DN11

DIGITAL DIALER

MD-11-DZDNA-A

EP-DZDNA-A-DL-A

OCT 1976

FICHE 1 OF 1

digital

Made In U.S.A.

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZDNA-A-D
PRODUCT NAME: DN11 DIALEX
DATE : 21 MAY 76
MAINTAINER: DIAGNOSTIC GROUP

NOTE: THIS PROGRAM OBSOLETES MD-11-D9J

CO1

SEQ 0002

1. ABSTRACT

THE DN11 DIAGNOSTIC CONSISTS OF TWO PARTS. THE FIRST IS A SERIES OF INCREMENTAL TESTS WHICH STATICLY CHECK OUT THE DN11 USING THE MAINTENANCE MODE. THE SECOND PART IS THE ON LINE EXERCISER WHICH ALLOWS THE USER TO DIAL ANY GIVEN PHONE IN HIS DIALING RANGE. UPON THE COMPLETION OF THE CALL THE PROGRAM WILL TERMINATE THE CALL AND TRY AGAIN.

2. REQUIREMENTS

2.1 EQUIPMENT

PDP-11 (MIN.4K)-WITH OR WITHOUT A HARDWARE SWITCH REGISTER
TELETYPE
DN11 (MAX.OF4 USED AT ONE ANY TIME)

2.2 STORAGE

DIALEX OCCUPIES THE FIRST 4K OF CORE.

3. LOADING PROCEDURE

3.1 METHOD OF LOADING DIALEX TAPE

PROGRAM FORMAT ABSOLUTE

A. VERIFY THE BOOT LOADER IS IN MEMORY
B. SET SWITCH REGISTER EQUAL TO #500

MEMORY	SIZE #
4K	17
8K	37
12K	57
16K	77
20K	117
24K	137
28K	157

C. DEPOSIT LOAD ADDRESS
D. DEPOSIT START

4. STARTING PROCEDURE SEC 0003

A. LOAD ADDRESS 200.
B. SET SWITCH REGISTER CORRESPONDING TO SEC 5.2
-SEE C. FOR SOFTWARE SWITCH REGISTER LOADING-
C. DEPRESS START.
D. IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED:
SWR=XXXXXX NEW= .REFER TO SECTION 5.2 FOR OPTIONS)

4.1 SCOPE LOOP STARTING PROCEDURE

A. LOAD ADDRESS 204.
B. SET THE SWITCH REGISTER EQUAL TO THE ADDRESS
OF THE DN11.
****WHEN SOFTWARE SWITCH REGISTER IS SELECTED THE
OPERATOR WILL BE ABLE TO LOAD THE DN11 ADDRESS AFTER DEPRESSING START.
C. DEPRESS START.
D. SET SWITCH TO CORRESPOND TO SEC. 5.3
E. DEPRESS CONTINUE.
****IF THE SOFTWARE SWITCH REGISTER IS USED DEPRESS CONTINUE.
THE MACHINE WILL THEN ASK FOR SOFTWARE SWITCH REGISTER CHANGE
BY TYPING THE FOLLOWING: SWR=XXXXXX NEW= (REFER TO SECTION
5.2 FOR OPERATOR OPTIONS)****

4.2 RESTARTING AT LOC. 200

RESTARTING AT LOC. 200 WILL AUTOMATICALLY USE THE ADDRESS
AND VECTOR ENTERED AT THE INITIAL START-UP.
IF IT IS DESIRED, TO ENTER A NEW ADDRESS UPON RESTART,
CLEAR LOCATION 176 AND START AT LOC. 200.

5. OPERATING PROCEDURE

AT THE INITIAL START OF THE PROGRAM THE OPERATOR WILL BE
ASKED FOR THE ADDRESS OF THE FIRST DN11, AND ITS VECTOR ASSIGNMENT.

****IF SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED FIRST:
SWR=XXXXXX NEW= (REFER TO SECTION 5.2 FOR OPTIONS)

DN11 REGISTER ADDRESS?XXXXXX

VECTOR ASSIGNMENT?XXX

5.1 DIALING PROCEDURES

THE OPERATOR WILL BE ASKED FOR A PHONE NUMBER FOR EACH DN11,
IN THE FOLLOWING MANNER:
WHEN THE MAXIMUM NUMBER OF DN11'S IS REACHED FOR THE SYSTEM
THE OPERATOR MUST DEPRESS THE CARRIAGE-RETURN KEY WITHOUT
DEPRESSING ANY OTHER CHARACTER.

PHONE #1? XXXXX

PHONE #2? XXXXXX

PHONE #3? XXXXXX

PHONE #4? XXXXXX

NOTE: DO NOT TYPE (^G) DURING THE INPUTING OF PHONE NUMBERS
OR ERROR WILL OCCUR.

IF THE DIAGNOSTIC IS RUN ON A CPU WITHOUT A SWITCH REGISTER THEN A SOFTWARE SWITCH REGISTER IS USED WHICH ALLOWS THE USER THE SAME SWITCH OPTIONS AS THE HARDWARE SWITCH REGISTER. IF THE HARDWARE SWITCH REGISTER DOES NOT EXIST OR IF ONE DOES AND IT CONTAINS ALL ONES (177777) THEN THE SOFTWARE SWITCH REGISTER (LOC. 176) IS USED.

CONTROL:

THIS PROGRAM ALSO SUPPORTS THE DYNAMIC LOADING OF THE SOFTWARE SWITCH REGISTER (LOC. 176) FROM THE TTY. THIS CAN BE ACCOMPLISHED BY DOING THE FOLLOWING:

1) TYPE CONTROL G (↑G); THIS WILL ALLOW THE TTY TO ENTER DATA INTO LOC. 176 AT SELECTED POINTS WITHIN THE PROGRAM.

2) THE MACHINE WILL THEN TYPE: SWR=XXXXXXNEW= (XXXXXX IS THE OCTAL CONTENTS OF THE SOFTWARE SWITCH REGISTER.)

3) AFTER THE ''NEW='' HAS BEEN TYPED THEN THE OPERATOR CAN DO ONE OF THE FOLLOWING AT THE TTY:

   A) TYPE A NUMBER TO BE LOADED INTO LOC. 176 FOLLOWED BY A (CR). (ONLY NUMBERS BETWEEN 0-7 WILL BE ACCEPTED AND ONLY 6 NUMBERS WILL BE ALLOWED)
   IF A (CR) IS THE FIRST KEY DEPRESSED THE SOFTWARE SWITCH REGISTER CONTENTS WILL NOT BE CHANGED.

   B) IF A CONTROL U (↑U) IS DEPRESSED THEN THE PROGRAM WILL SEND YOU BACK TO STEP 2.

NOTE: DUE TO THE USE OF RESET INSTUCTION IT MAY BE NECESSARY TO DEPRESS (↑G) MORE THAN ONCE. THIS IS CAUSED BY THE RESET INSTRUCTION NOT ALLOWING THE LOADING OF THE TTY RECEIVER BUFFER DURING THE RESET EXCUTION.

G01

SEQ C006

SR BIT15 SET=HALT ON ERROR
SR BIT15 RESET=CONTINUE AFTER REPORTING ERROR

SR BIT14 SET=LOOP ON STATIC TEST SUB-SET
SR BIT14 RESET=DO EACH STATIC TEST SUB-SET 15 TIMES.

SR BIT13 SET=DELET TYPE-OUT
SR BIT13 RESET=REPORT EACH ERROR

SR BIT12 SET=TERMINATE CALL BY LOWERING CRQ (CALL REQUEST)
SR BIT12 RESET=TERMINATE CALL BY ISSUING RESET

BIT11 SET=801 NEEDS EON TO COMPLETE CALL
BIT11 RESET=EON NOT NEEDED TO COMPLETE CALL

SR BIT10 SET=LOOP ON ON-LINE TEST
SR BIT10 RESET=SEQUENCE THROUGH PROGRAM

SR BIT9 SET=LOOP ON ALL STATIC TESTS
SR BIT9 RESET=SEQUENCE THROUGH PROGRAM

SR BIT8 SET=RUN STATIC TEST ON DN11 SELECTED BY SRC-1
SR BIT8 RESET=PROGRAM WILL SEQUENCE THROUGH ALL DN11'S

SR BIT7 SET=DELETE TTY CONVERSATION FOR DIALING SEQUENCE
SR BIT7 RESET=ENTER TTY CONVERSATION FOR DIALING SEQUENCE

SR	1	0	=SELECT DN11 FOR STATIC TEST
	RESET	RESET	=FIRST DN11
	RESET	SET	=SECOND DN11
	SET	RESET	=THIRD DN11
	SET	SET	=FOURTH DN11

5.3 SCOPE LOOP SWITCH SELECTION

IN THE SCOPE LOOP THE USER MAY SET ANY OR ALL OF THE DN11 STATUS BITS IN THE MAINTENANCE OR DYNAMIC MODE. IF THE USER SETS THE BITS IN THE DYNAMIC MODE THE PROGRAM WILL AUTOMATICALLY STICK IN THE CORRECT TIME DELAYS FOR THE PHONE LINE.
*****REFER TO SECTIONS 4.1 AND 5.2 FOR SOFTWARE SWITCH REGISTER OPERATION*****

THE DETAILED DESCRIPTION OF DN11 STATUS BITS

BIT	NAME	DESCRIPTION
00	CALL REQUEST (FCRQ)	CONTROL LEAD TO ACU. THIS BIT STARTS THE AUTOMATIC CALLING SEQUENCE. (WRITE ONLY)
01	DIGIT PRESENT (FDPR)	CONTROL LEAD TO THE ACU. THIS BIT MUST BE SET BY THE PROGRAM AFTER IT LOADS THE NEXT DIGIT (IN RESPONSE TO A PND REQUEST) TO INFORM THE ACU TO CONTINUE WITH DIALING. THE INTERFACE AUTOMATICALLY CLEARS THIS BIT WHEN THE ACU CLEARS PND TO INDICATE ACCEPTANCE OF THE DIGIT. (READ/WRITE)
02	MASTER ENABLE (MINAB)	ALLOWS THE PROGRAM TO DISABLE THEN REENABLE ALL 4 ACU INTERRUPTS EASILY WITH ONE BIT. THIS BIT IS CONNECTED FOR ONLY ONE OF THE FOUR POSSIBLE LINES WHICH MOUNT IN ONE SYSTEM UNIT. (READ/WRITE)
03	MAINTENANCE (MAINT)	THIS BIT, WHEN SET, ALLOWS CHECKING OF THE INTERFACE WITHOUT A CONNECTED ACU. IT ALLOWS FCRQ TO BE READ AND SWITCHES THE ACU RESPONSE LINES-- PND,DSS,PWI AND ACR TO THE OUTPUT OF THE DIGIT LINES FOR TESTING PURPOSES. BIT DIGIT ACU LINE CTL BIT * 08 NB1 PND FPND 04 09 NB2 DSS FDSS 05 10 NB4 PWI PWC 13 11 NB8 ACR FACR 14 ALSO FORCES CRQ (TO ACU) OFF AND FORCES FDLD (BIT 12) ON. (READ/WRITE)
04	PRESENT NEXT DIGIT (FPND)	CONTROL LEAD FROM THE ACU. THIS IS A REQUEST BY THE ACU FOR THE PROGRAM TO LOAD ANOTHER DIGIT DURING DIALING. IT IS ACCOMPANIED BY THE SETTING OF DONE TO OBTAIN AN INTERRUPT. IT IS CLEARED BY THE ACU WHEN THE DIGIT IS ACCEPTED (AFTER DPR IS SET) AND WILL REMAIN OFF AT LEAST 600 MS BEFORE COMMING UP FOR THE NEXT REQUEST. (READ ONLY)

I01

SEQ C3C8

05	DATA SET STATUS (FDSS)	CONTROL LEAD FROM ACU. THIS IS A STATEMENT BY THE ACU THAT THE CALLED PARTY HAS ANSWERED AND THAT THE ASSOCIATED DATA SET NOW HAS CONTROL OF THE THE LINE. IT IS ACCOMPANIED BY THE SETTING OF DONE TO OBTAIN AN INTERRUPT. IT REMAINS SET UNTIL AFTER THE END OF THE CALL. (OR UNTIL THE DATA TERMINAL READY LEAD TO THE ASSOCIATED MODEM IS DROPPED WHICH THEN DROPS FDSS). IF THE ASSOCIATED MODEM ANSWERS A CALL WHILE THE DIALER IS IN USE (CRQ=1) THEN DSS WILL BE ENABLED AND DONE SET. IF INTERRUPT ENABLE IS SET THERE WILL BE AN INTERRUPT. (READ ONLY)
06	INTERRUPT ENABLE (INTENB)	THIS BIT ALLOWS THE SETTING OF DONE TO CAUSE AN INTERRUPT IF THE MASTER ENABLE BIT (BIT 02 LINE #1 OF A SYSTEM UNIT) IS SET. (READ/WRITE)
07	DONE	THIS BIT, IS SET TO INDICATE THAT THE ACU IS DONE WITH THE PREVIOUSLY REQUESTED ACTION AND READY TO ACCEPT NEW DATA, USUALLY THE NEXT DIGIT IN A SEQUENCE TO BE DIALED. THE CONDITIONS THAT SET DONE ARE LISTED (CRQ MUST BE A ONE): 1. TRANS. OF PND TO ONE (AFTER LAST SET OR PREV. DPR SET) 2. TRANS. OF DSS TO ONE (AFTER LAST DPR OR EON) 3. TRANS. OF ACR TO ONE (IF TIMEOUT ERR--ANYTIME) 4. TRANS. OF PLO TO ONE (IF POWER SWITCHED OFF) (READ/WRITE)
08-11	DIGIT BITS (NB1-4)	THESE FOUR BITS ARE CONTROL LEADS TO THE ACU. THESE LOW ORDER BITS OF THE SECOND BYTE MAKE UP THE BCD DIGIT TO BE DIALED. SINCE THE HIGH-ORDER FOUR ARE READ ONLY, IT DOESN'T MATTER WHAT IS IN THEM DURING A LOAD, AND THE PROGRAMMER MAY USE THEM AS HE WISHES. IN MAINT MODE, THESE BITS ARE USED TO THE FOUR CONTROL LINES THAT CAN CAUSE INTERRUPTS. SEE BIT 03 FOR DESCRIPTION. (READ/WRITE)

