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.REM %
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IDENTIFICATION

PRODUCT CODE: AC-8540D-MC

PRODUCT NAME: CZDMBDO DM11 DATA TST

PRODUCT DATE: JULY, 1979

MAINTAINER: DIAGNOSTIC GROUP

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                                1.      ABSTRACT

                                        TWO SEPARATE DIAGNOSTIC PROGRAMS ARE PROVIDED FOR TESTING THE
                                        DM11 (ASYNCHRONOUS DATA MULTIPLEXER), CZDMA (DM11 LOGIC
                                        TESTS), AND CZDMB (DM11 MULTIPLE LINE DATA TESTS).
                                        THE LOGICC TESTS INDIVIDUALLY TEST EACH OF THE 16 DM11
                                        LINES AND ALL COMMON LOGIC. THE MULTIPLE LINE DATA TESTS
                                        RUN SEVERAL LINES CONCURRENTLY AND ARE USED TO TEST LINE
                                        INTERACTION AND DATA TRANSMISSION/RECEPTION RELIABILITY.
                                        THIS DOCUMENT DESCRIBES THE MULTIPLE LINE DATA TESTS.
                                        THE AVAILABLE TESTS ARE:

                                            PRG0 - DATA TESTS
                                            PRG1 - DATA TEST(ALL LINES SIMULTANEOUSLY)
                                            PRG2 - TRANSMIT TO TERMINALS
                                            PRG3 - ECHO RECEIVED DATA

                                2.      REQUIREMENTS

                                2.1     EQUIPMENT

                                        A.  PDP 11 FAMILY PROCESSER
                                        B.  DM11
                                        C.  JUMPERS CONNECTING 16 TRANSMITTERS TO THEIR RESPECTIVE
                                            RECEIVERS.
                                        D.  TERMINALS (IF AVAILABLE)
                                        E.  DM11 DISTRIBUTION PANEL

                                2.2     STORAGE

                                        THIS PROGRAM USES ALL OF CORE (4K) EXCEPT THAT AREA RESERVED
                                        FOR THE LOADERS.

                                2.3     PREREQUISITE PROGRAMS
                                        CZDMA__ DM11 LOGIC TESTS

                                3.      LOADING PROCEDURE

                                        THE ABSOLUTE LOADER IS USED TO LOAD THE PROGRAM.
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4. USE PROCEDURE

4.1 STARTING PROCEDURE

BEFORE STARTING MAKE SURE THAT THE TTY IS IN REMOTE MODE.
THREE STARTING ADDRESSES ARE PROVIDED.

0200 - THIS STARTING ADDRESS REQUESTS DM11 PARAMETERS, AND MUST BE USED TO INITIALLY START THE PROGRAM, AND WHENEVER ANY OF THE PARAMETERS LISTED BELOW IS CHANGED.

A. VECTOR ADDRESS ?
RESPONSE: TYPE IN THE VECTOR ADDRESS OF THE DM11 RECEIVER UNDER TEST. CARRIAGE RETURN SELECTS 0300

B. UNIT #(8)?
RESPONSE: THE DM11 UNIT NUMBER CORRESPONDS TO THE ADDRESS TO WHICH THE CLOCK STATUS REGISTER (CSR) RESPONDS.

CSR ADDRESS	DM11 UNIT #	CSR ADDRESS	DM11 UNIT #
175000	0	175100	10
175010	1	175110	11
175020	2	175120	12
175030	3	175130	13
175040	4	175140	14
175050	5	175150	15
175060	6	175160	16
175070	7	175170	17

CARRIAGE RETURN SELECTS UNIT # 0.

C. PRG #
RESPONSE: TYPE PROGRAM NUMBER OF PROGRAM YOU WISH TO RUN. CARRIAGE RETURN SELECTS PROGRAM # 0.

CARRIAGE RETURN TERMINATES ALL RESPONSES.
ANY UNACCEPTABLE RESPONSE WILL RESULT IN A ? TYPEOUT AND THE PARAMETER WILL AGAIN BE REQUESTED.

0204 - THIS STARTING ADDRESS USES PREVIOUSLY DEFINED DM11 PARAMETERS AND REQUESTS THE PROGRAM NUMBER OF THE PROGRAM YOU WISH TO RUN.

0210 - THIS STARTING ADDRESS STARTS THE PREVIOUSLY SELECTED PROGRAM USING PREVIOUSLY SELECTED PARAMETERS.

4.2 SWITCH SETTINGS

THE FOLLOWING SWITCH SETTINGS APPLY TO PROGRAM #0.

SR 0-6	ROUTINE TO BE RUN (IF ENABLED BY SR-9)
SR 9	LOOP SELECTED ROUTINE
SR 11	INHIBIT ITERATION (DO EACH ROUTINE ONCE)
SR 13	INHIBIT PRINTOUT
SR 14	SCOPE (LOOP ROUTINE)
SR 15	HALT ON ERROR

THIS PROGRAM HAS BEEN MODIFIED TO RUN ON A PROCESSOR WITH OR WITHOUT A HARDWARE SWITCH REGISTER. WHEN FIRST EXECUTED THE PROGRAM TESTS THE EXISTENCE OF A HARDWARE SWITCH REGISTER. IF NOT FOUND A SOFTWARE SWITCH REGISTER LOCATION (SWREG=LOC. 176) IS DEFAULTED TO. IF THIS IS THE CASE, UPON EXECUTION THE CONTENTS OF THE SWREG ARE DUMPED IN OCTAL ON THE CONSOLE TTY AND ANY CHANGES ARE REQUESTED

(IE) SWR XXXXXX NEW-

POSSIBLE RESPONSES ARE:

1.	<CR>	IF NO CHANGES ARE TO BE MADE
2.	6 DIGITS 0-7	TO REPRESENT IN OCTAL THE NEW SWITCH REGISTER VALUE ;LAST DIGIT FOLLOWED BY <CR>.
3.	^U	TO ALLOW REENTERING VALUE IF ERROR IS COMMITTED KEYING IN SWREG VALUE.

BUILT INTO THE PROGRAM IS THE ABILITY TO DYNAMICALLY CHANGE THE CONTENTS OF SWREG DURING PROGRAM EXECUTION. BY STRIKING ^G (CNTL G) ON CONSOLE TTY THE OPERATOR SETS A REQUEST FLAG TO CHANGE THE CONTENTS OF SWREG, WHICH IS PROCESSED IN KEY AREAS OF THE PROGRAM CODE (IE) ERROR ROUTINES, AFTER HALTS END OF PASS, AND OTHER APPLICABLE AREAS.

5.0 PROGRAM DESCRIPTIONS

5.1 PRG0 - LOGIC TESTS

PRG0 CONSISTS OF 34(8) INDEPENDENT ROUTINES WHICH TRANSMIT VARIOUS DATA PATTERNS ON ALL LINES WITH A DECREASING DELAY BEFORE STARTING SUCCESSIVE LINES. THE DATA IS CHECKED WHEN ALL TRANSMITTERS HAVE COMPLETED TRANSMITTING. IF A DATA ERROR OCCURS THE ERROR TYPEOUT WILL SHOW THE DATA FAILURE AND THE LINE NUMBER.

5.2 PRG1 - DATA TEST (ALL LINES SIMULTANEOUSLY)

PROGRAM 1 TRANSMITS ' A QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890' ON ALL LINES SIMULTANEOUSLY. WHEN ALL LINES HAVE FINISHED RECEIVED DATA IS VERIFIED. AN ERROR TYPEOUT IS AS IN PRG0.

5.3 PRG2 - TRANSMIT TO TERMINALS

PROGRAM 2 IS THE SAME AS PROGRAM 1 EXCEPT THAT THE RECEIVED DATA IS NOT CHECKED.

5.4 PRG3 - ECHO RECEIVED DATA

NOTE: THIS PROGRAM MAY ONLY BE RUN IF USING AN ASR 33 NOT MODIFIED BY DEC.

PROGRAM 3 ECHOES BACK DATA RECEIVED FROM A TERMINAL.

NOTE: PROGRAM 3 SHOULD BE RUN AND DATA TYPED AT ALL AVAILABLE DM11 TERMINALS. IT IS THE ONLY TEST THAT INSURES CORRECT OPERATION OF THE DM11 DISTRIBUTION PANEL LOGIC. IF THE TERMINALS ARE ASR-33 WITH A PAPER TAPE READER/PUNCH I SUGGEST THAT INDIVIDUAL TAPES BE MADE UP FOR EACH LINE. THIS CAN BE DONE BY RUNNING PROGRAM 2 WITH THE PUNCH TURNED ON. PROGRAM 2 WILL THEN PUNCH A TAPE ON EACH TERMINAL WITH THE LINE NUMBER IDENTIFIER AT THE BEGINNING OF EACH TAPE. PROGRAM 3 CAN BE RUN WITH THESE TAPES IN THE PAPER TAPE READERS.

6.0 CHANGE HISTORY

NOTE: CHANGE HISTORY STARTS WITH REV. D0

CZDMBD0 - TABLE BASE ADDRESS (TBR) REGISTER WILL ONLY WORK IF SET TO 400 WORD BOUNDARY (1000,1400,2000,ETC.). THEREFOR LOC. 1100 CHANGED TO 1200, AND LOC. 1106 CHANGED TO 1400

SEQ 0006

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                                %

                                        .TITLE CZDMBDO DM11 DATA TSTS
                                        .NLIST  MC,MD
                                        .LIST   ME
                                        .ENABLE ABS,AMA

                                ;CZDMBDO DM11 DATA TSTS
                                ;COPYRIGHT 1972,1979 DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754
                                ;PRG0- DATA TESTS
                                ;PRG1- DATA TEST (ALL LINES SIMULTANEOUSLY)
                                ;PRG2- TRANSMIT TO TERMINALS
                                ;PRG3-  ECHO RECEIVED DATA

                                ;STANDARD SR SWITCH OPTIONS [SWITCH SET TO A 1 (UP)]
                                ;SR15- HALT ON ERROR
                                ;SR14- SCOPE.
                                ;SR13- INHIBIT PRINTOUT
                                ;SR12- INHIBIT TRACE
                                ;SR11- INHIBIT ITERATION.
                                ;SR9- LOOP ROUTINE.
                                ;SR6 THROUGH SR0 - NUMBER OF ROUTINE TO BE LOOPED.

                                ;EQUATE STATEMENTS
177776                                  CC=177776
177776                                  PSW=177776
000004                                  ERRVEC=4
000240                                  NOP=240
000000                                  OPEN=0
100000                                  MANUAL=BIT15
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
005726                                  POPSP=5726              ;POP THE STACK. SAME AS TST (6)+
022626                                  POPSP2=022626           ;POP STACK TWICE. SAME AS CMP (6 +, 6 +
000340                                  PRTY7=340               ;PRIORITY LEVEL DEFINITIONS
000300                                  PRTY6=300
000240                                  PRTY5=240
000200                                  PRTY4=200
000140                                  PRTY3=140
000100                                  PRTY2=100
000040                                  PRTY1=40
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                        000000                  PRTY0=0
                        000000                  R0=%0
                        000001                  R1=%1
                        000002                  R2=%2
                        000003                  R3=%3
                        000004                  R4=%4
                        000005                  R5=%5
                        000006                  SP=%6
                        000007                  PC=%7
                                        ;EMT CALLS
                        104000                  TYPE=EMT+0
                        104001                  TYPES=EMT+1
                        104002                  STALL=EMT+2
                        104003                  ERROR=EMT+3
                        104004                  DATCHK=EMT+4
                        104006                  STRXV=EMT+6
                        104007                  STTXV=EMT+7
                        104010                  FHALT=EMT+10
                        104012                  SCOPE=EMT+12
                        104013                  SAVREG=EMT+13
                        104014                  RSTREG=EMT+14
                        104015                  ERROR1=EMT+15
                        104016                  SUSWR=EMT+16
                        104017                  KBDIN=EMT+17
                        104020                  CNTLU=EMT+20

                        000007                  BELL=007
                        177777                  ATLAST=-1
                        125252                  ALT0=125252             ;ALTERNATING 0'S PATTERN
                        052525                  ALT1=052525             ;ALTERNATING 1'S PATTERN
                        000000                  Y=0
                        177777                  X=-1
                        000000                  A=0
                        000000                  .=0
000000  000000                                  HALT
000002  000000                                  HALT
000004  000006                                  .+2                     ;SP OVERFLOW, BUS ERROR TRAP
000006  000000                                  HALT
000010  000012                                  .+2                     ;RESERVED INSTRUCTION TRAP
000012  000000                                  HALT
000014  000016                                  .+2                     ;TRACE TRAP
000016  000000                                  HALT
000020  000022                                  .+2                     ;TRAP TO CALL IOX
000022  000000                                  HALT
000024  000026                                  .+2                     ;POWER FAIL TRAP
000026  000000                                  HALT
000030  003064                                  EMTINT                  ;EMT TRAP
000032  000340                                  PRTY7
000034  000036                                  .+2
000036  000000                                  HALT
000040  000042                                  .+2
000042  000000                                  HALT                    ;TRAPPED TO PREVIOUS ADDRESS.
000044  000046                                  .+2
000046  000000                                  HALT                    ;TRAPPED TO PREVIOUS ADDRESS.
000050  000052                                  .+2
000052  000000                                  HALT                    ;TRAPPED TO PREVIOUS ADDRESS.
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315  000054  000056                .+2
316  000056  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
317  000060  000062                .+2
318  000062  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
319  000064  000066                .+2
320  000066  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
321  000070  000072                .+2
322  000072  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
323  000074  000076                .+2
324  000076  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
325  000100  000102                .+2
326  000102  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
327  000104  000106                .+2
328  000106  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
329  000110  000112                .+2
330  000112  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
331  000114  000116                .+2
332  000116  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
333  000120  000122                .+2
334  000122  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
335  000124  000126                .+2
336  000126  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
337  000130  000132                .+2
338  000132  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
339  000134  000136                .+2
340  000136  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
341  000140  000142                .+2
342  000142  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
343  000144  000146                .+2
344  000146  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
345  000150  000152                .+2
346  000152  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
347  000154  000156                .+2
348  000156  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
349  000160  000162                .+2
350  000162  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
351  000164  000166                .+2
352  000166  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
353  000170  000172                .+2
354  000172  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
355  000174  000176                .+2
356  000176  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
357  000200  000202                .+2
358  000202  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
359  000204  000206                .+2
360  000206  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
361  000210  000212                .+2
362  000212  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
363  000214  000216                .+2
364  000216  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
365  000220  000222                .+2
366  000222  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
367  000224  000226                .+2
368  000226  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
369  000230  000232                .+2
370  000232  000000                HALT            ;TRAPPED TO PREVIOUS ADDRESS.
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  371  000234  000236                    .+2
  372  000236  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  373  000240  000242                    .+2
  374  000242  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  375  000244  000246                    .+2
  376  000246  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  377  000250  000252                    .+2
  378  000252  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  379  000254  000256                    .+2
  380  000256  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  381  000260  000262                    .+2
  382  000262  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  383  000264  000266                    .+2
  384  000266  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  385  000270  000272                    .+2
  386  000272  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  387  000274  000276                    .+2
  388  000276  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  389  000300  000302                    .+2
  390  000302  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  391  000304  000306                    .+2
  392  000306  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  393  000310  000312                    .+2
  394  000312  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  395  000314  000316                    .+2
  396  000316  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  397  000320  000322                    .+2
  398  000322  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  399  000324  000326                    .+2
  400  000326  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  401  000330  000332                    .+2
  402  000332  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  403  000334  000336                    .+2
  404  000336  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  405  000340  000342                    .+2
  406  000342  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  407  000344  000346                    .+2
  408  000346  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  409  000350  000352                    .+2
  410  000352  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  411  000354  000356                    .+2
  412  000356  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  413  000360  000362                    .+2
  414  000362  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  415  000364  000366                    .+2
  416  000366  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  417  000370  000372                    .+2
  418  000372  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  419  000374  000376                    .+2
  420  000376  000000                    HALT                ;TRAPPED TO PREVIOUS ADDRESS.
  421
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                000046                  .=46                    ;ACT11 HOOKS
        000046  003022                  $ENDAD
                000052                  .=52
        000052  020000                  020000


                000174                  .=174
        000174  000000          DISPREG:0
        000176  000000          SWREG:  0

                000200                  .=200
        000200  000137  002404          JMP     @#START                 ;GO TO START OF DIAGNOSTIC.
        000204  000137  002422          JMP     @#RSTAT1                ;GO GET PROGRAM # & RESTART PROGRAM
                                                                        ;USING PREVIOUS DM11 PARAMETERS
        000210  000137  002472          JMP     @#RSTAT2                ;RESTART PREVIOUS PROGRAM USING
                                                                        ;PREVIOUS DM11 PARAMETERS

