LENGTH OF PRG   00460

```
                                 1                IDENT     PRSTART
                                 2
                                 3 ********************************************************************************
                                 4 *                                                                              *
                                 5 *          THIS ROUTINE ALLOCATES THE DEVICE CONTROL MACROS FOR ALL             *
                                 6 *          ≠LP≠ SYMBOLS IN THE SYMBOLS BLOCK.  THE FIRST SUCH MACRO            *
                                 7 *          IS CALLED ≠PR1BLOC≠ AND IS LINKED TO THE REST OF THE                *
                                 8 *          MACROS THRU THE PRPOINT WORD IN THE DEVICE CONTROL MACROS.           *
                                 9 *                                                                              *
                                10 *          IT ALSO PLUGS THE ENTRIES IN INSTL SO THAT INTERRUPT                *
                                11 *          PROCESSING MAY OCCUR.                                               *
                                12 *                                                                              *
                                13 ********************************************************************************
                                14
                                15                INCLUDE   ↑SYSMAC
                                15+001  SYSMAC    COSY/     03          V4.1      08/17/74  0453
                                16
00001                           17        X1      EQU       1
00002                           18        X2      EQU       2
00003                           19        X3      EQU       3
00000                           20        CBI     EQU       0
00000                           21        IMPURE  EQU       0
                                22
                                23                EXT       BUILDBLK
                                24                EXT       BLOLPTAB
                                25                EXT       DISKIMAG
                                26                EXT       FINK
                                27                EXT       HARDWARE
                                28                EXT       HOLENGTH
                                29                EXT       WRITE
                                30                EXT       INSTL
                                31                EXT       LINKIT
                                32                EXT       PRFILE
                                33
00077 P                         34                ENTRY     LP.STR
00003 P                         35                ENTRY     LP.SUP
00210 P                         36                ENTRY     PR.IMAGE
                                37
                                38                HTDEF
                               203 .*****************************************************************************
                               204 .*                                                                           *
00001                          205 HTFILE    EQU       01B                 FILE                                *
00002                          206 HTLP      EQU       02B                 LINE PRINTER                        *
00003                          207 HTPUN     EQU       03B                 CARD PUNCH                          *
00004                          208 HTCR      EQU       04B                 CARD READER                         *
00005                          209 HTMT      EQU       05B                 MAGNETIC TAPE                       *
00006                          210 HTTTY     EQU       06B                 TELETYPE                            *
00007                          211 HTPLOT    EQU       07B                 X/Y PLOTTER                         *
00010                          212 HTNULL    EQU       10B                 ONLINE INCINERATOR                  *
00011                          213 HTTV      EQU       11B                 CRT DISPLAY                         *
00012                          214 HTRAF     EQU       12B                 RANDOM ACCESS FILE                  *
00013                          215 HTTASK    EQU       13B                 FUTURE INPUT FOR REMOTE BATCH       *
00014                          216 HTMSF     EQU       14B                 USER DISKPACK                       *
00015                          217 HTPTP     EQU       15B                 PAPER TAPE PUNCH                    *
00016                          218 HTMAX     EQU       16B                 (NUMBR OF HARDWARE TYPES) + 1       *
00017                          219 HTMASK    EQU       17B                 MASK FOR THE HARDWARE TYPE          *
                               220 .*                                                                           *
                               221 .*****************************************************************************
                                39                ACBLKDEF
00001                          226 LPREC     EQU       1                   NORMAL LINE PRINTER RECORDS         *
                               227 .*****************************************************************************
                               228 .*                                                                           *
00002                          229 PUNREC    EQU       LPREC+1             PUNCH RECORDS                       *
00003                          230 PLOTREC   EQU       3                   PLOTTER RECORDS                     *
00004                          231 PTPREC    EQU       4                   PAPER TAPE PUNCH RECORDS            *
00005                          232 UTLPREC   EQU       5                   200 UT LP RECORDS                   *
00006                          233 MSFTIME   EQU       6                   SECONDS OF USER DISK PACK TIME      *
                               234 .*                                                                           *
                               235 .*****************************************************************************
```

```
                     LPMACDEF
             .*                                                                        *
