF ASSIGNED
                                1711
004.035 001                     1712  TLP.FLG         DB      DFLT.FG         GENERAL FLAG BYTE
                                1713
004.036 340                     1714  TLP.POR         DB      DFLT.LP         PORT
004.036                         1715  D.PORT          EQU     TLP.POR
                                1716
004.037 030 000                 1717  TLP.BAU         DW      DFLT.BD         [15] = 1 IF TWO STOP BITS
                                1718
004.041 006                     1719  TLP.LPI         DB      DFLT.LI         LINES/INCH
                                1720
004.042 204                     1721  TLP.WID         DB      DFLT.WD         CHARACTERS/LINE
                                1722
004.043 102                     1723  TLP.LEN         DB      DFLT.FL         FORM LENGTH
                                1724
004.044 074                     1725  TLP.LC          DB      DFLT.LC         LINE COUNT = LINES/PAGE
                                1726
004.045 001                     1727  TLP.LX          DB      DFLT.LX         LINE INDEX = LINE HEAD IS OVER
                                1728
004.046 001                     1729  TLP.CX          DB      DFLT.CX         COLUMN INDEX = COLUMN HEAD IS OVER


004.047 103 107                 1731                  DW      'GC'            DUMMY ADDRESS FOR RELOCATION
004.051                         1732                  DS      64              PATCH AREA
                                1733                  LON     G
                                1734
004.151 055 000 062             1735                  END
            000 065 000
            115 000 124
            000 127 000
            144 000 151
            000 157 000
            164 000 171
            000 174 000
            200 001 212
            001 226 001
            243 001 255
            001 267 001
            302 001 346
            001 350 001
            352 001 003
            002 033 002
            044 002 055
            002 062 002
            065 002 070
            002 073 002
```

076 002 101
002 111 002
114 002 121
002 125 002
143 002 147
002 154 002
161 002 167
002 176 002
203 002 206
002 214 002
222 002 227
002 236 002
245 002 250
002 255 002
260 002 263
002 270 002
274 002 277
002 303 002
310 002 317
002 324 002
327 002 335
002 342 002
345 002 352
002 355 002
362 002 365
002 372 002
377 002 004
003 007 003
013 003 016
003 023 003
030 003 035
003 041 003
044 003 052
003 055 003
061 003 066
003 073 003
106 003 111
003 117 003
124 003 131
003 140 003
145 003 150
003 153 003
156 003 165
003 171 003
204 003 212
003 217 003
224 003 227
003 237 003
245 003 254
003 257 003
264 003 272
003 275 003
311 003 320
003 327 003
335 003 345
003 362 003

```
                367 003 001
                004 006 004
                015 004 026
                004 000 000
ASSEMBLY COMPLETE
 1735 STATEMENTS
    0 ERRORS DETECTED
11246 BYTES FREE
```

```
$CNA    042207  727L  857   877
$DCS    042204  725L
$FST    042212  729L
$LBD    042223  735L  860
$PBF    042231  739L  830
$PBV    042234  741L  839
$SNA    042201  723L  810
$SOP    042226  737L  808
$TBLS   042215  731L
$TBRA   031076  1017  1682E
$TYPTX  031136  916   1697E
$TYPTX. 031144  1699E
$WTBLS  042220  733L
.       001354  757S  758   759   992S  993   994
.ABUSS  040024  244E
.ALARM  002136  217E
.ALEDS  040013  242E
.CHFLG  000060  70L
.CLEAN  000205  85L
.CLEAR  000055  67L
.CLEARA 000056  68L
.CLOSE  000046  60L
.CLRCO  000007  44L
.CONSL  000006  43L
.CRC    002347  225E
.CRCSUM 040027  245E
.CTC    002172  219E
.CTL2FL 040066  251E
.CTLC   000041  55L
.CTLFLG 040011  241E
.DAD    000206  86L
.DECODE 000053  65L
.DELET  000050  62L
.DISMT  000061  71L
.DLEDS  040021  243E
.DLY    000053  214E  1572
.DMNMS  000203  83L
.DMOUN  000201  81L
.DOD    003122  228E
.DUDA   003356  230E
.DSPMOD 040007  239E
.DSPROT 040006  238E
.DUMP   001374  216E
.ERROR  000057  69L
.EXIT   000000  37L
.RURN   002140  218E
.IDENT  000000  213E
.IDWRK  040002  236E
.LINK   000040  54L
.LOAD   001267  215E
.LOADD  000062  72L
.LOADO  000010  45L
.MFLAG  040010  240E
.MONMS  000202  82L
.MOUNT  000200  80L
.NAME   000054  66L
.NMIRET 040064  250E
.OPEN   000063  73L
```

