DU11

RECEIVER TIMING TESTS

MD-11-DZDUC-B

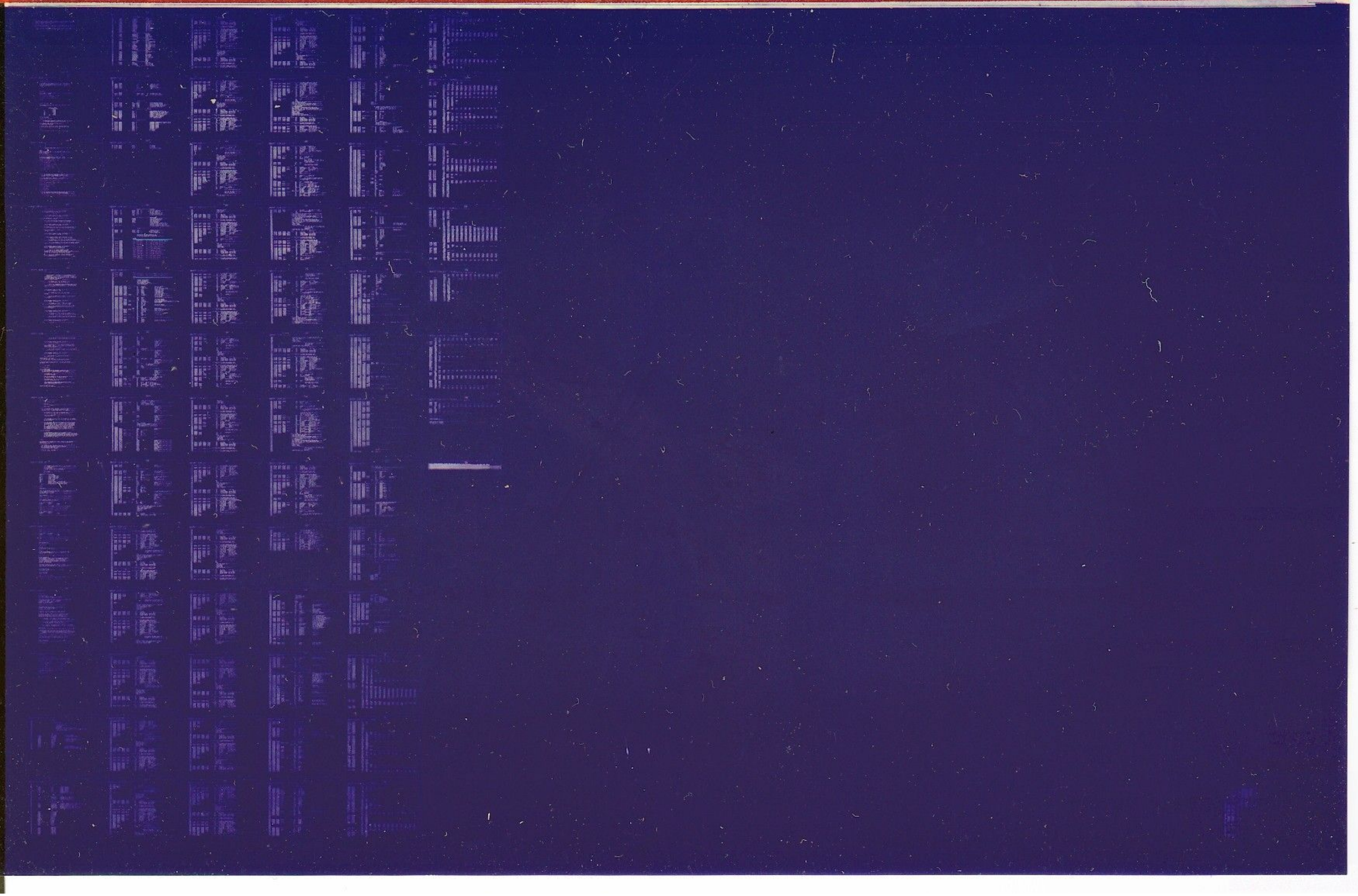
EP-DZDUC-B-DL-A

FICHE 1 OF 1

NOV 1976

digital

MADE IN USA



B01

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GENERAL DESCRIPTION

THIS DIAGNOSTIC CAN CHAIN 16 DU11'S. THIS MEANS THAT
16 DEVICES CAN BE SEQUENTIALLY EXERCISED. THE DIAGNOSTIC
MAKES ONE PASS BEFORE PROCEEDING TO THE NEXT DEVICE,
AND CONTINUES EXERCISING ALL DEVICES IN THIS FASHION UNTIL
HALTED.

2. REQUIREMENTS

PDP-11 FAMILY STANDARD COMPUTER WITH OR WITHOUT HARDWARE SWITCH
REGISTER (LOC. 177570)

DU11 SYNCRONOUS/ISOCRONOUS OPTION

ONE CONSOLE TELETYPE OR EQUIVALENT

2.2 STORAGE

3. LOADING PROCEDURE

THE STANDARD PROCEDURE FOR LOADING ABSOLUTE BINARY TAPES
IS TO BE USED.

	STARTING ADDRESS FOR ABSOLUTE LOADER
4K	017500
8K	037500
12K	057500
16K	077500
20K	117500
24K	137500
28K	157500

4. STARTING PROCEDURE

4.1 CONTROL SWITCH SETTINGS

NOTE: SOFTWARE SWITCH REGISTER IS DEFINED AS LOC. 176, WHILE
THE SOFTWARE DISPLAY REGISTER IS DEFINED AS LOC. 174.

4.1.1 AFTER PROGRAM LOAD (INITIAL PROGRAM START)
ALL CONSOLE SWITCHES DOWN

4.1.2 TO MODIFY DEVICE VECTOR AND CONTROL REGISTER ADDRESSES
AFTER PROGRAM RESTART OR TO RUN MULTIPLE DEVICES

SW00=1

4.1.3 TO START PROGRAM AT SELECTED TEST AFTER A PROGRAM RESTART

(ONLY IN SINGLE DEVICE TESTS)
SW01=1

4.1.4 TO LOCK ON SELECTED TEST AFTER A PROGRAM RESTART
(ONLY IN SINGLE DEVICE TESTS)

SW02=1
NOTE1: IN GENERAL SW01 WILL BE USED WHEN SW02=1 IS USED
NOTE2: WITHOUT SW01=1 "LOCK ON TEST" WILL DEFAULT TO TEST 1

4.2 STARTING ADDRESS

THE STARTING ADDRESS FOR ALL TESTS IS 000200

THE RESTARTING ADDRESS FOR ALL TESTS IS 000200
THE STARTING ADDRESS TO ENTER A SELECTED TEST IS 000200
THE STARTING ADDRESS TO LOCK ON TEST IS 000200

4.3 PROGRAM AND/OR OPERATOR ACTION

4.3.1 INITIAL PROGRAM START

4.3.1.1 LOAD PROGRAM INTO MEMORY WITH ABSOLUTE LOADER

4.3.1.2 LOAD ADDRESS 000200

4.3.1.3 CLEAR CONSOLE SWITCHES

4.3.1.4 PRESS START

NOTE:IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR'S OPTION)

4.3.1.7 THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT IS ABOUT
TO START TESTING ,AND THEN TESTING WILL BEGIN

4.3.2 PROGRAM RESTART WITH ALL SWITCHES DOWN

4.3.2.1 THE PROGRAM WILL TYPE "R" AND WILL COMMENCE TESTING

4.3.3 PROGRAM RESTART WITH SW00=1

4.3.3.1 LOAD ADDRESS 000200

4.3.3.2 SET SW00=1

4.3.3.3 PRESS START

NOTE:IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR'S OPTION)

4.3.3.4 THE PROGRAM WILL TYPE " 1ST DEVICE: RECEIVER CONTROL REGISTER

ADDRESS" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.5 TYPE IN THE ADDRESS OF THE FIRST RECEIVER CONTROL REGISTER ADDRESS OF THE DU11 TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ADDRESS IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL THEN REPEAT THE MESSAGE OF 4.3.3.4

4.3.3.6 THE PROGRAM WILL TYPE "VECTOR ADDRESS-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.7 TYPE IN THE BASE RECEIVER INTERRUPT VECTOR ADDRESS FOR THE DU11 TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ADDRESS IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL THEN REPEAT THE MESSAGE OF 4.3.3.6

4.3.3.8 THE PROGRAM WILL TYPE "ARE YOU RUNNING MULTIPLE DEVICES ?" (Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.9 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ANSWER IS GIVEN, THE PROGRAM WILL TYPE "?" AND WILL THEN REPEAT THE MESSAGE OF 4.3.3.8

IF A "NO" ANSWER IS GIVEN: JUMP TO SECTION 4.3.3.12
IF A "YES" ANSWER IS GIVEN:THE NEXT QUESTION IS ASKED

4.3.3.10 THE PROGRAM WILL TYPE "LAST DEVICE:RECEIVER CONTROL REGISTER ADDRESS-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.11 TYPE IN THE ADDRESS OF THE LAST RECEIVER CONTROL REGISTER ADDRESS OF THE DU11 TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL THEN REPEAT THE MESSAGE OF 4.3.3.10
NOTE:ALL ADDRESSES SHALL BE CONTIGUOUS

4.3.3.11.1 IF AN "OUT OF RANGE" ADDRESS IS TYPED IE. MORE THAN 16 (10) DEVICES AWAY (UPWARDS).....THE PROGRAM WILL TYPE "OUT OF RANGE:RETYPE LAST DEVICE RXCSR ADDRESS-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.11.2 TYPE IN THE ADDRESS OF THE LAST RECEIVER CONTROL REGISTER ADDRESS OF THE DU11 TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?"

AND WILL REPEAT THE MESSAGE OF 4.3.3.11.1

IF A DEVICE ADDRESS LOWER THAN 1ST DEVICE ADDRESS IS TYPED.....
....SCHOOLS OUT.....THERE IS NO PROTECTION FOR THIS.
THE PROGRAM WILL DEFAULT TO TWO DEVICES ACTIVE (UPWARDS FROM
1ST DEVICE ADDRESS).THE SAME APPLIES TO IDENTICAL ADDRESSES
TYPED FOR FIRST AND LAST DEVICE.
OBSERVE LOCATION @ ACTREG: SEE SECTION 7.2

4.3.3.12 THE PROGRAM WILL TYPE "DU PRIORITY LEVEL-" AND
WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.13 TYPE IN THE APPROPRIATE DEVICE PRIORITY LEVEL OF THE
DU11 OR DU11'S TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>
(NOTE THAT ALL MULTIPLE DEVICES MUST BE AT THE SAME PRIORITY
LEVEL). IE "5"

IF AN INCORRECT LEVEL IS TYPED ,THE PROGRAM WILL TYPE "?"
AND REPEAT THE MESSAGE OF 4.3.3.12

4.3.3.14 THE PROGRAM WILL TYPE "# OF SYNC CHARS
SELECTED (1 OR 2)-" AND WAIT FOR AN INPUT FROM THE TELETYPE
KEYBOARD

4.3.3 15 TYPE IN THE APPROPRIATE ANSWER "1" OR "2" FOLLOWED
BY A <CARRIAGE RETURN>.(NOTE:ALL MULTIPLE DEVICES MUST
BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?"
AND WILL REPEAT THE MESSAGE OF 4.3.3.14

4.3.3.16 THE PROGRAM WILL TYPE " IS SEC XMIT JUMPER #6 IN ? (Y OR N)-"
AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.17 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED
BY A <CARRIAGE RETURN>.(NOTE THAT ALL MULTIPLE DEVICES
MUST BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?"
AND WILL REPEAT THE MESSAGE OF 4.3.3.16

4.3.3.18 THE PROGRAM WILL TYPE "IS SEC REC JUMPER # 5 IN ?
(Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.19 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED
BY A <CARRIAGE RETURN>. (NOTE: ALL MULTIPLE DEVICES MUST BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?"
AND WILL REPEAT THE MESSAGE OF 4.3.3.18

4.3.3.20 THE PROGRAM WILL TYPE "IS OPT CLR ENABLE JUMPER

4 IN ? (Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.21 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED BY A <CARRIAGE RETURN>. (NOTE: ALL MULTIPLE DEVICES MUST BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL REPEAT THE MESSAGE OF 4.3.3.20

4.3.3.22 THE PROGRAM WILL TYPE "ARE YOU RUNNING IN MAINT. MODE EXTERNAL ? AND .....DO YOU HAVE THE EXTERNAL MODEM BYPASS JUMPER CONNECTOR ON ? (Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.23 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED BY A <CARRIAGE RETURN>. (NOTE: ALL MULTIPLE DEVICES MUST BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL REPEAT THE MESSAGE OF 4.3.3.22

4.3.3.24 THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT HAS STARTED AND WILL COMMENCE TESTING AT TEST 1

4.3.4 PROGRAM RESTART WITH SW01=1
NOTE: THIS WILL ONLY WORK WHEN A SINGLE DEVICE IS SELECTED
,,,IT WILL NOT WORK IF MULTIPLE DEVICES ARE SELECTED