             .**************************************************************************
             .*                                                                        *
             .*          URBLOCK BLOCK DEFINITIONS                                     *
             .*                                                                        *
             .*                                                                        *
00000        FB         EQU       0               POINTER TO NEXT FILE BLOCK          *
00001        BLF        EQU       FB+1            COUNT OF BLOCKS IN THIS FILE        *
00002        BFBGN      EQU       BLF+1           QUARTER PAGE NUMBER OF CURRENT      *
             .*                                   512 WORD BLOCK                      *
00003        BFCPP      EQU       BFBGN+1         POINTER TO NEXT WORD TO BE          *
             .*                                   LOADED FROM THIS BLOCK.  THIS       *
             .*                                   POINTER IS RELATIVE TO THE          *
             .*                                   BEGINNING OF THE CURRENT BLOCK      *
00004        CALBAK     EQU       BFCPP+1         GO TO THIS ADDRESS WHEN BUFFER      *
             .*                                   IS DONE AFTER AN INTERRUPT          *
             .*                                   BIT23 SEZZ CALBAK                   *
00005        IMAD       EQU       CALBAK+1        LOCATION WHERE RECORD IS TO BE      *
             .*                                   PLACED OR MOVED FROM.               *
00006        LNIM       EQU       IMAD+1          MAXIMUM ALLOWABLE RECORD SIZE       *
00007        KILLFLAG   EQU       LNIM+1          STI   *,0                           *
00010        ENAD       EQU       KILLFLAG+1      ENI   BLOCK,X1                      *
00011        NJM        EQU       ENAD+1          UJP   IMPURE                        *
00012        ENIT       EQU       NJM+1           TEMP FOR INDEX 3                    *
             .*                                   IF BIT23 DEVICE MUST BE STARTED     *
             .*                                   BY OPERATOR                         *
             .*                                   IF BIT22 DO NOT PROCESS FORMS ON    *
             .*                                   THIS DEVICE                         *
             .*                                   IF BIT21 THEN STOP MACRO            *
             .*                                   IF BIT20 THEN BUFFER IS UNSAFE      *
             .*                                   BIT 19 IS A QUEUEING FLAG           *
00013        DEVBLK     EQU       ENIT+1          PTR TO 4 WORD BLOCK                 *
00014        COUNT      EQU       DEVBLK+1        COUNT OF WORDS IN RECORD            *
00015        POSI       EQU       COUNT+1         RELATIVE LOCATION IN BUFFER         *
00016        PFWORD     EQU       POSI+1          CONTENTS OF PF1                     *
00016        FORMSWRD   EQU       PFWORD                                              *
             .*                                   BIT19 SEZ WAITING FOR               *
             .*                                   OPERATOR TO READY DEVICE            *
             .*                                   BIT20 SEZ WANTS FORMS               *
             .*                                   BIT21 SEZ HAS FORMS                 *
             .*                                   BIT22 SEZ TAKE FORMS OUT            *
             .*                                   BIT23 SEZ SAME AS BIT22 BUT         *
             .*                                   DRIVER IS WAITING TO OUTPUT NEXT    *
             .*                                   FILE                                *
00017        IDENT      EQU       PFWORD+1        BCD IDENT OF THE DEVICE             *
00020        URBEXITA   EQU       IDENT+1         ENI   BLOCK,X1                      *
00021        URBEXIT    EQU       URBEXITA+1      UJP   IMPURE                        *
00022        QINGLOC    EQU       URBEXIT+1       ADDRESS TO GO TO WHEN FILES         *
             .*                                   ARE UNEQUIPPED                      *
00023        QPNT       EQU       QINGLOC+1       POINTER TO NXPTR AND LXPTR          *
00024        QEMPTY     EQU       QPNT+1          ADDRESS TO TELL DRIVER THAT IT      *
             .*                                   HAS TO MORE FILES TO OUTPUT         *
00025        STRTLOC    EQU       QEMPTY+1        ADDRESS TO TELL DRIVER TO START     *
             .*                                   FILE                                *
             .*                                                                        *
             .**************************************************************************
00026        PRSTART    EQU       STRTLOC+1       ENI   PCB,PCB                       *
             .*                                   UJP   PRINT    ENTRY FROM INTSORT   *
00030        CON        EQU       PRSTART+2       CONNECT CODE OF PRINTER             *
             .*                                   BIT23 SEZ 501                       *
             .*                                   BIT22 SEZ LOAD IMAGE BUFFER         *
             .*                                   BIT21 SEZ LOADING IMAGE BUFFER      *
             .*                                   BIT20 SEZ IMAGE HAS BEEN READ       *
             .*                                          FROM DISK                    *
             .*                                   BIT 19 SEZ 8 LINES/INCH             *
             .*                                   BIT 18 SEZ AUTO PAGE EJECT          *
             .*                                   BIT 17 SEZ TOP OF FORM IS UP        *
             .*                                   (IF SET DO NOT EJECT PAGE UNTIL     *
             .*                                   NEXT PRINT OPERATION.)              *
00031        CTLW       EQU       CON+1           NON-ZERO SEZ BUSY                   *
             .*                                   +0 SEZ NOTHING INITIATED            *
             .*                                   -0 SEZ SPOKEN FOR                   *
00032        RDYFG      EQU       CTLW+1                                              *
00033        URWORD     EQU       RDYFG+1         POINTER TO CURRENT MOVEBUFF         *
             .*                                   ROUTINE                             *