12	DATA LINE OCCUPIED (FDLO)	THIS BIT IS SET BY THA ACU WHENEVER THE LINE TO THE TELEPHONE CENTRAL OFFICE IS BEING USED BY THE ACU. IT ALLOWS THE PROGRAMMER TO TEST THE ACU TO SEE IF THE LAST CALL WAS USCCESSFULLY TERMINATED BEFORE HE TRIES TO USE IT FOR THE NEXT ONE. (READ ONLY)
13	NOT USED	
14	ABANDON CALL AND RETRY (ACR)	A CONTROL LEAD FROM THE ACU. THIS BIT IS SET BY THE ACU WHENEVER AN INTERNAL TIMER TIMES OUT. THE TIMER IS RESET BY THE ACU WHENEVER IT GIVES PBD AND IS FOR DETECTING WRONG NUMBERS AND BUSY SIGNALS. IT IS INHIBITED BY THE PRESENECE OF DSS EXCEPT IF THE 801 OPTION "Y" IS IN USE IN WHICH CASE IT TIMES OUT EVEN THEN AND GIVES AN INTERRUPT (BY SETTING DONE). THIS IS USED WHEN THE PROGRAMMER WANTS A TIMER TO DETECT WRONG NUMBERS AND BUSY SIGNALS.
15	POWER IN (PWI)	THIS BIT IS NORMALLY ZERO AND IS SET BY THE ACU WHENEVER POWER IS SWITCHED OFF AT THE UNIT. IF A CALL IS IN PROGRESS AT THAT TIME, DONE IS SET. (THIS CAUSES AN INTERRUPT IF ITENB AND MINAB=1). (READ ONLY)

KO1

6.1 ERROR REPORTS

6.1.1 XXX ERROR COUNT — XXXXXX DN11

EQUAL TO THE ERROR TAG IN THE LISTING. THIS ENABLES THE USER TO FOLLOW THE EXACT CODE THAT FAILED.

DEFINES WHICH DN11 FAILED THE STATIC TESTS. THIS IS EQUAL TO THE ADDRESS ASSIGNMENT.

6.1.2 XXXXXX GD DATA — XXXXXX BD DATA

THIS EQUALS THE DATA LOADED INTO A REGISTER BY THE PROGRAM.

THIS EQUALS THE DATA READ FROM A REGISTER BY THE PROGRAM.

6.1.3 XXX ERROR COUNT — XXXXXX DNCSR — XXXXXX DN11

EQUAL TO THE ERROR TAG IN PROGRAM LISTING

CONTENTS OF DN11 STATUS REGISTER AT THE TIME ERROR

DEFINES WHICH DN11 THAT FAILED

6.2 PROGRAM TIMED OUT UNABLE TO COMPLETE CALL

THIS MESSAGE IS REPORTED AFTER A PERIOD OF TIME HAS PASSED IN WHICH THE PROGRAM HAD EXPECTED TO HAVE RECEIVED DATA SET STATUS AND DID NOT.

6.2.1 THE 801 IS OFF LINE

THIS MESSAGE IS REPORTED AT THE START OF THE STATIC TEST WHENEVER THE DN11 IN USE HAS NO 801 DAILING UNIT CONNECTED TO IT.

6.3 POWER FAIL OCCURRED

THIS MESSAGE IS REPORTED IN THE RESTART SEQUENCE OF THE POWER FAIL ROUTINE. WHENEVER A POWER FAIL HAS OCCURRED THE PROGRAM TRAPS TO 24 AND RESETS THE VECTOR AND HALTS. ON THE RESTART SEQUENCE THE PROGRAM REPORTS THE MESSAGE AND WAITS TWO SECONDS FOR THE PHONE LINES TO SETTLE DOWN, THEN IT JUMPS TO THE START OF THE PROGRAM.

6.4 END

THIS MESSAGE IS REPORTED AT THE END OF EACH PASS OF THE PROGRAM:

7. TIME

AMOUNT OF TIME TO RUN STATIC TEST 1.5 MIN.
AMOUNT OF TIME TO RUN ON-LINE TEST 3 MIN.

8. RESTRICTIONS

THE POWER FAIL CAPABILITY OF THIS DEVICE MUST ONLY BE PERFORMED IN THE ON-LINE TEST.

9. **RECOVERING FROM ERROR HALTS WITH A SOFTWARE SWITCH REGISTER**

IF THE SOFTWARE SWITCH IS TO BE CHANGE AFTER A HALT THEN THE OPERATOR SHOULD DEPRESS A <^G> BEFORE DEPRESSING THE CONTINUE SWITCH.

:C.   LISTING

```
                                .ENABLE ABS,AMA
                                ;MD-11-DZDNA-A
                                ;OBSOLETES MD-11-D9J
                                ;DN11 DIALEX
                                ;COPYRIGHT 1976, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 0.754
                                ;RELEASED 21 MAY 76 BY SAM CARPENTER
                                : SUPPORTS SOFTWARE SWITCH REGISTER ,LOC.  176
                                ;ALSO, SUPPORTS THE DYNAMIC LODING OF LOC.176
                                :
                                ;*****DIALEX-11*****
                                :
                    000000      N=0
                    000240      NOP=240
                    000001      BIT0=1
                    000002      BIT1=2
                    000004      BIT2=4
                    000010      BIT3=10
                    000020      BIT4=20
                    000040      BIT5=40
                    000100      BIT6=100
                    000200      BIT7=200
                    000400      BIT8=400
                    001000      BIT9=1000
                    002000      BIT10=2000
                    004000      BIT11=4000
                    010000      BIT12=10000
                    020000      BIT13=20000
                    040000      BIT14=40000
                    100000      BIT15=100000
                                :
                                :
                    000004              SCOPE=IOT               ;TRAP CALL FOR SCOPE LOOP
                                ;
                                ;
                                        ;TRAP CATCHER LOC.0-200 ***********
                    000000              .=0
                                        .REPT   200
                                        .+2
                                        HALT
                                        .ENDR
                    000020              .=20
    000020  006560                      LOOP
    000022  000340                      340
    000024  006634                      PWRDWN
    000026  000340                      340
            000030                      .=30
    000030  006546                      EMTRP
    000032  000340                      340
```

B02


```
                                    ;SOFTWARE SWITCH REGISTER***********
        000176                      .=176
000176  000000                      SWREG:  0               ;SOFTWARE SWITCH REGISTER

                                    ;PROGRAM START*********************
        000200                      .=200
000200  000137  001102              JMP     START           ;GO TO THE START OF THE TEST
000204  000137  006014              JMP     MASTER          ;ENTER THE SCOPE LOOP ROUTINE
        001000                  .=1000
                                ;I O REGISTERS
001000  177570                  SR:     177570              ;SWITCH REGISTER
001002  177776                  CSR:    177776              ;PROCESSOR STATUS REGISTER
001004  177566                  TPB:    177566              ;TELETYPE REGISTERS
001006  177562                  TKB:    177562
001010  177564                  TPS:    177564
001012  177560                  TKS:    177560
                                ;
        005564                  INDEX=SELECT+2
                                ;
                                ;DN11 REGISTERS
001014  175200                  DNCSR1: 175200
001016  175202                  DNCSR2: 175202
001020  175204                  DNCSR3: 175204
001022  175206                  DNCSR4: 175206
                                ;
                                ;
                                ;
001024  000300                  VECTOR: 300
001026  000004                  PRIORITY:       4
                                ;
                                ;
                                ;
```

```
                                        ;PROGRAM WORK REGISTER
                                        ;
000000  000000                          OSSCNT: 0
000000  000000                          WORK:   0
000000  000000                          WORK1:  0
000000  000000                          COUNT:  0
000000  000000                          TIME:   0
000000  000000                          TIME1:  0
000000  000000                          SAVE:   0
000000  000000                          ERCOUNT:        0
000000  175200                          STATUS: 175200
000000  000000                          PNT1:   0
000000  000000                          PNT2:   0
000000  000000                          PNT3:   0
000000  000000                          PNT4:   0
000000  000000                          FLAG:   0
000000  000000                          PASS:   0
000000  000000                          MASK:   0
000000  011540                          STKLINK: STACK
000000      000     000     000         MAP:    .BYTE 0,0,0,0
000000      000
                                        ;
                                        ;
                                        ;
001052  001052                          ENTRY:  PNT1
006314  006314                          POINT:  PHC1
```

D02


```
                                        ;
                                        ;
                                        ;THIS ROUTINE IS USED TO INITIALIZE THE PROGRAM TO THE CORRECT
                                        ;DN11 REGISTER ASSIGNMENTS THIS ROUTINE IS ONLY ENTERED ONCE
                                        ;UPON THE FIRST START OF THE PROGRAM
001102  000005                  START:  RESET
001104  013706  001070                  MOV     STKLINK,%6      ;SET UP THE STACK
001110  004737  010044                  JSR     PC,SUSWR        ;GO TO SWITCH REGISTER SIZING ROUTINE
001114  005737  001062                  TST     FLAG            ;TEST FOR THE PASS
001120  001071                          BNE     NOTFIRST        ;BRANCH NOT THE FIRST PASS
001122  052737  177777  001062          BIS     #177777,FLAG    ;SET PASS INDICATOR
001130  012703  006272                  MOV     #TEXBUF,%3      ;SET UP TO RECEIVE DATA FROM TTY
001134  104001                          EMT     +1              ;ASK OPERATOR FOR FIRST DN11 ADDRESS
001136  007313                          DNADDR
001140  004737  006172                  JSR     %7,TYST         ;GO FETCH ADDRESS FROM TTY
001144  012702  001014                  MOV     #DNCSR1,%2
001150  004737  007074                  JSR     %7,NEXCHAR      ;CONVERT OCTAL TO ASCII
001154  013737  001014  001016          MOV     DNCSR1,DNCSR2   ;SET UP ALL DN11 ADDRESSES
001162  062737  000002  001016          ADD     #2,DNCSR2
001170  013737  001016  001020          MOV     DNCSR2,DNCSR3
001176  062737  000002  001020          ADD     #2,DNCSR3
001204  013737  001020  001022          MOV     DNCSR3,DNCSR4
001212  062737  000002  001022          ADD     #2,DNCSR4
001220  013737  001014  001050          MOV     DNCSR1,STATUS   ;
001226  012703  006272          GETVEC: MOV     #TEXBUF,%3      ;SET UP TO ASK FOR VECTOR ASSIGNMENT
001232  104001                          EMT     +1
001234  007343                          VECDN
001236  004737  006172                  JSR     %7,TYST         ;FETCH VECTOR ADDRESS FROM TTY
001242  012702  001024                  MOV     #VECTOR,%2
001246  004737  007074                  JSR     %7,NEXCHAR      ;CONVERT OCTAL TO ASCII
001252  022737  001000  001024          CMP     #1000,VECTOR    ;IS VECTOR ADDRESS LESS THAN 1000
001260  101762                          BLOS    GETVEC          ;BRANCH THE ADDRESS IS GREATER THAN 1000
001262  062737  000002  001024          ADD     #2,VECTOR       ;POINT TO VECTOR PSW
001270  012777  000200  177526          MOV     #200,@VECTOR    ;SET PRIORITY AT 4
001276  162737  000002  001024          SUB     #2,VECTOR       ;ADJ. VECTOR
001304  013737  001014  001050  NOTFIRST: MOV   DNCSR1,STATUS
001312  032777  002000  177460          BIT     #BIT10,@SR      ;TESTTO ENTER ON-LINE TEST ONLY
001320  001402                          BEQ     .+6             ;ENTER STATIC
001322  000137  004270                  JMP     BEGIN           ;ENTER ON-LINE TEST
```

E02


```
                                        ;*****DIALEX-11*****
                                        ;DN11 TEST PART1
                                        ;AUTOMATIC DIALER INTERFACE
                                        ;
                                        ;THE FIRST PART OF THIS TEST CONSISTS OF
                                        ;INTER-ACTION BETWEEN THE OPERATOR AND
                                        ;THE PROGRAM
                                        ;
                                        ;
                                        ;IS PWO CLEARED
                                        ;
001326  004737  010142          ST1:    JSR     PC,CKSWR        ;CHECK FOR ^G
001332  032777  000400  177440          BIT     #BIT8,@SR       ;DOES THE OPERATOR WANT TO SELECT ONE DN11
001340  001414                          BEQ     ST1X            ;NO RUN NORMAL
001342  017737  177432  001032          MOV     @SR,WORK        ;FETCH WHICH DN11 HE WANTS TO RUN
001350  042737  177774  001032          BIC     #177774,WORK    ;MASK COUNT
001356  000241                          CLC
001360  006137  001032                  ROL     WORK            ;COUNT X2
001364  063737  001032  001050          ADD     WORK,STATUS     ;SET UP SELECTED DN11
001372  005777  177452          ST1X:   TST     @STATUS         ;TEST FOR 901
001376  100404                          BMI     .+12            ;NO 901 PRESENT
001400  012737  177777  001066          MOV     #177777,MASK
001406  000405                          BR      .+14
001410  012737  077777  001066          MOV     #77777,MASK
001416  104001                          EMT     +1
001420  007130                          MES1
001422  042777  177777  177420  ST1XE:  BIC     #177777,@STATUS
001430  033777  001066  177412          BIT     MASK,@STATUS            ;TEST STATUS BIT
001436  100005                          BPL     ST2XE           ;BRANCH IF POWER OFF
001440  012737  000000  001046  ERR0:   MOV     #0,ERCOUNT      ;*** ERROR 0 ***
                000001                  N=N+1
001446  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
001452  000004                  ST2XE:  SCOPE
001454  001422                          ST1XE
```

