DFC-11A

OFF-LINE EXERCISER

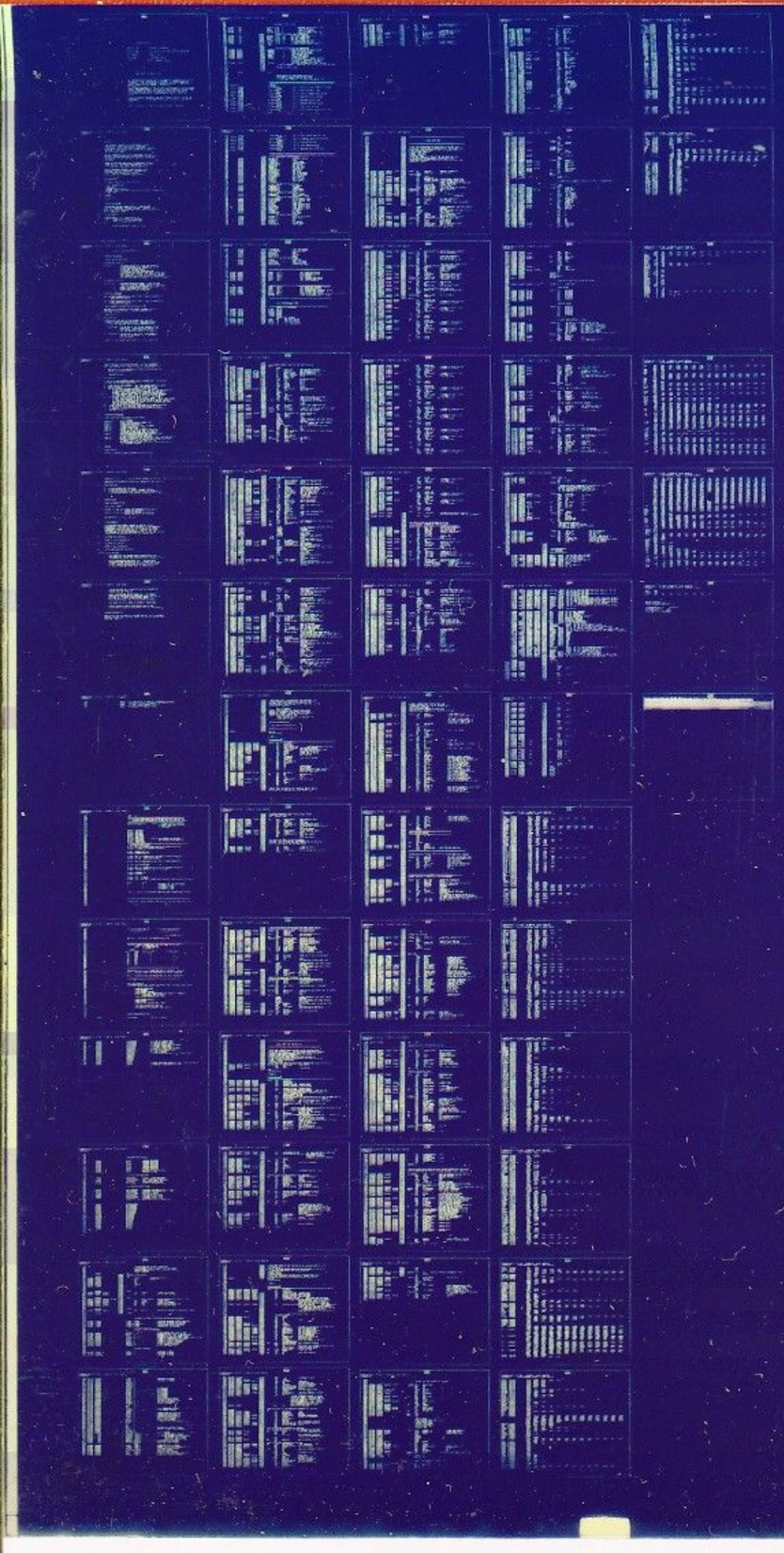
MD-11-DZDFA-B

EP DZDFA-B-DL-A NOV 1976

FICHE 1 OF 1

digital

MADE IN USA



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                .REM    $
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IDENTIFICATIONS

PRODUCT CODE:	MAINDEC-11-DZDFA-B-D
PRODUCT NAME:	DU11/DFC11 & DP11/DFC11 OFFLINE EXERCISOR
DATE CREATED:	APRIL, 1975
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	R. OCHESTER/J. EGOLF

FIRST PRINTING, APRIL, 1975


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1.0     ABSTRACT

        THIS MAINDEC CONSISTS OF TWO PROGRAMS TO CHECK OUT
        THE DFC11A.  FIRST,A DP11A/DFC11 EXERCISER
        WHICH IS RUN WITH A DP11 TEST CONNECTOR IN PLACE OF
        THE MODEM.  THE FUNCTION OF THIS TEST IS TO CHECK OUT
        THE DFC11A AND CABLE.

        SECOND, THERE IS A DU11/DFC11 EXERCISER WHICH IS
        RUN WITH AN H315 TEST CONNECTOR IN PLACE OF THE MODEM.
        THE FUNCTION OF THIS TEST IS TO CHECK OUT THE DFC11A
        AND CABLE.

        THESE TWO PROGRAMS ARE TOTALLY INDEPENDENT OF EACH
        OTHER AND ONLY ONE PROGRAM NEED BE RUN.  THE INTENT
        IS TO HAVE ONLY ONE LISTING AND DOCUMENTATION.

        THE TWO PROGRAMS OPERATE (MONITOR-WISE) LIKE
        THEIR DP11 OR DU11 DIAGNOSTIC COUNTERPARTS--
        THE "MONITOR" OF EACH WILL FUNCTION
        SWITCH-WISE OR CONVERSATION-WISE IDENTICALLY.


2.0     REQUIREMENTS

2.1     ANY PDP11 FAMILY CPU WITH 4K MINIMUM

        . A TTY OR EQUIVALENT
        . A DFC11A
        . EITHER A DP11A OR DU11
        . EITHER A DP11 CABLE TERMINATOR OR H315 CONNECTOR RESPECTIVELY
        . MODEM CABLE

2.2     STORAGE

        MINIMUM OF 4K


3.0     LOADING PROCEDURE

        THE PROGRAM MAY BE LOADED LIKE ANY OTHER PROGRAM
        SUCH AS:  PAPERTAPE, DECTAPE, MAGTAPE, CASSETTE, DISC
        ETC.  MOST COMMON WILL BE PAPER TAPE LOADING THROUGH THE
        USE OF ABSOLUTE LOADER.

3.1     DFC11A TESTING

        THIS PROGRAM(S) WILL EXERCISE DFC11A
        METHOD: INSERT DU11 OR DP11 AS REQUIRED
                INSERT DFC11 AND REQUIRED CABLE.


                INSERT PROPER TEST CONNECTOR ON END
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OF DFC11 CABLE PER SECTION 1.0.

4.0 STARTING PROCEDURE

4.1 CONTROL SWITCH SETTINGS

FOR THE DP11A/DFC11A

SWITCH 07 = 1 INDICATES SINGLE DP11 MODE WHEN STARTING (PLACE RESPECTIVE LINE NUMBER AND VECTOR IN SWR WHEN PROGRAM HALTS)

= 0 INDICATES CYCLE MODE (MORE THAN ONE) LOC "BASCSR" AND "BASVEC" ARE USED TO PICK UP FIRST DP11 CSR + VECTOR. THIS MODE WILL BE USED WHEN UNDER ACT-11. NOTE: ALL DP11'S IN SYSTEM MUST BE CONFIGURED THE SAME IN THIS MODE OF OPERATION.

FOR THE DU11/DFC11A

SWITCH 00 = 1 INDICATES RE-SELECT ADDRESSES AND VECTORS. (THIS IS A FLOATING ADDRESS DEVICE - MORE THAN LIKELY YOU SHOULD ALWAYS START WITH SW00= 1 AND ANSWER THE RESPECTIVE QUESTIONS.)

= 0 NORMAL DEFAULT START OR RESTART.

4.2 STARTING ADDRESSES

200 = START ADDRESS FOR DU11/DFC11 TEST - CABLE & RESPECTIVE TERMINATOR MUST BE ON.

210 = START ADDRESS FOR DP11/DFC11 TEST - CABLE & RESPECTIVE TERMINATOR MUST BE ON.

1000 = RESTART FOR PRODUCTION RUNNING DU/DFC

SEE DFC11-A DOCUMENTATION FOR CORRECT JUMPERS & SWITCH SETTINGS FOR DU11 OR DP11. THIS IS IMPORTANT!!!!

4.3 OPERATOR ACTION

4.3.1 DP11A/DFC11A

IF SWITCH 07 WAS LEFT UP THE PROGRAM WILL HALT WITH THE SWITCH REG. IN THE DATA LIGHTS. (EXCLUDING 1105 & 11/10 CPU) AND REQUIRE THE FOLLOWING OPERATOR ACTION:

A. SW00-SW08 MUST BE SET TO THE VECTOR ADDRESS OF THE FIRST DP11. NOTE FIRST DP11 VECTOR, NOT THE LINE SELECTED UNLESS IT IS LINE 0.

B. SW09-SW15 MUST BE SET TO THE OCTAL LINE NUMBER OF THE DP11 TO BE TESTED. E.G. THE FIRST DP11 IS LINE 0.

PRESS CONTINUE, RESET SWR AS PER 5.1.1. SWITCH SETTINGS.

PRESS CONTINUE, THIS STARTS PROGRAM. ALL DP11 ADDRESSES
SHALL BE ASSIGNED FROM 774400 TO 774770 (CONTIGUOUSLY)

C. SEE SECTION 4.3.2 PARAGRAPHS D,E,AND F FOR BAUD RATE AND
    SWITCH LOOP EXPLANATIONS.

D. SEE SECTION 8.3

4.3.2 DU11/DFC11-A

IF SWITCH 00 WAS ASSERTED AFTER LOADING ADDRESS 200: THE PROGRAM
WILL ASK THE FOLLOWING QUESTIONS:

A. FIRST DEVICE CSR ADDRESS: EG: TYPE 160040(160010 TO 164000)
B. DEVICE VECTOR: EG: TYPE 300(300 TO 776)
C. ARE YOU RUNNING MULTIPLE DEVICES(Y OR N): EG TYPE N
        IF YES WAS ANSWERED THE MONITOR WILL ASK FOR LAST DEVICE'S CSR
        ADDRESS. EG. TYPE 160060 THUS 3 DEVICES WILL BE RUN.
        IF WRONG ANSWERS WERE TYPED -- RESPECTIVE ERROR MESSAGES
        WILL BE TYPED. NOTE: UP TO 16 DU11/DFC11'S CAN BE RUN.
D. DO YOU WANT TO RUN BAUD RATE TEST (Y OR N) EG: TYPE Y
        IF YES, THEN WILL ASK IF AC LINE IS 60 HERTZ (Y OR N) EG: ANSWER Y
        AT THIS POINT THERE WILL BE A 5 SECOND DELAY BEFORE THE BAUD
        RATE OR AN ERROR MESSAGE IS TYPED. NOTE: THE BAUD RATE CHECK
        CAN ONLY BE RUN ON ONE DEVICE.
E. LOWER CONSOLE SWITCHES WITH THE EXCEPTION OF ERROR SWITCHES.
F. IF RUNNING IN CLOCK RECOVERY MODE ABOVE 9600 BAUD PUT
    JP SW03 = 1 TO ELEIMINATE ERRONEOUS INTERMITTANT ERRORS.
G. SEE SECTION 8.3

5.0 OPERATING PROCEDURE

5.1.1 SWITCH SETTINGS (APPLICABLE TO BOTH TESTS)

SW15 = 1	HALT ON ERROR
SW14 = 1	SCOPE LOOP FOR WHOLE CURRENT TEST
SW13 = 1	INHIBIT ERROR PRINTOUT
SW12 = 1	INHIBIT ALL PRINTOUT, BELL ON ERROR
SW11 = 1	INHIBIT ITERATIONS
SW10 = 1	ESCAPE TO NEXT TEST ON ERROR (DP11 ONLY)
SW07 = 1	SINGLE DP11 MODE (DP11 ONLY ON START UP) ALSO ASKS IF BAUD RATE CHECK IS WANTED.
SW03 = 1	PREVENT ERRONEOUS ERRORS WHEN RUNNING DU/DFC IN CLOCK RECOVERY ABOVE 9600 BAUD.
SW01 = 1	RETURN TO BAUD RATE TEST AFTER EOP. (SW11 MUST ALSO BE UP)
SW00 = 1	RESELECT ADDRESS & VECTORS AND ASKS IF BAUD RATE TEST IS WANTED (DU11 ONLY ON START UP). ANY RESTARTS NEED NOT START WITH SW01 =1 SINCE THE PROGRAM WILL REMEMBER ANSWERS.

6.0 ERRORS

6.1 ERROR PRINTOUT

PRINTS ALL ERRORS UNLESS INHIBITED BY SW13 OR SW12

ERROR PC: XXXXX   THIS IS MEMORY ADDRESS +2 LOCATION. BACK UP 2 TO FIND HLT IN LISTING

DEPENDING ON THE ERROR AN ADDITIONAL MESSAGE MAY BE TYPED OUT

6.2 ERROR RECOVERY

A. IF IN A SCOPE LOOP, SET SW14
B. TO RECOVER FROM HALT ON ERROR, DEPRESS CONTINUE
C. IT MAY BE DESIRABLE TO SET SW13 OR SW12 IN AN ERROR CONDITION SO THAT AN OSCILLOSCOPE CAN BE PLACE ON LOGIC.

7.0 RESTRICTIONS

7.1 STARTING RESTRICTIONS

MOST LIKELY START:

START@ LOC 200 WITH SW00=1 FOR STARTING OF DU11/DFC11A
SW00=0 FOR RESTART
START@ LOC 210 WITH SW07=1 FOR SINGLE DP11A/DFC11A
SW07=0 FOR ACT-11 & CYCLE MODE

SEE SECTIONS 4.1, 4.3.1, AND 4.3.2

8.0 MISCELLANEOUS

THE MONITORS ARE "CARBON COPIES" OF THE DP11 & DU11 DIAGNOSTICS. THIS WAS TO KEEP UNIFORMITY IN THE OPERATING PROCEDURES, SINCE THE CHECK OUT OF THE DFC11A IS LARGELY DEPENDENT ON THE DEVICE DRIVING IT. KEEP IN MIND THAT THIS PROGRAM IS JUST AN EXERCISOR FOR THE DFC11A, FOR DETAILED TROUBLE-SHOOTING EXTENSIVE SCOPING WILL BE REQUIRED.

8.1 MULTIPLE DP11A/DFC11A

REFER TO DP11A DIAGNOSTICS

8.2 MULTIPLE DU11/DFC11A

REFER TO DU11 DIAGNOSTIC

8.3 SWITCH SETTINGS FOR THE DFC11A

THE FOLLOWING APPLIES:

A. MAKE SURE THAT THE PROPER MODEM JUMPERS ARE IN FOR THE RESPECTIVE DEVICE THAT IS DRIVING IT. IE DP11 OR DU11.

B. SELECT APPROPRIATE BAUD RATE (S2). THE BAUD RATE CAN BE SOFTWARE CHECKED IF A KW11 IS INSTALLED IN THE SYSTEM. USE AN OSCILLOSCOPE IF NO KW11 IS AVAILABLE. IF THE SOFTWARE BAUD RATE CHECK IS MADE, A DELAY

OF FIVE SECONDS WILL OCCUR AND THEN THE APPROPRIATE MESSAGE WILL BE TYPED OUT.

C. SELECT APPROPRIATE OPTION MODES (S1). BY CAREFUL ANALYSIS OF THE RESPECTIVE PROGRAM, WRONG (S1) SWITCH SETTINGS WILL CAUSE A PREDETERMINED ERROR. IE S1-2 & S1-8 =0 WILL FAIL TO CLOCK DATA IN OR OUT.

D. MAKE SURE THE DFC11/CABLE IS CORRECTLY TERMINATED.

E. TYPICAL SWITCH & OPTION MODE SELECTIONS OF THE DFC11A ARE INCLUDED IN THE LISTING FOR QUICK REFERENCE.

9.0 PROGRAM DESCRIPTION

SEE LISTING FOR THE DETAILS, HOWEVER THE DP11 & DU11 PROGRAMS BASICALLY CHECK EIA LINES AND INSURE THAT DATA IS TRANSMITTED & RECEIVED CORRECTLY.

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                                35500   ;DU11 AND DP11A  ----DFC11A  INTERFACE EXERCISER
                                35600   ;COPYRIGHT, DIGITAL EQUIPMENT CORPORATION******
                                35700   ;MAYNARD, MASSACHUSETTS  01754
                                35800   ;PROGRAMMER: R.CHESTER/J.EGOLF
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                        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        THE FOLLOWING DESCRIBES THE SWITCH SETTINGS FOR THE DFC11-A
                        .....HOWEVER READ ENGINEERING'S BLURBS FOR THE STRAIGHT SKINNY
                        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        BAUD RATE SELECTION      NOTE 1:  A SCOPE LOOP IS AVAILABLE
                                                          TO VERIFY BAUD RATE IF NO KW11
                                                          IS AVAILABLE.

                        S2-4=1  150 BAUD
                        S2-3=1  300 BAUD
                        S2-6=1  600 BAUD
                        S2-5=1  1200 BAUD
                        S2-8=1  2400 BAUD
                        S2-10=1 4800 BAUD        NOTE 2: ALL OTHERS MUST BE ZERO
                        S2-7=1  9600 BAUD                FOR THE BAUD RATE SELECTION
                        S2-9=1  19200 BAUD
                        ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                        OTHER SWITCH SELECTIONS
                        S1-1=1  REC CLK TURNED ON BY OFF TO ON CARIER TRANSITION
                        S1-1=0  NO EFFECT BY CARRIER TRANSITION

                        S1-2=1  ENABLE DFC-11A
                        S1-2=0  DISABLE DFC-11A

                        S1-3=1  REC CLK TURNED ON BY 1ST MARK TO SPACE TRANSITION
                        S1-3=0  NO CLK   DATA HAS NO EFFECT

                        S1-4=1  REC CLK RESYNCED BY ANY MARK TO SPACE TRANSITION

                        S1-4=0  NOT SYNCRONIZED

                        S1-5=1  REC CLK TURNED OFF BY ON TO OFF CARRIER TRANSITION
                        S1-5=0  TIME OUT AFTER NO DATA  FOR .5 SEC

                        S1-8=1  EXTERNAL CLK
                        S1-8=0  NOTHING

                        S1-9=1  CTS   NO DELAY
                        S1-9=0  CTS  WITH DELAY  BASED UPON THE SWITCH SETTINGS OF S1-6 &S1-7

                        S1-6            S1-7
                        0               0               CTS DELAY =0  NOT APPLICABLE
                        0               1               CTS DELAY= .2 SEC
                        1               0               CTS DELAY= .1 SEC
                        1               1               CTS DELAY= .3 SEC

                        NOTE:::::::S1-8  &  S1-2 SWITCH SETTINGS ARE INTERRACTIVE !!!!!!!!


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                        TYPICAL DFC11 SWITCH SETTINGS FOR THE DU11 AND DP11 ARE AS FOLLOWS:::

                                DU11                                    DP11
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                                        S1-1,2,3,4,5,6,7,8,9,10        S1-1,2,3,4,5,6,7,8,9,10
                                           1,1,1,1,1,0,0,0,1,1            1,1,1,1,1,0,0,0,1,1
                                           *   * * *                          *   * * *

                                                                                  *= CUSTOMER OPTION

                                        SET S2-1   THRU S2-10  FOR DESIRED BAUD RATE


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                                        THE DFC11 MODEM JUMPERS SHALL BE CONFIGURED AS FOLLOWS:
                                                NOTE:   0= JUMPER REMOVED
                                                        1= JUMPER IN
                                          JUMPER
                                        NO.     NAME    FOR DU11/DFC11          FOR DP11/DFC11
                                        W1      EIA             0                       0
                                        W2      202             1                       1
                                        W3      EIA             0                       0
                                        W4      202             1                       1
                                        W5      811             0                       0
                                        W6      BSY             1                       1
                                        W7      301             1                       1
                                        W8      301             1                       1

                                        ++++++++++++++++++++++++++++++++++++++++++++++++++++++

                                        TERMINATOR:::::::::::::::THESE MUST BE ON THE DFC11  !!!!!!!!
                                        DJ11::  THE DFC11 SHALL BE TERMINATED WITH H315 CONNECTOR

                                        DP11::  THE DFC11 SHALL BE TERMINATED WITH DP11 TERMINATOR

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                                                .