00034        SEQWORD    EQU       URWORD+1        SEQUENCE NUMBER OF                  *
             .*                                   LINE PRINTER FILE                   *
00035        PRPOINT    EQU       SEQWORD+1       POINTER TO NEXT PRINTER BLOCK       *
```

```
00036                174       IMAGEADD EQU       PRPOINT+1          POINTER TO FILE CORE BLOCK      *
                     175  .*                                         WITH IMAGE BUFFER IN IT         *
                     176  .*                                         FOR THIS PRINTER                *
                     177  .*                                         RTJ MACHERR  ERROR READING IMAGE*
00040                178       IMAGERET EQU       IMAGEADD+2         NORMAL RETURN FROM READING      *
                     179  .*                                         ENI  BLOCK,X1   IMAGE BUFFER    *
                     180  .*                                         UJP  PRIMAGE                    *
00042                181       BUFFR    EQU       IMAGERET+2
                      42
                      43
                      44
                      45
00042                 46       RECSIZE  EQU       34                 LINE PRINTER RECORDS ARE 34 WORDS
```

```
00000  14100000        48      LPX1    ENI     IMPURE,X1
00001  01000093 P      49              UJP     LP.SUP
                       50
00002  15177776        51      LP.EXIT INI     -1,X1
00003  01000000        52      LP.SUP  UJP     IMPURE
00004  40000133 P      53              STA     LPPROTO+CON             SAVE THE CONNECT CODE
00005  12000014        54              SHA     12
00006  53700000        55              TAI     X3
00007  17300007        56              ANI     7B,X3                   COMPUTE POSITION IN INSTL
00010  12000006        57              SHA     6                       FOR INTERRUPT DECODING
00011  17600070        58              ANA     70B
00012  53740000        59              IAI     X3                      LEAVE IN X3 FOR LATER
00013  47100000 P      60              STI     LPX1,X1                 SAVE X1
00014  14177777 X      61              ENI     HOLENGTH,X1             ENTER LENGTH OF THE TABLE
00015  14600002        62              ENA     HTLP
00016  14700017        63              ENQ     HTMASK
00017  13000017        64              SHAQ    15
00020  06277777 X      65              MEQ     HARDWARE,2              LOOK FOR THIS DEVICE
00021  01000000 P      66              UJP     LPX1
00022  14600000        67              ENA     0                       ALLOW USERS TO EQUIP THE DEVICE
00023  44100020 X      68              SWA     HARDWARE,X1
00024  54100000 P      69              LDI     LPX1,X1
00025  14600100        70              ENA     01*2↑6
00026  34000122 P      71              RAD     LPPROTO+IDENT           INCREMENT TO NEXT PRINTER NUMBER
00027  14200103        72              ENI     LPPROTOL-1,X2
00030  20200103 P      73              LDA     LPPROTO,X2              MOVE THE MACRO
00031  40100000        74              STA     0,X1
00032  15177776        75              INI     -1,X1
00033  02600030 P      76              IJD     *-3,X2
00034  15100001        77              INI     1,X1
00035  53100000        78              TIA     X1
00036  44100010        79              SWA     ENAD,X1                 SET UP THE  ENI PROTO,CBI
00037  44100020        80              SWA     URBEXITA,X1
00040  44100026        81              SWA     PRSTART,X1
00041  44100040        82              SWA     IMAGERET,X1
00042  15600007        83              INA     KILLFLAG                SETUP THE KILL STATUS
00043  44100007        84              SWA     KILLFLAG,X1
00044  15600017        85              INA     PRSTART-KILLFLAG
00045  44377777 X      86              SWA     INSTL,X3                SAVE INTERRUPT ADDRESS
00046  15600014        87              INA     BUFFR-PRSTART
00047  44100005        88              SWA     IMAD,X1                 PLUG THE BUFFER ADDRESS
00050  00777777 X      89              RTJ     BUILDBLK
00051  53100000        90              TIA     X1                      MACRO ADDRESS TO A
00052  14200000        91      LAST    ENI     IMPURE,X2               ENTER POINTER TO PREVIOUS BLOCK
00053  47100052 P      92              STI     LAST,X1
00054  05200001        93              ISG     1,X2                    SKIP IF NOT THE FIRST PRINTER
00055  01000060 P      94              UJP     *+3
00056  40200035        95              STA     PRPOINT,X2              LINK THIS PRINTER INTO THE QUEUE
00057  01000002 P      96              UJP     LP.EXIT
00060  14200000        97              ENI     0,X2                    THIS IS THE STANDARD PRINTER
00061  53100000        98              TIA     X1                      BLOCK ADDRESS TO A
00062  35000076 P      99              SSA     LPTABXX                 SET IN THE ACCOUNTING STUFF
00063  00777777 X     100              RTJ     BLDLPTAB
00064  25000101 P     101              LDAQ    BCDPR1                  PLUG THE CHAIN FOR THE DRIVER
00065  00777777 X     102              RTJ     LINKIT
00066  53100000       103              TIA     X1                      MACRO ADDRESS TO A
00067  15477775       104              INA,S   -2                      ALLOCATE TWO WORDS FOR QUEUE
00070  44100023       105              SWA     QPNT,X1                 POINTERS
00071  40000126 P     106              STA     LPPROTO+QPNT
00072  13077747       107              SHAQ    -24
00073  45177775       108              STAQ    -2,X1                   STORE THE QUEUE WORDS
00074  15177774       109              INI     -3,X1
00075  01000003 P     110              UJP     LP.SUP
                      111
00076  00100000       112      LPTABXX VFD     A9/LPREC,A15/0
                      113
00077  01000000       114      LP.STR  UJP     IMPURE
00100  01000077 P     115              UJP     LP.STR
                      116
00101  47510122       117      BCDPR1  BCD     2,PR1BLOC
                      118
                      119
                      120
          00103 P     121      LPPROTO EQU     *
          00103 P     122              ORGR    LPPROTO+FB
00103  00000000       123              VFD     A24/IMPURE
          00104 P     124              ORGR    LPPROTO+BLF
00104  00000000       125              VFD     A24/IMPURE
          00105 P     126              ORGR    LPPROTO+BFBGN
```

```
00105  00000000                127          VFD       A24/IMPURE