F02


```
                                        ;
                                        ;
                                        ;IS ACR CLEARED
                                        ;
001456  042777  177777  177364  ST2X:   BIC     #177777,@STATUS
001464  032777  040000  177356          BIT     #BIT14,@STATUS
001472  001405                          BEQ     ST3E            ;BRANCH IF ACR IS CLEARED
001474  012737  000001  001046  ERR1:   MOV     #1,ERCOUNT      ;*** ERROR 1 ***
        000002                          N=N+1
001502  004537  007540                  JSR     %5,STAER
001506  000004                  ST3E:   SCOPE
001510  001456                          ST2X
                                        ;
                                        ;IS BIT 13 CLEARED (BIT NOT USED)
                                        ;
001512  042777  177777  177330  ST3:    BIC     #177777,@STATUS
001520  032777  020000  177322          BIT     #BIT13,@STATUS
001526  001405                          BEQ     ST4E            ;BIT 13 CLEAR EXIT
001530  012737  000002  001046  ERR2:   MOV     #2,ERCOUNT      ;*** ERROR 2 ***
        000003                          N=N+1
001536  004537  007540                  JSR     %5,STAER
001542  000004                  ST4E:   SCOPE
001544  001512                          ST3
                                        ;
                                        ;IS DLO CLEARED
                                        ;
001546  042777  177777  177274  ST4:    BIC     #177777,@STATUS                 ;CLEAR THE WORLD
001554  032777  010000  177266          BIT     #BIT12,@STATUS  ;TEST FOR DATA LINE NOT OCCUPIED
001562  001405                          BEQ     ST5E            ;BRANCH IF LINE NOT OCCUPIED
001564  012737  000003  001046  ERR3:   MOV     #3,ERCOUNT      ;*** ERROR 3 ***
        000004                          N=N+1
001572  004537  007540                  JSR     %5,STAER        ;REPROT ERROR
001576  000004                  ST5E:   SCOPE
001600  001546                          ST4
                                        ;
                                        ;ARE THE BCD BITS CLEARED
                                        ;
001602  042777  177777  177240  ST5:    BIC     #177777,@STATUS ;CLEAR THE WORLD
001610  032777  007400  177232          BIT     #7400,@STATUS   ;TEST BCD DIGITS
001616  001405                          BEQ     ST6E            ;BITS SHOULD BE CLEARED
001620  012737  000004  001046  ERR4:   MOV     #4,ERCOUNT      ;*** ERROR 4 ***
        000005                          N=N+1
001626  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
001632  000004                  ST6E:   SCOPE
001634  001602                          ST5
```

```
                                        ;
                                        ;
                                        ;CAN WE SET ALL BCD BITS
                                        ;
001636  042777  177777  177204  ST6:    BIC     #177777,@STATUS
001644  012777  007400  177176            MOV     #7400,@STATUS   ;SET BITS
001652  017737  177172  001032            MOV     @STATUS,WORK
001660  042737  170377  001032            BIC     #170377,WORK    ;MASK ALL OTHER BITS
001666  022737  007400  001032            CMP     #7400,WORK
001674  001412                           BEQ     ST7E            ;BRANCH IF BITS ALL SET
001676  012737  000005  001046  ERR5:     MOV     #5,ERCOUNT      ;*** ERROR 5 ***
                000036                   N=N+1
001704  012737  007400  001034            MOV     #7400,WORK1     ;BCD BITS THAT SHOULD BE SET
001712  004537  007636                     JSR     %5,STAER1       ;REPORT ERROR
001716  004537  007540                     JSR     %5,STAER
001722  000004                   ST7E:     SCOPE
001724  001636                           ST6
                                        ;CAN WE FLOAT A ONE THROUGH THE BCD BITS
001726  042777  177777  177114  ST7:     BIC     #177777,@STATUS
001734  012737  000400  001034            MOV     #400,WORK1
```

```
        001742  013777  001034  177100  ST7X:   MOV     WORK1,@STATUS   ;SET UP BCD BITS
        001750  017737  177074  001032          MOV     @STATUS,WORK    ;READ BACK BCD BITS
        001756  042737  170377  001032          BIC     #170377,WORK    ;MASK BITS
        001764  023737  001034  001032          CMP     WORK1,WORK      ;DO THE BITS EQUAL WHAT WAS LOADED
        001772  001007                          BNE     ST7ER           ;ERROR IN BITS READ BACK
        001774  022737  007400  001032          CMP     #7400,WORK
        002002  001412                          BEQ     ST10E           ;EXIT PATTERN COMPLETE
        002004  105237  001035                  INCB    WORK1+1         ;SETUP NEXT PATTERN
        002010  000754                          BR      ST7X            ;LOAD THE NEXT PATTERN
        002012                          ST7ER:
        002012  012737  000006  001046  ERR6:   MOV     #6,ERCOUNT      ;*** ERROR 6 ***
                000007                          N=N+1
        002020  004537  007636                  JSR     %5,STAER1       ;REPORT ERROR
        002024  004537  007540                  JSR     %5,STAER
        002030  000004                  ST10E:  SCOPE
        002032  001726                          ST7
                                        ;
                                        ;IS DONE CLEARED
                                        ;
        002034  042777  177777  177006  ST10:   BIC     #177777,@STATUS ;CLEAR THE WORLD
        002042  105777  177002                  TSTB    @STATUS         ;TEST FOR NOT DONE
        002046  100005                          BPL     ST11E           ;BRANCH IF DONE NOT SET
        002050  012737  000007  001046  ERR7:   MOV     #7,ERCOUNT      ;*** ERROR 7 ***
                000010                          N=N+1
        002056  004537  007540                  JSR     %5,STAER        ;REPORT DONE SET
        002062  000004                  ST11E:  SCOPE
        002064  002034                          ST10
```

```
279                                     ;
280                                     ;IS INTERRUPT ENABLE CLEARED
281                                     ;
282  002066  042777  177777  176754  ST11:   BIC     #177777,@STATUS ;CLEAR THE WORLD
283  002074  032777  000100  176746          BIT     #BIT6,@STATUS   ;WAS BIT6 CLEARED
284  002102  001405                          BEQ     ST12E           ;BRANCH IF BIT6 CLEARED
285  002104  012737  000010  001046  ERR10:  MOV     #10,ERCOUNT     ;*** ERROR 10 ***
286          000011                          N=N+1
287  002112  004537  007540                  JSR     %5,STAER        ;REPORT BIT6 SET
288  002116  000004                  ST12E:  SCOPE
289  002120  002066                          ST11
290                                     ;
291                                     ;CAN WE SET INTERRUPT ENABLE
292                                     ;
293  002122  012777  000340  176652  ST12:   MOV     #340,@CSR       ;LOCK UP CPU
294  002130  052777  000100  176712          BIS     #BIT6,@STATUS   ;SET INTERRUPT ENABLE
295  002136  032777  000100  176704          BIT     #BIT6,@STATUS   ;WAS THE BIT SET
296  002144  001006                          BNE     ST12EX          ;BIT SET CLEAR INTERRUPT
297  002146  000005                          RESET                   ;CLEAR INTERRUPTS
298  002150  012737  000011  001046  ERR11:  MOV     #11,ERCOUNT     ;*** ERROR 11 ***
299          000012                          N=N+1
300  002156  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
301  002162  005077  176662          ST12EX: CLR     @STATUS                 ;CLEAR INTERRUPTS
302  002166  000004                          SCOPE
303  002170  002122                          ST12
```

```
                                        ;
                                        ;IS DSS CLEARED
                                        ;
002172  042777  177777  176650  ST13:   BIC     #177777,@STATUS ;CLEAR THE WORLD
002200  032777  000040  176642          BIT     #BIT5,@STATUS   ;IS DSS SET
002206  001405                          BEQ     ST14E           ;BRANCH IF DSS IS NOT SET
002210  012737  000012  001046  ERR12:  MOV     #12.ERCOUNT     ;*** ERROR 12 ***
        000013                          N=N+1
002216  004537  007540                  JSR     %5,STAER        ;REPORT DSS SET
002222  000004                  ST14E:  SCOPE
002224  002172                          ST13
                                        ;
                                        ;IS PND CLEARED
                                        ;
002226  042777  177777  176614  ST14:   BIC     #177777,@STATUS ;CLEAR THE WORLD
002234  032777  000020  176606          BIT     #BIT4,@STATUS   ;IS PND SET
002242  001405                          BEQ     ST15E           ;BRANCH IF PND NOT SET
002244  012737  000013  001046  ERR13:  MOV     #13,ERCOUNT     ;*** ERROR 13 ***
        000014                          N=N+1
002252  004537  007540                  JSR     %5,STAER        ;REPORT PND SET
002256  000004                  ST15E:  SCOPE
002260  002226                          ST14
```

```
                                        ;
                                        ;IS THE MAINTENANCE BIT CLEARED
                                        ;
002262  042777  177777  176560  ST15:   BIC     #177777,@STATUS ;CLEAR THE WORLD
002270  032777  000010  176552          BIT     #BIT3,@STATUS   ;IS MAINTENANCE BIT CLEAR
002276  001405                          BEQ     ST15XE          ;BRANCH IF MAINTENANCE CLEAR
002300  012737  000014  001046  ERR14:  MOV     #14,ERCOUNT     ;*** ERROR 14 ***
        000015                          N=N+1
002306  004537  007540                  JSR     %5,STAER        ;REPORT MAINTENANCE SET
002312  000004                  ST15XE: SCOPE
002314  002262                          ST15
                                        ;
                                        ;CAN WE SET THE MAINTENANCE BIT
                                        ;
002316  042777  177777  176524  ST15X:  BIC     #177777,@STATUS
002324  052777  000010  176516          BIS     #BIT3,@STATUS   ;CAN WE SET MAINTENANCE
002332  032777  000010  176510          BIT     #BIT3,@STATUS   ;IS MAINTENANCE SET
002340  001005                          BNE     ST16E           ;YES EXIT
002342  012737  000015  001046  ERR15:  MOV     #15,ERCOUNT     ;*** ERROR 15 ***
        000016                          N=N+1
002350  004537  007540                  JSR     %5,STAER
002354  000004                  ST16E:  SCOPE
002356  002316                          ST15X
                                        ;
                                        ;IS MASTER ENABLE CLEARED
                                        ;
002360  042777  177777  176462  ST16    BIC     #177777,@STATUS ;CLEAR THE WORLD
002366  032777  000004  176454          BIT     #BIT2,@STATUS   ;IS MASTER ENABLE CLEARED
002374  001405                          BEQ     ST16XE          ;BRANCH IF CLEARED
002376  012737  000016  001046  ERR16:  MOV     #16,ERCOUNT     ;*** ERROR 16 ***
        000017                          N=N+1
002404  004537  007540                  JSR     %5,STAER        ;REPORT MASTER ENABLE STILL SET
002410  000004                  ST16XE: SCOPE
002412  002360                          ST16
                                        ;
                                        ;CAN WE SET MASTER ENABLE
                                        ;
002414  042777  177777  176426  ST16X:  BIC     #177777,@STATUS
002422  012777  000340  176352          MOV     #340,@CSR
002430  052777  000004  176412          BIS     #BIT2,@STATUS   ;CAN WE SET MASTER ENABLE
002436  032777  000004  176404          BIT     #BIT2,@STATUS   ;IS MASTER ENABLE SET
002444  001005                          BNE     ST17E           ;YES EXIT
002446  012737  000017  001046  ERR17:  MOV     #17,ERCOUNT     ;*** ERROR 17 ***
        000020                          N=N+1
002454  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
002460  000004                  ST17E:  SCOPE
002462  002414                          ST16X
                                        ;
                                        ;IS DPR CLEARED
                                        ;
002464  042777  177777  176356  ST17:   BIC     #177777,@STATUS ;CLEAR THE WORLD
002472  032777  000002  176350          BIT     #BIT1,@STATUS   ;IS DATA PRESENT CLEARED
002500  001405                          BEQ     ST17XE          ;BRANCH IF DATA PRESENT AS CLEARED
002502  012737  000020  001046  ERR20:  MOV     #20,ERCOUNT     ;*** ERROR 20 ***
        000021                          N=N+1
002510  004537  007540                  JSR     %5,STAER        ;REPORT DATA PRESENT IS SET
```

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   383  002514  000004                  ST17XE: SCOPE
   384  002516  002464                          ST17
```

```
                                        ;
                                        ;CAN WE SET DPR (DIGIT PRESENT)
                                        ;
002520  042777  177777  176322  ST17X:  BIC     #177777,@STATUS
002526  012777  000410  176314          MOV     #BIT8!BIT3,@STATUS ;SET PND
002534  052777  000002  176306          BIS     #BIT1,@STATUS   ;SET DPR
002542  032777  000002  176300          BIT     #BIT1,@STATUS
002550  001005                          BNE     ST20E
002552  012737  000021  001046  ERR21:  MOV     #21,ERCOUNT     ;*** ERROR 21 ***
        000022                          N=N+1
002560  004537  007540                  JSR     %5,STAER
002564  000004                  ST20E:  SCOPE
002566  002520                          ST17X
                                        ;
                                        ;IS CRQ (CALL REQUEST) CLEARED
                                        ;
002570  042777  177777  176252  ST20:   BIC     #177777,@STATUS
002576  032777  000001  176244          BIT     #BIT0,@STATUS   ;IS CALL REQUEST SET
002604  001405                          BEQ     ST21E           ;NO! IT SHOULD NEVER BE SET
002606  012737  000022  001046  ERR22:  MOV     #22,ERCOUNT     ;*** ERROR 22 ***
        000023                          N=N+1
002614  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
002620  000004                  ST21E:  SCOPE
002622  002570                          ST20
                                        ;TEST THE ABILITY OF SETTING CRQ
002624  042777  177777  176216  ST21:   BIC     #177777,@STATUS ;CLEAR THE WORLD
002632  033777  001066  176210          BIT     MASK,@STATUS            ;IS THE DN11 CLEAR
002640  001406                          BEQ     ST22            ;DN11 OK
002642  012737  000023  001046  ERR23:  MOV     #23,ERCOUNT     ;*** ERROR 23 ***
        000024                          N=N+1
002650  004537  007540                  JSR     %5,STAER        ;REPORT ERROR "STATUS REG. NOT CLEAR"
002654  000425                          BR      ST22E           ;EXIT ERROR OCCOURRED
002656  052777  000001  176164  ST22:   BIS     #BIT0,@STATUS   ;SET CALL REQUEST
002664  032777  000001  176156          BIT     #BIT0,@STATUS   ;IS CALL REQUEST SET
002672  001006                          BNE     ST22X           ;YES! EXIT
002674  012737  000024  001046  ERR24:  MOV     #24,ERCOUNT     ;*** ERROR 24 ***
        000025                          N=N+1
002702  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
002706  000410                          BR      ST22E           ;LOOP ON ERRO
002710  105777  176134          ST22X:  TSTB    @STATUS         ;DONE SHOULD NOT BE SET
002714  100005                          BPL     ST22E           ;BRANCH IF DONE NOT SET
002716  012737  000025  001046  ERR25:  MOV     #25,ERCOUNT     ;*** ERROR 25 ***
        000026                          N=N+1
002724  004537  007540                  JSR     %5,STAER        ;REPORT THE ERROR
002730  000004                  ST22E:  SCOPE
002732  002624                          ST21
                                        ;
                                        ;DOES MAINTENANCE SET DLO
                                        ;
002734  042777  177777  176106  ST23:   BIC     #177777,@STATUS ;CLEAR THE WORLD
002742  033777  001066  176100          BIT     MASK,@STATUS            ;IS REG CLR
002750  001406                          BEQ     ST24            ;YES! EXIT
002752  012737  000026  001046  ERR26:  MOV     #26,ERCOUNT     ;*** ERROR 26 ***
        000027                          N=N+1
002760  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
002764  000414                          BR      ST25E
```

N02