                001200                  .=1200                  ;                               (REV. DO)

        001200  000000          SPBOT:  0
        001202  177570          SWR:    177570
        001204  177570          DISPLAY:177570
                001400                  .=1400                  ;                               (REV. DO)
        001400  000000          CAT:    OPEN                    ;STARTING ADDRESS OF
                001440                  .=CAT+32.               ;CURRENT ADDRESS TABLE
        001440  000000          WCT:    OPEN                    ;STARTING ADDRES OF
                001500                  .=WCT+32.               ;WORD COUNT TABLE
        001500  000000          BAT:    OPEN                    ;STARTING ADDRESS OF
                001540                  .=BAT+32.               ;BIT ASSEMBLY TABLE
        001540  000000          VAC:    OPEN                    ;32. SPARE WORDS
        001542  175000          CSR:    175000                  ;ADDRESS OF CLOCK STATUS REGISTER
        001544  175002          BAR:    175002                  ;ADDRESS OF BUFFER ACTIVE REGISTER
        001546  175004          BKCSR:  175004                  ;ADDRESS OF BREAK STATUS REGISTER
        001550  175006          BASREG: 175006                  ;ADDRESS OF BASE REGISTER
        001552  000000          CLKINT: OPEN                    ;DM11 VECTOR ADDRESS (RECEIVER)
        001554  000240          CLKLVL: PRTY5                   ;PRIORITY LEVEL
        001556  000000          XMTINT: OPEN                    ;DM11 VECTOR ADDRESS (TRANSMITTER)
        001560  000240          XMTLVL: PRTY5                   ;TRANSMITTER PRIORITY LEVEL
        001562  000000          BARIM:  OPEN                    ;PROGRAM BAR IMAGE
        001564  000000          TTDAT:  OPEN                    ;TUMBLE TABLE DATA
        001566  000000          LINBIT: OPEN                    ;LINE BIT (FOR BAR)
        001570  000000          BARDAT: OPEN                    ;BAR DATA
        001572  000000          TTPTR:  OPEN                    ;PROGRAM TUMBLE TABLE POINTER
                001600                  .=VAC+32.
        001600  000000          TUMTAB: OPEN                    ;STARTING ADDRESS OF
                002000                  .=TUMTAB+128.           ;TUMBLE TABLE
        002000  000060          TKVTR:  60                      ;LSR INTERRUPT VECTOR
        002002  000200          TKLVL:  PRTY4                   ;LSR PRIORITY LEVEL
        002004  000064          TPVTR:  64                      ;LSP INTERRUPT VECTOR
        002006  000200          TPLVL:  PRTY4                   ;LSP PRIORITY LEVEL
        002010  000000          KSTART: OPEN                    ;CURRENT PROGRAM START ADDRESS.
        002012  000000          CURTST: OPEN                    ;CONTAINS ADDR OF CURRENT TEST.
        002014  000000          RTNNO:  OPEN                    ;CONTAINS CURRENT TEST #.
        002016  000000          NXTST:  OPEN                    ;CONTAINS ADDR OF NEXT TEST.
        002020  000000          ICTR:   OPEN                    ;CONTAINS CURRENT ITERATION COUNT
        002022  000000          SCOPTR: OPEN                    ;CONTAINS CURRENT SCOPE POINTER.
```

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   478  002024  177774                PRGLIM: -4
   479  002026  005660                PRGTAB: PRG0                    ;PRG0 START ADDRESS
   480  002030  006640                        PRG1                    ;PRG1 START ADDRESS
   481  002032  007024                        PRG2                    ;PRG2 START ADDRESS
   482  002034  007034                        PRG3                    ;PRG3 START ADDRESS
   483  002036  005702                RSTART: PRG0R                   ;PRG0 RESTART ADDRESS
   484  002040  006656                        PRG1R                   ;PRG1    "      "
   485  002042  007030                        PRG2R                   ;PRG2    "      "
   486  002044  007052                        PRG3R                   ;PRG3    "      "
   487  002046  003220                EMTTAB: TYP                     ;POINTER TO TYPEOUT ROUTINE
   488  002050  000000                        OPEN                    ;POINTER TO CHAINED MESSAGES ROUTINE
   489  002052  000000                        OPEN                    ;POINTER TO RANDOM STALL ROUTINE
   490  002054  002224                        ERR                     ;POINTER TO ERROR ROUTINE
   491  002056  002156                        DTCHK
   492  002060  000000                        OPEN
   493  002062  000000                        OPEN
   494  002064  000000                        OPEN
   495  002066  000000                        OPEN
   496  002070  000000                        OPEN
   497  002072  002650                        ESCOPE
   498  002074  003116                        SAVRG
   499  002076  003156                        RSTRG
   500  002100  002242                        ERR1
   501  002102  004412                        SUSWRR
   502  002104  004256                        KBDINTT
   503  002106  004332                        CNTLUU
   504
   505  002110  000000                SRT:    OPEN
   506  002112  177560                TKCSR:  177560
   507  002114  177562                TKDBR:  177562
   508  002116  177564                TPCSR:  177564
   509  002120  177566                TPDBR:  177566
   510  002122  000000                RCVDAT: OPEN
   511  002124  000000                XMTDAT: OPEN
   512  002126  000000                CARMSK: OPEN
   513  002130  000000                TEMP:   OPEN
   514  002132  000000                PCADD:  OPEN
   515  002134  000000                APCADD: OPEN
   516  002136  000000                PRVCNT: OPEN
   517  002140  000000                LINE:   OPEN
   518  002142  000000                LINBUF: OPEN
   519  002144  000000                PASS:   OPEN
   520  002146  000000                COUNT:  OPEN
   521
   522
   523  002150  104000                INCRTN: TYPE
   524  002152  013300                        MI                      ;TYPE INCORRECT ROUTINE SELECTED.
   525  002154  000207                        RTS     %7              ;EXIT.
```

```
                                        ;DATA CHECK ROUTINE.
002156  123737  002122  002124  DTCHK:  CMPB    RCVDAT,XMTDAT   ;COMPARE EXPECTED AND RECEIVED
002164  001416                          BEQ     1$              ;CHARS. BRANCH IF SAME.
002166  004737  002356                  JSR     7,CNVDAT        ;CONVERT RCVDAT & XMTDAT TO ASCII
002172  032777  020000  177002          BIT     #BIT13,@SWR     ;ERROR TYPEOUT DESIRED?
002200  001010                          BNE     1$              ;BRANCH IF NO TYPEOUT DESIRED
002202  004537  005112                  JSR     5,@#OACNV       ;CONVERT LINE
002206  002140                          LINE                    ;NUMBER
002210  013254                          ALINE                   ;TO ASCII
002212  000002                          2
002214  104015                          ERROR1
002216  104000                          TYPE                    ;TYPE LINE # AS PART
002220  013245                          LINEM                   ;OF ERROR MESSAGE
002222  000002                  1$:     RTI                     ; EXIT.

                                        ;ERROR SERVICE ROUTINE CALLED BY TRAP (HLT)
002224  012737  000402  002324  ERR:    MOV     #402,ERRB               ;MOV BR .+6 TO ERRB
002232  013737  002132  002134          MOV     @#PCADD,@#APCADD        ;GET PC WHERE ERROR OCCURRED
002240  000410                          BR      ERRA
002242  012737  000240  002324  ERR1:   MOV     #240,ERRB               ;MOVE NOP TO ERRB
002250  013737  002132  002134          MOV     @#PCADD,@#APCADD        ;GET PC WHERE ERROR OCCURRED
002256  004737  002356                  JSR     7,@#CNVDAT              ;CONVERT RCVDAT & XMIT DAT TO ASCII
002262  104017                  ERRA:   KBDIN                           ;CHECK FOR ^G
002264  032777  020000  176710          BIT     #BIT13,@SWR             ;ERROR PRINTOUT DESIRED
002272  001017                          BNE     ERRC                    ;BRANCH IF NO PRINTOUT
002274  004537  005112                  JSR     5,@#OACNV               ;CONVERT
002300  002134                          APCADD                          ;DATA
002302  013734                          APC                             ;TO
002304  000006                          6                               ;ASCII
002306  004537  005112                  JSR     5,@#OACNV               ;FOR
002312  002014                          RTNNO                           ;PRINTOUT
002314  013724                          ATNUMB
002316  000003                          3
002320  104000                          TYPE                            ;TYPE ERROR
002322  013721                          EMO                             ;MESSAGE
002324  000000                  ERRB:   OPEN                            ;NOP IF ERROR1, BR .+6 IF ERROR
002326  104000                          TYPE                            ;TYPE ANOTHER MESSAGE
002330  013200                          ERDAT                           ;IF ERROR 1
002332  023737  000042  000046  ERRC:   CMP     @#42,@#46               ;ACT11?
002340  001403                          BEQ     ERRHLT                  ;BR IF YES
002342  005777  176634                  TST     @SWR                    ;HALT ON ERROR
002346  100001                          BPL     ERREX                   ;GO TO EXIT IF NO HALT ON ERROR
002350  000000                  ERRHLT: HALT                            ;HALT
002352  104017                  ERREX:  KBDIN                           ;CHECK FOR ^G
002354  000002                          RTI                             ;RETURN

                                        ;SUBROUTINE TO CONVERT RCVDAT AND XMTDAT TO ASCII AND PLACE
                                        ;IN MESSAGE.
002356  004537  005112          CNVDAT: JSR     5,OACNV
002362  002124                          XMTDAT
002364  013220                          AASB
002366  000006                          6
002370  004537  005112                  JSR     5,OACNV
002374  002122                          RCVDAT
```