IF MULTIPLE DEVICES WERE PREVIOUSLY SELECTED,LOAD 000200, AND SELECT SW00=1 AND ANSWER "NO" TO THE MULTIPLE DEVICE QUESTION SEE 4.3.3

4.3.4.1 LOAD 000200

4.3.4.2 SET SW01=1

4.3.4.3 PRESS START
NOTE:IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR'S OPTION)

4.3.4.4 THE PROGRAM WILL TYPE "TEST PC-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.4.5 TYPE IN THE ADDRESS OF THE TEST AT WHICH THE PROGRAM IS TO BE STARTED FOLLOWED BY A <CARRIAGE RETURN>

4.3.4.6 THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT HAS STARTED TESTING AT THE SELECTED TEST

NOTE: CARE MUST BE TAKEN WHEN THIS FEATURE IS USED ,SINCE THERE IS NO PROTECTION AGAINST SELECTING AN ADDRESS THAT IS IN THE MIDDLE OF A TEST

4.3.5 PROGRAM RESTART WITH SW02 =1
NOTE: THIS WILL ONLY WORK WHEN A SINGLE DEVICE IS SELECTED

SEE NOTE IN 4.3.4 FOR MORE DETAILS

4.3.5.1 LOAD ADDRESS 000200

4.3.5.2 SET SW02 =1
NOTE: IT MAY BE ADVANTAGEOUS TO SET SW01=1 (OPTIONAL)

4.3.5.3 PRESS START

NOTE:IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR'S OPTION)

4.3.5.4 THE PROGRAM WILL TYPE "LOCK ON SELECTED TEST ? (Y OR N)-"
AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.5.5 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED BY A
<CARRIAGE RETURN>

IF A NO ANSWER IS GIVEN: THIS LOCK ON TEST WILL BE IGNORED
AND THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT HAS STARTED
TESTING AT TEST 1

4.3.5.6 IF A YES ANSWER WAS GIVEN:THE PROGRAM WILL ACT AS FOLLOWS...
THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT HAS STARTED
TESTING AT TEST 1 AND WILL REMAIN IN TEST 1 UNTIL HALTED
OR IF ANY KEY IS STRUCK ON THE TELETYPE ,THE PROGRAM
WILL FREEZE ON THE NEXT TEST UNTIL A KEY IS STRUCK ON
THE TELETYPE AND SO FORTH THRU THE PROGRAM. IF SW01 =1 IT
WILL PERFORM AS IN SECTION 4.3.4 ALLOWING ONE TO FREEZE
ON A SELECTED TEST RATHER THAN DEFAULTING TO TEST 1

5. OPERATING PROCEDURE

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

CONTROL:

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

1) TYPE CONTROL G (↑G); THIS WILL ALLOW THE TTY TO ENTER DATA INTO
   LOC. 176 AT SELECTED POINTS WITHIN THE PROGRAM.
2) THE MACHINE WILL THEN TYPE: SWR=XXXXXXNEW= (XXXXXX IS THE OCTAL CONTENTS
   OF THE SOFTWARE SWITCH REGISTER.)

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

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

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

5.1 OPERATIONAL SWITCH SETTINGS

SW15 =1	HALT ON ERROR
SW14 =1	LOOP ON CURRENT TEST
SW13 =1	INHIBIT ERROR TYPEOUT
SW11 =1	INHIBIT ITERATIONS
SW10 =1	ESCAPE TO NEXT TEST ON ERROR
SW08 =1	LOOP ON ERROR
SW02 =1	LOCK ON TEST
SW01 =1	RESTART PROGRAM AT SELECTED TEST
SW00 =1	RESELECT VECTOR AND CONTROL REGISTER ADRESSES &PARAMETERS AFTER A PROGRAM RESTART

TO INHIBIT "END OF PASS" TYPEOUT - TURN TELETYPE OFF

6. ERRORS

6.1 ERROR HALTS
THERE ARE FOUR DISTINCT ERROR TYPEOUTS

NOTE: IF THE SOFTWARE SWITCH REGISTER IS TO BE CHANGED AFTER A HALT
THE THE OPERATOR IS REQUIRED TO TYPE A <↑G> BEFORE DEPRESSING CONTINUE.
THE FOLLOWING WILL BE TYPED:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR OPTION)

6.1.1 PC+2 = ERROR PC
WHERE PC +2 IS THE ADDRESS OF THE CALL TO THE ERROR HANDLER +2

REFER TO THE ABOVE "HLT" IN DIAGNOSTIC FOR ERROR DESCRIPTION

CHECK ADDRESS @ RXCSR: TO LOCATE THE DEVICE PRESENTLY UNDER
TEST WHEN RUNNING MULTIPLE DEVICES

6.1.2 PC +2 = REGISTER ERROR PC

REGISTER	EXPECTED	ACTUAL
16XXXX	YYYYYY	ZZZZZZ

WHERE 16XXXX IS THE ADDRESS OF THE FAILING DEVICE REGISTER

WHERE YYYYYY IS THE EXPECTED CONTENTS OF THAT REGISTER

WHERE ZZZZZZ IS THE ACTUAL CONTENTS OF THAT REGISTER

6.1.3 PC +2 = RECEIVER ERROR PC

REGISTER	EXPECTED	ACTUAL
16XXXX	YYYYYY	ZZZZZZ

WHERE 16XXXX IS THE ADDRESS OF THE FAILING RECEIVER (RXDBUF) REGISTER

WHERE YYYYYY IS THE EXPECTED DATA CONTENTS OF THAT REGISTER

WHERE ZZZZZZ IS THE ACTUAL DATA CONTENTS OF THAT REGISTER

6.1.4 PC +2 = TRANSMITTER ERROR PC

REGISTER	EXPECTED	ACTUAL
16XXXX	YYYYYY	ZZZZZZ

WHERE 16XXXX IS THE ADDRESS OF THE FAILING TRANSMITTER (TXCSR) REGISTER

WHERE YYYYYY IS THE EXPECTED CONTENTS OF THAT REGISTER

WHERE ZZZZZZ IS THE ACTUAL CONTENTS OF THAT REGISTER

6.1.5 ERROR DESCRIPTIONS
SEE LISTINGS FOR DETAILS OF ERRORS

6.2 ERROR RECOVERY

6.2.1 SW15 =0
IF THE PROGRAM IS RUN WITH SW15 =0 ,NO OPERATOR ACTION IS REQUIRED TO CONTINUE TESTING

6.2.2 SW15 =1
IF THE PROGRAM IS RUN WITH SW15 =1 ,TO CONTINUE TESTING AFTER THE PROGRAM HAS HALTED ,PRESS THE PROCESSOR CONSOLE "CONTINUE SWITCH"

NOTE: THE PC + 2 OF THE "HLT" WILL BE DISPLAYED IN THE DATA LIGHTS

6.2.3 ILLEGAL INTERRUPTS
IF AN INTERRUPT OCCURS TO A VECTOR ADDRESS NOT SELECTED DURING PROGRAM INITIALIZATION, THE PROGRAM WILL HALT IN THE TRAPCATCHER. THE ADDRESS AT WHICH THE PROGRAM HALTS IS 2 GREATER THAN THE ADDRESS TO WHICH THE INTERRUPT OCCURED. THE PROGRAM MUST BE RESTARTED AT 000200 TO RECOVER FROM THIS ERROR.

6.2.4 ADDITIONAL TROUBLESHOOTING AIDS ERRCNT: & PASCNT:
CHECK THESE TWO TAG LOCATIONS FOR TOTAL # OF ERRORS AND PASSES RESPECTIVELY.
LOADING 000200 AND RESTARTING WILL CLEAR THESE LOCATIONS.

6.3 END OF PASS ROUTINE
THIS TYPEOUT IS MENTIONED HERE FOR CONVENIENCE
IT IS IN THE FORM:

END OF PASS TAPE Y
16XXXX = DEVICE

WHERE Y IS THE TAPE LOADED

WHERE 16XXXX IS THE DEVICE'S BASE REGISTER ADDRESS

TO INHIBIT THIS TYPEOUT - TURN TELETYPE OFF

7. RESTRICTIONS

7.1 MULTIPLE DEVICES
UP TO 16(10) DEVICES MAY BE TESTED. HOWEVER, THEY
MUST HAVE CONTIGUOUS ADDRESSES AND VECTORS

NOTE: IF ALL DEVICES UNDER TEST HAVE THE SAME INTERRUPT VECTOR
YOU CAN CHANGE "ZERO: ADD #10,BASEIV ;NEXT BLOCK
(VECTORS)" TO "ZERO: ADD #0,BASEIV";
THEREBY THE VECTOR ADDRESSES WILL NOT BE
UPDATED AFTER EACH PASS.

7.2 DISQUALIFYING DEVICES WHEN RUNNING MULTIPLE DEVICES

WHEN RUNNING MULTIPLE DEVICES AN ACTIVE BIT IS SET
FOR EACH DEVICE RUNNING UNDER TEST IE. BIT 0 FOR
DEVICE 0 ,BIT 15 FOR DEVICE 15
TO DISQUALIFY DEVICES:

7.2.1 IF DEVICE 0 IS TO BE DISQUALIFIED ,SIMPLY RESTART
PROGRAM WITH SW00 =1 AND OMIT THE FIRST DEVICE.

7.2.2 IF HOWEVER, DEVICES 1 THRU 15 OR ANY COMBINATION THEREOF
ARE TO BE DISQUALIFIED....LOAD THE LOCATION OF ACTREG:
OBSERVE THE ACTIVE BITS (ACTIVE =1, NONACTIVE = 0)
AND DEPOSIT 0 WHERE THOSE DEVICES ARE TO BE DISQUALIFIED

7.2.2.1 TO RESTART...LOAD 000200 IN SWR AND DEPRESS START....
THE PROGRAM WILL CONTINUE WITH THE DEVICE IT WAS IN BEFORE HALTING.

7.2.2.2 .....OR .....LOAD 000200 WITH SW00 =1 AND DEPRESS START....
ANSWER THE QUESTION :1ST DEVICE : ETC.....
....THE PROGRAM WILL CONTINUE WITH DEVICE 0

7.2.2.3 IF ALL DEVICES ARE DISQUALIFIED BY MISTAKE THE PROGRAM
WILL TYPEOUT AN ERROR MESSAGE.....LOAD & START AT 000200

7.3 CABLE DELAYS
NOTE: EXTERNAL LOOP BACK TESTS ONLY (MODEM CABLE WITH H315 CONNECTOR ON)

7.3.1 TO PROVIDE SUFFICIENT DELAY FOR CLOCK SIGNAL OVER THE CABLE,
LOCATION "HOLD:" MUST BE MODIFIED TO ACCOMODATE FOR FASTER MACHINES.
PRESENTLY "HOLD:" =20 IS SUFFICIENT TIME ON AN 11/20 MACHINE.
IF RUNNING ON AN 11/40 OR AN 11/45 "HOLD:" MUST BE PATCHED TO 40

BASICALLY DON'T TRY TO EXCEED 10K TO 12K RATE USING THE EIA DRIVERS

7.4 TO USE THE "XOR" TESTER ,THE BRANCH AROUND THE "XOR"
CODE MUST BE PATCHED TO A "NOP". (SEE LISTINGS FOR DETAILS)

8. DEFAULT PARAMETERS:
1ST DEVICE: RECEIVER CONTROL REGISTER ADDRESS- RXCSR: 160040

VECTOR ADDRESS- DURIV: 770

ARE YOU RUNNING MULTIPLE DEVICES ?- NO MULTD: 0

LAST DEVICE: RECEIVER CONTROL REGISTER ADDRESS- LASTADD: 0

DU PRIORITY LEVEL- LEVEL 5 DUPRT: LEVEL 5

OF SYNC CHARS SELECTED - 2 SYNCNO: 377

IS SEC XMIT JUMPER # 6 IN ?- YES SEXMIT: 377

IS SEC REC JUMPER # 5 IN ?- YES SEREC: 377

IS OPT CLR ENABLE JUMPER # 4 IN ?- YES OPTCLR: 377

DO YOU HAVE THE EXTERNAL MODEM BYPASS JUMPER
CONNECTOR ON (H315)- YES JMRBY: 377

9. PROGRAM DESCRIPTION

10. FLOW CHARTS: RECEIVER FLOW,TRANSMITTER FLOW,TRANSMITTER & RECEIVER FLOW

11. LISTINGS

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                                .ENABLE ABS

                                ;DU11 DZDUC-B TAPE C
                                ;COPYRIGHT 1973, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754

                                        ;STARTING PROCEDURE
                                        ;LOAD PROGRAM
                                        ;PRESS START
                                        ;PROGRAM WILL TYPE "DU11 DZDUC-B TAPE C "
                                        ;PROGRAM WILL TYPE "R" TO INDICATE THAT TESTING HAS STARTED
                                        ;AT THE END OF A PASS, PROGRAM WILL TYPE "END OF PASS TAPE C"
                                        ;AND THEN RESUME TESTING