```
   441  002766  052777  000010  176054  ST24:   BIS     #BIT3,@STATUS
   442  002774  032777  010000  176046          BIT     #BIT12,@STATUS  ;IS DLO SET
   443  003002  001005                          BNE     ST25E           ;YES EXIT
   444  003004  012737  000027  001046  ERR27:  MOV     #27,ERCOUNT     ;*** ERROR 27 ***
   445          000030                          N=N+1
   446  003012  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
   447  003016  000004                  ST25E:  SCOPE
   448  003020  002734                          ST23
   449
```

```
                                        ;
                                        ;CAN WE SET PND IN MAINTENANCE MODE
                                        ;
003022  042777  177777  176020  ST25:   BIC     #177777,@STATUS
003030  033777  001066  176012          BIT     MASK,@STATUS            ;IS REG CLEAR
003036  001406                          BEQ     ST25X                   ;YES! REG CLEAR
003040  012737  000030  001046  ERR30:  MOV     #30,ERCOUNT             ;*** ERROR 30 ***
                000031                  N=N+1
003046  004537  007540                  JSR     %5,STAER
003052  000425                          BR      ST26E                   ;LOOP ON ERROR
003054  052777  000411  175766  ST25X:  BIS     #BIT8!BIT3!BIT0,@STATUS ;SET PND IN MAINTENANCE MODE.
003062  032777  000020  175760          BIT     #BIT4,@STATUS
003070  001016                          BNE     ST26E                   ;PND SET
003072  012737  000031  001046  ERR31:  MOV     #31,ERCOUNT             ;*** ERROR 31 ***
                000032                  N=N+1
003100  004537  007540                  JSR     %5,STAER                ;PND NOT SET
003104  000410                          BR      ST26E                   ;EXIT ERROR OCCURRED
                                        ;
                                        ;DOES PND SET DONE
                                        ;
003106  105777  175736          ST26:   TSTB    @STATUS                 ;IS DONE SET
003112  100405                          BMI     ST26E                   ;BRANCH IF DONE SET
003114  012737  000032  001046  ERR32:  MOV     #32,ERCOUNT             ;*** ERROR 32 ***
                000033                  N=N+1
003122  004537  007540                  JSR     %5,STAER
003126  000004          ST26E:  SCOPE
003130  003022                          ST25
                                        ;
                                        ;CAN WE SET DSS IN MAINTENANCE MODE
                                        ;
003132  042777  177777  175710  ST26X:  BIC     #177777,@STATUS
003140  033777  001066  175702          BIT     MASK,@STATUS            ;IS REG. CLEAR
003146  001406                          BEQ     ST27                    ;BRANCH IF CLEAR
003150  012737  000033  001046  ERR33:  MOV     #33,ERCOUNT             ;*** ERROR 33 ***
                000034                  N=N+1
003156  004537  007540                  JSR     %5,STAER
003162  000425                          BR      ST27E                   ;REPORT ERROR
003164  052777  001011  175656  ST27:   BIS     #BIT9!BIT3!BIT0,@STATUS ;SET DSS IN MAINTENANCE MODE
003172  032777  000040  175650          BIT     #BIT5,@STATUS
003200  001006                          BNE     ST30
003202  012737  000034  001046  ERR34:  MOV     #34,ERCOUNT             ;*** ERROR 34 ***
                000035                  N=N+1
003210  004537  007540                  JSR     %5,STAER
003214  000410                          BR      ST27E                   ;LOOP ON ERROR
```

```
                                        ;
                                        ;DOES DSS SET DONE
                                        ;
003316  105777  175626          ST3C:   TSTB    @STATUS         ;WAS DONE SET BY DSS
003322  100405                          BMI     ST27E           ;BRANCH IF YES
003324  012737  000035  001046  ERR35:  MOV     #35.ERCOUNT     ;*** ERROR 35 ***
                000036                  N=N+1
003332  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
003336  000004          ST27E:  SCOPE
003340  003132                  ST26X
                                ;CAN WE SET PWO IN MAINTENANCE MODE
003342  042777  177777  175600  ST31:   BIC     #177777,@STATUS
003350  033777  001066  175572          BIT     MASK,@STATUS            ;IS STATUS REG CLEAR
003356  001406                          BEQ     ST31X           ;BRANCH IF REG CLEAR
003360  012737  000036  001046  ERR36:  MOV     #36.ERCOUNT     ;*** ERROR 36 ***
                000037                  N=N+1
003366  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
003372  000432                          BR      ST32E           ;
003374  052777  000010  175546  ST31X:  BIS     #BIT3,@STATUS           ;SET MAINTENANCE
003402  042777  177760  175540          BIC     #177760,@STATUS
003410  052777  002001  175532          BIS     #BIT10!BIT0,@STATUS     ;SET PWO
003416  005777  175526                  TST     @STATUS
003422  100406                          BMI     ST32
003424  012737  000037  001046  ERR37:  MOV     #37,ERCOUNT     ;*** ERROR 37 ***
                000040                  N=N+1
003432  004537  007540                  JSR     %5,STAER
003436  000410                          BR      ST32E           ;REPORT ERROR
```

D03


```
                                        ;WAS DONE SET
003340  105777  175504          ST32:   TSTB    @STATUS         ;TEST DONE
003344  100405                  BMI     ST32E                   ;YES EXIT
003346  012737  000040  001046  ERR40:  MOV     #40,ERCOUNT     ;*** ERROR 40 ***
        000041                  N=N+1
003354  004537  007540                  JSR     %5,STAER        ;DONE NOT SET REPORT ERROR
003360  000004                  ST32E:  SCOPE
003362  003242                          ST31
                                        ;CAN WE SET ABANDON CALL AND RETRY IN MAINTENANCE MODE
003364  042777  177777  175456  ST32X:  BIC     #177777,@STATUS
003372  033777  001066  175450          BIT     MASK,@STATUS            ;IS REG. CLEAR
003400  001406                          BEQ     ST33            ;YES EXIT
003402  012737  000041  001046  ERR41:  MOV     #41,ERCOUNT     ;*** ERROR 41 ***
        000042                  N=N+1
003410  004537  007540                  JSR     %5,STAER
003414  000425                          BR      ST34E           ;REPORT REG. NOT CLEAR
003416  052777  004011  175424  ST33:   BIS     #BIT11!BIT3!BIT0,@STATUS ;SET ACR IN MAINTENANCE MODE
003424  032777  040000  175416          BIT     #BIT14,@STATUS
003432  001006                          BNE     ST34
003434  012737  000042  001046  ERR42:  MOV     #42,ERCOUNT     ;*** ERROR 42 ***
        000043                  N=N+1
003442  004537  007540                  JSR     %5,STAER        ;ACR NOT SET
003446  000410                          BR      ST34E
                                        ;DID ACR SET DONE
003450  105777  175374          ST34:   TSTB    @STATUS         ;WAS DONE SET BY ABANDON CALL AND RETRY
003454  100405                  BMI     ST34E                   ;YES EXIT
003456  012737  000043  001046  ERR43:  MOV     #43,ERCOUNT     ;*** ERROR 43 ***
        000044                  N=N+1
003464  004537  007540                  JSR     %5,STAER        ;DONE NOT SET
003470  000004                  ST34E:  SCOPE
003472  003364                          ST32X
                                        ;DOES PND CLEAR DIGIT PRESENT
003474  042777  177777  175346  ST34X:  BIC     #177777,@STATUS
003502  033777  001066  175340          BIT     MASK,@STATUS            ;IS REG CLR
003510  001406                          BEQ     ST35            ;YES BRANCH
003512  012737  000044  001045  ERR44:  MOV     #44,ERCOUNT     ;*** ERROR 44 ***
        000045                  N=N+1
003520  004537  007540                  JSR     %5,STAER
003524  000434                          BR      ST35E           ;LOOP ON ERROR
003526  052777  000410  175314  ST35:   BIS     #BIT8!BIT3,@STATUS      ;SET PND
003534  052777  000002  175306          BIS     #BIT1,@STATUS   ;SET DIGIT PRESENT
003542  032777  000002  175300          BIT     #BIT1,@STATUS   ;IS IT SET
003550  001006                          BNE     ST35X           ;YES BRANCH
003552  012737  000045  001046  ERR45:  MOV     #45,ERCOUNT     ;*** ERROR 45 ***
        000046                  N=N+1
003560  004537  007540                  JSR     %5,STAER        ;REPORT DIGIT PRESENT NOT SET
003564  000414                          BR      ST35E           ;LOOP ON ERROR
```

E03


```
                                        ;WAS DIGIT PRESENT CLEARED
003566  042777  000410  175254  ST35X:  BIC     #BIT8!BIT3,@STATUS ;CLEAR PND
003574  032777  000002  175246          BIT     #BIT1,@STATUS   ;WAS DIGIT PRESENT CLEARED
003602  001405                          BEQ     ST35E           ;YES BRANCH
003604  012737  000046  001046  ERR46:  MOV     #46,ERCOUNT     ;*** ERROR 46 ***
        000047                          N=N+1
003612  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
003616  000004                  ST35E:  SCOPE
003620  003474                          ST34X
                                        ;CAN WE SET AND CLEAR DONE
003622  105777  175222          ST36:   TSTB    @STATUS         ;TEST DONE
003626  100006                          BPL     ST36X           ;DONE CLEAR BRANCH
003630  012737  000047  001046  ERR47:  MOV     #47,ERCOUNT     ;*** ERROR 47 ***
        000050                          N=N+1
003636  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
003642  000427                          BR      ST36E           ;LOOP ON ERROR
003644  052777  000200  175176  ST36X:  BIS     #BIT7,@STATUS   ;SET DONE
```

F03


