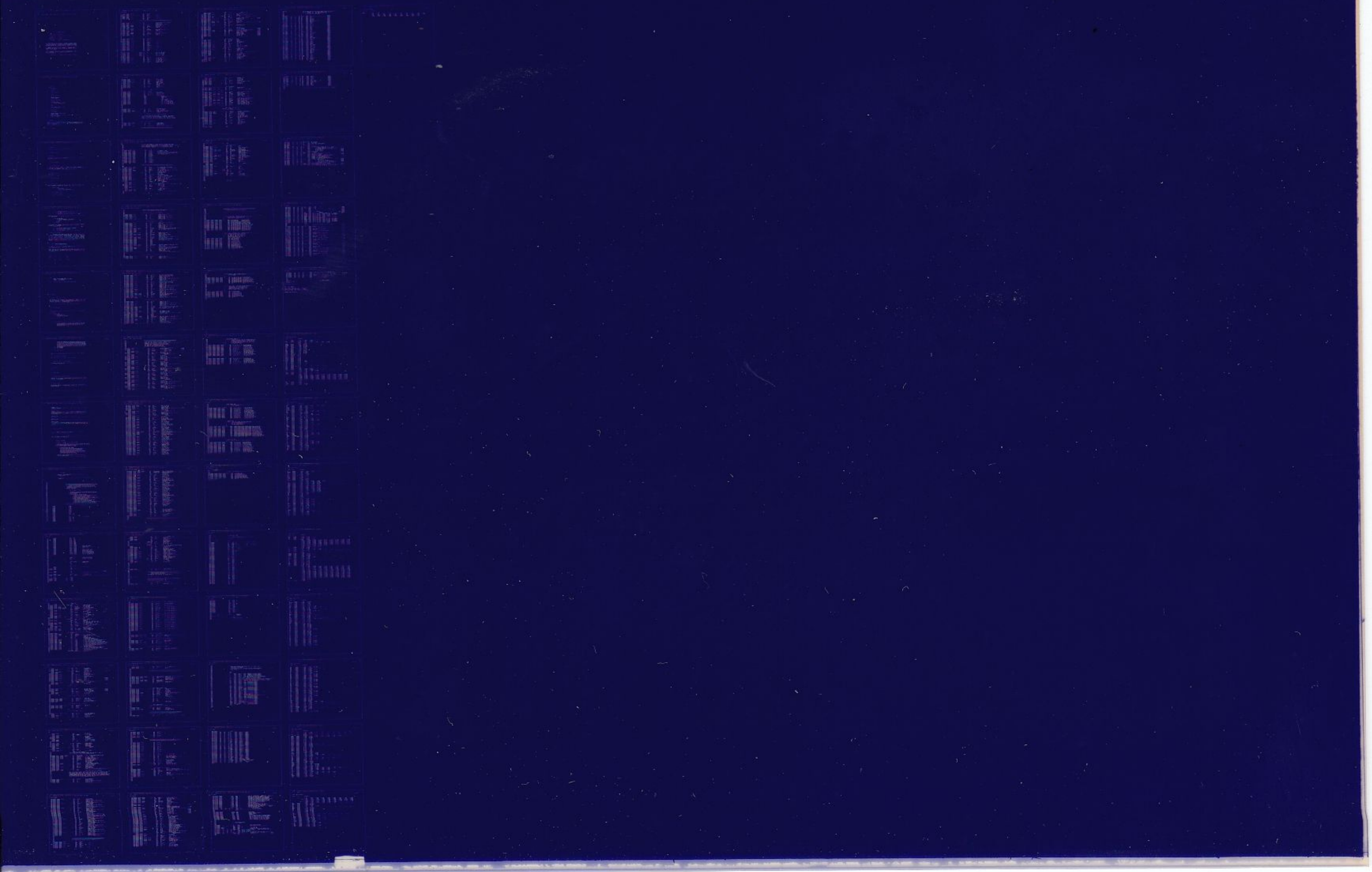
PDP-11

FLOAT UTILITY PROGRAM
CZFLAC0

AH-8791C-MC
1 OF 1 OCT 1985

digital
MADE IN USA



1 .REM %

IDENTIFICATION

PRODUCT CODE: AC-8789C-MC

PRODUCT NAME: CZFLACO FLOAT UTILITY PROG

PRODUCT DATE: MAY 1985

MAINTAINER: DIAGNOSTIC ENGINEERING

CONTENTS

1.0 ABSTRACT

Float is a utility program to aide the operator with determining the addresses and vector of devices in the floating address or vector areas. The addresses and vectors given are completely compatible with all DEC standard software.

2.0 REQUIREMENTS

2.1 Equipment

Any PDP-11 processor with 4k of memory and a terminal.

3.0 LOADING PROCEDURE

3.1 Method

The program is supplied on the diagnostic media. Refer to the XXDP operating manual for further information.

4.0 STARTING PROCEDURE

4.1 Starting Addresses

By starting at address 200(8) or 204(8) the restart address is initialized, the program types name and version, control charactors and will prompt operator to set up terminal fill count.

4.2 Restart Address

Location 204(8) is the only valid restart address.

5.0 OPERATING PROCEDURE

5.1 Operator Action

When the program is loaded and started the title and version are typed, control charactors are listed, and the operator is prompted with:

```
TERMINAL TYPES:
        A = LA36 NO FILL
        L = LA120 100 FILL CHARACTER
        V = VT52 OR VT100 50 FILL CHARACTER

ENTER TERMINAL TYPE. (A,L,V)?
```

To this the operator responds

'A'<cr> If terminal is an LA36 or requires nofill.

'L'<cr> If terminal is a LA120 or requires fill for
a carriage return.
'V'<cr> If terminal is a VT52 OR VT100 @ 300 baud or more,
or requires fill for a line feed.

After the terminal fill has been entered or program has been restarted the program types.

```
POSSIBLE OPTIONS ARE
        FA-FLOATING ADDRESSES. (DJ,DH,DQ,ETC.)
        VA-FLOATING ADDRESSES AND VECTORS
        HE-HELP
        EX-EXIT
 ENTER OPTION:
```

At this point the program is waiting for a two (2) character response followed by a carriage return <cr> defining which option is wanted. The valid responses are:

'FA' if the floating address option is desired.
'VA' if the floating vector option is desired.
'HE' if the help message is desired.
'EX' if it is desired to exit back to the XXDP monitor.

The program will the ask:

"How many of each does the system have." and then type a list of devices depending on the "option" selected. The list is typed one device at a time followed by a question mark. The operator responds to each question with the number of each device he has in decimal until the list is completed. (For exceptions and control characters see miscellaneous.) At the end of the list the program will type the addreess or vector information based on the number supplied by the operator. (See para. 5.2 and 5.3 for format of data.)

5.2 'FA' - Floating Address Option
'VA' - Vector And Address Option

This option will ask for the decimal number of each device in the floating address range or floating vector range.

After receiving input for each device the program will type the device name, the address, the module number with the addressing logic, and the jumper(s) or switches(es) to be cutout or turned off in the following format.

DEVICE NAME	CSR ADDRESS	VECT VECTOR	COMMENT NOTES

WHERE:
NAME = ACTUAL DEVICE NAME (I.E. DJ11)
ADDRESS = CSR ADDRESS OF THE DEVICE
VECTOR = VECTOR ADDRESS

NOTE: DEVICES ARE LISTED IN ASCENDING ADDRESS ORDER.

6.0 ERRORS

6.1 Halts, Traps, Other Failures.

This program is not intended to be a diagnostic or system sizer. It does no checking of device addresses present or perform any other diagnostic functions. If program halts, traps, gets caught in a loop run CPU, memory and/or terminal diagnostics.

"Do not use program to trouble shoot any failures."

6.2 Invalid Responses

6.2.1 Invalid Response To 'Terminal Type (A,L,V)?'. - The program will type:

VALID RESPONSES ARE--
'A' - LA36 OR NO FILL
'L' - LA120 OR FILL FOR <CR>
'V' - VT52 AND VT100 OR FILL FOR <LF>?

And wait for response.

6.2.2 Invalid Response To "Option." - The program will type:

FA - FLOATING ADDRESSES (DJ,DH,DQ,DU,DUP,LK,DMC/R,DZ,KMC,LPP)
(VM21,VM31,DWR,RL,LPA,KW,RES,RX,DRW,DRB,DMP,DPV,ISB,DMV)
(UNA,UDA,DMF,VS100,TU81,KMV,DHV/DHU,DMZ32/CPI32(ASYN)
(CPI32(SYN),QVSS) ➔

```
        VA - VECTORS AND ADDRESSES OF DEVICES IN FLOATING VECTOR AREA.
             (DC,TU58,KL,DLA/B/W,DP,DMA,DN,DMB,DR,PAR,PAP,LPD,DT,DX)
             (DLC/D/E,DJ,DH,GT,VSV,LPS,DQ,KW,DU,DUP,DV/DM,LK,DWN,DMC/R)
             (DZ,KMC,LPP,VM21,VM31,VTV,DRW,RL,TS,LPA,IP,KW,RX,DRW,DRB)
             (DMP,DPV,ML,ISB,DMV,UNA,UDA,DMF,PCL,VS100,TU81,KMV,KCT32)
             (IEX,DHV/DHU,DMZ32/CPI32(ASYN),CPI32(SYN),QNA,QVSS,LNV11)
        HE - HELP MESSAGE
        EX - EXIT COMMAND
```

And will ask again "Option:".

6.2.3 Invalid Response When Typing Device Counts. - The program will type:

"That's not a valid number!"

If an alpha character or negative value is entered.

or

"That's too many! Only XX allowed!"

If a number greater than the maximum allowed for that device on a single system is supplied.

7.0 RESTRICTIONS

None

8.0 MISCELLANEOUS

8.1 Using Other Than Console Terminal.

Locations 700-706 contain the addresses of the terminal status buffer registers. To use another DL11-A just change these four (4) locations to the desired addresses.

8.2 Delete Feature

The character delete is proceeded and followed with a backslash on a hardcopy terminal. On a video terminal, the characters will be removed from the screen.

8.3 Control/C, Control/Z, Control/S, Control/Q and Control/A

Control C (↑C)
Program is restarted at 200 when a CNTRL/C is typed with program waiting for input.

Control Z (↑Z)
Program is restarted at print when a CNTRL/Z is typed and will print the selected devices. It is a means of getting an abbreviated list of devices rather than going through the entire list during question and answer session.

Control S (↑S)
When CNTRL/S is typed the program will stop printing and wait for a CNTRL/Q.

Control Q (↑Q)
When a CNTRL/Q is typed the program will continue printing.

Control A (↑A)
When a CNTRL/A is typed the program will back up one device on the list. It allows one to correct errors made during the question and answer session by backing up the list and changing the value assigned to the number of devices.

8.4 DN11'S AND PA611'S

8.4.1 The DN11 Can Have Four (4) Lines Per Block - (1 control module). Specify the number of controls.

8.4.2 The PA611's Can Have Two (2) Readers/Punches Per Controller Specify the number of controllers.

8.5 CHANGES TO PROGRAM

REVISION C INCLUDED THE FOLLOWING CHANGES.

1. PROVISION HAS BEEN MADE TO ALLOW AT LEAST 2 DEVICES PER SYSTEM. NOT ALL DEVICES CAN BE EXPANDED TO THREE OR MORE WITHOUT MODIFICATIONS TO THE DEVICE HANDLER WITHIN THE PROGRAM.

2. THE FOLLOWING DEVICES WERE ADDED:
KMC11,LPP11,VMV21,VMV31,VTV01,DWR70,RL11,RLV11
TS11,TU80,LPA11,IP11,IP300,KW11-C,RESER,RX11
RX211,RXV11,RXV21,DR11-W,DR11-B,DMP11,DPV11,ML11
ISB11,DMV11,UNA,UDA,RQDX1,DMF32,KMS11,PCL11,VS100
TU81,KMV11,KCT32,IEX,DHV11,DHU11,DMZ32,CPI32(ASYNCH)
CPI32(SYNCH),QNA,QVSS,VS31,LNV11

3. THIS IS A LIST OF DEVICES WHICH HAVE ONE FIXED AND THE REMAINDER FLOATING CSR'S.
RL11,RLV11,LPA11,RX11,RX211,RXV11,RXV21,UNA,UDA,RQDX1

```
                TU81,QVSS

        4. THIS IS A LIST OF DEVICES WHICH HAVE TWO FIXED AND THE
         REMAINDER FLOATING CSR'S.
                DR11-B

        5. Changes made to make messages to operator easier to understand.
           - LWL002 -

        ↯
```

```
                                ;*****************************************************************
                                ;?????????????????????????????????????????????????????????????
                                ;*  THE COMMENTS AND CODE BETWEEN THE *****?????/!!!!!*****
                                ;*  IS DEPENDENT ON THE DEVICES. THIS CODE SHOULD BE CHECKED AND
                                ;*  MODIFIED WHEN ADDING OR REMOVING A DEVICE FOR THE
                                ;*  PROGRAM TO SUPPORT.
                                ;*
                                ;       STEPS TO ADDING A DEVICE:
                                ;
                                ;       1. DETERMINE IF DEVICE IS A FLOATING CSR OR VA OR BOTH.
                                ;       IS THE 1ST ADDRESS FIXED? WHAT IS ITS RANK OF ORDER IN THE
                                ;       FLOATING SCHEME?
                                ;       2. FOR FLOATING CSR ADDRESS DEVICES:
                                ;               A. ENTER THE DEVICE IN QT2,DT2,MT2,ASCDEV,DEVSTR,
                                ;               FATABL,Q??:, IN ITS RANK OF ORDER.
                                ;               B. ADD OR MODIFY ROUTINES WITHIN THE PROGRAM FOR
                                ;               SPECIAL CIRCUMSTANCES IN AREAS SUCH AS QUES,GFA,DONE.
                                ;       3. FOR FLOATING VECTOR ADDRESS DEVICES:
                                ;               A. ENTER THE DEVICE IN QT1,DT1,MT1,NAT,ADDRT,
                                ;               VST,DEVSTR,Q??, IN ITS RANK OF ORDER.
                                ;               B. ADD OF MODIFY ROUTINES WITHIN THE PROGRAM FOR SPECIAL
                                ;               CIRCUMSTANCES IN AREAS SUCH AS QUES,GFA,DONE.
                                ;!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
                                ;*****************************************************************

000000                          R0=%0                   ;REGISTER DEFINITIONS
000001                          R1=%1
000002                          R2=%2
000003                          R3=%3
000004                          R4=%4
000005                          R5=%5
000006                          SP=%6
000007                          PC=%7
000015                          CR=     15
000200                          NOCRLF= 200
000012                          LF=     12
000126                          V=      126                                     ;LWL002
000001                          BIT0=   1               ;BIT DEFINITIONS
000002                          BIT1=   2
000004                          BIT2=   4
000010                          BIT3=   10
000020                          BIT4=   20
000040                          BIT5=   40
000100                          BIT6=   100
```

DEFINITIONS

```
                                        BIT7=   200
                                        BIT8=   400
                                        BIT9=   1000
                                        BIT10=  2000
                                        BIT11=  4000
                                        BIT12=  10000
                                        BIT13=  20000
                                        BIT14=  40000
                                        BIT15=  100000
                                        INPUT=  104000          ;EMT'S- GET INPUT
                                        DATO=   104001          ;DECIMAL ASCII TO OCTAL
                                        ERRCK=  104002          ;ERROR  CHECK
                                        TYPE=   104003          ;
                                        OTOA=   104004          ;OCTAL TO OCTAL ASCII
                                        SHIFT=  104005          ;SPECIAL MULT & ADD
                                        OTDA=   104006          ;OCTAL TO DECIMAL ASCII
                                        SHIFT1= 104007          ;MULT BY 20 AND ADD GAP
                                        SHIFT2= 104010          ;MULT BY 40 AND ADD GAP
                                        SHIFT3= 104011          ;MULT BY 100 AND ADD GAP
                                        SHIFT4= 104012          ;MULT BY 4 AND ADD GAP


                                        .MACRO  ERCHK   OK      ;ERROR CHECKING MACRO
                                        ERRCK                   ;GO CHECK FOR ERROR
                                        BR      OK              ;RETURN .+2 ON ERROR
                                        .ENDM

                                        .MACRO  PRINT   ADR     ;OUTPUT MACRO
                                        MOV     ADR,R5          ;ADDRESS TO R5
                                        TYPE                    ;GO TYPE IT
                                        .ENDM


                                        .SBTTL BEGIN
        000000                          .=0                     ;TRAP CATCHERS
        000030                          .=30
000030  002260                          .WORD   EMTHND          ;
000032  000000                          .WORD   0

        000042                          .=42                    ;                                       ;LWL002
000042  000000                          .WORD   0               ;LOCATION FOR XXDP STACK POINTER        ;LWL002

        000200                          .=200                   ;START AT 200
000200  000137  001000                  JMP     STARTA          ;    ACTUALLY 1000
000204  000137  001000                  JMP     STARTA          ;RESTART AT 204...MUST GOTO START FIRST TIME THROUGH.

        000700                          .=700
000700  177560                  TRS:    177560
000702  177562                  TRB:    177562
000704  177564                  TPS:    177564
000706  177566                  TPB:    177566

                                        .LIST   MEB
```

START

```
                                        .SBTTL START
                001000                  .=1000
001000  010637  000042        STARTA: MOV     SP,@#42         ;STORE THE XXDP STACK ADDRESS          ;LWL002
001004  000005                START:  RESET                   ;INIT THE WORLD
001006  012706  000700                MOV     #TRS,SP         ;SET THE STACK
001012  012737  001120  000206        MOV     #RES,@#206      ;SETUP RESTART ADDRESS
001020  012737  002260  000030        MOV     #EMTHND,30      ;SETUP EMULATOR TRAP
001026                                PRINT   #HELLO          ;IDENTIFY FLOAT                        ;LWL002
001026  012705  015027                MOV     #HELLO,R5               ;ADDRESS TO R5
001032  104003                        TYPE                    ;GO TYPE IT
001034                                PRINT   #HELP           ;HOW TO GET HELP                       ;LWL002
001034  012705  015102                MOV     #HELP,R5                ;ADDRESS TO R5
001040  104003                        TYPE                    ;GO TYPE IT
001042                        1$:     PRINT   #TERMQ          ;ASK FOR TERMINAL TYPE
001042  012705  015345                MOV     #TERMQ,R5               ;ADDRESS TO R5
001046  104003                        TYPE                    ;GO TYPE IT
001050  012701  012144                MOV     #TERMST,R1      ;FILL TABLE
001054  104000                        INPUT                   ;GET IT
                              ;LWL0023$:        CMPB    (R1)+,(R0)      ;WHICH ONE -A,L,V
001056  121110                3$:     CMPB    (R1),(R0)       ;WHICH ONE -A,L,V                      ;LWL002
001060  001411                        BEQ     4$              ;FOUND IT
                              ;LWL002 ADD     #2,R1           ;SKIP OVER FILL CHAR. AND COUNT
001062  062701  000003                ADD     #3,R1           ;SKIP OVER TYPE,FILL CHAR. AND COUNT   ;LWL002
001066  020127  012155                CMP     R1,#TERMST+11   ;NO - END OF TABLE
001072  001371                        BNE     3$              ;NO MAYBE THE NEXT WILL MATCH
001074                                PRINT   #TERMQ2         ;BAD INPUT --TELL HIM WHAT WE WANT
001074  012705  015556                MOV     #TERMQ2,R5              ;ADDRESS TO R5
001100  104003                        TYPE                    ;GO TYPE IT
001102  000757                        BR      1$              ;AND DO IT AGAIN
001104  112137  012277        4$:     MOVB    (R1)+,TERMTP    ;STORE TERMINAL TYPE                   ;LWL002
001110  112137  012140                MOVB    (R1)+,CHAR      ;SET FILL CHARACTER
001114  112137  006332                MOVB    (R1)+,FILCNT    ;SET FILL COUNT

                              ; THIS ROUTINE CLEARS OUT THE DEVICE DATA TABLE.
001120  000005               RES:    RESET
001122  012706  001004                MOV     #START,SP
001126  012700  000201                MOV     #DEVCNT*2.+1,R0 ;# OF LOCATIONS TO CLEAR
001132  012701  010430                MOV     #DC,R1          ;START OF DATA TABLE
001136  005021                1$:     CLR     (R1)+           ;CLEAR IT!
001140  005300                        DEC     R0              ;DECREMENT COUNT
001142  001375                        BNE     1$              ;DO AGAIN IF NOT EQUAL
001144  005037  011740                CLR     FLAG            ;CLEAR PROGRAM CONDITION BITS
001150  005037  011742                CLR     FLAG1           ;IF DM11-A AND DV11 WERE SELECTED PRINT DVMES
001154  005037  011744                CLR     FLAG2           ;IF DV11 WERE DECREASED PRINTS DVMSS
001160  005037  011746                CLR     FLAG3           ;IF DV11 WERE DECREASED TO ZERO PRINT DVNMS
001164  005037  011750                CLR     FLAG4           ;IF PA611-P AND LPD11 WERE SELECTED PRINT LPDMES
001170  005037  011752                CLR     FLAG5           ;IF LPD11 WERE DECREASED TO ZERO PRINT LPDMSS
001174  005037  011754                CLR     FLAG6           ;IF PA611-R AND VTV01 WERE SELECTED PRINT V01MES
001200  005037  011756                CLR     FLAG7           ;IF VTV01 WAS DECREASED PRINT V01MSS
001204  005037  011760                CLR     FLAG8           ;USED FOR CONTROL A
001210  005037  011762                CLR     FLAG9           ;USED FOR THE SELECTION OF DC11 AND DL11-A
001214  005037  011764                CLR     FLAG10          ;IF LPD11 WAS DECREASED PRINTS LPDESS
001220  005037  011766                CLR     FLAG11          ;USED IF PA611-R, PA611-P OR LPD11 WAS SELECTED
001224  005037  011770                CLR     FLAG12          ;FOR PRINTING CSRVEC HEADER            ;LWL002
                              ;LWL002 PRINT   #HEAD           ;TITLE-ASK OPTION
                              ; GET THE OPTION AND SETUP THE POINTERS FOR IT
                              ;
```