                                        ;DP11/DU11-DFC11A
                                        ;COPYRIGHT APRIL 1975, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754

                                                ;STARTING PROCEDURE
                                                ;LOAD PROGRAM
                                                ;LOAD ADDRESS 000200
                                                ;PRESS START  OR  PRESS START WITH SW00=1 TO RESELECT
                                                        ;ADDRESSES AND VECTORS
                                                ;THIS IS FOR THE DU11/DFC11 TEST

                                                ;LOAD ADDRESS 000210
                                                ;PRESS START
                                                ;THIS IS FOR THE DP11/DFC11 TEST

                                                ;FOR MORE INFORMATION SEE THE
                                                ;DOCUMENTATION IN FRONT OF THE LISTING


                                        :SWITCH REGISTER OPTIONS

        100000                          SW15=100000             ;=1,HALT ON ERROR
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   419          040000                          SW14=40000          ;=1,LOOP ON CURRENT TEST
   420          020000                          SW13=20000          ;=1,INHIBIT ERROR TYPEOUT
   421          010000                          SW12=10000          ;=1,DELETE TYPEOUT/BELL ON ERROR.
   422          004000                          SW11=4000           ;=1,INHIBIT ITERATIONS
   423          002000                          SW10=2000           ;=1,ESCAPE TO NEXT TEST ON ERROR
   424          001000                          SW09=1000           ;=1,LOOP WITH CURRENT DATA
   425          000400                          SW08=400            ;=1,LOOP ON ERROR
   426          000200                          SW07=200            ;=1,SINGLE SELECTED DP11. =0 CYCLE ALL DP11S
   427          000100                          SW06=100
   428          000040                          SW05=40
   429          000020                          SW04=20
   430          000010                          SW03=10
   431          000004                          SW02=4
   432          000002                          SW01=2              ;=1,BAUD RATE TEST RESELECT - SW11 MUST ALSO BE UP.
   433          000001                          SW00=1              ;=1,RESELECT ADDRESSES & VECTORS
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                                        ;REGISTER DEFINITIONS

000000                                  R0=%0           ;GENERAL REGISTER
000001                                  R1=%1           ;GENERAL REGISTER
000002                                  R2=%2           ;GENERAL REGISTER
000003                                  R3=%3           ;GENERAL REGISTER
000004                                  R4=%4           ;GENERAL REGISTER
000005                                  R5=%5           ;GENERAL REGISTER
000006                                  SP=%6           ;PROCESSOR STACK POINTER
000007                                  PC=%7           ;PROGRAM COUNTER

                                        ;LOCATION EQUIVALENCIES

177570                                  SWR=177570      ;CONSOLE SWITCH REGISTER
177570                                  LIGHTS=177570   ;PDP-11 45 DISPLAY REGISTER
177776                                  PS=177776       ;PROCESSOR STATUS WORD
001050                                  STACK=1050      ;START OF PROCESSOR STACK

                                        ;INSTRUCTION DEFINITIONS

005746                                  PUSH1SP=5746    ;DECREMENT PROCESSOR STACK 1 WORD
005726                                  POP1SP=5726     ;INCREMENT PROCESSOR STACK 1 WORD
010046                                  PUSHR0=10046    ;SAVE R0 ON STACK
012600                                  POPR0=12600     ;RESTORE R0 FROM STACK
024646                                  PUSH.SP=24646   ;DECREMENT STACK TWICE
022626                                  POP.SP=22626    ;INCREMENT STACK TWICE
                                        .EQUIV  EMT,HLT ;BASIC DEFINITION OF ERROR CALL


100000                                  BIT15=100000
040000                                  BIT14=40000
020000                                  BIT13=20000
010000                                  BIT12=10000
004000                                  BIT11=4000
002000                                  BIT10=2000
001000                                  BIT9=1000
000400                                  BIT8=400
000200                                  BIT7=200
000100                                  BIT6=100
000040                                  BIT5=40
000020                                  BIT4=20
000010                                  BIT3=10
000004                                  BIT2=4
000002                                  BIT1=2
000001                                  BIT0=1
```

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                                                        ;TRAPCATCAER FOR ILLEGAL INTERRUPTS
                                                        ;THE STANDARD "PC+2.....HALT" WILL BE PLACED
                                                        ;BETWEEN ADDRESS 0 AND 776. THIS WILL CATCH ANY
                                                        ;STRAY INTERUPTS.
                 000000                         .=0
                                        59200   ;VECTOR INITIALIZATION
                 000024                 59700   .=24
000024  006414                         59800           .PFAIL          ;POWER FAIL VECTOR
000026  000340                         59900           340             ;PRIORITY 7
000030  010106                         60000           .HLT
000032  000340                         60100           340
000034  011266                         60200           .TRPSRV
000036  000340                         60300           340
                                       60400
                                       60500
                 000200                60600   .=200
000200  005037  001074                 60700           CLR     PASCNT          ;CLEAR # OF PASSES
000204  000137  001642                 60800           JMP     DU11            ;GO TO START OF TEST
                                       60900
                 000210                61000   .=210
000210  012737  002370  001232         61100           MOV     #DP11.A,DD.A    ;SETUP FOR RETURN AT START OF TEST
000216  005037  001156                 61200           CLR     XLINEX          ;CLEAR LINES
000222  005037  001074                 61300           CLR     PASCNT          ;CLEAR # OF PASSES
000226  005037  001234                 61400           CLR     TAG             ;SETUP FOR BAUD RATE TEST
000232  000137  001374                 61500           JMP     DP11            ;GO TO START OF TEST
                                       61600
                 001000                61700   .=1000
001000  000137  003110                 61800           JMP     DU11.A          ;PRODUCTION RESTART AT REGULAR DU TESTS
                                       61900
                 001050                62000   .=1050


                                                ;INDIRECT POINTERS TO TELETYPE VECTORS AND REGISTERS

001050  177560                         TKCSR:  177560                  ;TELETYPE KEYBOARD CONTROL REGISTER
001052  177562                         TKDBR:  177562                  ;TELETYPE KEYBOARD DATA BUFFER
001054  177564                         TPCSR:  177564                  ;TELEPRINTER CONTROL REGISTER
001056  177566                         TPDBR:  177566                  ;TELEPRINTER DATA BUFFER


                                                ;PROGRAM CONTROL PARAMETERS

001060  000000                         RETURN: 0                       ;SCOPE ADDRESS FOR LOOP ON TEST
001062  000000                         NEXT:   0                       ;ADDRESS OF NEXT TEST TO BE EXECUTED
001064  000000                         LOCK:   0                       ;ADDRESS FOR LOCK ON CURRENT DATA
001066  000000                         ICOUNT: 0                       ;NUMBER OF ITERATIONS THAT CURRENT TEST WILL BE
001070  000000                         LPCNT:  0                       ;NUMBER OF ITEREATIONS COMPLETED
001072  000000                         TSTNO:  0                       ;NUMBER OF TEST IN PROGRESS
001074  000000                         PASCNT: 0                       ;NUMBER OF PASSES COMPLETED
001076  000000                         ERRCNT: 0                       ;TOTAL NUMBER OF ERRORS
001100  000000                         LSTERR: 0                       ;PC OF LAST ERROR CALL


                                                ;PROGRAM VARIABLES

001102  000000                         TEMP1:  0                       ;TEMPORARY STORAGE
001104  000000                         TEMP2:  0                       ;TEMPORARY STORAGE
001106  000000                         TEMP3:  0                       ;TEMPORARY STORAGE
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   539  001110  000000                TEMP4:   0                ;TEMPORARY STORAGE
   540  001112  000000                TEMP5:   0                ;TEMPORARY STORAGE
   541  001114  000000                TEMP10:  0
   542  001116  000000                TEMP11:  0
   543  001120  000000                TEMP12:  0
   544  001122  000000                TEMP13:  0
   545  001124  000000                SAVR0:   0                ;R0 STORAGE
   546  001126  000000                SAVR1:   0                ;R1 STORAGE
   547  001130  000000                SAVR2:   0                ;R2 STORAGE
   548  001132  000000                SAVR3:   0                ;R3 STORAGE
   549  001134  000000                SAVR4:   0                ;R4 STORAGE
   550  001136  000000                SAVR5:   0                ;R5 STORAGE
   551  001140  000000                SAVSP:   0                ;STACK POINTER STORAGE
   552  001142  000000                SAVPC:   0                ;PROGRAM COUNTER STORAGE
   553  001144  000000                SAVSR1:  0                ;NEW DEVICE STORAGE
   554  001146  000000                TMPDAT:  0                ;DP DATA STORAGE
   555  001150  000000                SLIM:    0
   556  001152  000000                BPC:     0
   557  001154  000000                TSYNC:   0                ;SYNC CHARACTER STORAGE
   558  001156  000000                XLINEX:  0                ;LINE NUMBER STORAGE
   559  001160  000000                CABLE:   0
   560  001162  000000                TDATA:   0                ;TRANSMITTER DATA STORAGE
   561  001164  000000                RDATA:   0                ;RECEIVE DATA STORAGE
   562  001166  000000                CHLEN:   0                ;CHARACTER LENGTH STORAGE
   563  001170  000000                LIMIT:   0                ;END OF DATA STORAGE
   564  001172  000000                SCNT:    0                ;SYNC COUNT STORAGE
   565  001174  000000                SAVSR2:  0                ;CONSOLE SWITCH STORAGE
   566  001176  000000                TIME:    0
   567  001200  000000                TP:      0
   568  001202  000000                RP:      0
   569  001204  000000                BACK:    0                ;PROGRAM RTI RETURN STORAGE
   570  001206  000000                CONT.:   0                ;RETURN TO BEGIN TEST STORAGE
   571  001210  000000                DEVICE:  0
   572  001212  000000                NO.CLOCK: 0               ;CLOCK STORAGE
   573  001214     000                CPSFLG:   .BYTE 0                ;50/60 HERTZ STORAGE
   574  001215     000                FLG19.2:  .BYTE 0         ;HF CRYSTAL PROGRAM CONTROL STORAGE
   575  001216     000                BAUDFLG:  .BYTE 0                ;BAUD RATE TEST STORAGE
   576  001217     000                INIF.A:   .BYTE 0                ;ONCE ONLY CODE STORAGE
   577  001220     000                BDRFLG:  .BYTE 0          ;BAUD RATE FLAG STORAGE
   578  001221     000                BDTSTFLG:.BYTE 0          ;BAUD RATE TEST STORAGE
   579                                          .EVEN
   580  001222  000000                CHCNT:   .WORD 0          ;CHARACTER COUNT STORAGE
   581  001224  000000                CLKSET:  .WORD 0          ;PRESET CYCLE COUNT STORAGE FOR KW11
   582  001226  000000                INTCNT:  .WORD 0          ;INTERRUPT COUNT STORAGE
   583  001230  000000                CLKSTATUS:.WORD 0         ;KW11 CSR STORAGE
   584  001232  000000                DD.A:    .WORD 0          ;START OF TEST STORAGE
   585  001234  000000                TAG:     .WORD 0          ;CONTROL STORAGE FOR BAUD RATE TEST
   586  001236  000000                PSTART:  .WORD 0          ;POWER FAIL CONTROL STORAGE
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                                                        ;PROGRAM CONTROL FLAGS

001240  000                                     INIFLG: .BYTE   0               ;PROGRAM INITIALIZATION FLAG
001241  000                                     STFLG:  .BYTE   0               ;TEST START FLAG
001242  000                                     ERRFLG: .BYTE   0               ;ERROR OCCURED FLAG
001243  000                                     LOKFLG: .BYTE   0               ;LOCK ON CURRENT TEST FLAG
                                        62200           ;PROGRAM CONVERSATIONAL PARAMETERS
001244  377                             62300   SYNCNO: .BYTE   377     ;# OF SYNC CHARS REQ'D FOR SYNC'ZATION
001245  377                             62400   SEXMIT: .BYTE   377     ;SEC XMIT JUMPER "IN"
001246  377                             62500   SEREC:  .BYTE   377     ;SEC REC JUMPER "IN"
001247  377                             62600   OPTCLR: .BYTE   377     ;OPTIONAL JUMPER CLR "IN"
001250  000                             62700   MULTD:   BYTE   0       ;NO MULTIPLE DEVICE FLAG
001251  377                             62800   JMRBY:  .BYTE   377     ;EXTERNAL MODEM BYPASS JUMPER "IN"
                                        62900   .EVEN
                                        63000
                                        63100           ;PROGRAM MULTIPLE DEVICE PARAMETERS
001252  000000                          63200   BASEADD:        0       ;PROG CONTROLLED 1ST DEVICE ADDR
001254  000000                          63300   KEEPADD:        0       ;SAVED 1ST DEVICE ADDR
001256  000000                          63400   LASTADD:        0       ;LAST DEVICE RXCSR ADDR
001260  000000                          63500   BASEIV:         0       ;PROG CONTROLLED IV
001262  000000                          63600   KEEPIV:         0       ;SAVED INTR VECTOR
001264  000000                          63700   ACTREG:         0       ;ACTIVE REGISTER ,,,MODIFY THIS
                                        63800                           ;LOCATION TO DISQUALIFY OR QUALIFY
                                        63900                           ;DEVICES (1= RUN,,,0= DON'T RUN)
001266  000000                          64000   ROTADD:         0       ;ROTATING POINTER FOR ACTREG..POINTS
                                        64100           ;TO DEVICE PRESENTLY UNDER TEST WHEN RUNNING MULTIPLE DEVICES
                                        64200
                                        64300           ;PROGRAM CONTROL FLAGS
                                        64400
                                        64500
        000030                          $Y=0

                                                ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
                                                ;POINTERS TO SUBROUTINES CAN BE FOUND
                                                ;IN THE TABLE IMMEDIATLY FOLLOWING THE DEFINITIONS

                                        ;*****************************************************************
                                        ;*****************************************************************
001270                                  .TRPTAB:
        104400                          SCOPE=TRAP+0            ;CALL TO SCOPE LOOP AND ITERATION HANDLER
001270  007626                                  .SCOPE
        104401                          DELAY=TRAP+1            ;CALL TO DELAY FOR SPEC. TIME.
001272  007552                                  .DELAY
        104402                          SCOP1=TRAP+2            ;CALL TO LOOP ON CURRENT DATA HANDLER
001274  010026                                  .SCOP1
        104403                          TYPE=TRAP+3             ;CALL TO TELETYPE OUTPUT ROUTINE
001276  010044                                  .TYPE
        104404                          SAVOS=TRAP+4            ;CALL TO REGISTER SAVE ROUTINE
001300  010612                                  .SAVOS
        104405                          RESOS=TRAP+5            ;CALL TO REGISTER RESTORE ROUTINE
001302  010652                                  .RESOS
        104406                          CONVRT=TRAP+6           ;CALL TO DATA OUTPUT ROUTINE
001304  010412                                  .CONVRT
        104407                          CNVRT=TRAP+7            ;CALL TO DATA OUTPUT ROUNTINE WITHOUT CR-LF.
001306  010416                                  .CNVRT
```

```
                104410                  INSTR=TRAP+10           ;CALL TO ASCII STRING INPUT ROUTINE
001310  011070                                  .INSTR
                104411                  PARAM=TRAP+11           ;CALL TO NUMERICAL DATA INPUT ROUTINE
001312  010704                                  .PARAM
                104412                  SETFLG=TRAP+12          ;CALL TO FLAG SET ROUTINE
001314  011172                                  .SETFLG
                104413                  INSTER=TRAP+13          ;CALL TO INPUT ERROR HANDLER
001316  011162                                  .INSTER
                104414                  SCOP2=TRAP+14           ;CALL TO SEQUENCE TEST SCOPE LOOP
00132C  011240                                  .SCOP2

                                        ;*****************************************************************
                                        ;*****************************************************************
                                64700           ;RXCSR BIT DEFINITIONS
        100000                  64800   DSC=BIT15               ;DATA SET CHANGE
        040000                  64900   RING=BIT14              ;RING
        020000                  65000   CTS=BIT13               ;CLR TO SEND
        010000                  65100   CARDET=BIT12            ;CARRIER DETECT
        004000                  65200   RECACT=BIT11            ;REC ACTIVE
        002000                  65300   SRD=BIT10               ;SEC REC DATA
        001000                  65400   DSR=BIT9                ;DATA SET RDY
        000400                  65500   STPSYN=BIT8             ;STRIP SYNC
        000200                  65600   RXDONE=BIT7             ;REC DONE
        000100                  65700   RINTEN=BIT6             ;REC INTR ENABLE
        000040                  65800   DSINTE=BIT5             ;DSC INTR ENABLE
        000020                  65900   SYNSCH=BIT4             ;SYNC SEARCH
        000010                  66000   STD=BIT3                ;SEC XMIT DATA
        000004                  66100   RTS=BIT2                ;REQ TO SEND
        000002                  66200   DTR=BIT1                ;DATA TERM RDY
        000001                  66300   VOID=BIT0
                                66400           ;RXDBUF BIT DEFINITIONS
        100000                  66500   RXERR=BIT15             ;REC ERROR
        040000                  66600   OVRRUN=BIT14            ;OVERRUN
        020000                  66700   FRMERR=BIT13            ;FRAME ERROR
        010000                  66800   PARER=BIT12             ;PARITY ERROR
                                66900           ;PARCSR BIT DEFINITIONS
        001000                  67000   PAREN=BIT9              ;PARITY ENABLE
        000400                  67100   EVPAR=BIT8              ;EVEN PARITY SENSE
                                67200           ;PARCSR WRD DEFINITIONS
        030000                  67300   SYNINT=30000            ;SYNC EXTERNAL MODE
        020000                  67400   SYNEXT=20000            ;SYNC INTERNAL MODE
        000000                  67500   ISYMOD=0                ;ISOC MODE
        000000                  67600   FIVE=0                  ;WORD LENGTH 5 BITS
        002000                  67700   SIX=2000                ;WORD LENGTH 6 BITS
        004000                  67800   SEVEN=4000              ;WORD LENGTH 7 BITS
        006000                  67900   EIGHT=6000              ;WORD LENGTH 8 BITS
        000000                  68000   NOPAR=0                 ;NO PARITY
        001000                  68100   ODDPAR=1000             ;ODD PARITY
        001400                  68200   EVEPAR=1400             ;EVEN PARITY
                                68300           ;TXCSR BIT DEFINITIONS
        100000                  68400   DNA=BIT15               ;DATA NOT AVAILABLE
        040000                  68500   MTDATA=BIT14            ;MAINT DATA
        020000                  68600   CLK=BIT13               ;CLK
        002000                  68700   BITW=BIT10              ;BIT WINDOW
        000400                  68800   MRESET=BIT8             ;MASTER RESET
        000200                  68900   TXDONE=BIT7             ;XMIT DONE
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                000100          69000   TXINTE=BIT6             ;XMIT INTR ENABLE
                000040          69100   DNAINTE=BIT5            ;DNA INTR ENAB
                000020          69200   SEND=BIT4               ;SEND
                000010          69300   HDXEN=BIT3              ;HDX/FDX
                000001          69400   BREAK=BIT0              ;BREAK
                                69500           ;TXCSR WRD DEFINITIONS
                000000          69600   JSER=0                  ;USER MODE
                004000          69700   MINT=4000               ;MAINT INT MODE
                010000          69800   MEXT=10000              ;MAINT EXT MODE
                014000          69900   SYSTST=14000            ;SYSTEM TEST MODE
                                70000
                                70100
                                70200   ;*************************************************************************
                                70300
001322  000001                  70400   DPRS:   .BLKW 1                 ;DP11 RECEIVER STATUS
001324  000001                  70500   DPRB:   .BLKW 1                 ;DP11 RECEIVER BUFFER
001326  000001                  70600   SYNC:   .BLKW 1                 ;SYNC BUFFER
001330  000001                  70700   DPTS:   .BLKW 1                 ;DP11 TRANSMITTER STATUS
001332  000001                  70800   DPTB:   .BLKW 1                 ;DP11 TRANSMITTER BUFFER
001334  000001                  70900   SEXT:   .BLKW 1                 ;DP11 SYNC EXTENSION
                                71000
                                71100
                                71200   ;*************************************************************************
001336  000001                  71300   DPRIV:  .BLKW 1                 ;DP11 RECEIVER INTERRUPT VECTOR
001340  000001                  71400   DPRP:   .BLKW 1                 ;DP11 RECEIVER PRIORITY
001342  000001                  71500   DPTIV:  .BLKW 1                 ;DP11 TRANSMITTER INTERRUPT VECTOR
001344  000001                  71600   DPTP:   .BLKW 1                 ;DP11 TRANSMITTER PRIORITY
001346  000300                  71700   BASVEC: 300                     ;THIS IS THE FIRST VECTOR. PATCH FOR YOUR FIRST
001350  174770                  71800   BASCSR: 174770                  ;FIRST CSR ADDRESS.MAKE IT YOURS.
                                71900
                                72000   ;*************************************************************************
                                72100
                                72200
                                72300           ;DU11 REGISTER POINTERS
                                72400
                                72500   ;*************************************************************************
                                72600           ;DEFAULT DU ADDRESSES
001352  160040                  72700   RXCSR:  160040
001354  160042                  72800   RXDBUF: 160042
001356  160042                  72900   PARCSR: 160042
001360  160044                  73000   TXCSR:  160044
001362  160046                  73100   TXDBUF: 160046
                                73200           ;DEFAULT DU VECTORS
001364  000770                  73300   DURIV:  770     ;REC INTR VECTOR
001366  000772                  73400   DURIS:  772     ;REC INTR STATUS
001370  000774                  73500   DUTIV:  774     ;XMIT INTR VECTOR
001372  000776                  73600   DUTIS:  776     ;XMIT INTR STATUS
```

```
747                                                     00200
748                                                     00300   ;******PART2 DB25S CONNECTOR TEST SECTION******
749  001374                                             00400   DP11:
750  001374  000005                                    00500           RESET
751  001376  012706  001050                            00600           MOV     #STACK,SP       ;SET UP STACK POINTER
752  001402  012737  000340  177776                    00700           MOV     #340,PS         ;SET PROCESSOR PRICRITY = 7
753  001410  012737  001374  001236                    00800           MOV     #DP11,PSTART    ;SETUP POWER FAIL
754  001416  012737  002370  001060                    00900           MOV     #DP11.A,RETURN  ;SETUP FOR REGULAR TEST
755  001424  012737  002370  001062                    01000           MOV     #DP11.A,NEXT    ;DITTO
756  001432  012737  011320  010242                    01100           MOV     #EDP11,WHO
757  001440  105037  001217                            01200           CLRB    INIF.A          ;DP PROGRAM SETUP
758  001444  005137  001234                            01300           COM     TAG             ;DITTO
759  001450  005037  001070                            01400           CLR     LPCNT           ;DITTO
760  001454  005037  001100                            01500           CLR     LSTERR          ;DITTO
761  001460  105037  001240                            01600           CLRB    INIFLG          ;DITTO
762  001464  005037  001076                            01700           CLR     ERRCNT          ;DITTO
763  001470  012737  000012  001066                    01800           MOV     #10.,ICOUNT     ;#OF ITERATIONS
764  001476  005327                                    01900           DEC     (PC)+           ;ONCE ONLY
765  001500  000001                                    02000           .WORD   1
766  001502  001002                                    02100           BNE     .+6
767  001504  104403  011563                            02200           TYPE    ,DPTITLE
768  001510  105737  177570                            02300           TSTB    $WR             ;TEST FOR CHANGE IN DP ADRS
769  001514  100005                                    02400           BPL     BGNOA           ;BRANCH IF NO CHANGE
770  001516  004737  006306                            02500   X.DP:   JSR     PC,CLRVEC       ;LOAD ENTIRE VECTOR AREA WITH
771                                                     02600                                   ;  .+2
772                                                     02700                                   ;  HALT
773  001522  004737  006014                            02800           JSR     PC,LINE.N       ;FETCH LINE NUMBER FROM SWR
774  001526  000404                                    02900           BR      PART2
775  001530  004737  006306                            03000   BGNOA:  JSR     PC,CLRVEC       ;CLEAR OUT VECTOR AND GET NEW NUMBER
776  001534  004737  006064                            03100           JSR     PC,LINE.X       ;GET NEW LINE NUMBER
777  001540                                             03200   PART2:
778  001540  012737  001632  001206                    03300           MOV     #DP.UPDATE,CONT.;SETUP FOR RETURN
779  001546  105737  001240                            03400           TSTB    INIFLG          ;FIRST TIME?
780  001552  001013                                    03500           BNE     PART3           ;NO
781  001554  105137  001240                            03600           COMB    INIFLG          ;YES
782  001560  104410                                                    INSTR                   ;OUTPUT MESSAGE & GET INPUT STRING
783  001562  013547                                                    MBDTEST                 ;MESSAGE
784  001564  104412                                                    SETFLG                  ;SET FLAG BASED UPON INPUT STRING
785  001566  001221                                                    BDTSTFLG                        ;THIS FLAG
786  001570  105737  001221                            03800           TSTB    BDTSTFLG        ;DO YOU WANT TO RUN BAUD TEST?
787  001574  001402                                    03900           BEQ     .+6             ;NO
788  001576  000137  002636                            04000           JMP     BAUD            ;YES
789  001602  012737  002370  001060                    04100   PART3:  MOV     #DP11.A,RETURN  ;SETUP FOR RETURN TO START PROGRAM
790  001610  032737  000002  177570                    04200           BIT     #SW01,SWR
791  001616  001403                                    04300           BEQ     1$
792  001620  012737  002636  001060                    04400           MOV     #BAUD,RETURN
793  001626  000177  177226                            04500   1$:     JMP     @RETURN         ;GO START
794  001632  105737  001144                            04600   DP.UPDATE:      TSTB    SAVSR1  ;NEW DEVICE?
795  001636  100740                                    04700           BMI     PART2           ;NO
796  001640  000733                                    04800           BR      BGNOA           ;YES
797
```

```
                                                    00100
                                                    00200   ;********** PART3 ***************
001642  000005                                      00300   DU11:   RESET
001644  012737  003110  001060                      00400           MOV     #DU11.A,RETURN  ;SETUP FOR REGULAR TEST
001652  012737  003110  001062                      00500           MOV     #DU11.A,NEXT    ;DITTO
001660  013737  001352  001210                      00600           MOV     RXCSR,DEVICE    ;SETUP FOR EOP MESSAGE
001666  005037  001234                              00700           CLR     TAG
001672  105037  001217                              00800           CLRB    INIF.A          ;CLEAR OUT FOR FIRST TIME THRU
001676  012737  000340  177776                      00900           MOV     #340,PS         ;SET PROCESSOR PRIORITY = 7
001704  012706  001050                              01000           MOV     #STACK,SP       ;SETUP STACK POINTER
001710  012737  001642  001236                      01100           MOV     #DU11,PSTART    ;SET UP POWER FAIL
001716  012737  003110  001232                      01200           MOV     #DU11.A,DD.A    ;SET UP FOR RETURN TO START OF TEST
001724  005037  001100                              01300           CLR     LSTERR          ;CLEAR LIST
001730  005037  001076                              01400           CLR     ERRCNT          ;CLEAR ERROR COUNT
001734  005037  001070                              01500           CLR     LPCNT
001740  012737  002000  001206                      01600           MOV     #ONCE,CONT.     ;SETUP FOR REPEAT
001746  012737  000012  001066                      01700           MOV     #10.,ICOUNT     ;SET ITERATIONS = 10
001754  012737  011345  010242                      01800           MOV     #EDU11,WHO
001762  105737  001240                              01900           TSTB    INIFLG          ;CHECK FOR FIRST TIME
001766  001004                                      02000           BNE     ONCE            ;NO
001770  104403  011476                              02100           TYPE    ,DUTITLE        ;YES
001774  105137  001240                              02200           COMB    INIFLG
002000  032737  000001  177570                      02300   ONCE:   BIT     #SW00,SWR       ;CHECK FOR CONVERSATIONAL
002006  001017                                      02400           BNE     AAA             ;YES
002010  032737  000002  177570                      02500           BIT     #SW01,SWR       ;CHECK FOR BAUD RATE
002016  001404                                      02600           BEQ     1$              ;NO
002020  012737  004274  001060                      02700           MOV     #START,RETURN
002026  000405                                      02800           BR      2$
002030  104403  012250                              02900   1$:     TYPE    ,MR             ;LET OPERATOR KNOW TEST IS RUNNING
002034  012737  003110  001060                      03000           MOV     #DU11.A,RETURN  ;GO TO START
002042  000177  177012                              03100   2$:     JMP     @RETURN
002046                                              03200   AAA:
002046  104410                                              INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002050  011672                                              MREGAD                          ;MESSAGE
002052  104411                                              PARAM                           ;CONVERT STRING
002054  160000                                              160000                          ;LOW LIMIT
002056  167776                                              167776                          ;HIGH LIMIT
002060  007270                                              DUBASE                          ;STORE AT THIS LOCATION
002062     001                                      .BYTE   1                               ;MASK
002063     001                                      .BYTE   1                               ;HOW MANY TIMES + 2
002064  004737  006334                              03400           JSR     PC,OKADR        ;CHECK FOR VALID ADDRESS
002070  013737  007270  001254                      03500           MOV     DUBASE,KEEPADD  ;SAVE
002076  004737  007200                              03600           JSR     PC,DUADDR       ;GET ADDRESS
002102  013737  001254  001252                      03700           MOV     KEEPADD,BASEADD ;RESTORE FOR ROTATION
002110  104410                                              INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002112  011650                                              MVECTO                          ;MESSAGE
002114  104411                                              PARAM                           ;CONVERT STRING
002116  000300                                              300                             ;LOW LIMIT
002120  000776                                              776                             ;HIGH LIMIT
002122  001364                                              DURIV                           ;STORE AT THIS LOCATION
002124     001                                      .BYTE   1                               ;MASK
002125     004                                      .BYTE   4                               ;HOW MANY TIMES + 2
002126  013737  001364  001262  03900                       MOV     DURIV,KEEPIV            ;SAVE
002134  013737  001364  001260  04000                       MOV     DURIV,BASEIV            ;SET UP FOR ROTATION
002142  104410                                              INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002144  011753                                              MMULT                           ;MESSAGE
```

```
                                                        SETFLG                  ;SET FLAG BASED UPON INPUT STRING
                                                        MULTD                   ;THIS FLAG
002146  104412  001250          04200                 TSTB    MULTD             ;ARE THERE MULTIPLE DEVICES
                                04300                                           ;ON THE SYSTEM ?
002152  100406                  04400                 BMI     88B               ;YES,ASK NEXT QUESTION
002154  005037  001264          04500                 CLR     ACTREG
002160  005037  001266          04600                 CLR     ROTADD            ;CLEAR POINTER
002164  000137  002334          04700                 JMP     DDD               ;JUMP AROUND NEXT QUESTION
002170                          04800   68B:
002170  104410                                        INSTR                     ;OUTPUT MESSAGE & GET INPUT STRING
002172  012032                                        MLASTD                    ;MESSAGE
002174  104411                                        PARAM                     ;CONVERT STRING
002176  160000                                        160000                    ;LOW LIMIT
002200  167776                                        167776                    ;HIGH LIMIT
002202  001256                                        LASTADD                   ;STORE AT THIS LOCATION
002204     001                          .BYTE   1                               ;MASK
002205     001                          .BYTE   1                               ;HOW MANY TIMES + 2
                                04900   ;THE FOLLOWING ROUTINE SETS UP ACTREG FOR THE FIRST TIME
002206  012737  000001  001266  05000   1$:     MOV     #1,ROTADD         ;SET UP POINTER
002214  005037  001264          05100           CLR     ACTREG            ;CLR ACTIVE REGISTER
002220  053737  001266  001264  05200   2$:     BIS     ROTADD,ACTREG     ;MAKE THIS DEVICE ACTIVE
002226  000241                  05300           CLC
002230  006137  001266          05400           ROL     ROTADD            ;SET UP POINTER
002234  103421                  05500           BCS     3$                ;ARE YOU OUT OF RANGE ?
002236  062737  000010  001252  05600           ADD     #10,BASEADD       ;SET UP BASE ADDRESS
002244  023737  001256  001252  05700           CMP     LASTADD,BASEADD   ;IS THIS THE LAST DEVICE ?
002252  101362                  05800           BHI     2$                ;NO DO IT AGAIN
002254  053737  001266  001264  05900           BIS     ROTADD,ACTREG     ;THIS ASSUMES THAT THERE ARE AT
                                06000                                     ;LEAST TWO DEVICES WHEN YOU ANSWER YES TO
                                06100                                     ;MULTIPLE DEVICE QUESTION
002260  012737  000001  001266  06200   4$:     MOV     #1,ROTADD         ;SET UP FOR LATER USE IN END OF PASS ROUTINE
002266  013737  001254  001252  06300           MOV     KEEPADD,BASEADD   ;DITTO
002274  000425                  06400           BR      MUL               ;CONTINUE QUESTIONS
002276  013737  001254  001252  06500   3$:     MOV     KEEPADD,BASEADD   ;RESTORE
002304  104410                                  INSTR                     ;OUTPUT MESSAGE & GET INPUT STRING
002306  012162                                  MRANGE                    ;MESSAGE
002310  104411                                  PARAM                     ;CONVERT STRING
002312  160000                                  160000                    ;LOW LIMIT
002314  167776                                  167776                    ;HIGH LIMIT
002316  001256                                  LASTADD                   ;STORE AT THIS LOCATION
002320     001                          .BYTE   1                         ;MASK
002321     001                          .BYTE   1                         ;HOW MANY TIMES + 2
002322  000137  002212          06700           JMP     1$                ;DO IT AGAIN
002326                          06800   DDD:
002326  104410                                  INSTR                     ;OUTPUT MESSAGE & GET INPUT STRING
002330  013547                                  MBDTEST                   ;MESSAGE
002332  104412                                  SETFLG                    ;SET FLAG BASED UPON INPUT STRING
002334  001221                                  BDTSTFLG                  ;THIS FLAG
002336  105737  001221          07000           TSTB    BDTSTFLG          ;DO YOU WANT TO RUN BAUD TEST?
002342  001402                  07100           BEQ     .+6               ;NO
002344  000137  004274          07200           JMP     START             ;YES
002350  012737  003110  001060  07300   OUTMUL: MOV     #DJ11.A,RETURN    ;GO START REGULAR TEST
002356  000177  176470          07400           JMP     @RETURN
                                07500
```

```
                                        00200   ;CABLE TEST WITH OUT EXERCISING THE SOFTWARE CLOCK.
                                        00300   ;IN THIS TEST FUNCTIONS OF THE CABLE WILL BE
                                        00400   ;TESTED WITHOUT THE SOFTWARE CLOCK. THE CLOCK MUST BE
                                        00500   ;SUPPLIED BY THE DFC11.
                                        00600
                                        00700   ;       DFC11-A TEST!!!
                                        00800   ;VERIFY THAT LOADING THE TRANSMITTER BUFFER
                                        00900   ;BRINGS UP "REQUEST TO SEND" WHICH IN TURN WILL
                                        01000   ;BRING UP "CLEAR TO SEND" AND "MODEM READY".
                                        01100   ;VERIFY ALSO THAT THEY GO AWAY.
                                        01200           ;NOTE: THE DFC11 CLOCK IS NECESSARY FOR
                                        01300           ;THIS TEST TO WORK.
                                        01400
                                        01500   ;********************:
                                        01600   ;
                                        01700   ;  DP11 TEST FOR THE DFC11-A
                                        01800   ;
                                        01900   ;*****************************
                                        02000
002370                                  02100   DP11.A:
                                                ;*************
                                                ;             *
                                                ; TEST 1
                                                ;             *
                                                ;*************
                                                ;*************************************************************************
002370  012737  000001  001072                 TST1:   MOV     #1,TSTNO
002376  012737  003124  001062                         MOV     #TST2,NEXT
002404  012737  001632  001206          02300          MOV     #DP.UPDATE,CONT.        ;SET FOR RETURN AT END PASS
002412  012737  002370  001060          02400          MOV     #DP11.A,RETURN  ;SET RETURN ADDRESS.
002420  012737  007736  001062          02500          MOV     #.EOP,NEXT      ;GOTO END PASS AT END OF TEST.
002426  005077  176676                  02600          CLR     @DPTS           ;CLEAR THE TX STATUS
002432  005077  176664                  02700          CLR     @DPRS           ;CLEAR THE RX STATUS.
002436  005002                          02800          CLR     R2              ;SET TIME OUT
002440  012700  013000                  02900          MOV     #13000,R0
002444  010277  176662                  03000          MOV     R2,@DPTB        ;LOAD THE TX BUFFER
002450  017701  176654                  03100  1$:     MOV     @DPTS,R1
002454  042701  164777                  03200          BIC     #^C<13000>,R1
002460  022701  013000                  03300          CMP     #13000,R1
002464  001406                          03400          BEQ     2$
002466  005202                          03500          INC     R2              ;UPDATE DELAY
002470  001367                          03600          BNE     1$              ;IS IT DONE?
002472  104001                          03700          HLT     1               ;ERROR REQUEST TO SEND,CLEAR TO
                                        03800                                  ;SEND AND MODEM READY NOT UP.
002474  012737  000005  001120          03900          MOV     #5,TEMP12
002502  005002                          04000  2$:     CLR     R2              ;SET FOR TIME OUT
002504  005202                          04100          INC     R2              ;DELAY
002506  001376                          04200          BNE     .-2             ;
002510  032777  013000  176612          04300          BIT     #13000,@DPTS    ;ARE THEY GONE^
002516  001404                          04400          BEQ     3$
002520  005337  001120                  04500          DEC     TEMP12
002524  001366                          04600          BNE     2$
002526  104000                          04700          HLT
                                        04800
                                        04900   ;VERIFY THAT THE SETTING OF "TERMINAL READY" BRINGS
                                        05000   ;UP "RING" AND "CARRIER DOWN" ALSO VERIFY THAT
```