```
.OPENC  000045      59L
.OPENR  000042      56L
.OPENU  000044      58L
.OPENW  000043      57L
.PCHL   002264     221E
.POSIT  000047      61L
.PRINT  000003      40L
.RCR    003260     229E
.READ   000004      41L
.REGI   040005     237E
.REGPTR 040035     248E
.RENAM  000051      63L
.RESET  000204      84L
.RNB    002331     224E
.RNP    002325     223E
.SCIN   000001      38L
.SCOUT  000002      39L
.SETTP  000052      64L
.SRS    002265     222E
.START  040000     235E
.SYSRES 000012      47L
.TICCNT 040033     247E
.TPERR  002205     220E
.TPERRX 040031     246E
.UIVEC  040037     249E
.VERS   000011      46L
.WNB    003024     227E
.WNP    003017     226E
.WRITE  000005      42L
AC.DLY  000158     608E    1571
AIO.CGN 041047     401L
AIO.CHA 041116     416L
AIO.CNT 041111     412L
AIO.CSI 041050     402L
AIO.DDA 041041     397E
AIO.DES 041055     406L
AIO.DEV 041057     407L
AIO.DIR 041062     410L
AIO.DTA 041053     405L
AIO.EOF 041113     414L
AIO.EOM 041112     413L
AIO.FLG 041043     398L
AIO.GRT 041044     399L
AIO.LGN 041051     403L
AIO.LSI 041052     404L
AIO.SPG 041046     400L
AIO.TFP 041114     415L
AIO.UNI 041061     408L
AIO.VEC 041040     396L
BAUI    000132'    858     861     865L
BAUD    000107'    856L    984
BAUDI   000002     961     983E
BELL    000007      95E
BKSP    000010      97E
BOOT.P  000001     376E
C.STX   000002      99E
C.SYN   000026      98E
CB.CLI  000100     159E    182
```

```
CR.MTL  000040  158E
CR.SPK  000200  160E
CR.SSI  000020  157E
CR2.CLI 000002  163E
CR2.ORG 000040  164E
CR2.SID 000100  165E
CR2.SSI 000001  162E
CDB.H84 000001  319E
CDB.H85 000000  318E
CN.170M 000014  200E
CN.174M 000003  199E
CN.ABO  000200  204E
CN.BAU  000100  203E
CN.MEM  000040  202E
CN.PRI  000020  201E
CND.H17 000000  206E
CND.H47 000001  208E
CND.NDI 000000  207E
CO.FLG  000001  471E
CR      000015  91E   1127  1277  1286  1416
CS.FLG  000200  472E
CSL.CHR 000001  448E
CSL.ECH 000200  445E
CSL.RAW 000004  446E
CSL.WRP 000002  447E
CTLA    000001  106E
CTLB    000002  107E
CTLC    000003  108E
CTLD    000004  109E
CTLU    000017  110E
CTLP    000020  111E
CTLQ    000021  112E
CTLS    000023  113E
CTLZ    000032  114E
CTP.2SB 000010  457E
CTP.BRM 000002  458E
CTP.BKS 000200  453E
CTP.FF  000100  454E
CTP.MLI 000040  455E
CTP.MLO 000020  456E
CTP.TAB 000001  459E
D.CON   040110  266L
D.PORT  004036  1437  1485  1715E
D.RAM   040240  269L
D.VEC   040130  268L
DC.ABT  000007  129L
DC.CLO  000006  128L
DC.LOD  000011  131L
DC.MAX  000013  133L  1014
DC.MOU  000010  130L
DC.OPR  000003  125L
DC.OPU  000005  127L
DC.OPW  000004  126L
DC.RDY  000012  132L
DC.REA  000000  122L
DC.RER  000002  124L
DC.WRI  000001  123L
DEV.DDA 000004  556L
```

```
DEV.DVG 000015      569L
DEV.DVL 000013      568L
DEV.FLG 000006      557L
DEV.JMP 000003      555L
DEV.MNU 000010      565L
DEV.MUM 000007      564L
DEV.NAM 000000      547L
DEV.RES 000002      551L
DEV.UNT 000011      566L
DEVELEN 000016      571E
DF.CLR  000376      287E
DF.EMP  000377      286E
DFLT.BD 000030      774E      1717
DFLT.CX 000001      783E      1729
DFLT.FG 000001      776E      1712
DFLT.FL 000102      779E      1723
DFLT.LC 000074      780E      1725
DFLT.LI 000006      777E      1719
DFLT.LP 000340      773E      1714
DFLT.LX 000001      782E      1727
DFLT.WD 000204      778E      1721
DIR.ALD 000025      302L
DIR.CLU 000015      295L
DIR.CRD 000023      301L
DIR.EXT 000010      290L
DIR.FGN 000020      298L
DIR.FLG 000016      296L
DIR.LGN 000021      299L
DIR.LSI 000022      300L
DIR.NAM 000000      289L
DIR.PRO 000013      291L
DIR.VER 000014      292L
DIRELEN 000027      304E       410
DIRIDL  000015      293E
DM.MR   000000      172E
DM.MW   000001      173E
DM.RR   000002      174E
DM.RW   000003      175E
DR.IM   000001      552E
DR.PR   000002      553E
DT.CH   000020      562E
DT.CR   000002      559E
DT.CW   000004      560E       749      752
DT.DD   000001      558E
DT.RN   000010      561E
DV.EL   000000      548E
DV.NU   000001      549E
DVD.CAP 000007      593L
DVD.DVD 000006      592L
DVD.ENT 002000      602E       994     1013
DVD.INP 000023      598L
DVD.MNU 000011      595L
DVD.MUM 000010      594L
DVD.SET 000022      597L
DVD.STE 000053      600E       759      801
DVD.UFL 000012      596L
DVDFLV  000307      588E       748      754
EC.CNA  000004      489L
```