START

```
    586 001230                          OPTION: PRINT   #OP              ;ASK OPTION                          ;LWL002
        001230  012705  014612                  MOV     #OP,R5           ;ADDRESS TO R5
        001234  104003                          TYPE                     ;GO TYPE IT
    587 001236                          OPTNA:  PRINT   #OP2             ;SKIP FIRST LINE                     ;LWL002
        001236  012705  014643                  MOV     #OP2,R5          ;ADDRESS TO R5
        001242  104003                          TYPE                     ;GO TYPE IT
    588 001244  104000                          INPUT                    ;WHICH OPTIN?
    589 001246  021027  040526                  CMP     (R0),#"VA        ;VECTORS AND ADDRESSES
    590 001252  001425                          BEQ     6$               ;BR IF YES
    591 001254  021027  040506                  CMP     (R0),#"FA        ;FLOATING ADDRS ONLY
    592 001260  001434                          BEQ     7$               ;BRANCH IF MATCH
    593 001262  021027  042510                  CMP     (R0),#"HE        ;HELP?                               ;LWL002
    594 001266  001413                          BEQ     5$               ;BR IF YES                           ;LWL002
    595 001270  021027  054105                  CMP     (R0),#"EX        ;EXIT?                               ;LWL002
    596 001274  001404                          BEQ     4$               ;BR IF YES                           ;LWL002
    597 001276                                  PRINT   #TERMQ2          ;NO MATCH - TELL WHAT THEY ARE
        001276  012705  015556                  MOV     #TERMQ2,R5               ;ADDRESS TO R5
        001302  104003                          TYPE                     ;GO TYPE IT
    598 001304  000754                          BR      OPTNA            ;AND TRY AGAIN                       ;LWL002
    599
    600                                 ; GET HELP OR EXIT
    601                                 ;
    602
    603 001306  013706  000042          4$:     MOV     @#42,SP          ;GET THE XXDP STACK ADDRESS          ;LWL002
    604 001312  000207                          RTS     PC               ;RETURN TO XXDP                      ;LWL002
    605 001314  000000                          HALT                     ;SHOULDN'T GET HERE                  ;LWL002
    606 001316                          5$:     PRINT   #HELP            ;PRINT HELP MESSAGE                  ;LWL002
        001316  012705  015102                  MOV     #HELP,R5                 ;ADDRESS TO R5
        001322  104003                          TYPE                     ;GO TYPE IT
    607 001324  000741                          BR      OPTION           ;ASK OPTION AGAIN                    ;LWL002
    608
    609                                 ; SETUP POINTERS FOR THE 'VA' OPTION
    610                                 ;
    611
    612 001326  042737  000200  011740  6$:     BIC     #BIT7,FLAG       ;DOING THE 'VA' OPTION
    613 001334  012703  006362                  MOV     #QT1,R3          ;R3<=Q TABLE !
    614 001340  012702  006562                  MOV     #DT1,R2          ;R2<=DATA TABLE 1
    615 001344  012701  007204                  MOV     #MT1,R1          ;R1<=MAXIMUM NUMBER TABLE 1
    616 001350  000411                          BR      8$               ;START THE QUESTIONS
    617
    618                                 ; SETUP POINTERS FOR THE 'FA' OPTION
    619                                 ;
    620 001352  052737  000200  011740  7$:     BIS     #BIT7,FLAG       ;'FA' OPTION
    621 001360  012703  006762                  MOV     #QT2,R3          ;TABLE 2
    622 001364  012702  007072                  MOV     #DT2,R2
    623 001370  012701  007406                  MOV     #MT2,R1
    624
    625
    626                                 ; ASK FOR THE NUMBER OF DEVICES.
    627
    628                                 ;
    629 001374  012737  000001  011760  8$:     MOV     #1,FLAG8         ;OK TO USE CONTROL A
    630 001402                                  PRINT   #Q               ;START QUESTIONS HERE.
        001402  012705  012210                  MOV     #Q,R5            ;ADDRESS TO R5
        001406  104003                          TYPE                     ;GO TYPE IT
    631 001410                          QUES:   PRINT   (R3)             ;TYPE DEVICE  NAME
        001410  011305                          MOV     (R3),R5          ;ADDRESS TO R5
```

START

```
     001412  104003                          TYPE                    ;GO TYPE IT
 632 001414                                  PRINT   #QMARK          ;APPEND WITH '?'
     001414  012705  015024                  MOV     #QMARK,R5               ;ADDRESS TO R5
     001420  104003                          TYPE                    ;GO TYPE IT
 633 001422  104000                          INPUT                   ;HOW MANY?
 634 001424  104001                          DATO                    ;CONVERT TO OCTAL
 635 001426                                  ERCHK   2$              ;ANY ERRORS?
     001426  104002                          ERRCK                   ;GO CHECK FOR ERROR
     001430  000401                          BR      2$              ;RETURN .+2 ON ERROR
 636 001432  000766                          BR      QUES            ;YES!!  -  ASK AGAIN!
 637
 638 001434  010032                  2$:     MOV     R0,@(R2)+       ;STORE ANSWER
 639 001436  022123                          CMP     (R1)+,(R3)+     ;UPDATE POINTERS
 640 001440  005711                          TST     (R1)            ;END OF LIST?
 641 001442  001362                          BNE     QUES            ;THERES MORE
 642 001444                          PRINT:  PRINT   #CRLF           ;END OF QUESTIONS
     001444  012705  014510                  MOV     #CRLF,R5                ;ADDRESS TO R5
     001450  104003                          TYPE                    ;GO TYPE IT
 643 001452                                  PRINT   #CRLF           ;
     001452  012705  014510                  MOV     #CRLF,R5                ;ADDRESS TO R5
     001456  104003                          TYPE                    ;GO TYPE IT
 644                                         .SBTTL GET FIRST ADDRESS
 645                                 ; THIS ROUTINE LOADS THE STARTING ADDRESS INTO THE DEVICE DATA TABLE
 646                                 ; FOR ALL DEVICES ( 0 FOR FLOATING ADDRESS DEVICES ).
 647                                 ;
 648 001460  012737  000300  012030  GFA:    MOV     #300,VECTOR     ;FIRST FLOATING VECTOR STARTS AT 300
 649 001466  012737  160010  012034          MOV     #160010,ADDR    ;    "     ADDRESSES START AT 160010
 650 001474  012700  007720                  MOV     #ADDRT,R0       ;R0<=ADDR. TABLE
 651 001500  012701  010432                  MOV     #DC+2,R1        ;R1<=DEVICE ADDR.DATA TABLE
 652 001504  012702  000100                  MOV     #DEVCNT,R2      ;R2<=NUMBER OF DEVICES
 653 001510  012021                  1$:     MOV     (R0)+,(R1)+     ;SET-UP FIRST ADDR.IN DEV.DATA TABLE
 654 001512  005721                          TST     (R1)+           ;R1+2-2 WORDS/DEVICE
 655 001514  005302                          DEC     R2              ;ONE LESS TO DO
 656 001516  001374                          BNE     1$              ;DO IT AGAIN?
 657 001520  012700  012034                  MOV     #ADDR,R0        ; CURRENT ADDRESS LOCATION
 658 001524  012702  007072                  MOV     #DT2,R2         ; FLOATING DEVICE TABLE POINTER
 659 001530  012203                  TAG3:   MOV     (R2)+,R3        ;DEVICE DATA POINTER
 660 001532  001406                          BEQ     4$              ;BRANCH IF NO MORE
 661 001534  011063  000002                  MOV     @R0,2(R3)       ;STORE ADDRESS
 662 001540  011301                          MOV     @R3,R1          ;GET DEVICE COUNT
 663 001542  000240                          NOP                     ;BRANCH TO 2$ IF NO SPACES WANTED BETWEEN DEVICES.
 664 001544  000137  001554                  JMP     NEXT
 665 001550  000137  002346          4$:     JMP     DONE            ;DONE CALCULATING FIRST ADDRESSES
 666
 667                                 ;CHECK FOR SPECIAL DEVICES. RESR IS NOT USED BUT MUST HAVE A SPACE OF 10 FOR FA.
 668                                 ;RL11, RLV11, RX11, RX211, RXV11, RXV21, UNA, RQDX1,UDA, TU81 BOTH HAVE ONE
 669                                 ;STANDARD ADDRESS AND VECTOR. THE REST ARE FLOATING. THE LPA11 AND QVSS HAVE ONE
 670                                 ;STANDARD ADDRESS AND THE REST ARE FLOATING. THE DR11-B HAS A STANDARD ADDRESS
 671                                 ;AND STANDARD VECTOR FOR THE FIRST. THE NEXT HAS A STANDARD ADDRESS AND FLOATING
 672                                 ;VECTOR, THE REST ARE FLOATING ADDRESSES AND VECTOR.
 673
 674
 675 001554  020327  010660          NEXT:   CMP     R3,#RESR        ;IS IT RESERVED
 676 001560  001003                          BNE     40$             ;BRANCH IF NOT
 677 001562  005701                          TST     R1              ;CHECK IF RESERVED WAS SELECTED
 678 001564  001401                          BEQ     40$             ;BRANCH IF NOT
 679 001566  005301                          DEC     R1              ;DEC RESERVED SO IT WILL LEAVE A GAP
```

```
001570  020327  010634      40$:    CMP     R3,#RL          ;IS IT THE RL11
001574  001003                      BNE     41$             ;BRANCH IF NOT
001576  005701                      TST     R1              ;CHECK IF ANY RL11 WERE SELECTED
001600  001401                      BEQ     41$             ;BRANCH IF NOT
001602  005301                      DEC     R1              ;DEC FOR STANDARD ADDRESS AND VECTOR
001604  020327  010664      41$:    CMP     R3,#RX          ;IS IT THE RX11
001610  001003                      BNE     42$             ;BRANCH IF NOT
001612  005701                      TST     R1              ;CHECK IF ANY RX11 WERE SELECTED
001614  001401                      BEQ     42$             ;BRANCH IF NOT
001616  005301                      DEC     R1              ;DEC FOR STANDARD ADDRESS AND VECTOR
001620  020327  010644      42$:    CMP     R3,#LPAK        ;IS IT THE LPA11-K
001624  001003                      BNE     43$             ;BRANCH IF NOT
001626  005701                      TST     R1              ;CHECK IF ANY LPA11-K WERE SELECTED
001630  001401                      BEQ     43$             ;BRANCH IF NOT
001632  005301                      DEC     R1              ;DEC STANDARD ADDRESS
001634  020327  010674      43$:    CMP     R3,#DRB         ;IS IT THE DR11-B
001640  001006                      BNE     44$             ;BRANCH IF NOT
001642  005701                      TST     R1              ;CHECK IF ANY DR11-B WERE SELECTED
001644  001404                      BEQ     44$             ;BRANCH IF NOT
001646  005301                      DEC     R1              ;DEC FOR STANDARD ADDRESS AND VECTOR
001650  005701                      TST     R1              ;CHECK IF A SECOND DR11-B WAS SELECTED
001652  001401                      BEQ     44$             ;BRANCH IF NOT
001654  005301                      DEC     R1              ;DEC FOR SECOND STANDARD ADDRESS
001656  020327  010724      44$:    CMP     R3,#UNA         ;IS IT THE DEUNA
001662  001003                      BNE     UDA$            ;BRANCH IF NOT
001664  005701                      TST     R1              ;CHECK IF ANY DEUNA WERE SELECTED
001666  001401                      BEQ     UDA$            ;BRANCH IF NOT
001670  005301                      DEC     R1              ;DEC FOR STANDARD ADDRESS AND VECTOR
001672  020327  010730      UDA$:   CMP     R3,#UDA         ;IS IT THE UDA
001676  001003                      BNE     TU81$           ;BRANCH IF NOT
001700  005701                      TST     R1              ;CHECK IF ANY UDA WERE SELECTED
001702  001401                      BEQ     TU81$           ;BRANCH IF NOT
001704  005301                      DEC     R1              ;DEC FOR STANDARD ADDRESS AND VECTOR
001706  020327  010754      TU81$:  CMP     R3,#TU81        ;IS IT THE TU81
001712  001003                      BNE     QVSS$           ;BRANCH IF NOT
001714  005701                      TST     R1              ;CHECK IF ANY TU81 WERE SELECTED
001716  001401                      BEQ     QVSS$           ;BRANCH IF NOT
001720  005301                      DEC     R1              ;DEC FOR STANDARD ADDRESS AND VECTOR
001722  020327  011014      QVSS$:  CMP     R3,#QVSS        ;IS IT THE QVSS
001726  001003                      BNE     5$              ;BRANCH IF NOT
001730  005701                      TST     R1              ;CHECK IF ANY QVSS WERE SELECTED
001732  001401                      BEQ     5$              ;BRANCH IF NOT
001734  005301                      DEC     R1              ;DEC FOR STANDARD ADDRESS


                            ;*****************************************************************
                            ;?????????????????????????????????????????????????????????????????
                            ; DO A CHECK FOR THE DEVICES THAT DON'T ADDRESS-UP BY 10

001736  020327  010520      5$:     CMP     R3,#DH
001742  001432                      BEQ     TAG1            ; DH11 - 20
001744  020327  010620              CMP     R3,#V31
001750  001427                      BEQ     TAG1            ; VMV31- 20
001752  020327  010644              CMP     R3,#LPAK
001756  001424                      BEQ     TAG1            ; LPAK - 20
001760  020327  010720              CMP     R3,#DMV
001764  001421                      BEQ     TAG1            ; DMV  - 20
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001766  020327  010734            CMP     R3,#DMF
001772  001425                    BEQ     TAG2              ; DMF32- 40
001774  020327  010730            CMP     R3,#UDA
002000  001410                    BEQ     TU$               ; UDA50- 4
002002  020327  010740            CMP     R3,#KMS
002006  001410                    BEQ     TAG1              ; KMS11- 20
002010  000137  002102            JMP     TAG
                          ;!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
                          ;***************************************************************

002014  104005            TAG4:   SHIFT                     ;CALCULATE NEXT DEVICE ADDRESS
002016  000137  001530            JMP     TAG3              ;PROCESS NEXT
002022  104012            TU$:    SHIFT4                    ;CALCULATE DEVICE ADDRESS BY 4
002024  000137  001530            JMP     TAG3              ;PROCESS NEXT
002030  004737  005764    TAG1:   JSR     PC,BITE           ;MAKE ADDR. DIVISIBLE BY 20
002034  011063  000002            MOV     @R0,2(R3)         ;STORE IT
002040  104007                    SHIFT1                    ;20 BYTES/UNIT
002042  000137  001530            JMP     TAG3              ;
002046  004737  006004    TAG2:   JSR     PC,BITE1          ;MAKE ADDR. DIVISIBLE BY 40
002052  011063  000002            MOV     @R0,2(R3)         ;STORE IT
002056  104010                    SHIFT2                    ;40 BYTES/UNIT
002060  000137  001530            JMP     TAG3              ;
002064  004737  006042    QVS$:   JSR     PC,BITE2          ;MAKE ADDR. DIVISIBLE BY 100
002070  011063  000002            MOV     @R0,2(R3)         ;STORE IT
002074  104011                    SHIFT3                    ;100 BYTES/UNIT
002076  000137  001530            JMP     TAG3              ;


002102  020327  010750    TAG:    CMP     R3,#VS100
002106  001750                    BEQ     TAG1              ; VS100- 20
002110  020327  010754            CMP     R3,#TU81
002114  001742                    BEQ     TU$               ; TU81 - 4
002116  020327  010760            CMP     R3,#KMV
002122  001742                    BEQ     TAG1              ; KMV11- 20
002124  020327  010774            CMP     R3,#DHV
002130  001737                    BEQ     TAG1              ; DHV11- 20
002132  020327  011000            CMP     R3,#DMZ32
002136  001743                    BEQ     TAG2              ; DMZ32- 40
002140  020327  011004            CMP     R3,#CPI32
002144  001740                    BEQ     TAG2              ; CPI32- 40
002146  020327  011014            CMP     R3,#QVSS
002152  001744                    BEQ     QVS$              ; QVSS - 200
002154  000137  002014            JMP     TAG4
                          ;
002160  006301            SSHIF3: ASL     R1                ;MULT. BY 100 OCTAL
002162  006301            SSHIF2: ASL     R1                ;MULT. BY 40 OCTAL
002164  006301            SSHIF1: ASL     R1                ;MULT. BY 20 OCTAL
002166  006301            SSHIFT: ASL     R1                ;MULT. BY 10 OCTAL
002170  006301            SSHIF4: ASL     R1                ;MULT. BY 4 OCTAL
002172  006301                    ASL     R1
002174  020327  010724            CMP     R3,#UNA           ;IF UNA LEAVE GAP OF 4
002200  001423                    BEQ     GAP               ;FOR THE UDA
002202  020327  010750            CMP     R3,#VS100         ;IF VS100 LEAVE GAP OF 4
002206  001420                    BEQ     GAP               ;FOR THE TU81
002210  020327  010730            CMP     R3,#UDA           ;IF UDA CHECK FOR BIT 2
002214  001003                    BNE     GAP3              ;BRANCH IF NOT
002216  032701  000004            BIT     #4,R1             ;CHECK IF EVEN
```

GET FIRST ADDRESS SEQ 0015

```
                        BEQ     GAP             ;MAKE IT EVEN
                GAP3:   CMP     R3,@TU81        ;IS IT THE DMF
                        BNE     GAP1            ;IF NOT BRANCH
                        BIT     @4,R1           ;CHECK FOR BIT 2
                        BEQ     GAP             ;MAKE IT EVEN
                GAP1:   ADD     @10,R1          ;ADD GAP OF 10
                        ADD     R1,@R0          ;ADD TO LAST ADDR.
                        RTI                     ;RETURN
                GAP:    ADD     @4,R1           ;ADD GAP OF 4
                        ADD     R1,@R0          ;ADD TO LAST ADDR
                        RTI                     ;RETURN
                ;
                ;       R 4   I S   D E S T R O Y E D   ! ! ! !
                ;
                EMTHND: MOV     (SP),R4         ;
                        MOV     -(R4),R4        ;GET THE EMT
                        BIC     @177600,R4      ;STRIP EMT BITS
                        ASL     R4              ;MAKE IT A WORD
                        JMP     @EMTTAB(R4)     ;GO TO IT
                EMTTAB: SINPUT                  ;SUBROUTINE INPUT
                        SDATO                   ;      "   DECIMAL ASCII TO OCTAL
                        SERRCK                  ;      "   ERROR CHECK
                        STYPE                   ;      "   TYPE
                        SOTOA                   ;      "   OCTAL TO OCTAL ASCII
                        SSHIFT                  ;      "   MULT. & ADD
                        SOTDA                   ;      "   OCTAL TO DECIMAL ASCII
                        SSHIF1                  ;      "   MULT. BY 20 AND ADD GAP
                        SSHIF2                  ;      "   MULT. BY 40 AND ADD GAP
                        SSHIF3                  ;      "   MULT. BY 100 AND ADD GAP
                        SSHIF4                  ;      "   MULT. BY 4 MAKE EVEN ADD GAP
                ;
                ;
                ;
                ;
002324  005737  011740  SERRCK: TST     FLAG            ;WAS ERROR FLAG SET
002330  100005                  BPL     1$              ;PLUS - NO ERROR
002332  062716  000002          ADD     #2,(SP)         ;ERROR! RETURN TO ERROR ROUTINE.
002336  042737  100000  011740  BIC     #BIT15,FLAG     ;CLEAR ERROR CONDITION
002344  000002          1$:     RTI                     ;RETURN

                        .SBTTL COMPUTE THE ADDR.,JUMPERS AND VECTORS
                ;
                ;  THIS ROUTINE PRINTS THE DEVICE NAME ,IT'S ADDRESS , AND VECTOR/
                ;  JUMPER. THEN COMPUTES THE NEXT ADDRESS IF MORE THEN ONE EXISTS,
                ;  PRINTS IT IF IT DOES , OR IF NOT, CHECKS TO MAKE SURE THIS DEVICES
                ;  EXISTANCE DOES NOT AFFECT THE FOLLOWING DEVICE'S ADDRESS OR VECTOR.
                ;
                ;
                ; FIRST SETUP FOR THE OPTION
                ;
002346  005037  012142  DONE:   CLR     SPEC            ;CLEAR SPECIAL FLAG
002352  105737  011740          TSTB    FLAG            ;WHICH OPTION?
002356  100047                  BPL     1$              ;BRANCH FOR 'VA'
002360  012702  010320          MOV     #ASCDEV,R2      ;R2<=ASCII DEVICE POINTER TABLE

                ;*****************************************************************
                ;?????????????????????????????????????????????????????????????
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                                     ; SET THE DEVICE ADDRESS TO A MINUS ONE IF IT FOLLOWS THE DJ AND
                                     ; IS NOT A FLOATING ADDRESS DEVICE.  FOR THOSE DEVICES THAT ARE A COMBINATION,
                                     ; SPECIAL HANDLING IS REQUIRED TO LIST THE STANDARD CSR ADDRESS
                                     ; AND VECTOR ADDRESS AND THEN LIST THE FLOATING RANGE FOR EACH.


002364  012701  177777                       MOV     #-1,R1
002370  010137  010526                       MOV     R1,GT+2         ;IF ADDRESS=-1 THEN
002374  010137  010532                       MOV     R1,VSV+2        ;THE DEVICE IS SKIPPED
002400  010137  010536                       MOV     R1,LPS+2        ;GT40,VSV11,LPS11,KW11-W,DV11,DWUN,VTV01
002404  010137  010546                       MOV     R1,KWW+2        ;TS11,IP11,ML11,PCL11,KCT32,IEX,QNA,LNV11
002410  010137  010562                       MOV     R1,DV+2         ;HAVE STANDARD ADDRESS
002414  010137  010572                       MOV     R1,DWUN+2
002420  010137  010626                       MOV     R1,V01+2
002424  010137  010642                       MOV     R1,TS11+2
002430  010137  010652                       MOV     R1,IP+2
002434  010137  010712                       MOV     R1,ML+2
002440  010137  010746                       MOV     R1,PCL+2
002444  010137  010766                       MOV     R1,KCT32+2
002450  010137  010772                       MOV     R1,IEX+2
002454  010137  011012                       MOV     R1,QNA+2
002460  010137  011026                       MOV     R1,LNV+2

                                     ;!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
                                     ;****************************************************************

002464  012701  010514                       MOV     #DJ,R1          ;DJ IS FIRST FOR 'FA' OPTION
002470  012700  000032                       MOV     #DJ-DC/2,R0     ;SET OFFSET INTO 'N'EXT 'A'DDR.'T'ABLE
002474  000405                               BR      DONE1           ;SET TO PROCEED!!
002476  012702  006362               1$:     MOV     #QT1,R2         ;USE THE SAME TABLE AS FOR THE QUESTIONS
002502  012701  010430                       MOV     #DC,R1          ;R1<=START OF DATA TABLE
002506  005000                               CLR     R0              ;0 OFFSET INTO NAT
002510  005721                       DONE1:  TST     (R1)+           ;DO WE HAVE ANY?
002512  001031                               BNE     2$              ;BR IF YES
002514  022022                               CMP     (R0)+,(R2)+     ;INC POINTERS
002516  022127  177777                       CMP     (R1)+,#-1       ;DO WE SKIP THIS ONE?
002522  001372                               BNE     DONE1           ;NO (TWO -1'S TOGETHER IS END OF LIST)
002524  005742                               TST     -(R2)           ;BACKUP FOR THE 'FA' OPTION
002526  021127  177777                       CMP     (R1),#-1        ;ANOTHER -1 IS THE END!!!!
002532  001366                               BNE     DONE1           ;BRANCH IF SOME MORE!
002534  005737  011752                       TST     FLAG5           ;CHECK TO SEE IF LPD11 WERE DECREASED TO ZERO
002540  001403                               BEQ     37$             ;BRANCH IF NOT
002542                                       PRINT   #LPDMSS         ;PRINT THE MESSAGE
002542  012705  017753                       MOV     #LPDMSS,R5              ;ADDRESS TO R5
002546  104003                               TYPE                    ;GO TYPE IT
002550  005737  011746               37$:    TST     FLAG3           ;CHECK TO SEE IF THE DV11 WERE DECREASED TO ZERO
002554  001403                               BEQ     38$             ;BRANCH IF NOT
002556                                       PRINT   #DVNMS          ;PRINT MESSAGE
002556  012705  020151                       MOV     #DVNMS,R5               ;ADDRESS TO R5
002562  104003                               TYPE                    ;GO TYPE IT
002564                               38$:    PRINT   #END            ;   *****  THE END  *****
002564  012705  014503                       MOV     #END,R5         ;ADDRESS TO R5
002570  104003                               TYPE                    ;GO TYPE IT
002572  000137  001120                       JMP     RES             ;RESTART-(ACT-11 PATCH SHOULD GO HERE!)


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```

COMPUTE THE ADDR.,JUMPERS AND VECTORS

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                                        ;??????????????????????????????????????????????????????????????
                                        ; SPECIAL DEVICE DEPENDENT ROUTINES FOR ADDRESS.
                                        ;
                                        ;* CHECK IF DC11 AND DL11-A WAS SELECTED
                                        ;
002576  020127  010432          2$:     CMP     R1,#DC+2        ;CHECK IF IT IS THE DC11
002602  001011                          BNE     9$              ;BRANCH IF NOT
002604  005737  010430                  TST     DC              ;CHECK IF DC11 WERE SELECTED
002610  001406                          BEQ     9$              ;BRANCH IF NOT
002612  005737  010434                  TST     DL              ;CHECK IF DL11-A WERE SELECTED
002616  001403                          BEQ     9$              ;BRANCH IF NOT
002620  012737  000001  011762          MOV     #1,FLAG9        ;SET FLAG FOR DC11 AND DL11-A
                                        ;
                                        ;* DV11 ADDRESS DEPENDS ON DM11-A ADDRESS
                                        ;
002626  020127  010446          9$:     CMP     R1,#DMA+2       ;CHECK IF IT IS THE DM11-A?
002632  001105                          BNE     17$             ;BR IF NOT
002634  005737  010444                  TST     DMA             ;CHECK IF DM11-A WERE SELECTED
002640  001502                          BEQ     17$             ;BRANCH IF NOT
002642  005737  010560                  TST     DV              ;CHECK IF DV11 WERE SELECTED
002646  001477                          BEQ     17$             ;BRANCH IF NOT
002650  012737  000001  011742          MOV     #1,FLAG1        ;SET FLAG THAT DM11-A AND DV11 WERE SELECTED
002656  013737  010444  012044          MOV     DMA,SAVE3       ;GET THE NUMBER OF DM11-A SELECTED
002664  006337  012044                  ASL     SAVE3           ;FORM NEW ADDRESS FOR DV11
002670  006337  012044                  ASL     SAVE3
002674  006337  012044                  ASL     SAVE3
002700  032737  000010  012044          BIT     #10,SAVE3       ;CHECK IF BIT THREE IS SET
002706  001403                          BEQ     33$             ;BRANCH IF NOT
002710  062737  000010  012044          ADD     #10,SAVE3       ;ADD 10 TO MAKE IT EVEN
002716  032737  000020  012044  33$:     BIT     #20,SAVE3       ;CHECK IF BIT FOUR IS SET
002724  001406                          BEQ     34$             ;BRANCH IF NOT
002726  062737  000020  012044          ADD     #20,SAVE3       ;ADD 20 TO BE ON RIGHT BOUNDRY AND SAVE
002734  063737  012044  010562          ADD     SAVE3,DV+2      ;STORE NEW ADDRESS
002742  013737  010560  012046  34$:     MOV     DV,SAVE4        ;GET NUMBER OF DV11 SELECTED
002750  005337  012046                  DEC     SAVE4           ;DEC BECAUSE SAVE3 HAS FIRST DV11 ADDRESS
002754  006337  012046                  ASL     SAVE4           ;FORM ADDRESS OF LAST DV11
002760  006337  012046                  ASL     SAVE4
002764  006337  012046                  ASL     SAVE4
002770  006337  012046                  ASL     SAVE4
002774  006337  012046                  ASL     SAVE4
003000  063737  012044  012046          ADD     SAVE3,SAVE4     ;ADD FIRST ADDRESS TO FORM LAST ADDRESS
003006  022737  000140  012046          CMP     #140,SAVE4      ;CHECK TO SEE IF IT IS TO HIGH
003014  103014                          BHIS    17$             ;BRANCH IF NOT
003016  012737  000001  011744          MOV     #1,FLAG2        ;SET FLAG THAT DV11 HAVE BEEN DECREASED
003024  005337  010560                  DEC     DV              ;DECREMENT NUMBER THAT WAS SELECTED
003030  005737  010560                  TST     DV              ;CHECK TO SEE IF ANY LEFT
003034  001401                          BEQ     35$             ;BRANCH IF NOT
003036  000741                          BR      34$             ;GO BACK AND TRY AGAIN
003040  012737  000001  011746  35$:     MOV     #1,FLAG3        ;SET FLAG THAT DV11 WERE DECREASED TO ZERO
                                        ;
                                        ;* VTV01 ADDRESS IS AFTER THE PA6-11R'S
                                        ;
003046  020127  010466          17$:    CMP     R1,#PAR+2       ;CHECK IF THE PA6-11R
003052  001007                          BNE     47$             ;BRANCH IF NOT
003054  005737  010464                  TST     PAR             ;CHECK IF ANY PA6-11R WERE SELECTED
003060  001404                          BEQ     47$             ;BRANCH IF NOT
```