                                ;SWITCH REGISTER OPTIONS

  100000                        SW15=100000             ;=1,HALT ON ERROR
  040000                        SW14=40000              ;=1,LOOP ON CURRENT TEST
  020000                        SW13=20000              ;=1,INHIBIT ERROR TYPEOUT
  010000                        SW12=10000
  004000                        SW11=4000               ;=1,INHIBIT ITERATIONS
  002000                        SW10=2000               ;=1,ESCAPE TO NEXT TEST ON ERROR
  001000                        SW09=1000               ;=1,LOOP WITH CURRENT DATA
  000400                        SW08=400                ;=1,LOOP ON ERROR
  000100                        SW06=100
  000040                        SW05=40
  000020                        SW04=20
  000010                        SW03=10
  000004                        SW02=4                  ;LOCK ON TEST SELECT
  000002                        SW01=2                  ;RESTART PROGRAM AT SELECTED TEST
  000001                        SW00=1                  ;RESELECT VECTOR AND CONTROL REGISTER
                                                        ;ADDRESS AFTER PROGRAM RESTART
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                                ;REGISTER DEFINITIONS
                                
000000                          R0=%0           ;GENERAL REGISTER
000001                          R1=%1           ;GENERAL REGISTER
000002                          R2=%2           ;GENERAL REGISTER
000003                          R3=%3           ;GENERAL REGISTER
000004                          R4=%4           ;GENERAL REGISTER
000005                          R5=%5           ;GENERAL REGISTER
000006                          SP=%6           ;PROCESSOR STACK POINTER
000007                          PC=%7           ;PROGRAM COUNTER
                                
                                ;LOCATION EQUIVALENCIES
                                
177570                          DSWR=177570     ;HARDWARE SWITCH REGISTER LOC.
177570                          DLIGHTS=177570  ;HARDWARE DISPLAY REGISTER LOC.
177776                          PS=177776       ;PROCESSOR STATUS WORD
001100                          STACK=1100      ;START OF PROCESSOR STACK
                                
                                ;INSTRUCTION DEFINITIONS
                                
005746                          PUSH1SP=5746    ;DECREMENT PROCESSOR STACK 1 WORD =TST -(SP)
005726                          POP1SP=5726     ;INCREMENT PROCESSOR STACK 1 WORD =TST (SP)+
010046                          PUSHR0=10046    ;SAVE R0 ON STACK =MOV R0,-(SP)
012600                          POPR0=12600     ;RESTORE R0 FROM STACK =MOV (SP)+,R0
024646                          PUSH2SP=24646   ;DECREMENT STACK TWICE =CMP -(SP),-(SP)
022626                          POP2SP=22626    ;INCREMENT STACK TWICE =CMP (SP)+,(SP)+
                                .EQUIV  EMT,HLT ;BASIC DEFINITION OF ERROR CALL
                                
                                
100000                          BIT15=100000
040000                          BIT14=40000
020000                          BIT13=20000
010000                          BIT12=10000
004000                          BIT11=4000
002000                          BIT10=2000
001000                          BIT9=1000
000400                          BIT8=400
000200                          BIT7=200
000100                          BIT6=100
000040                          BIT5=40
000020                          BIT4=20
000010                          BIT3=10
000004                          BIT2=4
000002                          BIT1=2
000001                          BIT0=1
                                
                                ;PROCESSER LEVELS
000340                          LEVEL7=340
000300                          LEVEL6=300
000240                          LEVEL5=240
000200                          LEVEL4=200
000140                          LEVEL3=140
000100                          LEVEL2=100
000040                          LEVEL1=040
000000                          LEVEL0=000
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                                ;REGISTER DEFINITIONS
                                        ;RXCSR BIT DEFINITIONS
100000                          DSC=BIT15               ;DATA SET CHANGE
040000                          RING=BIT14              ;RING
020000                          CTS=BIT13               ;CLR TO SEND
010000                          CARDET=BIT12            ;CARRIER DETECT
004000                          RECACT=BIT11            ;REC ACTIVE
002000                          SRD=BIT10               ;SEC REC DATA
001000                          DSR=BIT9                ;DATA SET RDY
000400                          STPSYN=BIT8             ;STRIP SYNC
000200                          RXDONE=BIT7             ;REC DONE
000100                          RINTEN=BIT6             ;REC INTR ENABLE
000040                          DSINTE=BIT5             ;DSC INTR ENABLE
000020                          SYNSCH=BIT4             ;SYNC SEARCH
000010                          STD=BIT3                ;SEC XMIT DATA
000004                          RTS=BIT2                ;REQ TO SEND
000002                          DTR=BIT1                ;DATA TERM RDY
000001                          VOID=BIT0
                                        ;RXDBUF BIT DEFINITIONS
100000                          RXERR=BIT15             ;REC ERROR
040000                          OVRRUN=BIT14            ;OVERRUN
020000                          FRMERR=BIT13            ;FRAME ERROR
010000                          PARER=BIT12             ;PARITY ERROR
                                        ;PARCSR BIT DEFINITIONS
001000                          PAREN=BIT9              ;PARITY ENABLE
000400                          EVPAR=BIT8              ;EVEN PARITY SENSE
                                        ;PARCSR WRD DEFINITIONS
030000                          SYNINT=30000            ;SYNC EXTERNAL MODE
020000                          SYNEXT=20000            ;SYNC INTERNAL MODE
000000                          ISYMOD=0                ;ISOC MODE
000000                          FIVE=0                  ;WORD LENGTH 5 BITS
002000                          SIX=2000                ;WORD LENGTH 6 BITS
004000                          SEVEN=4000              ;WORD LENGTH 7 BITS
006000                          EIGHT=6000              ;WORD LENGTH 8 BITS
000000                          NOPAR=0                 ;NO PARITY
001000                          ODDPAR=1000             ;ODD PARITY
001400                          EVEPAR=1400             ;EVEN PARITY
                                        ;TXCSR BIT DEFINITIONS
100000                          DNA=BIT15               ;DATA NOT AVAILABLE
040000                          MTDATA=BIT14            ;MAINT DATA
020000                          CLK=BIT13               ;CLK
002000                          BITW=BIT10              ;BIT WINDOW
000400                          MRESET=BIT8             ;MASTER RESET
000200                          TXDONE=BIT7             ;XMIT DONE
000100                          TXINTE=BIT6             ;XMIT INTR ENABLE
000040                          DNAINTE=BIT5            ;DNA INTR ENAB
000020                          SEND=BIT4               ;SEND
000010                          HDXEN=BIT3              ;HDX/FDX
000001                          BREAK=BIT0              ;BREAK
                                        ;TXCSR WRD DEFINITIONS
000000                          USER=0                  ;USER MODE
004000                          MINT=4000               ;MAINT INT MODE
010000                          MEXT=10000              ;MAINT EXT MODE
014000                          SYSTST=14000            ;SYSTEM TEST MODE
                                ;TRAPCATCHER FOR ILLEGAL INTERRUPTS
```

```
                                        ;STANDARD INTERRUPT VECTORS


                000024                  .=24
000024  014566                          .PFAIL          ;POWER FAIL HANDLER
000026  000340                          340             ;SERVICE AT LEVEL 7
000030  014316                          .HLT            ;ERROR HANDLER
000032  000340                          340             ;SERVICE AT LEVEL 7
000034  014264                          .TRPSRV         ;GENERAL HANDLER DISPATCH SERVICE
000036  000340                          340             ;SERVICE AT LEVEL 7

                                        ;SOFTWARE SWITCH REGISTER

                000174                  .=174
000174  000000                  DISPREG:.WORD 0         ;SOFTWARE DISPLAY REG.
000176  000000                  SWREG:  .WORD 0         ;SOFTWARE SWITCH REGISTER
000200  000167  001054                  JMP     .START  ;GO TO START OF PROGRAM


                001100                  .=1100

                                        ;INDIRECT POINTERS

001100  177570          SWR:    177570          ;SWITCH REGISTER POINTER
001102  177570          LIGHTS:177570           ;DISPLAY REGISTER POINTER
001104  177560          TKCSR:  177560          ;TELETYPE KEYBOARD CONTROL REGISTER
001106  177562          TKDBR:  177562          ;TELETYPE KEYBOARD DATA BUFFER
001110  177564          TPCSR:  177564          ;TELEPRINTER CONTROL REGISTER
001112  177566          TPDBR:  177566          ;TELEPRINTER DATA BUFFER

                                        ;PROGRAM CONTROL PARAMETERS

001114  000000          RTRN:   0               ;SCOPE ADDRESS FOR LOOP ON TEST
001116  000000          NEXT:   0               ;ADDRESS OF NEXT TEST TO BE EXECUTED
001120  000000          LOCK:   0               ;ADDRESS FOR LOCK ON CURRENT DATA
001122  000000          ICOUNT: 0               ;NUMBER OF ITERATIONS THAT CURRENT TEST WILL BE EXECUTED
001124  000000          LPCNT:  0               ;NUMBER OF ITEREATIONS COMPLETED
001126  000000          TSTNO:  0               ;NUMBER OF TEST IN PROGRESS
001130  000000          PASCNT: 0               ;NUMBER OF PASSES COMPLETED
001132  000000          ERRCNT: 0               ;TOTAL NUMBER OF ERRORS
001134  000000          LSTERR: 0               ;PC OF LAST ERROR CALL

                                        ;PROGRAM VARIABLES

001136  000020          HOLD:   20              ;TEMPORARY STORAGE=DELAY TIME FOR CABLES
001140  000000          SHIFT:  0               ;TEMPORARY STORAGE= # OF SHIFTS PER CHAR
001142  000000          COUNT:  0               ;TEMPORARY STORAGE= # OF TIMES A CHAR WILL BE SENT
001144  000000          TEMP1:  0               ;TEMPORARY STORAGE
001146  000000          TEMP2:  0               ;TEMPORARY STORAGE
001150  000000          TEMP3:  0               ;TEMPORARY STORAGE
001152  000000          TEMP4:  0               ;TEMPORARY STORAGE
001154  000000          TEMP5:  0               ;TEMPORARY STORAGE
001156  000000          SAVR0:  0               ;R0 STORAGE
001160  000000          SAVR1:  0               ;R1 STORAGE
001162  000000          SAVR2:  0               ;R2 STORAGE
```

D02


```
   752  001164  000000                SAVR3:  0          ;R3 STORAGE
   753  001166  000000                SAVR4:  0          ;R4 STORAGE
   754  001170  000000                SAVR5:  0          ;R5 STORAGE
   755  001172  000000                SAVSP:  0          ;STACK POINTER STORAGE
   756  001174  000000                SAVPC:  0          ;PROGRAM COUNTER STORAGE
```

```
                                        ;PROGRAM CONVERSATIONAL PARAMETERS
001176    377           SYNCNO: .BYTE   377             ;# OF SYNC CHARS REQ'D FOR SYNC'ZATION
001177    377           SEXMIT: .BYTE   377             ;SEC XMIT JUMPER "IN"
001200    377           SEREC:  .BYTE   377             ;SEC REC JUMPER "IN"
001201    377           OPTCLR: .BYTE   377             ;OPTIONAL JUMPER CLR "IN"
001202    000           MULTD:  .BYTE   0               ;NO MULTIPLE DEVICE FLAG
001203    377           JMRBY:  .BYTE   377             ;EXTERNAL MODEM BYPASS JUMPER "IN"
                        .EVEN

                                        ;PROGRAM MULTIPLE DEVICE PARAMETERS
001204  000000          BASEADD:        0               ;PROG CONTROLLED 1ST DEVICE ADDR
001206  000000          KEEPADD:        0               ;SAVED 1ST DEVICE ADDR
001210  000000          LASTADD:        0               ;LAST DEVICE RXCSR ADDR
001212  000000          BASEIV:         0               ;PROG CONTROLLED IV
001214  000000          KEEPIV:         0               ;SAVED INTR VECTOR
001216  000000          ACTREG:         0               ;ACTIVE REGISTER ,,MODIFY THIS
                                                        ;LOCATION TO DISQUALIFY OR QUALIFY
                                                        ;DEVICES (1= RUN,,0= DON'T RUN)
001220  000000          ROTADD:         0               ;ROTATING POINTER FOR ACTREG..POINTS
                                                        ;TO DEVICE PRESENTLY UNDER TEST WHEN RUNNING MULTIPLE DE

                                        ;PROGRAM CONTROL FLAGS

001222    000           INIFLG: .BYTE   0               ;PROGRAM INITIALIZATION FLAG
001223    000           STFLG:  .BYTE   0               ;TEST START FLAG
001224    000           ERRFLG: .BYTE   0               ;ERROR OCCURED FLAG
001225    000           LOKFLG: .BYTE   0               ;LOCK ON CURRENT TEST FLAG