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965                                             05100   ;CLEARING "TERMINAL READY" BRINGS DOWN "RING"
966                                             05200   ;AND "CARRIER DOWN".
967                                             05300
968  002530  012777  000001  176572             05400   3$:     MOV     #BIT0,@DPTS     ;SET TERMINAL READY
969  002536  104401  001500                     05500           DELAY   ,1500           ;WAIT
970  002542  017701  176562                     05600           MOV     @DPTS,R1        ;GET WORD
971  002546  042701  153776                     05700           BIC     #^C<24001>,R1   ;CLEAR UNWANTED BITS
972  002552  022701  024001                     05800           CMP     #24001,R1       ;DID RING AND CARRIER DOWN SET?
973  002556  001401                             05900           BEQ     .+4             ;YES
974  002560  104001                             06000           HLT     1               ;NO--TYPE ERROR
975  002562  042777  000001  176540             06100           BIC     #BIT0,@DPTS     ;CLEAR TERMINAL READY
976  002570  104401  001500                     06200           DELAY   ,1500           ;WAIT
977  002574  022777  120000  176526             06300           CMP     #120000,@DPTS   ;DID THEY CLEAR?
978  002602  001401                             06400           BEQ     .+4             ;YES
979  002604  104000                             06500           HLT                     ;NO--TYPE ERROR
980                                             06600
981                                             06700   ;NOW TEST THAT DATA CAN BE TRANSFERED.
982                                             06800   ;A BINARY COUNT PATTERN WILL BE TRANSMITTED AND RECEIVED
983                                             06900   ;WITH OUT THE USE OF THE SOFTWARE CLOCK.
984                                             07000
985  002606  005037  001102                     07100           CLR     TEMP1           ;CLEAR OUT INFO
986  002612  005037  001104                     07200           CLR     TEMP2           ;DITTO
987  002616  004737  006450                     07300           JSR     PC,SEQ.DATA     ;GO RUN SEQUENTIAL DATA TEST
989  002622  104400                             07400           SCOPE
```

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                                                07600   ;THIS IS THE SETUP FOR THE BAUD RATE TEST USING THE DP
                                                07700   ;*************************************************************
002624  012737  000372  001224                08000   NOT60:  MOV     #250.,CLKSET    ;250 HERTZ SETUP
002632  000137  004462                          07900           JMP     KWSETUP
002636  012737  000340  177776                08000   BAUD:   MOV     #340,PS         ;SET PROCESSOR STATUS = 7
002644  012706  001050                          08100           MOV     #STACK,SP       ;SET UP STACK
002650  000005                                  08200   RX:     RESET
002652  012777  003004  176456                08300   DPSETUP:MOV     #CON.RX,@DPRIV  ;SETUP RX VECTOR
002660  012777  000340  176452                08400           MOV     #340,@DPRP      ;PROCESSOR STATUS = 7
002666  012777  003016  176446                08500           MOV     #N.TRAP,@DPTIV  ;SETUP TX TRAPCATCHER
002674  012777  000340  176442                08600           MOV     #340,@DPTP      ;PROCESSOR STATUS = 7
002702  012737  177777  001226                08700           MOV     #-1,INTCNT      ;ONCE ONLY
002710  112777  000100  176404                08800           MOVB    #100,@DPRS      ;TURN ON RECEIVER
002716  112777  000252  176402                08900   TX:     MOVB    #252,@SYNC      ;SET SYNC CHARACTER
002724  112777  000252  176400                09000           MOVB    #252,@DPTB      ;LOAD TX BUFFER
002732  005037  001222                        09100           CLR     CHCNT           ;CLEAR CHARACTER COUNTER
                                                09200
002736  004737  005456                        09300           JSR     PC,CLOCK        ;FIND OUT IF KW11 IS AVAILABLE
002742  005737  001212                        09400           TST     NO.CLOCK
002746  001002                                09500           BNE     1$              ;YES
002750  000137  003042                        09600           JMP     TST.Z           ;NO,CHECK SW 14 FOR SCOPE LOOP
002754                                        09700   1$:
002754  104410                                                INSTR                   ;OUTPUT MESSAGE & GET INPUT STRING
002756  012600                                                MCPS                    ;MESSAGE
002760  104412                                                SETFLG                  ;SET FLAG BASED UPON INPUT STRING
002762  001214                                                CPSFLG                  ;THIS FLAG
002764  105737  001214                        09800           TSTB    CPSFLG          ;IS AC 50 OR 60 HERTZ
002770  001715                                09900           BEQ     NOT60           ;50 HERTZ
002772  012737  000454  001224                10000           MOV     #300.,CLKSET    ;60 HERTZ
003000  000137  004462                        10100           JMP     KWSETUP         ;GO SETUP KW
                                                10200
                                                10300   ;THIS IS THE BAUD RATE INTERRUPT SVC ROUTINE
                                                10400   ;*************************************************
003004  005237  001222                        10500   CON.RX: INC     CHCNT           ;COUNT FOR BAUD RATE CHECK
003010  005777  176310                        10600           TST     @DPRB           ;CLR BUFFER
003014  000002                                10700           RTI
003016  011637  006012                        10800   N.TRAP: MOV     (SP),TRP.PC     ;TRAPCATCHER FOR TX INTERRUPT
003022  104010                                10900           HLT     10
003024  000002                                11000           RTI
003026  032737  040000  177570                11100   SW14.B: BIT     #BIT14,SWR      ;FIND OUT IF BAUD RATE CHECK IS WANTED
003034  001402                                11200           BEQ     TST.Z           ;NOT YET
003036  000137  003072                        11300           JMP     OUT.PT          ;YES
003042                                        11400   TST.Z:
003042  104410                                                INSTR                   ;OUTPUT MESSAGE & GET INPUT STRING
003044  012663                                                MRBAUD                  ;MESSAGE
003046  104412                                                SETFLG                  ;SET FLAG BASED UPON INPUT STRING
003050  001216                                                BAUDFLG                 ;THIS FLAG
003052  105737  001216                        11500           TSTB    BAUDFLG         ;DO YOU STILL WANT TO RUN BAUD TEST?
003056  001412                                11600           BEQ     SWMP            ;NO
003060  104403  012535                        11700           TYPE    ,MSCOPBAUD      ;YES,FIND OUT IF SWITCH 14 IS UP
003064  000000                                11800           HALT                    ;WAIT FOR OPR TO PUT UP SW 14
003066  000137  003026                        11900           JMP     SW14.B
003072  112777  000103  176230                12000   OUT.PT: MOVB    #103,@DPTS      ;TURN ON TRANSMITTER
003100  000137  003026                        12100           JMP     SW14.B
003104  000137  005700                        12200   SWMP:   JMP     MAINPR
```

```
 1044                                          12400  ;;*****************************************************
 1045                                          12500
 1046                                          12600          ;;DU11 TEST FOR THE DFC-11A
 1047                                          12700
 1048                                          12800  ;;*****************************************************
 1049                                          12900
 1050                                          13000  ;;THIS TEST VERIFYS THAT THE DFC-11A IS CLOCKING DATA
 1051                                          13100  ;;IN & OUT OF THE DU11    IT ALSO VERIFY THAT RING,CARRIER,
 1052                                          13200  ;;CLEAR TO SEND,DATA TERMINAL READY,AND REQUEST TO SEND
 1053                                          13300  ;;SIGNALS ARE WORKING CORRECTLY
 1054                                          13400  ;;NOTE: THE BC05C MODEM CABLE MUST BE ATTACHED TO
 1055                                          13500  ;;  THE DFC-11A AND MUST BE TERMINATED WITH H315 CONNECTOR
 1056                                          13600  ;;MODE:  ISYMOD (ISOCRONOUS)
 1057                                          13700  ;;LENGTH:  EIGHT
 1058                                          13800  ;;THIS TEST USES BOTH THE RECEIVER & TRANSMITTER LOGIC OF THE DU11
 1059  003110  032737  000010  177570          13900  DU11.A: BIT     #BIT3,SWR       ;TEST BIT 3
 1060  003116  001402                          14000          BEQ     64$
 1061  003120  000137  003512                  14100          JMP     DU11.B          ;JUMP AROUND
 1062  003124                                  14200  64$:
 1063                                                 ;*************
 1064                                                 ;             *
 1065                                                 ; TEST 2
 1066                                                 ;             *
 1067                                                 ;*************
 1068                                                 ;*****************************************************************
 1069  003124  012737  000002  001072                 TST2:   MOV     #2,TSTNO
 1070  003132  012737  003512  001062                         MOV     #TST3,NEXT
 1071  003140  052777  000400  176212  14400                 BIS     #MRESET,@TXCSR  ;MASTER RESET
 1072  003146  012777  000000  176202  14500                 MOV     #ISYMOD,@PARCSR ;LOAD THE MODE
 1073                                  14600
 1074  003154  052777  000400  176176  14700                 BIS     #MRESET,@TXCSR  ;MASTER RESET
 1075  003162  012777  006026  176166  14800                 MOV     #ISYMOD!EIGHT!NOPAR!26,@PARCSR  ;LOAD THE MODE.
 1076                                  14900                 ;# OF BITS PER CHAR,PARITY SENSE(NO PARITY),
 1077                                  15000                 ;&SYNC CHARACTER (26)
 1078  003170  042777  003010  176154  15100                 BIC     #SRD!DSR!STD, @RXCSR
 1079  003176  012700  073016          15200                 MOV     #RING!CTS!CARDET!SRD!DSR!STD!RTS!DTR,R0 ;SET UP FOR ERROR MSG
 1080  003202  013737  001352  001110  15300                 MOV     RXCSR,TEMP4                             ;DITTO
 1081  003210  012737  040000  001106  15400                 MOV     #40000.,TEMP3   ;SET UP FOR CABLE DELAY + CTS DELAY
 1082                                  15500                                         ;OF .3 SEC  MAX.
 1083  003216  052777  000016  176126  15600                 BIS     #DTR!RTS!STD,@RXCSR     ;SET DTR & RTS & STD
 1084  003224  005337  001106          15700  1$:     DEC     TEMP3
 1085  003230  001002                  15800                 BNE     6$
 1086  003232  104002                  15900                 HLT     2       ;RING,CTS,CARDET,SRD,DSR,STD,RTS,OR DTR FAILED TO SET
 1087                                  16000                                 ;CHECK THE BC05C CABLE
 1088  003234  000406                  16100                 BR      7$              ;GO RUN THE TEST ANYWAY !
 1089  003236  017701  176110          16200  6$:     MOV     @RXCSR,R1               ;SAVE ACTUAL
 1090  003242  042701  104761          16300                 BIC     #^C<RING!CTS!CARDET!SRD!DSR!STD!RTS!DTR>,R1     ;STRIP JUNK
 1091  003246  020001                  16400                 CMP     R0,R1           ;GOT THEM YET ?
 1092  003250  001365                  16500                 BNE     1$              ;NO NOT YET MAYBE THE BC05C
 1093                                  16600                                         ;CABLE IS NOT ON OR TERMINATED WITH H315
 1094  003252  112777  000025  176102  16700  7$:     MOVB    #25,@TXDBUF     ;LOAD THE CHAR
 1095  003260  012777  003360  176076  16800                 MOV     #2$,@DURIV      ;SET UP TRAPCATCHER
 1096  003266  012777  000340  176072  16900                 MOV     #340,@DURIS     ;SET LEVEL 7
 1097  003274  005037  177776          17000                 CLR     P5              ;ALLOW INTERRUPTS
 1098  003300  013737  001354  001110  17100                 MOV     RXDBUF,TEMP4    ;SET UP FOR ERROR MESSAGE
 1099  003306  012700  000025          17200                 MOV     #25,R0          ;EXPECTED
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 1100  003312  012777  000020  176040  17300          MOV     #USER!SEND,@TXCSR       ;OK  NOW LOAD SEND & USER MODE
 1101  003320  052777  000120  176024  17400          BIS     #SYNSCH!RINTEN,@RXCSR   ;SET SEARCH SYNC &
 1102                                  17500                                          ;RECEIVER INTERRUPT
 1103                                  17600                                          ;ENABLE & WAIT FOR INTERRUPT
 1104  003326  005037  001112          17700          CLR     TEMP5
 1105  003332  005002                  17800  3$:     CLR     R2
 1106  003334  005202                  17900          INC     R2                      ;WAIT FOR INTERRUPT
 1107  003336  001376                  18000          BNE     .-2
 1108  003340  005237  001112          18100          INC     TEMP5
 1109  003344  022737  000003  001112  18200          CMP     #3,TEMP5
 1110  003352  002367                  18300          BGE     3$
 1111  003354  104004                  18400          HLT     4                       ;INTERRUPT DID NOT OCCUR
 1112  003356  000422                  18500          BR      4$
 1113                                  18600
 1114                                  18700  ;THE FOLLOWING IS THE INTERRUPT SVC ROUTINE
 1115  003360  012737  000340  177776  18800  2$:     MOV     #340,PS                 ;PREVENT INTERRUPTS
 1116  003366  017704  175760          18900          MOV     @RXCSR,R4               ;SAVE
 1117  003372  017701  175756          19000          MOV     @RXDBUF,R1              ;ACTUAL
 1118  003376  013777  001366  175760  19100          MOV     DURIS,@DURIV            ;RESTORE TRAPCATCHER
 1119  003404  005077  175756          19200          CLR     @DURIS
 1120  003410  012716  003454          19300          MOV     #5$,(SP)                ;SET UP RETURN
 1121  003414  042777  000100  175730  19400          BIC     #RINTEN,@RXCSR          ;CLR INTERRUPT ENABLE
 1122  003422  000002                  19500          RTI
 1123                                  19600
 1124  003424  042777  000100  175720  19700  4$:     BIC     #PINTEN,@RXCSR          ;CLR INTERRUPT ENABLE
 1125  003432  012737  000340  177776  19800          MOV     #340,PS ;PREVENT INTERRUPTS
 1126  003440  013777  001366  175716  19900          MOV     DURIS,@DURIV            ;RESTORE TRAPCATCHER
 1127  003446  005077  175714          20000          CLR     @DURIS
 1128  003452  000416                  20100          BR      8$
 1129                                  20200
 1130  003454  020001                  20300  5$:     CMP     R0,R1
 1131  003456  001401                  20400          BEQ     .+4
 1132  003460  104002                  20500          HLT     2                       ;CHARACTERS DID NOT MATCH
 1133                                  20600                                          ;IF DU/DFC ARE RUNNING IN CLOCK
 1134                                  20700                                          ;RECOVERY ABOVE 9600 BAUD AND THIS
 1135                                  20800                                          ;ERROR OCCURS PUT SW03 = 1.  THIS
 1136                                  20900                                          ;ERROR IS LEGITIMATE  ONLY IF BELOW
 1137                                  21000                                          ;9600 BAUD.
 1138  003462  013737  001352  001110  21100          MOV     RXCSR,TEMP4             ;SETUP FOR ERROR MESSAGE
 1139  003470  012700  000200          21200          MOV     #RXDONE,R0                      ;EXPECTED
 1140  003474  010401                  21300          MOV     R4,R1                   ;ACTUAL
 1141  003476  042701  177577          21400          BIC     #^C<RXDONE>,R1          ;SAVE ONLY RXDONE
 1142  003502  020001                  21500          CMP     R0,R1
 1143  003504  001401                  21600          BEQ     .+4
 1144  003506  104006                  21700          HLT     6                       ;FALSE INTERRUPT
 1145                                  21800
 1146  003510  104400                  21900  8$:     SCOPE
 1147
```

```
 1148                                   00200   ;;THIS TEST VERIFYS THAT THE DFC11A IS CLOCKING DATA IN & OUT
 1149                                   00300   ;;OF THE DU11
 1150                                   00400   ;;NOTE: THE BC05C MODEM CABLE MUST BE ATTACHED TO THE DFC11A
 1151                                   00500   ;; & MUST BE TERMINATED WITH H315 CONNECTOR
 1152                                   00600   ;;MODE: SYNINT
 1153                                   00700   ;;LENGTH: EIGHT
 1154                                   00800   ;;THIS TEST USES BOTH THE RECEIVER & TRANSMITTER LOGIC
 1155                                   00900   ;;************************************************
 1156  003512                           01000   DU11.B:
 1157                                           ;*************
 1158                                           ;            *
 1159                                           ; TEST 3
 1160                                           ;            *
 1161                                           ;*************
 1162                                           ;*********************************************************************
 1163  003512  012737  000003  001072           TST3:   MOV     #3,TSTNO
 1164  003520  012737  007736  001062                   MOV     #.EOP,NEXT
 1165  003526  052777  000400  175624  01200            BIS     #MRESET,@TXCSR  ;MASTER RESET
 1166  003534  012777  030000  175614  01300            MOV     #SYNINT,@PARCSR ;SET THE MODE
 1167  003542  052777  000400  175610  01400            BIS     #MRESET,@TXCSR  ;MASTER RESET
 1168  003550  012777  000020  175602  01500            MOV     #USER!SEND,@TXCSR       ;SET USER MODE AND SEND
 1169  003556  012777  036026  175572  01600            MOV     #SYNINT!EIGHT!NOPAR!26,@PARCSR  ;SET SYNC INTERNAL,
 1170                                   01700                                           ;EIGHT BITS PER CHAR,NO PARITY,
 1171                                   01800                                           ;AND "26" FOR THE SYNC CHARACTER
 1172  003564  052777  000436  175560  01900            BIS     #SYNSCH!STPSYN!DTR!RTS!STD,@RXCSR       ;SET SEARCH SYNC &
 1173                                   02000                                           ;STRIP SYNC SO THAT RXDONE ASSERTS
 1174                                   02100                                           ;WHEN CHAR "25" ARRIVES AND NOT BEFORE...
 1175                                   02200                                           ;...THEREFORE.SET STRIP SYNC
 1176                                   02300                                           ;ALSO SET DTR, RTS,& STD FOR THE DFC11A
 1177                                   02400
 1178                                   02500                   ;.............WAIT FOR SYNSCH TO BE
 1179                                   02600                   ;CLOCKED IN BY CLK
 1180  003572  005037  001112           02700                   CLR     TEMP5
 1181  003576  005002                   02800                   CLR     R2
 1182  003600  005202                   02900                   INC     R2                      WAIT
 1183  003602  001376                   03000                   BNE     .-2
 1184  003604  005237  001112           03100                   INC     TEMP5
 1185  003610  022737  000003  001112   03200                   CMP     #3,TEMP5
 1186  003616  002367                   03300                   BGE     .-20            ;GO BACK TO CLR R2 AND WAIT SOME MORE
 1187  003620  012777  004022  175536   03400                   MOV     #2$,@DURIV      ;SET UP TRAPCATCHER
 1188  003626  012777  000340  175532   03500                   MOV     #340,@DURIS     ;SET PROCESSOR STATUS = 7
 1189  003634  012777  004100  175526   03600                   MOV     #3$,@DUTIV      ;SET UP TRAPCATCHER
 1190  003642  012777  000340  175522   03700                   MOV     #340,@DUTIS     ;SET PROCESSOR STATUS = 7
 1191  003650  005037  177776           03800                   CLR     PS              ;ALLOW INTERRUPTS
 1192  003654  013737  001354  001110   03900                   MOV     RXDBUF,TEMP4    ;SET UP FOR ERROR MSG
 1193  003662  012700  000025           04000                   MOV     #25,R0          ;EXPECTED CHAR
 1194  003666  012737  000003  001106   04100                   MOV     #3,TEMP3        ;# OF SYNC CHARS TO GET INTO
 1195                                   04200                   ;SYNCRONIZATION
 1196  003674  052777  000100  175450   04300   9$:     BIS     #RINTEN,@RXCSR  ;SET INTERRUPT ENABLES
 1197  003702  052777  000100  175450   04400           BIS     #TXINTE,@TXCSR  ;
 1198  003710  000137  003726           04500           JMP     8$              ;THE FIRST XMIT INTERRUPT SHOULD COME
 1199                                   04600                                   ;FROM TXDONE = 1 AFTER A MASTER RESET
 1200  003714  112777  000026  175440   04700   1$:     MOVB    #26,@TXDBUF     ;LOAD SYNC CHAR
 1201  003722  005037  001112           04800           CLR     TEMP5
 1202  003726  005002                   04900   8$:     CLR     R2              ;WAIT FOR INTERRUPT
 1203  003730  005202                   05000           INC     R2
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1204  003732  001376                  05100          BNE     .-2             ;CONTINUE TO WAIT
1205  003734  005237  001112          05200          INC     TEMP5
1206  003740  022737  000003  001112  05300          CMP     #3,TEMP5        ;DONE YET?
1207  003746  002367                  05400          BGE     8$              ;GO BACK,NOT YET
1208  003750  012737  000340  177776  05500          MOV     #340,PS         ;PREVENT INTERRUPTS
1209  003756  042777  000100  175374  05600          BIC     #TXINTE,@TXCSR  ;CLR INTR ENABLES
1210  003764  042777  000100  175360  05700          BIC     #RINTEN,@RXCSR  ;DITTO
1211  003772  013777  001366  175364  05800          MOV     DURIS,@DURIV    ;RESTORE TRAPCATCHER
1212  004000  005077  175362          05900          CLR     @DURIS
1213  004004  013777  001372  175356  06000          MOV     DUTIS,@DUTIV    ;RESTORE INTERRUPT CATCHER
1214  004012  005077  175354          06100          CLR     @DUTIS
1215  004016  104003                  06200          HLT     3               ;TXDONE INTERRUPT FAILED TO OCCUR
1216                                  06300                                  ;WATCH OUT HERE::: THIS FAILURE MAY
1217                                  06400                                  ;ALSO BE CAUSED BY TRANSMIT DATA NOT
1218                                  06500                                  ;BEING CLOCKED OUT.  I.E.  TXDONE
1219                                  06600                                  ;NOT RE-ASCERTING SO THAT THE 2ND
1220                                  06700                                  ;SYNC CHARACTER CAN BE LOADED
1221  004020  000521                  06800          BR      7$              ;GET OUT OF THE TEST
1222                                  06900
1223                                  07000  ;THE FOLLOWING IS THE RECEIVER INTERRUPT SVC ROUTINE
1224  004022                          07100  2$:
1225  004022  017704  175324          07200          MOV     @RXCSR,R4       ;SAVE
1226  004026  017701  175322          07300          MOV     @RXDBUF,R1      ;ACTUAL
1227  004032  013777  001366  175324  07400          MOV     DURIS,@DURIV    ;RESTORE TRAPCATCHER
1228  004040  005077  175322          07500          CLR     @DURIS          ;CLEAR OUT INTERRUPTS
1229  004044  013777  001372  175316  07600          MOV     DUTIS,@DUTIV
1230  004052  005077  175314          07700          CLR     @DUTIS
1231  004056  012716  004230          07800          MOV     #4$,(SP)        ;SET UP RETURN LOCATION
1232  004062  042777  000100  175262  07900          BIC     #RINTEN,@RXCSR  ;CLR INTERRUPT ENABLES
1233  004070  042777  000100  175262  08000          BIC     #TXINTE,@TXCSR  ;DITTO
1234  004076  000002                  08100          RTI
1235                                  08200  ;END OF RECEIVER INTERRUPT SVC ROUTINE
1236                                  08300  ;....THE FOLLOWING IS THE XMITTER INTERRUPT SVC ROUTINE
1237  004100  005337  001106          08400  3$:     DEC     TEMP3           ;# OF SYNC CHARACTERS LEFT
1238  004104  100403                  08500          BMI     5$
1239  004106  012716  003714          08600          MOV     #1$,(SP)        ;SET UP RETURN LOCATION
1240                                  08700                                  ;(LOAD SYNC CHARACTER AGAIN)
1241  004112  000002                  08800          RTI
1242  004114  012716  004122          08900  5$:     MOV     #6$,(SP)        ;SET UP RETURN LOCATION
1243  004120  000002                  09000          RTI
1244                                  09100  ;END OF XMITTER INTERRUPT SVC ROUTINE
1245  004122  112777  000025  175232  09200  6$:     MOVB    #25,@TXDBUF     ;LOAD CHARACTER
1246  004130  042777  000100  175222  09300          BIC     #TXINTE,@TXCSR  ;CLR INTR ENABLE
1247  004136  005037  001112          09400          CLR     TEMP5
1248  004142  005002                  09500  10$:    CLR     R2              ;WAIT FOR INTERRUPT(RECEIVER)
1249  004144  005202                  09600          INC     R2
1250  004146  001376                  09700          BNE     .-2             ;CONTINUE TO WAIT
1251  004150  005237  001112          09800          INC     TEMP5
1252  004154  022737  000003  001112  09900          CMP     #3,TEMP5        ;DONE YET?
1253  004162  002367                  10000          BGE     10$             ;GO BACK,NOT YET
1254  004164  012737  000340  177776  10100          MOV     #340,PS         ;PREVENT INTERRUPTS
1255  004172  042777  000100  175152  10200          BIC     #RINTEN,@RXCSR  ;CLR INTR ENABLE
1256  004200  013777  001366  175156  10300          MOV     DURIS,@DURIV    ;RESTORE TRAPCATCHER
1257  004206  005077  175154          10400          CLR     @DURIS
1258  004212  013777  001372  175150  10500          MOV     DUTIS,@DUTIV
1259  004220  005077  175146          10600          CLR     @DUTIS
```