```
EC.DDA  000027  508L  1062
EC.DIF  000017  500L
EC.DIW  000035  514L
EC.DNI  000045  522L
EC.DNR  000046  523L
EC.DNS  000005  490L  1046
EC.DSC  000047  524L
EC.EOF  000001  486L
EC.EOM  000002  487L
EC.FAO  000031  510L
EC.FAP  000026  507L
EC.FL   000030  509L
EC.FNF  000014  497L
EC.FNO  000011  494L
EC.FNR  000034  513L
EC.FOD  000043  520L
EC.FUC  000013  496L
EC.ICN  000016  499L
EC.IDN  000006  491L
EC.IFC  000020  501L
EC.IFN  000007  492L
EC.ILC  000003  488L
EC.ILO  000040  517L  812
EC.ILR  000012  495L  1029
EC.ILV  000037  516L  865  902
EC.IOI  000052  527L
EC.IS   000032  511L
EC.NCV  000050  525L
EC.NEM  000021  502L
EC.NOS  000051  526L
EC.NPM  000044  521L
EC.NRD  000010  493L
EC.NVM  000042  519L
EC.OTL  000053  528L
EC.RF   000022  503L
EC.UNA  000036  515L  1100  1153  1194
EC.UND  000015  498L
EC.UUN  000033  512L  816
EC.VPM  000041  518L
EC.WF   000023  504L
EC.WP   000025  506L
EC.WPV  000024  505L
ENL     000212  104E  927
ESC     000033  102E  1415  1416
F.FORM  000001  769E  776  941  941  945  1203
FF      000014  105E  1215  1241  1260
FLAG    042231  830E  978
FLAGI   000000  941  945  977E
H84IO   000000    1E  1442  1488  1524
HELP    000204  916L  990
HELPI   000004  967  989E
I.CONFL 000004  474E  475
I.CONTY 000001  461E  462
I.CONWI 000003  467E  468
I.CSLMD 000000  450E
I.CUSOR 000002  464E  465
I8250   003302  1116  1539E
IN      004012  1210  1363  1445  1449  1495  1570  1574  1633E
```

```
OVL.UCS 000200       346E
PIC.COD 000006       540L     590
PIC.ID  000000       535L
PIC.LEN 000002       537L
PIC.PTR 000004       538L
PRCTAB  001342'      806      975L    977     980     983     986     989
QUOTE   000047       100E
ROMBOOT 030000       261E
RUBOUT  000177        96E     1297
S.BAUD  040344       320L
S.BDA   041120       418L
S.BOOTF 041034       375L
S.CAADR 040333       478L     1160    1356    1492
S.CACC  041006       359L
S.CCTAB 040335       479L
S.CDB   040343       317L
S.CFWA  040352       327L
S.CODE  041007       360L
S.CONFL 040332       476L
S.CONTY 040327       463L
S.CONWI 040331       469L
S.CSLMD 040326       451L     462     465     468     475
S.CUSOR 040330       466L
S.DATC  040310       432L
S.DATE  040277       431L
S.DCS   041033       373L
S.DDDTA 040366       338L
S.DDGRP 040364       335L
S.DDLDA 040360       333L
S.DDLEN 040362       334L
S.DDOPC 040370       339L
S.DFWA  040354       328L
S.DIREA 041016       367L
S.DLINK 040346       325L
S.FASER 041013       366L
S.FCI   041021       368L
S.GRT0  024000       257E
S.GRT1  025000       258E
S.GRT2  026000       259E
S.GUP   041027       370L
S.HIMEM 040316       434L
S.INT   040343       271L     313
S.JUMPS 041010       364L
S.MOUNT 041032       372L
S.OFWA  040350       326L
S.OMAX  040324       440L
S.OSN   041004       355L
S.OVLE  041000       352L
S.OVLFL 040371       348L
S.OVLS  040376       351L
S.OVSTK 041035       380L
S.RFWA  040358       329L
S.SCI   041024       369L
S.SCR   041121       419L
S.SDD   041010       365L
S.SOVR  041146       273L     275
S.SSN   041002       354L
S.SYSM  040320       436L
```