SEQ 0013

```
                                        AWAS
                                        6
002402  000207                          RTS     7               ;EXIT

002404  012706  001200        START:  MOV     #SPBOT,%6       ;INITIALIZE STACK
002410  104016                          SUSWR                   ;CHECK FOR HARDWARE SWITCH REGISTER
002412  004737  003334                  JSR     7,@#DMPAR       ;GET DM11 PARAMETERS
002416  004737  004042                  JSR     7,@#OVRLAY      ;PUT HALT,.+2 IN VECTOR AREA
002422  012706  001200        RSTAT1: MOV     #SPBOT,%6       ;INITIALIZE STACK
002426  023737  000042  000046        CMP     @#42,@#46               ;ACT11?
002434  001405                        BEQ     PRGNUM+2                ;BR IF YES
002436  104000                        TYPE
002440  013260                        MO
002442  004537  004076                JSR     5,RECD          ;GET THE PRGNUM &
002446  000000                PRGNUM. 0                       ;PUT IT HERE
002450  043737  002024  002446        BIC     PRGLIM,PRGNUM   ;MASK OFF UNUSED BITS
002456  006337  002446                ASL     PRGNUM          ;SHIFT PROGRAM #
002462  013700  002446                MOV     PRGNUM,%0       ;GET PROGRAM #
002466  000170  002026                JMP     @PRGTAB(0)      ;GO START PROGRAM
002472  012706  001200        RSTAT2: MOV     #SPBOT,%6       ;INITIALIZE STACK
002476  013700  002446                MOV     PRGNUM,%0       ;GET PROGRAM #
002502  000170  002036                JMP     @RSTART(0)      ;GO RESTART PROGRAM
002506  022737  000176  001202  SRSET:  CMP     #SWREG,SWR
002514  001410                        BEQ     1$
002516  023737  000042  000046        CMP     @#42,@#46               ;ACT11?
002524  001405                        BEQ     GETRDY                  ;BR IF YES
002526  104000                        TYPE                    ;TYPE OPTIONS MESSAGE
002530  013330                        M3
002532  000000                        HALT                    ;WAIT FOR USER TO SET OPTIONS
002534  000401                        BR      GETRDY
002536  104020                  1$:     CNTLU
002540  013737  002010  002016  GETRDY: MOV     KSTART,NXTST    ;ADDR OF 1ST ROUTINE TO NXTST
002546  012737  000006  000004  GTRDYX: MOV     #6,@#ERRVEC     ;RESET ERROR TRAP.
002554  005037  177776                CLR     PSW
002560  012706  001200                MOV     #SPBOT,%6       ;SET BOTTOM OF STACK.
002564  000005                        RESET                   ;ISSUE RESET.
002566  004737  003032        GTRDYA: JSR     %7,FORWD        ;ROLL FORWARD TO "NEXT" ROUTINE.
002572  032777  001000  176402        BIT     #BIT9,@SWR      ;CHECK SELECT ROUTINE SWITCH
002600  001003                        BNE     GTRDYC          ;BRANCH IF SELECT ROUTINE SWITCH IS SET.
002602  000177  177204                JMP     @CURTST         ;GO RUN CURRENT ROUTINE.
002606  000461                        BR      SCOPED          ;NO GO. MANUAL RTN BYPASSED.
002610  017700  176366        GTRDYC: MOV     @SWR,%0         ;(SR) TO R0
002614  042700  177600                BIC     #177600,%0      ;MASK UNDESIRED BITS
002620  123700  002014                CMPB    RTNNO,%0        ;COMPARE RTNNO TO (R0)
002624  001002                        BNE     GTRDYD          ;BRANCH IF ROUTINE NOT FOUND YET.
002626  000177  177160                JMP     @CURTST         ;GO RUN ROUTINE.
002632  022737  177777  002016  GTRDYD: CMP     #-1,NXTST       ;NO. CHECK FOR LAST ROUTINE.
002640  001352                        BNE     GTRDYA          ;BRANCH IF NOT LAST ROUTINE.
002642  004737  002150                JSR     %7,INCRTN       ;YES. INCORRECT ROUTINE SELECTED.
002646  000734                        BR      GETRDY          ;START OVER.

                                ;SCOPE ROUTINE (CALLED BY EMT INST.)
002650  000240                  ESCOPE: NOP
002652  005077  176664                CLR     @CSR            ;INITIALIZE
```

```
                                                CLR     @BKCSR          ;THE
                                                CLR     @BAR            ;DM11
                                                KBDIN
                                                MOV     #CAT,@BASREG
                                                BIT     #BIT14,@SWR     ;CHECK FOR SCOPE OPTION.
                                                BEQ     SCOPEB          ;BRANCH IF SCOPE SW NOT SET.
                                        SCOPEA: MOV     SCOPTR,@%6      ;SET UP TO RETURN TO ROUTINE.
                                                RTI                     ;RETURN TO ROUTINE.
                                        SCOPEB: BIT     #BIT11,@SWR     ;TEST INHIBIT ITERATION SWITCH
                                                BNE     SCOPEC          ;BRANCH IF INHIBIT ITERATION SW SET.
                                                CMP     @#42,@#46               ;ACT11?
                                                BNE     1$                      ;BR IF NO
                                                TST     @#PASS                  ;1ST PASS?
                                                BEQ     SCOPEC                  ;BR IF YES
                                        1$:     DEC     ICTR            ;DECREMENT ITERATION COUNT.
                                                BNE     SCOPEA          ;BRANCH IF COUNT NOT 0.
                                        SCOPEC: POPSP2                  ;POP STACK TWICE
                                        SCOPED: BIT     #BIT9,@SWR      ;CHECK SELECT ROUTINE SWITCH
                                                BNE     GETRDY          ;BRANCH IF SELECT RTN SW SET
                                                CMP     #-1,NXTST       ;LAST TEST?
                                                BNE     GTRDYX          ;BRANCH IF NOT LAST TEST.
                                                INC     @#PASS                  ;IND PASS
                                                TYPE                    ;TYPE
                                                M2                      ;'END'
                                                MOV     @#42,%2         ;CHECK DDP/ACT11 MONITOR HOOK
                                                BEQ     GETRDY
                                                RESET
                                                NOP
                                                NOP
                                                NOP
                                                NOP
                                        $ENDAD: JSR     7,(2)           ;RETURN TO DDP/ACT11 MONITOR
                                                NOP
                                                NOP
                                                NOP

                                        FORWD:  MOV     NXTST,%5        ;ADDR OF NEXT ROUTINE TO R5.
                                                MOV     (5)+,RTNNO      ;GET NEXT ROUTINE NUMBER.
                                                MOV     (5)+,NXTST      ;GET ADDR OF NEXT "NEXT" ROUTINE.
                                                MOV     (5)+,ICTR       ;GET ITERATION COUNT.
                                                MOV     (5)+,SCOPTR     ;GET SCOPE LOOP ENTRY POINTER.
                                                MOV     %5,CURTST       ;ADDR OF NOW CURRENT TEST TO CURTST.
                                                RTS     %7              ;EXIT FORWD SUBROUTINE.

                                        ;EMT TRAP INTERPRETER
                                        EMTINT: MOV     (6),-(6)        ;GET PC OF NEXT INSTRUCTION
                                                SUB     #2,(6)          ;POINT SP TO PC OF EMT
                                                MOV     (6),PCADD       ;GET PC OF EMT CALL
                                                MOV     @(6),(6)        ;GET EMT CALL
                                                CLRB    1(6)            ;STRIP EMT & SAVE IDENTIFIER
                                                ASL     (6)             ;SHIFT IDENTIFIER LEFT
                                                ADD     #EMTTAB,(6)
                                                MOV     @(6)+,%7        ;GO TO PROPER EMT

                                        ;SAVE REGS 0 TO 4 SUBROUTINE.
                                        SAVRG:  MOV     (6)+,1$         ;SAVE PC AND PSW.
```

```
   694  003122  012637  003154                MOV     (6)+,2$
   695  003126  010446                        MOV     %4,-(6)         ;SAVE REGS 0 - 4
   696  003130  010346                        MOV     %3,-(6)         ;IN STACK.
   697  003132  010246                        MOV     %2,-(6)
   698  003134  010146                        MOV     %1,-(6)
   699  003136  010046                        MOV     %0,-(6)
   700  003140  013746  003154                MOV     2$,-(6)         ;RESTORE PC AND PSW.
   701  003144  013746  003152                MOV     1$,-(6)
   702  003150  000002                        RTI                     ;EXIT.
   703  003152  000000              1$:       OPEN                    ;CONTAINS SAVED PC
   704  003154  000000              2$:       OPEN                    ;CONTAINS SAVED PSW
   705
   706                                ;RESTORE REGS 0 TO 4 SUBROUTINE.
   707  003156  000240              RSTRG:    NOP
   708  003160  012637  003214                MOV     (6)+,1$         ;SAVE PC AND PSW.
   709  003164  012637  003216                MOV     (6)+,2$
   710  003170  012600                        MOV     (6)+,%0         ;RESTORE REGS 0 - 4
   711  003172  012601                        MOV     (6)+,%1         ;FROM STACK.
   712  003174  012602                        MOV     (6)+,%2
   713  003176  012603                        MOV     (6)+,%3
   714  003200  012604                        MOV     (6)+,%4
   715  003202  013746  003216                MOV     2$,-(6)         ;RESTORE PC AND PSW.
   716  003206  013746  003214                MOV     1$,-(6)
   717  003212  000002                        RTI                     ;EXIT
   718  003214  000000              1$:       OPEN                    ;CONTAINS SAVED PC
   719  003216  000000              2$:       OPEN                    ;CONTAINS SAVED PSW
   720
   721                                ;SUBROUTINE TO OUTPUT ASCII MESSAGE ON TELETYPE PRINTER.
   722  003220  000240              TYP:      NOP
   723  003222  011600                        MOV     (SP),%0         ;GET ADDRESS THAT CONTAINS MESSAGE ADDRESS.
   724  003224  062716  000002                ADD     #2,(SP)         ;SET UP EXIT.
   725  003230  011000                        MOV     @%0,%0          ;ADDRESS OF MESSAGE TO R0.
   726  003232  112037  003332      1$:       MOVB    (0)+,5$         ;GET CHARACTER
   727  003236  122737  000100  003332        CMPB    #100,5$         ;CHECK FOR"@"CHARACTER
   728  003244  001001                        BNE     2$              ;BRANCH IF NOT"@".
   729  003246  000002                        RTI                     ;TERMINATOR CHAR. DONE. EXIT.
   730  003250  122737  000045  003332  2$:   CMPB    #45,5$          ;CHECK FOR"%".
   731  003256  001412                        BEQ     4$              ;BRANCH IF"%"
   732  003260  004737  003266                JSR     %7,3$           ;TYPE CHAR IN 5$
   733  003264  000762                        BR      1$
   734  003266  113777  003332  176624  3$:   MOVB    5$,@TPDBR       ;OUTPUT CHARACTER TO PRINTER
   735  003274  105777  176616                TSTB    @TPCSR          ;WAIT FOR DONE FLAG.
   736  003300  100375                        BPL     .-4
   737  003302  000207                        RTS     %7              ;EXIT
   738  003304  112737  000015  003332  4$:   MOVB    #15,5$          ;MOVE CARRIAGE RETURN CODE TO 5$
   739  003312  004737  003266                JSR     %7,@#3$         ;GO TYPE CHAR.
   740  003316  112737  000012  003332        MOVB    #12,5$          ;MOVE LF CODE TO 5$.
   741  003324  004737  003266                JSR     %7,3$           ;GO TYPE CHAR.
   742  003330  000740                        BR      1$
   743  003332  000000              5$:       OPEN
   744
   745                                ;SUBROUTINE TO GET DM11 PARAMETERS
   746                                ;VECTOR ADDRESS
   747  003334  000240              DMPAR:    NOP                     ;BEGIN
   748  003336  023737  000042  000046        CMP     @#42,@#46       ;ACT11?
   749  003344  001060                        BNE     6$              ;BR IF NO
```

```
                                        ;SIZE FOR INTERRUPT VECTOR IN AUTO MODE
003346  012700  000302                  MOV     #302,R0         ;SET UP FLOATING VECT AREA
003352  010060  177776          4$:     MOV     R0,-2(R0)
003356  012720  000003                  MOV     #3,(R0)+
003362  005720                          TST     (R0)+
003364  022700  000776                  CMP     #776,R0
003370  100370                          BPL     4$
003372  012737  003462  000014          MOV     #5$,@#14        ;SET BPT VECT
003400  012737  000340  000016          MOV     #340,@#16       ;& PSW
003406  012737  177777  001440  3$:     MOV     #-1,WCT         ;SET TO XMIT 1 CHAR
003414  012737  007362  001400          MOV     #OUTBUF,CAT
003422  012777  000105  176112          MOV     #BIT6+BIT2+BIT0,@CSR    ;SET IE
003430  005037  177776                  CLR     @#PSW           ;LVL 0
003434  012777  000001  176102          MOV     #BIT0,@BAR      ;XMIT
003442  012737  177777  002146          MOV     #-1,COUNT       ;WAIT
003450  005337  002146          2$:     DEC     COUNT
003454  001375                          BNE     2$
003456  104003                          ERROR                   ;NO INT OCCURRED
003460  000752                          BR      3$              ;REPEAT IT
003462  162716  000004          5$:     SUB     #4,(SP)         ;CALC INT VECT
003466  011637  003522                  MOV     (SP),@#VECTOR   ;STORE IT
003472  012737  000016  000014          MOV     #16,@#14        ;RESTORE BPT VECT
003500  004737  004042                  JSR     7,OVRLAY        ;.+2, HALT IN VECT AREA
003504  000415                          BR      VECOK
003506  004737  004042          6$:     JSR     7,OVRLAY        ;PUT HALT,.+2 IN VECTOR AREA
003512  104000                          TYPE                    ,ASK USER FOR RECEIVER INT. VECTOR
003514  013050                          WHERE                   ;OF UNIT UNDER TEST
003516  004537  004076                  JSR     5,RECD          ;GET THE VECTOR &
003522  000000                  VECTOR: 0                       ;PUT IT HERE
003524  005737  003522                  TST     VECTOR
003530  001003                          BNE     VECOK
003532  012737  000300  003522          MOV     #300,VECTOR     ;SET VECTOR - TO 0300
003540  023727  003522  000300  VECOK:  CMP     VECTOR,#300     ;IS VECTOR HIGHER OR
003546  103003                          BHIS    VECOKB          ;EQUAL TO 0300
003550  104000                  VECOKA: TYPE                    ;TYPE '?'
003552  013300                          M1
003554  000667                          BR      DMPAR           ;ASK FOR ANOTHER VECTOR
003556  023727  003522  000770  VECOKB: CMP     VECTOR,#770     ;IS VECTOR = TO OR
003564  101371                          BHI     VECOKA          ;LESS THAN 770
003566  032737  000007  003522          BIT     #7,VECTOR       ;LSB OF VECTOR MUST BE ALL 0'S
003574  001365                          BNE     VECOKA
003576  013737  003522  001552          MOV     VECTOR,@#CLKINT
003604  062737  000004  003522          ADD     #4,VECTOR
003612  013737  003522  001556          MOV     VECTOR,@#XMTINT

                                ;UNIT NUMBER
003620  023737  000042  000046  DMPARB: CMP     @#42,@#46       ;ACT11?
003626  001405                          BEQ     UNIT+2          ;BR IF YES
003630  104000                          TYPE
003632  013143                          WHICH
003634  004537  004076                  JSR     5,RECD          ;GET THE UNIT &
003640  000000                  UNIT:   0                       ;PUT IT HERE
003642  023727  003640  000017          CMP     UNIT,#17
003650  101403                          BLOS    1$
003652  104000                          TYPE
003654  013300                          M1
```

```
                                        BR      DMPARB
003656  000760
003660  006337  003640               1$:     ASL     UNIT
003664  006337  003640                       ASL     UNIT
003670  006337  003640                       ASL     UNIT
003674  012702  000004                       MOV     #4,%2
003700  012701  001542                       MOV     #CSR,%1
003704  042711  000370               2$:     BIC     #370,(1)
003710  063721  003640                       ADD     UNIT,(1)+
003714  005302                               DEC     %2
003716  001372                               BNE     2$

                                    ;CALCULATE CHARARACTER LENGTH
003720  012777  001400  175622               MOV     #CAT,@BASREG
003726  005077  175610                       CLR     @CSR
003732  012737  177777  007362               MOV     #-1,OUTBUF      ;LOAD OUTBUF WITH CHAR TO BE TRANSMITTED
003740  012737  177777  001440               MOV     #-1,WCT         ;SET UP TO TRANSMIT 1 CHAR
003746  012737  177777  002126               MOV     #-1,@#CARMSK    ;PRE SET THE CHARACTER MASK
003754  012737  007362  001400               MOV     #OUTBUF,CAT     ;1 CHARACTER ON LINE 0
003762  012777  004020  175562               MOV     #3$,@CLKINT     ;LOAD RECEIVER INTERRUPT
003770  012777  000340  175556               MOV     #340,@CLKLVL    ;AND PRIORITY LEVEL
003776  005037  001600                       CLR     TUMTAB
004002  012777  000001  175534               MOV     #1,@BAR         ;START TRANSMITTING
004010  012777  000105  175524               MOV     #BIT6+BIT2+BIT0,@CSR    ;SET IE,MAINT AND GO BITS
004016  000001                               WAIT                    ;WAIT FOR RECEIVER INTERRUPT
004020  005077  175516               3$:     CLR     @CSR
004024  143737  001600  002126               BICB    TUMTAB,CARMSK   ;LOAD CHARACTER LENGTH MASK
004032  005037  177776                       CLR     PSW             ;RESTORE PROCEESSER TO PRIORITY 0
004036  022626                               POPSP2                  ;RESTORE THE STACK POINTER
004040  000207                               RTS     7               ;EXIT PARAMETERS ROUTINE

                                    ;ROUTINE TO LOAD TRAP/INTERRUPT VECTOR AREA WITH HALT,,+2. HALTS PROGRAM
                                    ;AT ADDRESS OF TRAP/INTERRUPT VECTOR +2.
004042  012701  000300               OVRLAY: MOV     #300,%1
004046  012702  000302                       MOV     #302,%2
004052  010221                       1$:     MOV     %2,(1)+
004054  005021                               CLR     (1)+
004056  020227  000776                       CMP     %2,#776
004062  001403                               BEQ     2$
004064  062702  000004                       ADD     #4,%2
004070  000770                               BR      1$
004072  000240                       2$:     NOP
004074  000207                               RTS     7               ;EXIT

                                    ;SUBROUTINE TO RECEIVE DATA
                                    ;THIS SUBROUTINE RECEIVES DATA FROM THE KEYBOARD (UP TO SIX OCTAL
                                    ;DIGITS AND PLACES THEM INTO THE ADDRESS FOLLOWING THE SUBROUTINE
                                    ;CALL (JSR 5,RECD).  NO REGISTER CONTENTS ARE DISTURBED.


                                    ;SUBROUTINE TO INPUT DATA FROM TTY

004076  010046               RECD:   MOV     R0,-(SP)
004100  005015               1$:     CLR     (5)                     ;CLEAR OLD DATA
004102  012737  000007  004254       MOV     #7,CNT                  ;SET CHAR COUNT
004110  105777  175776       2$:     TSTB    @TKCSR                  ;WAIT FOR CHAR
004114  100375                       BPL     2$
```

```
 862  004116  117700  175772                MOVB    @TKDBR,R0
 863  004122  142700  000200                BICB    #200,R0                 ;STRIP OFF PARITY
 864  004126  110077  175766                MOVB    R0,@TPDBR               ;ECHO CHARACTER
 865  004132  122700  000025                CMPB    #25,R0                  ;IS IT A ^U
 866  004136  001443                        BEQ     5$                      ;BRANCH IF YES
 867  004140  122700  000015                CMPB    #15,R0                  ;IS IT A <CR>
 868  004144  001415                        BEQ     6$                      ;BRANCH IF YESS
 869  004146  142700  000060                BICB    #60,R0
 870  004152  132700  000110                BITB    #110,R0                 ;CHECK FOR 0-7 (8)
 871  004156  001031                        BNE     7$                      ;BRANCH IF NOT
 872  004160  006315                        ASL     (5)
 873  004162  006315                        ASL     (5)
 874  004164  006315                        ASL     (5)                     ;SHIFT DATA
 875  004166  150015                        BISB    R0,(5)                  ;INSET NEW CHAR
 876  004170  005337  004254                DEC     CNT
 877  004174  001422                        BEQ     7$                      ;ONLY 6 CHAR'S PLEASE
 878  004176  000744                        BR      2$                      ;NEXT CHARACTER
 879  004200  105777  175712        6$:     TSTB    @TPCSR
 880  004204  100375                        BPL     6$                      ;WAIT FOR READY
 881  004206  012777  000012  175704        MOV     #12,@TPDBR              ;TYPE <LF>
 882  004214  105777  175676        8$:     TSTB    @TPCSR
 883  004220  100375                        BPL     8$                      ;WAIT FOR READY
 884  004222  005077  175672                CLR     @TPDBR                  ;NEXT CHARACTER
 885  004226  105777  175664        9$:     TSTB    @TPCSR
 886  004232  100375                        BPL     9$                      ;WAIT FOR READY
 887  004234  005725                        TST     (R5)+                   ;ADJUST R5
 888  004236  012600                        MOV     (SP)+,R0                ;RESTORE R0
 889  004240  000205                        RTS     R5
 890  004242  104000                7$:     TYPE
 891  004244  013300                        M1
 892  004246  104000                5$:     TYPE
 893  004250  013140                        $CTLU
 894  004252  000712                        BR      1$                      ;START OVER
 895  004254  000000                CNT:    0
 896
 897
 898                                        ;ROUTINE TO CHECK FOR ^G BEING TYPED
 899
 900  004256  022737  000176  001202 KBDINTT:CMP     #SWREG,SWR
 901  004264  001021                        BNE     1$
 902  004266  023737  000042  000046        CMP     @#42,@#46               ;ACT11?
 903  004274  001415                        BEQ     1$              ;BR IF YES
 904  004276  005037  004370                CLR     TMP1                    ;CLEAR TEMP AREA
 905  004302  117737  175606  004370        MOVB    @TKDBR,TMP1             ;FETCH THE BUFFER
 906  004310  142737  000200  004370        BICB    #200,TMP1               ;STRIP OFF PARITY
 907  004316  122737  000007  004370        CMPB    #7,TMP1                 ;WAS IT ^G
 908  004324  001001                        BNE     1$                      ;NOP
 909  004326  104020                        CNTLU                           ;GO CHANGE IT
 910  004330  000002                1$:     RTI                             ;EXIT
 911
 912
 913                                        ;ROUTINE TO CHANGE CONTENTS OF SWREG(LOC 176)
 914
 915  004332  022737  000176  001202 CNTLUU: CMP     #SWREG,SWR
 916  004340  001023                        BNE     FAJAG
 917  004342  104000                        TYPE
```

```
  918  004344  013111                          $SWREG
  919  004346  004537  005112                  JSR     R5,DACNV                ;CONVERT TO ASCII
  920  004352  000176                          SWREG
  921  004354  013120                          $VALUE
  922  004356  000006                          6
  923  004360  104000                          TYPE
  924  004362  013120                          $VALUE
  925  004364  004537  004076                  JSR     5,RECD          ;GET THE TMP1 &
  926  004370  000000                  TMP1:   0                       ;PUT IT HERE
  927  004372  022737  000007  004254          CMP     #7,CNT
  928  004400  001403                          BEQ     FAJAG
  929  004402  013777  004370  174572          MOV     TMP1,@SWR               ;CHANGE CONTENTS OF SWREG
  930  004410  000002                  FAJAG:  RTI
  931
  932
  933  004412  013746  000006          SUSWRR: MOV     @#6,-(SP)               ;SAVE VECTORS
  934  004416  013746  000004                  MOV     @#4,-(SP)
  935  004422  012737  004442  000004          MOV     #1$,@#4                 ;SET UP FOR TIMEOUT
  936  004430  022777  177777  174544          CMP     #-1,@SWR                ;REFERENCE HARDWARE SWITCH REGISTER
  937  004436  001402                          BEQ     2$
  938  004440  000407                          BR      3$
  939  004442  022626                  1$:     CMP     (SP)+,(SP)+             ;ADJUST STACK
  940  004444  012737  000176  001202  2$:     MOV     #SWREG,SWR              ;POINT TO SOFTWARE SWITCH REG
  941  004452  012737  000174  001204          MOV     #DISPREG,DISPLAY                ;POINT TO SOFT DISPLAY REG
  942  004460  012637  000004          3$:     MOV     (SP)+,@#4               ;RESTORE VECTORS
  943  004464  012637  000006                  MOV     (SP)+,@#6
  944  004470  000002                          RTI
  945
```

```
                                        ;SUBROUTINE TO TRANSMIT ON ALL LINES WITH A DELAY BETWEEN TRANSMITTING
                                        ;ON SUCCESSIVE LINES. THE DELAY FOR THE TEST IS SUPPLIED BY THE
                                        ;CALLING JSR INSTRUCTION. DATA IS CHECKED AFTER ALL
                                        ;LINES HAVE FINISHED TRANSMITTING.

004472  000240                  DLYXMT: NOP                     ;BEGIN TEST
004474  012777  001400  175046          MOV     #CAT,@BASREG    ;SET UP BASE REGISTER
004502  004737  005024                  JSR     7,@#IDENT               ;TRANSMIT LINE # ON EACH LINE
004506  000240                          NOP                     ;NOP
004510  005077  175026                  CLR     @CSR
004514  012537  004524                  MOV     (5)+,10$        ;GET MESSAGE ADDRESS
004520  004537  005200                  JSR     5,@#BMOVE       ;LOAD OUTPUT BUFFER
004524  000000                  10$:    OPEN                    ;WITH DATA TO
004526  007362                          OUTBUF                  ;BE TRANSMITTED
004530  000100                          64.
004532  005037  001600                  CLR     @#TUMTAB        ;CLEAR TUMBLE
004536  004537  005200                  JSR     5,@#BMOVE               ;TABLE (200
004542  001600                          TUMTAB                  ;BYTES)
004544  001601                          TUMTAB+1
004546  000177                          177
004550  004537  005200                  JSR     5,@#BMOVE       ;CLEAR CHARACTER COUNT TABLE
004554  001600                          TUMTAB
004556  012666                          CNTTAB
004560  000020                          16.
004562  005037  007526                  CLR     @#LNOBUF
004566  004537  005200                  JSR     5,@#BMOVE       ;CLEAR ALL
004572  007526                          LNOBUF                  ;LINE'S INPUT
004574  007527                          LNOBUF+1                ;BUFFERS
004576  003077                          1599.                   ;(16. BUFFERS OF 100. CHARS. EACH)
004600  022737  000006  002446          CMP     #6,PRGNUM
004606  001002                          BNE     .+6
004610  000137  007062                  JMP     PRG3A
004614  012504                          MOV     (5)+,%4         ;GET # OF CHARACTERS TO TRANSMIT BEFORE
                                                                ;TRANSMITTING ON NEXT LINE
004616  012737  001600  001572          MOV     #TUMTAB,@#TTPTR ;INITIALIZE TUMBLE TABLE POINTER
004624  013701  001552                  MOV     @#CLKINT,%1     ;GET RECEIVER VECTOR ADDRESS
004630  012721  005426                  MOV     #RINT,(1)+      ;LOAD RECEIVER VECTOR
004634  013721  001554                  MOV     @#CLKLVL,(1)+   ;AND PRIORITY LEVEL
004640  012721  005620                  MOV     #TINT,(1)+      ;LOAD TRANSMITTER VECTOR
004644  013721  001560                  MOV     @#XMTLVL,(1)+   ;AND PRIORITY LEVEL
004650  005737  002446                  TST     PRGNUM          ;RUNNING PROGRAM 0?
004654  001402                          BEQ     .+6
004656  000137  006666                  JMP     PRG1A           ;RETURN TO PROGRAM 1 CODE
004662  012777  010101  174652          MOV     #BIT12+BIT6+BIT0,@CSR   ;SET IE & GO BITS
004670  012737  000001  001566          MOV     #1,@#LINBIT
004676  005037  002140                  CLR     @#LINE
004702  013700  002140          1$:     MOV     LINE,%0         ;LINE # X2 TO R0
004706  000240                          NOP                     ;NOP
004710  004537  005222                  JSR     5,@#XMITD               ;TRANSMIT 64 CHARACTERS
004714  177700                          -64.                    ;ON LINE # AS SPECIFIED IN ADDRESS LINE
004716  020460  001440          2$:     CMP     %4,WCT(0)       ;WAIT FOR THE WORD COUNT TO DEC TO THE
004722  001375                          BNE     2$              ;CORRECT VALUE BEFORE STARTING NEXT LINE
004724  062737  000002  002140          ADD     #2,LINE         ;FORM NEXT LINE NUMBER
004732  006337  001566                  ASL     LINBIT          ;SHIFT LINE BIT
004736  103361                          BCC     1$              ;START NEXT LINE
004740  005760  001440          3$:     TST     WCT(0)          ;WAIT FOR LAST LINE TO FINISH
```

```
1002  004744  001375                       BNE     3$
1003  004746  042777  177400  174566       BIC     #177400,@CSR    ;CLEAR ODD BYTE OF CSR
1004  004754  062700  000001               ADD     #1,R0           ;WAIT FOR RECEIVER TO RECEIVE
1005  004760  001375                       BNE     31$             ;ALL TRANSMITTED DATA
1006  004762  017737  174556  002122       MOV     @BAR,RCVDAT     ;GET AND TEST BAR CONTENTS
1007  004770  001410                       BEQ     4$              ;BRANCH IF IS CLEAR
1008  004772  005037  002124               CLR     XMTDAT
1009  004776  005077  174540               CLR     @CSR
1010  005002  005077  174536               CLR     @BAR
1011  005006  104015                       ERROR1                  ;ERROR. BAR DID NOT CLEAR IN SUFICIENT TIME
1012  005010  000403                       BR      5$              ;EXIT TEST
1013  005012  000240               4$:     NOP
1014  005014  004737  005320               JSR     7,@#CHKDAT      ;GO TEST DATA
1015  005020  022626               5$:     CMP     (6)+,(6)+       ;RESET THE STACK
1016  005022  104012                       SCOPE                   ;SCOPE
1017
1018
1019                                       ;SUBROUTINE TO TRANSMIT ON EACH LINE ITS LINE NUMBER (CRLF XX CRLF).
1020  005024  005037  002140       IDENT:  CLR     @#LINE          ;GET LINE NUMBER 0
1021  005030  012737  000001  001566       MOV     #1,@#LINBIT     ;GET LINE BIT
1022  005036  013702  002140       1$:     MOV     LINE,%2
1023  005042  016262  012706  001400       MOV     ID(2),CAT(2)    ;LOAD CAT
1024  005050  012762  177772  001440       MOV     #-6,WCT(2)      ;LOAD WORD COUNT
1025  005056  053777  001566  174460       BIS     LINBIT,@BAR     ;SET BAR BIT
1026  005064  062737  000002  002140       ADD     #2,LINE         ;FORM NEXT LINE NUMBER
1027  005072  006337  001566               ASL     LINBIT          ;FORM NEXT LINE BIT
1028  005076  103357                       BCC     1$              ;BRANCH IF NOT DONE
1029  005100  005777  174440       2$:     TST     @BAR            ;WAIT FOR BAR TO CLEAR
1030  005104  001375                       BNE     2$
1031  005106  000240                       NOP
1032  005110  000207                       RTS     7               ;EXIT SUBROUTINE
1033
1034                                       ;OCTAL TO ASCII CONVERT ROUTINE
1035  005112  104013               OACNV:  SAVREG                  ;SAVE REGISTERS ON THE STACK
1036  005114  013537  005176               MOV     @(5)+,2$        ;GET OCTAL VALUE.
1037  005120  012501                       MOV     (5)+,%1         ;GET DESTINATION ADDR.
1038  005122  012502                       MOV     (5)+,%2         ;GET CONVERT COUNT.
1039  005124  060201                       ADD     %2,%1           ;DEVELOP ADDR TO STORE 1ST CHAR.
1040  005126  013703  005176       1$:     MOV     2$,%3
1041  005132  042703  177770               BIC     #177770,%3      ;ISOLATE LEAST SIGNIFICANT DIGIT.
1042  005136  062703  000060               ADD     #60,%3          ;CONVERT DIGIT TO ASCII.
1043  005142  110334                       MOVB    %3,-(1)         ;STORE ASCII CHARACTER.
1044  005144  042737  000007  005176       BIC     #7,2$
1045  005152  006037  005176               ROR     2$
1046  005156  006037  005176               ROR     2$
1047  005162  006037  005176               ROR     2$
1048  005166  005302                       DEC     %2              ;DONE ALL DIGITS?
1049  005170  001356                       BNE     1$              ;BRANCH IF NOT DONE.
1050  005172  104014                       RSTREG                  ;RESTORE THE REGISTERS
1051  005174  000205                       RTS     %5              ;DONE. EXIT.
1052  005176  000000               2$:     OPEN
1053
1054
1055
1056                                       ;SUBROUTINE TO MOVE A VARIABLE NUMBER OF BYTES.
1057  005200  104013               BMOVE:  SAVREG                  ;SAVE REGS.
```