COMPUTE THE ADDR.,JUMPERS AND VECTORS

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 959 003062  012737  000001  011766          MOV     #1,FLAG11       ;SET FLAG FOR PAR SELECTION
 960 003070  000431                          BR      49$             ;BRANCH TO FORM VTV01 ADDRESS
 961 003072  020127  010472          47$:    CMP     R1,#PAP+2       ;CHECK IF THE PA611-P
 962 003076  001012                          BNE     48$             ;BRANCH IF NOT
 963 003100  005737  011766                  TST     FLAG11          ;CHECK IF VTV01 ADDRESS HAS BEEN FORMED
 964 003104  001050                          BNE     45$             ;BRANCH IF YES
 965 003106  005737  010470                  TST     PAP             ;CHECK IF ANY PA611-P WERE SELECTED
 966 003112  001404                          BEQ     48$             ;BRANCH IF NO
 967 003114  012737  000001  011766          MOV     #1,FLAG11       ;SET FLAG FOR PAP SELECTION
 968 003122  000414                          BR      49$             ;BRANCH TO FORM VTV01 ADDRESS
 969 003124  020127  010476          48$:    CMP     R1,#LPD+2       ;CHECK IF LPD11
 970 003130  001036                          BNE     45$             ;BRANCH IF NOT
 971 003132  005737  011766                  TST     FLAG11          ;CHECK IF VTV01 ADDRESS HAS BEEN FORMED
 972 003136  001033                          BNE     45$             ;BRANCH IF YES
 973 003140  005737  010474                  TST     LPD             ;CHECK IF LPD11 WERE SELECTED
 974 003144  001430                          BEQ     45$             ;BRANCH IF NO
 975 003146  012737  000001  011766          MOV     #1,FLAG11       ;SET FLAG FOR LPD11 SELECTION
 976 003154  005737  010624          49$:    TST     V01             ;CHECK IF ANY VTV01 WERE SELECTED
 977 003160  001422                          BEQ     45$             ;BRANCH IF NOT
 978 003162  005737  011766                  TST     FLAG11          ;CHECK IF PAR, PAP OR LPD WERE SELECTED
 979 003166  001417                          BEQ     45$             ;BRANCH IF NOT
 980 003170  012737  000001  011754          MOV     #1,FLAG6        ;SET FLAG THAT PA6-11R WERE SELECTED
 981 003176  062737  000160  010626          ADD     #160,V01+2      ;FORM NEW ADDRESS FOR VTV01
 982 003204  022737  000002  010624          CMP     #2,V01          ;CHECK FOR TWO VTV01
 983 003212  001005                          BNE     45$             ;BRANCH IF NOT
 984 003214  012737  000001  011756          MOV     #1,FLAG7        ;SET FLAG THAT VTV01S WERE DECREASED
 985 003222  005337  010624                  DEC     V01             ;DECREASE VTV01S
 986                                 ;
 987                                 ;* LPD11 ADDRESS IS AFTER THE PA6-11P'S
 988                                 ;
 989 003226  020127  010472          45$:    CMP     R1,#PAP+2       ;CHECK IF THE PA611-P
 990 003232  001063                          BNE     10$             ;BRANCH IF NOT
 991 003234  005737  010470                  TST     PAP             ;CHECK IF ANY PA611-P WERE SELECTED
 992 003240  001460                          BEQ     10$             ;BRANCH IF NOT
 993 003242  005737  010474                  TST     LPD             ;CHECK IF ANY LPD11 WERE SELECTED
 994 003246  001455                          BEQ     10$             ;BRANCH IF NOT
 995 003250  012737  000001  011750          MOV     #1,FLAG4        ;SET FLAG THAT PA611-P AND LPD11 WERE SELECTED
 996 003256  013737  010470  012050          MOV     PAP,SAVE5       ;GET THE NUMBER OF PA611-P SELECTED
 997 003264  006337  012050                  ASL     SAVE5           ;FORM ADDRESS OF LPD11
 998 003270  006337  012050                  ASL     SAVE5
 999 003274  006337  012050                  ASL     SAVE5
1000 003300  063737  012050  010476          ADD     SAVE5,LPD+2     ;ADD ADDRESS TO TABLE
1001 003306  013737  010474  012052  29$:    MOV     LPD,SAVE6       ;GET NUMBER OF LPD11
1002 003314  005337  012052                  DEC     SAVE6           ;DECREMENT BECAUSE LPD+2 HAS FIRST ADDRESS
1003 003320  006337  012052                  ASL     SAVE6           ;FORM NEW ADDRESS
1004 003324  006337  012052                  ASL     SAVE6
1005 003330  006337  012052                  ASL     SAVE6
1006 003334  063737  012050  012052          ADD     SAVE5,SAVE6     ;ADD FIRST ADDRESS TO FORM LAST ADDRESS
1007 003342  022737  000070  012052          CMP     #70,SAVE6       ;CHECK TO SEE IF IT IS TOO HIGH
1008 003350  103014                          BHIS    10$             ;BRANCH IF NOT
1009 003352  012737  000001  011764          MOV     #1,FLAG10       ;SET FLAG THAT LPD11 WERE DECREASED TO ZERO
1010 003360  005337  010474                  DEC     LPD             ;DECREASE LPD
1011 003364  005737  010474                  TST     LPD             ;CHECK TO SEE IF ANY ARE LEFT
1012 003370  001401                          BEQ     36$             ;BRANCH IF NOT
1013 003372  000745                          BR      29$             ;GO BACK AND TRY AGAIN
1014 003374  012737  000001  011752  36$:    MOV     #1,FLAG5        ;LPD11 WERE DECREASED TO ZERO
1015
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COMPUTE THE ADDR.,JUMPERS AND VECTORS SEQ 0019

```
                                        ;*****************************************************************
                                        ;?????????????????????????????????????????????????????????????
                                        ; CHECK HERE FOR A DEVICE THAT NEEDS A COMMENT TYPED.
                                        ; DURING THE PRINT ROUTINE, THE DL11,LPD11,DV11,VTV01,RL11,TS11,LPA11,IP11
                                        ; RESER,RX11,DR11-B,ML11,UNA,UDA,KMS11,TU81,QVSS
                                        ; WILL PRINT OUT  STANDARD CSR AND VECTOR ADDRESSES
                                        ; AND THEN LIST THE FLOATING VALUES FOR
                                        ; ADDITIONAL DEVICES REQUESTED BY OPERATOR.

1025 003402 105737 011770       10$:    TSTB    FLAG12          ;HAVE WE BEEN THROUGH ONCE?             ;LWL002
1026 003406 100406                      BMI     4$              ;IF YES, BRANCH                         ;LWL002
1027 003410                             PRINT   #CSRVEC         ;'CSR  VECTOR  'HEADER                  ;LWL002
     003410 012705 015746               MOV     #CSRVEC,R5              ;ADDRESS TO R5
     003414 104003                      TYPE                    ;GO TYPE IT
1028 003416 052737 000200 011770        BIS     #BIT7,FLAG12    ;WE'VE BEEN THRU HERE                   ;LWL002
1029 003424                     4$:     PRINT   (R2)+           ;TYPE DEVICE NAME
     003424 012205                      MOV     (R2)+,R5                ;ADDRESS TO R5
     003426 104003                      TYPE                    ;GO TYPE IT
1030 003430 020127 010436               CMP     R1,#DL+2        ;IS IT THE DC11
1031 003434 001006                      BNE     39$             ;BRANCH IF NOT
1032 003436 005737 011762               TST     FLAG9           ;CHECK IF DC11 AND DL11-A WERE SELECTED
1033 003442 001403                      BEQ     39$             ;BRANCH IF NOT
1034 003444                             PRINT   #DLMESS         ;PRINT MESSAGE
     003444 012705 020772               MOV     #DLMESS,R5              ;ADDRESS TO R5
     003450 104003                      TYPE                    ;GO TYPE IT
1035 003452 020127 010476       39$:    CMP     R1,#LPD+2       ;IS IT THE LPD11
1036 003456 001022                      BNE     26$             ;BRANCH IF NOT
1037 003460 005737 011750               TST     FLAG4           ;CHECK IF PA611-P AND LPD11 WERE SELECTED
1038 003464 001403                      BEQ     50$             ;BRANCH IF NOT
1039 003466                             PRINT   #LPDMES         ;PRINT MESSAGE
     003466 012705 017335               MOV     #LPDMES,R5              ;ADDRESS TO R5
     003472 104003                      TYPE                    ;GO TYPE IT
1040 003474 005737 011764       50$:    TST     FLAG10          ;HAS THE LPD11 BEEN DECREASED
1041 003500 001403                      BEQ     51$             ;BRANCH IF NOT
1042 003502                             PRINT   #LPDESS         ;PRINT MESSAGE
     003502 012705 017542               MOV     #LPDESS,R5              ;ADDRESS TO R5
     003506 104003                      TYPE                    ;GO TYPE IT
1043 003510 005737 011752       51$:    TST     FLAG5           ;HAS THE LPD11 BEEN DECREASED TO ZERO
1044 003514 001403                      BEQ     26$             ;BRANCH IF NOT
1045 003516                             PRINT   #LPDMES         ;PRINT MESSAGE
     003516 012705 017335               MOV     #LPDMES,R5              ;ADDRESS TO R5
     003522 104003                      TYPE                    ;GO TYPE IT
1046 003524 020127 010562       26$:    CMP     R1,#DV+2        ;IS IT THE DV11?
1047 003530 001021                      BNE     13$             ;BRANCH IF NOT
1048 003532                             PRINT   #DVMESS         ;PRINT DV11 MESSAGE
     003532 012705 016121               MOV     #DVMESS,R5              ;ADDRESS TO R5
     003536 104003                      TYPE                    ;GO TYPE IT
1049 003540 005737 011742               TST     FLAG1           ;CHECK IF DM11-A AND DV11 WERE SELECTED
1050 003544 001403                      BEQ     11$             ;BRANCH IF NOT
1051 003546                             PRINT   #DVMES          ;PRINT MESSAGE THAT THEY WERE
     003546 012705 016716               MOV     #DVMES,R5               ;ADDRESS TO R5
     003552 104003                      TYPE                    ;GO TYPE IT
1052 003554 005737 011744       11$:    TST     FLAG2           ;CHECK IF DV11 WERE DECREASED TO ZERO
1053 003560 001403                      BEQ     20$             ;BRANCH IF NOT
1054 003562                             PRINT   #DVMSS          ;PRINT MESSAGE THAT THEY WERE
     003562 012705 017121               MOV     #DVMSS,R5               ;ADDRESS TO R5
     003566 104003                      TYPE                    ;GO TYPE IT
```