```
S.TIME  040312  433L
S.UCSF  040372  349L
S.UCSL  040374  350L
S.USRM  040322  438L
S.VAL   040277  270L  429
SC.ACE  000350  607E
SC.UART 000372  676E
SETI    000103' 803   816L
SETNTR  000053' 800E
STACK   042200  277E
STACKL  001032  275E
SYDD    040130  267E
SYSCALL 000377   30E
TAB     000011  101E  1265
TLP.AS  004034' 1106  1198  1200  1337  1710E
TLP.BAU 004037' 862   1115  1717L
TLP.CX  004046' 1109  1246  1269  1281  1306  1311  1313  1729L
TLP.FLG 004035' 942   946   1202  1712L
TLP.LC  004044' 953   1254  1725L
TLP.LEN 004043' 950   1402  1723L
TLP.LPI 004041' 896   1391  1719L
TLP.LX  004045' 1108  1245  1257  1290  1292  1727L
TLP.POR 004036' 956   1114  1118  1206  1360  1714L 1715
TLP.UNA 004034' 1706E
TLP.UNT 004034' 1708L 1710
TLP.WID 004042' 959   1302  1721L
UC.2SB  000004  633E  1565  1566
UC.5BW  000000  629E
UC.6BW  000001  630E
UC.7BW  000002  631E
UC.8BW  000003  632E  1567
UC.BI   000020  652E
UC.CTS  000020  661E  1364
UC.DCS  000001  657E
UC.DDR  000002  658E
UC.DLA  000200  638E  1551
UC.DR   000001  648E  1446
UC.DRL  000010  660E
UC.DSR  000040  662E
UC.DTR  000001  641E  1121
UC.EDA  000001  619E
UC.EPS  000020  635E
UC.FE   000010  651E
UC.IID  000006  626E
UC.IIP  000001  625E
UC.LOO  000020  645E  1548  1575
UC.MSI  000010  622E
UC.OR   000002  649E
UC.OU1  000004  643E
UC.OU2  000010  644E  1121
UC.PE   000004  650E
UC.PEN  000010  634E
UC.RI   000100  663E
UC.RLS  000200  664E
UC.RSI  000004  621E
UC.RTS  000002  642E  1121
UC.SB   000100  637E
UC.SKP  000040  636E
```

```
UC.TER  000004   659E
UC.THE  000040   653E   1211   1496
UC.TRE  000002   620E
UC.TSE  000100   654E
UCI.ER  000020   698E
UCI.IE  000002   700E
UCI.IR  000100   696E
UCI.RE  000004   699E
UCI.RO  000040   697E
UCI.TE  000001   701E
UDR     000000   673E
UMI.16X 000002   691E
UMI.1B  000100   681E
UMI.1X  000001   690E
UMI.2B  000300   683E
UMI.64X 000003   692E
UMI.HB  000200   682E
UMI.L5  000000   686E
UMI.L6  000004   687E
UMI.L7  000010   688E
UMI.L8  000014   689E
UMI.PA  000020   685E
UMI.PE  000040   684E
UNITASS 003072'  1098   1151   1193   1335E
UNT.DIS 000006   581L
UNT.FLG 000000   577L
UNT.GRT 000002   579L
UNT.GTS 000004   580L
UNT.SIZ 000010   583E
UNT.SPG 000001   578L
UO.CLK  000001   184E
UO.DDD  000002   183E
UO.HLT  000200   181E
UO.NFR  000100   182E
UR.DLL  000000   614E   1553
UR.DLM  000001   616E   1556
UR.IER  000001   618E   1544
UR.IIR  000002   624E
UR.LCR  000003   628E   1550   1560
UR.LSR  000005   647E   1208   1444   1490
UR.MCR  000004   640E   1120   1547   1573
UR.MSR  000006   656E   1362
UR.RBR  000000   610E   1448   1569
UR.THR  000000   612E   1214   1499
USERFWA 042200   278E    721
USR     000001   674E
USR.BD  000100   705E
USR.FE  000040   706E
USR.OE  000020   707E
USR.PE  000010   708E
USR.RXR 000002   710E
USR.TXE 000004   709E
USR.TXR 000001   711E
VAL     042234   839E    981
VALI    000001   949     952    955    958    980E
VERS    000040    28E
WAIT    003100'  1353E   1491
WAITO   003101'  1356L   1365
```

```
WAIT3   003126'     1358        1367L

25174 BYTES FREE
```