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

001226                  .TRPTAB:
                        ;*************************************************************************
                        ;*************************************************************************
                104400          SCOPE=TRAP+0    ;CALL TO SCOPE LOOP AND ITERATION HANDLER
001226  013050      .SCOPE
                104401          SCOP1=TRAP+1    ;CALL TO LOOP ON CURRENT DATA HANDLER
001230  013234      .SCOP1
                104402          TYPE=TRAP+2     ;CALL TO TELETYPE OUTPUT ROUTINE
001232  013254      .TYPE
                104403          INSTR=TRAP+3    ;CALL TO ASCII STRING INPUT ROUTINE
001234  013314      .INSTR
                104404          INSTER=TRAP+4   ;CALL TO INPUT ERROR HANDLER
001236  013432      .INSTER
                104405          PARAM=TRAP+5    ;CALL TO NUMERICAL DATA INPUT ROUTINE
001240  013464      .PARAM
                104406          SAVOS=TRAP+6    ;CALL TO REGISTER SAVE ROUTINE
001242  013700      .SAVOS
                104407          RESOS=TRAP+7    ;CALL TO REGISTER RESTORE ROUTINE
001244  013740      .RESOS
                104410          CONVRT=TRAP+10  ;CALL TO DATA OUTPUT ROUTINE
001246  013772      .CONVRT
                104411          CNVRT=TRAP+11   ;CALL TO DATA OUTPUT ROUTINE WITHOUT CR/LF
001250  013776      .CNVRT
                104412          SETFLG=TRAP+12  ;CALL TO FLAG SET ROUTINE
```

F02


```
                                .SETFLG
                                        CKSWR=TRAP+13   ;CALL TO ALLOW SWREG TO BE LOADED FROM TTY
                                .CKSWR
                                        CNTLU=TRAP+14   ;CALL TO ALLOW LOADING  OF SWREG FROM TTY
                                .CNTLU
                                ;*****************************************************************************
                                ;*****************************************************************************

                                        ;PROGRAM INITIALIZATION
                                        ;LOCK OUT INTERRUPTS
                                        ;SET UP PROCESSOR STACK
                                        ;SET UP POWER FAIL VECTOR
                                        ;CLEAR PROGRAM CONTROL FLAGS AND COUNTS
                                        ;TYPE TITLE MESSAGE

001260  012767  000340  176510  .START: MOV     #340,PS                 ;LOCK OUT INTERRUPTS
001266  012706  001100                  MOV     #STACK,SP               ;SET UP STACK
001272  012737  014566  000024          MOV     #.PFAIL,@#24            ;SET UP POWER FAIL VECTOR
001300  005067  177620                  CLR     LPCNT                   ;CLEAR # OF ITERATION COMPLETED LOCATION
001304  105067  177713                  CLRB    STFLG                   ;CLEAR START FLAG
001310  005067  177614                  CLR     PASCNT                  ;CLEAR PASS COUNT
001314  105067  177704                  CLRB    ERRFLG                  ;CLEAR ERROR FLAG
001320  005067  177606                  CLR     ERRCNT                  ;CLEAR ERROR COUNT
001324  005067  177604                  CLR     LSTERR                  ;CLEAR LAST ERROR POINTER
001330  012767  000001  177570          MOV     #1,TSTNO                ;SET UP FOR TEST 1
001336  012767  001260  177550          MOV     #.START,RTRN            ;SET UP FOR POWER FAIL BEFORE
                                                                        ;TESTING STARTS
001344  105767  177652                  TSTB    INIFLG                  ;HAS INITIALIZATION BEEN PERFORMED
001350  001004                          BNE     ONCE
001352  104402  015106                  TYPE    ,MTITLE                 ;TYPE TITLE MESSAGE
001356  105167  177640                  COMB    INIFLG                  ;IF NOT SET FLAG AND DO
001362  012767  177570  177510  ONCE:   MOV     #DSWR,SWR               ;RELOAD HARDWARE SWITCH REGISTER INTO POINTER
001370  012767  177570  177504          MOV     #DLIGHTS,LIGHTS         ;RELOAD HARDWARE DISPLAY REGISTER INTO POINTER
001376  013746  000006                  MOV     @#6,-(SP)               ;SAVE VECTORS
001402  013746  000004                  MOV     @#4,-(SP)
001406  012737  001426  000004          MOV     #64$,@#4                ;SET UP FOR TIMEOUT
001414  022777  177777  177456          CMP     #-1,@SWR                ;REFERENCE HARDWARE SWITCH REGISTER
001422  001402                          BEQ     65$
001424  000407                          BR      66$
001426  022626                  64$:    CMP     (SP)+,(SP)+             ;ADJUST STACK
001430  012767  000176  177442  65$:    MOV     #SWREG,SWR              ;POINT TO SOFTWARE SWITCH REG
001436  012767  000174  177436          MOV     #DISPREG,LIGHTS         ;POINT TO SOFT DISPLAY REG
001444  012637  000004          66$:    MOV     (SP)+,@#4               ;RESTORE VECTORS
001450  012637  000006                  MOV     (SP)+,@#6
001454  005737  000042                  TST     @#42                    ;UNDER MONITOR
001460  001005                          BNE     67$
001462  022767  000176  177410          CMP     #SWREG,SWR              ;IS SWREG USED
001470  001001                          BNE     67$
001472  104414                          CNTLU
001474  032777  000001  177376  67$:    BIT     #SW00,@SWR              ;RESELECT VECTOR & CONTROL REG?
001502  001002                          BNE     1$
001504  000167  000446                  JMP     .BEGIN
001510  012700  000300          1$:     MOV     #300,R0                 ;RESTORE VECTOR AREA TO TRAPCATCHER
001514  012701  000302                  MOV     #302,R1                 ;START AT LOCATION 300
001520  012702  000004                  MOV     #4,R2
001524  010110                  2$:     MOV     R1,(R0)
```

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                                        CLR     (R1)
                                        ADD     R2,R0
                                        ADD     R2,R1
                        001000          CMP     #1000,R1                ;END AT LOCATION 776
                                        BLT     2$
                                        INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
                                        MREGAD                          ;MESSAGE
                                        PARAM                           ;CONVERT STRING
                                        160000                          ;LOW LIMIT
                                        167776                          ;HIGH LIMIT
                                        DUBASE                          ;STORE AT THIS LOCATION
                            .BYTE       1                               ;MASK
                            .BYTE       1                               ;HOW MANY TIMES + 2
                        015232  177420  MOV     DUBASE,KEEPADD  ;SAVE
                        015072          JSR     PC,DUADDR
                        177410  177404  MOV     KEEPADD,BASEADD ;RESTORE FOR ROTATION
                                        INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
                                        MVECTO                          ;MESSAGE
                                        PARAM                           ;CONVERT STRING
                                        300                             ;LOW LIMIT
                                        776                             ;HIGH LIMIT
                                        DURIV                           ;STORE AT THIS LOCATION
                            .BYTE       1                               ;MASK
                            .BYTE       4                               ;HOW MANY TIMES + 2
                        015516  177370  MOV     DURIV,KEEPIV    ;SAVE
                        015510  177360  MOV     DURIV,BASEIV    ;SET UP FOR ROTATION
                                        INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
                                        MMULT                           ;MESSAGE
                                        SETFLG                          ;SET FLAG BASED UPON INPUT STRING
                                        MULTD                           ;THIS FLAG
                        177334          TSTB    MULTD   ;ARE THERE MULTIPLE DEVICES
                                                        ;ON THE SYSTEM ?
                                        BMI     BBB     ;YES,ASK NEXT QUESTION
                        177342          CLR     ACTREG
                        177340          CLR     ROTADD
                        000140          JMP     OUTMUL  ;JUMP AROUND NEXT QUESTION
                                BBB:
                                        INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
                                        MLASTD                          ;MESSAGE
                                        PARAM                           ;CONVERT STRING
                                        160000                          ;LOW LIMIT
                                        167776                          ;HIGH LIMIT
                                        LASTADD                         ;STORE AT THIS LOCATION
                            .BYTE       1                               ;MASK
                            .BYTE       1                               ;HOW MANY TIMES + 2
                                ;THE FOLLOWING ROUTINE SETS UP ACTREG FOR THE FIRST TIME
                        177310  1$:     MOV     #1,ROTADD       ;SET UP POINTER
                        177302          CLR     ACTREG  ;CLR ACTIVE REGISTER
                        177274  2$:     BIS     ROTADD,ACTREG   ;MAKE THIS DEVICE ACTIVE
                                        CLC
                        177270          ROL     ROTADD  ;SET UP POINTER
                                        BCS     3$      ;ARE YOU OUT OF RANGE ?
                        177244          ADD     #10,BASEADD     ;SET UP BASE ADDRESS
                        177236          CMP     LASTADD,BASEADD ;IS THIS THE LAST DEVICE ?
                                        BHI     2$      ;NO DO IT AGAIN
                        177240          BIS     ROTADD,ACTREG   ;THIS ASSUMES THAT THERE ARE AT
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                                                        ;LEAST TWO DEVICES WHEN YOU ANSWER YES TO
                                                        ;MULTIPLE DEVICE QUESTION
001756  012767  000001  177234  4$:     MOV     #1,ROTADD       ;SET UP FOR LATER USE IN END OF PASS ROUTINE
001764  016767  177216  177212          MOV     KEEPADD,BASEADD ;DITTO
001772  000414                          BR      OUTMUL  ;CONTINUE QUESTIONS
001774  016767  177206  177202  3$:     MOV     KEEPADD,BASEADD ;RESTORE
002002  104403                          INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002004  015505                          MRANGE                          ;MESSAGE
002006  104405                          PARAM                           ;CONVERT STRING
002010  160000                          160000                          ;LOW LIMIT
002012  167776                          167776                          ;HIGH LIMIT
002014  001210                          LASTADD                         ;STORE AT THIS LOCATION
002016     001                  .BYTE   1                               ;MASK
002017     001                  .BYTE   1                               ;HOW MANY TIMES + 2
002020  000167  177656                  JMP     1$      ;DO IT AGAIN
002024                          OUTMUL:
002024  104403                          INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002026  015771                          MLEVEL                          ;MESSAGE
002030  104405                          PARAM                           ;CONVERT STRING
002032  000004                          4                               ;LOW LIMIT
002034  000007                          7                               ;HIGH LIMIT
002036  016660                          DUPRT                           ;STORE AT THIS LOCATION
002040     000                  .BYTE   0                               ;MASK
002041     001                  .BYTE   1                               ;HOW MANY TIMES + 2
002042  004767  014542                  JSR     PC,DULEV
                                        ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
                                        ;BUFFER TO THE CHARACTERS "1" AND "2".
                                        ;IF THE CHARACTER IS "1" CLEAR THE FLAG
                                        ;IF THE CHARACTER IS "2" SET THE FLAG
002046                          AAA:
002046  104403                          INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002050  016016                          MSYNC                           ;MESSAGE
002052  122767  000061  014370  3$:     CMPB    #'1,INBUF               ;IS IT "1" ?
002060  001003                          BNE     1$
002062  105067  177110                  CLRB    SYNCNO                  ;000
002066  000412                          BR      4$
002070  122767  000062  014352  1$:     CMPB    #'2,INBUF               ;IS IT "2" ?
002076  001004                          BNE     2$
002100  112767  177777  177070          MOVB    #-1,SYNCNO                      ;377
002106  000402                          BR      4$
002110  104404                  2$:     INSTER                          ;RETRY
002112  000757                          BR      3$
002114  000240                  4$:     NOP
002116  104403                          INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002120  016064                          MWIRE6                          ;MESSAGE
002122  104412                          SETFLG                          ;SET FLAG BASED UPON INPUT STRING
002124  001177                          SEXMIT                          ;THIS FLAG
002126  104403                          INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002130  016132                          MWIRE5                          ;MESSAGE
002132  104412                          SETFLG                          ;SET FLAG BASED UPON INPUT STRING
002134  001200                          SEREC                           ;THIS FLAG
002136  104403                          INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002140  016177                          MWIRE4                          ;MESSAGE
002142  104412                          SETFLG                          ;SET FLAG BASED UPON INPUT STRING
002144  001201                          OPTCLR                          ;THIS FLAG
002146  104403                          INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
```

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                                        MEXTJ                           ;MESSAGE
                                        SETFLG                          ;SET FLAG BASED UPON INPUT STRING
                                        JMRBY                           ;THIS FLAG