SEQ 0022

```
 1058  005202  012501                        MOV     (5)+,%1         ;GET''FROM''ADDRESS
 1059  005204  012502                        MOV     (5)+,%2         ;GET''TO''ADDRESS
 1060  005206  012503                        MOV     (5)+,%3         ;GET COUNT
 1061  005210  112122                1$:     MOVB    (1)+,(2)+       ;MOVE BYTE
 1062  005212  005303                        DEC     %3              ;DECREMENT COUNT
 1063  005214  001375                        BNE     1$              ;BRANCH IF NOT DONE.
 1064  005216  104014                        RSTREG                  ;RESTORE REGS.
 1065  005220  000205                        RTS     %5              ;DONE EXIT
```

```
1066
1067
1068                                    ;SUBROUTINE TO TRANSMIT DATA.  SUBROUTINE CALLED BY
1069                                    ;JSR 5,XMITD
1070  005222  000240                    XMITD:  NOP
1071  005224  010046                            MOV     %0,-(SP)        ;SAVE R0 ON THE STACK
1072  005226  013700  002140                    MOV     @#LINE,%0       ;GET LINE
1073  005232  012760  007362  001400            MOV     #OUTBUF,CAT(0)  ;LOAD FIRST CHAR ADDRESS IN CAT
1074  005240  012560  001440                    MOV     (5)+,WCT(0)     ;LOAD WORD COUNT INTO LINE'S TABLE ADDRESS
1075  005244  053737  001566  001562            BIS     @#LINBIT,@#BARIM;LOAD LINE POSITION INTO BAR IMAGE
1076  005252  053777  001566  174264            BIS     LINBIT,@BAR     ;START TRANSMITTING ON LINE SPECIFIED
1077                                                                    ;IN LINBIT
1078  005260  012600                            MOV     (SP)+,%0        ;RESTORE R0
1079  005262  000240                            NOP
1080  005264  000205                            RTS     5               ;EXIT
1081
1082                                    ;SUBROUTINE TO FORM LINE BIT POSITION WITH THE LINE # IN LINE
1083  005266  010046                    GTLINB: MOV     %0,-(SP)        ;SAVE R0 ON THE STACK
1084  005270  005037  001566                    CLR     @#LINBIT
1085  005274  013700  002140                    MOV     @#LINE,%0       ;GET LINE
1086  005300  000261                            SEC                     ;SET CARRY
1087  005302  006137  001566            1$:     ROL     LINBIT          ;SHIFT LINE BIT
1088  005306  162700  000002                    SUB     #2,%0           ;SUBTRACT 2 FROM LINE NUMBER
1089  005312  100373                            BPL     1$
1090  005314  012600                            MOV     (SP)+,%0        ;RESTORE R0
1091  005316  000207                            RTS     7               ;EXIT
1092
1093
1094                                    ;SUBROUTINE TO CHECK TRANSMITTED DATA
1095  005320  104013                    CHKDAT: SAVREG                  ;SAVE THE REGISTERS ON THE STACK
1096  005322  000240                            NOP                     ;NOP
1097  005324  005001                            CLR     %1              ;CLEAR CHARACTER COUNT
1098  005326  012702  012626                    MOV     #INTAB,%2       ;GET ADDRESS OF LINE'S INPUT BUFFER
1099  005332  005003                            CLR     %3              ;ADDRESS ;GET LINE COUNT
1100  005334  010337  002140            1$:     MOV     %3,@#LINE       ;MOVE LINE # TO LINE
1101  005340  012237  002142                    MOV     (2)+,@#LINBUF   ;GET LINE'S INPUT BUFFER ADDRESS
1102  005344  005337  002142                    DEC     LINBUF          ;SUBTRACT 1 FROM LINE'S INPUT BUFFER ADDRESS
1103  005350  005237  002142            2$:     INC     LINBUF          ;INCREMENT LINE'S INPUT BUFFER ADDRESS
1104  005354  117737  174562  002122            MOVB    @LINBUF,@#RCVDAT        ;GET RECEIVED CHARACTER
1105  005362  116137  007362  002124            MOVB    OUTBUF(1),XMTDAT;GET TRANSMITTED CHARACTER
1106  005370  043737  002126  002124            BIC     @#CARMSK,XMTDAT ;CLEAR UNTRANSMITTED BITS
1107  005376  104004                            DATCHK                  ;COMPARE CHARACTERS
1108  005400  005201                            INC     %1              ;INCREMENT CHARACTER COUNT
1109  005402  020127  000100                    CMP     %1,#64.         ;ALL CHARACTERS BEEN COMPARED
1110  005406  001360                            BNE     2$              ;GO CHECK NEXT CHAR. IF NOT
1111  005410  005001                            CLR     %1              ;CLEAR CHARACTER COUNT
1112  005412  005203                            INC     %3              ;INCREMENT LINE COUNT
1113  005414  020327  000020                    CMP     %3,#16.         ;ALL LINES CHECKED?
1114  005420  002745                            BLT     1$              ;BRANCH IF ALL LINES NOT CHECKED
1115  005422  104014                            RSTREG                  ;RESTORE REGISTERS
1116  005424  000207                            RTS     7               ;EXIT SUBROUTINE
1117
1118
1119                                    ;RECEIVER INTERRUPT SERVICE ROUTINE
1120  005426  000240                    RINT:   NOP                     ;BEGIN
1121  005430  104013                            SAVREG                  ;SAVE THE REGISTERS ON THE STACK
```

```
 1122  005432  013701  001572                  MOV     @#TTPTR,%1      ;GET TUMBLE TABLE POINTER
 1123  005436  011137  001564                  MOV     (1),TTDAT       ;GET TUMBLE TABLE ENTRY
 1124  005442  100410                          BMI     2$              ;BRANCH IF VALID DATA ENTRY
 1125  005444  104003                          ERROR                   ;ERROR! FALSE INTERRUPT
 1126  005446  000454                          BR      6$              ;EXIT
 1127  005450  011137  001564          1$:     MOV     (1),@#TTDAT     ;GET TUMBLE TABLE ENTRY
 1128  005454  001451                          BEQ     6$              ;GO TO EXIT IF NO DATA ENTRY
 1129  005456  100402                          BMI     2$              ;BRANCH IF VALID DATA ENTRY
 1130  005460  104003                          ERROR                   ;ERROR! NO VALID DATA ENTRY INDICATOR
 1131  005462  000425                          BR      3$
 1132  005464  005011                  2$:     CLR     (1)             ;CLEAR TUMBLE TABLE ENTRY
 1133  005466  042737  160400  001564          BIC     #160400,@#TTDAT ;CLEAR ALL BUT CHAR. & LINE #
 1134  005474  113702  001565                  MOVB    TTDAT+1,%2      ;PUT LINE # IN R2 (LINE WILL BE IN LSH)
 1135  005500  010204                          MOV     %2,%4
 1136  005502  016237  012626  002142          MOV     INTAB(2),@#LINBUF       ;GET LINE'S INPUT BUFFER ADDRESS
 1137  005510  006202                          ASR     %2              ;SHIFT LINE #
 1138  005512  005003                          CLR     %3
 1139  005514  116203  012666                  MOVB    CNTTAB(2),%3    ;GET LINE'S RECEIVED CHAR. COUNT
 1140  005520  105262  012666                  INCB    CNTTAB(2)       ;INCREMENT CHARACTER COUNT
 1141  005524  060337  002142                  ADD     %3,LINBUF       ;FORM ADDRESS WHERE CHAR. IS TO BE STORED
 1142  005530  113777  001564  174404          MOVB    TTDAT,@LINBUF   ;STORE CHAR. IN LINE'S INPUT BUFFER
 1143  005536  000240                  3$:     NOP                     ;NOP
 1144  005540  016437  001440  002122          MOV     WCT(4),RCVDAT   ;GET TRANSMITTERS WORD COUNT
 1145  005546  003405                          BLE     4$              ;BRANCH IF WORD COUNT IS 0 OR NEGATIVE
 1146  005550  010437  002124                  MOV     %4,XMTDAT       ;GET LINE # OF FAILING LINE
 1147  005554  104015                          ERROR1                  ;ERROR! INCORRECT WORD COUNT IN
 1148                                  ;TYPE OUT SHOWS FAILING LINE #, AND FAILING LINE'S WORD COUNT
 1149  005556  000005                          RESET                   ;STOP THE DM11
 1150  005560  104012                          SCOPE                   ;EXIT TEST
 1151
 1152  005562  022701  001776          4$:     CMP     #TUMTAB+176,%1  ;IS THE TUMBLE TABLE POINTER AT THE
 1153  005566  001002                          BNE     5$              ;THE END OF THE TABLE
 1154  005570  012701  001576                  MOV     #TUMTAB-2,%1    ;RESET POINTER
 1155  005574  005721                  5$:     TST     (1)+            ;INCREMENT POINTER
 1156  005576  000724                          BR      1$              ;GO CHECK NEXT ENTRY
 1157  005600  042777  000200  173734  6$:     BIC     #BIT7,@CSR      ;CLEAR RECEIVER DONE FLAG
 1158  005606  010137  001572                  MOV     %1,TTPTR        ;SAVE POINTER
 1159  005612  104014                          RSTREG                  ;RESTORE THE REGISTERS
 1160  005614  000240                          NOP
 1161  005616  000002                          RTI                     ;EXIT SERVICE ROUTINE
 1162
 1163                                  ;TRANSMITTER INTERRUPT SERVICE ROUTINE
 1164  005620  000240                  TINT:   NOP                     ;BEGIN
 1165  005622  032777  060000  173712          BIT     #BIT14+BIT13,@CSR;TEST ERROR FLAGS
 1166  005630  001404                          BEQ     1$              ;BRANCH IF NO ERROR FLAGS
 1167  005632  104003                          ERROR                   ;ERROR! ERROR FLAG IS SET
 1168  005634  042777  060000  173700          BIC     #BIT14+BIT13,@CSR;CLEAR ERROR FLAGS
 1169  005642  005777  173674          1$:     TST     @CSR            ;TEST READY FLAG
 1170  005646  100003                          BPL     2$              ;BRANCH IF READY IS CLEAR
 1171  005650  042777  100000  173664          BIC     #BIT15,@CSR     ;CLEAR READY FLAG
 1172  005656  000002                  2$:     RTI
 1173
 1174
```

```
1175
1176  005660  104000                  PRGO:   TYPE
1177  005662  013421                          PRGOM
1178  005664  012737  005720  002010  PRGOA:  MOV     #RTO,KSTART     ;GET ADDRESS OF FIRST TEST
1179  005672  005037  002014                  CLR     RTNNO           ;CLEAR ROUTINE #
1180  005676  000137  002506                  JMP     SRSET
1181  005702  012737  005720  002010  PRGOR:  MOV     #RTO,KSTART     ;GET ADDRESS OF FIRST TEST
1182  005710  005037  002014                  CLR     RTNNO           ;CLEAR ROUTINE NUMBER
1183  005714  000137  002540                  JMP     GETRDY          ;GO AND START PROGRAM
1184                                  ;*****************************************************************************
1185  005720  000000                  RTO:    0                       ;ROUTINE # 0                                 *
1186  005722  005740                          RT1                     ;ADDR OF NEXT ROUTINE.                       *
1187  005724  000002                          2                       ;ITERATION COUNT                             *
1188  005726  005730                          RTOA                    ;SCOPE ENTRY POINT.                          *
1189          000000                          X=X+1
1190                                  ;*****************************************************************************
1191                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1192                                  ;NEXT LINE.
1193  005730  004537  004472          RTOA:   JSR     5,DLYXMT        ;GO DO TEST.
1194  005734  013743                          MSG1                    ;TRANSMIT THIS MESSAGE &
1195  005736  000000                          0                       ;DELAY THIS MUCH BETWEEN LINES
1196                                  ;*****************************************************************************
1197  005740  000001                  RT1:    1                       ;ROUTINE # 1                                 *
1198  005742  005760                          RT2                     ;ADDR OF NEXT ROUTINE.                       *
1199  005744  000002                          2                       ;ITERATION COUNT                             *
1200  005746  005750                          RT1A                    ;SCOPE ENTRY POINT.                          *
1201          000001                          X=X+1
1202                                  ;*****************************************************************************
1203                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1204                                  ;NEXT LINE.
1205  005750  004537  004472          RT1A:   JSR     5,DLYXMT        ;GO DO TEST.
1206  005754  013743                          MSG1                    ;TRANSMIT THIS MESSAGE &
1207  005756  177740                          -32.                    ;DELAY THIS MUCH BETWEEN LINES
1208                                  ;*****************************************************************************
1209  005760  000002                  RT2:    2                       ;ROUTINE # 2                                 *
1210  005762  006000                          RT3                     ;ADDR OF NEXT ROUTINE.                       *
1211  005764  000002                          2                       ;ITERATION COUNT                             *
1212  005766  005770                          RT2A                    ;SCOPE ENTRY POINT.                          *
1213          000002                          X=X+1
1214                                  ;*****************************************************************************
1215                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1216                                  ;NEXT LINE.
1217  005770  004537  004472          RT2A:   JSR     5,DLYXMT        ;GO DO TEST.
1218  005774  013743                          MSG1                    ;TRANSMIT THIS MESSAGE &
1219  005776  177720                          -48.                    ;DELAY THIS MUCH BETWEEN LINES
1220                                  ;*****************************************************************************
1221  006000  000003                  RT3:    3                       ;ROUTINE # 3                                 *
1222  006002  006020                          RT4                     ;ADDR OF NEXT ROUTINE.                       *
1223  006004  000002                          2                       ;ITERATION COUNT                             *
1224  006006  006010                          RT3A                    ;SCOPE ENTRY POINT.                          *
1225          000003                          X=X+1
1226                                  ;*****************************************************************************
1227                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1228                                  ;NEXT LINE.
1229  006010  004537  004472          RT3A:   JSR     5,DLYXMT        ;GO DO TEST.
1230  006014  013743                          MSG1                    ;TRANSMIT THIS MESSAGE &
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1231  006016  177710                -56.                    ;DELAY THIS MUCH BETWEEN LINES
1232                          ;*****************************************************************
1233  006020  000004           RT4:  4                       ;ROUTINE # 4                    *
1234  006022  006040                 RT5                     ;ADDR OF NEXT ROUTINE.          *
1235  006024  000002                 2                       ;ITERATION COUNT                *
1236  006026  006030                 RT4A                    ;SCOPE ENTRY POINT.             *
1237           000004                 X=X+1
1238                          ;*****************************************************************
1239                          ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1240                          ;NEXT LINE.
1241  006030  004537  004472  RT4A: JSR    5,DLYXMT           ;GO DO TEST.
1242  006034  013743                 MSG1                    ;TRANSMIT THIS MESSAGE &
1243  006036  177704                 -60.                    ;DELAY THIS MUCH BETWEEN LINES
1244                          ;*****************************************************************
1245  006040  000005           RT5:  5                       ;ROUTINE # 5                    *
1246  006042  006060                 RT6                     ;ADDR OF NEXT ROUTINE.          *
1247  006044  000002                 2                       ;ITERATION COUNT                *
1248  006046  006050                 RT5A                    ;SCOPE ENTRY POINT.             *
1249           000005                 X=X+1
1250                          ;*****************************************************************
1251                          ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1252                          ;NEXT LINE.
1253  006050  004537  004472  RT5A: JSR    5,DLYXMT           ;GO DO TEST.
1254  006054  013743                 MSG1                    ;TRANSMIT THIS MESSAGE &
1255  006056  177702                 -62.                    ;DELAY THIS MUCH BETWEEN LINES
1256                          ;*****************************************************************
1257  006060  000006           RT6:  6                       ;ROUTINE # 6                    *
1258  006062  006100                 RT7                     ;ADDR OF NEXT ROUTINE.          *
1259  006064  000002                 2                       ;ITERATION COUNT                *
1260  006066  006070                 RT6A                    ;SCOPE ENTRY POINT.             *
1261           000006                 X=X+1
1262                          ;*****************************************************************
1263                          ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1264                          ;NEXT LINE.
1265  006070  004537  004472  RT6A: JSR    5,DLYXMT           ;GO DO TEST.
1266  006074  013743                 MSG1                    ;TRANSMIT THIS MESSAGE &
1267  006076  177701                 -63.                    ;DELAY THIS MUCH BETWEEN LINES
1268                          ;*****************************************************************
1269  006100  000007           RT7:  7                       ;ROUTINE # 7                    *
1270  006102  006120                 RT10                    ;ADDR OF NEXT ROUTINE.          *
1271  006104  000002                 2                       ;ITERATION COUNT                *
1272  006106  006110                 RT7A                    ;SCOPE ENTRY POINT.             *
1273           000007                 X=X+1
1274                          ;*****************************************************************
1275                          ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1276                          ;NEXT LINE.
1277  006110  004537  004472  RT7A: JSR    5,DLYXMT           ;GO DO TEST.
1278  006114  013743                 MSG1                    ;TRANSMIT THIS MESSAGE &
1279  006116  177700                 -64.                    ;DELAY THIS MUCH BETWEEN LINES
1280                          ;*****************************************************************
1281  006120  000010           RT10: 10                      ;ROUTINE # 10                   *
1282  006122  006140                 RT11                    ;ADDR OF NEXT ROUTINE.          *
1283  006124  000002                 2                       ;ITERATION COUNT                *
1284  006126  006130                 RT10A                   ;SCOPE ENTRY POINT.             *
1285           000010                 X=X+1
1286                          ;*****************************************************************
```

```
1287                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1288                                    ;NEXT LINE.
1289  006130  004537  004472    RT10A:  JSR     5,DLYXMT        ;GO DO TEST.
1290  006134  014044                    MSG2                    ;TRANSMIT THIS MESSAGE &
1291  006136  177740                    -32.                    ;DELAY THIS MUCH BETWEEN LINES
1292                                    ;*****************************************************************
1293  006140  000011    RT11:   11                              ;ROUTINE # 11                          *
1294  006142  006160            RT12                            ;ADDR OF NEXT ROUTINE.                 *
1295  006144  000002            2                               ;ITERATION COUNT                       *
1296  006146  006150            RT11A                           ;SCOPE ENTRY POINT.                    *
1297           000011            X=X+1
1298                                    ;*****************************************************************
1299                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1300                                    ;NEXT LINE.
1301  006150  004537  004472    RT11A:  JSR     5,DLYXMT        ;GO DO TEST.
1302  006154  014044                    MSG2                    ;TRANSMIT THIS MESSAGE &
1303  006156  177720                    -48.                    ;DELAY THIS MUCH BETWEEN LINES
1304                                    ;*****************************************************************
1305  006160  000012    RT12:   12                              ;ROUTINE # 12                          *
1306  006162  006200            RT13                            ;ADDR OF NEXT ROUTINE.                 *
1307  006164  000002            2                               ;ITERATION COUNT                       *
1308  006166  006170            RT12A                           ;SCOPE ENTRY POINT.                    *
1309           000012            X=X+1
1310                                    ;*****************************************************************
1311                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1312                                    ;NEXT LINE.
1313  006170  004537  004472    RT12A:  JSR     5,DLYXMT        ;GO DO TEST.
1314  006174  014044                    MSG2                    ;TRANSMIT THIS MESSAGE &
1315  006176  177710                    -56.                    ;DELAY THIS MUCH BETWEEN LINES
1316                                    ;*****************************************************************
1317  006200  000013    RT13:   13                              ;ROUTINE # 13                          *
1318  006202  006220            RT14                            ;ADDR OF NEXT ROUTINE.                 *
1319  006204  000002            2                               ;ITERATION COUNT                       *
1320  006206  006210            RT13A                           ;SCOPE ENTRY POINT.                    *
1321           000013            X=X+1
1322                                    ;*****************************************************************
1323                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1324                                    ;NEXT LINE.
1325  006210  004537  004472    RT13A:  JSR     5,DLYXMT        ;GO DO TEST.
1326  006214  014044                    MSG2                    ;TRANSMIT THIS MESSAGE &
1327  006216  177704                    -60.                    ;DELAY THIS MUCH BETWEEN LINES
1328                                    ;*****************************************************************
1329  006220  000014    RT14:   14                              ;ROUTINE # 14                          *
1330  006222  006240            RT15                            ;ADDR OF NEXT ROUTINE.                 *
1331  006224  000002            2                               ;ITERATION COUNT                       *
1332  006226  006230            RT14A                           ;SCOPE ENTRY POINT.                    *
1333           000014            X=X+1
1334                                    ;*****************************************************************
1335                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1336                                    ;NEXT LINE.
1337  006230  004537  004472    RT14A:  JSR     5,DLYXMT        ;GO DO TEST.
1338  006234  014044                    MSG2                    ;TRANSMIT THIS MESSAGE &
1339  006236  177702                    -62.                    ;DELAY THIS MUCH BETWEEN LINES
1340                                    ;*****************************************************************
1341  006240  000015    RT15:   15                              ;ROUTINE # 15                          *
1342  006242  006260            RT16                            ;ADDR OF NEXT ROUTINE.                 *
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1343  006244  000002                  2                       ;ITERATION COUNT                *
1344  006246  006250                  RT15A                   ;SCOPE ENTRY POINT.             *
1345          000015                  X=X+1
1346                          ;*****************************************************************
1347                          ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1348                          ;NEXT LINE.
1349  006250  004537  004472  RT15A:  JSR     5,DLYXMT        ;GO DO TEST.
1350  006254  014044                  MSG2                    ;TRANSMIT THIS MESSAGE &
1351  006256  177701                  -63.                    ;DELAY THIS MUCH BETWEEN LINES
1352                          ;*****************************************************************
1353  006260  000016          RT16:   16                      ;ROUTINE # 16                   *
1354  006262  006300                  RT17                    ;ADDR OF NEXT ROUTINE.          *
1355  006264  000002                  2                       ;ITERATION COUNT                *
1356  006266  006270                  RT16A                   ;SCOPE ENTRY POINT.             *
1357          000016                  X=X+1
1358                          ;*****************************************************************
1359                          ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1360                          ;NEXT LINE.
1361  006270  004537  004472  RT16A:  JSR     5,DLYXMT        ;GO DO TEST.
1362  006274  014044                  MSG2                    ;TRANSMIT THIS MESSAGE &
1363  006276  177700                  -64.                    ;DELAY THIS MUCH BETWEEN LINES
1364                          ;*****************************************************************
1365  006300  000017          RT17:   17                      ;ROUTINE # 17                   *
1366  006302  006320                  RT20                    ;ADDR OF NEXT ROUTINE.          *
1367  006304  000002                  2                       ;ITERATION COUNT                *
1368  006306  006310                  RT17A                   ;SCOPE ENTRY POINT.             *
1369          000017                  X=X+1
1370                          ;*****************************************************************
1371                          ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1372                          ;NEXT LINE.
1373  006310  004537  004472  RT17A:  JSR     5,DLYXMT        ;GO DO TEST.
1374  006314  014144                  MSG3                    ;TRANSMIT THIS MESSAGE &
1375  006316  177720                  -48.                    ;DELAY THIS MUCH BETWEEN LINES
1376                          ;*****************************************************************
1377  006320  000020          RT20:   20                      ;ROUTINE # 20                   *
1378  006322  006340                  RT21                    ;ADDR OF NEXT ROUTINE.          *
1379  006324  000002                  2                       ;ITERATION COUNT                *
1380  006326  006330                  RT20A                   ;SCOPE ENTRY POINT.             *
1381          000020                  X=X+1
1382                          ;*****************************************************************
1383                          ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1384                          ;NEXT LINE.
1385  006330  004537  004472  RT20A:  JSR     5,DLYXMT        ;GO DO TEST.
1386  006334  014144                  MSG3                    ;TRANSMIT THIS MESSAGE &
1387  006336  177704                  -60.                    ;DELAY THIS MUCH BETWEEN LINES
1388                          ;*****************************************************************
1389  006340  000021          RT21:   21                      ;ROUTINE # 21                   *
1390  006342  006360                  RT22                    ;ADDR OF NEXT ROUTINE.          *
1391  006344  000002                  2                       ;ITERATION COUNT                *
1392  006346  006350                  RT21A                   ;SCOPE ENTRY POINT.             *
1393          000021                  X=X+1
1394                          ;*****************************************************************
1395                          ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1396                          ;NEXT LINE.
1397  006350  004537  004472  RT21A:  JSR     5,DLYXMT        ;GO DO TEST.
1398  006354  014144                  MSG3                    ;TRANSMIT THIS MESSAGE &
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1399  006356  177701                  -63.                    ;DELAY THIS MUCH BETWEEN LINES
1400
1401  006360  000022                  RT22:   22              ;ROUTINE # 22                    *
1402  006362  006400                          RT23            ;ADDR OF NEXT ROUTINE.           *
1403  006364  000002                          2               ;ITERATION COUNT                 *
1404  006366  006370                          RT22A           ;SCOPE ENTRY POINT.              *
1405          000022                          X=X+1
1406                                  ;*************************************************************
1407                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1408                                  ;NEXT LINE.
1409  006370  004537  004472          RT22A:  JSR     5,DLYXMT        ;GO DO TEST.
1410  006374  014144                          MSG3                    ;TRANSMIT THIS MESSAGE &
1411  006376  177700                          -64.                    ;DELAY THIS MUCH BETWEEN LINES
1412                                  ;*************************************************************
1413  006400  000023                  RT23:   23              ;ROUTINE # 23                    *
1414  006402  006420                          RT24            ;ADDR OF NEXT ROUTINE.           *
1415  006404  000002                          2               ;ITERATION COUNT                 *
1416  006406  006410                          RT23A           ;SCOPE ENTRY POINT.              *
1417          000023                          X=X+1
1418                                  ;*************************************************************
1419                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1420                                  ;NEXT LINE.
1421  006410  004537  004472          RT23A:  JSR     5,DLYXMT        ;GO DO TEST.
1422  006414  014244                          MSG4                    ;TRANSMIT THIS MESSAGE &
1423  006416  177740                          -32.                    ;DELAY THIS MUCH BETWEEN LINES
1424                                  ;*************************************************************
1425  006420  000024                  RT24:   24              ;ROUTINE # 24                    *
1426  006422  006440                          RT25            ;ADDR OF NEXT ROUTINE.           *
1427  006424  000002                          2               ;ITERATION COUNT                 *
1428  006426  006430                          RT24A           ;SCOPE ENTRY POINT.              *
1429          000024                          X=X+1
1430                                  ;*************************************************************
1431                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1432                                  ;NEXT LINE.
1433  006430  004537  004472          RT24A:  JSR     5,DLYXMT        ;GO DO TEST.
1434  006434  014244                          MSG4                    ;TRANSMIT THIS MESSAGE &
1435  006436  177710                          -56.                    ;DELAY THIS MUCH BETWEEN LINES
1436                                  ;*************************************************************
1437  006440  000025                  RT25:   25              ;ROUTINE # 25                    *
1438  006442  006460                          RT26            ;ADDR OF NEXT ROUTINE.           *
1439  006444  000002                          2               ;ITERATION COUNT                 *
1440  006446  006450                          RT25A           ;SCOPE ENTRY POINT.              *
1441          000025                          X=X+1
1442                                  ;*************************************************************
1443                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1444                                  ;NEXT LINE.
1445  006450  004537  004472          RT25A:  JSR     5,DLYXMT        ;GO DO TEST.
1446  006454  014244                          MSG4                    ;TRANSMIT THIS MESSAGE &
1447  006456  177702                          -62.                    ;DELAY THIS MUCH BETWEEN LINES
1448                                  ;*************************************************************
1449  006460  000026                  RT26:   26              ;ROUTINE # 26                    *
1450  006462  006500                          RT27            ;ADDR OF NEXT ROUTINE.           *
1451  006464  000002                          2               ;ITERATION COUNT                 *
1452  006466  006470                          RT26A           ;SCOPE ENTRY POINT.              *
1453          000026                          X-X+1
1454                                  ;*************************************************************
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1455                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1456                                    ;NEXT LINE.
1457  006470  004537  004472            RT26A:  JSR     5,DLYXMT        ;GO DO TEST.
1458  006474  014244                            MSG4                    ;TRANSMIT THIS MESSAGE &
1459  006476  177700                            -64.                    ;DELAY THIS MUCH BETWEEN LINES
1460                                    ;*****************************************************************
1461  006500  000027                    RT27:   27                      ;ROUTINE # 27                  *
1462  006502  006520                            RT30                    ;ADDR OF NEXT ROUTINE.         *
1463  006504  000002                            2                       ;ITERATION COUNT               *
1464  006506  006510                            RT27A                   ;SCOPE ENTRY POINT.            *
1465            000027                          X=X+1
1466                                    ;*****************************************************************
1467                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1468                                    ;NEXT LINE.
1469  006510  004537  004472            RT27A:  JSR     5,DLYXMT        ;GO DO TEST.
1470  006514  014344                            MSG5                    ;TRANSMIT THIS MESSAGE &
1471  006516  177720                            -48.                    ;DELAY THIS MUCH BETWEEN LINES
1472                                    ;*****************************************************************
1473  006520  000030                    RT30:   30                      ;ROUTINE # 30                  *
1474  006522  006540                            RT31                    ;ADDR OF NEXT ROUTINE.         *
1475  006524  000002                            2                       ;ITERATION COUNT               *
1476  006526  006530                            RT30A                   ;SCOPE ENTRY POINT.            *
1477            000030                          X=X+1
1478                                    ;*****************************************************************
1479                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1480                                    ;NEXT LINE.
1481  006530  004537  004472            RT30A:  JSR     5,DLYXMT        ;GO DO TEST.
1482  006534  014344                            MSG5                    ;TRANSMIT THIS MESSAGE &
1483  006536  177710                            -56.                    ;DELAY THIS MUCH BETWEEN LINES
1484                                    ;*****************************************************************
1485  006540  000031                    RT31:   31                      ;ROUTINE # 31                  *
1486  006542  006560                            RT32                    ;ADDR OF NEXT ROUTINE.         *
1487  006544  000002                            2                       ;ITERATION COUNT               *
1488  006546  006550                            RT31A                   ;SCOPE ENTRY POINT.            *
1489            000031                          X=X+1
1490                                    ;*****************************************************************
1491                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1492                                    ;NEXT LINE.
1493  006550  004537  004472            RT31A:  JSR     5,DLYXMT        ;GO DO TEST.
1494  006554  014344                            MSG5                    ;TRANSMIT THIS MESSAGE &
1495  006556  177704                            -60.                    ;DELAY THIS MUCH BETWEEN LINES
1496                                    ;*****************************************************************
1497  006560  000032                    RT32:   32                      ;ROUTINE # 32                  *
1498  006562  006600                            RT33                    ;ADDR OF NEXT ROUTINE.         *
1499  006564  000002                            2                       ;ITERATION COUNT               *
1500  006566  006570                            RT32A                   ;SCOPE ENTRY POINT.            *
1501            000032                          X=X+1
1502                                    ;*****************************************************************
1503                                    ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
1504                                    ;NEXT LINE.
1505  006570  004537  004472            RT32A:  JSR     5,DLYXMT        ;GO DO TEST.
1506  006574  014344                            MSG5                    ;TRANSMIT THIS MESSAGE &
1507  006576  177702                            -62.                    ;DELAY THIS MUCH BETWEEN LINES
1508                                    ;*****************************************************************
1509  006600  000033                    RT33:   33                      ;ROUTINE # 33                  *
1510  006602  006620                            RT34                    ;ADDR OF NEXT ROUTINE.         *
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 1511  006604  000002                          2                       ;ITERATION COUNT                        *
 1512  006606  006610                          RT33A                   ;SCOPE ENTRY POINT.                     *
 1513          000033                          X=X+1
 1514                                  ;*************************************************************************
 1515                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
 1516                                  ;NEXT LINE.
 1517  006610  004537  004472          RT33A:  JSR     5,DLYXMT        ;GO DO TEST.
 1518  006614  014344                          MSG5                    ;TRANSMIT THIS MESSAGE &
 1519  006616  177701                          -63.                    ;DELAY THIS MUCH BETWEEN LINES
 1520                                  ;*************************************************************************
 1521  006620  000034                  RT34:   34                      ;ROUTINE # 34                           *
 1522  006622  177777                          RT35                    ;ADDR OF NEXT ROUTINE.                  *
 1523  006624  000002                          2                       ;ITERATION COUNT                        *
 1524  006626  006630                          RT34A                   ;SCOPE ENTRY POINT.                     *
 1525          000034                          X=X+1
 1526                                  ;*************************************************************************
 1527                                  ;TEST TO TRANSMIT ON EACH LINE WITH A DELAY BEFORE STATING THE
 1528                                  ;NEXT LINE.
 1529  006630  004537  004472          RT34A:  JSR     5,DLYXMT        ;GO DO TEST.
 1530  006634  014344                          MSG5                    ;TRANSMIT THIS MESSAGE &
 1531  006636  177700                          -64.                    ;DELAY THIS MUCH BETWEEN LINES
 1532          177777                  RT35=-1
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1533
1534                                    ;PRG1-  DATA TESTS ALL LINES SIMULTANEOUSLY. DATA TRANSMITTED IS 'THE
1535                                    ;QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890'
1536  006640  104000                    PRG1:   TYPE                    ;TYPE
1537  006642  013447                            PRG1M                   ;PROGRAM TITLE
1538  006644  022737  000176  001202    PRGX:   CMP     #SWREG,SWR      ;SEE IF SWITCH-LESS
1539  006652  001001                            BNE     PRG1R           ;BRANCH IF NOT
1540  006654  104020                            CNTLU                   ;GET SWREG SETTINGS
1541  006656  004537  004472            PRG1R:  JSR     5,DLYXMT        ;GO TO DLYXMT TO SET UP DM11
1542  006662  013743                            MSG1                    ;MSG1 WILL BE THE DATA TRANSMITTED
1543  006664  177700                            -64.                    ;DO NOT DELAY
1544  006666  012737  007362  001400    PRG1A:  MOV     #OUTBUF,CAT     ;LOAD CURRENT
1545  006674  004537  005200                    JSR     5,BMOVE         ;ADDRESS TABLE
1546  006700  001400                            CAT                     ;TO POINT TO
1547  006702  001402                            CAT+2                   ;OUTBUF
1548  006704  000040                            32.
1549  006706  012737  177700  001440            MOV     #-64.,WCT       ;LOAD WORD COUNT
1550  006714  004537  005200                    JSR     5,BMOVE         ;TO -64.
1551  006720  001440                            WCT
1552  006722  001442                            WCT+2
1553  006724  000040                            32.
1554  006726  012777  010100  172606            MOV     #BIT12+BIT6,@CSR;SET TRANSMITTER & RECIEVER IE BITS
1555  006734  023727  002446  000004            CMP     PRGNUM,#4       ;RUNNING PROGRAM #2?
1556  006742  001403                            BEQ     .+10
1557  006744  052777  000001  172570            BIS     #BIT0,@CSR      ;SET THE GO BIT
1558  006752  012777  177777  172564            MOV     #-1,@BAR        ;START TRANSMITTING ON ALL LINES
1559  006760  005777  172560                    TST     @BAR            ;WAIT FOR ALL LINES TO COMPLETE
1560  006764  001375                            BNE     .-4
1561  006766  005205                            INC     %5
1562  006770  001376                            BNE     .-2
1563  006772  005077  172544                    CLR     @CSP
1564  006776  023727  002446  000004    PRG1C:  CMP     PRGNUM,#4       ;DO NOT CHECK DATA IF RUNNING
1565  007004  001402                            BEQ     PRG1D           ;PROGRAM # 2
1566  007006  004737  005320                    JSR     7,CHKDAT        ;GO CHECK RECEIVED DATA
1567  007012  104000                    PRG1D:  TYPE                    ;TYPE
1568  007014  013303                            M2                      ;'PRGEND'
1569  007016  012706  001200            PRG1FX: MOV     #SPBOT,SP       ;RESET THE STACK POINTER
1570  007022  000715                            BR      PRGXR           ;GO RESTART TEST
1571
1572
1573                                    ;PRG2-PROGRAM 2 RUNS PROGRAM 1 EXCEPT FOR THE DATA CHECKING
1574                                    ;WHEN ALL LINES ARE FINISHED TRANSMITTING. THIS ALLOWS THE DATA
1575                                    ;TRANSMITTED TO BE SENT TO TERMINALS. BEFORE STARTING THIS PROGRAM
1576                                    ;REMOVE THE JUMPERS CONNECTING THE TRANSMITTERS TO THE RECEIVERS.
1577  007024  104000                    PRG2:   TYPE                    ;TYPE PROGRAM TITLE
1578  007026  013527                            PRG2M                   ;AND INSTRUCTIONS
1579  007030  000137  006644            PRG2R:  JMP     PRGX            ;GO RUN PRG1
```