          00106 P              128          ORGR      LPPROTO+BFCPP
00106  00000000                129          VFD       A24/IMPURE
          00107 P              130          ORGR      LPPROTO+CALBAK
                               131          EXT       PRINTCB
00107  00077777                132          VFD       A9/IMPURE,A15/PRINTCB  RETURN HERE IF QUEUED
          00110 P              133          ORGR      LPPROTO+IMAD
00110  00000000                134          VFD       09/000,A15/IMPURE
          00111 P              135          ORGR      LPPROTO+LNIM
00111  00000042                136          VFD       09/000,A15/RECSIZE
          00113 P              137          ORGR      LPPROTO+ENAD
          00112 P              138          ORGR      LPPROTO+KILLFLAG
00112  47000112 P              139          STI       *,0
00113  14100103 P              140          ENI       LPPROTO,X1+CBI      ENTER BLOCK ADDRESS
          00114 P              141          ORGR      LPPROTO+NJM
00114  01000000                142          UJP       IMPURE
          00115 P              143          ORGR      LPPROTO+ENIT
00115  00000000                144          VFD       09/000,A15/IMPURE
          00117 P              145          ORGR      LPPROTO+COUNT
00117  00000000                146          VFD       A24/IMPURE
          00120 P              147          ORGR      LPPROTO+POSI
00120  00000000                148          VFD       A24/IMPURE
          00121 P              149          ORGR      LPPROTO+PFWORD
00121  00000000                150          VFD       A6/IMPURE,03/0,A15/IMPURE
          00122 P              151          ORGR      LPPROTO+IDENT
00122  47510060                152          VFD       H12/PR,A6/IMPURE,H6/
          00123 P              153          ORGR      LPPROTO+URBEXITA
00123  14100103 P              154          ENI       LPPROTO,X1+CBI
          00124 P              155          ORGR      LPPROTO+URBEXIT
00124  01000000                156          UJP       IMPURE
          00125 P              157          ORGR      LPPROTO+QINGLOC
                               158          EXT       PRFILE
00125  01077777 X              159          UJP       PRFILE
          00126 P              160          ORGR      LPPROTO+QPNT
00126  00000000                161          00        IMPURE
          00127 P              162          ORGR      LPPROTO+QEMPTY
                               163          EXT       PRQEMPTY
00127  01077777 X              164          UJP       PRQEMPTY
          00130 P              165          ORGR      LPPROTO+STRTLOC
                               166          EXT       PRQING
00130  01077777 X              167          UJP       PRQING
          00131 P              168          ORGR      LPPROTO+PRSTART
00131  14100103 P              169          ENI       LPPROTO,X1+CBI      ENTER HERE FROM INTSORT
                               170          EXT       PRINT
00132  01077777 X              171          UJP       PRINT               JUMP INTO THE DRIVER
          00133 P              172          ORGR      LPPROTO+CON
00133  00000000                173          VFD       A9/IMPURE,A15/IMPURE
          00134 P              174          ORGR      LPPROTO+CTLW
00134  00000000                175          VFD       A24/IMPURE
          00135 P              176          ORGR      LPPROTO+RDYFG
00135  77777777                177          VFD       A24/-IMPURE
          00136 P              178          ORGR      LPPROTO+URWORD
                               179          EXT       URBLOKI
00136  01077777 X              180          UJP       URBLOKI,IMPURE
          00137 P              181          ORGR      LPPROTO+SEQWORD
00137  00000000                182          VFD       A24/IMPURE
          00140 P              183          ORGR      LPPROTO+PRPOINT
00140  00000000                184          00        IMPURE
          00141 P              185          ORGR      LPPROTO+IMAGEADD
00141  00000000                186          VFD       A24/IMPURE
          00142 P              187          ORGR      LPPROTO+IMAGERET-1
                               188          EXT       MACHERR
00142  00777777 X              189          RTJ       MACHERR
00143  14100103 P              190          ENI       LPPROTO,X1+CBI
                               191          EXT       PRIMAGE
00144  01077777 X              192          UJP       PRIMAGE
          00145 P              193          ORGR      LPPROTO+BUFFR
00145                          194          BSS       RECSIZE
          00104                195  LPPROTOL EQU      *-LPPROTO
```

```
                                                 198  *****************************************************************************
                                                 199  *                                                                           *
                                                 200  *         THIS CODE WRITES THE 512 IMAGE BUFFER OUT ONTO MASS STORAGE.      *
                                                 201  *                                                                           *
                                                 202  *         IT IS READ BACK IN BY THE PRINTER DRIVER WHENEVER IT IS            *
                                                 203  *         NEEDED.                                                           *
                                                 204  *                                                                           *
                                                 205  *****************************************************************************
                                                 206  PRIMEX   DINT
00207  77730000                                  207  PR.IMAGE UJP      IMPURE
00210  01000000                                  208           SCHA     DISKIMAG          SAVE THE DISK ADDRESS
00211  46077777 X                                209           SHA      -17               CHECK FOR 17 BIT DISK ADDRESS
00212  12077756                                  210           ASE,S    0                 SKIP OF OK
00213  04400000                                  211           HLT      *
00214  00000214 P                                212           ENA      IMAGBUF           FIND OUT WHERE WE ARE LOCATED IN
00215  14600240 P                                213           SHAQ     -11               MEMORY