                                        ;TEST START AND RESTART

002156  012767  000340  175612  .BEGIN: MOV     #340,PS                 ;LOCK OUT INTERRUPTS
002164  012706  001100                  MOV     #STACK,SP               ;SET UP STACK
002170  005737  000042                  TST     @#42                    ;IS PROGRAM UNDER MONITOR CONTROL
002174  001056                          BNE     3$
002176  105767  177000                  TSTB    MULTD   ;DON'T ALLOW LOCK ON TEST IF RUNNING
                                        ;MULTIPLE DEVICES
002202  001407                          BEQ     5$                      ;IF NO,TEST FOR LOCK ON TEST
002204  016767  011020  010720          MOV     BRW,TTST                ;RESTORE NORMAL SCOPE LOOP
002212  016767  011014  010714          MOV     BRX,TTST+2              ;DITTO
002220  000444                          BR      3$                      ;JUMP AROUND IF YES
002222  032777  000004  176650  5$:     BIT     #BIT2,@SWR              ;CHECK FOR LOCK ON TEST
002230  001416                          BEQ     1$
002232  104403                          INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002234  015726                          MLOCK                           ;MESSAGE
002236  104412                          SETFLG                          ;SET FLAG BASED UPON INPUT STRING
002240  001225                          LOKFLG                          ;THIS FLAG
002242  105767  176757                  TSTB    LOKFLG                  ;IS LOCK ON TEST OPTION SELECTED
002246  001407                          BEQ     1$
002250  012767  000240  010654          MOV     #NOP,TTST
002256  012767  000240  010650          MOV     #NOP,TTST+2             ;SET UP TO LOCK
002264  000406                          BR      2$
002266  016767  010736  010636  1$:     MOV     BRW,TTST
002274  016767  010732  010632          MOV     BRX,TTST+2              ;LOCK NOT SELECTED, SET UP FOR NORMAL SCOPE LOOP
002302  032777  000002  176570  2$:     BIT     #SW01,@SWR              ;IF SW01=1, GET STARTING PC
002310  001410                          BEQ     3$
002312  104403                          INSTR                           ;OUTPUT MESSAGE & GET INPUT STRING
002314  015713                          MTSTPC                          ;MESSAGE
002316  104405                          PARAM                           ;CONVERT STRING
002320  002350                          TST1                            ;LOW LIMIT
002322  012116                          TLAST                           ;HIGH LIMIT
002324  001114                          RTRN                            ;STORE AT THIS LOCATION
002326     001                  .BYTE   1                               ;MASK
002327     001                  .BYTE   1                               ;HOW MANY TIMES + 2
002330  000403                          BR      4$
002332  012767  002350  176554  3$:     MOV     #TST1,RTRN              ;START AT TEST 1
002340  104402  015707          4$:     TYPE    ,MR                     ;TYPE R
002344  000177  176544                  JMP     @RTRN                   ;START TESTING