```
                                        ;CAN WE CLEAR DONE
003652  105777  175172          CLRDON: TSTB    @STATUS         ;IS DONE SET
003656  100406                          BMI     DONSET          ;YES DONE SET
003660  012737  000050  001046  ERR50:  MOV     #50,ERCOUNT     ;*** ERROR 50 ***
        000051                          N=N+1
003666  004537  007540                  JSR     %5,STAER        ;REPORT ERROR
003672  000413                          BR      ST36E           ;LOOP ON ERROR
003674  042777  000200  175146  DONSET: BIC     #BIT7,@STATUS   ;CLR DONE
003702  105777  175142                  TSTB    @STATUS         ;IS DONE CLEARED
003706  100005                          BPL     ST36E           ;YES EXIT
003710  012737  000051  001046  ERR51:  MOV     #51,ERCOUNT     ;*** ERROR 51 ***
        000052                          N=N+1
003716  004537  007540                  JSR     %5,STAER        ;DONE NOT CLEARED
003722  000004                  ST36E:  SCOPE
003724  003622                          ST36
                                        ;CAN WE GENERATE AN INTERRUPT
003726  005077  175116          ST37:   CLR     @STATUS
003732  012777  003762  175064          MOV     #INTER,@VECTOR  ;SET UP INTERRUPT VECTOR
003740  012777  000240  175034          MOV     #240,@CSR       ;SET CPU PRIORITY LEVEL TO BR5
003746  052777  000300  175074          BIS     #BIT6!BIT7,@STATUS ;SET INTERRUPT ENABLE AND DONE
003754  000240                          NOP                     ;NO INTERRUPT SHOULD MASTER ENABLE NOT SET
003756  000137  004010                  JMP     ST37X           ;GO SET MASTER ENABLE TO SEE IF WE CAN INTERRUPT
                                                                ;REPORT AN INTERRUPT OCCURRED THAT IS AN ERROR
003762  012777  000340  175012  INTER:  MOV     #340,@CSR
003770  005077  175054                  CLR     @STATUS
003774  012737  000052  001046  ERR52:  MOV     #52,ERCOUNT     ;*** ERROR 52 ***
        000053                          N=N+1
004002  004537  007540                  JSR     %5,STAER
004006  000441                          BR      ST38E
004010  012777  004032  175006  ST37X:  MOV     #SECINT,@VECTOR ;SET UP INTERRRUPT VECTOR
004016  052777  000004  174770          BIS     #BIT2,@DNCSR1   ;SET MASTER ENABLE
004024  000240                          NOP                     ;NO INTTERRUPT SHOULD OCCUR PROCESSOR IS AT LEVEL 5
004026  000137  004046                  JMP     ST38            ;WE SHOULD NOT INTERRUPT LEVEL TO HIGH
004032                          SECINT:
004032  012737  000053  001046  ERR53:  MOV     #53,ERCOUNT     ;*** ERROR 53 ***
        000054                          N=N+1
004040  004537  007540                  JSR     %5,STAER        ;REPORT THE DN11 INTERRUPTED
004044  000422                          BR      ST38E           ;ENTER SCOPE LOOP
004046  012777  004112  174750  ST38:   MOV     #ST38E,@VECTOR  ;SET UP FOR INTERRUPT
004054  005077  174722                  CLR     @CSR            ;LOWER PROCESSOR PRIORITY
004060  005037  001040                  CLR     TIME            ;SET UP TIMER
004064  005237  001040                  INC     TIME            ;WAIT FOR INTERRUPT
004070  001375                          BNE     .-4
004072  012777  000340  174702          MOV     #340,@CSR       ;LOCK UP CPU DN11 DID NOT INTERRUPT
004100  012737  000054  001046  ERR54:  MOV     #54,ERCOUNT     ;*** ERROR 54 ***
        000055                          N=N+1
004106  004537  007540                  JSR     %5,STAER        ;REPORT DN11 DID NOT INTERRUPT AT BR5
004112  013706  001070          ST38E:  MOV     STKLINK,%6      ;RESET STACK
004116  000004                          SCOPE
004120  003726                          ST37
004122  032777  000400  174650  ST40:   BIT     #BIT8,JSR       ;DID THE OPERATOR SELECTED A DN11
004130  001402                          BEQ     .+6             ; NO! NORMAL RUN
004132  000137  001326                  JMP     ST1             ;THE OPERATOR DID SELECTED A DN11
004136  023737  001022  001050          CMP     DNCSR4,STATUS
```

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647  004144  001414                          BEQ     RESTART
648  004146  062737  000002  001050          ADD     #2,STATUS
649  004154  052777  000100  174666          BIS     #BIT6,@STATUS   ;SET INTERRUPT ENABLE
650  004162  032777  000100  174660          BIT     #BIT6,@STATUS   ;IF SET DN11 IS POSSABILE THERE
651  004170  001402                          BEQ     .+6
652  004172  000137  001326                  JMP     ST1
653  004176  013737  001014  001050  RESTART: MOV     DNCSR1,STATUS
654  004204  032777  001000  174566          BIT     #BIT9,@SR       ;TEST IF THE OPERATOR WANTS TO LOOP ON STATIC TESTS
655  004212  001410                          BEQ     MYCNT+2         ;BRANCH TO ON-LINE TEST IF BIT 9 NOT SET
656  004214  005737  004232                  TST     MYCNT
657  004220  001405                          BEQ     MYCNT+2
658  004222  005337  004232                  DEC     MYCNT
659  004226  000137  001372                  JMP     ST1X            ;LOOP ON STATIC TESTS BIT9 SET
660  004232  000100                  MYCNT:  100
661  004234  012737  000100  004232          MOV     #100,MYCNT
662  004242  012737  177770  001042          MOV     #177770,TIME1   ;WAIT FOR PHONE LINE TO SETTLE
663  004250  005037  001040                  CLR     TIME
664  004254  005237  001040                  INC     TIME
665  004260  001375                          BNE     .-4
666  004262  005237  001042                  INC     TIME1
667  004266  001372                          BNE     .-12
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```
                                                :DIALEX 11
                                                ;THE OPERATOR MUST ASSIGN PHONE NUMBER TO EACH DN11
004270  013706  001070          BEGIN:  MOV     STKLINK,%6      ;SET UP STACK
004274  004737  010142                  JSR     PC,CKSWR        ;CHECK FOR CNTL G
004300  000005                          RESET
004302  012777  005412  174514          MOV     #INT,@VECTOR    ;SET UP VECTOR
004310  005004                          CLR     %4
004312  005737  004322                  TST     NOFLAG
004316  001002                          BNE     .+6
004320  000407                          BR      NEWNO
004322  000000          NOFLAG: 0
004324  004737  010142                  JSR     PC,CKSWR        ;CHECK FOR <↑G>
004330  032777  000200  174442          BIT     #BIT7,@SR       ;TEST FOR TTY CONVERSATION
004336  001104                          BNE     DNDIAL          ;BRANCH IF NO CONVERSATION
004340  005037  001072          NEWNO:  CLR     MAP             ;CLEAR PHONE MAP
004344  005037  001074                  CLR     MAP+2
004350  052737  177777  004322          BIS     #177777,NOFLAG
004356  005037  001036                  CLR     COUNT
004362  012703  006314          NO0:    MOV     #PH01,%3        ;SET UP PHONE #1 BUFFER
004366  104001                          EMT     +1
004370  007157                          PH1
004372  004737  006172                  JSR     %7,TYST         ;FETCH KEYBOARD CHAR
004376  105737  006314                  TSTB    PH01
004402  001405                          BEQ     NO1             :OPERATOR FAILED TO TYPE A PHONE NUMBER
004404  005237  001036                  INC     COUNT
004410  152764  000377  001072          BISB    #377,MAP(4)     ;LOAD MAP
004416  005204                  NO1:    INC     %4
004420  012703  006336                  MOV     #PH02,%3
004424  104001                          EMT     +1
004426  007172                          PH2
004430  004737  006172                  JSR     %7,TYST         ;FETCH KEYBOARD CHARACTER
004434  105737  006336                  TSTB    PH02            :DID THE OPERATOR TYPE A PHONE NUMBER
004440  001405                          BEQ     NO2             ;THE OPERATOR ONLY GAVE THE PROGRAM ONE NUMBER
004442  005237  001036                  INC     COUNT           ;THE OPERATOR TYPED AN NUMBER
004446  152764  000377  001072          BISB    #377,MAP(4)     ;LOAD MAP
004454  005204                  NO2:    INC     %4
004456  012703  006360                  MOV     #PH03,%3
004462  104001                          EMT     +1
004464  007205                          PH3
004466  004737  006172                  JSR     %7,TYST         ;FETCH KEYBOARD CHARACTER
004472  105737  006360                  TSTB    PH03            :DID THE OPERATOR TYPE A NUMBER FOR LINE THREE
004476  001405                          BEQ     NO3             ;NO NUMBER FOR LINE THREE
004500  005237  001036                  INC     COUNT           ;OPERATOR TYPE D A NUMBER
004504  152764  000377  001072          BISB    #377,MAP(4)     ;LOAD MAP
004512  005204                  NO3:    INC     %4
004514  012703  006402                  MOV     #PH04,%3
004520  104001                          EMT     +1
004522  007220                          PH4
004524  004737  006172                  JSR     %7,TYST         ;FETCH KEYBOARD CHARACTER
004530  105737  006402                  TSTB    PH04            ;TEST IF THE OPERATOR TYPED A NUMBER FOR THIS LINE
004534  001405                          BEQ     DNDIAL          ;OPERATOR DID NOT TYPE A NUMBER
004536  152764  000377  001072          BISB    #377,MAP(4)     ;LOAD MAP
004544  005237  001036                  INC     COUNT
004550  013737  001014  001050  DNDIAL: MOV     DNCSR1,STATUS
004556  013737  001036  001044          MOV     COUNT,SAVE
004564  005004                          CLR     %4
```

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                                        ;TEST FOR DN11'S TO BE IN READY STATE
                                        ;REGISTERS SHOULD BE CLEARED BECAUSE
                                        ;OF RESET COMMAND ISSUED AT START
004566  004737  010142          RINGO:  JSR     PC,CKSWR        ;CHECK FOR CNTL G
004572  105764  001072                  TSTB    MAP(4)          ;IS THIS LINE ACTIVE
004576  001423                          BEQ     EXMODOK         ;BRANCH NOT ACTIVE
004600  005777  174244                  TST     @STATUS
004604  001415                          BEQ     MODOK           ;DN11 READY OK
004606  017737  174236  001032          MOV     @STATUS,WORK    ;FETCH CONTENTS OF REGISTER
004614  013737  001050  001034          MOV     STATUS,WORK1    ;FETCH ADDRESS OF REGISTER
004622  012737  000055  001046  ERR55:  MOV     #55,ERCOUNT     ;*** ERROR 55 ***
        000056                          N=N+1
004630  004537  007724                  JSR     %5,STAER2       ;REPORT DN11 NOT READY
004634  000000                          HALT
004636  000777                          BR      .               ;YOU CAN NOT CONTINUE
004640  005337  001044          MODOK:  DEC     SAVE            ;ON UNTIL DN11 IS MADE READY
004644  001405                          BEQ     SETPT           ;GO SET CALL REQUEST
004646  005204                  EXMODOK: INC    %4
004650  062737  000002  001050          ADD     #2,STATUS       ;SET UP FOR NEXT DN11
004656  000743                          BR      RINGO           ;TEST NEXT DN11
                                        ;
                                        ;SET UP DIGIT POINTERS FOR PHONE NUMBERS
                                        ;FOR DAILING SEQUENCE
004660  005037  001052          SETPT:  CLR     PNT1            ;SET UP DIGIT POINTER ONE
004664  005037  001054                  CLR     PNT2            ;SET UP DIGIT POINTER TWO
004670  005037  001056                  CLR     PNT3            ;SET UP DIGIT POINTER THREE
004674  005037  001060                  CLR     PNT4            ;SET UP DIGIT POINTER FOUR
004700  005004                          CLR     %4
004702  013737  001036  001044          MOV     COUNT,SAVE      ;SET UP TO ENABLE CRQ
004710  013737  001014  001050          MOV     DNCSR1,STATUS   ;SET UP DN11 POINTER
004716  105764  001072          SETCRQ: TSTB    MAP(4)          ;IS THIS ACTIVE
004722  001423                          BEQ     EXCRQ
004724  012777  000101  174116          MOV     #101,@STATUS    ;SET CRQ - INT. ENABLE - MASTER ENABLE
004732  032777  010000  174110          BIT     #BIT12,@STATUS  ;TEST FOR DLO SET
004740  001411                          BEQ     DLOTST          ;DLO SET OK!
004742  012737  000056  001046  ERR56:  MOV     #56,ERCOUNT     ;*** ERROR 56 ***
        000057                          N=N+1
004750  017737  174074  001032          MOV     @STATUS,WORK    ;FETCH CONTENTS OF STATUS REGISTER
004756  004537  007724                  JSR     %5,STAER2
004762  000755                          BR      SETCRQ
004764  005337  001044          DLOTST: DEC     SAVE
004770  001405                          BEQ     WAITIN          ;GO WAIT FOR INTERRUPTS
004772  005204                  EXCRQ:  INC     %4
004774  062737  000002  001050          ADD     #2,STATUS       ;SET UP FOR NEXT DN11
005002  000745                          BR      SETCRQ          ;SET UP NEXT DN11
                                        ;SET UP TO COUNT DSS INTERRUPTS AND TIME OUT IF ALL
                                        ;DSS INTERRUPTS DO NOT OCCUR
005004  005077  173772          WAITIN: CLR     @CSR
005010  013737  001036  001030          MOV     COUNT,DSCNT     ;NUMBER OF DN11
005016  012737  177700  001042          MOV     #177700,TIME1
005024  012737  000000  001040          MOV     #0,TIME         ;SET UP TIMER
005032  052777  000004  173754          BIS     #BIT2,@DNCSR1   ;SET MASTER ENABLE
005040  005237  001040          TWOSEC: INC     TIME            ;WAIT FOR DSS
005044  001375                          BNE     .-4
005046  005237  001042                  INC     TIME1
```

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 807  005052  001372                          BNE     TWOSEC
 808  005054  012777  000340  173720          MOV     #340,@CSR       ;LOCK UP CPU
 809  005062  104001                          EMT     +1              ;REPORT TIME OUT
 810  005064  007233                          TIMO
 811  005066  005004                          CLR     %4
 812  005070  012737  000057  001046  ERR57:  MOV     #57,ERCOUNT     ;*** ERROR 57 ***
 813          000060                          N=N+1
 814  005076  013737  001036  001044          MOV     COUNT,SAVE
 815  005104  013737  001014  001050          MOV     DNCSR1,STATUS   ;SET UP TO FETCH DN11 REGISTERS
 816  005112  105764  001072          DNSTATE:TSTB    MAP(4)          ;TEST IF THE LINE IS ACTIVE
 817  005116  001410                          BEQ     MPDN            ;LINE NOT ACTIVE CHECK NEXT
 818  005120  017737  173724  001032          MOV     @STATUS,WORK    ;FETCH DN11 STATUS
 819  005126  004537  007724                  JSR     %5,STAER2       ;REPORT STATUS
 820  005132  005337  001044                  DEC     SAVE
 821  005136  001521                          BEQ     REPEND          ;GO REPORT END
 822  005140  005204                  MPDN:   INC     %4
 823  005142  062737  000002  001050          ADD     #2,STATUS       ;SET UP TO TEST NEXT DN11
 824  005150  000760                          BR      DNSTATE
 825  005152  012737  177770  001042  END:    MOV     #177770,TIME1   ;SET UP TIME TO LET PHONE RING
 826  005160  005037  001040                  CLR     TIME
 827  005164  005237  001040                  INC     TIME
 828  005170  001375                          BNE     .-4
 829  005172  005237  001042                  INC     TIME1
 830  005176  001372                          BNE     .-12
 831  005200  032777  010000  173572          BIT     #BIT12,@SR      ;TEST HOW DO WE TERMINATE THE CALL
 832  005206  001457                          BEQ     NOTCRQ          ;CALL TERMINATED BY RESET
 833  005210  013737  001036  001044          MOV     COUNT,SAVE
 834  005216  013737  001014  001050          MOV     DNCSR1,STATUS
 835  005224  005004                  CLRDN:  CLR     %4
 836  005226  105764  001072                  TSTB    MAP(4)          ;IS THIS LINE ACTIVE
 837  005232  001440                          BEQ     EXCLRDN         ;LINE IS NOT ACTIVE
 838  005234  042777  000001  173606          BIC     #BIT0,@STATJS   ;CLEAR CRQ
 839  005242  013737  177770  001042          MOV     177770, TIME1
 840  005250  005037  001040                  CLR     TIME
 841  005254  005237  001040                  INC     TIME            ;WIAT FOR DSS TO COME BACK
 842  005260  001375                          BNE     .-4
 843  005262  005237  001042                  INC     TIME1
 844  005266  001372                          BNE     .-12
 845  005270  032777  000040  173552          BIT     #BIT5,@STATUS   ;TEST FOR DSS
 846  005276  001413                          BEQ     DSSCLR          ;DSS CLEARED BY CRQ
 847  005300  013737  001050  001034          MOV     STATUS,WORK1    ;SET UP FOR ERROR REPORT
 848  005306  017737  173536  001032          MOV     @STATUS,WORK
 849  005314  012737  000060  001046  ERR60:  MOV     #60,ERCOUNT     ;*** ERROR 60 ***
 850          000061                          N=N+1
 851  005322  004537  007724                  JSR     %5,STAER2       ;REPORT ERROR
 852  005326  005337  001044          DSSCLR: DEC     SAVE
 853  005332  001423                          BEQ     REPEND          ;RECYCLE
 854  005334  005204                  EXCLRDN: INC    %4
 855  005336  062737  000002  001050          ADD     #2,STATUS       ;GO CLEAR NEXT DN11
 856  005344  000730                          BR      CLRDN+2
 857                                  ;
 858                                  ;
 859                                  ;DN11'S MUST BE CLEARED BY RESET IN THIS TEST
 860                                  ;
 861  005346  004737  010142          NOTCRQ: JSR     PC,CKSWR        ;CHECK FOR CNTL G
 862  005352  000005                          RESET                   ;CLEAR THE WORLD
```