00216  13077764                                  214           TAI      X2
00217  53600000                                  215           PFA      0,X2
00220  77654000                                  216           SHA      -2                FORM PAGE ADDRESS
00221  12077775                                  217           SHAQ     -24+11
00222  13077762                                  218           ECHA     377777B           GET THE DISK ADDRESS AGAIN
00223  11377777        77777 3                   219           LPA      DISKIMAG
00224  37000211 X                                220           ENI      IMAGBUFL,X1       ENTER LENGTH OF BUFFER
00225  14100220                                  221           ENI      WRITE,X2
00226  14277777 X                                222           ENI      PRIM06,X3         ENTER RETURN ADDRESS
00227  14300236 P                                223           RTJ      FINK              WRITE OUT THE BUFFER
00230  00777777 X                                224           EINT                       ALLOW THE DISK DRIVER TO WORK
00231  77740000                                  225  PRIM04   ISE      IMPURE+1,0        SKIP IF TRANSFER IS DONE
00232  04000001                                  226           UJP      *-1
00233  01000232 P                                227           UJP      PRIMEX
00234  01000207 P                                228
                                                 229           HLT      *                 FATAL WRITE ERROR
00235  00000235 P                                230  PRIM06   STI      PRIM04,0
00236  47000232 P                                231           UJP      0,X3
00237  01300000
```

```
                                 234 *****************************************************************************
                                 235 *                                                                           *
                                 236 *          IMAGE BUFFER FOR THE 512 WITH 501 COMPATABLE CHAIN               *
                                 237 *          THERE ARE 48 CHARACTERS IN EACH MAJOR GROUP ON THE CHAIN         *
                                 238 *                                                                           *
                                 239 *****************************************************************************
                                 241
                                 242
                    00240 P      243  IMAGBUF  EQU     *                  START OF 512 IMAGE BUFFER
00240  00000001                  244           OCT     00000001           0 1
00241  00020003                  245           OCT     00020003           2 3
00242  00040005                  246           OCT     00040005           4 5
00243  00060007                  247           OCT     00060007           6 7
00244  00220071                  248           OCT     00220071           8 Z
00245  00730061                  249           OCT     00730061           , /
00246  00100011                  250           OCT     00100011           8 9
00247  00210023                  251           OCT     00210023           A C
00250  00740027                  252           OCT     00740027           ( G
00251  00300034                  253           OCT     00300034           H )
00252  00510031                  254           OCT     00510031           R I
00253  00260043                  255           OCT     00260043           F L
00254  00440045                  256           OCT     00440045           M N
00255  00460047                  257           OCT     00460047           O P
00256  00170016                  258           OCT     00170016           [ %
00257  00360072                  259           OCT     00360072           ¬ ]
00260  00240064                  260           OCT     00240064           D U
00261  00620063                  261           OCT     00620063           S T
00262  00650066                  262           OCT     00650066           V W
00263  00670070                  263           OCT     00670070           X Y
00264  00200040                  264           OCT     00200040           + -
00265  00330025                  265           OCT     00330025           . E
00266  00410042                  266           OCT     00410042           J K
00267  00500054                  267           OCT     00500054           Q *
                                 268
00270  00000001                  269           OCT     00000001           0 1
00271  00020003                  270           OCT     00020003           2 3
00272  00040005                  271           OCT     00040005           4 5
00273  00060007                  272           OCT     00060007           6 7
00274  00530075                  273           OCT     00530075           $ ≠
00275  00140013                  274           OCT     00140013           ↵ =
00276  00100011                  275           OCT     00100011           8 9
00277  00210023                  276           OCT     00210023           A C
00300  00220071                  277           OCT     00220071           B Z
00301  00730061                  278           OCT     00730061           , /
00302  00510031                  279           OCT     00510031           R I
00303  00260043                  280           OCT     00260043           F L
00304  00440045                  281           OCT     00440045           M N
00305  00460047                  282           OCT     00460047           O P
00306  00740027                  283           OCT     00740027           ( G
00307  00300034                  284           OCT     00300034           H )
00310  00240064                  285           OCT     00240064           D U
00311  00620063                  286           OCT     00620063           S T
00312  00550056                  287           OCT     00550056           ↑ ↓
00313  00770052                  288           OCT     00770052           ^ -
00314  00200040                  289           OCT     00200040           + -
00315  00330025                  290           OCT     00330025           . E
00316  00650066                  291           OCT     00650066           V W
00317  00670070                  292           OCT     00670070           X Y
                                 293
00320  00000001                  294           OCT     00000001           0 1
00321  00020003                  295           OCT     00020003           2 3