                                        ;;THIS TEST VERIFYS WORD LENGTH SELECT OF RECEIVER
                                        ;;SECTION ,IT USES THE ERROR FLAGS TO DETERMINE
                                        ;;THAT IT WAS SELECTED PROPERLY
                                        ;;FRAME ERROR (FRMERR,RXERR)
                                        ;;MODE:ISOC (ISYMOD)
                                        ;;LENGTH:FIVE
                                        ;;CHAR: 25
                                        ;;
002350  012767  000001  176550  TST1:    MOV     #1,TSTNO        ;SAVE THIS
002356  012767  002524  176532          MOV     #TST2,NEXT              ;GO TO THIS TEST WHEN THRU
002364  052777  000400  014736          BIS     #MRESET,@TXCSR  ;MASTER RESET
002372  012777  000000  014724          MOV     #ISYMOD,@PARCSR ;SET THE MODE
```

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1037  002400  052777  000400  014722          BIS     #MRESET,@TXCSR  ;MASTER RESET
1038
1039                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1040  002406  012777  064001  014714          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1041
1042                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1043  002414  012777  000000  014702          MOV     #ISYMOD!FIVE!NOPAR!0,@PARCSR
1044  002422  052777  000020  014664          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
1045                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1046  002430  042777  020000  014672          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1047  002436  052777  020000  014664          BIS     #CLK,@TXCSR     ;POKE CLK UP
1048                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1049  002444  042777  020000  014656          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1050  002452  052777  020000  014650          BIS     #CLK,@TXCSR     ;POKE CLK UP
1051  002460  012767  000007  176452          MOV     #7,SHIFT        ;# OF SHIFTS
1052  002466  012767  000052  176450          MOV     #52,TEMP1       ;DATA CHAR
1053                                  ;NOTE: THE ABOVE CHARACTER IS MISSING STOP BIT
1054  002474  004767  014320                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1055  002500  016703  014614                  MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
1056  002504  012700  120025                  MOV     #RXERR!FRMERR!25,R0     ;EXPECTED
1057  002510  017701  014604                  MOV     @RXDBUF,R1      ;ACTUAL
1058  002514  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
1059  002516  001401                          BEQ     64$
1060  002520  104002                          HLT     2               ;FRAME ERROR & RX ERROR SHOULD BE SET
1061                                                                  ;IF LOWER BYTE DOES NOT MATCH  IT
1062                                                                  ;PROBABLY IS A LENGTH SELECT PROBLEM
1063  002522                          64$:
1064  002522  104400                          SCOPE
1065                                          ;;THIS TEST VERIFYS WORD LENGTH SELECT OF RECEIVER
1066                                          ;;SECTION ,IT USES THE ERROR FLAGS TO DETERMINE
1067                                          ;;THAT IT WAS SELECTED PROPERLY
1068                                          ;;FRAME ERROR (FRMERR,RXERR)
1069                                          ;;MODE:ISOC (ISYMOD)
1070                                          ;;LENGTH:SIX
1071                                          ;;CHAR: 25
1072                                          ;;
1073  002524  012767  000002  176374  TST2:   MOV     #2,TSTNO        ;SAVE THIS
1074  002532  012767  002700  176356          MOV     #TST7,NEXT              ;GO TO THIS TEST WHEN THRU
1075  002540  052777  000400  014562          BIS     #MRESET,@TXCSR  ;MASTER RESET
1076  002546  012777  000000  014550          MOV     #ISYMOD,@PARCSR ;SET THE MODE
1077  002554  052777  000400  014546          BIS     #MRESET,@TXCSR  ;MASTER RESET
1078
1079                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1080  002562  012777  064001  014540          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1081
1082                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1083  002570  012777  002000  014526          MOV     #ISYMOD!SIX!NOPAR!0,@PARCSR
1084  002576  052777  000020  014510          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
1085                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1086  002604  042777  020000  014516          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1087  002612  052777  020000  014510          BIS     #CLK,@TXCSR     ;POKE CLK UP
1088                                  :POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1089  002620  042777  020000  014502          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1090  002626  052777  020000  014474          BIS     #CLK,@TXCSR     ;POKE CLK UP
1091  002634  012767  000010  176276          MOV     #8.,SHIFT       ;# OF SHIFTS
1092  002642  012767  000052  176274          MOV     #52,TEMP1       ;DATA CHAR
```

```
1093                                        ;NOTE: THE ABOVE CHARACTER IS MISSING STOP BIT
1094  002650  004767  014144                        JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1095  002654  016703  014440                        MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
1096  002660  012700  120025                        MOV     #RXERR!FRMERR!25,R0     ;EXPECTED
1097  002664  017701  014430                        MOV     @RXDBUF,R1      ;ACTUAL
1098  002670  020001                              CMP     R0,R1   ;COMPARE EXP VS ACT
1099  002672  001401                              BEQ     64$
1100  002674  104002                              HLT     2               ;FRAME ERROR & RX ERROR SHOULD BE SET
1101                                                                       ;IF LOWER BYTE DOES NOT MATCH  IT
1102                                                                       ;PROBABLY IS A LENGTH SELECT PROBLEM
1103  002676                                  64$:
1104  002676  104400                              SCOPE
1105                                                ;;THIS TEST VERIFYS WORD LENGTH SELECT OF RECEIVER
1106                                                ;;SECTION ,IT USES THE ERROR FLAGS TO DETERMINE
1107                                                ;;THAT IT WAS SELECTED PROPERLY
1108                                                ;;FRAME ERROR (FRMERR,RXERR)
1109                                                ;;MODE:ISOC (ISYMOD)
1110                                                ;;LENGTH:SEVEN
1111                                                ;;CHAR: 125
1112                                                ;;
1113  002700  012767  000003  176220  TST3:   MOV     #3,TSTNO        ;SAVE THIS
1114  002706  012767  003054  176202           MOV     #TST4,NEXT              ;GO TO THIS TEST WHEN THRU
1115  002714  052777  000400  014406           BIS     #MRESET,@TXCSR  ;MASTER RESET
1116  002722  012777  000000  014374           MOV     #ISYMOD,@PARCSR ;SET THE MODE
1117  002730  052777  000400  014372           BIS     #MRESET,@TXCSR  ;MASTER RESET
1118
1119                                        ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1120  002736  012777  064001  014364             MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1121
1122                                        ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1123  002744  012777  004000  014352             MOV     #ISYMOD!SEVEN!NOPAR!0,@PARCSR
1124  002752  052777  000020  014334             BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
1125                                             ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1126  002760  042777  020000  014342             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1127  002766  052777  020000  014334             BIS     #CLK,@TXCSR     ;POKE CLK UP
1128                                        ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1129  002774  042777  020000  014326             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1130  003002  052777  020000  014320             BIS     #CLK,@TXCSR     ;POKE CLK UP
1131  003010  012767  000011  176122             MOV     #9.,SHIFT       ;# OF SHIFTS
1132  003016  012767  000252  176120             MOV     #252,TEMP1      ;DATA CHAR
1133                                        ;NOTE: THE ABOVE CHARACTER IS MISSING STOP BIT
1134  003024  004767  013770                        JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1135  003030  016703  014264                        MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
1136  003034  012700  120125                        MOV     #RXERR!FRMERR!125,R0    ;EXPECTED
1137  003040  017701  014254                        MOV     @RXDBUF,R1      ;ACTUAL
1138  003044  020001                              CMP     R0,R1   ;COMPARE EXP VS ACT
1139  003046  001401                              BEQ     64$
1140  003050  104002                              HLT     2               ;FRAME ERROR & RX ERROR SHOULD BE SET
1141                                                                       ;IF LOWER BYTE DOES NOT MATCH  IT
1142                                                                       ;PROBABLY IS A LENGTH SELECT PROBLEM
1143  003052                                  64$:
1144  003052  104400                              SCOPE
1145                                                ;;THIS TEST VERIFYS WORD LENGTH SELECT OF RECEIVER
1146                                                ;;SECTION ,IT USES THE ERROR FLAGS TO DETERMINE
1147                                                ;;THAT IT WAS SELECTED PROPERLY
1148                                                ;;FRAME ERROR (FRMERR,RXERR)
```

```
 1149                                           ;;MODE:ISOC (ISYMOD)
 1150                                           ;;LENGTH:EIGHT
 1151                                           ;;CHAR: 125
 1152                                           ;;
 1153  003054  012767  000004  176044  TST4:    MOV     #4,TSTNO        ;SAVE THIS
 1154  003062  012767  003230  176026           MOV     #TST5,NEXT              ;GO TO THIS TEST WhEN THRU
 1155  003070  052777  000400  014232           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1156  003076  012777  000000  014220           MOV     #ISYMOD,@PARCSR ;SET THE MODE
 1157  003104  052777  000400  014216           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1158
 1159                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1160  003112  012777  064001  014210           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1161
 1162                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1163  003120  012777  006000  014176           MOV     #ISYMOD!EIGHT!NOPAR!0,@PARCSR
 1164  003126  052777  000020  014160           BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 1165                                           ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
 1166  003134  042777  020000  014166           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1167  003142  052777  020000  014160           BIS     #CLK,@TXCSR     ;POKE CLK UP
 1168                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1169  003150  042777  020000  014152           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1170  003156  052777  020000  014144           BIS     #CLK,@TXCSR     ;POKE CLK UP
 1171  003164  012767  000012  175746           MOV     #10.,SHIFT      ;# OF SHIFTS
 1172  003172  012767  000252  175744           MOV     #252,TEMP1      ;DATA CHAR
 1173                                  ;NOTE: THE ABOVE CHARACTER IS MISSING STOP BIT
 1174  003200  004767  013614                   JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 1175  003204  016703  014110                   MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
 1176  003210  012700  120125                   MOV     #RXERR!FRMERR!125,R0    ;EXPECTED
 1177  003214  017701  014100                   MOV     @RXDBUF,R1      ;ACTUAL
 1178  003220  020001                           CMP     R0,R1   ;COMPARE EXP VS ACT
 1179  003222  001401                           BEQ     64$
 1180  003224  104002                           HLT     2               ;FRAME ERROR & RX ERROR SHOULD BE SET
 1181                                                                   ;IF LOWER BYTE DOES NOT MATCH  IT
 1182                                                                   ;PROBABLY IS A LENGTH SELECT PROBLEM
 1183  003226                           64$:
 1184  003226  104400                           SCOPE
 1185                                           ;;THIS TEST VERIFYS EVEPAR PARITY SENSE
 1186                                           ;;OF THE RECEIVER
 1187                                           ;;MODE:ISOC (ISYMOD)
 1188                                           ;;PARITY:EVEPAR
 1189                                           ;;LENGTH:FIVE PLUS PARITY
 1190                                           ;;CHAR: 25
 1191                                           ;;
 1192  003230  012767  000005  175670  TST5:    MOV     #5,TSTNO        ;SAVE THIS
 1193  003236  012767  003414  175652           MOV     #TST6,NEXT              ;GO TO THIS TEST WHEN THRU
 1194  003244  052777  000400  014056           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1195  003252  012777  000000  014044           MOV     #ISYMOD,@PARCSR ;SET THE MODE
 1196  003260  052777  000400  014042           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1197
 1198                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1199  003266  012777  064001  014034           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1200
 1201                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1202  003274  012777  001400  014022           MOV     #ISYMOD!FIVE!EVEPAR!0,@PARCSR
 1203  003302  052777  000020  014004           BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 1204                                           ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
```

```
1205  003310  042777  020000  014012          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1206  003316  052777  020000  014004          BIS     #CLK,@TXCSR     ;POKE CLK UP
1207                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1208  003324  042777  020000  013776          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1209  003332  052777  020000  013770          BIS     #CLK,@TXCSR     ;POKE CLK UP
1210  003340  016703  013754                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
1211  003344  012700  110025                  MOV     #RXERR!PARER!25,R0      ;EXPECTED
1212  003350  012767  000010  175562          MOV     #8.,SHIFT       ;# OF SHIFTS
1213  003356  012767  000252  175560          MOV     #252,TEMP1      ;DATA CHAR
1214  003364  004767  013430                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1215  003370  105777  013720                  TSTB    @RXCSR  ;RXDONE ?
1216  003374  100401                          BMI     1$
1217  003376  104000                          HLT             ;RXDONE SHOULD BE ASSERTED
1218  003400                          1$:
1219  003400  017701  013714                  MOV     @RXDBUF,R1      ;ACTUAL
1220  003404  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
1221  003406  001401                          BEQ     2$
1222  003410  104002                          HLT     2       ;PARITY ERROR &RXERR SHOULD BE SET
1223  003412                          2$:
1224                                          ;NOTE THAT THE PARITY BIT SHOULD
1225                                          ;SHOW UP IN THE DATA
1226                                          ;IE. BIT FIVE FOR FIVE LEVEL CODE
1227  003412  104400                  SCOPE
1228                                  ;;THIS TEST VERIFYS EVEPAR PARITY SENSE
1229                                  ;;OF THE RECEIVER
1230                                  ;;MODE ISOC (ISYMOD)
1231                                  ;;PARITY:EVEPAR
1232                                  ;;LENGTH:SIX PLUS PARITY
1233                                  ;;CHAR: 25
1234                                  ;;
1235  003414  012767  000006  175504  TST6:   MOV     #6,TSTNO        ;SAVE THIS
1236  003422  012767  003600  175466          MOV     #TST7,NEXT              ;GO TO THIS TEST WHEN THRU
1237  003430  052777  000400  013672          BIS     #MRESET,@TXCSR  ;MASTER RESET
1238  003436  012777  000003  013660          MOV     #ISYMOD,@PARCSR ;SET THE MODE
1239  003444  052777  000400  013656          BIS     #MRESET,@TXCSR  ;MASTER RESET
1240
1241                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1242  003452  012777  064001  013650          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1243
1244                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1245  003460  012777  003400  013636          MOV     #ISYMOD!SIX!EVEPAR!0,@PARCSR
1246  003466  052777  000020  013620          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
1247                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1248  003474  042777  020000  013626          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1249  003502  052777  020000  013620          BIS     #CLK,@TXCSR     ;POKE CLK UP
1250                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1251  003510  042777  020000  013612          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1252  003516  052777  020000  013604          BIS     #CLK,@TXCSR     ;POKE CLK UP
1253  003524  016703  013570                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
1254  003530  012700  110025                  MOV     #RXERR!PARER!25,R0      ;EXPECTED
1255  003534  012767  000011  175376          MOV     #9.,SHIFT       ;# OF SHIFTS
1256  003542  012767  000452  175374          MOV     #452,TEMP1      ;DATA CHAR
1257  003550  004767  013244                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1258  003554  105777  013534                  TSTB    @RXCSR  ;RXDONE ?
1259  003560  100401                          BMI     1$
1260  003562  104000                          HLT             ;RXDONE SHOULD BE ASSERTED
```

```
 1261  003564                          1$:
 1262  003564  017701  013530                  MOV     @RXDBUF,R1      ;ACTUAL
 1263  003570  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
 1264  003572  001401                          BEQ     2$
 1265  003574  104002                          HLT     2       ;PARITY ERROR &RXERR SHOULD BE SET
 1266  003576                          2$:
 1267                                          ;NOTE THAT THE PARITY BIT SHOULD
 1268                                          ;SHOW UP IN THE DATA
 1269                                          ;IE. BIT SIX FOR SIX LEVEL CODE
 1270  003576  104400                  SCOPE
 1271                                  ;;THIS TEST VERIFYS EVEPAR PARITY SENSE
 1272                                  ;;OF THE RECEIVER
 1273                                  ;;MODE:ISOC (ISYMOD)
 1274                                  ;;PARITY:EVEPAR
 1275                                  ;;LENGTH:SEVEN PLUS PARITY
 1276                                  ;;CHAR: 325
 1277                                  ;;
 1278  003600  012767  000007  175320  TST7:   MOV     #7,TSTNO        ;SAVE THIS
 1279  003606  012767  003764  175302          MOV     #TST8,NEXT              ;GO TO THIS TEST WHEN THRU
 1280  003614  052777  000400  013506          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1281  003622  012777  000000  013474          MOV     #ISYMOD,@PARCSR ;SET THE MODE
 1282  003630  052777  000400  013472          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1283
 1284                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1285  003636  012777  064001  013464          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1286
 1287                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1288  003644  012777  005400  013452          MOV     #ISYMOD!SEVEN!EVEPAR!0,@PARCSR
 1289  003652  052777  000020  013434          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 1290                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