COMPUTE THE ADDR.,JUMPERS AND VECTORS

```
1055 003570  000137  004332          20$:   JMP     PRI             ;BACK TO ROUTINE
1056 003574  020127  010626          13$:   CMP     R1,#VO1+2       ;IS IT THE VTVO1
1057 003600  001014                         BNE     46$             ;BRANCH IF NOT
1058 003602  005737  011754                 TST     FLAG6           ;CHECK IF BOTH PA6-11RS AND VTVO1 WERE SELECTED
1059 003606  001411                         BEQ     46$             ;BRANCH IF NOT
1060 003610                                 PRINT   #VO1MES         ;PRINT MESSAGE
     003610  012705  020345                 MOV     #VO1MES,R5              ;ADDRESS TO R5
     003614  104003                         TYPE                    ;GO TYPE IT
1061 003616  005737  011756                 TST     FLAG7           ;CHECK IF THE VTVO1 WAS DECREASED
1062 003622  001403                         BEQ     46$             ;BRANCH IF NOT
1063 003624                                 PRINT   #VO1MSS         ;PRINT MESSAGE
     003624  012705  020561                 MOV     #VO1MSS,R5              ;ADDRESS TO R5
     003630  104003                         TYPE                    ;GO TYPE IT
1064 003632  020127  010636          46$:   CMP     R1,#RL+2        ;IS IT THE RL?
1065 003636  001007                         BNE     14$             ;IF NOT, BRANCH
1066 003640  005337  010634                 DEC     RL              ;DECREMENT DEVICE COUNT
1067 003644  012705  016201                 MOV     #RLMESS, R5     ;THEN PRINT STANDARD CSR
1068 003650  104003                         TYPE                    ;GO TYPE IT
1069 003652  000137  004310                 JMP     CLEAN           ;BACK TO ROUTINE
1070 003656  020127  010642          14$:   CMP     R1,#TS11+2      ;IS IT THE TS11?
1071 003662  001007                         BNE     15$             ;IF NOT, BRANCH
1072 003664  005337  010640                 DEC     TS11            ;DECREMENT DEVICE COUNT
1073 003670  012705  016244                 MOV     #TSMESS,R5      ;THEN PRINT STANDARD CSR
1074 003674  104003                         TYPE                    ;GO TYPE IT
1075 003676  000137  004310                 JMP     CLEAN           ;BACK TO ROUTINE
1076 003702  020127  010646          15$:   CMP     R1,#LPAK+2      ;IS IT THE LPAK?
1077 003706  001022                         BNE     18$             ;IF NOT, BRANCH
1078 003710  105737  011740                 TSTB    FLAG            ;CHECK IF IN FA OR VA
1079 003714  100410                         BMI     19$             ;BRANCH IF IN FA
1080 003716  013737  010646  012040         MOV     LPAK+2,SAVE1    ;SAVE FLOATING ADDRESS
1081 003724  012737  170460  010646         MOV     #170460,LPAK+2  ;REPLACE FLOATING ADDRESS WITH STANDARD
1082 003732  000137  004332                 JMP     PRI             ;BRANCH FOR VECTOR
1083 003736  005337  010644          19$:   DEC     LPAK            ;DECREMENT DEVICE COUNT
1084 003742  012705  016307                 MOV     #LPKMES,R5      ;THEN PRINT STANDARD CSR
1085 003746  104003                         TYPE                    ;GO TYPE IT
1086 003750  000137  004310                 JMP     CLEAN           ;BACK TO ROUTINE
1087 003754  020127  010652          18$:   CMP     R1,#IP+2        ;IS IT THE IP11
1088 003760  001007                         BNE     21$             ;IF NOT, BRANCH
1089 003762  005337  010650                 DEC     IP              ;DECREMENT DEVICE COUNT
1090 003766  012705  016334                 MOV     #IPMESS,R5      ;PRINT STANDARD CSR
1091 003772  104003                         TYPE                    ;GO TYPE IT
1092 003774  000137  004310                 JMP     CLEAN           ;CONTINUE TEST
1093 004000  020127  010662          21$:   CMP     R1,#RESR+2      ;IS IT THE RESR
1094 004004  001007                         BNE     22$             ;IF NOT BRANCH
1095 004006  005337  010660                 DEC     RESR            ;DECREMENT COUNT
1096 004012  012705  016377                 MOV     #REMES,R5       ;PRINT NOT USED
1097 004016  104003                         TYPE                    ;GO TYPE IT
1098 004020  000137  004310                 JMP     CLEAN           ;COUNTINE TEST
1099 004024  020127  010666          22$:   CMP     R1,#RX+2        ;IS IT THE RX11
1100 004030  001007                         BNE     23$             ;BRANCH IF NOT
1101 004032  005337  010664                 DEC     RX              ;DECREMENT DEVICE COUNT
1102 004036  012705  016412                 MOV     #RXMES,R5       ;PRINT STANDARD CSR
1103 004042  104003                         TYPE                    ;GO TYPE IT
1104 004044  000137  004310                 JMP     CLEAN           ;CONTINUE TEST
1105 004050  020127  010676          23$:   CMP     R1,#DRB+2       ;IS IT THE DRB
1106 004054  001015                         BNE     24$             ;BRANCH IF NOT
1107 004056  005337  010674                 DEC     DRB             ;DECREMENT DEVICE COUNT
```

```
004062  013737  010676  012042            MOV     DRB+2,SAVE2       ;SAVE FLOATING ADDRESS
004070  012737  172430  010676            MOV     #172430,DRB+2     ;REPLACE FLOATING ADDRESS WITH STANDARD
004076  012705  016455                    MOV     #DRBMES,R5        ;PRINT STANDARD CSR
004102  104003                            TYPE                      ;GO TYPE IT
004104  000137  004310                    JMP     CLEAN             ;CONTINUE TEST
004110  020127  010712            24$:    CMP     R1,#ML+2          ;IS IT THE ML11
004114  001002                            BNE     25$               ;BRANCH IF NOT
004116  000137  004332                    JMP     PRI               ;GET VECTOR
004122  020127  010726            25$:    CMP     R1,#UNA+2         ;IS IT THE DEUNA
004126  001007                            BNE     UNA$              ;IF NOT BRANCH
004130  005337  010724                    DEC     UNA               ;DECREMENT DEVICE COUNT
004134  012705  016520                    MOV     #UNAMES,R5        ;THEN PRINT STANDARD CSR
004140  104003                            TYPE                      ;GO TYPE IT
004142  000137  004310                    JMP     CLEAN             ;BACK TO ROUTINE
004146  020127  010732            UNA$:   CMP     R1,#UDA+2         ;IS IT THE UDA
004152  001007                            BNE     52$               ;BRANCH IF NOT
004154  005337  010730                    DEC     UDA               ;DECREMENT DEVICE COUNT
004160  012705  016563                    MOV     #UDAMES,R5        ;PRINT STANDARD CSR AND VECTOR
004164  104003                            TYPE                      ;GO TYPE IT
004166  000137  004310                    JMP     CLEAN             ;CONTINUE TEST
004172  020127  010742            52$:    CMP     R1,#KMS+2         ;IS IT THE KMS11
004176  001005                            BNE     27$               ;BRANCH IF NOT
004200  012705  021334                    MOV     #KMSMES,R5        ;PRINT MODEM MESS
004204  104003                            TYPE                      ;GO TYPE IT
004206  000137  004310                    JMP     CLEAN             ;CONTINUE TEST
004212  020127  010756            27$:    CMP     R1,#TU81+2        ;IS IT THE TU81
004216  001007                            BNE     QV$               ;BRANCH IF NOT
004220  005337  010754                    DEC     TU81              ;DECREMENT DEVICE COUNT
004224  012705  016626                    MOV     #TU81MS,R5        ;PRINT STANDARD CSR AND VECTOR
004230  104003                            TYPE                      ;GO TYPE IT
004232  000137  004310                    JMP     CLEAN             ;BACK TO ROUTINE
004236  020127  011016            QV$:    CMP     R1,#QVSS+2        ;IS IT THE QVSS
004242  001007                            BNE     DR$               ;BRANCH IF NOT
004244  005337  011014                    DEC     QVSS              ;DECREMENT DEVICE COUNT
004250  012705  016671                    MOV     #QVSSMS,R5        ;PRINT STANDARD CSR
004254  104003                            TYPE                      ;GO TYPE IT
004256  000137  004310                    JMP     CLEAN             ;BACK TO ROUTINE
004262  020127  010462            DR$:    CMP     R1,#DR+2          ;IS IT THE DR11?
004266  001021                            BNE     PRI               ;BRANCH IF NOT
004270  013705  010460                    MOV     DR,R5             ;# OF DR11
004274  006305                            ASL     R5                ;MULTIPLY BY 10
004276  006305                            ASL     R5
004300  006305                            ASL     R5
004302  005405                            NEG     R5                ;SET UP TO SUBTRACT
004304  000137  004332                    JMP     PRI               ;GET OVER CLEAN UP ROUTINE
004310  005761  177776            CLEAN:  TST     -2(R1)            ;ARE THERE ANY LEFT?
004314  001006                            BNE     PRI               ;YES, THEN BRANCH
004316                                    PRINT   #CRLF             ;CR/LF
004316  012705  014510                    MOV     #CRLF,R5                ;ADDRESS TO R5
004322  104003                            TYPE                      ;GO TYPE IT
004324  005741                            TST     -(R1)             ;ADJUST POINTER
004326  000137  004426                    JMP     PRIN              ;CLEAN UP

                                  ;!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
                                  ;***************************************************************

004332                            PRI:    PRINT   #CRLF             ;CR/LF
```

```
004332  012705  014510               MOV     #CRLF,R5             ;ADDRESS TO R5
004336  104003                       TYPE                         ;GO TYPE IT
004340                      5$:      PRINT   #TAB                 ;PRINT TAB TO OFFSET ADDRESSES          ;LWL002
004340  012705  016105               MOV     #TAB,R5              ;ADDRESS TO R5
004344  104003                       TYPE                         ;GO TYPE IT
004346  104004                       OTOA                         ;CHANGE ADDRESS TO ASCII
                            ;LWL002 TSTB     FLAG                 ;WHICH OPTIN?
                            ;LWL002 BMI      6$                   ;BR FOR 'FA'
004350  004737  004444      4$:      JSR     PC,VECT              ;GO GET THE VECTOR
                            ;LWL002 BR       7$                   ;GO TYPE IT
                            ;LWL0026$:       JSR     PC,JUMPER    ;GET JUMPER OR SWITCH SETTING
004354                      7$:      PRINT   #A                   ;TYPE THE ADDRESS AND VECTOR/JUMPERS
004354  012705  012054               MOV     #A,R5                ;ADDRESS TO R5
004360  104003                       TYPE                         ;GO TYPE IT
004362  005341                       DEC     -(R1)                ;ANY MORE OF THE SAME?
004364  001420                       BEQ     PRIN                 ;BRANCH IF NO MORE
004366  005721                       TST     (R1)+                ;POINT TO ADDR OF DEVICE
004370  022711  170460               CMP     #170460,(R1)         ;CHECK TO SEE IF ITS THE LPA11-K
004374  001003                       BNE     30$                  ;BRANCH IF NOT
004376  013711  012040               MOV     SAVE1,(R1)           ;RESTORE FLOATING ADDRESS
004402  000410                       BR      32$                  ;BRANCH TO CONVERT
004404  022711  172430      30$:     CMP     #172430,(R1)         ;CHECK TO SEE IF ITS THE DR11-B
004410  001003                       BNE     31$                  ;BRANCH IF NOT
0C4412  013711  012042               MOV     SAVE2,(R1)           ;RESTORE FLOATING ADDRESS
004416  000402                       BR      32$                  ;BRANCH TO CONVERT
004420  066011  007520      31$:     ADD     NAT(R0),(R1)         ;ADD  GAP BETWEEN SAME DEVICES
004424  000745              32$:     BR      5$                   ;GO CONVERT
004426                      PRIN:    PRINT   #CRLF                ;NEXT DEVICE
004426  012705  014510               MOV     #CRLF,R5             ;ADDRESS TO R5
004432  104003                       TYPE                         ;GO TYPE IT
004434  005721                       TST     (R1)+                ;ADJUST POINTER


                            ;* END OF CHECKS
                            ;


004436  022120              12$:     CMP     (R1)+,(R0)+          ;UPDATE POINTERS
004440  000137  002510               JMP     DONE1                ;SEE IF ANY MORE

                            ;!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
                            ;***************************************************************
                                     .SBTTL CALCULATE THE VECTOR
                            ; THIS ROUTINE, AFTER CHECKING THE VECTOR, CONVERTS IT TO ASCII,
                            ; THEN UPDATES IT FOR THE NEXT UNIT OR DEVICE.

004444  010146              VECT:    MOV     R1,-(SP)

                            ;****************************************************************
                            ;????????????????????????????????????????????????????????????????
                            ; SPECIAL DEVICE VECTOR CHECKING................
                            ;
                            ;* THE VECTOR IS OK BEFORE WE GET TO THE DMA'S
                            ;
004446  020127  010444      4$:      CMP     R1,#DMA              ;WORRY ABOUT CORRECT VECTOR?
004452  002501                       BLT     6$                   ;BR IF NO
```

CALCULATE THE VECTOR

```
                                        ;* THE PA6'S FOLLOW THE DR'S BUT HAVE A VECTOR GAP OF ONLY 4
                                        ;
004454  020127  010452                        CMP     R1,#DN+2        ;DN VECOR INCREASE BY 4
004460  001476                                BEQ     6$
004462  020127  010456                        CMP     R1,#DMBB+2      ;DMBB INCREASE BY 4
004466  001473                                BEQ     6$
004470  020127  010636                        CMP     R1,#RL+2        ;RL11 VECTOR INCREASE BY 4
004474  001470                                BEQ     6$
004476  020127  010642                        CMP     R1,#TS11+2      ;TS11 VECTOR INCREASES BY 4
004502  001465                                BEQ     6$
004504  020127  010652                        CMP     R1,#IP+2        ;IP11 VECTOR INCREASES BY 4
004510  001462                                BEQ     6$
004512  020127  010666                        CMP     R1,#RX+2        ;RX11 VECTOR INCREASES BY 4
004516  001457                                BEQ     6$
004520  020127  010672                        CMP     R1,#DRW+2       ;DRW VECTOR INCREASES BY 4
004524  001454                                BEQ     6$
004526  020127  010676                        CMP     R1,#DRB+2       ;DRB VECTOR INCREASES BY 4
004532  001451                                BEQ     6$
004534  020127  010712                        CMP     R1,#ML+2        ;ML11 VECTOR INCREASE BY 4
004540  001446                                BEQ     6$
004542  020127  010726                        CMP     R1,#UNA+2       ;UNA VECTOR INCREASE BY 4
004546  001443                                BEQ     6$
004550  020127  010732                        CMP     R1,#UDA+2       ;UDA VECTOR INCREASE BY 4
004554  001440                                BEQ     6$
004556  020127  010752                        CMP     R1,#VS100+2     ;VS100 VECTOR INCREASE BY 4
004562  001435                                BEQ     6$
004564  020127  010756                        CMP     R1,#TU81+2      ;TU81 VECTOR INCREASE BY 4
004570  001432                                BEQ     6$
004572  020127  011012                        CMP     R1,#QNA+2       ;QNA VECTOR INCREASE BY 4
004576  001427                                BEQ     6$
004600  020127  011022                        CMP     R1,#VS31+2      ;VS31 VECTOR INCREASE BY 4
004604  001424                                BEQ     6$
004606  020127  011026                        CMP     R1,#LNV+2       ;LNV-11 VECTOR INCREASE BY 4
004612  001421                                BEQ     6$


                                        ;* CORRECT VECTOR IF NEEDED
                                        ;
004614  032737  000004  012030                BIT     #BIT2,VECTOR    ;CHECK TO SEE IF VECTOR IS AT AN EVEN 10
004622  001403                                BEQ     1$              ;BR IF OK
004624  062737  000004  012030                ADD     #4,VECTOR       ;ELSE ADD 4

                                        ;* GT40 VECTOR GOES UP BY 20 AND IS DIVISIBLE BY 20
                                        ;
004632  020127  010526          1$:     CMP     R1,#GT+2        ;ARE WE THERE?
004636  001007                                BNE     6$              ;DON'T WORRY ABOUT IT
004640  032737  000010  012030                BIT     #BIT3,VECTOR    ;CHECK IT
004646  001403                                BEQ     6$
004650  062737  000010  012030                ADD     #10,VECTOR      ;MAKE IT RIGHT


                                        ;* AND FINALLY MAKE SURE IT'S IN BOUNDS
                                        ;
004656  012701  012030          6$:     MOV     #VECTOR,R1      ;SET R1 FOR OTOA ROUTINE
004662  021127  000774                        CMP     @R1,#774        ;CHECK FOR HIGH VECTOR LIMIT
004666  003405                                BLE     2$              ;IT'S OK!
004670                                      PRINT   #BADCON
```

```
004670  012705  015605                  MOV     #BADCON,R5              ;ADDRESS TO R5
004674  104003                          TYPE                            ;GO TYPE IT
004676  000137  001120                  JMP     RES                     ;DONE!

                                ;!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
                                ;*****************************************************************

004702  012737  012076  004754  2$:     MOV     #DBUF+6,SOTOA+2 ;MODIFY OTOA ROUTINE - BUFFER START
004710  012737  012070  005000          MOV     #DBUF,SOTOA+26  ;BUFFER END
004716  005037  012076                  CLR     DBUF+6          ;ZERO END OF BUFFER FOR CR/LF
004722  104004                          OTOA                    ;CONVERT VECTOR
004724  012737  012062  004754          MOV     #ABUF,SOTOA+2   ;RESET OTOA ROUTINE
004732  012737  012054  005000          MOV     #A,SOTOA+26
004740  066037  010120  012030          ADD     VST(R0),VECTOR  ;ADJUST FOR NEXT
004746  012601                  5$:     MOV     (SP)+,R1        ;RESTORE R1
004750  000207                          RTS     PC

                                        .SBTTL OCTAL TO OCTAL ASCII
004752  012704  012062          SOTOA:  MOV     #ABUF,R4        ;START OF BUFFER TO R4
004756  010046                          MOV     R0,-(SP)        ;SAVE R0
004760  011103                          MOV     (R1),R3         ;GET NUMBER
004762  010300                          MOV     R3,R0           ;SO DOES R0
004764  042700  177770          1$:     BIC     #177770,R0      ;THE LAST 3 BITS ARE OF INTEREST!
004770  052700  000060                  BIS     #60,R0          ;MAKE IT AN ASCII NUMBER!
004774  110044                          MOVB    R0,-(R4)        ;STORE IT
004776  022704  012054                  CMP     #A,R4           ;ARE WE DOWN?
005002  001002                          BNE     2$              ;NO-BR
005004  012600                          MOV     (SP)+,R0        ;YEP! RESTORE R0
005006  000002                          RTI
005010  006203                  2$:     ASR     R3              ;GET THE NEXT 3 BITS
005012  006203                          ASR     R3
005014  006203                          ASR     R3
005016  010300                          MOV     R3,R0           ;MOVE TO R0
005020  000761                          BR      1$              ;DOITTOITAGAIN!!!
                                                                ;

                                        .SBTTL JUMPER SELECT
                                ; CONVERT THE ADDRESS BITS THAT ARE SET TO THEIR ASCII EQUIVALENT
                                ;
005022  010046                  JUMPER: MOV     R0,-(SP)        ;SAVE R0
005024  011100                          MOV     @R1,R0          ;R0<=ADDRESS
005026  012703  012070                  MOV     #DBUF,R3        ;R3<=ASCII BUFFER
005032  012704  177774                  MOV     #-4,R4          ;GO FROM -4 TO 12

                                ;*****************************************************************
                                ;?????????????????????????????????????????????????????????????????
                                ; THE DEVICES THAT USE JUMPERS USE THE JUMPER TABLE (JT).
                                ;
005036  020127  010516                  CMP     R1,#DJ+2        ;THE DJ'S, DH'S, AND DQ'S USE JUMPERS
005042  001437                          BEQ     1$
```

```
005044  020127  010522          CMP     R1,#DH+2
005050  001434                  BEQ     1$
005052  020127  010542          CMP     R1,#DQ+2
005056  001431                  BEQ     1$
                        ;LWL002 CMP     R1,#LKK+2
005060  020127  010566          CMP     R1,#LK+2                                        ;LWL002
005064  001426                  BEQ     1$

                        ;!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
                        ;*****************************************************************
                        ;THE DEVICES THAT USE SWITCHES USE THE JUMPER TABLE (ST)

005066  020127  010552          CMP     R1,#DU+2
005072  001420                  BEQ     4$
005074  020127  010556          CMP     R1,#DUP+2
005100  001415                  BEQ     4$
005102  020127  010576          CMP     R1,#DMC+2
005106  001412                  BEQ     4$
005110  020127  010602          CMP     R1,#DZ+2
005114  001407                  BEQ     4$
005116  020127  010606          CMP     R1,#KMC+2
005122  001404                  BEQ     4$
005124  020127  010726          CMP     R1,#UNA+2
0C5130  001401                  BEQ     4$
005132  000416                  BR      3$
005134  012705  011774  4$:     MOV     #ST,R5          ;R5<= SWITCH TABLE
005140  000402                  BR      2$
005142  012705  012000  1$:     MOV     #JT,R5          ;R5<= JUMPER TABLE
005146  005204          2$:     INC     R4              ;THE FIRST 3 BITS WILL BE CLEAR
005150  006000                  ROR     R0              ;SHIFT THE ADDRESS
005152  103375                  BCC     2$              ;IF CLR - TRY THE NEXT
005154  020427  000012          CMP     R4,#12          ;
005160  001403                  BEQ     3$              ;BR IF FINISHED
005162  004737  005176          JSR     PC,CVTA         ;CONVERT TO ASCII
005166  000767                  BR      2$              ;DO IT AGAIN
005170  012600          3$:     MOV     (SP)+,R0        ;RESTORE R0
                        ;LWL002 CLRB    -(R3)           ;ZERO BYTE FOR OUTPUT
005172  105013                  CLRB    (R3)            ;ZERO BYTE FOR OUTPUT           ;LWL002
005174  000207                  RTS     PC

                                                        ;

                                .SBTTL CONVERT  BIT TO ASCII #
005176  006304          CVTA:   ASL     R4              ;R4 HAS A # BETWEEN 0 AND 11
005200  060405                  ADD     R4,R5           ;ADD IT TO R5 ---POINTS TO CORRECT ASCII CHAR.S
005202  111523                  MOVB    (R5),(R3)+      ;MOV CHARACTERS TO BUFFER
005204  116513  000001          MOVB    1(R5),(R3)
005210  160405                  SUB     R4,R5           ;RESET R5
005212  006204                  ASR     R4              ;RESET R4
005214  122327  000054          CMPB    (R3)+,#',       ;TO MAKE IT NEAT---MAKE SURE THERE IS A COMMA
005220  001402                  BEQ     1$              ;YEP!  OK!!
005222  112723  000054          MOVB    #',,(R3)+       ;PUT IT THERE
005226  000207          1$:     RTS     PC

                                                        ;



                                .SBTTL INPUT ROUTINE

```

INPUT ROUTINE

```
1381 005230  012700  021542          SINPUT: MOV     #BUFF,R0        ;START OF BUFF TO R0
1382 005234  105777  173442                  TSTB    @TRB            ;KILL LAST CHAR.
1383 005240  105777  173434          TST:    TSTB    @TRS            ;SEE IF HE TYPED ANYTHING
1384 005244  100375                          BPL     TST             ;BR IF NO
1385 005246  117710  173430                  MOVB    @TRB,(R0)       ;STORE IT
1386 005252  142710  000200                  BICB    #BIT7,(R0)      ;STRIP PARITY
1387 005256  121027  000141                  CMPB    (R0),#141       ;SEE IF ITS LOWER CASE
1388                              ;LWL002     BLT     2$              ;BR IF NO
1389 005262  002405                          BLT     11$             ;BR IF NO                       ;LWL002
1390 005264  121027  000172                  CMPB    (R0),#172       ;MAYBE
1391                              ;LWL002     BGT     2$              ;BRANCH IF DEFFINATELY NOT
1392 005270  003002                          BGT     11$             ;BRANCH IF DEFINITELY NOT       ;LWL002
1393 005272  142710  000040                  BICB    #BIT5,(R0)      ;IT IS - MAKE IT UPPER CASE IN BUFFER
1394 005276  121027  000023          11$:    CMPB    (R0),#23        ;IS THIS XOFF?                  ;LWL002
1395 005302  001001                          BNE     12$             ;BRANCH IF NOT                  ;LWL002
1396 005304  000751                          BR      SINPUT          ;IF YES, START OVER             ;LWL002
1397 005306  121027  000021          12$:    CMPB    (R0),#21        ;IS THIS XON?                   ;LWL002
1398 005312  001001                          BNE     2$              ;BRANCH IF NOT                  ;LWL002
1399 005314  000745                          BR      SINPUT          ;IF YES, START OVER             ;LWL002
1400 005316  121027  000003          2$:     CMPB    (R0),#3         ;IS IT A ↑C?
1401 005322  001002                          BNE     6$              ;NO
1402 005324  000137  001004                  JMP     START           ;LETS START IT AGAIN!!!
1403 005330  121027  000032          6$:     CMPB    (R0),#32        ;IS IT A CONTROL Z
1404 005334  001002                          BNE     7$              ;BRANCH IF NOT
1405 005336  000137  001444                  JMP     PRINT           ;PRINT SELECTED LIST
1406 005342  005737  011760          7$:     TST     FLAG8           ;IS IT OK TO USE CONTROL A
1407 005346  001430                          BEQ     5$              ;BRANCH IF NO
1408 005350  121027  000001                  CMPB    (R0),#1         ;IS IT A CONTROL A
1409 005354  001025                          BNE     5$              ;BRANCH IF NOT
1410 005356  105737  011740                  TSTB    FLAG            ;CHECK FOR VA OR FA
1411 005362  001404                          BEQ     8$              ;BRANCH IF FA
1412 005364  022702  007072                  CMP     #DT2,R2         ;CHECK IF AT BEGINING OF VA TABLE
1413 005370  001411                          BEQ     10$             ;BRANCH IF AT BEGINING
1414 005372  000403                          BR      9$              ;BRANCH TO BACK UP TABLES
1415 005374  022702  006562          8$:     CMP     #DT1,R2         ;CHECK IF AT BEGINING OF FA TABLE
1416 005400  001405                          BEQ     10$             ;BRANCH IF AT BEGINING
1417 005402  162701  000002          9$:     SUB     #2,R1           ;BACK UP MT1 OR MT2
1418 005406  162703  000002                  SUB     #2,R3           ;BACK UP QT1 OR QT2
1419 005412  005052                          CLR     @-(R2)          ;BACK UP DT1 OR DT2 AND CLEAR NUMBER
1420 005414  012626                  10$:    MOV     (SP)+,(SP)+     ;RESTORE STACK
1421 005416                                  PRINT   #CRLF           ;DO A CRRAGE RETURN AND LINE FEED
     005416  012705  014510                  MOV     #CRLF,R5                ;ADDRESS TO R5
     005422  104003                          TYPE                    ;GO TYPE IT
1422 005424  000137  001410                  JMP     QUES            ;START AGAIN
1423 005430  121027  000177          5$:     CMPB    (R0),#177       ;IS IT A DELETE?
1424 005434  001431                          BEQ     RUBOUT          ;YEP!
1425 005436  032737  000002  011740          BIT     #BIT1,FLAG      ;ARE WE IN DELETE MODE?
1426 005444  001411                          BEQ     3$              ;NO-BRANCH
1427 005446  042737  000002  011740          BIC     #BIT1,FLAG      ;YES..NOT ANY MORE!
1428 005454  012777  000134  173224          MOV     #'\,@TPB        ;SEPARATE THE DELETED FROM THE NEW.
1429 005462  105777  173216          4$:     TSTB    @TPS            ;WAIT FOR READY.
1430 005466  100375                          BPL     4$
1431 005470  121027  000015          3$:     CMPB    (R0),#CR        ;A TERMINATOR?
1432 005474  001403                          BEQ     1$              ;YES!
1433 005476  112077  173204                  MOVB    (R0)+,@TPB      ;NO..JUST ECHO AND
1434 005502  000656                          BR      TST             ;GET NEXT CHARACTER.
1435 005504                          1$:     PRINT   #CRLF           ;PRINT A CR AND LF.
```