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 1260  004224  104034                  10700          HLT     4                ;RECEIVER INTR FAILED TO OCCUR
 1261  004226  000416                  10800          BR      7$               ;GET OUT OF TEST
 1262  004230  020001                  10900    4$:   CMP     R0,R1
 1263  004232  001401                  11000          BEQ     .+4
 1264  004234  104002                  11100          HLT     2                ;CHARACTERS DID NOT MATCH
 1265  004236  013737  001352  001110  11200          MOV     RXCSR,TEMP4      ;SET UP FOR ERROR MSG
 1266  004244  012700  000200          11300          MOV     #RXDONE,R0       ;EXPECTED RXDONE
 1267  004250  010401                  11400          MOV     R4,R1            ;ACTUAL
 1268  004252  042701  177577          11500          BIC     #^C<RXDONE>,R1   ;SAVE ONLY RXDONE
 1269  004256  020001                  11600          CMP     R0,R1
 1270  004260  001401                  11700          BEQ     .+4
 1271  004262  104006                  11800          HLT     6                ;FALSE INTERRUPT
 1272  004264  012737  000340  177776  11900    7$:   MOV     #340,PS          ;INHIBIT INTERRUPTS
 1273  004272  104400                  12000          SCOPE
 1274
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                                                02100   ;;*************************************************************
                                                02200
                                                02300                   ;; BAUD RATE TEST
                                                02400
                                                02500   ;;*************************************************************
                                                02600
                                                02700   ;;THIS TEST DETERMINES THE BAUD RATE OF THE DFC USING
                                                02800   ;;A KW11-L/P AND DU/DP-11 AND PRINTS OUT THAT RATE.  THE
                                                02900   ;;TEST ALSO GIVES AN ERROR TYPEOUT IF THE BAUD RATE IS
                                                03000   ;;OFF BY MORE THAN 10%.
                                                03100   ;;MODE:  IDLE SYNC
                                                03200   ;;LENGTH:  EIGHT
                                                03300   ;;THIS TEST USES BOTH TRANSMITTER AND RECEIVER LOGIC.
                                                03400   ;;A SCOPE LOOP IS AVAILABLE BY USING SWITCH 14.
                                                03500   ;;MAKE SURE THE PROPER CONNECTOR IS INSTALLED!!!!!!  SEE
                                                03600   ;;SECTION 1.0!!!!!
                                                03700
                                                03800
                                                03900
                                                04000
                                                04100
1296  004274  012737  000340  177776  04200   START:  MOV     #340,PS         ;PREVENT INTERRUPTS
1297  004302  012706  001050          04300           MOV     #STACK,SP       ;SET UP STACK
1298  004306  000005                  04400   TXSETUP:RESET
1299  004310  005037  001222          04500           CLR     CHCNT
1300  004314  012737  177777  001226  04600           MOV     #-1,INTCNT
1301  004322  052777  000400  175030  04700           BIS     #MRESET,@TXCSR  ;MASTER RESET TRANSMITTER
1302  004330  012777  026252  175020  04800           MOV     #026252,@PARCSR ;LOAD THE MODE,WORD LENGTH
1303  004336  000240                  04900           NOP                     ;PARITY SENSE AND SYNC CHARACTER
1304  004340  012777  000040  175012  05000           MOV     #40,@TXCSR      ;ASSERT DNA INTEB
1305  004346  042777  000100  175004  05100           BIC     #100,@TXCSR     ;CLR TXINTEB
1306  004354  112777  000252  175000  05200           MOVB    #252,@TXDBUF    ;LOAD SYNC CHAR INTO BUFFER
1307  004362  052777  000122  174762  05300   RXSETUP:BIS     #122,@RXCSR     ;SET UP RECEIVER
1308  004370  012777  005770  174766  05400   DUSETUP:MOV     #CNT.RX,@DURIV  ;SET
1309  004376  012777  000340  174762  05500           MOV     #340,@DURIS     ;    UP
1310  004404  012777  006002  174756  05600           MOV     #NO.TRAP,@DUTIV ;       FOR DU
1311  004412  012777  000340  174752  05700           MOV     #340,@DUTIS     ;                INTERRUPTS
1312                                  05800
1313  004420  004737  005456          05900           JSR     PC,CLOCK        ;GO CHECK FOR CLOCK
1314  004424  005737  001212          06000           TST     NO.CLOCK        ;IS IT THERE?
1315  004430  001002                  06100           BNE     1$              ;NO,CHECK IF SCOPE LOOP WANTED
1316  004432  000137  005634          06200           JMP     SW14A
1317  004436                          06300   1$:
1318  004436  104410                                  INSTR                   ;OUTPUT MESSAGE & GET INPUT STRING
1319  004440  012600                                  MCPS                    ;MESSAGE
1320  004442  104412                                  SETFLG                  ;SET FLAG BASED UPON INPUT STRING
1321  004444  001214                                  CPSFLG                  ;THIS FLAG
1322  004446  105737  001214          06400           TSTB    CPSFLG          ;TEST FOR 50/60 CYCLES
1323  004452  001500                  06500           BEQ     NO60CPS         ;50 CYCLE MACHINE
1324  004454  012737  000454  001224  06600           MOV     #300.,CLKSET    ;SETUP FOR 60 CYCLE COUNT
1325  004462  022737  177546  001212  06700   KWSETUP:CMP     #177546,NO.CLOCK;FIND OUT WHICH CLOCK
1326  004470  001402                  06800           BEQ     KW11L           ;KW11L SETUP
1327  004472  000137  005572          06900           JMP     KW11P           ;KW11P SETUP
1328  004476  012737  004552  000100  07000   KW11L:  MOV     #INTSVC,@#100   ;SET UP SERVICE ROUTINE
1329  004504  012737  000340  000102  07100           MOV     #340,@#102      ;SET UP LEVEL 7
1330  004512  012737  177546  001230  07200           MOV     #177546,CLKSTATUS  ;KW11L CSR
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 1331  004520  012777  000100  174502  07300          MOV     #100,@CLKSTATUS ;SETUP FOR CLOCK INTERRUPT
 1332  004526  005037  177776          07400  BEGIN:  CLR     PS              ;ALLOW INTERRUPTS
 1333  004532  005000                  07500          CLR     R0
 1334  004534  012701  000005          07600          MOV     #5,R1           ;WAIT FOR INTERRUPTS
 1335  004540  005300                  07700  1$:     DEC     R0              ;SO THAT WE CAN
 1336  004542  001376                  07800          BNE     1$              ;SYNC UP KW AND DEVICE
 1337  004544  005301                  07900          DEC     R1
 1338  004546  001374                  09000          BNE     1$
 1339  004550  104000                  08100          HLT                     ;TOOK TOO LONG---TIME OUT!!!!
 1340  004552  042777  000200  174450  08200  INTSVC: BIC     #200,@CLKSTATUS ;CLEAR THE MONITOR
 1341  004560  005237  001226          08300          INC     INTCNT          ;COUNT INTERRUPTS
 1342  004564  001015                  08400          BNE     EEE             ;FIRST TIME?
 1343  004566  005737  001234          08500          TST     TAG             ;DP OR DU?
 1344  004572  001404                  08600          BEQ     INTS.A          ;DU
 1345  004574  052777  000103  174526  08700          BIS     #103,@DPTS      ;YES,START OUTPUT OF DP
 1346  004602  000403                  08800          BR      INTS.B          ;KEEP GOING WITH TEST
 1347  004604  112777  000020  174546  08900  INTS.A: MOVB    #20,@TXCSR      ;YES, START OUTPUT OF DU
 1348  004612  012716  004526          09000  INTS.B: MOV     #BEGIN,(SP)     ;CONTINUE TO RUN TEST
 1349  004616  000002                  09100          RTI
 1350  004620  023737  001224  001226  09200  EEE:    CMP     CLKSET,INTCNT   ;ARE WE DONE?
 1351  004626  001403                  09300          BEQ     2$              ;YES
 1352  004630  012716  004526          09400          MOV     #BEGIN,(SP)     ;NO,CONTINUE TO TEST
 1353  004634  000002                  09500          RTI
 1354  004636  042777  000101  174364  09600  2$:     BIC     #101,@CLKSTATUS ;SHUT OFF CLOCK
 1355  004644  012716  004666          09700          MOV     #BDTAG,(SP)     ;GO DETERMINE BAUD RATE
 1356  004650  000005                  09800          RESET
 1357  004652  000002                  09900          RTI
 1358  004654  012737  000372  001224  10000  N060CPS:MOV     #250.,CLKSET    ;50 CYCLE SETUP
 1359  004662  000137  004462          10100          JMP     KWSETUP
 1360  004666                          10500  BDTAG:
 1361  004666  012737  013112  004732                  MOV     #M19200,17$
 1362  004674  023727  001222  031620                  CMP     CHCNT,#13200.   ;COMPARE TO THIS HIGH END
 1363  004702  101404                                  BLOS    .+12            ;ANSWER IS TOO HIGH
 1364  004704  104403  013205                          TYPE    ,MWRONGRT
 1365  004710  000137  005634                          JMP     $W14A
 1366  004714  023727  001222  025060                  CMP     CHCNT,#10800.   ;COMPARE TO THIS LOW END
 1367  004722  103410                                  BLO     18$             ;NOT HERE
 1368  004724  104403  013306                          TYPE    ,MBAUDRT        ;TYPE THIS RATE
 1369  004730  104403                                  TYPE
 1370  004732  000000                  17$:    0
 1371  004734  104403  013334                          TYPE    ,MRITE
 1372  004740  000137  005700                          JMP     MAINPR
 1373  004744                          18$:
 1374  004744  012737  013122  005010                  MOV     #M9600,1$
 1375  004752  023727  001222  014710                  CMP     CHCNT,#6600.    ;COMPARE TO THIS HIGH END
 1376  004760  101404                                  BLOS    .+12            ;ANSWER IS TOO HIGH
 1377  004762  104403  013205                          TYPE    ,MWRONGRT
 1378  004766  000137  005634                          JMP     $W14A
 1379  004772  023727  001222  012430                  CMP     CHCNT,#5400.    ;COMPARE TO THIS LOW END
 1380  005000  103410                                  BLO     2$              ;NOT HERE
 1381  005002  104403  013306                          TYPE    ,MBAUDRT        ;TYPE THIS RATE
 1382  005006  104403                                  TYPE
 1383  005010  000000                  1$:     0
 1384  005012  104403  013334                          TYPE    ,MRITE
 1385  005016  000137  005700                          JMP     MAINPR
 1386  005022                          2$:
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1387  005022  012737  013131  005066                  MOV     #M4800,3$
1388  005030  023727  001222  006344                  CMP     CHCNT,#3300.    ;COMPARE TO THIS HIGH END
1389  005036  101404                                  BLOS    .+12            ;ANSWER IS TOO HIGH
1390  005040  104403  013205                          TYPE    ,MWRONGRT
1391  005044  000137  005634                          JMP     $W14A
1392  005050  023727  001222  005214                  CMP     CHCNT,#2700.    ;COMPARE TO THIS LOW END
1393  005056  103410                                  BLO     4$              ;NOT HERE
1394  005060  104403  013306                          TYPE    ,MBAUDRT        ;TYPE THIS RATE
1395  005064  104403                                  TYPE
1396  005066  000000                          3$:     0
1397  005070  104403  013334                          TYPE    ,MRITE
1398  005074  000137  005700                          JMP     MAINPR
1399  005100                                  4$:
1400  005100  012737  013140  005144                  MOV     #M2400,5$
1401  005106  023727  001222  003162                  CMP     CHCNT,#1650.    ;COMPARE TO THIS HIGH END
1402  005114  101404                                  BLOS    .+12            ;ANSWER IS TOO HIGH
1403  005116  104403  013205                          TYPE    ,MWRONGRT
1404  005122  000137  005634                          JMP     $W14A
1405  005126  023727  001222  002506                  CMP     CHCNT,#1350.    ;COMPARE TO THIS LOW END
1406  005134  103410                                  BLO     6$              ;NOT HERE
1407  005136  104403  013306                          TYPE    ,MBAUDRT        ;TYPE THIS RATE
1408  005142  104403                                  TYPE
1409  005144  000000                          5$:     0
1410  005146  104403  013334                          TYPE    ,MRITE
1411  005152  000137  005700                          JMP     MAINPR
1412  005156                                  6$:
1413  005156  012737  013147  005222                  MOV     #M1200,7$
1414  005164  023727  001222  001471                  CMP     CHCNT,#825.     ;COMPARE TO THIS HIGH END
1415  005172  101404                                  BLOS    .+12            ;ANSWER IS TOO HIGH
1416  005174  104403  013205                          TYPE    ,MWRONGRT
1417  005200  000137  005634                          JMP     $W14A
1418  005204  023727  001222  001243                  CMP     CHCNT,#675.     ;COMPARE TO THIS LOW END
1419  005212  103410                                  BLO     8$              ;NOT HERE
1420  005214  104403  013306                          TYPE    ,MBAUDRT        ;TYPE THIS RATE
1421  005220  104403                                  TYPE
1422  005222  000000                          7$:     0
1423  005224  104403  013334                          TYPE    ,MRITE
1424  005230  000137  005700                          JMP     MAINPR
1425  005234                                  8$:
1426  005234  012737  013156  005300                  MOV     #M600,9$
1427  005242  023727  001222  000635                  CMP     CHCNT,#413.     ;COMPARE TO THIS HIGH END
1428  005250  101404                                  BLOS    .+12            ;ANSWER IS TOO HIGH
1429  005252  104403  013205                          TYPE    ,MWRONGRT
1430  005256  000137  005634                          JMP     $W14A
1431  005262  023727  001222  000521                  CMP     CHCNT,#337.     ;COMPARE TO THIS LOW END
1432  005270  103410                                  BLO     10$             ;NOT HERE
1433  005272  104403  013306                          TYPE    ,MBAUDRT        ;TYPE THIS RATE
1434  005276  104403                                  TYPE
1435  005300  000000                          9$:     0
1436  005302  104403  013334                          TYPE    ,MRITE
1437  005306  000137  005700                          JMP     MAINPR
1438  005312                                  10$:
1439  005312  012737  013164  005356                  MOV     #M300,11$
1440  005320  023727  001222  000317                  CMP     CHCNT,#207.     ;COMPARE TO THIS HIGH END
1441  005326  101404                                  BLOS    .+12            ;ANSWER IS TOO HIGH
1442  005330  104403  013205                          TYPE    ,MWRONGRT
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1443  005334  000137  005634                                    JMP     SW14A
1444  005340  023727  001222  000251                            CMP     CHCNT,#169.     ;COMPARE TO THIS LOW END
1445  005346  103410                                            BLO     12$             ;NOT HERE
1446  005350  104403  013306                                    TYPE    ,MBAUDRT        ;TYPE THIS RATE
1447  005354  104403                                            TYPE
1448  005356  000000                                    11$:    0
1449  005360  104403  013334                                    TYPE    ,MRITE
1450  005364  000137  005700                                    JMP     MAINPR
1451  005370                                            12$:
1452  005370  012737  013172  005434                            MOV     #M150,13$
1453  005376  023727  001222  000147                            CMP     CHCNT,#103.     ;COMPARE TO THIS HIGH END
1454  005404  101404                                            BLOS    .+12            ;ANSWER IS TOO HIGH
1455  005406  104403  013205                                    TYPE    ,MWRONGRT
1456  005412  000137  005634                                    JMP     SW14A
1457  005416  023727  001222  000125                            CMP     CHCNT,#85.      ;COMPARE TO THIS LOW END
1458  005424  103410                                            BLO     14$             ;NOT HERE
1459  005426  104403  013306                                    TYPE    ,MBAUDRT        ;TYPE THIS RATE
1460  005432  104403                                            TYPE
1461  005434  000000                                    13$:    0
1462  005436  104403  013334                                    TYPE    ,MRITE
1463  005442  000137  005700                                    JMP     MAINPR
1464  005446                                            14$:
1465  005446  104403  013205          11400                     TYPE    ,MWRONGRT       ;EITHER DEVICE DIDN'T TURN ON
1466                                  11500                                             ;OR COUNT WAS OFF BY MORE THAN 10 PERCENT
1467  005452  000137  005634          11600                     JMP     SW14A
1468                                  11700
1469                                  11800
1470                                  11900
1471                                  12000   ;ROUTINE TO FIND OUT IF EITHER KW11-P OR
1472                                  12100   ;KW11-L EXIST.  ENTERED BY "JSR PC,CLOCK"
1473                                  12200   ;*************************************************
1474  005456  013746  000004          12300   CLOCK:  MOV     @#4,-(SP)       ;SETUP FOR INTERRUPTS
1475  005462  013746  000006          12400           MOV     @#6,-(SP)       ;IN THIS ROUTINE
1476  005466  012737  005524  000004  12500           MOV     #2$,@#4         ;SETUP TO SEE IF KW11P
1477  005474  012737  000340  000006  12600           MOV     #340,@#6        ;PREVENT INTERRUPTS
1478  005502  005037  001212          12700           CLR     NO.CLOCK
1479  005506  005737  177546          12800   1$:     TST     @#177546        ;KW11-L CSR
1480  005512  000240                  12900           NOP                     ;WAIT
1481  005514  012737  177546  001212  13000           MOV     #177546,NO.CLOCK;THIS IS THE ONE
1482  005522  000416                  13100           BR      3$
1483  005524  012737  005552  000004  13200   2$:     MOV     #4$,@#4         ;SETUP TO CHECK KW11P
1484  005532  022626                  13300           CMP     (SP)+,(SP)+     ;POP STACK
1485  005534  005737  172540          13400           TST     @#172540        ;KW11-P CSR
1486  005540  000240                  13500           NOP                     ;WAIT
1487  005542  012737  172540  001212  13600           MOV     #172540,NO.CLOCK;THIS IS THE ONE
1488  005550  000403                  13700           BR      3$
1489  005552  104403  012506          13800   4$:     TYPE    ,MNOCLOCK       ;THERE IS NO CLOCK
1490  005556  022626                  13900           CMP     (SP)+,(SP)+     ;POP STACK
1491  005560  012637  000006          14000   3$:     MOV     (SP)+,@#6       ;RETURN ADDRESSES 4 AND 6 TO NORMAL
1492  005564  012637  000004          14100           MOV     (SP)+,@#4       ;DITTO
1493  005570  000207                  14200           RTS     PC
1494  005572  012737  004552  000104  14300   KW11P:  MOV     #INTSVC,@#104   ;SETUP FOR INTSVC RTN
1495  005600  012737  000340  000106  14400           MOV     #340,@#106      ;PREVENT INTERRUPTS
1496  005606  012737  177777  172542  14500           MOV     #177777,@#172542        ;PRESET COUNT SET BUFFER
1497  005614  012737  172540  001230  14600           MOV     #172540,CLKSTATUS       ;KW11P CSR
1498  005622  012777  000135  173400  14700           MOV     #135,@CLKSTATUS         ;SETUP INTER EN AND STATE
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 1499  005630  000137  004526          14800            JMP     BEGIN           ;GO START BAUD RATE CHECK
 1500  005634  032737  040000  177570  14900  SW14A:    BIT     #BIT14,SWR      ;FIND OUT IF SCOPE LOOP IS WANTED
 1501  005642  001402                  15000            BEQ     TESTZ
 1502  005644  000137  005704          15100            JMP     OUTPUT          ;RUN BAUD SCOPE LOOP
 1503  005650                          15200  TESTZ:
 1504  005650  104410                                   INSTR                   ;OUTPUT MESSAGE & GET INPUT STRING
 1505  005652  012663                                   MRBAUD                  ;MESSAGE
 1506  005654  104412                                   SETFLG                  ;SET FLAG BASED UPON INPUT STRING
 1507  005656  001216                                   BAUDFLG                 ;THIS FLAG
 1508  005660  105737  001216          15400            TSTB    BAUDFLG         ;WANT TO RUN BAUD TEST?
 1509  005664  001405                  15500            BEQ     MAINPR          ;NO
 1510  005666  104403  012535          15600            TYPE    .MSCOPBAUD
 1511  005672  000000                  15700            HALT                    ;WAIT FOR OPR TO PUT UP SW 14
 1512  005674  000137  005634          15800            JMP     SW14A
 1513  005700  000177  173326          15900  MAINPR:   JMP     @DD.A   ;JUMP TO MAIN PROGRAM
 1514                                  16000                          ;IF DU GO TO DU11.A,IF DP GO TO DP11.A
 1515  005704  005737  001234          16100  OUTPUT:   TST     TAG             ;DP OR DU?
 1516  005710  001404                  16200            BEQ     2$              ;DU
 1517  005712  052777  000103  173410  16300            BIS     #103,@DPTS      ;START OUTPUT OF DP
 1518  005720  000403                  16400            BR      1$              ;KEEP GOING WITH TEST
 1519  005722  012777  000020  173430  16500  2$:       MOV     #20,@TXCSR      ;TURN ON TRANSMITTER OF DU
 1520  005730  032737  040000  177570  16600  1$:       BIT     #BIT14,SWR      ;MAKE SURE SW 14 IS SET
 1521  005736  001374                  16700            BNE     1$
 1522  005740  000005                  16800            RESET
 1523  005742  000177  173264          16900            JMP     @DD.A           ;GO RUN NORMAL TESTS
 1524  005746  013112                  17000  XXTABLE:  M19200                  ;MESSAGE SETUPS
 1525  005750  013122                  17100            M9600                   ;DITTO
 1526  005752  013131                  17200            M4800                   ;DITTO
 1527  005754  013140                  17300            M2400                   ;DITTO
 1528  005756  013147                  17400            M1200                   ;DITTO
 1529  005760  013156                  17500            M600                    ;DITTO
 1530  005762  013164                  17600            M300                    ;DITTO
 1531  005764  013172                  17700            M150                    ;DITTO
 1532  005766  013200                  17800            M75                     ;DITTO
 1533  005770  005237  001222          17900  CNT.RX:   INC      CHCNT          ;UPDATE COUNTER.
 1534  005774  005777  173354          18000            TST     @RXDBUF         ;CLR RX DONE
 1535  006000  000002                  18100            RTI
 1536  006002  011637  006012          18200  NO.TRAP:  MOV     (SP),TRP.PC     ;IN CASE TX TURNS ON
 1537  006006  104010                  18300            HLT 10                  ;ERROR MESSAGE
 1538  006010  000002                  18400            RTI
 1539  006012  000001                  18500  TRP.PC:   .BLKW 1
 1540
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1541                                            00100
1542                                            00200   ;LINE.N  SUBROUTINE TO FETCH THE LINE
1543                                            00300   ;NUMBER AND FIRST DP11 VECTOR ADDRESS FROM
1544                                            00400   ;THE CONSOL SWITCHES
1545                                            00500   ;SW0-SW8=VECTOR ADDRESS OF FIRST DP11
1546                                            00600   ;SW9-SW15=LINE NUMBER OF DP11 SELECTED FOR TEST
1547                                            00700
1548  006014  005037  001076                   00800   LINE.N: CLR     ERRCNT                  ;CLEAR ERROR COUNT
1549  006020  013737  177570  001144            00900           MOV     SWR,SAVSR1              ;SAVE CONSOL SWITCH SETTINGS
1550  006026  013700  177570                   01000           MOV     SWR,R0
1551  006032  000000                           01100           HALT                            ;SET SWR TO LINE NUMBER
1552                                            01200                                           ;LOW BYTE = FIRST DP VECTOR
1553                                            01300                                           ;HIGH BYTE = LINE NUMBER(8)
1554  006034  013737  177570  001174            01400           MOV     SWR,SAVSR2              ;SAVE CONSOL SWITCHES
1555  006042  013700  177570                   01500           MOV     SWR,R0
1556  006046  000000                           01600           HALT
1557  006050  005001                           01700           CLR     R1
1558  006052  113701  001175                   01800           MOVB    SAVSR2+1,R1             ;SAVE LINE NUMBER
1559  006056  042701  000001                   01900           BIC     #1,R1
1560  006062  000405                           02000           BR      XTAG
1561  006064  013701  001156                   02100   LINE.X: MOV     XLINEX,R1
1562  006070  005037  001144                   02200           CLR     SAVSR1
1563  006074  006301                           02300           ASL     R1
1564  006076  006201                           02400   XTAG:   ASR     R1                      ;CLEAR LSB
1565  006100  010137  001156                   02500           MOV     R1,XLINEX
1566  006104  006301                           02600           ASL     R1                      ;SCALE LINE NUMBER TO ADDRESS
1567  006106  006301                           02700           ASL     R1                      ;MODULO 10(8)
1568  006110  006301                           02800           ASL     R1
1569  006112  005777  173232                   02900           TST     @BASCSR                 ;DOES LINE 0 REALLY EXIST??
1570  006116  000240                           03000           NOP
1571  006120  105737  001144                   03100           TSTB    SAVSR1
1572  006124  100403                           03200           BMI     .+10
1573  006126  012737  006240  000004           03300           MOV     #3$,@#4
1574  006134  013702  001350                   03400           MOV     BASCSR,R2               ;SET R2 = LINE 0 ADDRESS
1575  006140  160102                           03500           SUB     R1,R2                   ;MANUFACTURE DEVICE ADDRESS
1576  006142  012703  001322                   03600           MOV     #DPRS,R3                ;R3 = ADDRESS OF RCV STATUS ADRS
1577  006146  010223                           03700           MOV     R2,(R3)+                ;LOAD RCV STATUS ADRS
1578  006150  005722                           03800           TST     (R2)+                   ;INC TO RCV BUFFER ADRS
1579  006152  010223                           03900           MOV     R2,(R3)+                ;LOAD RCV BUFFER ADRS
1580  006154  005202                           04000           INC     R2                      ;INC TO SYNC BUFFER ADRS
1581  006156  010223                           04100           MOV     R2,(R3)+                ;LOAD SYNC ADRS
1582  006160  005202                           04200           INC     R2                      ;INC TO XMIT STATUS ADRS
1583  006162  010223                           04300           MOV     R2,(R3)+                ;LOAD TRANSMITTER STATUS ADRS
1584  006164  005722                           04400           TST     (R2)+                   ;INC TO XMIT BUFFER
1585  006166  010223                           04500           MOV     R2,(R3)+                ;LOAD XMIT BUFFER ADRS
1586  006170  005202                           04600           INC     R2                      ;INC TO SYNC EXTENTION
1587  006172  010223                           04700           MOV     R2,(R3)+                ;LOAD SYNC EXTENSION ADRS
1588  006174  013702  001174                   04800           MOV     SAVSR2,R2               ;SET UP VECTOR ADDRESS
1589  006200  042702  177000                   04900           BIC     #^C(777),R2             ;CLEAR LINE NUMBER FROM VEC ADRS
1590  006204  105737  001144                   05000           TSTB    SAVSR1
1591  006210  100402                           05100           BMI     2$
1592  006212  013702  001346                   05200           MOV     BASVEC,R2
1593  006216  060102                           05300   2$:     ADD     R1,R2                   ;SET VECTOR ADDRESS TO LINE NUMBER
1594  006220  010223                           05400           MOV     R2,(R3)+                ;LOAD RCV VECTOR ADRS
1595  006222  005722                           05500           TST     (R2)+                   ;INC TO NEXT VECTOR
1596  006224  010223                           05600           MOV     R2,(R3)+                ;LOAD RCV PRIORITY ADRS
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 1597  006226  005722                    05700           TST     (R2)+                   ;INC TO NEXT VECTOR
 1598  006230  010223                    05800           MOV     R2,(R3)+                ;LOAD XMIT VECTOR ADRS
 1599  006232  005722                    05900           TST     (R2)+                   ;INC TO NEXT VECTOR
 1600  006234  010213                    06000           MOV     R2,(R3)                 ;LOAD XMIT PRIORITY ADRS
 1601  006236  000414                    06100           BR      5$
 1602  006240  005037  001156            06200   3$:     CLR     XLINEX
 1603  006244  013701  000042            06300           MOV     @#42,R1
 1604  006250  001405                    06400           BEQ     4$
 1605  006252  000005                    06500           RESET
 1606                                    06600   ;*****************************************
 1607                                    06700   ;DP11 LOGICAL ENDING
 1608                                    06800   ;*****************************************
 1609  006254  004711                    06900           JSR     PC,(R1)
 1610  006256  000240                    07000           NOP
 1611  006260  000240                    07100           NOP
 1612  006262  000240                    07200           NOP
 1613  006264  022626                    07300   4$:     POP.SP
 1614  006266  000676                    07400           BR      LINE.X
 1615  006270  012737  000006  000004  07500   5$:     MOV     #6,@#4
 1616  006276  013737  001322  001210  07600           MOV     DPRS.DEVICE     ;SET FOR END PASS MSG.
 1617  006304  000207                    07700           RTS     PC
 1618                                    07800   ;*********************CLRVEC**********************************
 1619                                    07900
 1620                                    08000   ;CLRVEC,ROUTINE TO FILL COMMUNICATION VECTOR AREA WITH .+2,HALT
 1621                                    08100
 1622  006306  012702  000300            08200   CLRVEC: MOV     #300,R2                 ;R2 COMM VECTOR AREA ADRS
 1623  006312  012701  000302            08300           MOV     #302,R1                 ;INIT R1 WITH ADRS OF HALT
 1624  006316  010122                    08400   1$:     MOV     R1,(R2)+                ;MOV .+2 TO PC
 1625  006320  005022                    08500           CLR     (R2)+                   ;MOV HALT TO PC
 1626  006322  022121                    08600           CMP     (R1)+,(R1)+             ;INC TO NEXT VECTOR AREA
 1627  006324  022701  000776            08700           CMP     #776,R1                 ;END OF VECTOR AREA
 1628  006330  001372                    08800           BNE     1$                      ;NO
 1629  006332  000207                    08900           RTS     PC                      ;RETURN
 1630                                    09000
 1631                                    09100
 1632                                    09200
 1633                                    09300   ;*********************OKADR**********************************
 1634                                    09400   ;OKADR, ROUTINE TO CHECK FOR VALID DU ADDRESS
 1635                                    09500
 1636  006334  013746  000004            09600   OKADR:  MOV     @#4,-(SP)       ;SETUP FOR INTERRUPTS
 1637  006340  013746  000006            09700           MOV     @#6,-(SP)       ;DITTO
 1638  006344  012737  006370  000004  09800           MOV     #1$,@#4         ;SETUP TO CHECK ADDR YOU SELECTED
 1639  006352  012737  000340  000006  09900           MOV     #340,@#6        ;PREVENT INTERRUPTS
 1640  006360  005777  000704            10000           TST     @DUBASE         ;ADDRESS
 1641  006364  000240                    10100           NOP                     ;WAIT
 1642  006366  000405                    10200           BR      2$              ;ADDRESS OK
 1643  006370  104403  012773            10300   1$:     TYPE    ,MNODEV         ;ADDRESS NG--LET OPR KNOW
 1644  006374  022626                    10400           CMP     (SP)+,(SP)+     ;POP STACK
 1645  006376  000000                    10500           HALT                    ;WAIT FOR OPR TO DECIDE IF ADR IS OK
 1646  006400  000777                    10600           BR      .               ;IF ADDRS WAS OK THEN RUN DU DIAGNOSTIC
 1647                                    10700                                   ;IF ADRS WRONG RESTART TEST AND ANS QUESTIONS
 1648  006402  012637  000006            10800   2$:     MOV     (SP)+,@#6       ;RETURN ADDRESS 4 AND 6 TO NORMAL
 1649  006406  012637  000004            10900           MOV     (SP)+,@#4       ;DITTO
 1650  006412  000207                    11000           RTS     PC
 1651                                    11100
 1652                                    11200
```