 1291  003660  042777  020000  013442          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1292  003666  052777  020000  013434          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1293                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1294  003674  042777  020000  013426          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1295  003702  052777  020000  013420          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1296  003710  016703  013404                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
 1297  003714  012700  110325                  MOV     #RXERR!PARER!325,R0     ;EXPECTED
 1298  003720  012767  000012  175212          MOV     #10.,SHIFT      ;# OF SHIFTS
 1299  003726  012767  001652  175210          MOV     #1652,TEMP1     ;DATA CHAR
 1300  003734  004767  013060                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 1301  003740  105777  013350                  TSTB    @RXCSR  ;RXDONE
 1302  003744  100401                          BMI     1$
 1303  003746  104000                          HLT             ;RXDONE SHOULD BE ASSERTED
 1304  003750                          1$:
 1305  003750  017701  013344                  MOV     @RXDBUF,R1      ;ACTUAL
 1306  003754  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
 1307  003756  001401                          BEQ     2$
 1308  003760  104002                          HLT     2       ;PARITY ERROR &RXERR SHOULD BE SET
 1309  003762                          2$:
 1310                                          ;NOTE THAT THE PARITY BIT SHOULD
 1311                                          ;SHOW UP IN THE DATA
 1312                                          ;IE. BIT SEVEN FOR SEVEN LEVEL CODE
 1313  003762  104400                  SCOPE
 1314                                  ;;THIS TEST VERIFYS EVEPAR PARITY SENSE
 1315                                  ;;OF THE RECEIVER
 1316                                  ;;MODE:ISOC (ISYMOD)
```

```
1317                                            ;;PARITY:EVEPAR
1318                                            ;;LENGTH:EIGHT PLUS PARITY
1319                                            ;;CHAR: 125
1320                                            ;;
1321  003764  012767  000010  175134  TST8:     MOV     #8,TSTNO        ;SAVE THIS
1322  003772  012767  004150  175116            MOV     #TST9,NEXT              ;GO TO THIS TEST WHEN THRU
1323  004000  052777  000400  013322            BIS     #MRESET,@TXCSR  ;MASTER RESET
1324  004006  012777  000000  013310            MOV     #ISYMOD,@PARCSR ;SET THE MODE
1325  004014  052777  000400  013306            BIS     #MRESET,@TXCSR  ;MASTER RESET
1326
1327                                    ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1328  004022  012777  064001  013300            MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1329
1330                                    ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1331  004030  012777  007400  013266            MOV     #ISYMOD!EIGHT!EVEPAR!0,@PARCSR
1332  004036  052777  000020  013250            BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
1333                                            ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1334  004044  042777  020000  013256            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1335  004052  052777  020000  013250            BIS     #CLK,@TXCSR     ;POKE CLK UP
1336                                    ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1337  004060  042777  020000  013242            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1338  004066  052777  020000  013234            BIS     #CLK,@TXCSR     ;POKE CLK UP
1339  004074  016703  013220                    MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
1340  004100  012700  110125                    MOV     #RXERR!PARER!125,R0     ;EXPECTED
1341  004104  012767  000013  175026            MOV     #11.,SHIFT      ;# OF SHIFTS
1342  004112  012767  003252  175024            MOV     #3252,TEMP1     ;DATA CHAR
1343  004120  004767  012674                    JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1344  004124  105777  013164                    TSTB    @RXCSR  ;RXDONE ?
1345  004130  100401                            BMI     1$
1346  004132  104000                            HLT             ;RXDONE SHOULD BE ASSERTED
1347  004134                            1$:
1348  004134  017701  013160                    MOV     @RXDBUF,R1      ;ACTUAL
1349  004140  020001                            CMP     R0,R1   ;COMPARE EXP VS. ACT
1350  004142  001401                            BEQ     2$
1351  004144  104002                            HLT     2       ;PARITY ERROR &RXERR SHOULD BE SET
1352  004146                            2$:
1353  004146  104400                            SCOPE
1354                                            ;;THIS TEST VERIFYS ODDPAR PARITY SENSE
1355                                            ;;OF THE RECEIVER
1356                                            ;;MODE:ISOC (ISYMOD)
1357                                            ;;PARITY:ODDPAR
1358                                            ;;LENGTH:FIVE PLUS PARITY
1359                                            ;;CHAR: 65
1360                                            ;;
1361  004150  012767  000011  174750  TST9:     MOV     #9,TSTNO        ;SAVE THIS
1362  004156  012767  004334  174732            MOV     #TST10,NEXT             ;GO TO THIS TEST WHEN THRU
1363  004164  052777  000400  013136            BIS     #MRESET,@TXCSR  ;MASTER RESET
1364  004172  012777  000000  013124            MOV     #ISYMOD,@PARCSR ;SET THE MODE
1365  004200  052777  000400  013122            BIS     #MRESET,@TXCSR  ;MASTER RESET
1366
1367                                    ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1368  004206  012777  064001  013114            MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1369
1370                                    ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1371  004214  012777  001000  013102            MOV     #ISYMOD!FIVE!ODDPAR!0,@PARCSR
1372  004222  052777  000020  013064            BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
```

```
1373                                                    ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1374  004230  042777  020000  013072                    BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1375  004236  052777  020000  013064                    BIS     #CLK,@TXCSR     ;POKE CLK UP
1376                                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1377  004244  042777  020000  013056                    BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1378  004252  052777  020000  013050                    BIS     #CLK,@TXCSR     ;POKE CLK UP
1379  004260  016703  013034                            MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
1380  004264  012700  110065                            MOV     #RXERR!PARER!65,R0      ;EXPECTED
1381  004270  012767  000010  174642                    MOV     #8.,SHIFT       ;# OF SHIFTS
1382  004276  012767  000352  174640                    MOV     #352,TEMP1      ;DATA CHAR
1383  004304  004767  012510                            JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1384  004310  105777  013000                            TSTB    @RXCSR  ;RXDONE ?
1385  004314  100401                                    BMI     1$
1386  004316  104000                                    HLT                     ;RXDONE SHOULD BE ASSERTED
1387  004320                                  1$:
1388  004320  017701  012774                            MOV     @RXDBUF,R1      ;ACTUAL
1389  004324  020001                                    CMP     R0,R1   ;COMPARE EXP VS. ACT
1390  004326  001401                                    BEQ     2$
1391  004330  104002                                    HLT     2               ;PARITY ERROR &RXERR SHOULD BE SET
1392  004332                                  2$:
1393                                                          ;NOTE THAT THE PARITY BIT SHOULD
1394                                                          ;SHOW UP IN THE DATA
1395                                                          ;IE. BIT FIVE FOR FIVE LEVEL CODE
1396  004332  104400                                SCOPE
1397                                                  ;;THIS TEST VERIFYS ODDPAR PARITY SENSE
1398                                                  ;;OF THE RECEIVER
1399                                                  ;;MODE:ISOC (ISYMOD)
1400                                                  ;;PARITY:ODDPAR
1401                                                  ;;LENGTH:SIX PLUS PARITY
1402                                                  ;;CHAR: 125
1403                                                  ;;
1404  004334  012767  000012  174564  TST10:  MOV     #10,TSTNO       ;SAVE THIS
1405  004342  012767  004520  174546           MOV     #TST11,NEXT             ;GO TO THIS TEST WHEN THRU
1406  004350  052777  000400  012752           BIS     #MRESET,@TXCSR  ;MASTER RESET
1407  004356  012777  000000  012740           MOV     #ISYMOD,@PARCSR ;SET THE MODE
1408  004364  052777  000400  012736           BIS     #MRESET,@TXCSR  ;MASTER RESET
1409
1410                                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1411  004372  012777  064001  012730           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1412
1413                                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1414  004400  012777  003000  012716           MOV     #ISYMOD!SIX!ODDPAR!0,@PARCSR
1415  004406  052777  000020  012700           BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
1416                                                  ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1417  004414  042777  020000  012706           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1418  004422  052777  020000  012700           BIS     #CLK,@TXCSR     ;POKE CLK UP
1419                                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1420  004430  042777  020000  012672           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1421  004436  052777  020000  012664           BIS     #CLK,@TXCSR     ;POKE CLK UP
1422  004444  016703  012650                   MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
1423  004450  012700  110125                   MOV     #RXERR!PARER!125,R0     ;EXPECTED
1424  004454  012767  000011  174456           MOV     #9.,SHIFT       ;# OF SHIFTS
1425  004462  012767  000652  174454           MOV     #652,TEMP1      ;DATA CHAR
1426  004470  004767  012324                   JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1427  004474  105777  012614                   TSTB    @RXCSR  ;RXDONE ?
1428  004500  100401                           BMI     1$
```

```
1429  004502  104000                          HLT             ;RXDONE SHOULD BE ASSERTED
1430  004504                          1$:
1431  004504  017701  012610                  MOV     @RXDBUF,R1      ;ACTUAL
1432  004510  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
1433  004512  001401                          BEQ     2$
1434  004514  104002                          HLT     2       ;PARITY ERROR &RXERR SHOULD BE SET
1435  004516                          2$:
1436                                          ;NOTE THAT THE PARITY BIT SHOULD
1437                                          ;SHOW UP IN THE DATA
1438                                          ;IE. BIT SIX FOR SIX LEVEL CODE
1439  004516  104400                          SCOPE
1440                                          ;;THIS TEST VERIFYS ODDPAR PARITY SENSE
1441                                          ;;OF THE RECEIVER
1442                                          ;;MODE:ISOC (ISYMOD)
1443                                          ;;PARITY:ODDPAR
1444                                          ;;LENGTH:SEVEN PLUS PARITY
1445                                          ;;CHAR: 125
1446                                          ;;
1447  004520  012767  000013  174400  TST11:  MOV     #11,TSTNO       ;SAVE THIS
1448  004526  012767  004704  174362          MOV     #TST12,NEXT             ;GO TO THIS TEST WHEN THRU
1449  004534  052777  000400  012566          BIS     #MRESET,@TXCSR  ;MASTER RESET
1450  004542  012777  000000  012554          MOV     #ISYMOD,@PARCSR ;SET THE MODE
1451  004550  052777  000400  012552          BIS     #MRESET,@TXCSR  ;MASTER RESET
1452
1453                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1454  004556  012777  064001  012544          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1455
1456                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1457  004564  012777  005000  012532          MOV     #ISYMOD!SEVEN!ODDPAR!0,@PARCSR
1458  004572  052777  000020  012514          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
1459                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1460  004600  042777  020000  012522          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1461  004606  052777  020000  012514          BIS     #CLK,@TXCSR     ;POKE CLK UP
1462                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1463  004614  042777  020000  012506          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1464  004622  052777  020000  012500          BIS     #CLK,@TXCSR     ;POKE CLK UP
1465  004630  016703  012464                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
1466  004634  012700  110125                  MOV     #RXERR!PARER!125,R0     ;EXPECTED
1467  004640  012767  000012  174272          MOV     #10.,SHIFT      ;# OF SHIFTS
1468  004646  012767  001252  174270          MOV     #1252,TEMP1     ;DATA CHAR
1469  004654  004767  012140                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1470  004660  105777  012430                  TSTB    @RXCSR  ;RXDONE
1471  004664  100401                          BMI     1$
1472  004666  104000                          HLT             ;RXDONE SHOULD BE ASSERTED
1473  004670                          1$:
1474  004670  017701  012424                  MOV     @RXDBUF,R1      ;ACTUAL
1475  004674  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
1476  004676  001401                          BEQ     2$
1477  004700  104002                          HLT     2       ;PARITY ERROR &RXERR SHOULD BE SET
1478  004702                          2$:
1479                                          ;NOTE THAT THE PARITY BIT SHOULD
1480                                          ;SHOW UP IN THE DATA
1481                                          ;IE. BIT SEVEN FOR SEVEN LEVEL CODE
1482  004702  104400                          SCOPE
1483                                          ;;THIS TEST VERIFYS ODDPAR PARITY SENSE
1484                                          ;;OF THE RECEIVER
```

```
1485                                                    ;;MODE:ISOC (ISYMOD)
1486                                                    ;;PARITY:ODDPAR
1487                                                    ;;LENGTH:EIGHT PLUS PARITY
1488                                                    ;;CHAR: 125
1489                                                    ;;
1490  004704  012767  000014  174214  TST12:  MOV     #12,TSTNO       ;SAVE THIS
1491  004712  012767  005070  174176          MOV     #TST13,NEXT             ;GO TO THIS TEST WHEN THRU
1492  004720  052777  000400  012402          BIS     #MRESET,@TXCSR  ;MASTER RESET
1493  004726  012777  000000  012370          MOV     #ISYMOD,@PARCSR ;SET THE MODE
1494  004734  052777  000400  012366          BIS     #MRESET,@TXCSR  ;MASTER RESET
1495
1496                                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1497  004742  012777  064001  012360          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1498
1499                                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1500  004750  012777  007000  012346          MOV     #ISYMOD!EIGHT!ODDPAR!0,@PARCSR
1501  004756  052777  000020  012330          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
1502                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1503  004764  042777  020000  012336          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1504  004772  052777  020000  012330          BIS     #CLK,@TXCSR     ;POKE CLK UP
1505                                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1506  005000  042777  020000  012322          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1507  005006  052777  020000  012314          BIS     #CLK,@TXCSR     ;POKE CLK UP
1508  005014  016703  012300                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
1509  005020  012700  110125                  MOV     #RXERR!PARER!125,R0     ;EXPECTED
1510  005024  012767  000013  174106          MOV     #11.,SHIFT      ;# OF SHIFTS
1511  005032  012767  002252  174104          MOV     #2252,TEMP1     ;DATA CHAR
1512  005040  004767  011754                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1513  005044  105777  012244                  TSTB    @RXCSR  ;RXDONE ?
1514  005050  100401                          BMI     1$
1515  005052  104000                          HLT             ;RXDONE SHOULD BE ASSERTED
1516  005054                          1$:
1517  005054  017701  012240                  MOV     @RXDBUF,R1      ;ACTUAL
1518  005060  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
1519  005062  001401                          BEQ     2$
1520  005064  104002                          HLT     2       ;PARITY ERROR &RXERR SHOULD BE SET
1521  005066                          2$:
1522  005066  104400                          SCOPE
1523                                          ;;THIS TEST PERFORMS BINARY DATA CHECK ON THE
1524                                          ;;RECEIVER
1525                                          ;;LENGTH:EIGHT PLUS PARITY
1526                                          ;;MODE:ISYMOD
1527                                          ;;PARITY:EVEPAR
1528                                          ;;
1529  005070  012767  000015  174030  TST13:  MOV     #13,TSTNO       ;SAVE THIS
1530  005076  012767  005270  174012          MOV     #TST14,NEXT             ;GO TO THIS TEST WHEN THRU
1531  005104  052777  000400  012216          BIS     #MRESET,@TXCSR  ;MASTER RESET
1532  005112  012777  000000  012204          MOV     #ISYMOD,@PARCSR ;SET THE MODE
1533  005120  052777  000400  012202          BIS     #MRESET,@TXCSR  ;MASTER RESET
1534
1535                                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1536  005126  012777  064001  012174          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1537
1538                                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1539  005134  012777  007400  012162          MOV     #ISYMOD!EIGHT!EVEPAR!0,@PARCSR
1540  005142  052777  000020  012144          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
```

```
1541                                                    ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1542  005150  042777  020000  012152                    BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1543  005156  052777  020000  012144                    BIS     #CLK,@TXCSR     ;POKE CLK UP
1544                                            ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1545  005164  042777  020000  012136                    BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1546  005172  052777  020000  012130                    BIS     #CLK,@TXCSR     ;POKE CLK UP
1547  005200  016703  012114                            MOV     RXDBUF,R3       ;SET UP ERROR MESSAGE
1548  005204  005004                                    CLR     R4      ;DATA CHAR
1549  005206  010400                                1$: MOV     R4,R0   ;EXPECTED
1550  005210  012767  000013  173722                    MOV     #11.,SHIFT      ;# OF SHIFTS
1551  005216  010467  173722                            MOV     R4,TEMP1        ;"TO BE SHIFTED CHARACTER"
1552  005222  004767  011744                            JSR     PC,EVEN8        ;CALC PARITY
1553  005226  000241                                    CLC
1554  005230  006167  173710                            ROL     TEMP1   ;GENERATE START BIT
1555  005234  052767  002000  173702                    BIS     #BIT10,TEMP1    ;GENERATE STOP BIT
1556                                            ;TEMP1 NOW HAS CHARACTER TO BE POKED INTO RECEIVER
1557  005242  004767  011552                            JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1558  005246  017701  012046                            MOV     @RXDBUF,R1      ;ACTUAL
1559  005252  020001                                    CMP     R0,R1   ;COMPARE EXP VS ACT
1560  005254  001401                                    BEQ     2$
1561  005256  104002                                    HLT     2               ;DATA CHARS SHOULD MATCH