INPUT ROUTINE

```
        005504  012705  014510                  MOV     @CRLF,R5                ;ADDRESS TO R5
        005510  104003                           TYPE                            ;GO TYPE IT
  1436  005512  012700  021542                  MOV     @BUFF,R0                ;POINT R0 TO BEGINNING OF BUFFER.
  1437  005516  000002                           RTI                             ;RETURN
  1438  005520  022700  021542          RUBOUT: CMP     @BUFF,R0                ;CAN'T DELETE PAST BEGINNING OF BUFFER
  1439  005524  002245                           BGE     TST
  1440  005526  122737  000126  012277          CMPB    @V,TERMTP               ;IS THIS A VIDEO TERMINAL?              ;LWL002
  1441  005534  001423                           BEQ     4$                      ;BRANCH IF IT IS                        ;LWL002
  1442  005536  032737  000002  011740          BIT     @BIT1,FLAG              ;IN DELETE MODE?
  1443  005544  001011                           BNE     3$                      ;BR IF YES
  1444  005546  052737  000002  011740          BIS     @BIT1,FLAG              ;NOW WE ARE!
  1445  005554  112777  000134  173124          MOVB    @'\,@TPB                ;SEPARATE THAT THAT IS FROM THAT THAT IS NO MORE!!
  1446  005562  105777  173116          2$:     TSTB    @TPS                    ;WAIT
  1447  005566  100375                           BPL     2$
  1448  005570  114077  173112          3$:     MOVB    -(R0),@TPB              ;ECHO DELETE CHAR.
  1449  005574  105777  173104          1$:     TSTB    @TPS                    ;WAIT FOR READY
  1450  005600  100375                           BPL     1$
  1451  005602  000616                           BR      TST                     ;GET NEXT
  1452  005604  105740                  4$:     TSTB    -(R0)                   ;BACK-UP POINTER                        ;LWL002
  1453  005606  010046                           MOV     R0,-(SP)                ;SAVE R0 POINTER                        ;LWL002
  1454  005610  012700  012273                  MOV     @DCHAR,R0               ;GET DELETE SEQUENCE OF CHARACTERS      ;LWL002
  1455  005614  112077  173066          6$:     MOVB    (R0)+,@TPB              ;OUTPUT FIRST CHARACTER                 ;LWL002
  1456  005620  105777  173060          5$:     TSTB    @TPS                    ;READY FOR NEXT ONE?                    ;LWL002
  1457  005624  100375                           BPL     5$                      ;BRANCH IF NOT                          ;LWL002
  1458  005626  105710                           TSTB    (R0)                    ;END OF STRING?                         ;LWL002
  1459  005630  001371                           BNE     6$                      ;NO,NEXT CHARACTER                      ;LWL002
  1460  005632  012600                           MOV     (SP)+,R0                ;RESTORE R0                             ;LWL002
  1461  005634  000601                           BR      TST                     ;BACK TO INPUT ROUTINE                  ;LWL002
  1462
  1463
  1464                                           .SBTTL DECIMAL ASCII TO OCTAL
  1465  005636  010146                  SDATO:  MOV     R1,-(SP)                ;SAVE R1
  1466  005640  010346                          MOV     R3,-(SP)                ;AND R3
  1467  005642  012701  021542                  MOV     @BUFF,R1                ;INPUT BUFF TO R1
  1468  005646  005000                          CLR     R0                      ;R0 GETS RESULT
  1469  005650  112103                  CMP1:   MOVB    (R1)+,R3                ;GET CHAR.
  1470  005652  122703  000015                  CMPB    @CR,R3                  ;EOL?
  1471  005656  001433                          BEQ     EXIT                    ;YES - BR
  1472  005660  120327  000060                  CMPB    R3,@60                  ;SEE IF IT'S A NUMBER
  1473  005664  002414                          BLT     IL                      ;CAN'T BE LESS THAN 60
  1474  005666  120327  000071                  CMPB    R3,@71                  ;    OR
  1475  005672  003011                          BGT     IL                      ;GREATER THAN 71
  1476  005674  162703  000060                  SUB     @60,R3                  ;CHANGE TO OCTAL
  1477  005700  006300                          ASL     R0                      ;SHIFT OLD
  1478  005702  060003                          ADD     R0,R3                   ;ADD TO NEW
  1479  005704  006300                          ASL     R0                      ;OLD * 2        ;  A DIVIDE BY 8.ROUTINE!
  1480  005706  006300                          ASL     R0                      ;   *2 AGAIN
  1481  005710  060300                          ADD     R3,R0                   ;ADD (2*OLD+NEW) TO 10*OLD
  1482  005712  103356                          BCC     CMP1                    ;NO CARRY -- OK
  1483  005714  000407                          BR      TOB                     ;ELSE IT'S TOO BIG
  1484  005716                           IL:     PRINT   #ILL                    ;IT'S AN ILLEGAL NUMBER
        005716  012705  014513                  MOV     #ILL,R5                 ;ADDRESS TO R5
        005722  104003                          TYPE                            ;GO TYPE IT
  1485  005724  052737  100000  011740  ER:     BIS     #BIT15,FLAG             ;SET ERROR FLAG
  1486  005732  000411                          BR      OK                      ;EXIT
  1487  005734  104006                  TOB:    OTDA
  1488  005736                                   PRINT   #TB                     ;TOO BIG
```

DECIMAL ASCII TO OCTAL

```
        005736  012705  014546                 MOV     #TB,R5          ;ADDRESS TO R5
        005742  104003                           TYPE                    ;GO TYPE IT
  1489  005744  000767                           BR      ER              ;GO SET ERROR
  1490  005746  016601  000002          EXIT:   MOV     2(SP),R1        ;RESTORE R1
  1491  005752  021100                          CMP     (R1),R0         ;CHECK FOR MAXIMUM NUMBER
  1492  005754  002767                          BLT     TOB             ;BR IF TOO BIG
  1493  005756  012603                  OK:     MOV     (SP)+,R3        ;RESTORE R3
  1494  005760  012601                          MOV     (SP)+,R1        ;RESTORE R1
  1495  005762  000002                          RTI
  1496
  1497                                           .SBTTL EVEN OR ODD?
  1498  005764  032737  000010  012034  BITE:   BIT     #10,ADDR        ;ENTER FOR EVEN
  1499  005772  001403                          BEQ     BEX             ;BR IF EVEN
  1500  005774  062737  000010  012034          ADD     #10,ADDR        ;ADD 10    -   EVEN OR ODD
  1501  006002  000207                  BEX:    RTS     PC
  1502
  1503  006004  032737  000010  012034  BITE1:  BIT     #10,ADDR        ;ENTER TO MAKE SURE ADDR 0 OR 40
  1504  006012  001403                          BEQ     BADD            ;BR IF EVEN
  1505  006014  062737  000010  012034          ADD     #10,ADDR        ;ADD 10 TO MAKE IT EVEN
  1506  006022  032737  000020  012034  BADD:   BIT     #20,ADDR        ;ENTER FOR EVEN
  1507  006030  001403                          BEQ     BEX1            ;BR IF EVEN
  1508  006032  062737  000020  012034          ADD     #20,ADDR        ;ADD 20 TO MAKE IT EVEN
  1509  006040  000207                  BEX1:   RTS     PC
  1510  006042  032737  000010  012034  BITE2:  BIT     #10,ADDR        ;ENTER TO MAKE SURE ADDR 0 OR 100
  1511  006050  001403                          BEQ     BADS            ;BR IF ADDR BIT TWO IS CLEAR
  1512  006052  062737  000010  012034          ADD     #10,ADDR        ;ADD 10 TO MAKE IT EVEN
  1513  006060  032737  000020  012034  BADS:   BIT     #20,ADDR        ;CHECK FOR BIT FOUR
  1514  006066  001403                          BEQ     BADDS           ;BR IF ADDR BIT FOUR IS CLEAR
  1515  006070  062737  000020  012034          ADD     #20,ADDR        ;ADD 20 TO MAKE IT EVEN
  1516  006076  032737  000040  012034  BADDS:  BIT     #40,ADDR        ;CHECK FOR ADDR BIT FIVE
  1517  006104  001403                          BEQ     BEX2            ;BR IF ADDR BIT FIVE IS CLEAR
  1518  006106  062737  000040  012034          ADD     #40,ADDR        ;ADD 40 TO MAKE IT EVEN
  1519  006114  000207                  BEX2:   RTS     PC
  1520
  1521                                           .SBTTL OCTAL TO DECIMAL ASCII
  1522                                  ;DIVIDE BY    1.*10.↑N
  1523                                  ;   SET UP FOR A MAXIMUM OF TWO DIGITS.
  1524                                  ;
  1525  006116  012700  014575          SOTDA:  MOV     #MAXIUM,R0      ;POINTER TO STORE ASCII.
  1526  006122  012705  006176                  MOV     #DIG2,R5        ;POINTER TO DIVISOR TABLE.
  1527  006126  017604  000006                  MOV     @6(SP),R4       ;GET DIVIDEND.
  1528  006132  012701  177777          2$:     MOV     #-1,R1          ;RESET COUNTER.
  1529  006136  005201                  1$:     INC     R1              ;THE QUOTIENT!
  1530  006140  161504                          SUB     @R5,R4          ;DO THE PSEUDO DIVIDE!
  1531  006142  103375                          BCC     1$              ;NO CARRY-TRY AGAIN.
  1532  006144  061504                          ADD     @R5,R4          ;REPLACE WHAT WE TOOK.
  1533  006146  005745                          TST     -(R5)           ;EOT?
  1534  006150  001404                          BEQ     3$              ;BR IF YES
  1535  006152  062701  000060                  ADD     #'0,R1          ;MAKE IT ASCII
  1536  006156  110120                          MOVB    R1,(R0)+        ;STORE IT.
  1537  006160  000764                          BR      2$              ;NEXT CHARACTER.
  1538  006162  062701  000060          3$:     ADD     #'0,R1          ;MAKE LAST ASCII
  1539  006166  110120                          MOVB    R1,(R0)+        ;AND STORE IT
  1540  006170  000002                          RTI                     ;RETURN
  1541
  1542  006172  000000                          .WORD   0
  1543  006174  000001                          .WORD   1.
```

OCTAL TO DECIMAL ASCII

```
1544 006176  000012                  DIG2:   .WORD   10.
1545
1546                                         .SBTTL OUTPUT ROUTINE
1547 006200  105777  172500          STYPE:  TSTB    @TPS            ;READY?
1548 006204  100375                          BPL     STYPE           ;NO
1549 006206  105777  172466                  TSTB    @TRS            ;CHECK FOR CHARACTOR
1550 006212  100027                          BPL     XON             ;BRANCH IF NOT
1551 006214  017737  172462  011772          MOV     @TRB,SVCHA      ;SAVE CHARACTOR
1552 006222  042737  177600  011772          BIC     #177600,SVCHA   ;CLEAR UNWANTED BITS
1553 006230  122737  000023  011772          CMPB    #23,SVCHA       ;CHECK FOR XOFF OR CONTROL S
1554 006236  001015                          BNE     XON             ;BRANCH IF NOT
1555 006240  105777  172434          XOFF:   TSTB    @TRS            ;CHECK FOR CHARACTOR
1556 006244  100375                          BPL     XOFF            ;WAIT FOR XON
1557 006246  017737  172430  011772          MOV     @TRB,SVCHA      ;SAVE CHARACTOR
1558 006254  042737  177600  011772          BIC     #177600,SVCHA   ;CLEAR UNWANTED BITS
1559 006262  122737  000021  011772          CMPB    #21,SVCHA       ;CHECK FOR XON OR CONTROL Q
1560 006270  001363                          BNE     XOFF            ;WAITE FOR CONTROL Q
1561 006272  111577  172410          XON:    MOVB    (R5),@TPB       ;PRINT IT
1562 006276  122537  012140                  CMPB    (R5)+,CHAR      ;FILL CHAR.???
1563 006302  001412                          BEQ     FILL            ;BR IF YES
1564 006304  105715                  TENDM:  TSTB    (R5)            ;EOD ??
1565 006306  001004                          BNE     1$              ;NOT FOR SURE.
1566 006310                                  PRINT   #CRLF           ;YES
     006310  012705  014510                  MOV     #CRLF,R5                ;ADDRESS TO R5
     006314  104003                          TYPE                    ;GO TYPE IT
1567 006316  000002                          RTI
1568 006320  121527  000200          1$:     CMPB    (R5),#NOCRLF    ;MAYBE ??
1569 006324  001325                          BNE     STYPE           ;NO
1570 006326  000002                          RTI                     ;YES
1571 006330  012727                  FILL:   MOV     (PC)+,(PC)+     ;SET FILL
1572 006332  000010                  FILCNT: .WORD   10              ;10 TO START
1573 006334  000000                  FILLER: .WORD   0
1574 006336  105777  172342          1$:     TSTB    @TPS            ;READY?
1575 006342  100375                          BPL     1$              ;NO
1576 006344  112777  000000  172334          MOVB    #0,@TPB         ;TYPE A NULL.
1577 006352  005337  006334                  DEC     FILLER          ;1 LESS TO DO
1578 006356  001367                          BNE     1$              ;DO IT AGAIN
1579 006360  000751                          BR      TENDM           ;GO TEST FOR END OF DATA
1580                                         ;
1581                                         ;
1582
1583
1584                                         .SBTTL DATA TABLES
1585                                         .NLIST  BEX
```

DATA TABLES

```
1587                                    ;*********************************************************************
1588                                    ;?????????????????????????????????????????????????????????????????
1589                                    ;    THE TABLES ARE THE GUTS OF THIS PROGARM !
1590                                    ;
1591                                    ;* T H E S E   T A B L E S   M U S T   R E M A I N   I N   O R D E R ! !
1592                                    ;*
1593                                    ;*
1594
1595
1596                                    ;* QUESTION TABLE (QT1) - POINTS TO THE ASCII DEVICE NAMES
1597                                    ;*       USED FOR ASKING THE QUESTIONS AND
1598                                    ;*       WHEN TYPING THE ANSWERS FOR THE 'VA' OPTION.
1599                                    ;*
1600 006362  012300  012321  012361  QT1:    .WORD   Q1,Q2,Q3,Q4,Q5      ;DC,DL,DP,DMA,DN
1601 006374  012444  012465  012516          .WORD   Q6,Q7,Q8,Q9,Q10     ;DMBB,DR,PAR,PAP,LPD
1602 006406  012601  012622  012643          .WORD   Q11,Q12,Q13,Q14,Q15 ;DT,DX,DLC,DJ,DH
1603 006420  012736  012757  013000          .WORD   Q16,Q17,Q18,Q19,Q20 ;GT,VSV,LPS,DQ,KWW
1604 006432  013064  013106  013127          .WORD   Q21,Q22,Q23,Q24,Q25 ;DU,DUP,DV,LK,DWUN
1605 006444  013212  013235  013270          .WORD   Q26,Q27,Q28,Q29,Q30 ;DMC,DZ,KMC11,LPP11,V21
1606 006456  013353  013374  013415          .WORD   Q31,Q32,Q33,Q34,Q35 ;V31,VO1,DWR,RL11,TS11
1607 006470  013501  013522  013544          .WORD   Q36,Q37,Q38,Q39,Q40 ;LPAK,IP,KWC,RESR,RX11
1608 006502  013642  013663  013704          .WORD   Q41,Q42,Q43,Q44,Q45 ;DRW,DRB,DMP,DPV,ML
1609 006514  013767  014010  014031          .WORD   Q46,Q47,Q48,Q49,Q50 ;ISB,DMV,UNA,UDA,DMF
1610 006526  014114  014135  014156          .WORD   Q51,Q52,Q53,Q54,Q55 ;KMS,PCL,VS,TU,KMV
1611 006540  014241  014262  014303          .WORD   Q56,Q57,Q58,Q59,Q60 ;KCT,IEX,DHV,DMZ,CPI
1612 006552  014377  014420  014441          .WORD   Q61,Q62,Q63,Q64     ;QNA,QVS,VS31,LNV
1613
1614
1615                                    ;* DEVICE TABLE (VA OPTION) (DT1) - POINTERS TO THE DEVICE DATA TABLE
1616                                    ;*       THE ORDER IS DIRECTLY RELATED TO THE
1617                                    ;*       QT1 TABLE. SO THAT WHEN YOU ASK FOR
1618                                    ;*       THE NUMBER OF DC11'S YOU STORE THE
1619                                    ;*       ANSWER IN THE DEVICE DATA TABLE FOR
1620                                    ;*       THE DC11 AND NOT THE PA6'S.
1621 006562  010430  010434  010440  DT1:    .WORD   DC,DL,DP,DMA,DN
1622 006574  010454  010460  010464          .WORD   DMBB,DR,PAR,PAP,LPD
1623 006606  010500  010504  010510          .WORD   DT,DX,DLC,DJ,DH
1624 006620  010524  010530  010534          .WORD   GT,VSV,LPS,DQ,KWW
1625 006632  010550  010554  010560          .WORD   DU,DUP,DV,LK,DWUN
1626 006644  010574  010600  010604          .WORD   DMC,DZ,KMC,LPP,V21
1627 006656  010620  010624  010630          .WORD   V31,VO1,DWR,RL,TS11
1628 006670  010644  010650  010654          .WORD   LPAK,IP,KWC,RESR,RX
1629 006702  010670  010674  010700          .WORD   DRW,DRB,DMP,DPV,ML
1630 006714  010714  010720  010724          .WORD   ISB,DMV,UNA,UDA,DMF
1631 005726  010740  010744  010750          .WORD   KMS,PCL,VS100,TU81,KMV
1632 006740  010764  010770  010774          .WORD   KCT32,IEX,DHV,DMZ32,CPI32
1633 006752  011010  011014  011020          .WORD   QNA,QVSS,VS31,LNV
```

DATA TABLES

```
                                        ;*QUESTION TABLE 2  (QT2) - POINTS TO THE ASCII DEVICE NAMES
                                        ;*       USED FOR ASKING THE QUESTIONS FOR
                                        ;*       THE 'FA' OPTION
                                        ;*
006762  012674  012715  013021  QT2:     .WORD   Q14,Q15,Q19,Q21,Q22 ;DJ,DH,DQ,DU,DUP
006774  013150  013212  013235           .WORD   Q24,Q26,Q27,Q28,Q29 ;LK,DMC,DZ,KMC,LPP
007006  013332  013353  013415           .WORD   Q30,Q31,Q33,Q34,Q36 ;V21,V31,DWR,RL,LPA11-K
007020  013544  013565  013606           .WORD   Q38,Q39,Q40,Q41,Q42 ;KWC,RESER,RX11,DRW,DRB
007032  013704  013725  013767           .WORD   Q43,Q44,Q46,Q47,Q48 ;DMP,DPV,ISB,DMV,UNA
007044  014052  014073  014114           .WORD   Q49,Q50,Q51,Q53,Q54 ;UDA,DMF,KMS,VS100,TU81
007056  014220  014303  014325           .WORD   Q55,Q58,Q59,Q60,Q62 ;KMV,DHV,DMZ32,CPI32,QVSS
007070  014441                           .WORD   Q63                 ;VS31

                                        ;*DEVICE TABLE 2 (DT2) - USED WITH QT2 FOR STORING ANSWERS AND
                                        ;*       FOR COMPUTING THE FLOATING ADDRESSES. IT
                                        ;*       THEREFORE MUST BE IN THE ORDER OF THE
                                        ;*       PRIORITY OF THE DEVICE. IT ALSO MUST
                                        ;*       END WITH A ZERO.  (FA OPTION)
                                        ;*
007072  010514  010520  010540  DT2:     .WORD   DJ,DH,DQ,DU,DUP
007104  010564  010574  010600           .WORD   LK,DMC,DZ,KMC,LPP
007116  010614  010620  010630           .WORD   V21,V31,DWR,RL,LPAK
007130  010654  010660  010664           .WORD   KWC,RESR,RX,DRW,DRB
007142  010700  010704  010714           .WORD   DMP,DPV,ISB,DMV,UNA
007154  010730  010734  010740           .WORD   UDA,DMF,KMS,VS100,TU81
007166  010760  010774  011000           .WORD   KMV,DHV,DMZ32,CPI32,QVSS
007200  011020  000000                   .WORD   VS31,0
```

DATA TABLES

```
                                        ;* MAXIMUM NUMBER TABLES 1 & 2
                                        ;* (MT1,MT2) - USED FOR THE 'VA' AND 'FA' OPTIONS RESPECTIVELY
                                        ;*           CONTAIN THE MAXIMUM NUMBER OF CONTROLLERS THAT
                                        ;*           IS SUPPORTED FOR EACH DEVICE. THEY MUST REMAIN
                                        ;*           IN THE SAME ORDER AS QT1,DT1 AND QT2,DT2 AND
                                        ;*           ALSO END WITH A ZERO.
                                        ;*
007204  000040  000020  000040  MT1:    .WORD   32.,16.,32.,16.,16. ;DC,DL,DP,DMA,DN
007216  000020  000020  000010          .WORD   16.,16.,8.,8.,8.    ;DMBB,DR,PAR,PAP,LPD
007230  000010  000004  000037          .WORD   8.,4.,31.,16.,16.   ;DT,DX,DLC,DJ,DH
007242  000004  000004  000001          .WORD   4,4,1,16.,1         ;GT,VSV,LPS,DQ,KWW
007254  000020  000020  000004          .WORD   16.,16.,4,2,1       ;DU,DUP,DV,LK,DWUN
007266  000020  000020  000004          .WORD   16.,16.,4,2,2       ;DMC,DZ,KMC11,LPP,V21
007300  000002  000002  000002          .WORD   2,2,2,4,4           ;V31,V01,DWR,RL,TS11
007312  000004  000002  000002          .WORD   4,2,2,1,4           ;LPAK,IP11,KW11C,RESR,RX11
007324  000020  000020  000012          .WORD   16.,16.,10.,10.,1   ;DRW,DRB,DMP,DPV,ML
007336  000004  000012  000012          .WORD   4,10.,10.,10.,10.   ;ISB,DMV,UNA,UDA,DMF
007350  000012  000004  000006          .WORD   10.,4,6,10.,10.     ;KMS,PCL,VS100,TU81,KMV
007362  000004  000001  000012          .WORD   4,1,10.,10.,10.     ;KCT32,IEX,DHV,DMZ32,CPI32
007374  000004  000004  000012          .WORD   4,4,10.,2,0         ;QNA,QVSS,VS31,LNV

007406  000020  000020  000020  MT2:    .WORD   16.,16.,16.,16.,16. ;DJ,DH,DQ,DU,DUP
007420  000002  000020  000020          .WORD   2,16.,16.,4,2       ;LK,DMC,DZ,KMC11,LPP
007432  000002  000002  000002          .WORD   2,2,2,4,4           ;V21,V31,DWR,RL,LPAK
007444  000002  000001  000004          .WORD   2,1,4,16.,16.       ;KWC,RESER,RX11,DRW,DRB
007456  000012  000012  000004          .WORD   10.,10.,4,10.,10.   ;DMP,DPV,ISB,DMV,UNA
007470  000012  000012  000012          .WORD   10.,10.,10.,6,10.   ;UDA,DMF,KMS,VS100,TU81
007502  000012  000012  000012          .WORD   10.,10.,10.,10.,4   ;KMV,DHV,DMZ32,CPI32,QVSS
007514  000012  000000                  .WORD   10.,0               ;VS31
```

