```
LENGTH OF  PRG         00103
                                  IDENT     PUNSTART

                       *****************************************************************
                       *                                                               *
                       *          THIS ROUTINE ALLOCATES A BLOCK OF CORE (CALLED PUNBLOC)  *
                       *          TO BE USED AS THE DEVICE CONTROL MACRO FOR THE PUNCH  *
                       *          WHEN INITIAL FINDS A PUN SYMBOL IN THE SYMBOL BLOCK  *
                       *                                                               *
                       *          IT ALSO PLUGS THE ENTRY IN INSTL SO THAT PUNCH INTERRUPTS  *
                       *          CAN BE PROCESSED AND STORES THE PUNCH CONNECT CODE   *
                       *          INTO THE PUNCH DRIVER                                *
                       *                                                               *
                       *****************************************************************

                                  INCLUDE   ↑SYSMAC
                       SYSMAC     COSY/     03         V4.1       08/17/74  0453

        00001          X1         EQU       1
        00002          X2         EQU       2
        00003          X3         EQU       3
        00000          CBI        EQU       0
        00000          IMPURE     EQU       0

                                  EXT       BUILDBLK
                                  EXT       HARDWARE
                                  EXT       HDLENGTH
                                  EXT       INSTL
                                  EXT       LINKIT
                                  EXT       PNINT
                                  EXT       PUNCON

        00047 P                   ENTRY     PUN.STR
        00001 P                   ENTRY     PUN.SUP

                                  HTDEF
                       .****************************************************************
                       .*                                                              *
        00001          HTFILE     EQU       01B                 FILE                   *
        00002          HTLP       EQU       02B                 LINE PRINTER           *
        00003          HTPUN      EQU       03B                 CARD PUNCH             *
        00004          HTCR       EQU       04B                 CARD READER            *
        00005          HTMT       EQU       05B                 MAGNETIC TAPE          *
        00006          HTTTY      EQU       06B                 TELETYPE               *
        00007          HTPLOT     EQU       07B                 X/Y PLOTTER            *
        00010          HTNULL     EQU       10B                 ONLINE INCINERATOR     *
        00011          HTTV       EQU       11B                 CRT DISPLAY            *
        00012          HTRAF      EQU       12B                 RANDOM ACCESS FILE     *
        00013          HTTASK     EQU       13B                 FUTURE INPUT FOR REMOTE BATCH  *
        00014          HTMSF      EQU       14B                 USER DISKPACK          *
        00015          HTPTP      EQU       15B                 PAPER TAPE PUNCH       *
        00016          HTMAX      EQU       16B                 (NUMBR OF HARDWARE TYPES) + 1  *
        00017          HTMASK     EQU       17B                 MASK FOR THE HARDWARE TYPE  *
                       .*                                                              *
                       .****************************************************************
```

```
                 URBDEF
      .*                                                                *
      .******************************************************************
      .*                                                                *
      .*         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                          *
      .*                                                                *
      .******************************************************************

00050 RECSIZE    EQU       40             MAX SIZE FOR A BINARY CARD
```

```
00000  14100000          41    PUNX1    ENI     IMPURE,X1
00001  01000000          42    PUN.SUP  UJP     IMPURE
00002  44377777  X       43             SWA     PUNCON              SAVE THE PUNCH CONNECT CODE IN
00003  12000014          44             SHA     12                  THE DRIVER
00004  53700000          45             TAI     X3
00005  17300007          46             ANI     7B,X3               COMPUTE POSITION IN INSTL
00006  12000006          47             SHA     6                   FOR INTERRUPT DECODING
00007  17600070          48             ANA     70B
00010  53740000          49             IAI     X3
00011  47100000  P       50             STI     PUNX1,X1            SAVE X1
00012  14177777  X       51             ENI     HDLENGTH,X1         ENTER LENGTH OF THE TABLE