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1580
1581                                    ;PRG3-ECHO TEST THIS PROGRAM ECHOS BACK DATA RECEIVED FROM ANY DM11
1582                                    ;TERMINAL(S)
1583                                    ;NOTE:  THIS TEST IS THE ONLY TEST THAT INSURES PROPER OPERATION
1584                                    ;OF THE DM11 DISTRIBUTION PANEL LOGIC.
1585
1586  007034  104000                    PRG3:   TYPE                    ;TYPE PROGRAM
1587  007036  013556                            PRG3M                   ;TITLE
1588  007040  022737  000176  001202            CMP     #SWREG,SWR      ;SEE IF SWITCH-LESS
1589  007046  001001                            BNE     PRG3R           ;BRANCH IF NOT
1590  007050  104020                            CNTLU                   ;GET SWREG SETTINGS
1591  007052  004537  004472            PRG3R:  JSR     5,DLYXMT        ;USE PART OF THE
1592  007056  013743                            MSG1                    ;DLYXMT ROUTINE TO
1593  007060  000240                            NOP                     ;SET UP DM11
1594  007062  012737  001600  001572    PRG3A:  MOV     #TUMTAB,TTPTR   ;INITIALIZE SOFTWARE POINTER
1595  007070  013701  001552                    MOV     CLKINT,%1       ;LOAD RECEIVER
1596  007074  012721  007132                    MOV     #RINT3,(1)+     ;AND TRANSMITTER
1597  007100  013721  001554                    MOV     CLKLVL,(1)+     ;VECTORS AND PRIORITY
1598  007104  012721  007336                    MOV     #TINT3,(1)+     ;LEVELS
1599  007110  013721  001560                    MOV     XMTLVL,(1)+
1600  007114  012777  010101  172420            MOV     #BIT12+BIT6+BIT0,@CSR ;SET IE AND GO BITS
1601  007122  012700  000001                    MOV     #1,%0
1602  007126  005200                            INC     %0
1603  007130  000776                            BR      .-2
1604
1605
1606  007132  000240                    RINT3:  NOP
1607  007134  000240                            NOP
1608  007136  013701  001572                    MOV     TTPTR,%1        ;GET SOFTWARE POINTER
1609  007142  011137  001564            RINT3A: MOV     (1),TTDAT       ;GET TUMBLE TABLE ENTRY
1610  007146  001463                            BEQ     RINT3X          ;EXIT IF NO ENTRY
1611  007150  005011                            CLR     (1)             ;CLEAR ENTRY
1612  007152  032737  040000  001564            BIT     #BIT14,TTDAT    ;WAS BREAK RECEIVED
1613  007160  001047                            BNE     RINT3B          ;DO NOTHING ABOUT IT
1614  007162  042737  160400  001564            BIC     #160400,TTDAT   ;CLEAR ALL BUT LINE # AND DATA
1615  007170  113702  001565                    MOVB    TTDAT+1,%2      ;GET LINE NUMBER
1616  007174  010237  002140                    MOV     %2,LINE         ;FETCH LINE NUMBER
1617  007200  004737  005266                    JSR     7,GTLINB        ;FORM LINE BIT FOR BAR
1618  007204  033777  001566  172332            BIT     LINBIT,@BAR     ;IS THIS LINE ACTIVE
1619  007212  001414                            BEQ     NONACT          ;LINE NOT ACTIVE
1620  007214  033777  001566  172322            BIT     LINBIT,@BAR     ;WAIT FOR LINE
1621  007222  001374                            BNE     .-6
1622  007224  032777  060000  172310            BIT     #BIT14+BIT13,@CSR
1623  007232  001401                            BEQ     .+4             ;BRANCH IF NO ERRORS
1624  007234  104003                            ERROR
1625  007236  042777  100000  172276            BIC     #BIT15,@CSR     ;CLEAR TRANSMIT DONE
1626  007244  113762  001564  007362    NONAC1: MOVB    TTDAT,OUTBUF(2) ;STORE RECEIVED CHARACTER
1627  007252  012762  177777  001440            MOV     #-1,WCT(2)      ;LOAD LINE'S WORD COUNT
1628  007260  010203                            MOV     %2,%3
1629  007262  062703  007362                    ADD     #OUTBUF,%3
1630  007266  010362  001400                    MOV     %3,CAT(2)       ;AND CURRENT ADDRESS
1631  007272  053777  001566  172244            BIS     LINBIT,@BAR     ;ECHO RECEIVED CHARACTER
1632  007300  022701  001776            RINT3B: CMP     #TUMTAB+176,%1  ;CHECK TUMBLE
1633  007304  001002                            BNE     .+6             ;TABLE POINTER
1634  007306  012701  001576                    MOV     #TUMTAB-2,%1
1635  007312  005721                            TST     (1)+
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1636 007314 000712                          BR      RINT3A
1637 007316 042777 000200 172216 RINT3X:  BIC     #BIT7,@CSR        ;CLEAR CHARACTER DONE FLAG
1638 007324 010137 001572                   MOV     %1,TTPTR          ;RESTORE POINTER
1639 007330 000240                          NOP
1640 007332 000240                          NOP
1641 007334 000002                          RTI                       ;EXIT
1642
1643 007336 000240                 TINT3:   NOP
1644 007340 032777 060000 172174            BIT     #BIT14+BIT13,@CSR ;ANY ERROR FLAGS SET
1645 007346 001401                          BEQ     .+4
1646 007350 104003                          ERROR
1647 007352 042777 160000 172162            BIC     #BIT15+BIT14+BIT13,@CSR ;CLEAR ALL FLAGS
1648 007360 000002                          RTI                       ;EXIT
```