```
  1653                                          11300
  1654                                          11400
  1655                                          11500
  1656                                          11600   ;POWER FAIL ROUTINE
  1657                                          11700
  1658  006414  012737  006424  000024          11800   .PFAIL: MOV     #PWRUP,24       ;LOAD PFAIL VECTOR FOR POWER UP
  1659  006422  000000                          11900           HALT                    ;
  1660  006424  000005                          12000   PWRUP:  RESET                   ;WAIT TTY TO COME UP
  1661  006426  012706  001050                  12100           MOV     #STACK,SP       ;REINIT STACK POINTER
  1662  006432  012737  006414  000024          12200           MOV     #.PFAIL,24      ;LOAD PFAIL VECTOR FOR POWER DOWN
  1663  006440  104403                          12300           TYPE
  1664  006442  011372                          12400           MPOWER
  1665  006444  000177  172566                  12500           JMP     @PSTART
  1666                                          12600
  1667                                          12700
  1668  006450                                  12800   SEQ.DATA:
  1669  006450  012737  006662  001204          12900           MOV     #6$,BACK
  1670  006456  105077  172652                  13000           CLRB    @SEXT                   ;CLEAR SYNC EXTENTION
  1671  006462  005037  001164                  13100           CLR     RDATA                   ;RECEIVER DATA
  1672  006466  005037  001162                  13200           CLR     TDATA                   ;TRANSMITTER DATA
  1673  006472  005077  172624                  13300           CLR     @DPRS                   ;RECEIVER STATUS
  1674  006476  005077  172626                  13400           CLR     @DPTS                   ;TRANSMITTER STATUS
  1675  006502  052777  000001  172612          13500           BIS     #BIT0,@DPRS             ; STRIP SYNC
  1676  006510  012737  000400  001166          13600           MOV     #400,CHLEN              ;CHAR LENGTH INDEX
  1677  006516  032737  000400  001144          13700           BIT     #BIT8,SAVSR1            ;TEST 12 BIT CHAR MODE
  1678  006524  001414                          13800           BEQ     1$                      ;NO
  1679  006526  012737  010000  001170          13900           MOV     #10000,LIMIT            ;SELECT END OF DATA
  1680  006534  052777  002000  172560          14000           BIS     #BIT10,@DPRS            ;SELECT 12 BITS/CHARACTER
  1681  006542  012737  000426  001154          14100           MOV     #426,TSYNC              ;SYNC FOR 12 BIT CHAR
  1682  006550  105277  172560                  14200           INCB    @SEXT                   ;PLACE MSB OF SYNC IN SYNC EXT
  1683  006554  000406                          14300           BR      2$
  1684  006556  012737  000400  001170          14400   1$:     MOV     #400,LIMIT              ;TEMPORARY CHARACTER LIMIT
  1685  006564  012737  000026  001154          14500           MOV     #26,TSYNC               ;INIT SYNC STORAGE
  1686  006572  012777  006664  172542          14600   2$:     MOV     #TV18,@DPTIV            ;TRANSMITTER VECTOR
  1687  006600  012777  006772  172530          14700           MOV     #RV18,@DPRIV            ;RECEIVER VECTOR
  1688  006606  012737  000200  177776          14800           MOV     #200,PS                 ;PRIORITY=4
  1689  006614  012737  000004  001172          14900           MOV     #4,SCNT                 ;SYNC COUNT=4
  1690  006622  113777  001154  172476          15000           MOVB    TSYNC,@SYNC             ;LOAD SYNC
  1691  006630  052777  000100  172464          15100           BIS     #BIT6,@DPRS             ;RCV INT ENB
  1692  006636  052777  000301  172464          15200           BIS     #301,@DPTS
  1693                                          15300                                           ;TRANS INT ENB
  1694                                          15400                                           ;TRANS DONE
  1695  006644  005237  001102                  15500   5$:     INC     TEMP1
  1696  006650  001375                          15600           BNE     5$
  1697  006652  005337  001104                  15700           DEC     TEMP2
  1698  006656  001372                          15800           BNE     5$
  1699  006660  104000                          15900           HLT
  1700  006662  000207                          16000   6$:     RTS     PC
  1701                                          16100
  1702                                          16200
  1703                                          16300
  1704  006664  013777  001154  172440          16400   TV18:   MOV     TSYNC,@DPTB     ;XMIT SYNC
  1705  006672  113777  001155  172434          16500           MOVB    TSYNC+1,@SEXT   ;LOAD SYNC EXT
  1706  006700  005337  001172                  16600           DEC     SCNT            ;HAVE 2 SYNC'S BEEN XMITED
  1707  006704  001003                          16700           BNE     1$              ;NO
  1708  006706  012777  006716  172426          16800           MOV     #TV19,@DPTIV    ;YES CHANGE VECTOR
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 1709  006714  000002                          16900  1$:     RTI
 1710                                          17000
 1711                                          17100  ;SEQUENTIAL DATA TRANSMITTION ROUTINE
 1712                                          17200
 1713                                          17300
 1714  006716  032777  140000  172404          17400  TV19:   BIT     #140000,@DPTS   ;ANY STATUS ERRORS
 1715  006724  001401                          17500          BEQ     .+4             ;NO
 1716  006726  104000                          17600          HLT                     ;REPORT ERROR
 1717  006730  105777  172374                  17700          TSTB    @DPTS           ;TRANSMITTER READY
 1718  006734  100401                          17800          BMI     .+4             ;YES
 1719  006736  104000                          17900          HLT                     ;REPORT ERROR
 1720  006740  013777  001162  172364          18000          MOV     TDATA,@DPTB     ;LOAD BUFFER
 1721  006746  005237  001162                  18100          INC     TDATA           ;NEXT CHARACTER
 1722  006752  023737  001170  001162          18200          CMP     LIMIT,TDATA     ;HAVE ALL CHARACTERS
 1723  006760  001003                          18300          BNE     1$              ;NO
 1724  006762  042777  000140  172340          18400          BIC     #140,@DPTS      ;YES, CLEAR INTERRUPTS
 1725  006770  000002                          18500  1$:     RTI
 1726                                          18600
 1727                                          18700  ;RECEIVE SEQUENTIAL DATA
 1728                                          18800
 1729  006772  105777  172324                  18900  RV18:   TSTB    @DPRS           ;RECEVIER DONE??
 1730  006776  100401                          19000          BMI     .+4             ;YES
 1731  007000  104000                          19100          HLT                     ;REPORT ERROR
 1732  007002  013700  001164                  19200          MOV     RDATA,R0
 1733  007006  017701  172312                  19300          MOV     @DPRB,R1
 1734  007012  023777  001164  172304          19400          CMP     RDATA,@DPRB     ;CORRECT DATA
 1735  007020  001404                          19500          BEQ     1$
 1736  007022  017737  172276  001146          19600          MOV     @DPRB,TMPDAT    ;STORE DATA
 1737  007030  104001                          19700          HLT     1               ;REPORT ERROR
 1738  007032  042777  000001  172262          19800  1$:     BIC     #BIT0,@DPRS     ;CLEAR STRIP SYNC
 1739  007040  005237  001164                  19900          INC     RDATA           ;NEXT CHARACTER
 1740  007044  023737  001170  001164          20000          CMP     LIMIT,RDATA
 1741  007052  001037                          20100          BNE     3$
 1742  007054  005037  001164                  20200          CLR     RDATA
 1743  007060  005037  001162                  20300          CLR     TDATA
 1744  007064  006237  001170                  20400          ASR     LIMIT           ;DECREASE LIMIT TO 7 BITS
 1745  007070  012777  006664  172244          20500          MOV     #TV18,@DPTIV    ;SET UP SYNC TRANSMITTION
 1746  007076  012737  000004  001172          20600          MOV     #4,SCNT         ;SYNC COUNT =4
 1747  007104  052777  000001  172210          20700          BIS     #BIT0,@DPRS     ;STRIP SYNC
 1748  007112  042777  004000  172202          20800          BIC     #BIT11,@DPRS    ;CLEAR RCV ACTIVE
 1749  007120  052777  000301  172202          20900          BIS     #301,@DPTS
 1750  007126  053777  001166  172166          21000          BIS     CHLEN,@DPRS     ;CHANGE CHAR LENGTH
 1751  007134  062737  000400  001166          21100          ADD     #400,CHLEN      ;DECREASE CHAR LENGTH
 1752  007142  022737  001400  001166          21200  2$:     CMP     #1400,CHLEN     ;HAVE ALL LENGTHS BEEN TESTED
 1753  007150  001401                          21300          BEQ     4$              ;YES
 1754  007152  000002                          21400  3$:     RTI                     ;NO
 1755  007154  005077  172150                  21500  4$:     CLR     @DPTS           ;CLR TRANSMITTER STATUS
 1756  007160  005077  172136                  21600          CLR     @DPRS           ;CLR TECEIVER STATUS
 1757  007164  042737  000040  177776          21700          BIC     #BIT5,PS        ;PRIORITY = 4
 1758  007172  013716  001204                  21800          MOV     BACK,(SP)
 1759  007176  000002                          21900          RTI
 1760                                          22000          ;NEW DU ADDRESSES
 1761  007200  013737  007270  001352          22100  DUADDR: MOV     DUBASE,RXCSR    ;XXX0
 1762  007206  013737  001352  001210          22200          MOV     RXCSR,DEVICE
 1763  007214  062737  000002  007270          22300          ADD     #2,DUBASE
 1764  007222  013737  007270  001354          22400          MOV     DUBASE,RXDBUF   ;XXX2
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 1765  007230  013737  007270  001356  22500          MOV     DUBASE,PARCSR   ;XXX2
 1766  007236  062737  000002  007270  22600          ADD     #2,DUBASE
 1767  007244  013737  007270  001360  22700          MOV     DUBASE,TXCSR    ;XXX4
 1768  007252  062737  000002  007270  22800          ADD     #2,DUBASE
 1769  007260  013737  007270  001362  22900          MOV     DUBASE,TXDBUF   ;XXX6
 1770  007266  000207                  23000          RTS     PC
 1771  007270  000000                  23100  DUBASE: 0
 1772                                   23200
 1773                                   23300
 1774                                   23400  ;THE FOLLOWING CALCULATES THE NEXT DEVICE ADDRESS AND ASSOCIATED
 1775                                   23500  ;VECTOR ADDRESSES IF RUNNING MULTIPLE DEVICES  (DU11...DFC11'S)
 1776                                   23600
 1777  007272  105737  001250          23700  DU.UPDATE:      TSTB    MULTD   ;ARE YOU RUNNING MULTIPLE DEVICES ?
 1778  007276  001510                  23800          BEQ     CCC             ;NO,JUMP AROUND
 1779  007300  005737  001264          23900          TST     ACTREG          ;ARE ANY DEVICES ACTIVE ?
 1780  007304  001007                  24000          BNE     RUNIT           ;YES
 1781  007306  104403  012113          24100          TYPE    ,MCOW           ;NO
 1782  007312  013700  001264          24200          MOV     ACTREG,R0       ;DISPLAY ACTREG
 1783  007316  000000                  24300          HALT                    ;SELECT SOMETHING TO RUN @ ACTREG:
 1784                                   24400          ;SELECT SWITCHES & HIT CONTINUE (PUT SW00 =1)
 1785  007320  000137  001642          24500          JMP     DU11            ;START OVER AGAIN.....YOU DESELECTED EVERYTHING
 1786  007324  062737  000010  001252  24600  RUNIT:  ADD     #10,BASEADD     ;NEXT BLOCK (ADDRESSES)
 1787  007332  062737  000010  001260  24700  ZERO:   ADD     #10,BASEIV      ;NEXT BLOCK (VECTORS)
 1788  007340  000241                  24800          CLC
 1789  007342  006137  001266          24900          ROL     ROTADD          ;UP DATE ROTATING POINTER
 1790  007346  103412                  25000          BCS     2$              ;IS IT THE LAST DEVICE
 1791                                   25100                                  ;TO BE TESTED IN THIS PASS ?
 1792  007350  033737  001266  001264  25200          BIT     ROTADD,ACTREG   ;TEST THIS DEVICE FOR ACTIVE STATUS
 1793  007356  001762                  25300          BEQ     RUNIT           ;IF NOT ACTIVE, TRY NEXT ADDRESS
 1794  007360  004737  007424          25400          JSR     PC,REPLAY       ;CALCULATE NEW PARAMETERS
 1795  007364  004737  006334          25500          JSR     PC,OKADR        ;CHECK FOR GOOD ADDRESS
 1796  007370  000137  007540          25600          JMP     ARESTRT         ;YES IT WAS ACTIVE,TEST THIS DEVICE
 1797  007374  012737  000001  001266  25700  2$:     MOV     #1,ROTADD       ;OK!,NOW SET UP  ROTATING
 1798                                   25800                                  ;POINTER FOR NEXT MULTIPLE PASS
 1799  007402  013737  001254  001252  25900          MOV     KEEPADD,BASEADD ;RESTORE BASE ADDRESS
 1800  007410  013737  001262  001260  26000          MOV     KEEPIV,BASEIV   ;RESTORE BASE INTERRUPT VECTORS
 1801  007416  004737  007424          26100          JSR     PC,REPLAY       ;CALC NEW PARAMETERS
 1802  007422  000436                  26200          BR      CCC             ;JUMP AROUND REPLAY
 1803  007424  013737  001252  007270  26300  REPLAY: MOV     BASEADD,DUBASE  ;SET UP FOR NEW ADDRESSES
 1804  007432  004737  007200          26400          JSR     PC,DUADDR       ;CREATE NEW ADDRESSES
 1805  007436  013737  001260  001364  26500          MOV     BASEIV,DURIV    ;CREATE DURIV
 1806  007444  062737  000002  001260  26600          ADD     #2,BASEIV
 1807  007452  013737  001260  001366  26700          MOV     BASEIV,DURIS    ;CREATE DURIS
 1808  007460  062737  000002  001260  26800          ADD     #2,BASEIV
 1809  007466  013737  001260  001370  26900          MOV     BASEIV,DUTIV    ;CREATE DUTIV
 1810  007474  062737  000002  001260  27000          ADD     #2,BASEIV
 1811  007502  013737  001260  001372  27100          MOV     BASEIV,DUTIS    ;CREATE DUTIS
 1812  007510  013737  001364  001260  27200          MOV     DURIV,BASEIV    ;RESTORE
 1813  007516  000207                  27300          RTS     PC
 1814                                   27400
 1815                                   27500
 1816  007520                          27600  CCC:
 1817  007520  013701  000042          27700          MOV     @#42,R1                 ;CHECK FOR ACT-11 OR DDP
 1818  007524  001405                  27800          BEQ     ARESTRT                 ;IF NOT, CONTINUE TESTING
 1819  007526  000005                  27900          RESET
 2820  007530  004711                  28000  LOGICAL:        JSR     PC,(R1)
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M03