K03


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963  005354  012737  177770  001042          MOV     #177770,TIME1   ;SET UP TO WAIT  FOR LINES TO SETTLE DOWN
964  005362  005037  001040                  CLR     TIME
965  005366  005237  001040                  INC     TIME
966  005372  001375                          BNE     .-4
967  005374  005237  001042                  INC     TIME1
968  005400  001372                          BNE     .-12
969  005402  104001                  REPEND: EMT     +1
870  005404  007306                          MESEND                  ;REPORT END
971  005406  000137  001304                  JMP     NOTFIRST                ;RECYCLE TEST
972                                  ;
973                                  ;
974                                  ;
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                                        ;
                                        ;INTERRUPT HANDLER FOR DIALEX
                                        ;       ON LINE TEST
                                        ;
005412  042777  000004  173374  INT:    BIC     #BIT2,@DNCSR1   ;CLEAR MASTER ENABLE
005420  013737  001036  001044          MOV     COUNT,SAVE      ;SET UP TO COUNT DN11'S
005426  013737  001014  001050          MOV     DNCSR1,STATUS   ;SET UP ADDRESS ASSIGNMENT
005434  012737  006314  001100          MOV     #PH01,POINT     ;FETCH NUMBER POINT
005442  012737  001052  001076          MOV     #PNT1,ENTRY
005450  005004                          CLR     %4
005452  105764  001072          DNTST:  TSTB    MAP(4)          ;IS THE LINE ACTIVE
005456  001511                          BEQ     EXINC           ;BRANCH THE LINE IS NOT ACTIVE
005460  105777  173364                  TSTB    @STATUS         ;IS THE DONE FLAG SET
005464  100077                          BPL     INCDN           ;NO INTERRUPT FROM THIS DN11
005466  032777  160000  173354          BIT     #160000,@STATUS ; ERROR ? (PWO-ACR-BIT13 UNUSED)
005474  001404                          BEQ     NOERROR         ;BRANCH NO ERROR
005476  005777  173374                  TST     @ENTRY          ;IS IT THE END OF CALL
005502  100525                          BMI     DSSSET          ;YES ACR SET END OF CALL
005504  000532                          BR      REPORR          ;REPORT ERROR OCCURRED
005506  032777  000040  173334  NOERROR:BIT     #BIT5,@STATUS   ;IS DSS SET
005514  001120                          BNE     DSSSET          ;BRANCH IF DSS SET
005516  032777  000020  173324          BIT     #BIT4,@STATUS   ;TEST FOR PND
005524  001006                          BNE     PNDSET          ;PND SET OK!
005526  012737  000061  001046  ERR61:  MOV     #61,ERCOUNT     ;*** ERROR 61 ***
        000062                          N=N+1
005534  004537  007724                  JSR     %5,STAER2
005540  000451                          BR      INCDN
005542  013737  001100  005564  PNDSET: MOV     POINT,INDEX     ;SET UP TO FETCH DIGIT
005550  017703  173322                  MOV     @ENTRY,%3       ;SET UP DIGIT POINTER
005554  005777  173316                  TST     @ENTRY
005560  100441                          BMI     INCDN
005562  116337  000000  001032  SELECT: MOVB    0(3),WORK       ;FETCH DIGIT
005570  032737  000377  001032          BIT     #377,WORK       ;IS THIS THE LAST DIGIT
005576  001012                          BNE     LASTDG          ;BRANCH IF NOT LAST DIGIT
005600  052777  100000  173270          BIS     #BIT15,@ENTRY   ;SET END OF CALL FLAG
005606  032777  004000  173164          BIT     #BIT11,@SR      ;TEST FOR EON OPTION
005614  001060                          BNE     DSSSET          ;801 DOES NOT HAVE EON OPTION
005616  012737  000012  001032          MOV     #12,WORK        ;LOAD END OF NUMBER CODE
005624  042737  000360  001032  LASTDG: BIC     #360,WORK
005632  013700  001050                  MOV     STATUS, %0      ;LOAD DIGIT INTO TOP BYTE OF DN11 REGISTER
005636  005200                          INC     %0
005640  113710  001032                  MOVB    WORK,@%0        ;LOAD BCD DIGIT
005644  042777  000200  173176  SETDPR: BIC     #BIT7,@STATUS   ;CLEAR DONE
005652  052777  000002  173170          BIS     #BIT1,@STATUS   ;SET DPR
005660  005277  173212                  INC     @ENTRY
005664  023737  001050  001022  INCDN:  CMP     STATUS,DNCSR4   ;TEST FOR LAST DN11
005672  001416                          BEQ     EXDSS           ;BRANCH ALL DN11 OPERATING
005674  005337  001044                  DEC     SAVE
005700  001413                          BEQ     EXDSS
005702  005204                  EXINC:  INC     %4
005704  062737  000002  001076          ADD     #2,ENTRY        ;SET UP FOR NEXT DN11 POLE
005712  062737  000002  001050          ADD     #2,STATUS       ;
005720  062737  000022  001100          ADD     #22,POINT
005726  000651                          BR      DNTST           ;TEST NEXT DN11
                                        ;
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                                        ;TEST DSS FOR OVERFLOW AND EXIT
005730  005737  001030          EXDSS:  TST     DSSCNT          ;DID WE RECEIVE DSS FROM ALL
005734  001404                          BEQ     RESTE           ;YES EXIT
005736  052777  000004  173050          BIS     #BIT2,@DNCSR1   ;SET MASTER ENABLE
005744  000002                          RTI
005746  012706  001000          RESTE:  MOV     #1000,%6        ;RESET STACK
005752  000137  005152                  JMP     END             ;RECYCLE PROGRAM
                                        ;
                                        ;
                                        ;
                                        ;ROUTINE DEC DSS COUNT
005756  005337  001030          DSSSET:         DEC     DSSCNT
005762  042777  000200  173060          BIC     #BIT7,@STATUS   ;CLEAR DONE
005770  000735                          BR      INCDN
                                        ;
                                        ;ROUTINE TO REPORT DN11 ERROR
                                        ;
005772                          REPORR:
005772  012737  000062  001046  ERR62:  MOV     #62,ERCOUNT     ;*** ERROR 62 ***
        000063                          N=N+1
006000  004537  007724                  JSR     %5,STAER2
006004  042777  000201  173036          BIC     #BIT7!BIT0,@STATUS      ;CLEAR DONE AND CRQ
006012  000724                          BR      INCDN           ;GO TEST NEXT DN11
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;MAINTENANCE ROUTINE FOR SETTING PULSER
                                        ;
006014  012737  000340  001002  MASTER: MOV     #340,CSR        ;LOOK UP CPU. PRIORITY
006022  013706  001070                  MOV     STKLINK,%6
006026  004737  010044                  JSR     PC,SUSWR        ;CHECK FOR HARDWARE SWITCH REGISTER
006032  017737  172742  001050          MOV     @SR,STATUS      ;STORE ADDRESS
006040  000000                          HALT                    ;LOADSR FROM DOC. 5.3
006042  004737  010142          EXMAST: JSR     PC,CKSWR        ;CHECK FOR <↑G>
006046  017777  172726  172774          MOV     @SR,@STATJS     ;MOVE SR INTO DN11 REGISTER     ;
006054  000240                          NOP
006056  000240                          NOP
006060  000240                          NOP
006062  000240                          NOP
006064  032777  000010  172706          BIT     #BIT3,@SR       ;TEST FOR MAINTENANCE MODE
006072  001015                          BNE     CLRWAT          ;BRANCH WE ARE IN MAINTENANCE MODE
006074  012737  177770  001036          MOV     #177770,COUNT   ;WAIT 2 SECONDS FOR 801 SIGNALS
006102  005037  001040                  CLR     TIME
006106  005237  001040          TIMW:   INC     TIME
006112  001375                          BNE     TIMW
006114  005237  001036                  INC     COUNT
006120  001370                          BNE     TIMW-4
006122  005077  172722                  CLR     @STATUS         ;CLEAR DN11
006126  032777  000010  172644  CLRWAT: BIT     #BIT3,@SR       ;ARE WE IN MAINTENANCE MODE
006134  001013                          BNE     CLRREG          ;BRANCH NO NEED TO WAIT
006136  012737  177770  001036          MOV     #177770,COUNT   ;WAIT FOR 801
006144  005037  001040                  CLR     TIME
006150  005237  001040          CLRTIM: INC     TIME
```

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   987  006154  001375                          BNE     CLRTIM
   988  006156  005237  001036                  INC     COUNT
   989  006162  001370                          BNE     CLRTIM-4
   990  006164  005077  172660          CLRREG: CLR     @STATUS         ;RECYCLE
   991  006170  000724                          BR      EXMAST
   992                                  ;
   993                                  ;
   994                                  ;
   995                                  ;
   996                                  ;ROUTINE TO HANDLE KEYBOARD CONVERSATION
   997                                  ;ROUTINE ACCEPTS NUM. OR ALPHA CHARACTERS
   998                                  ;
   999
  1000  006172  012777  000340  172502  TYST:   MOV     #340,@CSR       ;LOCK UP INTERRUPTS
  1001  006200  105777  172606          TSTFLG: TSTB    @TKS            ;CHECK FOR FLAG
  1002  006204  100375                          BPL     TSTFLG          ;
  1003  006206  117777  172574  172570          MOVB    @TKB,@TPB       ;CHARACTER IN BUFFER
  1004  006214  105777  172570                  TSTB    @TPS            ;ECHO CHARACTER
```

B04


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006462 122737 000042 006544          CMPB    #42,TYPDAT      ;NOT "%".  CHECK FOR "#".
006470 001417                        BEQ     TYPG            ;BRANCH IF "#".
006472 004737 006500                 JSR     %7,TYPD         ;TYPE CHAR IN TYPDAT
006476 000756                        BR      TYPA
006500 113737 006544 172276 TYPD:    MOVB    TYPDAT,@TPB     ;OUTPUT CHARACTER TO PRINTER
006506 105737 172276                 TSTB    @TPS            ;WAIT FOR DONE FLAG.
006512 100375                        BPL     .-4
006514 000207               TYEXIT:  RTS     %7              ;EXIT
006516 112737 000015 006544 TYPF:    MOVB    #15,TYPDAT      ;MOVE CARRIAGE RETURN CODE TO TYPDAT
006524 004737 006500                 JSR     %7,TYPD         ;GO TYPE CHAR.
006530 112737 000012 006544 TYPG:    MOVB    #12,TYPDAT      ;MOVE LF CODE TO TYPDAT.
006536 004737 006500                 JSR     %7,TYPD         ;GO TYPE CHAR.
006542 000734                        BR      TYPA
006544 000000               TYPDAT:  0

                            ;ROUTINE TO DECODE EMT CALLS FOR TTY
006546 011600               EMTRP:   MOV     (6),%0
006550 022740 104001                 CMP     #EMT+1,-(0)     ;WAS CALL EMT+1
006554 001101                        BNE     TYPS            ;EMT+0
006556 000722                        BR      TYP

                            ;
                            ;
                            ;
                            ;INDIVIDUAL STATIC TEST SCOPE LOOP ROUTINE
                            ;
                            ;
                            ;IF BIT 14 IS SET BYPASS THIS ROUTINE AND JUST LOOP ON THE TEST
                            ;IF BIT 14 IS NOT SET LOOP ON EACH TEST 15 TIMES THEN GO TO THE NEXT TEST
                            ;
                            ;
006560 004737 010142        LOOP:    JSR     PC,CKSWR        ;CHECK FOR (↑G)
006564 032777 040000 172206          BIT     #BIT14,@SR      ;TEST IF BIT 14 IS SET
006572 001402                        BEQ     .+6             ;BRANCH IF BIT 14 IS NOT SET
006574 013646                        MOV     @(6)+,-(6)      ;PLAYING WITH THE STACK
006576 000002                        RTI                     ;LOOP ON TEST WITHOUT ENTERING THIS ROUTINE
006600 005737 001064                 TST     PASS            ;TEST IF THE PASS COUNT IS ZERO
006604 001003                        BNE     .+10            ;PASS COUNT NOT ZERO KEEP COUNTING
006606 012737 000035 001064          MOV     #35,PASS        ;SET UP PASS COUNT FIRST TIME THROUGH
006614 005337 001064                 DEC     PASS            ;-1 PASS THIS TIME THROUGH
006620 001402                        BEQ     .+6             ;PASS ZERO ENTER NEXT TEST
006622 013646                        MOV     @(6)+,-(6)      ;PLAYING WITH THE STACK AGAIN
006624 000002                        RTI                     ;RE-ENTER TEST
006626 062716 000002                 ADD     #2,(6)          ;INC.STACK FOR THE NEXT TEST
006632 000002                        RTI                     ;EXIT TO THE NEXT TEST
                            ;
                            ;
                            ;POWER FAIL SEQUENCE
                            ;
006634 012737 006644 000024 PWRDWN:  MOV     #PWRUP,24       ;SET UP POWER FAIL VECTOR FOR RESTART
006642 000000                        HALT                    ;HALT AND WAIT FOR POWER TO COME BACK
                            ;
                            ;
                            ;THIS THE POWER UP SEQUENCE REPORT POWER HAS FAILED AND
                            ;WAIT TWO SECONDS FOR THE PHONE LINES TO SETTLE
                            ;
```