```
1649  007362  000000          OUTBUF: 0
1650          007526                  .=OUTBUF+100.
1651  007526  000000          LN0BUF: 0
1652          007672                  .=LN0BUF+100.
1653  007672  000000          LN1BUF: 0
1654          010036                  .=LN1BUF+100.
1655  010036  000000          LN2BUF: 0
1656          010202                  .=LN2BUF+100.
1657  010202  000000          LN3BUF: 0
1658          010346                  .=LN3BUF+100.
1659  010346  000000          LN4BUF: 0
1660          010512                  .=LN4BUF+100.
1661  010512  000000          LN5BUF: 0
1662          010656                  .=LN5BUF+100.
1663  010656  000000          LN6BUF: 0
1664          011022                  .=LN6BUF+100.
1665  011022  000000          LN7BUF: 0
1666          011166                  .=LN7BUF+100.
1667  011166  000000          LN10BF: 0
1668          011332                  .=LN10BF+100.
1669  011332  000000          LN11BF: 0
1670          011476                  .=LN11BF+100.
1671  011476  000000          LN12BF: 0
1672          011642                  .=LN12BF+100.
1673  011642  000000          LN13BF: 0
1674          012006                  .=LN13BF+100.
1675  012006  000000          LN14BF: 0
1676          012152                  .=LN14BF+100.
1677  012152  000000          LN15BF: 0
1678          012316                  .=LN15BF+100.
1679  012316  000000          LN16BF: 0
1680          012462                  .=LN16BF+100.
1681  012462  000000          LN17BF: 0
1682          012626                  .=LN17BF+100.
1683  012626  007526          INTAB:  LN0BUF
1684  012630  007672                  LN1BUF
1685  012632  010036                  LN2BUF
1686  012634  010202                  LN3BUF
1687  012636  010346                  LN4BUF
1688  012640  010512                  LN5BUF
1689  012642  010656                  LN6BUF
1690  012644  011022                  LN7BUF
1691  012646  011166                  LN10BF
1692  012650  011332                  LN11BF
1693  012652  011476                  LN12BF
1694  012654  011642                  LN13BF
1695  012656  012006                  LN14BF
1696  012660  012152                  LN15BF
1697  012662  012316                  LN16BF
1698  012664  012462                  LN17BF
1699  012666  000000          CNTTAB: 0
1700          012706                  .=CNTTAB+16.
1701
1702  012706  012746          ID:     IDENT0
1703  012710  012752                  IDENT1
1704  012712  012756                  IDENT2
```