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 1821  007532  000240                  28100          NOP
 1822  007534  000240                  28200          NOP
 1823  007536  000240                  28300          NOP
 1824  007540  012737  000340  177776  28400  ARESTRT:        MOV     #340,PS ;PREVENT INTERRUPTS (PRIO: 7)
 1825  007546  000177  171434          28500          JMP     @CONT.
 1826                                  28600
 1827  007552  017637  000000  001106        .DELAY: MOV     @(SP),TEMP3             ;SET UP COUNT
 1828  007560  062716  000002                        ADD     #2,(SP)
 1829  007564  011637  001110                        MOV     (SP),TEMP4
 1830  007570  022626                                POP.SP
 1831  007572  005037  177776                        CLR     PS
 1832  007576  162737  001106                        SUB     (PC)+,TEMP3             ;FOR A SMALLER DELAY TIME
 1833  007602                              LESS.TIME:                              ;PUT A NUMBER IN HERE TO BE
 1834  007602  000000                                DOO                             ;SUBTRACTED FROM TOTAL.
 1835  007604  062737  001106                        ADD     (PC)+,TEMP3             ;FOR A LONGER DELAY TIME
 1836  007610                              MORE.TIME:                              ;PUT A NUMBER IN HERE TO BE ADDED
 1837  007610  000000                                DOO                             ;TO THE TOTAL TIME.
 1838  007612  162737  000001  001106        1$:     SUB     #1,TEMP3                ;TIME OUT
 1839  007620  001374                                BNE     1$                      ;NO
 1840  007622  000177  171262                        JMP     @TEMP4
 1841
```

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1842
1843                                                        ;SCOPE LOOP AND INTERATION HANDLER
1844
1845  007626  032737  040000  177570          .SCOPE: BIT     #BIT14,SWR
1846  007634  001407                          TTST:   BEQ     1$
1847  007636  000432                                  BR      3$
1848  007640  105777  171204                          TSTB    @TKCSR
1849  007644  100027                                  BPL     3$
1850  007646  017700  171200                          MOV     @TKDBR,R0
1851  007652  000412                                  BR      2$
1852  007654  032737  004000  177570          1$:     BIT     #SW11,SWR
1853  007662  001006                                  BNE     2$
1854  007664  005237  001070                          INC     LPCNT
1855  007670  023737  001070  001066                  CMP     LPCNT,ICOUNT
1856  007676  001012                                  BNE     3$
1857  007700  105037  001242                  2$:     CLRB    ERRFLG
1858  007704  005037  001070                          CLR     LPCNT
1859  007710  012737  000062  001066                  MOV     #50.,ICOUNT
1860  007716  013737  001062  001060                  MOV     NEXT,RETURN
1861  007724  013716  001060                  3$:     MOV     RETURN,(SP)
1862  007730  000002                                  RTI
1863  007732  001407                          BRW:    1407
1864  007734  000432                          BRX:    432
1865
1866                                                        ;END OF PASS
1867                                                        ;TYPE "END OF PASS CSR: XXXXXX"
1868                                                        ;UPDATE PASS COUNT
1869                                                        ;UPDATE LINE NUMBER
1870                                                        ;IF IN CYCLE MODE
1871                                                        ;RESTART TEST
1872
1873  007736  005037  001100                  .EOP:   CLR     LSTERR                  ;CLEAR LAST ERROR PC
1874  007742  105037  001242                          CLRB    ERRFLG                  ;CLEAR ERROR FLAG
1875  007746  005237  001074                          INC     PASCNT                  ;UPDATE PASS COUNT
1876  007752  104403                                  TYPE
1877  007754  011410                                  MEPASS
1878  007756  104407                                  CNVRT
1879  007760  010020                                  XCSR
1880  007762  105737  001144                          TSTB    SAVSR1
1881  007766  100402                                  BMI     .+6
1882  007770  005237  001156                          INC     XLINEX
1883  007774  013737  001074  177570                  MOV     PASCNT,LIGHTS           ;DISPLAY PASS COUNT
1884  010002  005737  001234                          TST     TAG                     ;DP OR DU
1885  010006  001002                                  BNE     RESTRT                  ;DP
1886  010010  000137  007272                          JMP     DU.UPDATE               ;DU
1887  010014  000177  171166                  RESTRT: JMP     @CONT.          ;CONTINUE TO TEST APPRO. DEVICE
1888  010020  000001                          XCSR:   1
1889  010022     006     002                          .BYTE   6,2
1890  010024  001210                                  DEVICE
1891
1892                                                        ;CHECK FOR FREEZE ON CURRENT DATA
1893
1894  010026  032737  001000  177570          .SCOP1: BIT     #SW09,SWR
1895  010034  001402                                  BEQ     1$
1896  010036  013716  001064                          MOV     LOCK,(SP)
1897  010042  000002                          1$:     RTI
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 1898
 1899                                                    ;TELETYPE OUTPUT ROUTINE
 1900
 1901  010044  017605  000000                  .TYPE:  MOV     @(SP),R5
 1902  010050  062716  000002                          ADD     #2,(SP)
 1903  010054  032737  010000  177570          1$:     BIT     #SW12,SWR
 1904  010062  001010                                  BNE     3$
 1905  010064  105715                                  TSTB    (R5)
 1906  010066  001406                                  BEQ     3$
 1907  010070  105777  170760                2$:     TSTB    @TPCSR
 1908  010074  100375                                  BPL     2$
 1909  010076  112577  170754                        MOVB    (R5)+,@TPDBR
 1910  010102  000764                                  BR      1$
 1911  010104  000002                          3$:     RTI
 1912
 1913                                                    ;ERROR HANDLER
 1914
 1915  010106  032737  010000  177570          .HLT:   BIT     #SW12,SWR
 1916  010114  001406                                  BEQ     XBX
 1917  010116  105777  170732                        TSTB    @TPCSR
 1918  010122  100003                                  BPL     XBX
 1919  010124  112777  000207  170724                MOVB    #207,@TPDBR
 1920  010132  032737  020000  177570          XBX:    BIT     #SW13,SWR
 1921  010140  001067                                  BNE     HALTS
 1922  010142  021637  001100                        CMP     (SP),LSTERR
 1923  010146  001404                                  BEQ     1$
 1924  010150  011637  001100                        MOV     (SP),LSTERR
 1925  010154  105037  001242                        CLRB    ERRFLG
 1926  010160  104-04                          1$:     SAV05
 1927  010162  011605                                  MOV     (SP),R5
 1928  010164  162705  000002                        SUB     #2,R5
 1929  010170  011504                                  MOV     (R5),R4
 1930  010172  006304                                  ASL     R4
 1931  010174  061504                                  ADD     (R5),R4
 1932  010176  006304                                  ASL     R4
 1933  010200  042704  177001                        BIC     #177001,R4
 1934  010204  062704  013632                        ADD     #.ERRTAB,R4
 1935  010210  012437  010270                        MOV     (R4)+,ERRMSG
 1936  010214  012437  010302                        MOV     (R4)+,DATAHD
 1937  010220  011437  010314                        MOV     (R4),DATABP
 1938  010224  105737  001242                        TSTB    ERRFLG
 1939  010230  001403                                  BEQ     TYPMSG
 1940  010232  005737  010314                        TST     DATABP
 1941  010236  001022                                  BNE     TYPDAT
 1942  010240  104403                          TYPMSG: TYPE
 1943  010242  000001                          WHO:    .BLKW   1
 1944  010244  104403                                  TYPE
 1945  010246  011456                                  MERRPC
 1946  010250  104407                                  CNVRT
 1947  010252  010404                                  ERTABO
 1948  010254  104403                                  TYPE
 1949  010256  011473                                  MCRLF
 1950  010260  112737  177777  001242                MOVB    #-1,ERRFLG
 1951  010266  104403                                  TYPE
 1952  010270  000000                          ERRMSG: 0
 1953  010272  005737  010302                        TST     DATAHD
```

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1954  010276  001402                                BEQ     TYPDAT
1955  010300  104403                                TYPE
1956  010302  000000                        DATAHD: 0
1957  010304  005737  010314                TYPDAT: TST     DATABP
1958  010310  001402                                BEQ     RESREG
1959  010312  104406                                CONVRT
1960  010314  000000                        DATABP: 0
1961  010316  104405                        RESREG: RESDS
1962  010320  005737  177570                HALTS:  TST     SWR
1963  010324  100005                                BPL     EXITER
1964  010326  010046                                PUSHRO
1965  010330  016600  000002                        MOV     2(SP),RO
1966  010334  000000                                HALT
1967  010336  012600                                POPRO
1968  010340  005237  001076                EXITER: INC     ERRCNT
1969  010344  032737  000400  177570                BIT     #SWC8,SWR
1970  010352  001007                                BNE     1$
1971  010354  032737  002000  177570                BIT     #SW10,SWR
1972  010362  001407                                BEQ     2$
1973  010364  013737  001062  001060                MOV     NEXT,RETURN
1974  010372  012706  001050                1$:     MOV     #STACK,SP
1975  010376  000177  170456                        JMP     @RETURN
1976  010402  000002                        2$:     RTI
1977  010404  000001                        ERTABO: 1
1978  010406     006     002                        .BYTE   6,2
1979  010410  001142                                SAVPC
1980
1981                                                ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
1982
1983  010412  104403                        .CONVR: TYPE
1984  010414  011473                                MCRLF
1985  010416  017601  000000                .CNVRT: MOV     @(SP),R1
1986  010422  013737  013756  001106                MOV     TEMP,TEMP3
1987  010430  062716  000002                        ADD     #2,(SP)
1988  010434  012137  010604                        MOV     (R1)+,WRDCNT
1989  010440  112137  010606                1$:     MOVB    (R1)+,CHRCNT
1990  010444  112137  010607                        MOVB    (R1)+,SPACNT
1991  010450  013137  010610                        MOV     @(R1)+,BINWRD
1992  010454  013704  010610                2$:     MOV     BINWRD,R4
1993  010460  113705  010606                        MOVB    CHRCNT,R5
1994  010464  012700  013756                        MOV     #TEMP,RO
1995  010470  010403                        3$:     MOV     R4,R3
1996  010472  042703  177770                        BIC     #177770,R3
1997  010476  062703  000260                        ADD     #260,R3
1998  010502  110320                                MOVB    R3,(RO)+
1999  010504  000241                                CLC
2000  010506  006004                                ROR     R4
2001  010510  000241                                CLC
2002  010512  006004                                ROR     R4
2003  010514  000241                                CLC
2004  010516  006004                                ROR     R4
2005  010520  005305                                DEC     R5
2006  010522  001362                                BNE     3$
2007  010524  012703  014020                        MOV     #MDATA,R3
2008  010530  114023                        4$:     MOVB    -(RO),(R3)+
2009  010532  105337  010606                        DECB    CHRCNT
```

```
2010  010536  001374                          BNE     4$
2011  010540  105737  010607                  TSTB    SPACNT
2012  010544  001405                          BEQ     6$
2013  010546  112723  000240          5$:     MOVB    #240,(R3)+
2014  010552  105337  010607                  DECB    SPACNT
2015  010556  001373                          BNE     5$
2016  010560  105013                  6$:     CLRB    (R3)
2017  010562  104403                          TYPE
2018  010564  014020                          MDATA
2019  010566  005337  010604                  DEC     WRDCNT
2020  010572  001322                          BNE     1$
2021  010574  013737  001106  013756          MOV     TEMP3,TEMP
2022  010602  000002                          RTI
2023  010604  000000                  WRDCNT: 0
2024  010606  000000                  CHRCNT: 0
2025          010607                  SPACNT=CHRCNT+1
2026  010610  000000                  BINWRD: 0
2027
2028                                          ;SAVE PC OF TEST THAT FAILED AND R0-R5
2029
2030  010612  016637  000004  001142  .SAV05: MOV     4(SP),SAVPC
2031
2032                                          ;SAVE R0-R5
2033
2034  010620  010537  001136          SV05:   MOV     R5,SAVR5
2035  010624  010437  001134                  MOV     R4,SAVR4
2036  010630  010337  001132                  MOV     R3,SAVR3
2037  010634  010237  001130                  MOV     R2,SAVR2
2038  010640  010137  001126                  MOV     R1,SAVR1
2039  010644  010037  001124                  MOV     R0,SAVR0
2040  010650  000002                          RTI
2041
2042                                          ;RESTORE R0-R5
2043
2044  010652  013700  001124          .RES05: MOV     SAVR0,R0
2045  010656  013701  001126                  MOV     SAVR1,R1
2046  010662  013702  001130                  MOV     SAVR2,R2
2047  010666  013703  001132                  MOV     SAVR3,R3
2048  010672  013704  001134                  MOV     SAVR4,R4
2049  010676  013705  001136                  MOV     SAVR5,R5
2050  010702  000002                          RTI
2051
2052                                          ;CONVERT ASCII STRING TO OCTAL
2053
2054  010704  011605                  .PARAM: MOV     (SP),R5 ;PUT CONTENTS OF SP INTO R5
2055  010706  012537  011060                  MOV     (R5)+,LOLIM     ;PUT LOW LIMIT INTO LOLIM
2056  010712  012537  011062                  MOV     (R5)+,HILIM     ;PUT HIGH LIMIT INTO HILIM
2057  010716  012537  011064                  MOV     (R5)+,DEVADR    ;PUT STORE LOC INTO DEVADR
2058  010722  112537  011066                  MOVB    (R5)+,LOBITS    ;PUT MASK INTO LOBITS
2059  010726  112537  011067                  MOVB    (R5)+,ADRCNT    ;PUT COUNT INTO ADRCNT
2060  010732  010516                          MOV     R5,(SP)         ;RESTORE RETURN ADDR ON STACK FOR RTI
2061  010734  005005                  PARAM1: CLR     R5
2062  010736  012704  014062                  MOV     #INBUF,R4
2063  010742  122714  000015                  CMPB    #15,(R4)        ;CR ?
2064  010746  001420                          BEQ     PARERR          ;YOU TYPED CR TOO SOON !
2065  010750  121427  000060          1$:     CMPB    (R4)+,#60       ;LOW LIMIT ASCII 0
```