DATA TABLES

```
                                        ;* NEXT ADDRESS TABLE
                                        ;* (NAT) - USED TO CALCULATE THE NEXT CSR ADDRESS (VA OPTION)
                                        ;*       OF A LIKE DEVICE.
                                        ;*
007520  000010  000010  177770  NAT:     .WORD   10,10,-10,10,10      ;DC,DL,DP,DMA,DN
007532  000010  177770  000010          .WORD   10,-10,10,10,10      ;DMBB,DR,PAR,PAP,LPD
007544  000002  000040  000010          .WORD   2,40,10,10,20        ;DT,DX,DLC,DJ,DH
007556  000010  000010  000040          .WORD   10,10,40,10,10       ;GT,VSV,LPS,DQ,KWW
007570  000010  000010  000040          .WORD   10,10,40,10,0        ;DU,DUP,DV,LK,DWUN
007602  000010  000010  000010          .WORD   10,10,10,10,10       ;DMC,DZ,KMC11,LPP11,V21
007614  000020  000160  000010          .WORD   20,160,10,10,4       ;V31,V01,DWR,RL,TS11
007626  000020  000400  000010          .WORD   20,400,10,10,10      ;LPAK,IP11,KWC,RESR,RX11
007640  000010  000010  000010          .WORD   10,10,10,10,0        ;DRW,DRB,DMP,DPV,ML
007652  000010  000020  000010          .WORD   10,20,10,4,40        ;ISB,DMV,UNA,UDA,DMF
007664  000020  000040  000020          .WORD   20,40,20,4,20        ;KMS,PCL,VS100,TU81,KMV
007676  000040  000020  000020          .WORD   40,20,20,40,40       ;KCT32,IEX,DHV,DMZ32,CPI32
007710  000020  000100  000010          .WORD   20,100,10,40         ;QNA,QVSS,VS31,LNV


                                        ;* ADDRESS TABLE
                                        ;* (ADDRT) - USED FOR LOADING THE DEVICE DATA TABLE (VA + FA OPTION)
                                        ;*         WITH THE FIRST ADDRESS FOR EACH DEVICE.
                                        ;*         MUST HAVE A ZERO ENTRY FOR
                                        ;*         FLOATING ADDRESS DEVICES
                                        ;*
007720  174000  176500  174770  ADDRT:   .WORD   174000,176500,174770,175000,175200 ;DC,DL,DP,DMA,DN
007732  170500  167770  172600          .WORD   170500,167770,172600,172700,172700 ;DMBB,DR,PAR,PAP,LPD
007744  177420  176200  175610          .WORD   177420,176200,175610,160010,000000 ;DT,DX,DLC,DJ,DH
007756  172000  172000  170400          .WORD   172000,172000,170400,000000,172400 ;GT,VSV,LPS,DQ,KWW
007770  000000  000000  175000          .WORD   000000,000000,175000,000000,172500 ;DU,DUP,DV,LK,DWUN
010002  000000  000000  000000          .WORD   000000,000000,000000,000000,000000 ;DMC,DZ,KMC11,LPP,V21
010014  000000  172600  000000          .WORD   000000,172600,000000,000000,172524 ;V31,V01,DWR,RL,TS11
010026  170460  171400  000000          .WORD   170460,171400,000000,000000,000000 ;LPAK,IP11,KWC,RESR,RX11
010040  000000  000000  000000          .WORD   000000,000000,000000,000000,176400 ;DRW,DRB,DMP,DPV,ML
010052  000000  000000  000000          .WORD   000000,000000,000000,000000,000000 ;ISB,DMV,UNA,UDA,DMF
010064  000000  164200  000000          .WORD   000000,164200,000000,000000,000000 ;KMS,PCL,VS100,TU81,KMV
010076  164400  164100  000000          .WORD   164400,164100,000000,000000,000000 ;KCT32,IEX,DHV,DMZ32,CPI32
010110  174440  000000  000000          .WORD   174440,000000,000000,176200        ;QNA,QVSS,VS31,LNV


                                    ;* VECTOR SIZE TABLE
                                    ;* (VST) - USED TO CALCULATE THE NEXT VECTOR (VA OPTION)
                                    ;*
010120  000010  000010  000010  VST:     .WORD   10,10,10,10,4    ;DC,DL,DP,DMA,DN
010132  000004  000010  000010          .WORD   4,10,10,10,10    ;DMBB,DR,PAR,PAP,LPD
010144  000010  000010  000010          .WORD   10,10,10,10,10   ;DT,DX,DLC,DJ,DH
010156  000020  000020  000030          .WORD   20,20,30,10,10   ;GT,VSV,LPS,DQ,KWW
010170  000010  000010  000020          .WORD   10,10,20,10,10   ;DU,DUP,DV,LK,DWUN
010202  000010  000010  000010          .WORD   10,10,10,10,10   ;DMC,DZ,KMC11,LPP11,V21
010214  000010  000010  000010          .WORD   10,10,10,4,4     ;V31,V01,DWR,RL,TS11
010226  000010  000004  000010          .WORD   10,4,10,4,4      ;LPAK,IP,KWC,RESR,RX11
010240  000004  000004  000010          .WORD   4,4,10,10,4      ;DRW,DRB,DMP,DPV,ML
010252  000010  000010  000004          .WORD   10,10,4,4,40     ;ISB,DMV,UNA,UDA,DMF
010264  000020  000010  000004          .WORD   20,10,4,4,10     ;KMS,PCL,VS100,TU81,KMV
010276  000010  000010  000010          .WORD   10,10,10,30,30   ;KCT32,IEX,DHV,DMZ32,CPI32
010310  000004  000020  000004          .WORD   4,20,4,4         ;QNA,QVSS,VS31,LNV
```

DATA TABLES SEQ 0034

```
1754
1755
1756                                    ;* ASCDEV - USED INPLACE OF QT2 FOR THE 'FA' OPTION WHEN TYPING ANSWERS
1757                                    ;*
1758 010320  011036  011052  011066  ASCDEV: .WORD   JS,HS,QS,US,UPS
1759 010332  011132  011146  011162          .WORD   LKS,MCS,ZS,KMCS,PPS
1760 010344  011226  011242  011256          .WORD   MV21,MV31,WRS,RLS,LPAKS
1761 010356  011322  011336  011352          .WORD   KWCS,RESRS,RXS,DRWS,DRBS
1762 010370  011416  011432  011446          .WORD   DMPS,DPVS,ISBS,DMVS,UNAS
1763 010402  011512  011526  011542          .WORD   UDAS,DMFS,KMSS,VS100S,TU81S
1764 010414  011606  011622  011640          .WORD   KMVS,DHVS,DMZ32S,CPI32S,QVSSS
1765 010426  011725                          .WORD   VS31S
1766
```

DATA TABLES

```
                                ;*  DEVICE DATA TABLE
                                ;*
                                ;*  MUST REMAIN IN ORDER OF THE VECTOR ASSIGNMENTS
                                ;*
                                ;*  MUST END WITH TWO MINUS ONES
                                ;*
            010430              DEVSTR  = .
                                ;*
010430                          DC:     .BLKW   2               ;    2 WORDS / DEVICE
010434                          DL:     .BLKW   2
010440                          DP:     .BLKW   2               ;  FIRST  -  # OF THEM
010444                          DMA:    .BLKW   2
010450                          DN:     .BLKW   2               ; SECOND  -  1ST ADDRESS
010454                          DMBB:   .BLKW   2
010460                          DR:     .BLKW   2
010464                          PAR:    .BLKW   2
010470                          PAP:    .BLKW   2
010474                          LPD:    .BLKW   2
010500                          DT:     .BLKW   2
010504                          DX:     .BLKW   2
010510                          DLC:    .BLKW   2
010514                          DJ:     .BLKW   2
010520                          DH:     .BLKW   2
010524                          GT:     .BLKW   2
010530                          VSV:    .BLKW   2
010534                          LPS:    .BLKW   2
010540                          DQ:     .BLKW   2
010544                          KWW:    .BLKW   2
010550                          DU:     .BLKW   2
010554                          DUP:    .BLKW   2
010560                          DV:     .BLKW   2
010564                          LK:     .BLKW   2
010570                          DWUN:   .BLKW   2
010574                          DMC:    .BLKW   2
010600                          DZ:     .BLKW   2
010604                          KMC:    .BLKW   2
010610                          LPP:    .BLKW   2
010614                          V21:    .BLKW   2
010620                          V31:    .BLKW   2
010624                          V01:    .BLKW   2
010630                          DWR:    .BLKW   2
010634                          RL:     .BLKW   2
010640                          TS11:   .BLKW   2
010644                          LPAK:   .BLKW   2
010650                          IP:     .BLKW   2
010654                          KWC:    .BLKW   2
010660                          RESR:   .BLKW   2
010664                          RX:     .BLKW   2
010670                          DRW:    .BLKW   2
010674                          DRB:    .BLKW   2
010700                          DMP:    .BLKW   2
010704                          DPV:    .BLKW   2
010710                          ML:     .BLKW   2
010714                          ISB:    .BLKW   2
010720                          DMV:    .BLKW   2
010724                          UNA:    .BLKW   2
010730                          UDA:    .BLKW   2
```

DATA TABLES

```
 1825 010734                          DMF:    .BLKW   2
 1826 010740                          KMS:    .BLKW   2
 1827 010744                          PCL:    .BLKW   2
 1828 010750                          VS100:  .BLKW   2
 1829 010754                          TU81:   .BLKW   2
 1830 010760                          KMV:    .BLKW   2
 1831 010764                          KCT32:  .BLKW   2
 1832 010770                          IEX:    .BLKW   2
 1833 010774                          DHV:    .BLKW   2
 1834 011000                          DMZ32:  .BLKW   2
 1835 011004                          CPI32:  .BLKW   2
 1836 011010                          QNA:    .BLKW   2
 1837 011014                          QVSS:   .BLKW   2
 1838 011020                          VS31:   .BLKW   2
 1839 011024                          LNV:    .BLKW   2
 1840                                 ;*
 1841         011030                  DEVEND  = .
 1842                                 ;*
 1843 011030  000000  177777  177777         .WORD   0,-1,-1
 1844                                 ;*
 1845                                 ;*  END OF DEVICE DATA TABLE
 1846                                 ;*
 1847         000100                      DEVCNT=DEVEND-DEVSTR/4
```

DATA TABLES

```
1849                            ;*
1850                            ;* THESE ASCII MESSAGES ARE POINTED TO BY THE 'ASCDEV' TABLE.
1851                            ;* USED FOR THE 'FA' OPTION
1852                            ;* THEY DEFINE THE DEVICE, THE BOARD WITH THE JUMPERS/SWITCHES,
1853                            ;* WHICH JUMPERS TO CUTOUT OR WHICH SWITCH AND THE SWITCHES TO
1854                            ;* TURN ON OR OFF.
1855
1856                            .REM †
1857                            FATABL:
1858                            JS:     .ASCII  / DJ11'S    M105   JUMPER(S) TO CUTOUT/<NOCRLF>
1859                            HS:     .ASCII  / DH11'S    M7277  JUMPER(S) TO CUTOUT/<NOCRLF>
1860                            QS:     .ASCII  / DQ11'S    M105   JUMPER(S) TO CUTOUT/<NOCRLF>
1861                            US:     .ASCII  / DU11'S    M7822  SW SWITCHES IN OFF POSITION/<NOCRLF>
1862                            UPS:    .ASCII  / DUP11'S   M7867  SW1 SWITCHES IN OFF POSITION/<NOCRLF>
1863                            LKS:    .ASCII  / LK11'S  M7060  JUMPER(S) TO CUTOUT/<NOCRLF>
1864                            MCS:    .ASCII  / DMC11 DMR11'S M8200,E113,M8207,E127-SWITCHES IN OFF POSITION/<NOCRLF>
1865                            ZS:     .ASCII  / DZ11'S    M7819 E81 M7814 E72 SWITCHES IN ON POSITION/<NOCRLF>
1866                            KMCS:   .ASCII  / KMC11'S   M8204 E65 M8206 SWITCHES IN OFF POSITION /  <NOCRLF>
1867                            PPS:    .ASCII  / LPP11'S   ?????  ***********/<NOCRLF>
1868                            MV21:   .ASCII  / VMV21'S   M7067  ***********/<NOCRLF>
1869                            MV31:   .ASCII  / VMV31'S   M7068  ***********/<NOCRLF>
1870                            WRS:    .ASCII  / DWR70'S   ?????  ***********/<NOCRLF>
1871                            RLS:    .ASCII  / RL11'S    M7762  ***********/<NOCRLF>
1872                            LPAKS:  .ASCII  / LPA11'S   ?????  ***********/<NOCRLF>
1873                            KWCS:   .ASCII  / KW11-C'S  ?????  ***********/<NOCRLF>
1874                            RESRS:  .ASCII  / RESERVED  ?????  ***********/<NOCRLF>
1875                            RXS:    .ASCII  / RX11'S    M7846  ***********/<NOCRLF>
1876                            DRWS:   .ASCII  / DR11-W'S  M7816  ***********/<NOCRLF>
1877                            DRBS:   .ASCII  / DR11-B'S  M7219  ***********/<NOCRLF>
1878                            DMPS:   .ASCII  / DMP11'S   M8207-YA **********/<NOCRLF>
1879                            DPVS:   .ASCII  / DPV11'S   M8020  ***********/<NOCRLF>
1880                            ISBS:   .ASCII  / ISB11'S   M8204  ***********/<NOCRLF>
1881                            DMVS:   .ASCII  / DMV11'S   M8053-MA M8064-MA */<NOCRLF>
1882                            UNAS:   .ASCII  / UNA'S     M7792 E40 SWITCHES IN OFF POSITION/<NOCRLF>
1883                            UDAS:   .ASCII  / UDA'S     ?????  ***********/<NOCRLF>
1884                            DMFS:   .ASCII  / DMF32'S   M8396  ***********/<NOCRLF>
1885                            KMSS:   .ASCII  / KMS11'S   M8206 MOD M8640 ***/<NOCRLF>
1886                            VS100S: .ASCII  / VS100'S   ?????  ***********/<NOCRLF>
1887                            TU81S:  .ASCII  / TU81'S    ?????  ***********/<NOCRLF>
1888                            KMVS:   .ASCII  / KMV11'S   ?????  ***********/<NOCRLF>
1889                            DHVS:   .ASCII  / DHV11 DHU11 ???  ***********/<NOCRLF>
1890                            DMZ32S: .ASCII  / DMZ32,CPI32 (ASYNCH) ********/<NOCRLF>
1891                            CPI32S: .ASCII  / CPI32 (SYNCH)    ***********/<NOCRLF>
1892                            QVSSS:  .ASCII  / QVSS      ?????  ***********/<NOCRLF>
1893                            VS31S:  .ASCII  / VS31      ?????  ***********/<NOCRLF>
1894                            .ENDR †
1895
1896
```

DATA TABLES SEQ 0038

```
1898 011036                          FATABL:
1899 011036  040   104   112  JS:     .ASCII  / DJ11'S    /<NOCRLF>
1900 011052  040   104   110  HS:     .ASCII  / DH11'S    /<NOCRLF>
1901 011066  040   104   121  QS:     .ASCII  / DQ11'S    /<NOCRLF>
1902 011102  040   104   125  US:     .ASCII  / DU11'S    /<NOCRLF>
1903 011116  040   104   125  UPS:    .ASCII  / DUP11'S   /<NOCRLF>
1904 011132  040   114   113  LKS:    .ASCII  / LK11'S    /<NOCRLF>
1905 011146  040   104   115  MCS:    .ASCII  / DMC11     /<NOCRLF>
1906 011162  040   104   132  ZS:     .ASCII  / DZ11'S    /<NOCRLF>
1907 011176  040   113   115  KMCS:   .ASCII  / KMC11'S   /<NOCRLF>
1908 011212  040   114   120  PPS:    .ASCII  / LPP11'S   /<NOCRLF>
1909 011226  040   126   115  MV21:   .ASCII  / VMV21'S   /<NOCRLF>
1910 011242  040   126   115  MV31:   .ASCII  / VMV31'S   /<NOCRLF>
1911 011256  040   104   127  WRS:    .ASCII  / DWR70'S   /<NOCRLF>
1912 011272  040   122   114  RLS:    .ASCII  / RL11'S    /<NOCRLF>
1913 011306  040   114   120  LPAKS:  .ASCII  / LPA11'S   /<NOCRLF>
1914 011322  040   113   127  KWCS:   .ASCII  / KW11-C'S  /<NOCRLF>
1915 011336  040   122   105  RESRS:  .ASCII  / RESERVED  /<NOCRLF>
1916 011352  040   122   130  RXS:    .ASCII  / RX11'S    /<NOCRLF>
1917 011366  040   104   122  DRWS:   .ASCII  / DR11-W'S  /<NOCRLF>
1918 011402  040   104   122  DRBS:   .ASCII  / DR11-B'S  /<NOCRLF>
1919 011416  040   104   115  DMPS:   .ASCII  / DMP11'S   /<NOCRLF>
1920 011432  040   104   120  DPVS:   .ASCII  / DPV11'S   /<NOCRLF>
1921 011446  040   111   123  ISBS:   .ASCII  / ISB11'S   /<NOCRLF>
1922 011462  040   104   115  DMVS:   .ASCII  / DMV11'S   /<NOCRLF>
1923 011476  040   125   116  UNAS:   .ASCII  / UNA'S     /<NOCRLF>
1924 011512  040   125   104  UDAS:   .ASCII  / UDA'S     /<NOCRLF>
1925 011526  040   104   115  DMFS:   .ASCII  / DMF32'S   /<NOCRLF>
1926 011542  040   113   115  KMSS:   .ASCII  / KMS11'S   /<NOCRLF>
1927 011556  040   126   123  VS100S: .ASCII  / VS100'S   /<NOCRLF>
1928 011572  040   124   125  TU81S:  .ASCII  / TU81'S    /<NOCRLF>
1929 011606  040   113   115  KMVS:   .ASCII  / KMV11'S   /<NOCRLF>
1930 011622  040   104   110  DHVS:   .ASCII  / DHV11 DHU11 /<NOCRLF>
1931 011640  040   104   115  DMZ32S: .ASCII  / DMZ32,CPI32 (ASYNCH) /<NOCRLF>
1932 011667  040   103   120  CPI32S: .ASCII  / CPI32 (SYNCH)    /<NOCRLF>
1933 011712  040   121   126  QVSSS:  .ASCII  / QVSS      /<NOCRLF>
1934 011725  040   126   123  VS31S:  .ASCII  / VS31      /<NOCRLF>
1935                               .EVEN
```

DATA TABLES

```
1937 011740  000000                FLAG:   .WORD   0               ;USED FOR  ERRORS=BIT15 , OPTION=BIT7 , RUBOUT=BIT1
1938 011742  000000                FLAG1:  .WORD   0               ;USED FOR THE SELECTION OF DM11-A AND DV11
1939 011744  000000                FLAG2:  .WORD   0               ;USED WHEN THE SELECTED DV11 WAS DECREASED
1940 011746  000000                FLAG3:  .WORD   0               ;USED WHEN THE SELECED DV11 WAS DECREASED TO ZERO
1941 011750  000000                FLAG4:  .WORD   0               ;USED FOR THE SELECTION OF PA611-P AND LPD11
1942 011752  000000                FLAG5:  .WORD   0               ;USED WHEN THE LPD11 WAS DECREASED TO ZERO
1943 011754  000000                FLAG6:  .WORD   0               ;USED FOR THE SELECTION OF PA611-R AND VTV01
1944 011756  000000                FLAG7:  .WORD   0               ;USED WHEN THE VTV01 WAS DECREASED
1945 011760  000000                FLAG8:  .WORD   0               ;USED FOR CONTROL A
1946 011762  000000                FLAG9:  .WORD   0               ;USED FOR THE SELECTION OF DC11 AND DL11-A
1947 011764  000000                FLAG10: .WORD   0               ;USED WHEN THE LPD11 WERE DECREASED
1948 011766  000000                FLAG11: .WORD   0               ;USED WHEN THE PA611-R, PA611-P OR LPD11 WERE SELECTED
1949 011770  000000                FLAG12: .WORD   0               ;USED FOR PRINTING CSRVEC HEADER        ;LWL002
1950 011772  000000                SVCHA:  .WORD   0               ;USED FOR XON AND XOFF
1951 011774     061      054  062  ST:     .ASCII  /1,2,/          ;       ASCII SWITCH TABLE
1952 012000     063      054  064  JT:     .ASCII  /3,4,5,6,7,8,9,10,11,12,/ ;ASCII JUMPER TABLE
1953                               .EVEN
1954
1955 012030  000000                VECTOR: .WORD   0               ;VECTOR WORD
1956 012032  000000                OFFSET: .WORD   0               ;FLAG IF OFFSET IS NEEDED
1957 012034  000000                ADDR:   .WORD   0               ;CURRENT ADDRESS
1958 012036  000000                SAVE:   .WORD   0               ;RETURN PC
1959 012040  000000                SAVE1:  .WORD   0               ;USED TO STORE THE LPA11-K FLOATING ADDRESS
1960 012042  000000                SAVE2:  .WORD   0               ;USED TO STORE THE DR11-B FLOATING ADDRESS
1961 012044  000000                SAVE3:  .WORD   0               ;USED TO CALCULATE THE NEW DV11 ADDRESS
1962 012046  000000                SAVE4:  .WORD   0               ;USED TO CALCULATE THE LAST DV11 ADDRESS
1963 012050  000000                SAVE5:  .WORD   0               ;USED TO CALCULATE THE NEW LPD11 ADDRESS
1964 012052  000000                SAVE6:  .WORD   0               ;USED TO CALCULATE LAST LPD11 ADDRESS
1965
1966
1967                               ;*  ASCII OUTPUT BUFFER
1968                               ;*  DO NOT CHANGE  !!!!
1969                               ;*
1970 012054                        A:      .BLKW   3               ;ACSII OUTPUT BUFFERS
1971 012062     040      040  040  ABUF:   .ASCII  /      /        ;SPACE BETWEEN CSR AND SW OR VECTOR
1972 012070                        DBUF:   .BLKW   20.
1973 012140  000015                CHAR:   .WORD   15              ; FILL CHAR.
1974 012142  000000                SPEC:   .WORD                   ;STORAGE LOC FOR GT/DL11E SPECIAL CASE
1975 012144     101      000  000  TERMST: .BYTE   'A,0,0,'L,15,100,'V,12,40;      TERM. CHARACTERISTICS TABLE
1976 012155     015      012  040  HEAD:   .ASCII  <CR><LF>/  ** FLOAT **/<CR><LF><LF>
1977 012177     117      120  124          .ASCII  /OPTION: /<NOCRLF>
1978 012210     015      012  110  Q:      .ASCIZ  <CR><LF>/HOW MANY OF EACH DOES THE SYSTEM HAVE.(DECIMAL)/<LF>
1979 012273     010      040  010  DCHAR:  .BYTE   10,40,10,0      ; BACKSPACE - SPACE - BACKSPACE         ;LWL002
1980 012277     000                TERMTP: .BYTE   0               ; TERMINAL TYPE                         ;LWL002
1981                               .EVEN
1982
```