```
1705  012714  012762                          IDENT3
1706  012716  012766                          IDENT4
1707  012720  012772                          IDENT5
1708  012722  012776                          IDENT6
1709  012724  013002                          IDENT7
1710  012726  013006                          IDNT10
1711  012730  013012                          IDNT11
1712  012732  013016                          IDNT12
1713  012734  013022                          IDNT13
1714  012736  013026                          IDNT14
1715  012740  013032                          IDNT15
1716  012742  013036                          IDNT16
1717  012744  013042                          IDNT17
1718  012746  105215              IDENT0: CRLF
1719  012750  030060                      '00
1720  012752  105215              IDENT1: CRLF
1721  012754  030460                      '01
1722  012756  105215              IDENT2: CRLF
1723  012760  031060                      '02
1724  012762  105215              IDENT3: CRLF
1725  012764  031460                      '03
1726  012766  105215              IDENT4: CRLF
1727  012770  032060                      '04
1728  012772  105215              IDENT5: CRLF
1729  012774  032460                      '05
1730  012776  105215              IDENT6: CRLF
1731  013000  033060                      '06
1732  013002  105215              IDENT7:CRLF
1733  013004  033460                      '07
1734  013006  105215              IDNT10: CRLF
1735  013010  030061                      '10
1736  013012  105215              IDNT11: CRLF
1737  013014  030461                      '11
1738  013016  1052                IDNT12: CRLF
1739  013020  0310                      '12
1740  013022  105215              IDNT13: CRLF
1741  013024  031461                      '13
1742  013026  105215              IDNT14: CRLF
1743  013030  032061                      '14
1744  013032  105215              IDNT15: CRLF
1745  013034  032461                      '15
1746  013036  105215              IDNT16: CRLF
1747  013040  033061                      '16
1748  013042  105215              IDNT17: CRLF
1749  013044  033461                      '17
1750  013046  105215                      CRLF
1751          105215              CRLF=105215
1752
```

```
 1753
 1754                                           ;MESSAGES
 1755  013050  042045  030515  020061  WHERE:  .ASCII  '%DM11 RECEIVER VECTOR ADDRESS   @'
 1756  013056  042522  042503  053111
 1757  013064  051105  053040  041505
 1758  013072  047524  020122  042101
 1759  013100  051104  051505  020123
 1760  013106  020075     100
 1761  013111     045  053523  036522  $SWREG: .ASCII  '%SWR- @'
 1762  013116  040040
 1763  013120  020040  020040  020040  $VALUE: .ASCII  '          NEW- @'
 1764  013126  020040  020040  042516
 1765  013134  036527  040040
 1766  013140  036445     040          $CTLU:  .ASCII  '%- '
 1767  013143     045  044127  041511  WHICH:  .ASCII  '%WHICH DM11 ARE YOU TESTING @'
 1768  013150  020110  046504  030461
 1769  013156  040440  042522  054440
 1770  013164  052517  052040  051505
 1771  013172  044524  043516  040040
 1772  013200  042045  052101  020101  ERDAT:  .ASCII  '%DATA ERR  S/B: '
 1773  013206  051105  020122  051440
 1774  013214  041057  020072
 1775  013220  020040  020040  020040  AASB:   .ASCII  '        WAS: '
 1776  013226  020040  040527  035123
 1777  013234     040
 1778  013235     040  020040  020040  AWAS:   .ASCII  '       @'
 1779  013242  020040     100
 1780  013245     114  047111  020105  LINEM:  .ASCII  'LINE # '
 1781  013252  020043
 1782  013254  020040  040040          ALINE:  .ASCII  '   @'
 1783  013260  052045  050131  020105  M0:     .ASCII  '%TYPE PROGRAM #@'
 1784  013266  051120  043517  040522
 1785  013274  020115  040043
 1786  013300  037445     100          M1:     .ASCII  '%?@'
 1787  013303     045  042524  052123  M2:     .ASCII  '%TEST CZDMB COMPLETE@'
 1788  013310  041440  042132  041115
 1789  013316  041440  046517  046120
 1790  013324  052105  040105
 1791  013330  051445  052105  051440  M3:     .ASCII  '%SET SR OPTIONS. NORMAL OPERATION'
 1792  013336  020122  050117  044524
 1793  013344  047117  027123  047040
 1794  013352  051117  040515  020114
 1795  013360  050117  051105  052101
 1796  013366  047511     116
 1797  013371     123  020122  020075          .ASCII  'SR - 000000 PRESS CONT.@'
 1798  013376  030060  030060  030060
 1799  013404  050040  042522  051523
 1800  013412  041440  047117  027124
 1801  013420     100
 1802  013421     045  040504  040524  PRGOM:  .ASCII  '%DATA TEST ALL LINES @'
 1803  013426  052040  051505  020124
 1804  013434  046101  020114  044514
 1805  013442  042516  020123     100
 1806  013447     045  040504  040524  PRGIM:  .ASCII  '%DATA TEST TRANSMIT ON ALL LINES SIMULTANEOUSLY@'
 1807  013454  052040  051505  020124
 1808  013462  051124  047101  046523
```

```
1809  013470  052111  047440  020116
1810  013476  046101  020114  044514
1811  013504  042516  020123  044523
1812  013512  052515  052114  047101
1813  013520  047505  051525  054514
1814  013526     100
1815
1816  013527     045  051124  047101  PRG2M:  .ASCII  '%TRANSMIT TO TERMINALS@'
1817  013534  046523  052111  052040
1818  013542  020117  042524  046522
1819  013550  047111  046101  040123
1820  013556  042445  044103  020117  PRG3M:  .ASCII  '%ECHO TEST@'
1821  013564  042524  052123     100
1822  013571     045  052520  020124  PRG1:   .ASCII  '%PUT CHAR IN SR(0-7),DELAY IN SR(8-15)@'
1823  013576  044103  051101  044440
1824  013604  020116  051123  030050
1825  013612  033455  026051  042504
1826  013620  040514  020131  047111
1827  013626  051440  024122  026470
1828  013634  032461  040051
1829  013640  052045  050131  020105  POPPAR: .ASCII  '%TYPE PARITY OPTION (N NO' DESIRED O=ODD, E-EVEN@'
1830  013646  040520  044522  054524
1831  013654  047440  052120  047511
1832  013662  020116  047050  047075
1833  013670  052117  042040  051505
1834  013676  051111  042105  047440
1835  013704  047475  042104  020054
1836  013712  036505  053105  047105
1837  013720     100
1838  013721     045  020122          EMO:    .ASCII  '%R '
1839  013724  020040  020040  041520  ATNUMB: .ASCII  '    PC- '
1840  013732  020075
1841  013734  020040  020040  020040  APC:    .ASCII  '      @'
1842  013742     100
1843  013743     015     012          MSG1:   .BYTE   15,12
1844  013745     040  044124  020105          .ASCII  ' THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK 1234567890'
1845  013752  052521  041511  020113
1846  013760  051102  053517  020116
1847  013766  047506  020130  052512
1848  013774  050115  042105  047440
1849  014002  042526  020122  044124
1850  014010  020105  040514  054532
1851  014016  042040  043517  020123
1852  014024  040502  045503  030440
1853  014032  031462  032464  033466
1854  014040  034470     060
1855          014044                  .EVEN
1856  014044     015     012          MSG2:   .BYTE   15,12
1857  014046  177400                          177400
1858  014050  177400                          177400
1859  014052  177400                          177400
1860  014054  177400                          177400
1861  014056  177400                          177400
1862  014060  177400                          177400
1863  014062  177400                          177400
1864  014064  177400                          177400
```

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 1865  014066  177400                          177400
 1866  014070  177400                          177400
 1867  014072  177400                          177400
 1868  014074  177400                          177400
 1869  014076  177400                          177400
 1870  014100  177400                          177400
 1871  014102  177400                          177400
 1872  014104  177400                          177400
 1873  014106  177400                          177400
 1874  014110  177400                          177400
 1875  014112  177400                          177400
 1876  014114  177400                          177400
 1877  014116  177400                          177400
 1878  014120  177400                          177400
 1879  014122  177400                          177400
 1880  014124  177400                          177400
 1881  014126  177400                          177400
 1882  014130  177400                          177400
 1883  014132  177400                          177400
 1884  014134  177400                          177400
 1885  014136  177400                          177400
 1886  014140  177400                          177400
 1887  014142  177400                          177400
 1888  014144     015      012          MSG3:   .BYTE   15,12
 1889  014146  125252                          ALTO
 1890  014150  125252                          ALTO
 1891  014152  125252                          ALTO
 1892  014154  125252                          ALTO
 1893  014156  125252                          ALTO
 1894  014160  125252                          ALTO
 1895  014162  125252                          ALTO
 1896  014164  125252                          ALTO
 1897  014166  125252                          ALTO
 1898  014170  125252                          ALTO
 1899  014172  125252                          ALTO
 1900  014174  125252                          ALTO
 1901  014176  125252                          ALTO
 1902  014200  125252                          ALTO
 1903  014202  125252                          ALTO
 1904  014204  125252                          ALTO
 1905  014206  125252                          ALTO
 1906  014210  125252                          ALTO
 1907  014212  125252                          ALTO
 1908  014214  125252                          ALTO
 1909  014216  125252                          ALTO
 1910  014220  125252                          ALTO
 1911  014222  125252                          ALTO
 1912  014224  125252                          ALTO
 1913  014226  125252                          ALTO
 1914  014230  125252                          ALTO
 1915  014232  125252                          ALTO
 1916  014234  125252                          ALTO
 1917  014236  125252                          ALTO
 1918  014240  125252                          ALTO
 1919  014242  125252                          ALTO
 1920  014244     015      012          MSG4:   .BYTE   15,12
```

```
 1921  014246  052525                          ALT1
 1922  014250  052525                          ALT1
 1923  014252  052525                          ALT1
 1924  014254  052525                          ALT1
 1925  014256  052525                          ALT1
 1926  014260  052525                          ALT1
 1927  014262  052525                          ALT1
 1928  014264  052525                          ALT1
 1929  014266  052525                          ALT1
 1930  014270  052525                          ALT1
 1931  014272  052525                          ALT1
 1932  014274  052525                          ALT1
 1933  014276  052525                          ALT1
 1934  014300  052525                          ALT1
 1935  014302  052525                          ALT1
 1936  014304  052525                          ALT1
 1937  014306  052525                          ALT1
 1938  014310  052525                          ALT1
 1939  014312  052525                          ALT1
 1940  014314  052525                          ALT1
 1941  014316  052525                          ALT1
 1942  014320  052525                          ALT1
 1943  014322  052525                          ALT1
 1944  014324  052525                          ALT1
 1945  014326  052525                          ALT1
 1946  014330  052525                          ALT1
 1947  014332  052525                          ALT1
 1948  014334  052525                          ALT1
 1949  014336  052525                          ALT1
 1950  014340  052525                          ALT1
 1951  014342  052525                          ALT1
 1952  014344     015      012          MSG5:   .BYTE   15,12
 1953  014346  000400                          400
 1954  014350  002002                          2002
 1955  014352  010010                          10010
 1956  014354  040040                          40040
 1957  014356  000200                          200
 1958  014360  177377                          177377
 1959  014362  175775                          175775
 1960  014364  167767                          167767
 1961  014366  137737                          137737
 1962  014370  177500                          177500
 1963  014372  000400                          400
 1964  014374  002002                          2002
 1965  014376  010010                          10010
 1966  014400  040040                          40040
 1967  014402  000200                          200
 1968  014404  177377                          177377
 1969  014406  175775                          175775
 1970  014410  167767                          167767
 1971  014412  137737                          137737
 1972  014414  177500                          177500
 1973  014416  000400                          400
 1974  014420  002002                          2002
 1975  014422  010010                          10010
 1976  014424  040040                          40040
```