```
2066  010754  002415                          BLT     PARERR
2067  010756  121427  000067                  CMPB    (R4),#67        ;HIGH LIMIT ASCII 7
2068  010762  003012                          BGT     PARERR
2069  010764  142714  000060                  BICB    #60,(R4)        ;CONVERT TO OCTAL
2070  010770  152405                          BISB    (R4)+,R5        ;STORE AWAY ITS AN OK CHAR
2071  010772  122714  000015                  CMPB    #15,(R4)        ;CR ?
2072  010776  001406                          BEQ     LIMITS          ;NOW CHECK FOR HIGH &LOW LIMIT CONDS
2073  011000  006305                          ASL     R5              ;ALLOCATE ROOM FOR NEXT CHAR
2074  011002  006305                          ASL     R5
2075  011004  006305                          ASL     R5
2076  011006  000760                          BR      1$
2077  011010  104413                  PARERR: INSTER                  ;RETRY
2078  011012  000750                          BR      PARAM1
2079
2080                                          ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
2081
2082  011014  020537  011062          LIMITS: CMP     R5,HILIM
2083  011020  101373                          BHI     PARERR          ;THE # IS TOO HIGH
2084  011022  020537  011060                  CMP     R5,LOLIM
2085  011026  103770                          BLO     PARERR          ;THE # IS TOO LOW
2086  011030  133705  011066                  BITB    LOBITS,R5       ;TEST BY MASKINGTHE #
2087  011034  001365                          BNE     PARERR
2088
2089                                          ;STORE NUMBER AT SPECIFIED ADDRESS
2090
2091  011036  013704  011064                  MOV     DEVADR,R4       ;GET STARTING ADDR OF
2092  011042  010524                  1$:     MOV     R5,(R4)+        ;STORE AT THIS ADDR
2093  011044  062705  000002                  ADD     #2,R5
2094  011050  105337  011067                  DECB    ADRCNT          ;HOW MANY TIMES + 2 ?
2095  011054  001372                          BNE     1$
2096  011056  000002                          RTI
2097  011060  000000                  LOLIM:  0
2098  011062  000000                  HILIM:  0
2099  011064  000000                  DEVADR: 0
2100  011066  000000                  LOBITS: 0
2101          011067                  ADRCNT=LOBITS+1
2102
2103                                          ;ASCII STRING INPUT ROUTINE
2104
2105  011070  017637  000000  011104  .INSTR: MOV     @(SP),.MSG      ;PICK UP MESSAGE
2106  011076  062716  000002                  ADD     #2,(SP)         ;JUMP AROUND MESSAGE FOR RTI
2107  011102  104403                  .INST1: TYPE
2108  011104  000000                  .MSG:   0
2109  011106  012704  014062                  MOV     #INBUF,R4       ;GET STARTING LOC OF INBUF
2110  011112  012703  000007                  MOV     #7,R3           ;MAX # OF CHARS
2111  011116  105777  167726          1$:     TSTB    @TKCSR          ;TTY FLAG
2112  011122  100375                          BPL     1$
2113  011124  117714  167722                  MOVB    @TKDBR,(R4)     ;TAKE CHAR
2114  011130  142714  000200                  BICB    #200,(R4)       ;STRIP
2115  011134  122427  000015                  CMPB    (R4)+,#15       ;CHECK FOR CR
2116  011140  001413                          BEQ     INSTR2
2117  011142  105777  167706          2$:     TSTB    @TPCSR          ;TEST FLAG
2118  011146  100375                          BPL     2$
2119  011150  117777  167676  167700          MOVB    @TKDBR,@TPDBR   ;ECHO CHARACTER
2120  011156  005303                          DEC     R3              ;DID YOU TYPE TOO MANY CHARS ?
2121  011160  001356                          BNE     1$
```

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2122  011162  104403                          .INSTE: TYPE
2123  011164  012243                                  MQM     ;?
2124  011166  000745                                  BR      .INST1          ;RETRY
2125  011170  000002                          INSTR2: RTI
2126
2127                                                  ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
2128                                                  ;BUFFER TO THE CHARACTERS "N" AND "Y".
2129                                                  ;IF THE CHARACTER IS "N" CLEAR THE FLAG
2130                                                  ;IF THE CHARACTER IS "Y" SET THE FLAG
2131
2132  011172  017605  000000                  .SETFLG:MOV     @(SP),R5
2133  011176  122737  000116  014062                  CMPB    #'N,INBUF       ;IS IT "N" ?
2134  011204  001002                                  BNE     1$
2135  011206  105015                                  CLRB    (R5)            ;000
2136  011210  000406                                  BR      2$
2137  011212  122737  000131  014062          1$:     CMPB    #'Y,INBUF       ;IS IT "Y" ?
2138  011220  001005                                  BNE     3$
2139  011222  112715  177777                          MOVB    #-1,(R5)        ;377
2140  011226  062716  000002                  2$:     ADD     #2,(SP)
2141  011232  000002                                  RTI
2142  011234  104413                          3$:     INSTER                  ;RETRY
2143  011236  000755                                  BR      .SETFLG
2144  011240  105777  167604                  .SCOP2: TSTB    @TKCSR
2145  011244  100005                                  BPL     3$
2146  011246  005777  167600                          TST     @TKDBR
2147  011252  013737  001062  001060                  MOV     NEXT,RETURN
2148  011260  013716  001060                  3$:     MOV     RETURN,(SP)
2149  011264  000002                                  RTI
2150                                                  ;TRAP DISPATCH SERVICE
2151                                                  ;ARGUMENT OF TRAP IS EXTRACTED
2152                                                  ;AND USED AS OFFSET TO OBTAIN POINTER
2153                                                  ;TO SELECTED SUBROUTINE
2154
2155  011266  011646                          .TRPSR: MOV     (SP),-(SP)              ;GET PC OF RETURN
2156  011270  162716  000002                          SUB     #2,(SP)                 ;=PC OF TRAP
2157  011274  017616  000000                          MOV     @(SP),(SP)              ;GET TRP
2158  011300  006316                          TRPOK:  ASL     (SP)                    ;MULTIPLY TRAP ARG BY 2
2159  011302  042716  177001                          BIC     #177001,(SP)            ;CLEAR UNWANTED BITS
2160  011306  062716  001270                          ADD     #.TRPTAB,(SP)           ;POINTER TO SUBROUTINE ADDRESS
2161  011312  017616  000000                          MOV     @(SP),(SP)              ;SUBROUTINE ADDRESS
2162  011316  000136                                  JMP     @(SP)+                  ;GO TO SUBROUTINE
2163                                  01400
2164                                  01500
2165                                  01600
2166                                  01700   ;*****************
2167                                  01800   ;TTY MESSAGES
2168                                  01900   ;*****************
2169                                  02000
2170  011320  005015  050104  030461  02400   EDP11:  .ASCIZ  <15><12>?DP11/DFC11-A TEST ?
      011345     015  042012  030525  02500   EDU11:  .ASCIZ  <15><12>?DU11/DFC11-A TEST ?
      011372  005015  053520  020122  02600   MPOWER: .ASCIZ <15><12>/PWR FAILED /
      011410  003407  005015  047105  02700   MEPASS: .ASCIZ <7><7><15><12>/END PASS CSR: /
      011433     015  052012  051505  02800   MTSTN:  .ASCIZ <15><12>/TEST NO. /
      011447     114  047111  035105  02900   MLINE:  .ASCIZ /LINE: /
      011456  005015  051105  047522  03000   MERRPC: .ASCIZ <15><12>/ERROR PC: /
      011473     015  000012          03100   MCRLF:  .ASCIZ <15><12>
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```
011476  005015  042012  053105  03200   DUTITLE: .ASCII <15><12><12>/DEVICE UNDER TEST-DU11 &DFC11A /<15><12>
011542  042115  030455  026461  03300            .ASCIZ  /MD-11-DZDFA-B /<15><12>
011563     015  005012  042504  03400   DPTITLE: .ASCII <15><12><12>/DEVICE UNDER TEST-DP11 &DFC11A /<15><12>
011627     115  026504  030461  03500            .ASCIZ  /MD-11-DZDFA-B /<15><12>
011650  005015  042526  052103  03600   MVECTO:  .ASCIZ  <15><12>/VECTOR ADDRESS-/
011672  005015  051461  020124  03700   MREGAD:  .ASCIZ  <15><12>/1ST DEVICE: RECEIVER CONTROL REGISTER ADDRESS-/
011753     015  040412  042522  03800   MMULT:   .ASCIZ  <15><12>/ARE YOU RUNNING MULTIPLE DEVICES ? (Y OR N)-/
012032  005015  040514  052123  03900   MLASTD:  .ASCIZ  <15><12>/LAST DEVICE:RECEIVER CONTROL REGISTER ADDRESS-/
012113     015  020012  027056  04000   MCOW:    .ASCIZ  <15><12>/ ...SELECT SOMETHING TO RUN @ACTREG /
012162  005015  052517  020124  04100   MRANGE:  .ASCIZ  <15><12>/OUT OF RANGE:RETYPE LAST DEVICE RXCSR ADDRESS-/
012243     040  037440  000040  04200   MQM:     .ASCIZ  /  ? /
012250  005015  020122     000  04300   MR:      .ASCIZ  <15><12>/R /
                                04400
012255     015  051012  043505  04500   EM1:     .ASCIZ <15><12>/REG. ADDRESS  /
012276  005015  051124  047101  04600   EM2:     .ASCIZ <15><12>/TRANSMITTER  /
012316  005015  042522  042503  04700   EM3:     .ASCIZ <15><12>/RECEIVER  /
012333     015  052412  042516  04800   EM4:     .ASCIZ <15><12>/UNEXPECTED INTERRUPT /
012363     105  050130  041505  04900   DH0:     .ASCIZ /EXPECTED  RECEIVED /
012407     106  044501  042514  05000   DH1:     .ASCIZ /FAILED TO INTERUPT. /
012434  047111  042524  052522  05100   DH2:     .ASCIZ /INTERUPTED UNEXPECTEDLY. /
012466  005015  051124  050101  05200   DH3:     .ASCIZ <15><12>/TRAPPED FROM /
012506  005015  054523  052123  05300   MNOCLOCK:        .ASCII  <15><12>/SYSTEM HAS NO CLOCK!!/
012535     015  050012  052125  05400   MSCOPBAUD:       .ASCIZ  <15><12>/PUT UP SWITCH 14 FOR SCOPE LOOP /
012600  005015  051511  052040  05500   MCPS:    .ASCIZ  <15><12>/IS THE AC LINE INPUT 60 CYCLES?  (Y OR N)  ---  /
012663     015  042012  020117  05600   MRBAUD:  .ASCIZ  <15><12>/DO YOU STILL WISH TO RUN BAUD TEST USING SCOPE LOOP?  (
012773     015  052012  042510  05700   MNODEV:  .ASCIZ  <15><12>/THERE IS NO DEVICE PRESENT AT THE ADDRESS YOU SELECTED-
013112  034461  030062  020060  05800   M19200:  .ASCIZ  /19200  /
013122  033071  030060  020040  05900   M9600:   .ASCIZ  /9600  /
013131     064  030070  020060  06000   M4800:   .ASCIZ  /4800  /
013140  032062  030060  020040  06100   M2400:   .ASCIZ  /2400  /
013147     061  030062  020060  06200   M1200:   .ASCIZ  /1200  /
013156  030066  020060  000040  06300   M600:    .ASCIZ  /600  /
013164  030063  020060  000040  06400   M300:    .ASCIZ  /300  /
013172  032461  020060  000040  06500   M150:    .ASCIZ  /150  /
013200  032467  020040     000  06600   M75:     .ASCIZ  /75  /
013205     015  041412  047101  06700   MWRONGRT:        .ASCII  <15><12>/CAN'T DETERMINE RATE--PUT UP/<15><12>
013245     123  020127  032061  06800                    .ASCIZ  /SW 14 IF SCOPE LOOP IS WANTED.  /
013306  005015  047531  051125  06900   MBAUDRT:         .ASCIZ  <15><12>/YOUR BAUD RATE IS  /
013334  041040  052501  027104  07000   MRITE:   .ASCIZ  / BAUD.  IF NOT CORRECT, USE A SCOPE!!/
013402  005015  047504  054440  07100   MBDRT:   .ASCIZ<15><12>/DO YOU WISH TO CHECK BAUD RATE?  (Y OR N)  ---  /
013465     015  054412  052517  07200   MTSTM:   .ASCIZ  <15><12>/YOU TOOK TOO LONG TO SCOPE OR DFC FAILED TEST. /
013547     015  042012  020117  09100   MBDTEST:.ASCIZ  <15><12>/DO YOU WANT TO RUN BAUD RATE TEST? (Y OR N) --- /
                                09200   .EVEN
013632                          09600   .ERRTAB:
2171  013632  000000            09700           0
2172  013634  000000            09800           0
2173  013636  000000            09900           0
2174  013640  011473            10000           MCRLF
2175  013642  012363            10100           DH0     ;HALT 1
2176  013644  013720            10200           DT0
2177                            10300
2178  013646  012255            10400           EM1
2179  013650  012363            10500           DH0     ;HALT 2
2180  013652  013732            10600           DT1
2181                            10700
2182  013654  012276            10800           EM2
```

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 2183  013656  012407                    10900          DH1     ;HALT 3
 2184  013660  000000                    11000          0
 2185                                    11100
 2186  013662  012316                    11200          EM3
 2187  013664  012407                    11300          DH1     ;HALT 4
 2188  013666  000000                    11400          0
 2189                                    11500
 2190  013670  012276                    11600          EM2
 2191  013672  012434                    11700          DH2     ;HALT 5
 2192  013674  000000                    11800          0
 2193                                    11900
 2194  013676  012316                    12000          EM3
 2195  013700  012434                    12100          DH2     ;HALT 6
 2196  013702  000000                    12200          0
 2197                                    12300
 2198  013704  011473                    12400          MCRLF
 2199  013706  013465                    12500          MTSTM   ;HALT 7
 2200  013710  000000                    12600          0
 2201                                    12700
 2202  013712  012333                    12800          EM4
 2203  013714  012466                    12900          DH3     ;HALT 10
 2204  013716  013750                    13000          DT2
 2205  013720  000002                    13100  DTO:    2
 2206  013722     006      004          13200          .BYTE   6,4
 2207  013724  001124                    13300          SAVR0
 2208  013726     006      002          13400          .BYTE   6,2
 2209  013730  001126                    13500          SAVR1
 2210                                    13600
 2211  013732  000003                    13700  DT1:    3
 2212  013734     006      010          13800          .BYTE   6,8.
 2213  013736  001110                    13900          TEMP4
 2214  013740     006      004          14000          .BYTE   6,4
 2215  013742  001124                    14100          SAVR0
 2216  013744     006      002          14200          .BYTE   6,2
 2217  013746  001126                    14300          SAVR1
 2218                                    14400
 2219  013750  000001                    14500  DT2:    1
 2220  013752     006      002          14600          .BYTE   6,2
 2221  013754  006012                    14700          TRP.PC
 2222  013756  000000                    14800  TEMP:   0
 2223          014020                    14900          .=.+40
 2224  014020  000000                    15000  MDATA:  0
 2225          014062                    15100          .=.+40
 2226  014062  000000                    15200  INBUF:  0
 2227          014124                    15300          .=.+40
 2228          000001                    15400          .END
```

```
AAA     002046            821     829#
ACTREG  001264            609#    859*    873*    874*    881*   1779    1782    1792
ADRCNT= 011067           2059*   2094*   2101#
ARESTR  007540           1796    1818    1824#
BACK    001204            569#   1669*   1758
BASCSR  001350            727#   1569    1574
BASEAD  001252            604#    841*    878*    879     885*    887*   1786*   175     1803
BASEIV  001260            607#    851*   1787*   1800*   1805    1806*   1807    1808*   1809    1810*   1811    1812*
BASVEC  001346            726#   1592
BAUD    002636            788     792     993#
BAUDFL  001216            575#   1035    1036    1507    1508
BBB     002174            858     862#
BDRFLG  001220            577#
BDTAG   004666           1355    1360#
BDTSTF  001221            578#    785     786     901     902
BEGIN   004526           1332#   1348    1352    1499
BGNOA   001530            769     775#    796
BINWRD  010610           1991*   1992    2026#
BITW  = 002000            696#
BIT0  = 000001            480#    672     703     968     975    1675    1738    1747
BIT1  = 000002            479#    671
BIT10 = 002000            470#    662     696    1680
BIT11 = 004000            469#    661    1748
BIT12 = 010000            468#    660     677
BIT13 = 020000            467#    659     676     695
BIT14 = 040000            466#    658     675     694    1028    1500    1520    1845
BIT15 = 100000            465#    657     674     693
BIT2  = 000004            478#    670
BIT3  = 000010            477#    669     702    1059
BIT4  = 000020            476#    668     701
BIT5  = 000040            475#    667     700    1757
BIT6  = 000100            474#    666     699    1691
BIT7  = 000200            473#    665     698
BIT8  = 000400            472#    664     680     697    1677
BIT9  = 001000            471#    663     679
BPC     001152            556#
BREAK = 000001            703#
BRW     007732           1863#
BRX     007734           1864#
CABLE   001160            559#
CARDET= 010000            660#   1079    1090
CCC     007520           1778    1802    1816#
CHCNT   001222            580#   1004*   1022*   1299*   1362    1366    1375    1379    1388    1392    1401    1405    1414
                         1418    1427    1431    1440    1444    1453    1457    1533*
CHLEN   001166            562#   1676*   1750    1751*   1752
CHRCNT  010606           1989*   1993    2009*   2024#   2025
CLK   = 020000            695#
CLKSET  001224            581#    991*   1017*   1324*   1350    1358*
CLKSTA  001230            593#   1330*   1331*   1340*   1354*   1497*   1498*
CLOCK   005456           1006    1313    1474#
CLRVEC  006306            770     775    1622#
CNT.RX  005770           1308    1533#
CNVRT = 104407            641#   1878    1946
CONT.   001206            570#    778*    813*    937*   1825    1987
CONVRT= 104406            639#   1959
CON.RX  003004            996    1022#
```

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CPSFLG  001214            573*   1014   1015   1321   1322
CTS   = 020000            659*   1079   1090
DATABP  010314           1937*   1940   1957   1960*
DATAHD  010302           1936*   1953   1956*
DDD     002334            861    897*
DD.A    001232            503*    584*   809*   1513   1523
DELAY = 104401            629*    969    976
DEVADR  011064           2057*   2091   2099*
DEVICE  001210            571*    803*  1616*   1762*  1890
DH0     012363           2170*   2175   2179
DH1     012407           2170*   2183   2187
DH2     012434           2170*   2191   2195
DH3     012466           2170*   2203
DNA   = 100000            693*
DNAINT= 000040            700*
DPRB    001324            714*   1023   1733   1734   1736
DPRIV   001336            722*    996*  1687*
DPRP    001340            723*    997*
DPRS    001322            713*    941*  1001*  1576   1616   1673*  1675*  1680*  1691*  1729   1738*  1747*  1748*
                         1750*   1756*
DPSETU  002652            996*
DPTB    001332            717*    944*  1003*  1704*  1720*
DPTITL  011563            767    2170*
DPTIV   001342            724*    998*  1686*  1708*  1745*
DPTP    001344            725*    999*
DPTS    001330            716*    940*   945    957    968*   970    975*   977    1041*  1345*  1517*  1674*  1692*
                         1714    1717   1724*  1749*  1755*
DP.UPD  001632             778    794*   937
DP11    001374             507    749*   753
DP11.A  002370             503     754    755    789    928*   938
DSC   = 100000             657*
DSINTE= 000040             667*
DSR   = 001000             663*   1078   1079   1090
DTR   = 000002             671*   1079   1083   1090   1172
DT0     013720           2176    2205*
DT1     013732           2180    2211*
DT2     013750           2204    2219*
DUADDR  007200             840   1761*  1804
DUBASE  007270             835    839   1640   1761   1763*  1764   1765   1766*  1767   1768*  1769   1771*  1803*
DURIS   001366             743*  1096*  1118   1119*  1126   1127*  1188*  1211   1212*  1227   1228*  1256   1257*
                          1309*  1807*
DURIV   001364             742*   847    850    851   1095*  1118*  1126*  1187*  1211*  1227*  1256*  1309*  1805*
                          1812
DUSETU  004370            1308*
DUTIS   001372             745*  1190*  1213   1214*  1229   1230*  1258   1259*  1311*  1811*
DUTITL  011476             818    2170*
DUTIV   001370             744*  1189*  1213*  1229*  1258*  1310*  1809*
DU.UPD  007272            1777*  1886
DU11    001642             500    800*   808   1785
DU11.A  003110             510    801    802    809    827    905   1059*
DU11.B  003512            1061   1156*
EDP11   011320             756    2170*
EDU11   011345             815    2170*
EEE     004620            1342   1350*
EIGHT = 006000             688*  1075   1169
EM1     012255            2170*  2178
```