DATA TABLES

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                                        ;* THE FOLLOWING ARE THE ASCII DEVICE NAMES POINTED TO BY QT1 AND QT2
                                        ;* THE 'VA' OPTION ( QT1 ) USES THEM FOR BOTH INPUT AND OUTPUT
                                        ;* THE 'FA' OPTION ( QT2 ) USES THEM FOR INPUT ONLY.
                                        ;*      KEEP IN ORDER FOR CONVENIENCE!
                                        ;*
012300    104     103     061   Q1:     .ASCII  /DC11'S                                 /<NOCRLF>
012321    104     114     061   Q2:     .ASCII  /DL11-A,B,W (TU58) DLV11-A,B,F          /<NOCRLF>
012361    104     120     061   Q3:     .ASCII  /DP11'S                                 /<NOCRLF>
012402    104     115     061   Q4:     .ASCII  /DM11-A'S                               /<NOCRLF>
012423    104     116     061   Q5:     .ASCII  /DN11-AA'S                              /<NOCRLF>
012444    104     115     061   Q6:     .ASCII  /DM11-BB'S                              /<NOCRLF>
012465    104     122     061   Q7:     .ASCII  /DR11-A,C,K'S DRV11                     /<NOCRLF>
012516    120     101     066   Q8:     .ASCII  /PA611-R'S                              /<NOCRLF>
012537    120     101     066   Q9:     .ASCII  /PA611-P'S                              /<NOCRLF>
012560    114     120     104   Q10:    .ASCII  /LPD11                                  /<NOCRLF>
012601    104     124     061   Q11:    .ASCII  /DT11,07'S                              /<NOCRLF>
012622    104     130     061   Q12:    .ASCII  /DX11'S                                 /<NOCRLF>
012643    104     114     061   Q13:    .ASCII  /DL11-C,D,E'S DLV11-E                   /<NOCRLF>
012674    104     112     061   Q14:    .ASCII  /DJ11'S                                 /<NOCRLF>
012715    104     110     061   Q15:    .ASCII  /DH11'S                                 /<NOCRLF>
012736    107     124     064   Q16:    .ASCII  /GT40                                   /<NOCRLF>
012757    126     123     126   Q17:    .ASCII  /VSV11'S                                /<NOCRLF>
013000    114     120     123   Q18:    .ASCII  /LPS11                                  /<NOCRLF>
013021    104     121     061   Q19:    .ASCII  /DQ11'S                                 /<NOCRLF>
013042    113     127     061   Q20:    .ASCII  /KW11-W KWV11                           /<NOCRLF>
013064    104     125     061   Q21:    .ASCII  /DU11 DUV11'S                           /<NOCRLF>
013106    104     125     120   Q22:    .ASCII  /DUP11'S                                /<NOCRLF>
013127    104     126     061   Q23:    .ASCII  /DV11'S                                 /<NOCRLF>
013150    114     113     061   Q24:    .ASCII  /LK11'S                                 /<NOCRLF>
013171    104     127     125   Q25:    .ASCII  /DWUN'S                                 /<NOCRLF>
013212    104     115     103   Q26:    .ASCII  /DMC11 DMR11'S                          '<NOCRLF>
013235    104     132     061   Q27:    .ASCII  /DZ11 DZS11 DZV11 DZ32'S                /<NOCRLF>
013270    113     115     103   Q28:    .ASCII  /KMC11'S                                /<NOCRLF>
013311    114     120     120   Q29:    .ASCII  /LPP11'S                                /<NOCRLF>
013332    126     115     126   Q30:    .ASCII  /VMV21'S                                /<NOCRLF>
013353    126     115     126   Q31:    .ASCII  /VMV31'S                                /<NOCRLF>
013374    126     124     126   Q32:    .ASCII  /VTV01'S                                /<NOCRLF>
013415    104     127     122   Q33:    .ASCII  /DWR70'S                                /<NOCRLF>
013436    122     114     061   Q34:    .ASCII  /RL11 RLV11'S                           /<NOCRLF>
013460    124     123     061   Q35:    .ASCII  /TS11 TU80'S                            /<NOCRLF>
013501    114     120     101   Q36:    .ASCII  /LPA11'S                                /<NOCRLF>
013522    111     120     061   Q37:    .ASCII  /IP11 IP300'S                           /<NOCRLF>
013544    113     127     061   Q38:    .ASCII  /KW11-C'S                               /<NOCRLF>
013565    122     105     123   Q39:    .ASCII  /RESERVED                               /<NOCRLF>
013606    122     130     061   Q40:    .ASCII  /RX11 RX211 RXV11 RXV21'S               /<NOCRLF>
013642    104     122     061   Q41:    .ASCII  /DR11-W'S                               /<NOCRLF>
013663    104     122     061   Q42:    .ASCII  /DR11-B'S                               /<NOCRLF>
013704    104     115     120   Q43:    .ASCII  /DMP11'S                                /<NOCRLF>
013725    104     120     126   Q44:    .ASCII  /DPV11'S                                /<NOCRLF>
013746    115     114     061   Q45:    .ASCII  /ML11'S                                 /<NOCRLF>
013767    111     123     102   Q46:    .ASCII  /ISB11'S                                /<NOCRLF>
014010    104     115     126   Q47:    .ASCII  /DMV11'S                                /<NOCRLF>
014031    125     116     101   Q48:    .ASCII  /UNA'S                                  /<NOCRLF>
014052    125     104     101   Q49:    .ASCII  /UDA RQDX1'S                            /<NOCRLF>
014073    104     115     106   Q50:    .ASCII  /DMF32'S                                /<NOCRLF>
014114    113     115     123   Q51:    .ASCII  /KMS11'S                                /<NOCRLF>
014135    120     103     114   Q52:    .ASCII  /PCL11'S                                /<NOCRLF>
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     014156      126      123      061  Q53:     .ASCII  /VS100'S                          /<NOCRLF>
     014177      124      125      070  Q54:     .ASCII  /TU81'S                           /<NOCRLF>
     014220      113      115      126  Q55:     .ASCII  /KMV11'S                          /<NOCRLF>
     014241      113      103      124  Q56:     .ASCII  /KCT32'S                          /<NOCRLF>
     014262      111      105      130  Q57:     .ASCII  /IEX'S                            /<NOCRLF>
     014303      104      110      126  Q58:     .ASCII  /DHV11 DHU11'S                    /<NOCRLF>
     014325      104      115      132  Q59:     .ASCII  /DMZ32 CPI32 (ASYNCH)             /<NOCRLF>
     014355      103      120      111  Q60:     .ASCII  /CPI32 (SYNCH)                    /<NOCRLF>
     014377      121      116      101  Q61:     .ASCII  /QNA'S                            /<NOCRLF>
     014420      121      126      123  Q62:     .ASCII  /QVSS'S                           /<NOCRLF>
     014441      126      123      063  Q63:     .ASCII  /VS31'S                           /<NOCRLF>
     014462      114      116      126  Q64:     .ASCII  /LNV11'S                          /<NOCRLF>

                                        ;!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
                                        ;*******************************************************************
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DATA TABLES


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 2058 014503   015   012   012  END:     .BYTE   15,12,12,12,0
 2059 014510   015   012   200  CRLF:    .BYTE   CR,LF,NOCRLF
 2060 014513   124   110   101  ILL:     .ASCIZ  /THAT'S NOT A VALID NUMBER!/
 2061 014546   124   110   101  TB:      .ASCII  /THAT'S TOO  MANY! ONLY /
 2062 014575                    MAXIUM:  .BLKB   2
 2063 014577   040   101   114           .ASCIZ  / ALLOWED !/
 2064 014612   015   012   120  OP:      .ASCII  <CR><LF>/POSSIBLE OPTIONS ARE/<CR><LF><NOCRLF>                    ;LWL002
 2065 014643   011   106   101  OP2:     .ASCII  /       FA-FLOATING ADDRESSES. (DJ,DH,DQ,ETC.)/<CR><LF>
 2066 014714   011   126   101           .ASCII  /       VA-FLOATING ADDRESSES AND VECTORS./<CR><LF>                ;LWL002
 2067 014761   011   110   105           .ASCII  /       HE-HELP/<CR><LF>                                           ;LWL002
 2068 014773   011   105   130           .ASCII  /       EX-EXIT/<CR><LF>                                           ;LWL002
 2069 015005   105   116   124           .ASCII  /ENTER OPTION: /<NOCRLF>                                           ;LWL002
 2070 015024   077   040   200  QMARK:   .ASCII  /? /<NOCRLF>                                                      ;LWL002
 2071 015027   015   012   012  HELLO:   .ASCII  <CR><LF><LF>/CZFLA FLOAT UTILITY PROG - /                         ;LWL002
 2072 015065   126   105   122           .ASCII  /VERSION: C0 /<NOCRLF>                                             ;LWL002
 2073 015102   015   012   012  HELP:    .ASCII  <CR><LF><LF>/CONTROL C TO RESTART PROGRAM/<CR><LF>                 ;LWL002
 2074 015143   103   117   116           .ASCII  /CONTROL Z TO PRINT SELECTED LIST/<CR><LF>
 2075 015205   103   117   116           .ASCII  /CONTROL S TO STOP PRINTING/<CR><LF>
 2076 015241   103   117   116           .ASCII  /CONTROL Q TO CONTINUE PRINTING/<CR><LF>
 2077 015301   103   117   116           .ASCII  /CONTROL A TO BACK UP DEVICE LIST/<CR><LF><LF><NOCRLF>             ;LWL002
 2078 015345   124   105   122  TERMQ:   .ASCII  /TERMINAL TYPES:/<CR><LF>                                         ;LWL002
 2079 015366   011   101   040           .ASCII  /       A = LA36 NO FILL/<CR><LF>                                  ;LWL002
 2080 015411   011   114   040           .ASCII  /       L = LA120 100 FILL CHARACTER/<CR><LF>                      ;LWL002
 2081 015450   011   126   040           .ASCII  /       V = VT52 OR VT100 50 FILL CHARACTER/<CR><LF>               ;LWL002
 2082 015516   015   012   105           .ASCII  <CR><LF>/ENTER TERMINAL TYPE.(A,L,V)? /<NOCRLF>
 2083 015556   126   101   114  TERMQ2:  .ASCII  /VALID RESPONSES ARE-/<CR><LF><NOCRLF>                            ;LWL002
 2084 015605   015   012   123  BADCON:  .ASCII  <CR><LF>/SORRY, BUT THE REST OF THE DEVICE(S) WILL NOT /<CR><LF>
 2085 015667   106   111   124           .ASCIZ  /FIT IN THE FLOATING VECTOR AREA!/<CR><LF><NOCRLF>                 ;LWL002
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DATA TABLES SEQ 0043

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2087 015733  040  040  040  CSR:     .ASCII  /    CSR = /<NOCRLF>                                                    ;LWL002
2088 015746  040  104  105  CSRVEC:  .ASCII  / DEVICE /                                                             ;LWL002
2089 015756  040  040  040           .ASCII  /    CSR          VECT          COMMENT/<CR><LF>                       ;LWL002
2090 016024  040  055  055           .ASCII  / ------ /                                                            ;LWL002
2091 016034  040  040  040           .ASCII  /    ---          ----          -------/<CR><LF>                       ;LWL002
2092 016102  040  012  200           .ASCII  / /<LF><NOCRLF>                                                       ;LWL002
2093 016105  040  040  040  TAB:     .ASCII  /           /<NOCRLF>                                                 ;LWL002
2094 016121  015  012  124  DVMESS:  .ASCII  <CR><LF>/THE DV11 MODEM ADDRESS IS +20 , VECTOR IS +10/<NOCRLF>
2095 016201  015  012  061  RLMESS:  .ASCII  <CR><LF>/1ST CSR = 774400, 1ST VECT = 160/<NOCRLF>
2096 016244  015  012  061  TSMESS:  .ASCII  <CR><LF>/1ST CSR = 772520, 1ST VECT = 224/<NOCRLF>
2097 016307  015  012  061  LPKMES:  .ASCII  <CR><LF>/1ST CSR = 770460, /<NOCRLF>
2098 016334  015  012  061  IPMESS:  .ASCII  <CR><LF>/1ST CSR = 771000, 1ST VECT = 234/<NOCRLF>
2099 016377  015  012  116  REMES:   .ASCII  <CR><LF>/NOT USED/<NOCRLF>
2100 016412  015  012  061  RXMES:   .ASCII  <CR><LF>/1ST CSR = 777170, 1ST VECT = 264/<NOCRLF>
2101 016455  015  012  061  DRBMES:  .ASCII  <CR><LF>/1ST CSR = 772410, 1ST VECT = 124/<NOCRLF>
2102 016520  015  012  061  UNAMES:  .ASCII  <CR><LF>/1ST CSR = 774510, 1ST VECT = 120/<NOCRLF>
2103 016563  015  012  061  UDAMES:  .ASCII  <CR><LF>/1ST CSR = 772150, 1ST VECT = 154/<NOCRLF>
2104 016626  015  012  061  TU81MS:  .ASCII  <CR><LF>/1ST CSR = 774500, 1ST VECT = 260/<NOCRLF>
2105 016671  015  012  061  QVSSMS:  .ASCII  <CR><LF>/1ST CSR = 777200, /<NOCRLF>
2106                           ;
2107                           ;LWL002       FOLLOWING AREA MODIFIED TO FIT NEW FORMAT                           ;LWL002
2108                           ;
2109 016716  015  012  040  DVMES:   .ASCII  <CR><LF>/                                                    /        ;LWL002
2110 016770  052  052  052           .ASCII  /***DM11-A COMES BEFORE DV11 /<CR><LF>
2111 017026  040  040  040           .ASCII  /                                                          /        ;LWL002
2112 017076  102  117  124           .ASCII  /BOTH WERE SELECTED/<NOCRLF>
2113 017121  015  012  040  DVMSS:   .ASCII  <CR><LF>/                                                    /        ;LWL002
2114 017173  052  052  052           .ASCII  /***THE DV11S HAVE BEEN DECREASED, /<CR><LF>
2115 017237  040  040  040           .ASCII  /                                                          /        ;LWL002
2116 017307  114  111  115           .ASCII  /LIMITED ADDRESS SPACE/<NOCRLF>
2117 017335  015  012  040  LPDMES:  .ASCII  <CR><LF>/                                                    /        ;LWL002
2118 017407  052  052  052           .ASCII  /***PA611-P COMES BEFORE LPD11 /<CR><LF>
2119 017447  040  040  040           .ASCII  /                                                          /        ;LWL002
2120 017517  102  117  124           .ASCII  /BOTH WERE SELECTED/<NOCRLF>
2121 017542  015  012  040  LPDESS:  .ASCII  <CR><LF>/                                                    /        ;LWL002
2122 017614  052  052  052           .ASCII  /***LPD11S HAVE BEEN DECREASED, /<CR><LF>
2123 017655  040  040  040           .ASCII  /                                                          /        ;LWL002
2124 017725  114  111  115           .ASCII  /LIMITED ADDRESS SPACE/<NOCRLF>
2125 017753  015  012  040  LPDMSS:  .ASCII  <CR><LF>/                                                    /        ;LWL002
2126 020025  052  052  052           .ASCII  /***THE PA611-P LEFT NO ROOM FOR /<CR><LF>
2127 020067  040  040  040           .ASCII  /                                                          /        ;LWL002
2128 020137  124  110  105           .ASCII  /THE LPD11/<NOCRLF>
2129 020151  015  012  040  DVNMS:   .ASCII  <CR><LF>/                                                    /        ;LWL002
2130 020223  052  052  052           .ASCII  /***THE DM11-A LEFT NO ROOM FOR /<CR><LF>
2131 020264  040  040  040           .ASCII  /                                                          /        ;LWL002
2132 020334  124  110  105           .ASCII  /THE DV11/<NOCRLF>
2133 020345  015  012  040  V01MES:  .ASCII  <CR><LF>/                                                    /        ;LWL002
2134 020417  052  052  052           .ASCII  /***PA611 OR LPD11 COMES BEFORE /<CR><LF>
2135 020460  040  040  040           .ASCII  /                                                          /        ;LWL002
2136 020530  126  124  126           .ASCII  /VTV01 BOTH WERE SELECTED/<NOCRLF>
2137 020561  015  012  040  V01MSS:  .ASCII  <CR><LF>/                                                    /        ;LWL002
2138 020633  052  052  052           .ASCII  /***VTV01S HAVE BEEN DECREASED, /<CR><LF>
2139 020674  040  040  040           .ASCII  /                                                          /        ;LWL002
2140 020744  114  111  115           .ASCII  /LIMITED ADDRESS SPACE/<NOCRLF>
2141 020772  015  012  040  DLMESS:  .ASCII  <CR><LF>/                                                    /        ;LWL002
2142 021044  052  052  052           .ASCII  /***IF DL11-E IS USED FOR TU58 /<CR><LF>
2143 021104  040  040  040           .ASCII  /                                                          /        ;LWL002
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SEQ 0044

DATA TABLES

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   2144 021154     124     110     105          .ASCII  /THERE IS NO STANDARD CONFIGURATION/<CR><LF>
   2145 021220     040     040     040          .ASCII  /                                   /                ;LWL002
   2146 021270     106     117     122          .ASCII  /FOR SYSTEMS WITH BOTH DC11 AND TU58/<NOCRLF>
   2147 021334     015     012     040  KMSMES: .ASCII  <CR><LF>/                                  /        ;LWL002
   2148 021406     052     052     052          .ASCII  /***IF IT HAS A M8640 ADDRESS IS /<CR><LF>
   2149 021450     040     040     040          .ASCII  /                                   /                ;LWL002
   2150 021520     053     061     060          .ASCII  /+10 VECTOR IS +10/<NOCRLF>
   2151
   2152                                         .EVEN
   2153 021542                             BUFF:
   2154         000001                          .END                        ;INPUT BUFFER!!!
                                                                            ;THAT'S IT FOLKS!!!
Errors detected:  0

*** Assembler statistics


Work  file  reads: 0
Work  file writes: 0
Size of work file: 8578 Words  ( 34 Pages)
Size of core pool: 19402 Words  ( 74 Pages)
Operating  system: RSX-11M/PLUS (Under VAX/VMS)