```
 1099
 1100  006644  012737  006634  000024  PWRUP:  MOV     #PWRDWN,24      ;SET UP POWER FAIL VECTOR FOR POWER DOWN
 1101  006652  012706  001000                  MOV     #1000,%6        ;SET UP THE STACK
 1102  006656  104000                          EMT     +0
 1103  006660  000512                          HED6                    ;REPORT THE POWER HAS FAILED
 1104  006662  177777                          -1
 1105  006664  012737  177770  001042          MOV     #177770,TIME1   ;SET THE TWO SECOND TIMER
 1106  006672  005237  001040          INCTM:  INC     TIME
 1107  006676  001375                          BNE     INCTM
 1108  006700  005237  001042                  INC     TIME1
 1109  006704  001372                          BNE     INCTM
 1110  006706  027737  000176  001000          CMP     #SWREG,SR       ;CHECK FOR SWREG USE
 1111  006714  001002                          BNE     1$              ;IF NOT GO TO 1$
 1112  006716  004737  010212                  JSR     PC,CNTLU        ;GO LOAD SWREG FROM TTY
 1113  006722  000137  001102          1$:     JMP     START           ;GO TO THE BEGINNING OF THE PROGRAM AND RESTART
 1114                                  ;ROUTINE TO SAVE REGISTERS
 1115  006726  010046                  SAVEREG: MOV    %0,-(6)         ;SAVE REGISTER 0
 1116  006730  010146                          MOV     %1,-(6)         ;SAVE REGISTER 1
 1117  006732  010246                          MOV     %2,-(6)         ;SAVE REGISTER 2
 1118  006734  010346                          MOV     %3,-(6)         ;SAVE REGISTER 3
 1119  006736  010446                          MOV     %4,-(6)         ;SAVE REGISTER 4
 1120  006740  000115                          JMP     (5)             ;EXIT  ROUTINE
 1121
 1122                                  ;ROUTINE TO RESTORE REGISTERS
 1123  006742  005726                  RESTORE: TST    (6)+
 1124  006744  012604                          MOV     (6)+,%4         ;RESTORE REGISTER 4
 1125  006746  012603                          MOV     (6)+,%3         ;RESTORE REGISTER 3
 1126  006750  012602                          MOV     (6)+,%2         ;RESTORE REGISTER 2
 1127  006752  012601                          MOV     (6)+,%1         ;RESTORE REGISTER 1
 1128  006754  012600                          MOV     (6)+,%0         ;RESTORE REGISTER 0
 1129  006756  000205                          RTS     %5              ;EXIT ROUTINE
 1130
 1131
```

D04


```
1132
1133                                    ;SUBROUTINE TO OUTPUT A SERIES OF ASCII MESSAGES ON TELETYPE PRINTER
1134
1135  006760  011600                    TYPS:   MOV     @%6,%0          ;GET ADDRESS THAT CONTAINS MESSAGE ADDRESS
1136  006762  062716  000002                    ADD     #2,@%6          ;UPDATE TO NEXT MESSAGE ADDRESS
1137  006766  011037  007006                    MOV     @%0,TYPSB       ;ADDRESS OF MESSAGE TO TYPSB
1138  006772  022737  177777  007006            CMP     #-1,TYPSB       ;CHECK FOR TERMINATOR
1139  007000  001001                            BNE     TYPSA           ;BRANCH IF NOT TERMINATOR.
1140  007002  000002                            RTI                     ;TERMINATOR.  EXIT.
1141  007004  104000            TYPSA:  EMT     +1              ;CALL ON TYP SUB TO TYPE MESSAGE
1142  007006  000000            TYPSB:  0                       ;ADDRESS OF MESSAGE GOES HERE
1143  007010  000753                    BR      TYPS            ;GO PROCESS NEXT MESSAGE
1144                                    ;
1145                                    ;
1146                                    ;
1147                                    ;
1148                                    ;OCTAL TO ASCII CONVERT ROUTINE
1149                                    ;
1150                                    ;ENTER ROUTINE AS FOLLOWS
1151                                    ;JSR %5,CONV
1152                                    ;ADDR# = ADDRESS OF NUMBER TO BE CONVERTED
1153                                    ;ADDR BYTE = LSB OF WHERE ASCII IS GOING
1154                                    ;ASCII# = THE NUMBER OF ASCII CHAR. TO BE CONVERTED
1155                                    ;
1156
1157
1158  007012  013537  007072            CONV:   MOV     @(5)+,ACNVX     ;VALUE OF # TO BE CONVERTED
1159  007016  012501                    MOV     (5)+,%1         ;ASCII ADDR
1160  007020  012502                    MOV     (5)+,%2         ;# OF ASCII CHAR
1161  007022  060201                    ADD     %2,%1
1162
1163  007024  013703  007072            ACVN:   MOV     ACNVX,%3
1164  007030  042703  177770                    BIC     #177770,%3      ;ISOLATE LEAST SIGNIFICANT OCTAL #
1165  007034  062703  000060                    ADD     #60,%3          ;SET UP ASCII #
1166  007040  110341                            MOVB    %3,-(1)         ;STORE ASCII CHAR
1167  007042  042737  000007  007072            BIC     #7,ACNVX
1168  007050  006037  007072                    ROR     ACNVX           ;ROTATE OCTAL #
1169  007054  006037  007072                    ROR     ACNVX
1170  007060  006037  007072                    ROR     ACNVX
1171  007064  005302                            DEC     %2              ;-1 FROM ASCII CHAR COUNT
1172  007066  001356                            BNE     ACVN
1173  007070  000205                            RTS     %5              ;EXIT # CONVERTED
1174  007072  000000            ACNVX:  0                       ;WORK REGISTER
```

E04


```
                                  ;THIS ROUTINES IS USED TO CONVERT ASCII INPUT TO OCTAL
                                  ;
                                  ;
007074  012703  006272            NEXCHAR: MOV    #TEXBUF,%3      ;FETCH ASCII POINTER
007100  005012                             CLR    @%2
007102  105713                             TSTB   @%3             ;TEST FOR LAST CHACTER
007104  001410                             BEQ    EXNEX           ;LAST CHACTER EXIT
007106  000241                             CLC
007110  006312                             ASL    @%2
007112  006312                             ASL    @%2
007114  006312                             ASL    @%2
007116  142713  000370                     BICB   #370,@%3        ;MASK OUT HI ORDER BITS
007122  152312                             BISB   (3)+,@%2        ;LOAD OCTAL VALUE
007124  000766                             BR     NEXCHAR+6
007126  000207                    EXNEX:   RTS    %7              ;EXIT LAST CHARACTER PROCESSED
```

F04


```
                                        ;
                                        ;TTY OUTPUT FOR DIALEX-11
                                        ;
007130  020045  044124  020105  MES1:   .ASCII  /% THE 801 IS OFF LINE.@/
007136  030070  020061  051511
007144  047440  043106  046040
007152  047111  027105     100
                                        ;
                                        ;
                                        ;
007157     045  044120  047117  PH1:    .ASCII  /%PHONE #1?@/
007164  020105  030443  040077
                                        ;
                                        ;
                                        ;
007172  050045  047510  042516  PH2:    .ASCII  /%PHONE #2?@/
007200  021440  037462     100
                                        ;
                                        ;
                                        ;
007205     045  044120  047117  PH3:    .ASCII  /%PHONE #3?@/
007212  020105  031443  040077
                                        ;
                                        ;
                                        ;
007220  050045  047510  042516  PH4:    .ASCII  /%PHONE #4?@/
007226  021440  037464     100
                                        ;
                                        ;
                                        ;
007233     045  051120  043517  TIMO:   .ASCII  /%PROGRAM TIMED OUT UNABLE TO COMPLETE CALL@/
007240  040522  020115  044524
007246  042515  020104  052517
007254  020124  047125  041101
007262  042514  052040  020117
007270  047503  050115  042514
007276  042524  041440  046101
007304  040114
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;
007306  042445  042116     100  MESEND: .ASCII  /%END@/
                                        ;
                                        ;
                                        ;
007313     045  047104  030461  DNADDR: .ASCII  /%DN11 REGISTER ADDRESS?@/
007320  051040  043505  051511
007326  042524  020122  042101
007334  051104  051505  037523
007342     100
                                        ;
                                        ;
```

```
1246
1247  007343     045  042526  052103  VECDN:  .ASCII  /%VECTOR ADDRESS?@/
1248  007350  051117  040440  042104
1249  007356  042522  051523  040077
1250
1251
1252
1253
1254
1255
1256
1257
1258  007364  040057     047          MES8:   .ASCII  %/@'%
1259
1260  007367     045     100          HED0:   .ASCII  /%@/
1261
1262
1263
1264  007371     040  020040  042440  HED1:   .ASCII  /    ERROR COUNT   @/
1265  007376  051122  051117  041440
1266  007404  052517  052116  020040
1267  007412  040040
1268
1269
1270
1271  007414  020040  020040  020040  HED2:   .ASCII  /       GD DATA   @/
1272  007422  043440  020104  040504
1273  007430  040524  020040  040040
1274
1275
1276
1277  007436  020040  020040  020040  HED3:   .ASCII  /       BD DATA@/
1278  007444  041040  020104  040504
1279  007452  040524     100
1280
1291
1282
1283  007455     040  020040  020040  HED4:   .ASCII  /      DN11   @/
1284  007462  042040  030516  020061
1285  007470  020040     100
1286
1287
1288
1289  007473     040  020040  020040  HED5:   .ASCII  /      DNCSR   @/
1290  007500  042040  041516  051123
1291  007506  020040  040040
1292
1293
1294
1295  007512  050045  053517  051105  HED6:   .ASCII  /%POWER FAIL OCCURRED@/
1296  007520  043040  044501  020114
1297  007526  041517  052503  051122
1298  007534  042105     100
1299
1300
1301
```

H04


```
  1302          007540                          .EVEN
```

```
                                        ;
                                        ;ROUTINE TO REPORT ERRORS
                                        ;
007540  032777  020000  171232  STAER:  BIT     #BIT13,@SR      ;TEST TO DELETE TYPE-OUT
007546  001401                          BEQ     .+4             ;BRANCH TO TYPE
007550  000205                          RTS     %5              ;DELETE TYPE-OUT
007552  004537  006726                  JSR     %5,SAVEREG      ;SAVE REGISTERS
007556  004537  007012                  JSR     %5,CONV         ;CONVERT OCTAL TO ASCII
007562  001046                          ERCOUNT
007564  007371                          HED1
007566  000003                          3
007570  004537  007012                  JSR     %5,CONV
007574  001050                          STATUS
007576  007455                          HED4
007600  000006                          6
007602  104000                          EMT     +0              ;REPORT ERROR NUMBER
007604  007367                          HED0
007606  007371                          HED1
007610  007455                          HED4
007612  177777                          -1
007614  005777  171160                  TST     @SR             ;TEST TO HALT ON ERROR
007620  100001                          BPL     1$
007622  000000                          HALT
007624  004737  010142          1$:     JSR     PC,CKSWR        ;CHECK FOR (^G)
007630  004537  006742                  JSR     %5,RESTORE      ;RESTORE REGISTERS
007634  000205                          RTS     %5              ;EXIT
                                        ;
                                        ;
                                        ;
007636  032777  020000  171134  STAER1: BIT     #BIT13,@SR      ;TEST TO DELETE TYPE-OUT
007644  001401                          BEQ     .+4             ;BRANCH TO TYPE
007646  000205                          RTS     %5              ;BIT13 SET DELETE TYPE-OUT
007650  004537  006726                  JSR     %5,SAVEREG      ;SAVE REGISTERS
007654  004537  007012                  JSR     %5,CONV         ;CONVERT OCTAL TO ASCII
007660  001034                          WORK1                   ;WHAT REGISTER SHOULD CONTAIN
007662  007414                          HED2
007664  000006                          6
007666  004537  007012                  JSR     %5,CONV         ;CONVERT OCTAL TO ASCII
007672  001032                          WORK                    ;WHAT REGISTER CONTAINED
007674  007436                          HED3
007676  000006                          6
007700  104000                          EMT     +0              ;REPORT MESSAGE
007702  007367                          HED0
007704  007414                          HED2
007706  007436                          HED3
007710  177777                          -1
007712  004537  006742                  JSR     %5,RESTORE      ;RESTORE REGISTERS
007716  004737  010142                  JSR     PC,CKSWR        ;CHECK FOR (^G)
007722  000205                          RTS     %5
                                        ;
                                        ;
                                        ;
007724  032777  020000  171046  STAER2: BIT     #BIT13,@SR      ;TEST TO DELETE TYPE-OUT
007732  001401                          BEQ     .+4             ;BRANCH TO TYPE
007734  000205                          RTS     %5              ;DELETE TYPE-OUT
```