00322  00040005                  296           OCT     00040005           4 5
00323  00060007                  297           OCT     00060007           6 7
00324  00410042                  298           OCT     00410042           J K
00325  00500054                  299           OCT     00500054           Q *
00326  00100011                  300           OCT     00100011           8 9
00327  00210023                  301           OCT     00210023           A C
00330  00150035                  302           OCT     00150035           ≤ ≥
00331  00320057                  303           OCT     00320057           < >
00332  00510031                  304           OCT     00510031           R I
00333  00260043                  305           OCT     00260043           F L
00334  00440045                  306           OCT     00440045           M N
00335  00460047                  307           OCT     00460047           O P
00336  00220071                  308           OCT     00220071           B Z
00337  00730061                  309           OCT     00730061           , /
00340  00240064                  310           OCT     00240064           D U
00341  00620063                  311           OCT     00620063           S T
```

```
00342  00740027          312          OCT     00740027          ( G
00343  00300034          313          OCT     00300034          H )
00344  00200040          314          OCT     00200040          + -
00345  00330025          315          OCT     00330025          . E
00346  00120037          316          OCT     00120037          : ;
00347  00760013          317          OCT     00760013          = =
                         318
00350  00000001          319          OCT     00000001          0 1
00351  00020003          320          OCT     00020003          2 3
00352  00040005          321          OCT     00040005          4 5
00353  00060007          322          OCT     00060007          6 7
00354  00650066          323          OCT     00650066          V W
00355  00670070          324          OCT     00670070          X Y
00356  00100011          325          OCT     00100011          8 9
00357  00210023          326          OCT     00210023          A C
00360  00410042          327          OCT     00410042          J K
00361  00500054          328          OCT     00500054          Q *
00362  00510031          329          OCT     00510031          R I
00363  00260043          330          OCT     00260043          F L
00364  00440045          331          OCT     00440045          M N
00365  00460047          332          OCT     00460047          O P
00366  00170016          333          OCT     00170016          [ %
00367  00360072          334          OCT     00360072          J U
00370  00240064          335          OCT     00240064          D U
00371  00620063          336          OCT     00620063          S T
00372  00220071          337          OCT     00220071          B Z
00373  00730061          338          OCT     00730061          , /
00374  00200040          339          OCT     00200040          + -
00375  00330025          340          OCT     00330025          . E
00376  00740027          341          OCT     00740027          ( G
00377  00300034          342          OCT     00300034          H )
                         343
00400  00000001          344          OCT     00000001          0 1
00401  00020003          345          OCT     00020003          2 3
00402  00040005          346          OCT     00040005          4 5
00403  00060007          347          OCT     00060007          6 7
00404  00530075          348          OCT     00530075          $ >
00405  00140013          349          OCT     00140013          ≠ =
00406  00100011          350          OCT     00100011          8 9
00407  00210023          351          OCT     00210023          A C
00410  00650066          352          OCT     00650066          V W
00411  00670070          353          OCT     00670070          X Y
00412  00510031          354          OCT     00510031          R I
00413  00260043          355          OCT     00260043          F L
00414  00440045          356          OCT     00440045          M N
00415  00460047          357          OCT     00460047          O P
00416  00410042          358          OCT     00410042          J K
00417  00500054          359          OCT     00500054          Q *
00420  00240064          360          OCT     00240064          D U
00421  00620063          361          OCT     00620063          S T
00422  00550056          362          OCT     00550056          ↑ ↓
00423  00770052          363          OCT     00770052          ^ v
00424  00200040          364          OCT     00200040          + -
00425  00330025          365          OCT     00330025          . E
00426  00220071          366          OCT     00220071          B Z
00427  00730061          367          OCT     00730061          , /
                         368
00430  00000001          369          OCT     00000001          0 1
00431  00020003          370          OCT     00020003          2 3
00432  00040005          371          OCT     00040005          4 5
00433  00060007          372          OCT     00060007          6 7
00434  00740027          373          OCT     00740027          ( G
00435  00300034          374          OCT     00300034          H )
00436  00100011          375          OCT     00100011          8 9
00437  00210023          376          OCT     00210023          A C
00440  00150035          377          OCT     00150035          ≤ ≥
00441  00320057          378          OCT     00320057          < >
00442  00510031          379          OCT     00510031          R I
00443  00260043          380          OCT     00260043          F L
00444  00440045          381          OCT     00440045          M N
00445  00460047          382          OCT     00460047          O P
00446  00650066          383          OCT     00650066          V W
00447  00670070          384          OCT     00670070          X Y
00450  00240064          385          OCT     00240064          D U
00451  00620063          386          OCT     00620063          S T
00452  00410042          387          OCT     00410042          J K
00453  00500054          388          OCT     00500054          Q *
00454  00200040          389          OCT     00200040          + -
00455  00330025          390          OCT     00330025          . E