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EM2     012276          2170*   2182    2190
EM3     012316          2170*   2186    2194
EM4     012333          2170*   2202
ERRCNT  001076           531*    762*    811*   1548*   1968*
ERRFLG  001242           592*   1857*   1874*   1925*   1938    1950*
ERRMSG  010270          1935*   1952*
ERTABO  010404          1947    1977*
EVEPAR= 001400           691*
EVPAR = 000400           680*
EXITER  01034C          1963    1968*
FIVE  = 000000           685*
FLG19.  001215           574*
FRMERR= 020000           676*
HALTS   010320          1921    1962*
HDXEN = 000010           702*
HILIM   011062          2056*   2082    2098*
ICOUNT  001066           527*    763*    814*   1855    1859*
INBUF   014062          2062    2109    2133    2137    2226*
INIFLG  001240           590*    761*    779     781*    816     819*
INIF.A  001217           576*    757*    805*
INSTER= 104413           649*   2077    2142
INSTR = 104410           643*    782     830     842     852     863     888     898     1011    1032    1318    1504
INSTR2  011170          2116    2125*
INTCNT  001226           582*   1000*   1300*   1341*   1350
INTSVC  004552          1328    1340*   1494
INTS.A  004604          1344    1347*
INTS B  004612          1346    1348*
ISYMOD= 000000           684*   1072    1075
MRBY    001251           600*
KEEPAD  001254           605*    839*    841     885     887     1799
KEEPIV  001262           608*    850*   1800
KWSETU  004462           992    1018    1325*   1359
KW11L   004476          1326    1328*
KW11P   005572          1327    1494*
LASTAD  001256           606*    868     879     893
LESS.T  007602          1833*
LIGHTS= 177570           450*   1883*
LIMIT   001170           563*   1679*   1684*   1722    1740    1744*
LIMITS  011014          2072    2082*
LINE.N  006014           773    1548*
LINE.X  006064           776    1561*   1614
LOBITS  011066          2058*   2086    2100*   2101
LOCK    001064           526*   1896
LOGICA  007530          1820*
LOKFLG  001243           593*
LOLIM   011060          2055*   2084    2097*
LPCNT   001070           528*    759*    812*   1854*   1855    1858*
LSTERR  001100           532*    760*    810*   1873*   1922    1924*
MAINPR  005700          1043    1372    1385    1398    1411    1424    1437    1450    1463    1509    1513*
MBAUDR  013306          1368    1381    1394    1407    1420    1433    1446    1459    2170*
MBDRT   013402          2170*
MBDTES  013547           783     895    2170*
MCOW    012113          1781    2170*
MCPS    012600          1012    1319    2170*
MCRLF   011473          1949    1984    2170*   2174    2198
MDATA   014020          2007    2018    2224*
```

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MEPASS  011410          1877    2170#
MERRPC  011456          1945    2170#
MEXT  = 010000           707#
MINT  = 004000           706#
MLASTD  012032           864    2170#
MLINE   011447          2170#
MMULT   011753           853    2170#
MNOCLO  012506          1489    2170#
MNODEV  012773          1643    2170#
MORE.T  007610          1836#
MPOWER  011372          1664    2170#
MQM     012243          2123    2170#
MR      012250           826    2170#
MRANGE  012162           889    2170#
MRBAUD  012663          1033    1505    2170#
MREGAD  011672           831    2170#
MRESET= 000400           697#   1071    1074    1165    1167    1301
MRITE   013334          1371    1384    1397    1410    1423    1436    1449    1462    2170#
MSCOPB  012535          1038    1510    2170#
MTDATA= 040000           694#
MTSTM   013465          2170#   2199
MTSTN   011433          2170#
MULTD   001250           599#    855     856    1777
MVECTO  011650           843    2170#
MWRONG  013205          1364    1377    1390    1403    1416    1429    1442    1455    1465    2170#
M1200   013147          1413    1528    2170#
M150    013172          1452    1531    2170#
M19200  013112          1361    1524    217C#
M2400   013140          1400    1527    2170#
M300    013164          1439    1530    2170#
M4800   013131          1387    1526    2170#
M600    013156          1426    1529    2170#
M75     013200          1532    2170#
M9600   013122          1374    1525    2170#
NEXT    001062           525#    755*    802*    936*    939*    1070*   1164*   1860    1973    2147
NOPAR = 000000           689#   1075    1169
NOT60   002624           991#   1016
NO.CLO  001212           572#   1007    1314    1325    1478*   1481*   1487*
NO.TRA  006002          1310    1536#
NO60CP  004654          1323    1358#
N.TRAP  003016           998    1025#
ODDPAR= 001000           690#
OKADR   006334           838    1636#   1795
ONCE    002000           813     817     820#
OPTCLR  001247           598#
OUTMUL  002356           886     905#
OUTPUT  005704          1502    1515#
OUT.PT  003072          1030    1041#
OVRRUN= 040000           675#
PARAM = 104411           645#    832     844     865     890
PARAM1  010734          2061#   2078
PARCSR  001356           738#   1072*   1075*   1166*   1169*   1302*   1765*
PAREN = 001000           679#
PARER = 010000           677#
PARERR  011010          2064    2066    2068    2077#   2083    2085    2087
PART2   001540           774     777#    795
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PART3   001602            780    789#
PASCNT  001074            499*   505*   530#   1875*  1883
PC    =%000007            445#   764*   770*   773*   775*   776*   838*   840*   987*   1006*  1313*  1493*  1609*
                         1617*  1629*  1650*  1700*  1770*  1794*  1795*  1801*  1804*  1813*  1820*  1832   1835
POPRO = 012600            459#   1967
POP.SP= 022626            461#   1613   1830
POP1SP= 005726            457#
PS    = 177776            451#   752*   806*   993*   1097*  1115*  1125*  1191*  1208*  1254*  1272*  1296*  1332*
                         1688*  1757*  1824*  1831*
PSTART  001236            586#   753*   808*   1665
PUSHRO= 010046            458#   1964
PUSH.S= 024646            460#
PUSH1S= 005746            456#
PWRUP   006424           1658    1660#
RDATA   001164            561#   1671*  1732   1734   1739*  1740   1742*
RECACT= 004000            661#
REPLAY  007424           1794    1801   1803#
RESREG  010316           1958    1961#
RESTRT  010014           1885    1887#
RESOS = 104405            637#   1961
RETURN  001060            524#   754*   789*   792*   793    801*   824*   827*   828    905*   906    938*   1860*
                         1861    1973*  1975   2147*  2148
RING  = 040000            658#   1079   1090
RINTEN= 000100            666#   1101   1121   1124   1196   1210   1232   1255
ROTADD  001266            612#   860*   872*   874    876*   881    884*   1789*  1792   1797*
RP      001202            568#
RTS   = 000004            670#   1079   1083   1090   1172
RUNIT   007324           1780    1786#  1793
RV18    006772           1687    1729#
RX      002650            995#
RXCSR   001352            736#   803    1078*  1080   1083*  1089   1101*  1116   1121*  1124*  1138   1172*  1196*
                         1210*  1225   1232*  1255*  1265   1307*  1761*  1762
RXDBUF  001354            737#   1098   1117   1192   1226   1534   1764*
RXDONE= 000200            665#   1139   1141   1266   1268
RXERR = 100000            674#
RXSETU  004362           1307#
R0    =%000000            438#   943*   1079*  1091   1099*  1130   1139*  1142   1193*  1262   1266*  1269   1333*
                         1335*  1550*  1555*  1732*  1782*  1850*  1965*  1994*  1998*  2008   2039   2044*
R1    =%000001            439#   945*   946*   947    970*   971*   972    1089*  1090*  1091   1117*  1130   1140*
                         1141*  1142   1226*  1262   1267*  1268*  1269   1334*  1337*  1557*  1558*  1559*  1561*
                         1563*  1564*  1565   1566*  1567*  1568*  1575   1593   1603*  1609   1623*  1624   1626
                         1627   1733*  1817*  1820   1985*  1988   1989   1990   1991   2038   2045*
R2    =%000002            440#   942*   944    949*   954*   955*   1105*  1106*  1181*  1182*  1202*  1203*  1248*
                         1249*  1574*  1575*  1577   1578   1579   1580*  1581   1582*  1583   1584   1585   1586*
                         1587   1588*  1589*  1592*  1593*  1594   1595   1596   1597   1598   1599   1600   1622*
                         1624*  1625*  2037   2046*
R3    =%000003            441#   1576*  1577*  1579*  1581*  1583*  1585*  1587*  1594*  1596*  1598*  1600*  1995*
                         1996*  1997*  1998   2007*  2008*  2013*  2016*  2036   2047*  2110*  2120*
R4    =%000004            442#   1116*  1140   1225*  1267   1929*  1930*  1931*  1932*  1933*  1934*  1935   1936
                         1937   1992*  1995   2000*  2002*  2004*  2035   2048*  2062*  2063   2065   2067   2069*
                         2070   2071   2091*  2092*  2109*  2113*  2114*  2115
R5    =%000005            443#   1901*  1905   1909   1927*  1928*  1929   1931   1993*  2005*  2034   2049*  2054*
                         2055   2056   2057   2058   2059   2060   2061*  2070*  2073*  2074*  2075*  2082   2084
                         2086   2092   2093*  2132*  2135*  2139*
SAVPC   001142            552#   1979   2030*
SAVRO   001124            545#   2039*  2044   2207   2215
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SAVR1   001126            546*  2038*  2045   2209   2217
SAVR2   001130            547*  2037*  2046
SAVR3   001132            548*  2036*  2047
SAVR4   001134            549*  2035*  2048
SAVR5   001136            550*  2034*  2049
SAVSP   001140            551*
SAVSR1  001144            553*   794   1549*  1562*  1571   1590   1677   1880
SAVSR2  001174            565*  1554*  1558   1588
SAVOS = 104404            635*  1926
SCNT    001172            564*  1689*  1706*  1746*
SCOPE = 104400            627*   988   1146   1273
SCOP1 = 104402            631*
SCOP2 = 104414            651*
SEND  = 000020            701*  1100   1168
SEQ.DA  006450            987   1668*
SEREC   001246            597*
SETFLG= 104412            647*   784    854    900   1013   1034   1320   1506
SEVEN = 004000            687*
SEXMIT  001245            596*
SEXT    001334            718*  1670*  1682*  1705*
SIX   = 002000            686*
SLIM    001150            555*
SP    =%000006            444*   751*   807*   994*  1025   1120*  1231*  1239*  1242*  1297*  1348*  1352*  1355*
                         1474*  1475*  1484   1490   1491   1492   1536   1636*  1637*  1644   1648   1649   1661*
                         1759*  1827   1828*  1829   1861*  1896*  1901   1902*  1922   1924   1927   1965   1974*
                         1985   1987*  2030   2054   2060*  2105   2106*  2132   2140*  2148*  2155*  2156*  2157*
                         2158*  2159*  2160*  2161*  2162
SPACNT= 010607           1990*  2011   2014*  2025*
SRD   = 002000            662*  1078   1079   1090
STACK = 001050            452*   751    807    994   1297   1661   1974
START   004274            824    904   1296*
STD   = 000010            669*  1078   1079   1083   1090   1172
STFLG   001241            591*
STPSYN= 000400            664*  1172
SVOS    010620           2034*
SWMP    003104           1037   1043*
SWR   = 177570            449*   768    790    820    822   1028   1059   1500   1520   1549   1550   1554   1555
                         1845   1852   1894   1903   1915   1920   1962   1969   1971
SW00  = 000001            433*   820
SW01  = 000002            432*   790    822
SW02  = 000004            431*
SW03  = 000010            430*
SW04  = 000020            429*
SW05  = 000040            428*
SW06  = 000100            427*
SW07  = 000200            426*
SW08  = 000400            425*  1969
SW09  = 001000            424*  1894
SW10  = 002000            423*  1971
SW11  = 004000            422*  1852
SW12  = 010000            421*  1903   1915
SW13  = 020000            420*  1920
SW14  = 040000            419*
SW14A   005634           1316   1365   1378   1391   1404   1417   1430   1443   1456   1467   1500*  1512
SW14.B  003026           1028*  1040   1042
SW15  = 100000            418*
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SYNC    001326            715#   1002*  1690*
SYNC    001244            595#
SYNE  = 020000            683#
SYNINT= 030000            682#   1166   1169
SYNSCH= 000020            669#   1101   1172
SYSTST= 014000            708#
TAG     001234            506*    585#   758*   804*  1343   1515   1884
TDATA   001162            560#   1672*  1720   1721*  1722   1743*
TEMP    013756           1986    1994   2021*  2222#
TEMP1   001102            536#    985*  1695*
TEMP10  001114            541#
TEMP11  001116            542#
TEMP12  001120            543#    953*   959*
TEMP13  001122            544#
TEMP2   001104            537#    986*  1697*
TEMP3   001106            538#   1081*  1084*  1194*  1237*  1827*  1832*  1835*  1838*  1986*  2021
TEMP4   001110            539#   1080*  1098*  1138*  1192*  1265*  1829*  1840   2213
TEMP5   001112            540#   1104*  1108*  1109   1180*  1184*  1185   1201*  1205*  1206   1247*  1251*  1252
TEMTZ   005650           1501    1503#
TI      001176            566#
TKCSR   001050            517#   1848   2111   2144
TKDBR   001052            518#   1850   2113   2119   2146
TMPDAT  001146            554#   1736*
TP      001200            567#
TPCSR   001054            519#   1907   1917   2117
TPDBR   001056            520#   1909*  1919*  2119*
TRPOK   011300           2158#
TRP.PC  006012           1025*   1536*  1539#  2221
TSTNO   001072            529#    935*  1069*  1163*
TST.Z   003042           1009    1029   1031#
TST1    002370            935#
TST2    003124            936    1069#
TST3    003512           1070    1163#
TST4  = ****** U          1164
TSYNC   001154            557#   1681*  1685*  1690   1704   1705
TTST    007634           1846#
TV18    006664           1686    1704#  1745
TV19    006716           1708    1714#
TX      002716           1002#
TXCSR   001360            739#   1071*  1074*  1100-  1165*  1167*  1168*  1197*  1209*  1233*  1246*  1301*  1304*
                         1305*  1347*  1519*  1767*
TXDBUF  001362            740#   1094*  1200*  1245*  1306*  1769*
TXDONE= 000200            698#
TXINTE= 000100            699#   1197   1209   1233   1246
TXSETU  004306           1298#
TYPDAT  010304           1941    1954   1957#
TYPE  = 104403            633#    767    818    826   1038   1364   1368   1369   1371   1377   1381   1382   1384
                         1390   1394   1395   1397   1403   1407   1408   1410   1416   1420   1421   1423   1429
                         1433   1434   1436   1442   1446   1447   1449   1455   1459   1460   1462   1465   1489
                         1510   1643   1663   1781   1876   1942   1944   1948   1951   1955   1983   2017   2107
                         2122
TYPMSG  010240           1939   1942#
USER  = 000000            705#   1100   1168
VOID  = 000001            672#
WHO     010242            756*    815*  1943#
WRDCNT  013604           1988*   2019*  2023#
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XBX     010132          1916    1918    1920*
XCSR    010020          1879    1889*
XLINEX  001156           504*    558*   1561    1565*   1602*   1882*
XTAG    006076          1560    1564*
XXTABL  005746          1524*
X.OP    001516           770*
ZERO    007332          1787*
$E      = 000005           1*    936     937*    1070    1071*   1164    1165*
$N      = 000003           1*    929     937*    1063    1071*   1157    1165*   1866*
$Y      = 000015           1*    619*    627     629*    631*    633*    635*    637*    639*    641*    643*    645*    647*
                         649*    651*    653*
.       = 014124          487*    488     489*    498*    502*    509*    512*    713*    714*    715*    716*    717*    718*
                          722*    723*    724*    725*    766     787     903     956     973     978     1107    1131    1143
                         1183    1186    1204    1250    1263    1270    1363    1376    1389    1402    1415    1428    1441
                         1454    1539*   1572    1646    1715    1718    1730    1881    1943*   2223*   2225*   2227*
.CNVRT  010416           642    1985*
.CONVR  010412           640    1983*
.DELAY  007552           630    1827*
.EOP    007736           939    1164    1673*
.ERRTA  013632          1934    2170*
.HLT    010106           492    1915*
.INSTE  011162           650    2122*
.INSTR  011070           644    2105*
.INST1  011102          2107*   2124
.MSG    011104          2105*   2108*
.PARAM  010704           646    2054*
.PFAIL  006414           490    1658*   1662
.RESOS  010652           638    2044*
.SAVOS  010612           636    2030*
.SCOPE  007626           628    1845*
.SCOP1  010026           632    1894*
.SCOP2  011240           652    2144*
.SETFL  011172           648    2132*   2143
.TRPSR  011266           494    2155*
.TRPTA  001270           626*   2160
.TYPE   010044           634    1901*
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DZDFAB.P11 CROSS REFERENCE TABLE -- MACRO NAMES

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HLT       462#   951   961   974   979  1026  1086  1111  1132  1144  1215  1260  1264  1271  1339
         1537  1699  1716  1719  1731  1737
$BAUD     1275#  1361  1374  1387  1400  1413  1426  1439  1452
$CATCH       1#   483
$CONVR       1#  1980
$DELAY     307#  1827
$EOP         1#  1865
$GETFL     307#   782   852   898  1010  1031  1317  1504
$GETPA     307#   830   842   862   888
$HEADE       1#   396
$HELPE       2#
$HLT         1#  1912
$INSTR     307#  2102
$MSG      2170#
$PARAM     307#  2051
$REG         2#  2027
$RESET       1#
$SCOPE       1#  1842
$SCOP1       1#  1891
$SCOP2       1#  2144
$SETFL     307#  2126
$SWITC     307#
$SYMBO       1#   415
$TRAPS       1#   618
$TRPDE       1#   627   629   631   633   635   637   639   641   643   645   647   649   65:
$TRPSR       2#  2150
$TSTN        1#   929  1063  1157
$TYPE        1#  1898
$VARIA       1#   513
```

E05


```
ADD      978  1593  1751  1763  1766  1768  1786  1787  1806  1808  1810  1828  1835  1902  1931
        1934  1987  1997  2093  2106  2140  2160
ASL     1563  1566  1567  1568  1930  1932  2073  2074  2075  2158
ASR     1564  1744
BCS      977  1790
BEQ      787   791   823   903   948   958   973   978  1016  1029  1037  1060  1131  1143  1263
        1270  1323  1326  1344  1351  1501  1509  1516  1604  1678  1715  1735  1753  1778  1793
        1818  1846  1895  1906  1916  1923  1939  1954  1958  1972  2012  2064  2072  2116
BGE     1110  1186  1207  1253
BGT     2068
BHI      880  2083
BIC      946   971   975  1078  1090  1121  1124  1141  1209  1210  1232  1233  1246  1255  1268
        1305  1340  1354  1559  1589  1724  1738  1748  1757  1933  1996  2159
BICB    2069  2114
BIS      874   881  1071  1074  1083  1101  1165  1167  1172  1196  1197  1301  1307  1345  1517
        1675  1680  1691  1692  1747  1749  1750
BISB    2070
BIT      790   820   822   957  1028  1059  1500  1520  1677  1714  1792  1845  1852  1894  1903
        1915  1920  1969  1971
BITB    2086
BLO     1367  1380  1393  1406  1419  1432  1445  1458  2085
BLOS    1363  1376  1389  1402  1415  1428  1441  1454
BLT     2066
BMI      795   858  1238  1572  1591  1718  1730  1881
BNE      766   780   817   821   950   956   960  1008  1085  1092  1107  1183  1204  1250  1315
        1336  1338  1342  1521  1628  1696  1698  1707  1723  1741  1780  1839  1853  1856  1885
        1904  1921  1941  1970  2006  2010  2015  2020  2097  2095  2121  2134  2138
BPL      769  1849  1908  1918  1963  2112  2118  2145
BR       774   796   825   886  1088  1112  1128  1221  1261  1346  1482  1488  1518  1560  1601
        1614  1642  1646  1683  1802  1847  1851  1910  2076  2078  2124  2136  2143
CLC      875  1788  1999  2001  2003
CLR      499   504   505   506   759   760   762   804   810   811   812   859   860   973   940
         941   942   954   985   986  1004  1097  1104  1105  1119  1127  1180  1181  1191  1201
        1202  1212  1214  1228  1230  1247  1248  1257  1259  1299  1332  1333  1478  1548  1557
        1562  1602  1625  1671  1672  1673  1674  1742  1743  1755  1756  1831  1858  1873  2061
CLRB     757   761   805  1670  1857  1874  1925  2016  2135
CMP      879   947   972   977  1091  1109  1130  1142  1185  1206  1252  1262  1269  1325  1350
        1362  1366  1375  1379  1388  1392  1401  1405  1414  1418  1427  1431  1440  1444  1453
        1457  1484  1490  1626  1627  1644  1722  1734  1740  1752  1855  1922  2082  2094
CMPB    2063  2065  2067  2071  2115  2133  2137
COM      758
COMB     781   819
DEC      764   959  1084  1237  1335  1337  1697  1706  2005  2019  2120
DECB    2009  2014  2094
EMT      462
HALT     488  1039  1511  1551  1556  1645  1659  1783  1966
INC      949   955  1022  1106  1108  1182  1184  1203  1205  1249  1251  1341  1533  1580  1582
        1586  1695  1721  1739  1854  1875  1882  1968
INCB    1682
JMP      500   507   510   788   793   828   861   896   904   906   992  1009  1018  1030  1040
        1042  1043  1061  1198  1316  1327  1359  1365  1372  1378  1385  1391  1398  1404  1411
        1417  1424  1430  1437  1443  1450  1456  1463  1467  1499  1502  1512  1513  1523  1665
        1785  1796  1825  1840  1886  1887  1975  2162
JSR      770   773   775   776   838   840   997  1006  1313  1609  1794  1795  1801  1804  1820
MOV      503   751   752   753   754   755   756   763   778   789   792   801   802   803   806
         807   808   809   813   814   815   824   827   839   841   950   851   872   884   885
```

```
                 987   995   935   936   937   938   939   943   944   945   953   968   970   991   993
                 994   996   997   998   999  1000  1017  1025  1069  1070  1072  1075  1079  1080  1081
                1089  1095  1096  1098  1099  1100  1115  1116  1117  1118  1120  1125  1126  1138  1139
                1140  1163  1164  1166  1168  1169  1187  1188  1189  1190  1192  1193  1194  1208  1211
                1213  1225  1226  1227  1229  1231  1239  1242  1254  1256  1259  1265  1266  1267  1272
                1296  1297  1300  1302  1304  1308  1309  1310  1311  1324  1328  1329  1330  1331  1334
                1348  1352  1355  1358  1361  1374  1387  1400  1413  1426  1439  1452  1474  1475  1476
                1477  1481  1483  1487  1491  1492  1494  1495  1496  1497  1498  1519  1536  1549  1550
                1554  1555  1561  1565  1573  1574  1576  157?  1579  1581  1583  1585  1587  1588  1592
                1594  1596  1598  1600  1603  1615  1616   162   623  1624  1636  1637  1638  1639  1648
                1649  1658  1661  1662  1669  1676  1679  168.   684  1685  1686  1687  1688  1689  1704
                1709  1720  1732  1733  1736  1745  1746  175    761  1762  1764  1765  1767  1769  1782
                1797  1799  1800  1803  1805  1807  1809  181.  1812  1817  1824  1827  1829  1850  1859
                1860  1861  1883  1896  1901  1924  1927  1929  1935  1936  1937  1965  1973  1974  1985
                1986  1988  1991  1992  1994  1995  2007  2021  2030  2034  2035  2036  2037  2038  2039
                2044  2045  2046  2047  2048  2049  2054  2055  2056  2057  2060  2062  2091  2092  2105
                2109  2110  2132  2147  2148  2155  2157  2161
MOVB            1001  1002  1003  1041  1094  1200  1245  1306  1347  1558  1690  1705  1909  1919  1950
                1989  1990  1993  1998  2008  2013  2058  2059  2113  2119  2139
NOP             1303  1480  1486  1570  1610  1611  1612  1641  1821  1822  1823
RESET            750   800   995  1298  1356  1522  1605  1660  1819
ROL              876  1789
ROR             2000  2002  2004
RTI             1024  1027  1122  1234  1241  1243  1349  1353  1357  1535  1538  1709  1725  1754  1759
                1962  1897  1911  1976  2022  2040  2050  2096  2125  2141  2149
RTS             1493  1617  1629  1650  1700  1770  1813
SUB             1575  1832  1838  1928  2156
TRAP             627   629   631   633   635   637   639   641   643   645   647   649   651
TST             1007  1023  1314  1343  1479  1485  1515  1534  1569  1578  1584  1595  1597  1599  1640
                1779  1884  1940  1953  1957  1962  2146
TSTB             768   779   786   794   816   856   902  1015  1036  1322  1508  1571  1590  1717  1729
                1777  1848  1880  1905  1907  1917  1938  2011  2111  2117  2144
.ASCII          2170
.ASCIZ          2170
.BLKW            713   714   715   716   717   718   722   723   724   725  1539  1943
.BYTE            573   574   575   576   577   578   590   591   592   593   595   596   597   598   599
                 630   836   837   848   849   869   870   894   895  1889  1978  2206  2208  2212  2214
                2216  2220
.ENABL           307  1275
.END            2228
.ENDC            937  1071  1165
.EQUIV           462
.EVEN            579   601  2170
.IF              936  1070  1164
.IFF             936   937  1070  1071  1164
.IIF             936   937  1070  1071  1164  1165
.IRP             627   629   631   633   635   637   639   641   643   645   647   649   651   929   936
                1063  1070  1157  1164  1866
.LIST              1     2   303   307   415   488   489   629   631   633   635   637   639   641   643
                 645   647   649   651   653   937  1071  1165  1275  1360  1866  2170
.MACR            307
.MACRO             1     2   307  1275  2170
.NLIST             1     2   303   307   415   488   489   629   631   633   635   637   639   641   643
                 645   647   649   651   653   937  1071  1165  1275  1360  1866  2170
.PAGE              2    56   303   307   434   483   587   747   909   989  1044  1148  1275  1842
.REM               2    56   307
```

```
DZDFA-6 MACY11 27(732)  17-SEP-76  16:06  PAGE 62
DZDFAB.P11      CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

.REPT     488
.TITLE    415
.WORD     580     581     582     583     584     585     586     765



 ERRORS DETECTED:  0
 DEFAULT GLOBALS GENERATED     0

 *,DZDFAB.SEQ/SOL/CRF/    :UM=DZDFAB
 RUN-TIME:  13 21 3 SECONDS
 RUN-TIME RATIO: 108/38=2.8
 CORE USED:  13K  (25 PAGES)
```

H05

Spool - runtime 9 Seconds, 42 KCS, 232 disk reads, 3 disk writes, 58 pages