```
1359  007736  004537  006726                  JSR     %5,SAVEREG      ;SAVE REGISTERS
1360  007742  004537  007012                  JSR     %5,CONV         ;CONVERT OCTAL TO ASCII
1361  007746  001046                          ERCOUNT
1362  007750  007371                          HED1
1363  007752  000003                          3
1364  007754  017737  171070  001032          MOV     @STATUS,WORK
1365  007762  004537  007012                  JSR     %5,CONV         ;CONVERT OCTAL TO ASCII
1366  007766  001032                          WORK
1367  007770  007473                          HED5
1368  007772  000006                          6
1369  007774  004537  007012                  JSR     %5,CONV ;CONVERT OCTAL TO ASCII
1370  010000  001050                          STATUS
1371  010002  007455                          HED4
1372  010004  000006                          6
1373  010006  104000                          EMT     +0
1374  010010  007367                          HED0
1375  010012  007371                          HED1
1376  010014  007473                          HED5
1377  010016  007455                          HED4
1378  010020  177777                          -1
1379  010022  005777  170752                  TST     @SR             ;TEST TO DELETE HALT ON ERROR
1380  010026  100001                          BPL     1$              ;BRANCH IF NO HALT WANTED
1381  010030  000000                          HALT
1382  010032  004737  010142          1$:     JSR     PC,CKSWR        ;CHECK FOR <^G>
1383  010036  004537  006742                  JSR     %5,RESTORE      ;RESTORE REGISTERS
1384  010042  000205                          RTS     %5
1385
1386
1387                                          ;HARDWARE SWITCH REGISTER SIZING ROUTINE*********
1388
1389
1390  010044  013746  000006          SUSWR:  MOV     @#6,-(SP)       ;SAVE VECTORS
1391  010050  013746  000004                  MOV     @#4,-(SP)
1392  010054  012737  010074  000004          MOV     #64$,@#4        ;SET UP FOR TIMEOUT
1393  010062  022777  177777  170710          CMP     #-1,@SR ;REFERENCE HARDWARE SWITCH REGISTER
1394  010070  001402                          BEQ     65$
1395  010072  000404                          BR      66$
1396  010074  022626                  64$:    CMP     (SP)+,(SP)+     ;ADJUST STACK
1397  010076  012737  000176  001000  65$:    MOV     #SWREG,SR       ;POINT TO SOFTWARE SWITCH REG
1398  010104  012637  000004          66$:    MOV     (SP)+,@#4       ;RESTORE VECTORS
1399  010110  012637  000006                  MOV     (SP)+,@#6
1400  010114  022737  000176  001000          CMP     #SWREG,SR       ;IS SWREG USED
1401  010122  001002                          BNE     67$
1402  010124  004737  010212                  JSR     PC,CNTLU        ;ALLOW SWREG TO BE LOADED
1403  010130  000207                  67$:    RTS     PC
1404
1405
```

```
1406                                                    ;CHECK SWITCH REGISTER ROUTINE. CHECKS FOR ↑G TO ALLOW CHANGING
1407                                                    ;OF LOC.176.
1408                                                    ;LOCATIONS USED:
1409  010132  000000                                   TEMPST: .WORD   0
1410  010134  000000                                   WCOUNT: .WORD   0
1411  010136  000000                                   TIB:    .WORD   0
1412  010140  000000                                   TTIN:   .WORD   0
1413
1414  010142  022737  000176  001000  CKSWR:  CMP     #SWREG,SR       ;SOFTWARE SWITCH REGISTER PRESENT
1415  010150  001132                          BNE     OUT             ;NO, GET OUT
1416  010152  032777  004000  170632  69$:    BIT     #BIT11,@TKS     ;SEE IF TTY IS BUSY
1417  010160  001374                          BNE     69$             ;IF BUSY WAIT TILL DONE
1418  010162  017737  170620  010136          MOV     @TKB,TIB        ;AND STRIP OFF
1419  010170  042737  000200  010136          BIC     #200,TIB        ;THE GARBAGE
1420  010176  122737  000007  010136          CMPB    #7,TIB          ;IS IT A <↑G>
1421  010204  001114                          BNE     OUT
1422  010206  104001                          EMT     +1              ;TYPE <↑G>
1423  010210  010444                          MCNTLG
1424  010212  104001                  CNTLU:  EMT     +1              ;TYPE SWR=
1425  010214  010451                          MSWR
1426  010216  004537  006726                  JSR     %5,SAVEREG      ;SAVE REGISTERS
1427  010222  004537  007012                  JSR     %5,CONV         ;GET CONTENTS OF SWREG
1428  010226  000176                          SWREG
1429  010230  010457                          MNEW
1430  010232  000006                          6
1431  010234  004537  006742                  JSR     %5,RESTORE      ;RESTORE REGISTERS
1432  010240  104001                          EMT     +1              ;TYPE OUT CONTENTS OF SWREG
1433  010242  010457                          MNEW                    ;AND NEW=
1434  010244  005037  010132          $READ:  CLR     TEMPST
1435  010250  012737  000007  010134          MOV     #7,WCOUNT
1436  010256  005237  010140                  INC     TTIN
1437  010262  004737  006172          1$:     JSR     PC,TYST         ;GO  READ A CHARACTER
1438  010266  017737  170514  010136          MOV     @TKB,TIB
1439  010274  042737  177600  010136          BIC     #177600,TIB     ;STRIP OFF GARBAGE
1440  010302  122737  000025  010136          CMPB    #25,TIB         ;IS IT A ↑U?
1441  010310  001001                          BNE     2$              ;BRANCH IF NOT
1442  010312  000737                  3$:     BR CNTLU                ;START OVER
1443  010314  122737  000015  010136  2$:     CMPB    #15,TIB         ;IS IT A <CR>?
1444  010322  001007                          BNE     4$              ;BRANCH IF NOT
1445  010324  104001                          EMT     +1              ;TYPE CRLF
1446  010326  010476                          MCRLF
1447  010330  022737  000007  010134          CMP     #7,WCOUNT       ;WAS IT FIRST CHARACTER
1448  010336  001034                          BNE     7$              ;CHANGE SWR IF NOT FIRST ONE
1449  010340  000436                          BR      OUT             ;GET OUT
1450  010342  122737  000060  010136  4$:     CMPB    #60,TIB
1451  010350  003004                          BGT     5$
1452  010352  122737  000067  010136          CMPB    #67,TIB
1453  010360  002003                          BGE     6$
1454  010362  104001                  5$:     EMT     +1              ;TYPE ?
1455  010364  010500                          MQUEST
1456  010366  000751                          BR      3$              ;START OVER IF NOT LEGAL CHARACTER
1457  010370  006337  010132          6$:     ASL     TEMPST
1458  010374  006337  010132                  ASL     TEMPST
1459  010400  006337  010132                  ASL     TEMPST
1460  010404  142737  000060  010136          BICB    #60,TIB         ;GET NITTY-GRITTY
1461  010412  153737  010136  010132          BISB    TIB,TEMPST
```

```
 1462  010420  005337  010134                DEC     WCOUNT          ;ONLY WANT 6   DIGITS
 1463  010424  001756                        BEQ     5$
 1464  010426  000715                        BR      1$
 1465  010430  013777  010132  170342  7$:   MOV     TEMPST,@SR      ;CHANGE SWITCH REGISTER CONTENTS
 1466  010436  005037  010140          OUT:  CLR     TTIN
 1467  010442  000207                        RTS     PC              ;RETURN TO PROGRAM
 1468
 1469  010444  057045  022507     100  MCNTLG: .ASCII  /%↑G%@/
 1470  010451     045  053523  036522  MSWR:   .ASCII  /%SWR=@/
 1471  010456     100
 1472  010457     040  020040  020040  MNEW:   .ASCII  /          NEW=@/
 1473  010464  020040  020040  047040
 1474  010472  053505  040075
 1475  010476  040045                  MCRLF:  .ASCII  /%@/
 1476  010500  037445  040045          MQUEST: .ASCII  /%?%@/
 1477
 1478
 1479
 1480
 1481          011504                        .=.+1000
 1482  011504  000000                  STACK:  0
 1483          000001                        .END
```

M04


```
ACNVX   007072          ERR14   002300          GETVEC  001226          PNT1    001052          ST15XE  002312
ACVN    007024          ERR15   002342          HED0    007367          PNT2    001054          ST16    002360
BEGIN   004270          ERR16   002376          HED1    007371          PNT3    001056          ST16E   002354
BIT0  = 000001          ERR17   002446          HED2    007414          PNT4    001060          ST16X   002414
BIT1  = 000002          ERR2    001530          HED3    007436          POINT   001100          ST16XE  002410
BIT10 = 002000          ERR20   002502          HED4    007455          PRIORI  001026          ST17    002464
BIT11 = 004000          ERR21   002552          HED5    007473          PWRDWN  006634          ST17E   002460
BIT12 = 010000          ERR22   002606          HED6    007512          PWRUP   006644          ST17X   002520
BIT13 = 020000          ERR23   002642          INCDN   005664          REPEND  005402          ST17XE  002514
BIT14 = 040000          ERR24   002674          INCTM   006672          REPORR  005772          ST2X    001456
BIT15 = 100000          ERR25   002716          INDEX = 005564          RESTAR  004176          ST2XE   001452
BIT2  = 000004          ERR26   002752          INT     005412          RESTE   005746          ST20    002570
BIT3  = 000010          ERR27   003004          INTER   003762          RESTOR  006742          ST20E   002564
BIT4  = 000020          ERR3    001564          LASTDG  005624          RINGO   004566          ST21    002624
BIT5  = 000040          ERR30   003040          LOOP    006560          R0    =%000000          ST21E   002620
BIT6  = 000100          ERR31   003072          MAP     001072          R1    =%000001          ST22    002656
BIT7  = 000200          ERR32   003114          MASK    001066          R2    =%000002          ST22E   002730
BIT8  = 000400          ERR33   003150          MASTER  006014          R3    =%000003          ST22X   002710
BIT9  = 001000          ERR34   003202          MCNTLG  010444          R4    =%000004          ST23    002734
CKCH    006242          ERR35   003224          MCRLF   010476          R5    =%000005          ST24    002766
CKSWR   010142          ERR36   003260          MESEND  007306          SAVE    001044          ST25    003022
CLRDN   005224          ERR37   003324          MES1    007130          SAVERE  006726          ST25E   003016
CLRDON  003652          ERR4    001620          MES8    007364          SCOPE = 000004          ST25X   003054
CLRREG  006164          ERR40   003346          MNEW    010457          SECINT  004032          ST26    003106
CLRTIM  005150          ERR41   003402          MODOK   004640          SELECT  005562          ST26E   003126
CLRWAT  006126          ERR42   003434          MPDN    005140          SETCRQ  004716          ST26X   003132
CNTLU   010212          ERR43   003456          MQUEST  010500          SETDPR  005644          ST27    003164
CONV    007012          ERR44   003512          MSWR    010451          SETPT   004660          ST27E   003236
COUNT   001036          ERR45   003552          MYCNT   004232          SP    =%000006          ST3     001512
CSR     001002          ERR46   003604          N     = 000063          SR      001000          ST3E    001506
DLOTST  004764          ERR47   003630          NEWNO   004340          STACK   011504          ST30    003216
DNADDR  007313          ERR5    001676          NEXCHA  007074          STAER   007540          ST31    003242
DNCSR1  001014          ERR50   003660          NOERRO  005506          STAER1  007636          ST31X   003274
DNCSR2  001016          ERR51   003710          NOFLAG  004322          STAER2  007724          ST32    003340
DNCSR3  001020          ERR52   003774          NOP   = 000240          START   001102          ST32E   003360
DNCSR4  001022          ERR53   004032          NOTCRQ  005346          STATUS  001050          ST32X   003364
DNDIAL  004550          ERR54   004100          NOTFIR  001304          STKLIN  001070          ST33    003416
DNSTAT  005112          ERR55   004622          NOO     004362          ST1     001326          ST34    003450
DNTST   005452          ERR56   004742          NO1     004416          ST1X    001372          ST34E   003470
DONSET  003674          ERR57   005070          NO2     004454          ST1XE   001422          ST34X   003474
DSSCLR  005326          ERR6    002012          NO3     004512          ST10    002034          ST35    003526
DSSCNT  001030          ERR60   005314          OUT     010436          ST10E   002030          ST35E   003616
DSSSET  005756          ERR61   005526          PASS    001064          ST11    002066          ST35X   003566
EMTRP   006546          ERR62   005772          PC    =%000007          ST11E   002062          ST36    003622
END     005152          ERR7    002050          PH01    006314          ST12    002122          ST36E   003722
ENTRY   001076          EXCLRD  005334          PH02    006336          ST12E   002116          ST36X   003644
ERCOUN  001046          EXCRQ   004772          PH03    006360          ST12EX  002162          ST37    003726
ERR0    001440          EXDSS   005730          PH04    006402          ST13    002172          ST37X   004010
ERR1    001474          EXINC   005702          PH1     007157          ST14    002226          ST38    004046
ERR10   002104          EXMAST  006042          PH2     007172          ST14E   002222          ST38E   004112
ERR11   002150          EXMODO  004646          PH3     007205          ST15    002262          ST4     001546
ERR12   002210          EXNEX   007126          PH4     007220          ST15E   002256          ST4E    001542
ERR13   002244          FLAG    001062          PNDSET  005542          ST15X   002316          ST40    004122
```

N04

DZDNAA.P11 SYMBOL TABLE

```
ST5     001602          SWREG   000176          TKS     001012          TYPC    006452          VECDN   007343
ST5E    001576          TEMPST  010132          TPB     001004          TYPD    006500          VECTOR  001024
ST6     001636          TEXBUF  006272          TPS     001010          TYPDAT  006544          WAITIN  005004
ST6E    001632          TIB     010136          TSTFLG  006200          TYPF    006516          WCOUNT  010134
ST7     001726          TIME    001040          TTIN    010140          TYPG    006530          WORK    001032
ST7E    001722          TIME1   001042          TWOSEC  005040          TYPS    006760          WORK1   001034
ST7ER   002012          TIMO    007233          TYEXIT  006514          TYPSA   007004          $READ   010244
ST7X    001742          TIMW    006106          TYP     006424          TYPSB   007006          .     = 011506


 ERRORS DETECTED:  0
 DEFAULT GLOBALS GENERATED:  0

 *DZDNAA,DZDNA/SOL←DZDNAA.P11
 RUN-TIME:  4  8  .8 SECONDS
 RUN-TIME RATIO:  39/13=2.9
 CORE USED:  6K  (11 PAGES)
```

BDS

Spooler runtime 6 Seconds, 190 KCS, 160 disk reads, 3 disk writes, 52 pages