```

```
00456  00120037                391                OCT     00120037          ; ;
00457  00760013                392                OCT     00760013
                               393
            00220              394    IMAGBUFL    EQU     *-IMAGBUF         LENGTH OF IMAGE BUFFER
                               395                END
```

NO LINES WITH ERRORS

```
   BCOPR1          00101P      117      101 00064P
   BF3GN           00002        13       15 00000P      126 00105P
   BFCPP           00003        15       19 00000P      128 00106P
   BLDLPTAB      X              24      100 00063P
   BLF             00001        12       13 00000P      124 00104P
   BUFFR           00042       181      193 00145P       87 00046P
   BUILDBLK      X              23       89 00050P
   CALBAK          00004        19       22 00000P      130 00107P
   CBI             00000        20      140 00113P      154 00123P      169 00131P      190 00143P
   CON             00030       154      165 00000P      172 00133P       53 00004P
   COUNT           00014        37       38 00000P      145 00116P
   CTLW            00031       165      168 00000P      174 00134P
   DEVBLK          00013        36       37 00000P
   DISKIMAG      X              25      208 00211P      219 00224P
   ENAD            00010        26       27 00000P      137 00112P       79 00036P
   ENIT            00012        28       36 00000P      143 00115P
   FB              00000        11       12 00000P      122 00103P
   FINK          X              26      223 00230P
 * FORMSWRD        00016        40
   HARDWARE      X              27       65 00020P       68 00023P
   HDLENGTH      X              28       61 00014P
 * HTCR            00004       208
 * HTFILE          00001       205
   HTLP            00002       206       62 00015P
   HTMASK          00017       219       63 00016P
 * HTMAX           00016       218
 * HTMSF           00014       216
 * HTMT            00005       209
 * HTNULL          00010       212
 * HTPLOT          00007       211
 * HTPTP           00015       217
 * HTPUN           00003       207
 * HTRAF           00012       214
 * HTTASK          00013       215
 * HTTTY           00006       210
 * HTTV            00011       213
   IDENT           00017        49       50 00000P      151 00122P       71 00026P
   IMAD            00005        22       24 00000P      133 00110P       88 00047P
   IMAGBUF         00240P      243      394 00460P      212 00215P
   IMAGBUFL        00220       394      220 00225P
   IMAGEADD        00036       174      178 00000P      185 00141P
   IMAGERET        00040       178      181 00000P      187 00142P       82 00041P
   IMPURE          00000        21       48 00000P       52 00003P       91 00052P      114 00077P      123 00103P      125 00104P
                                        127 00105P      129 00106P      132 00107P      134 00110P      142 00114P      144 00115P
                                        146 00117P      148 00120P      150 00121P      150 00121P      152 00122P      156 00124P
                                        161 00126P      173 00133P      173 00133P      175 00134P      177 00135P      180 00136P
                                        182 00137P      184 00140P      186 00141P      207 00210P      225 00232P
   INSTL         X              30       86 00045P
   KILLFLAG        00007        25       26 00000P      138 00113P       83 00042P       84 00043P       85 00044P
   LAST            00052P       91       92 00053P
   LINKIT        X              31      102 00065P
   LNIM            00006        24       25 00000P      135 00111P
   LP.EXIT         00002P       51       96 00057P
   LP.STR    E     00077P      114       34 00000P      115 00100P
   LP.SUP    E     00003P       52       35 00000P       49 00001P      110 00075P
   LPPROTO         00103P      121      122 00103P      124 00104P      126 00105P      128 00106P      130 00107P      133 00110P
                                        135 00111P      137 00112P      138 00113P      141 00114P      143 00115P      145 00116P
                                        147 00120P      149 00121P      151 00122P      153 00123P      155 00124P      157 00125P
                                        160 00126P      162 00127P      165 00130P      168 00131P      172 00133P      174 00134P
                                        176 00135P      178 00136P      181 00137P      183 00140P      185 00141P      187 00142P
                                        193 00145P      195 00207P       53 00004P       71 00026P       73 00030P      106 00071P
                                        140 00113P      154 00123P      169 00131P      190 00143P
   LPPROTOL        00104       195       72 00027P
   LPREC           00001       226      229 00000P      112 00076P
   LPTABXX         00076P      112       99 00062P
   LPX1            00000P       48       60 00013P       66 00021P       69 00024P
   MACHERR       X             188      189 00142P
 * MSFTIME         00006       233
   NJN             00011        27       28 00000P      141 00114P
   PFWORD          00016        39       40 00000P       49 00000P      149 00121P
 * PLOTREC         00003       230
   POSI            00015        38       39 00000P      147 00120P
   PR.IMAGE  E     00210P      207       36 00000P
   PRFILE        X              32      158 00125P      159 00125P
   PRIM04          00232P      225      230 00236P
   PRIM06          00236P      230      222 00227P
   PRIMAGE       X             191      192 00144P
   PRIMEX          00207P      206      227 00234P
   PRINT         X             170      171 00132P
```

```
   PRINTCB      X                131       132 00107P
   PRPOINT        00035          173       174 00000P       183 00140P        95 00056P
   PRQEMPTY     X                163       164 00127P
   PRQING       X                166       167 00130P
   PRSTART        00026          152       154 00000P       168 00131P        81 00040P        85 00044P        87 00046P
*  PTPREC         00004          231
*  PUNREC         00002          229
   QEMPTY         00024           55        57 00000P       162 00127P
   QINGLOC        00022           52        54 00000P       157 00125P
   QPNT           00023           54        55 00000P       160 00126P       105 00070P       106 00071P
   RDYFG          00032          168       169 00000P       176 00135P