00013  14600003          52             ENA     HTPUN
00014  14700017          53             ENQ     HTMASK
00015  13000017          54             SHAQ    15
00016  06277777  X       55             MEQ     HARDWARE,2          LOOK FOR THIS DEVICE
00017  01000000  P       56             UJP     PUNX1               THEY DONT WANT THE PUNCH
00020  14600000          57             ENA     0                   ALLOW USERS TO EQUIP THE
00021  44100016  X       58             SWA     HARDWARE,X1         DEVICE
00022  54100000  P       59             LDI     PUNX1,X1
00023  14677777  X       60             ENA     PNINT
00024  44377777  X       61             SWA     INSTL,X3
00025  14200027          62             ENI     PUNPROTL-1,X2
00026  20200053  P       63             LDA     PUNPROTO,X2         MOVE THE MACRO
00027  40100000          64             STA     0,X1
00030  15177776          65             INI     -1,X1
00031  02600026  P       66             IJD     *-3,X2
00032  15100001          67             INI     1,X1
00033  53100000          68             TIA     X1
00034  44100010          69             SWA     ENAD,X1             SET UP THE  ENI PROTO,CBI
00035  44100020          70             SWA     URBEXITA,X1
00036  15600007          71             INA     KILLFLAG            SETUP THE KILL STATUS
00037  44100007          72             SWA     KILLFLAG,X1
00040  15400017          73             INA,S   QWORDS-KILLFLAG     SET UP THE QUEUEING POINTERS
00041  44100023          74             SWA     QPNT,X1
00042  44100027          75             SWA     QWORDS+1,X1
00043  00777777  X       76             RTJ     BUILDBLK
00044  25000051  P       77             LDAQ    BCDPUN              PLUG THE CHAIN FOR THE DRIVER
00045  00777777  X       78             RTJ     LINKIT
00046  02500001  P       79             IJD     PUN.SUP,X1          EXIT
                         80
                         81
00047  01000000          82    PUN.STR  UJP     IMPURE
00050  01000047  P       83             UJP     PUN.STR
                         84
00051  47644522          85    BCDPUN   BCD     2,PUNBLOC
```

```
                 00053 P   PUNPROTO EQU    *
                 00053 P            ORGR   PUNPROTO+FB
   00053  00000000                  VFD    A24/IMPURE
                 00054 P            ORGR   PUNPROTO+BLF
   00054  00000000                  VFD    A24/IMPURE
                 00055 P            ORGR   PUNPROTO+BFBGN
   00055  00000000                  VFD    A24/IMPURE
                 00056 P            ORGR   PUNPROTO+BFCPP
   00056  00000000                  VFD    A24/IMPURE
                 00057 P            ORGR   PUNPROTO+CALBAK
                                    EXT    PUNCB
   00057  00077777                  VFD    A9/IMPURE,A15/PUNCB  RETURN HERE IF QUEUED
                 00060 P            ORGR   PUNPROTO+IMAD
   00060  00000000                  VFD    09/000,A15/IMPURE
                 00061 P            ORGR   PUNPROTO+LNIM
   00061  00000050                  VFD    09/000,A15/RECSIZE
                 00062 P            ORGR   PUNPROTO+KILLFLAG
   00062  47000062 P                STI    *,0
   00063  14100053 P                ENI    PUNPROTO,X1+CBI      ENTER BLOCK ADDRESS
                 00064 P            ORGR   PUNPROTO+NJM
   00064  01000000                  UJP    IMPURE
                 00065 P            ORGR   PUNPROTO+ENIT
   00065  00000000                  VFD    09/000,A15/IMPURE
                 00067 P            ORGR   PUNPROTO+COUNT
   00067  00000000                  VFD    A24/IMPURE
                 00070 P            ORGR   PUNPROTO+POSI
   00070  00000000                  VFD    A24/IMPURE
                 00071 P            ORGR   PUNPROTO+PFWORD
   00071  00000000                  VFD    A6/IMPURE,03/0,A15/IMPURE
                 00072 P            ORGR   PUNPROTO+IDENT
   00072  47644560                  BCD    1,PUN
                 00073 P            ORGR   PUNPROTO+URBEXITA
   00073  14100053 P                ENI    PUNPROTO,X1+CBI
                 00074 P            ORGR   PUNPROTO+URBEXIT
   00074  01000000                  UJP    IMPURE
                 00075 P            ORGR   PUNPROTO+QINGLOC
                                    EXT    URBLOKQ
   00075  01077777 X                UJP    URBLOKQ
                 00076 P            ORGR   PUNPROTO+QPNT
   00076  00000000                  00     IMPURE
                 00077 P            ORGR   PUNPROTO+QEMPTY
   00077  01200000                  UJP    0,X2
                 00100 P            ORGR   PUNPROTO+STRTLOC
                                    EXT    PNFILE
   00100  01077777 X                UJP    PNFILE
                 00026     QWORDS   EQU    *-PUNPROTO
   00101  00000000                  00     IMPURE               POINTER TO NEXT FILE
   00102  00000000                  00     IMPURE               POINTER TO LAST FILE
                 00030     PUNPROTL EQU    *-PUNPROTO
                                    END