Elapsed time: 00:00:59.72
CZFLAC,CZFLAC/CR/-SP=CZFLAC
```

SEQ 0045

SYMBOL CROSS REFERENCE CREF V02

SYMBOL	VALUE	REFERENCES								
A	012054	2-1170	2-1283	2-1299	#10-1970					
ABUF	012062	2-1282	2-1292	#10-1971						
ADDR	012034	*2-649	2-657	2-1498	*2-1500	2-1503	*2-1505	2-1506	*2-1508	2-1510
		*2-1512	2-1513	*2-1515	2-1516	*2-1518	#10-1957			
ADDRT	007720	2-650	#6-1722							
ASCDEV	010320	2-847	#6-1758							
BADCON	015605	2-1268	#12-2084							
BADD	006022	2-1504	#2-1506							
BADDS	006076	2-1514	#2-1516							
BADS	006060	2-1511	#2-1513							
BEX	006002	2-1499	#2-1501							
BEX1	006040	2-1507	#2-1509							
BEX2	006114	2-1517	#2-1519							
BITE	005764	2-751	#2-1498							
BITE1	006004	2-755	#2-1503							
BITE2	006042	2-759	#2-1510							
BIT0	= 000001	#1-470								
BIT1	= 000002	#1-471	2-1425	2-1427	2-1442	2-1444				
BIT10	= 002000	#1-480								
BIT11	= 004000	#1-481								
BIT12	= 010000	#1-482								
BIT13	= 020000	#1-483								
BIT14	= 040000	#1-484								
BIT15	= 100000	#1-485	2-831	2-1485						
BIT2	= 000004	#1-472	2-1250							
BIT3	= 000010	#1-473	2-1258							
BIT4	= 000020	#1-474								
BIT5	= 000040	#1-475	2-1393							
BIT6	= 000100	#1-476								
BIT7	= 000200	#1-477	2-612	2-620	2-1028	2-1386				
BIT8	= 000400	#1-478								
BIT9	= 001000	#1-479								
BUFF	021542	2-1381	2-1436	2-1438	2-1467	#13-2153				
CHAR	012140	*2-559	2-1562	#10-1973						
CLEAN	004310	2-1069	2-1075	2-1086	2-1092	2-1098	2-1104	2-1112	2-1121	2-1127
		2-1132	2-1138	2-1144	#2-1153					
CMP1	005650	#2-1469	2-1482							
CPI32	011004	2-775	3-1632	4-1661	#7-1835					
CPI32S	011667	6-1764	#9-1932							
CR	= 000015	#1-466	2-1431	2-1470	10-1976	10-1976	10-1978	12-2059	12-2064	12-2064
		12-2065	12-2066	12-2067	12-2068	12-2071	12-2073	12-2073	12-2074	12-2075
		12-2076	12-2077	12-2078	12-2079	12-2080	12-2081	12-2082	12-2083	12-2084
		12-2084	12-2085	13-2089	13-2091	13-2094	13-2095	13-2096	13-2097	13-2098
		13-2099	13-2100	13-2101	13-2102	13-2103	13-2104	13-2105	13-2109	13-2110
		13-2113	13-2114	13-2117	13-2118	13-2121	13-2122	13-2125	13-2126	13-2129
		13-2130	13-2133	13-2134	13-2137	13-2138	13-2141	13-2142	13-2144	13-2147
		13-2148								
CRLF	014510	2-642	2-643	2-1155	2-1162	2-1184	2-1421	2-1435	2-1566	#12-2059
CSR	015733	#13-2087								
CSRVEC	015746	2-1027	#13-2088							
CVTA	005176	2-1357	#2-1366							
DATO	= 104001	#1-487	2-634							

SYMBOL CROSS REFERENCE CREF V02 SEQ 0046

SYMBOL	VALUE	REFERENCES								
DBUF	012070	2-1278	2-1279	*2-1280	2-1315	#10-1972				
DC	010430	2-566	2-651	2-878	2-881	2-907	2-909	3-1621	#7-1776	
DCHAR	012273	2-1454	#10-1979							
DEVCNT	= 000100	2-565	2-652	#7-1847						
DEVEND	= 011030	#7-1841	7-1847							
DEVSTR	= 010430	#7-1774	7-1847							
DH	010520	2-729	2-1324	3-1623	4-1655	#7-1790				
DHV	010774	2-771	3-1632	4-1661	#7-1833					
DHVS	011622	6-1764	#9-1930							
DIG2	006176	2-1526	#2-1544							
DJ	010514	2-877	2-878	2-1322	3-1623	4-1655	#7-1789			
DL	010434	2-911	2-1030	3-1621	#7-1777					
DLC	010510	3-1623	#7-1788							
DLMESS	020772	2-1034	#13-2141							
DMA	010444	2-917	2-919	2-924	2-1209	3-1621	#7-1779			
DMBB	010454	2-1216	3-1622	#7-1781						
DMC	010574	2-1340	3-1626	4-1656	#7-1801					
DMF	010734	2-737	3-1630	4-1660	#7-1825					
DMFS	011526	6-1763	#9-1925							
DMP	010700	3-1629	4-1659	#7-1818						
DMPS	011416	6-1762	#9-1919							
DMV	010720	2-735	3-1630	4-1659	#7-1822					
DMVS	011462	6-1762	#9-1922							
DMZ32	011000	2-773	3-1632	4-1661	#7-1834					
DMZ32S	011640	6-1764	#9-1931							
DN	010450	2-1214	3-1621	#7-1780						
DONE	002346	2-665	#2-844							
DONE1	002510	2-879	#2-883	2-887	2-890	2-1193				
DP	010440	3-1621	#7-1778							
DPV	010704	3-1629	4-1659	#7-1819						
DPVS	011432	6-1762	#9-1920							
DQ	010540	2-1326	3-1624	4-1655	#7-1794					
DR	010460	2-1145	2-1147	3-1622	#7-1782					
DRB	010674	2-695	2-1105	*2-1107	2-1108	*2-1109	2-1228	3-1629	4-1658	#7-1817
DRBMES	016455	2-1110	#13-2101							
DRBS	011402	6-1761	#9-1918							
DRW	010670	2-1226	3-1629	4-1658	#7-1816					
DRWS	011366	6-1761	#9-1917							
DR$	004262	2-1140	#2-1145							
DT	010500	3-1623	#7-1786							
DT1	006562	2-614	2-1415	#3-1621						
DT2	007072	2-622	2-658	2-1412	#4-1655					
DU	010550	2-1336	3-1625	4-1655	#7-1796					
DUP	010554	2-1338	3-1625	4-1655	#7-1797					
DV	010560	*2-862	2-921	*2-934	2-935	*2-946	2-947	2-1046	3-1625	#7-1798
DVMES	016716	2-1051	#13-2109							
DVMESS	016121	2-1048	#13-2094							
DVMSS	017121	2-1054	#13-2113							
DVNMS	020151	2-896	#13-2129							
DWR	010630	3-1627	4-1657	#7-1808						
DWUN	010570	*2-863	3-1625	#7-1800						
DX	010504	3-1623	#7-1787							

SYMBOL CROSS REFERENCE CREF V02

SYMBOL	VALUE	REFERENCES								
DZ	010600	2-1342	3-1626	4-1656	#7-1802					
EMTHND	002260	1-519	2-543	#2-808						
EMTTAB	002276	2-812	#2-813							
END	014503	2-897	#12-2058							
ER	005724	#2-1485	2-1489							
ERRCK	= 104002	#1-488	2-635							
EXIT	005746	2-1471	#2-1490							
FATABL	011036	#9-1898								
FILCNT	006332	*2-560	#2-1572							
FILL	006330	2-1563	#2-1571							
FILLER	006334	#2-1573	*2-1577							
FLAG	011740	*2-570	*2-612	*2-620	2-828	*2-831	2-845	2-1078	2-1410	2-1425
		*2-1427	2-1442	*2-1444	*2-1485	#10-1937				
FLAG1	011742	*2-571	*2-923	2-1049	#10-1938					
FLAG10	011764	*2-580	*2-1009	2-1040	#10-1947					
FLAG11	011766	*2-581	*2-959	2-963	*2-967	2-971	*2-975	2-978	#10-1948	
FLAG12	011770	*2-582	2-1025	*2-1028	#10-1949					
FLAG2	011744	*2-572	*2-945	2-1052	#10-1939					
FLAG3	011746	*2-573	2-894	*2-950	#10-1940					
FLAG4	011750	*2-574	*2-995	2-1037	#10-1941					
FLAG5	011752	*2-575	2-891	*2-1014	2-1043	#10-1942				
FLAG6	011754	*2-576	*2-980	2-1058	#10-1943					
FLAG7	011756	*2-577	*2-984	2-1061	#10-1944					
FLAG8	011760	*2-578	*2-629	2-1406	#10-1945					
FLAG9	011762	*2-579	*2-913	2-1032	#10-1946					
GAP	002250	2-788	2-790	2-794	2-798	#2-802				
GAP1	002240	2-796	#2-799							
GAP3	002224	2-792	#2-795							
GFA	001460	#2-648								
GT	010524	*2-858	2-1256	3-1624	#7-1791					
HEAD	012155	#10-1976								
HELLO	015027	2-544	#12-2071							
HELP	015102	2-545	2-606	#12-2073						
HS	011052	6-1758	#9-1900							
IEX	010770	*2-870	3-1632	#7-1832						
IL	005716	2-1473	2-1475	#2-1484						
ILL	014513	2-1484	#12-2060							
INPUT	= 104000	#1-486	2-548	2-588	2-633					
IP	010650	*2-866	2-1087	*2-1089	2-1222	3-1628	#7-1812			
IPMESS	016334	2-1090	#13-2098							
ISB	010714	3-1630	4-1659	#7-1821						
ISBS	011446	6-1762	#9-1921							
JS	011036	6-1758	#9-1899							
JT	012000	2-1351	#10-1952							
JUMPER	005022	#2-1313								
KCT32	010764	*2-869	3-1632	#7-1831						
KMC	010604	2-1344	3-1626	4-1656	#7-1803					
KMCS	011176	6-1759	#9-1907							
KMS	010740	2-741	2-1128	3-1631	4-1660	#7-1826				
KMSMES	021334	2-1130	#13-2147							
KMSS	011542	6-1763	#9-1926							
KMV	010760	2-769	3-1631	4-1661	#7-1830					

SYMBOL CROSS REFERENCE CREF V02

SYMBOL	VALUE	REFERENCES
KMVS	011606	6-1764 #9-1929
KWC	010654	3-1628 4-1658 #7-1813
KWCS	011322	6-1761 #9-1914
KWW	010544	*2-861 3-1624 #7-1795
LF	= 000012	#1-468 10-1976 10-1976 10-1976 10-1978 10-1978 12-2059 12-2064 12-2064 12-2065 12-2066 12-2067 12-2068 12-2071 12-2071 12-2073 12-2073 12-2073 12-2074 12-2075 12-2076 12-2077 12-2077 12-2078 12-2079 12-2080 12-2081 12-2082 12-2083 12-2084 12-2084 12-2085 13-2089 13-2091 13-2092 13-2094 13-2095 13-2096 13-2097 13-2098 13-2099 13-2100 13-2101 13-2102 13-2103 13-2104 13-2105 13-2109 13-2110 13-2113 13-2114 13-2117 13-2118 13-2121 13-2122 13-2125 13-2126 13-2129 13-2130 13-2133 13-2134 13-2137 13-2138 13-2141 13-2142 13-2144 13-2147 13-2148
LK	010564	2-1329 3-1625 4-1656 #7-1799
LKS	011132	6-1759 #9-1904
LNV	011024	*2-872 2-1244 3-1633 #7-1839
LPAK	010644	2-690 2-733 2-1076 2-1080 *2-1081 *2-1083 3-1628 4-1657 #7-1811
LPAKS	011306	6-1760 #9-1913
LPD	010474	2-969 2-973 2-993 *2-1000 2-1001 *2-1010 2-1011 2-1035 3-1622 #7-1785
LPDESS	017542	2-1042 #13-2121
LPDMES	017335	2-1039 2-1045 #13-2117
LPDMSS	017753	2-893 #13-2125
LPKMES	016307	2-1084 #13-2097
LPP	010610	3-1626 4-1656 #7-1804
LPS	010534	*2-860 3-1624 #7-1793
MAXIUM	014575	2-1525 #12-2062
MCS	011146	6-1759 #9-1905
ML	010710	*2-867 2-1113 2-1230 3-1629 #7-1820
MT1	007204	2-615 #5-1673
MT2	007406	2-623 #5-1688
MV21	011226	6-1760 #9-1909
MV31	011242	6-1760 #9-1910
NAT	007520	2-1182 #6-1701
NEXT	001554	2-664 #2-675
NOCRLF	= 000200	#1-467 2-1568 9-1899 9-1900 9-1901 9-1902 9-1903 9-1904 9-1905 9-1906 9-1907 9-1908 9-1909 9-1910 9-1911 9-1912 9-1913 9-1914 9-1915 9-1916 9-1917 9-1918 9-1919 9-1920 9-1921 9-1922 9-1923 9-1924 9-1925 9-1926 9-1927 9-1928 9-1929 9-1930 9-1931 9-1932 9-1933 9-1934 10-1977 11-1989 11-1990 11-1991 11-1992 11-1993 11-1994 11-1995 11-1996 11-1997 11-1998 11-1999 11-2000 11-2001 11-2002 11-2003 11-2004 11-2005 11-2006 11-2007 11-2008 11-2009 11-2010 11-2011 11-2012 11-2013 11-2014 11-2015 11-2016 11-2017 11-2018 11-2019 11-2020 11-2021 11-2022 11-2023 11-2024 11-2025 11-2026 11-2027 11-2028 11-2029 11-2030 11-2031 11-2032 11-2033 11-2034 11-2035 11-2036 11-2037 11-2038 11-2039 11-2040 11-2041 11-2042 11-2043 11-2044 11-2045 11-2046 11-2047 11-2048 11-2049 11-2050 11-2051 11-2052 12-2059 12-2064 12-2069 12-2070 12-2072 12-2077 12-2082 12-2083 12-2085 13-2087 13-2092 13-2093 13-2094 13-2095 13-2096 13-2097 13-2098 13-2099 13-2100 13-2101 13-2102 13-2103 13-2104 13-2105 13-2112 13-2116 13-2120 13-2124 13-2128 13-2132 13-2136 13-2140 13-2146 13-2150
OFFSET	012032	#10-1956
OK	005756	2-1486 #2-1493

SYMBOL CROSS REFERENCE CREF V02

SYMBOL	VALUE	REFERENCES						
OP	014612	2-586	#12-2064					
OPTION	001230	#2-586	2-607					
OPTNA	001236	#2-587	2-598					
OP2	014643	2-587	#12-2065					
OTDA	= 104006	#1-492	2-1487					
OTOA	= 104004	#1-490	2-1164	2-1281				
PAP	010470	2-961	2-965	2-989	2-991	2-996	3-1622	#7-1784
PAR	010464	2-955	2-957	3-1622	#7-1783			
PCL	010744	*2-868	3-1631	#7-1827				
PPS	011212	6-1759	#9-1908					
PRI	004332	2-1055	2-1082	2-1115	2-1146	2-1152	2-1154	#2-1162
PRIN	004426	2-1157	2-1172	#2-1184				
PRINT	001444	#2-642	2-1405					
Q	012210	2-630	#10-1978					
QMARK	015024	2-632	#12-2070					
QNA	011010	*2-871	2-1240	3-1633	#7-1836			
QS	011066	6-1758	#9-1901					
QT1	006362	2-613	2-880	#3-1600				
QT2	006762	2-621	#4-1639					
QUES	001410	#2-631	2-636	2-641	2-1422			
QVSS	011014	2-718	2-777	2-1139	*2-1141	3-1633	4-1661	#7-1837
QVSSMS	016671	2-1142	#13-2105					
QVSSS	011712	6-1764	#9-1933					
QVSS$	001722	2-714	2-716	#2-718				
QVS$	002064	#2-759	2-778					
QV$	004236	2-1134	#2-1139					
Q1	012300	3-1600	#11-1989					
Q10	012560	3-1601	#11-1998					
Q11	012601	3-1602	#11-1999					
Q12	012622	3-1602	#11-2000					
Q13	012643	3-1602	#11-2001					
Q14	012674	3-1602	4-1639	#11-2002				
Q15	012715	3-1602	4-1639	#11-2003				
Q16	012736	3-1603	#11-2004					
Q17	012757	3-1603	#11-2005					
Q18	013000	3-1603	#11-2006					
Q19	013021	3-1603	4-1639	#11-2007				
Q2	012321	3-1600	#11-1990					
Q20	013042	3-1603	#11-2008					
Q21	013064	3-1604	4-1639	#11-2009				
Q22	013106	3-1604	4-1639	#11-2010				
Q23	013127	3-1604	#11-2011					
Q24	013150	3-1604	4-1640	#11-2012				
Q25	013171	3-1604	#11-2013					
Q26	013212	3-1605	4-1640	#11-2014				
Q27	013235	3-1605	4-1640	#11-2015				
Q28	013270	3-1605	4-1640	#11-2016				
Q29	013311	3-1605	4-1640	#11-2017				
Q3	012361	3-1600	#11-1991					
Q30	013332	3-1605	4-1641	#11-2018				
Q31	013353	3-1606	4-1641	#11-2019				
Q32	013374	3-1606	#11-2020					

SYMBOL CROSS REFERENCE CREF V02

SYMBOL	VALUE	REFERENCES						
Q33	013415	3-1606	4-1641	#11-2021				
Q34	013436	3-1606	4-1641	#11-2022				
Q35	013460	3-1606	#11-2023					
Q36	013501	3-1607	4-1641	#11-2024				
Q37	013522	3-1607	#11-2025					
Q38	013544	3-1607	4-1642	#11-2026				
Q39	013565	3-1607	4-1642	#11-2027				
Q4	012402	3-1600	#11-1992					
Q40	013606	3-1607	4-1642	#11-2028				
Q41	013642	3-1608	4-1642	#11-2029				
Q42	013663	3-1608	4-1642	#11-2030				
Q43	013704	3-1608	4-1643	#11-2031				
Q44	013725	3-1608	4-1643	#11-2032				
Q45	013746	3-1608	#11-2033					
Q46	013767	3-1609	4-1643	#11-2034				
Q47	014010	3-1609	4-1643	#11-2035				
Q48	014031	3-1609	4-1643	#11-2036				
Q49	014052	3-1609	4-1644	#11-2037				
Q5	012423	3-1600	#11-1993					
Q50	014073	3-1609	4-1644	#11-2038				
Q51	014114	3-1610	4-1644	#11-2039				
Q52	014135	3-1610	#11-2040					
Q53	014156	3-1610	4-1644	#11-2041				
Q54	014177	3-1610	4-1644	#11-2042				
Q55	014220	3-1610	4-1645	#11-2043				
Q56	014241	3-1611	#11-2044					
Q57	014262	3-1611	#11-2045					
Q58	014303	3-1611	4-1645	#11-2046				
Q59	014325	3-1611	4-1645	#11-2047				
Q6	012444	3-1601	#11-1994					
Q60	014355	3-1611	4-1645	#11-2048				
Q61	014377	3-1612	#11-2049					
Q62	014420	3-1612	4-1645	#11-2050				
Q63	014441	3-1612	4-1646	#11-2051				
Q64	014462	3-1612	#11-2052					
Q7	012465	3-1601	#11-1995					
Q8	012516	3-1601	#11-1996					
Q9	012537	3-1601	#11-1997					
REMES	016377	2-1096	#13-2099					
RES	001120	2-542	#2-563	2-898	2-1269			
RESR	010660	2-675	2-1093	*2-1095	3-1628	4-1658	#7-1814	
RESRS	011336	6-1761	#9-1915					
RL	010634	2-680	2-1064	*2-1066	2-1218	3-1627	4-1657	#7-1809
RLMESS	016201	2-1067	#13-2095					
RLS	011272	6-1760	#9-1912					
RUBOUT	005520	2-1424	#2-1438					
RX	010664	2-685	2-1099	*2-1101	2-1224	3-1628	4-1658	#7-1815
RXMES	016412	2-1102	#13-2100					
RXS	011352	6-1761	#9-1916					
SAVE	012036	#10-1958						
SAVE1	012040	*2-1080	2-1176	#10-1959				
SAVE2	012042	*2-1108	2-1180	#10-1960				

SYMBOL CROSS REFERENCE CREF V02

SYMBOL	VALUE	REFERENCES								
SAVE3	012044	*2-924	*2-925	*2-926	*2-927	2-928	*2-930	2-931	*2-933	2-934
		2-942	#10-1961							
SAVE4	012046	*2-935	*2-936	*2-937	*2-938	*2-939	*2-940	*2-941	*2-942	2-943
		#10-1962								
SAVE5	012050	*2-996	*2-997	*2-998	*2-999	2-1000	2-1006	#10-1963		
SAVE6	012052	*2-1001	*2-1002	*2-1003	*2-1004	*2-1005	*2-1006	2-1007	#10-1964	
SDATO	005636	2-814	#2-1465							
SERRCK	002324	2-815	#2-828							
SHIFT	= 104005	#1-491	2-747							
SHIFT1	= 104007	#1-493	2-753							
SHIFT2	= 104010	#1-494	2-757							
SHIFT3	= 104011	#1-495	2-761							
SHIFT4	= 104012	#1-496	2-749							
SINPUT	005230	2-813	#2-1381	2-1396	2-1399					
SOTDA	006116	2-819	#2-1525							
SOTOA	004752	2-817	*2-1278	*2-1279	*2-1282	*2-1283	#2-1292			
SPEC	012142	*2-844	#10-1974							
SSHIFT	002166	#2-784	2-818							
SSHIF1	002164	#2-783	2-820							
SSHIF2	002162	#2-782	2-821							
SSHIF3	002160	#2-781	2-822							
SSHIF4	002170	#2-785	2-823							
ST	011774	2-1349	#10-1951							
START	001004	#2-540	2-564	2-1402						
STARTA	001000	1-526	1-527	#2-539						
STYPE	006200	2-816	#2-1547	2-1548	2-1569					
SVCHA	011772	*2-1551	*2-1552	2-1553	*2-1557	*2-1558	2-1559	#10-1950		
TAB	016105	2-1163	#13-2093							
TAG	002102	2-743	#2-765							
TAG1	002030	2-730	2-732	2-734	2-736	2-742	#2-751	2-766	2-770	2-772
TAG2	002046	2-738	#2-755	2-774	2-776					
TAG3	001530	#2-659	2-748	2-750	2-754	2-758	2-762			
TAG4	002014	#2-747	2-779							
TB	014546	2-1488	#12-2061							
TENDM	006304	#2-1564	2-1579							
TERMQ	015345	2-546	#12-2078							
TERMQ2	015556	2-556	2-597	#12-2083						
TERMST	012144	2-547	2-554	#10-1975						
TERMTP	012277	*2-558	2-1440	#10-1980						
TOB	005734	2-1483	#2-1487	2-1492						
TPB	000706	#1-533	2-1428	2-1433	2-1445	2-1448	2-1455	2-1561	2-1576	
TPS	000704	#1-532	2-1429	2-1446	2-1449	2-1456	2-1547	2-1574		
TRB	000702	#1-531	2-1382	2-1385	2-1551	2-1557				
TRS	000700	#1-530	2-541	2-1383	2-1549	2-1555				
TSMESS	016244	2-1073	#13-2096							
TST	005240	#2-1383	2-1384	2-1434	2-1439	2-1451	2-1461			
TS11	010640	*2-865	2-1070	*2-1072	2-1220	3-1627	#7-1810			
TU$	002022	2-740	#2-749	2-768						
TU81	010754	2-713	2-767	2-795	2-1133	*2-1135	2-1238	3-1631	4-1660	#7-1829
TU81MS	016626	2-1136	#13-2104							
TU81S	011572	6-1763	#9-1928							
TU81$	001706	2-709	2-711	#2-713						

SYMBOL CROSS REFERENCE CREF V02

SYMBOL	VALUE	REFERENCES								
TYPE	= 104003	#1-489	2-544	2-545	2-546	2-556	2-586	2-587	2-597	2-606
		2-630	2-631	2-632	2-642	2-643	2-893	2-896	2-897	2-1027
		2-1029	2-1034	2-1039	2-1042	2-1045	2-1048	2-1051	2-1054	2-1060
		2-1063	2-1068	2-1074	2-1085	2-1091	2-1097	2-1103	2-1111	2-1120
		2-1126	2-1131	2-1137	2-1143	2-1155	2-1162	2-1163	2-1170	2-1184
		2-1268	2-1421	2-1435	2-1484	2-1488	2-1566			
UDA	010730	2-708	2-739	2-791	2-1122	*2-1124	2-1234	3-1630	4-1660	#7-1824
UDAMES	016563	2-1125	#13-2103							
UDAS	011512	6-1763	#9-1924							
UDA$	001672	2-704	2-706	#2-708						
UNA	010724	2-703	2-787	2-1116	*2-1118	2-1232	2-1346	3-1630	4-1659	#7-1823
UNAMES	016520	2-1119	#13-2102							
UNAS	011476	6-1762	#9-1923							
UNA$	004146	2-1117	#2-1122							
UPS	011116	6-1758	#9-1903							
US	011102	6-1758	#9-1902							
V	= 000126	#1-469	2-1440							
VECT	004444	2-1167	#2-1201							
VECTOR	012030	*2-648	2-1250	*2-1252	2-1258	*2-1260	2-1265	*2-1284	#10-1955	
VST	010120	2-1284	#6-1740							
VSV	010530	*2-859	3-1624	#7-1792						
VS100	010750	2-765	2-789	2-1236	3-1631	4-1660	#7-1828			
VS100S	011556	6-1763	#9-1927							
VS31	011020	2-1242	3-1633	4-1662	#7-1838					
VS31S	011725	6-1765	#9-1934							
V01	010624	*2-864	2-976	*2-981	2-982	*2-985	2-1056	3-1627	#7-1807	
V01MES	020345	2-1060	#13-2133							
V01MSS	020561	2-1063	#13-2137							
V21	010614	3-1626	4-1657	#7-1805						
V31	010620	2-731	3-1627	4-1657	#7-1806					
WRS	011256	6-1760	#9-1911							
XOFF	006240	#2-1555	2-1556	2-1560						
XON	006272	2-1550	2-1554	#2-1561						
ZS	011162	6-1759	#9-1906							

SEQ 0053

MACRO CROSS REFERENCE CREF V02

MACRO NAME	REFERENCES									
ERCHK	#1-499	2-635								
PRINT	#1-504	2-544	2-545	2-546	2-556	2-586	2-587	2-597	2-606	2-630
	2-631	2-632	2-642	2-643	2-893	2-896	2-897	2-1027	2-1029	2-1034
	2-1039	2-1042	2-1045	2-1048	2-1051	2-1054	2-1060	2-1063	2-1155	2-1162
	2-1163	**2-1170**	**2-1184**	**2-1268**	**2-1421**	**2-1435**	**2-1484**	**2-1488**	**2-1566**	