   RECSIZE        00042           46       194 00145P       136 00111P
   SEQWORD        00034          171       173 00000P       181 00137P
   STRTLOC        00025           57       152 00000P       165 00130P
   URBEXIT        00021           51        52 00000P       155 00124P
   URBEXITA       00020           50        51 00000P       153 00123P        80 00037P
   URBLOKI      X                179       180 00136P
   URWORD         00033          169       171 00000P       178 00136P
*  UTLPREC        00005          232
   WRITE        X                 29       221 00226P
   X1             00001           17        48 00000P        51 00002P        60 00013P        61 00014P        68 00023P        69 00024P
                                            74 00031P        75 00032P        77 00034P        78 00035P        79 00036P        80 00037P
                                            81 00040P        82 00041P        84 00043P        88 00047P        90 00051P        92 00053P
                                            98 00061P       103 00066P       105 00070P       108 00073P       109 00074P       140 00113P
                                           154 00123P       169 00131P       190 00143P       220 00225P
   X2             00002           18        72 00027P        73 00030P        76 00033P        91 00052P        93 00054P        95 00056P
                                            97 00060P       214 00217P       215 00220P       221 00226P
   X3             00003           19        55 00006P        56 00007P        59 00012P        86 00045P       222 00227P       231 00237P
```

LENGTH OF PRG   00103

```
                                 1                IDENT     PUNSTART
                                 2
                                 3 ********************************************************************************
                                 4 *                                                                              *
                                 5 *          THIS ROUTINE ALLOCATES A BLOCK OF CORE (CALLED PUNBLOC)             *
                                 6 *          TO BE USED AS THE DEVICE CONTROL MACRO FOR THE PUNCH                *
                                 7 *          WHEN INITIAL FINDS A PUN SYMBOL IN THE SYMBOL BLOCK                 *
                                 8 *                                                                              *
                                 9 *          IT ALSO PLUGS THE ENTRY IN INSTL SO THAT PUNCH INTERRUPTS           *
                                10 *          CAN BE PROCESSED AND STORES THE PUNCH CONNECT CODE                  *
                                11 *          INTO THE PUNCH DRIVER                                               *
                                12 *                                                                              *
                                13 ********************************************************************************
                                14
                                15                INCLUDE   ↑SYSMAC
                                15+001  SYSMAC    COSY/     03          V4.1      08/17/74  0453
                                16
00001                           17        X1      EQU       1
00002                           18        X2      EQU       2
00003                           19        X3      EQU       3
00000                           20        CBI     EQU       0
00000                           21        IMPURE  EQU       0
                                22
                                23                EXT       BUILDBLK
                                24                EXT       HARDWARE
                                25                EXT       HDLENGTH
                                26                EXT       INSTL
                                27                EXT       LINKIT
                                28                EXT       PNINT
                                29                EXT       PUNCON
                                30
00047 P                         31                ENTRY     PUN.STR
00001 P                         32                ENTRY     PUN.SUP
                                33
                                34                HTDEF
                               203        .*********************************************************************
                               204        .*                                                                   *
00001                          205        HTFILE  EQU       01B         FILE                                  *
00002                          206        HTLP    EQU       02B         LINE PRINTER                          *
00003                          207        HTPUN   EQU       03B         CARD PUNCH                            *
00004                          208        HTCR    EQU       04B         CARD READER                           *
00005                          209        HTMT    EQU       05B         MAGNETIC TAPE                         *
00006                          210        HTTTY   EQU       06B         TELETYPE                              *
00007                          211        HTPLOT  EQU       07B         X/Y PLOTTER                           *
00010                          212        HTNULL  EQU       10B         ONLINE INCINERATOR                    *
00011                          213        HTTV    EQU       11B         CRT DISPLAY                           *
00012                          214        HTRAF   EQU       12B         RANDOM ACCESS FILE                    *
00013                          215        HTTASK  EQU       13B         FUTURE INPUT FOR REMOTE BATCH         *
00014                          216        HTMSF   EQU       14B         USER DISKPACK                         *
00015                          217        HTPTP   EQU       15B         PAPER TAPE PUNCH                      *
00016                          218        HTMAX   EQU       16B         (NUMBR OF HARDWARE TYPES) + 1         *
00017                          219        HTMASK  EQU       17B         MASK FOR THE HARDWARE TYPE            *
                               220        .*                                                                   *
                               221        .*********************************************************************
```