SEQ 0041

```
 1977  014426  000200                          200
 1978  014430  177377                          177377
 1979  014432  175775                          175775
 1980  014434  167767                          167767
 1981  014436  137737                          137737
 1982  014440  177500                          177500
 1983  014442     015      012                 .BYTE   15,12
 1984  014444     015      012                 .BYTE   15,12
 1985          000001                          .END
```

```
A       = 000000  291#
AASB      013220  578   1775#
ALINE     013254  536   1782#
ALTO    = 125252  287#  1889  1890  1891  1892  1893  1894  1895  1896  1897  1898  1899  1900
                  1901  1902  1903  1904  1905  1906  1907  1908  1909  1910  1911  1912  1913
                  1914  1915  1916  1917  1918  1919
ALT1    = 052525  288#  1921  1922  1923  1924  1925  1926  1927  1928  1929  1930  1931  1932
                  1933  1934  1935  1936  1937  1938  1939  1940  1941  1942  1943  1944  1945
                  1946  1947  1948  1949  1950  1951
APC       013734  555   1841#
APCADD    002134  515#  545*  548*  554
ATLAST= 177777    286#
ATNUMB    013724  559   1839#
AWAS      013235  582   1778#
BAR       001544  453#  639*  763*  827*  1006  1010*  1025*  1029  1076*  1558*  1559  1618  1620
                  1631*
BARDAT    001570  463#
BARIM     001562  460#  1075*
BASREG    001550  455#  641*  818*  952*
BAT       001500  449#  450
BELL    = 000007  285#
BIT0    = 000001  249#  761  763  828  989  1557  1600
BIT1    = 000002  248#
BIT10   = 002000  239#
BIT11   = 004000  238#  646
BIT12   = 010000  237#  989  1554  1600
BIT13   = 020000  236#  532  551  1165  1168  1622  1644  1647
BIT14   = 040000  235#  642  1165  1168  1612  1622  1644  1647
BIT15   = 100000  233  234#  1171  1625  1647
BIT2    = 000004  247#  761  828
BIT3    = 000010  246#
BIT4    = 000020  245#
BIT5    = 000040  244#
BIT6    = 000100  243#  761  828  989  1554  1600
BIT7    = 000200  242#  1157  1637
BIT8    = 000400  241#
BIT9    = 001000  240#  621  655
BKCSR     001546  454#  638*
BMOVE     005200  957  962  966  971  1057#  1545  1550
CARMSK    002126  512#  822*  831*  1106
CAT       001400  445#  446  641  760*  818  823*  952  1023*  1073*  1544*  1546  1547  1630*
CC      = 177776  228#
CHKDAT    005320  1014  1095#  1566
CLKINT    001552  456#  791*  824*  981  1595
CLKIVL    001554  457#  825*  983  1597
CNT       004254  859*  876*  895#  927
CNTLU   = 104020  283#  614  909  1540  1590
CNTLUU    004332  503  915#
CNTTAB    012666  968  1139  1140*  1699#  1700
CNVDAT    002356  531  549  576#
COUNT     002146  520#  764*  765*
CRLF    = 105215  1718  1720  1722  1724  1726  1728  1730  1732  1734  1736  1738  1740  1742
                  1744  1746  1748  1750  1751#
CSR       001542  452#  637*  761*  811  819*  828*  830*  955*  989*  1003*  1009*  1157*  1165
                  1168*  1169  1171*  1554*  1557*  1563*  1600*  1622  1625*  1637*  1644  1647*
CURTST    002012  473#  623  629  679*
```

```
DATCHK= 104004            273#   1107
DISPLA  001204            443#    941*
DISPRE  000174            429#    941
DLYXMT  004472            951#   1193   1205   1217   1229   1241   1253   1265   1277   1289   1301   1313   1325
                         1337   1349   1361   1373   1385   1397   1409   1421   1433   1445   1457   1469   1481
                         1493   1505   1517   1529   1541   1591
DMPAR   003334             590    747#    786
DMPARB  003620             796#    806
DTCHK   002156             491    529#
EHALT = 104010             276#
EMO     013721             562   1838#
EMTINT  003064             305    683#
EMTTAB  002046             487#    689
ERDAT   013200             565   1772#
ERR     002224             490    544#
ERRA    002262             546    550#
ERRB    002324             544*   547*   563#
ERRC    002332             552    566#
ERREX   002352             569    571#
ERRHLT  002350             567    570#
ERROR = 104003             272#    767   1125   1130   1167   1624   1646
ERROR1= 104015             280#    538   1011   1147
ERRVEC= 000004             230#    616*
ERR1    002242             500    547#
ESCOPE  002650             497    636#
FAJAG   004410             916    928    930#
FORWD   003032             620    674#
GETRDY  002540             609    613    615#    633    656    663   1183
GTLINB  005266            1083#   1617
GTRDYA  002566             620#    631
GTRDYC  002610             622    625#
GTRDYD  002632             628    630#
GTRDYX  002546             616#    658
ICTR    002020             476#    652*   677*
ID      012706            1023   1702#
IDENT   005024             953   1020#
IDENT0  012746            1702   1718#
IDENT1  012752            1703   1720#
IDENT2  012756            1704   1722#
IDENT3  012762            1705   1724#
IDENT4  012766            1706   1726#
IDENT5  012772            1707   1728#
IDENT6  012776            1708   1730#
IDENT7  013002            1709   1732#
IDNT10  013006            1710   1734#
IDNT11  013012            1711   1736#
IDNT12  013016            1712   1738#
IDNT13  013022            1713   1740#
IDNT14  013026            1714   1742#
IDNT15  013032            1715   1744#
IDNT16  013036            1716   1746#
IDNT17  013042            1717   1748#
INCRTN  002150             523#    632
INTAB   012626            1098   1136   1683#
KBDIN = 104017             282#    550    571    640
KBDINT  004256             502    900#
```

```
KSTART  002010            472#   615    1178*  1181*
LINBI1  001566            462#   990*   999*   1021*  1025   1027*  1075   1076   1084*  1087*  1618   1620   1631
LINBUF  002142            518#   1101*  1102*  1103*  1104   1136*  1141*  1142*
LINE    002140            517#   535    991*   992    998*   1020*  1022   1026*  1072   1085   1100*  1616*
LINEM   013245            540    1780#
LNOBUF  007526            970*   972    973    1651#  1652   1683
LN1BUF  007672            1653#  1654   1684
LN10BF  011166            1667#  1668   1691
LN113F  011332            1669#  1670   1692
LN12BF  011476            1671#  1672   1693
LN13BF  011642            1673#  1674   1694
LN14BF  012006            1675#  1676   1695
LN15BF  012152            1677#  1678   1696
LN16BF  012316            1679#  1680   1697
LN17BF  012462            1681#  1682   1698
LN2BUF  010036            1655#  1656   1685
LN3BUF  010202            1657#  1658   1686
LN4BUF  010346            1659#  1660   1687
LN5BUF  010512            1661#  1662   1688
LN6BUF  010656            1663#  1664   1689
LN7BUF  011022            1665#  1666   1690
MANUAL= 100000            233#
MSG1    013743            1194   1206   1218   1230   1242   1254   1266   1278   1542   1592   18.3#
MSG2    014044            1290   1302   1314   1326   1338   1350   1362   1856#
MSG3    014144            1374   1386   1398   1410   1888#
MSG4    014244            1422   1434   1446   1458   1920#
MSG5    014344            1470   1482   1494   1506   1518   1530   1952#
M0      013260            596    1783#
M1      013300            524    785    805    891    1786#
M2      013303            661    1568   1787#
M3      013330            611    1791#
NONACT  007244            1619   1626#
NOP   = 000240            231#
NXTST   002016            475#   615*   630    657    674    676*
OACNV   005112            534    553    557    576    580    919    1035#
OPEN  = 000000            232#   445    447    449    451    456    458    460    461    462    463    464    466
                          472    473    474    475    476    477    488    489    492    493    494    495    496
                          505    510    511    512    513    514    515    516    517    518    519    520    563
                          703    704    718    719    743    958    1052
OUTBUF  007362            760    820*   823    959    1073   1105   1544   1626*  1629   1649#  1650
OVRLAY  004042            591    772    774    838#
PASS    002144            519#   650    659*
PCADD   002132            514#   545    548    685*
POPPAR  013640            1829#
POPSP = 005726            250#
POPSP2= 022626            251#   654    833
PRGI    013571            1822#
PRGLIM  002024            478#   599
PRGNUM  002446            594    598#   599*   600*   601    604    975    986    1555   1564
PRGTAB  002026            479#   602
PRGX    006644            1538#  1579
PRGO    005660            479    1176#
PRGOA   005664            1178#
PRGOM   013421            1177   1802#
PRGOR   005702            483    1181#
PRGT    006640            480    1536#
```

```
PRG1A   006666            988    1544#
PRG1C   006776           1564#
PRG1D   007012           1565    1567#
PRG1EX  007016           1569#
PRG1M   013447           1537    1806#
PRG1R   006656            484    1539    1541#   1570
PRG2    007024            481    1577#
PRG2M   013527           1576    1816#
PRG2R   007030            485    1579#
PRG3    007034            482    1586#
PRG3A   007062            977    1594#
PRG3M   013556           1587    1820#
PRG3R   007052            486    1589    1591#
PRTY0 = 000000            259#
PRTY1 = 000040            258#
PRTY2 = 000100            257#
PRTY3 = 000140            256#
PRTY4 = 000200            255#    469     471
PRTY5 = 000240            254#    457     459
PRTY6 = 000300            253#
PRTY7 = 000340            252#    306
PRVCNT  002136            516#
PSW   = 177776            229#    617*    762*    832*
RCVDAT  002122            510#    529     581    1006*   1104*   1144*
RECD    004076            597     777     800     857#    925
RINT    005426            982    1120#
RINT3   007132           1596    1606#
RINT3A  007142           1609#   1636
RINT3B  007300           1613    1632#
RINT3X  007316           1610    1637#
RSTART  002036            483#    605
RSTAT1  002422            434     592#
RSTAT2  002472            436     603#
RSTREG= 104014            279#   1050    1064    1115    1159
RSTRG   003156            499     707#
RTNNO   002014            474#    558     627     675*   1179*   1182*
RT0     005720           1178    1181    1185#
RT0A    005730           1188    1193#
RT1     005740           1186    1197#
RT1A    005750           1200    1205#
RT10    006120           1270    1281#
RT10A   006130           1284    1289#
RT11    006140           1282    1293#
RT11A   006150           1296    1301#
RT12    006160           1294    1305#
RT12A   006170           1308    1313#
RT13    006200           1306    1317#
RT13A   006210           1320    1325#
RT14    006220           1318    1329#
RT14A   006230           1332    1337#
RT15    006240           1330    1341#
RT15A   006250           1344    1349#
RT16    006260           1342    1353#
RT16A   006270           1356    1361#
RT17    006300           1354    1365#
RT17A   006310           1368    1373#
```

```
R12     005760          1198    1209#
R12A    005770          1212    1217#
R120    006320          1366    1377#
R120A   006330          1380    1385#
R121    006340          1378    1389#
R121A   006350          1392    1397#
R122    006360          1390    1401#
R122A   006370          1404    1409#
R123    006400          1402    1413#
R123A   006410          1416    1421#
R124    006420          1414    1425#
R124A   006430          1428    1433#
R125    006440          1426    1437#
R125A   006450          1440    1445#
R126    006460          1438    1449#
R126A   006470          1452    1457#
R127    006500          1450    1461#
R127A   006510          1464    1469#
R13     006000          1210    1221#
R13A    006010          1224    1229#
R130    006520          1462    1473#
R130A   006530          1476    1481#
R131    006540          1474    1485#
R131A   006550          1488    1493#
R132    006560          1486    1497#
R132A   006570          1500    1505#
R133    006600          1498    1509#
R133A   006610          1512    1517#
R134    006620          1510    1521#
R134A   006630          1524    1529#
R135  = 177777          1522    1532#
R14     006020          1222    1233#
R14A    006030          1236    1241#
R15     006040          1234    1245#
R15A    006050          1248    1253#
R16     006060          1246    1257#
R16A    006070          1260    1265#
R17     006100          1258    1269#
R17A    006110          1272    1277#
SAVREG= 104013           278#   1035    1057    1095    1121
SAVRG   003116           498     693#
SCOPE = 104012           277#   1016    1150
SCOPEA  002706           644#    653
SCOPEB  002714           643     646#
SCOPEC  002750           647     651     654#
SCOPED  002752           624     655#
SCOPTR  002022           477#    644     678*
SPBOT   001200           441#    588     592     603     618     1569
SRSET   002506           606#   1180
SRT     002110           505#
STALL = 104002           271#
START   002404           433     588#
STRXV = 104006           274#
STTXV = 104007           275#
SUSWR - 104016           281#    589
SUSWRR  004412           501     933#
```

```
SWR     001202  442# 532  551  568  606  621  625  642  646  655  900  915  929*
                936  940* 1538 1588
SWREG   000176  430# 606  900  915  920  940  1538 1588
TEMP    002130  513#
TINT    005620  984  1164#
TINT3   007336  1598 1643#
TKCSR   002112  506# 860
TKDBR   002114  507# 862  905
TKLVL   002002  469#
TKVTR   002000  468#
TMP1    004370  904* 905* 906* 907  926# 929
TPCSR   002116  508# 735  879  882  885
TPDBR   002120  509# 734* 864* 881* 884*
TPLVL   002006  471#
TPVTR   002004  470#
TTDAT   001564  461# 1123* 1127* 1133* 1134 1142 1609* 1612 1614* 1615 1626
TTPTR   001572  464# 980* 1122 1158* 1594* 1608 1638*
TUMTAB  001600  466# 467  826* 831  961* 963  964  967  980  1152 1154 1594 1632
                1634
TYP     003220  487  722#
TYPE  = 104000  269# 523  539  561  564  595  610  660  775  784  798  804  890
                892  917  923  1176 1536 1567 1577 1586
TYPES = 104001  270#
UNIT    003640  797  801# 802  807* 808* 809* 813
VAC     001540  451# 465
VECOK   003540  773  780  782#
VECOKA  003550  784# 788  790
VECOKB  003556  783  787#
VECTOR  003522  770* 778# 779  781* 782  787  789  791  792* 793
WCT     001440  447# 448  759* 821* 996  1001 1024* 1074* 1144 1549* 1551 1552 1627*
WHERE   013050  776  1755#
WHICH   013143  799  1767#
X     = 000034  290# 1184 1189# 1196 1201# 1208 1213# 1220 1225# 1232 1237# 1244 1249#
                1256 1261# 1268 1273# 1280 1285# 1292 1297# 1304 1309# 1316 1321# 1328
                1333# 1340 1345# 1352 1357# 1364 1369# 1376 1381# 1388 1393# 1400 1405#
                1412 1417# 1424 1429# 1436 1441# 1448 1453# 1460 1465# 1472 1477# 1484
                1489# 1496 1501# 1508 1513# 1520 1525#
XMITD   005222  994  1070#
XMTDAT  002124  511# 529  577  1008* 1105* 1106* 1146*
XMTINT  001556  458# 793*
XMTLVL  001560  459# 985  1599
Y     = 000000  289#
$CTLU   013140  893  1766#
$ENDAD  003022  423  669#
$SWREG  013111  918  1761#
$VALUE  013120  921  924  1763#
.     = 014446  292# 295  297  299  301  303  307  309  311  313  315  317  319
                321  323  325  327  329  331  333  335  337  339  341  343  345
                347  349  351  353  355  357  359  361  363  365  367  369  371
                373  375  377  379  381  383  385  387  389  391  393  395  397
                399  401  403  405  407  409  411  413  415  417  419  422# 424#
                428# 432# 439# 444# 446# 448# 450# 465# 467# 736  976  987  1556
                1560 1562 1603 1621 1623 1633 1645 1650# 1652# 1654# 1656# 1658# 1660#
                1662# 1664# 1666# 1668# 1670# 1672# 1674# 1676# 1678# 1680# 1682# 1700# 1855#
```

```
GET       211#    597     777     800     925
HEADER    211#   1184    1196    1208    1220    1232    1244    1256    1268    1280    1292    1304    1316    1328    1340
         1352   1364    1376    1388    1400    1412    1424    1436    1448    1460    1472    1484    1496    1508    1520
XMTDLY    211#   1184    1196    1208    1220    1232    1244    1256    1268    1280    1292    1304    1316    1328    1340
         1352   1364    1376    1388    1400    1412    1424    1436    1448    1460    1472    1484    1496    1508    1520


. ABS.  014446     000


ERRORS DETECTED:  0

CZDMBD,BIN,CZDMBD.LST/CRF/SOL/NL:TOC=CZDMBD.P11
RUN-TIME:  6 12 2 SECONDS
RUN-TIME RATIO: 121/21=5.5
CORE USED:  8K  (15 PAGES)
```