      NO LINES WITH ERRORS
```

```
   BCDPUN          00051P        85        77 00044P
   BFBCN           00002         13        15 00000P        92 00055P
   BFCPP           00003         15        19 00000P        94 00056P
   BLF             00001         12        13 00000P        90 00054P
   BUILDBLK    X                 23        76 00043P
   CALBAK          00004         19        22 00000P        96 00057P
   CBI             00000         20       105 00063P       119 00073P
   COUNT           00014         37        38 00000P       110 00066P
   DEVBLK          00013         36        37 00000P
   ENAD            00010         26        27 00000P        69 00034P
   ENIT            00012         28        36 00000P       108 00065P
   FB              00000         11        12 00000P        88 00053P
 * FORMSNRD        00016         40
   HARDWARE    X                 24        55 00016P        58 00021P
   HDLENGTH    X                 25        51 00012P
 * HTCR            00004        208
 * HTFILE          00001        205
 * HTLP            00002        206
   HTMASK          00017        219        53 00014P
 * HTMAX           00016        218
 * HTMSF           00014        216
 * HTMT            00005        209
 * HTNULL          00010        212
 * HTPLOT          00007        211
 * HTPTP           00015        217
   HTPUN           00003        207        52 00013P
 * HTRAF           00012        214
 * HTTASK          00013        215
 * HTTTY           00006        210
 * HTTV            00011        213
   IDENT           00017         49        50 00000P       116 00072P
   IMAD            00005         22        24 00000P        99 00060P
   IMPURE          00000         21        41 00000P        42 00001P        82 00047P        89 00053P        91 00054P        93 00055P
                                           95 00056P        98 00057P       100 00060P       107 00064P       109 00065P       111 00067P
                                          113 00070P       115 00071P       115 00071P       121 00074P       126 00076P       133 00101P
                                          134 00102P
   INSTL       X                 26        61 00024P
   KILLFLAG        00007         25        26 00000P       103 00062P        71 00036P        72 00037P        73 00040P
   LINKIT      X                 27        78 00045P
   LNIM            00006         24        25 00000P       101 00061P
   NJM             00011         27        28 00000P       106 00064P
   PFWORD          00016         39        40 00000P        49 00000P       114 00071P
   PNFILE      X                130       131 00100P
   PNINT       X                 28        60 00023P
   POSI            00015         38        39 00000P       112 00070P
   PUN.STR   E     00047P        82        31 00000P        83 00050P
   PUN.SUP   E     00001P        42        32 00000P        79 00046P
   PUNCB       X                 97        98 00057P
   PUNCON      X                 29        43 00002P
   PUNPROTL        00030        135        62 00025P
   PUNPROTO        00053P        87        88 00053P        90 00054P        92 00055P        94 00056P        96 00057P        99 00060P
                                          101 00061P       103 00062P       106 00064P       108 00065P       110 00066P       112 00070P
                                          114 00071P       116 00072P       118 00073P       120 00074P       122 00075P       125 00076P
                                          127 00077P       129 00100P       132 00101P       135 00103P        63 00026P       105 00063P
                                          119 00073P
   PUNX1           00000P        41        50 00011P        56 00017P        59 00022P
   QEMPTY          00024         55        57 00000P       127 00077P
   QINGLOC         00022         52        54 00000P       122 00075P
   QPNT            00023         54        55 00000P       125 00076P        74 00041P
   QWORDS          00026        132        73 00040P        75 00042P
   RECSIZE         00050         39       102 00061P
   STRTLOC         00025         57       129 00100P
   URBEXIT         00021         51        52 00000P       120 00074P
   URBEXITA        00020         50        51 00000P       118 00073P        70 00035P
   URBLOKQ     X                123       124 00075P
   X1              00001         17        41 00000P        50 00011P        51 00012P        58 00021P        59 00022P        64 00027P
                                           65 00030P        67 00032P        68 00033P        69 00034P        70 00035P        72 00037P
                                           74 00041P        75 00042P        79 00046P       105 00063P       119 00073P
   X2              00002         18        62 00025P        63 00026P        66 00031P       128 00077P
   X3              00003         19        45 00004P        46 00005P        49 00010P        61 00024P
```