1562                                                                    ;THERE SHOULD BE NO PARITY ERROR
1563  005260                                        2$:
1564  005260  005204                                    INC     R4              ;UPGRADE NEXT CHAR
1565  005262  105704                                    TSTB    R4              ;LAST CHAR ?
1566  005264  001350                                    BNE     1$
1567  005266  104400                                    SCOPE
1568                                                    ;;THIS TEST PERFORMS BINARY DATA CHECK ON THE
1569                                                    ;;RECEIVER
1570                                                    ;;LENGTH:EIGHT PLUS PARITY
1571                                                    ;;MODE:ISYMOD
1572                                                    ;;PARITY:ODDPAR
1573                                                    ;;
1574  005270  012767  000016  173630  TST14:   MOV     #14,TSTNO               ;SAVE THIS
1575  005276  012767  005470  173612                    MOV     #TST15,NEXT             ;GO TO THIS TEST WHEN THRU
1576  005304  052777  000400  012016                    BIS     #MRESET,@TXCSR  ;MASTER RESET
1577  005312  012777  000000  012004                    MOV     #ISYMOD,@PARCSR ;SET THE MODE
1578  005320  052777  000400  012002                    BIS     #MRESET,@TXCSR  ;MASTER RESET
1579
1580                                            ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1581  005326  012777  064001  011774                    MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1582
1583                                            ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1584  005334  012777  007000  011762                    MOV     #ISYMOD!EIGHT!ODDPAR!0,@PARCSR
1585  005342  052777  000020  011744                    BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
1586                                                    ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
1587  005350  042777  020000  011752                    BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1588  005356  052777  020000  011744                    BIS     #CLK,@TXCSR     ;POKE CLK UP
1589                                            ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1590  005364  042777  020000  011736                    BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1591  005372  052777  020000  011730                    BIS     #CLK,@TXCSR     ;POKE CLK UP
1592  005400  016703  011714                            MOV     RXDBUF,R3       ;SET UP ERROR MESSAGE
1593  005404  005004                                    CLR     R4      ;DATA CHAR
1594  005406  010400                                1$: MOV     R4,R0   ;EXPECTED
1595  005410  012767  000013  173522                    MOV     #11.,SHIFT      ;# OF SHIFTS
1596  005416  010467  173522                            MOV     R4,TEMP1        ;"TO BE SHIFTED CHARACTER"
```

```
1597  005422  004767  011460                  JSR     PC,ODD8 ;CALC PARITY
1598  005426  000241                          CLC
1599  005430  006167  173510                  ROL     TEMP1   ;GENERATE START BIT
1600  005434  052767  002000  173502          BIS     #BIT10,TEMP1    ;GENERATE STOP BIT
1601                                  ;TEMP1 NOW HAS CHARACTER TO BE POKED INTO RECEIVER
1602  005442  004767  011352                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1603  005446  017701  011646                  MOV     @RXDBUF,R1      ;ACTUAL
1604  005452  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
1605  005454  001401                          BEQ     2$
1606  005456  104002                          HLT     2       ;DATA CHARS SHOULD MATCH
1607                                                          ;THERE SHOULD BE NO PARITY ERROR
1608  005460                          2$:
1609  005460  005204                          INC     R4      ;UPGRADE NEXT CHAR
1610  005462  105704                          TSTB    R4      ;LAST CHAR ?
1611  005464  001350                          BNE     1$
1612  005466  104400                          SCOPE
1613                                          ;;THIS TEST PERFORMS BINARY DATA CHECK ON THE
1614                                          ;;RECEIVER
1615                                          ;;LENGTH:EIGHT PLUS PARITY
1616                                          ;;MODE:SYNEXT
1617                                          ;;PARITY:EVEPAR
1618                                          ;;
1619  005470  012767  000017  173430  TST15:  MOV     #15,TSTNO       ;SAVE THIS
1620  005476  012767  005640  173412          MOV     #TST16,NEXT             ;GO TO THIS TEST WHEN THRU
1621  005504  052777  000400  011616          BIS     #MRESET,@TXCSR  ;MASTER RESET
1622  005512  012777  020000  011604          MOV     #SYNEXT,@PARCSR ;SET THE MODE
1623  005520  052777  000400  011602          BIS     #MRESET,@TXCSR  ;MASTER RESET
1624
1625                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
1626  005526  012777  064001  011574          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
1627
1628                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
1629  005534  012777  027400  011562          MOV     #SYNEXT!EIGHT!EVEPAR!0,@PARCSR
1630  005542  052777  000020  011544          BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
1631                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
1632  005550  042777  020000  011552          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
1633  005556  052777  020000  011544          BIS     #CLK,@TXCSR     ;POKE CLK UP
1634  005564  016703  011530                  MOV     RXDBUF,R3       ;SET UP ERROR MESSAGE
1635  005570  005004                          CLR     R4      ;DATA CHAR
1636  005572  010400                  1$:     MOV     R4,R0   ;EXPECTED
1637  005574  012767  000011  173336          MOV     #9.,SHIFT       ;# OF SHIFTS
1638  005602  010467  173336                  MOV     R4,TEMP1        ;"TO BE SHIFTED CHARACTER"
1639  005606  004767  011360                  JSR     PC,EVEN8        ;CALC PARITY
1640                                  ;TEMP1 NOW HAS CHARACTER TO BE POKED INTO RECEIVER
1641  005612  004767  011202                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
1642  005616  017701  011476                  MOV     @RXDBUF,R1      ;ACTUAL
1643  005622  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
1644  005624  001401                          BEQ     2$
1645  005626  104002                          HLT     2       ;DATA CHARS SHOULD MATCH
1646                                                          ;THERE SHOULD BE NO PARITY ERROR
1647  005630                          2$:
1648  005630  005204                          INC     R4      ;UPGRADE NEXT CHAR
1649  005632  105704                          TSTB    R4      ;LAST CHAR ?
1650  005634  001356                          BNE     1$
1651  005636  104400                          SCOPE
1652                                          ;;THIS TEST PERFORMS BINARY DATA CHECK ON THE
```

```
 1653                                           ;;RECEIVER
 1654                                           ;;LENGTH:EIGHT PLUS PARITY
 1655                                           ;;MODE:SYNEXT
 1656                                           ;;PARITY:ODDPAR
 1657                                           ;;
 1658  005640  012767  000020  173260  TST16:   MOV     #16,TSTNO       ;SAVE THIS
 1659  005646  012767  006010  173242           MOV     #TST17,NEXT             ;GO TO THIS TEST WHEN THRU
 1660  005654  052777  000400  011446           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1661  005662  012777  020000  011434           MOV     #SYNEXT,@PARCSR ;SET THE MODE
 1662  005670  052777  000400  011432           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1663
 1664                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1665  005676  012777  064001  011424           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1666
 1667                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1668  005704  012777  027000  011412           MOV     #SYNEXT!EIGHT!ODDPAR!0,@PARCSR
 1669  005712  052777  000020  011374           BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
 1670                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1671  005720  042777  020000  011402           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1672  005726  052777  020000  011374           BIS     #CLK,@TXCSR     ;POKE CLK UP
 1673  005734  016703  011360                   MOV     RXDBUF,R3       ;SET UP ERROR MESSAGE
 1674  005740  005004                           CLR     R4      ;DATA CHAR
 1675  005742  010400                   1$:     MOV     R4,R0   ;EXPECTED
 1676  005744  012767  000011  173166           MOV     #9.,SHIFT       ;# OF SHIFTS
 1677  005752  010467  173.66                   MOV     R4,TEMP1        ;"TO BE SHIFTED CHARACTER"
 1678  005756  004767  011124                   JSR     PC,ODD8 ;CALC PARITY
 1679                                  ;TEMP1 NOW HAS CHARACTER TO BE POKED INTO RECEIVER
 1680  005762  004767  011032                   JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 1681  005766  017701  011326                   MOV     @RXDBUF,R1      ;ACTUAL
 1682  005772  020001                           CMP     R0,R1   ;COMPARE EXP VS ACT
 1683  005774  001401                           BEQ     2$
 1684  005776  104002                           HLT     2               ;DATA CHARS SHOULD MATCH
 1685                                                                   ;THERE SHOULD BE NO PARITY ERROR
 1686  006000                           2$:
 1687  006000  005204                           INC     R4              ;UPGRADE NEXT CHAR
 1688  006002  105704                           TSTB    R4              ;LAST CHAR ?
 1689  006004  001356                           BNE     1$
 1690  006006  104400                           SCOPE
 1691                                           ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
 1692                                           ;;OF THE RECEIVER LOGIC
 1693                                           ;;MODE:ISYMOD
 1694                                           ;;LENGTH:FIVE
 1695                                           ;;NOTE: RXDONE SHOULD NEVER ASSERT
 1696                                           ;;CHAR: 26 (SYNC)
 1697                                           ;;
 1698  006010  012767  000021  173110  TST17:   MOV     #17,TSTNO       ;SAVE THIS
 1699  006016  012767  006174  173072           MOV     #TST18,NEXT             ;GO TO THIS TEST WHEN THRU
 1700  006024  052777  000400  011276           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1701  006032  012777  000000  011264           MOV     #ISYMOD,@PARCSR ;SET THE MODE
 1702  006040  052777  000400  011262           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1703
 1704                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1705  006046  012777  064001  011254           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1706
 1707                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1708  006054  012777  000026  011242           MOV     #ISYMOD!FIVE!NOPAR!26,@PARCSR
```

```
 1709  006062  052777  000020  011224          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 1710                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
 1711  006070  042777  020000  011232          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1712  006076  052777  020000  011224          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1713                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1714  006104  042777  020000  011216          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1715  006112  052777  020000  011210          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1716  006120  052777  000400  011166          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 1717  006126  012767  000003  173006          MOV     #3,COUNT        ;# OF SYNC CHARS
 1718  006134  012767  000154  173002  1$:     MOV     #154,TEMP1      ;CHAR TO BE SHIFTED
 1719  006142  012767  000007  172770          MOV     #7,SHIFT        ;# OF SHIFTS
 1720  006150  004767  010644                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 1721  006154  105777  011134                  TSTB    @RXCSR  ;RXDONE ?
 1722  006160  100001                          BPL     2$
 1723  006162  104000                          HLT     ;RXDONE SHOULD NOT BE ASSERTED
 1724  006164                          2$:
 1725  006164  005367  172752                  DEC     COUNT   ;# OF SYNC CHARS
 1726  006170  001361                          BNE     1$
 1727  006172  104400                          SCOPE
 1728                                          ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
 1729                                          ;;OF THE RECEIVER LOGIC
 1730                                          ;;MODE:ISYMOD
 1731                                          ;;LENGTH:SIX
 1732                                          ;;NOTE: RXDONE SHOULD NEVER ASSERT
 1733                                          ;;CHAR: 26 (SYNC)
 1734                                          ;;
 1735  006174  012767  000022  172724  TST18:  MOV     #18,TSTNO       ;SAVE THIS
 1736  006202  012767  006360  172706          MOV     #TST19,NEXT             ;GO TO THIS TEST WHEN THRU
 1737  006210  052777  000400  011112          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1738  006216  012777  000000  011100          MOV     #ISYMOD,@PARCSR ;SET THE MODE
 1739  006224  052777  000400  011076          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1740
 1741                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1742  006232  012777  064001  011070          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1743
 1744                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1745  006240  012777  002026  011056          MOV     #ISYMOD!SIX!NOPAR!26,@PARCSR
 1746  006246  052777  000020  011040          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 1747                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
 1748  006254  042777  020000  011046          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1749  006262  052777  020000  011040          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1750                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1751  006270  042777  020000  011032          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1752  006276  052777  020000  011024          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1753  006304  052777  000400  011002          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 1754  006312  012767  000003  172622          MOV     #3,COUNT        ;# OF SYNC CHARS
 1755  006320  012767  000254  172616  1$:     MOV     #254,TEMP1      ;CHAR TO BE SHIFTED
 1756  006326  012767  000010  172604          MOV     #8.,SHIFT       ;# OF SHIFTS
 1757  006334  004767  010460                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 1758  006340  105777  010750                  TSTB    @RXCSR  ;RXDONE ?
 1759  006344  100001                          BPL     2$
 1760  006346  104000                          HLT     ;RXDONE SHOULD NOT BE ASSERTED
 1761  006350                          2$:
 1762  006350  005367  172566                  DEC     COUNT   ;# OF SYNC CHARS
 1763  006354  001361                          BNE     1$
 1764  006356  104400                          SCOPE
```

```
 1765                                           ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
 1766                                           ;;OF THE RECEIVER LOGIC
 1767                                           ;;MODE:ISYMOD
 1768                                           ;;LENGTH:SEVEN
 1769                                           ;;NOTE: RXDONE SHOULD NEVER ASSERT
 1770                                           ;;CHAR: 26 (SYNC)
 1771                                           ;;
 1772  006360  012767  000023  172540  TST19:   MOV     #19,TSTNO       ;SAVE THIS
 1773  006366  012767  006544  172522           MOV     #TST20,NEXT             ;GO TO THIS TEST WHEN THRU
 1774  006374  052777  000400  010726           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1775  006402  012777  000000  010714           MOV     #ISYMOD,@PARCSR ;SET THE MODE
 1776  006410  052777  000400  010712           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1777
 1778                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1779  006416  012777  064001  010704           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1780
 1781                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1782  006424  012777  004026  010672           MOV     #ISYMOD!SEVEN!NOPAR!26,@PARCSR
 1783  006432  052777  000020  010654           BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 1784                                           ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
 1785  006440  042777  020000  010662           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1786  006446  052777  020000  010654           BIS     #CLK,@TXCSR     ;POKE CLK UP
 1787                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1788  006454  042777  020000  010646           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1789  006462  052777  020000  010640           BIS     #CLK,@TXCSR     ;POKE CLK UP
 1790  006470  052777  000400  010616           BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 1791  006476  012767  000003  172436           MOV     #3,COUNT        ;# OF SYNC CHARS
 1792  006504  012767  000454  172432  1$:      MOV     #454,TEMP1      ;CHAR TO BE SHIFTED
 1793  006512  012767  000011  172420           MOV     #9.,SHIFT       ;# OF SHIFTS
 1794  006520  004767  010274                   JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 1795  006524  105777  010564                   TSTB    @RXCSR  ;RXDONE
 1796  006530  100001                           BPL     2$
 1797  006532  104000                           HLT     ;RXDONE SHOULD NOT BE ASSERTED
 1798  006534                          2$:
 1799  006534  005367  172402                   DEC     COUNT   ;# OF SYNC CHARS
 1800  006540  001361                           BNE     1$
 1801  006542  104400                           SCOPE
 1802                                           ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
 1803                                           ;;OF THE RECEIVER LOGIC
 1804                                           ;;MODE:ISYMOD
 1805                                           ;;LENGTH:EIGHT
 1806                                           ;;NOTE: RXDONE SHOULD NEVER ASSERT
 1807                                           ;;CHAR: 26 (SYNC)
 1808                                           ;;
 1809  006544  012767  000024  172354  TST20:   MOV     #20,TSTNO       ;SAVE THIS
 1810  006552  012767  006730  172336           MOV     #TST21,NEXT             ;GO TO THIS TEST WHEN THRU
 1811  006560  052777  000400  010542           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1812  006566  012777  000000  010530           MOV     #ISYMOD,@PARCSR ;SET THE MODE
 1813  006574  052777  000400  010526           BIS     #MRESET,@TXCSR  ;MASTER RESET
 1814
 1815                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1816  006602  012777  064001  010520           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1817
 1818                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1819  006610  012777  006026  010506           MOV     #ISYMOD!EIGHT!NOPAR!26,@PARCSR
 1820  006616  052777  000020  010470           BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
```

```
                                                ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
006624  042777  020000  010476                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
006632  052777  020000  010470                BIS     #CLK,@TXCSR     ;POKE CLK UP
                                        ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
006640  042777  020000  010462                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
006646  052777  020000  010454                BIS     #CLK,@TXCSR     ;POKE CLK UP
006654  052777  000400  010432                BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
006662  012767  000003  172252                MOV     #3,COUNT        ;# OF SYNC CHARS
006670  012767  001054  172246  1$:           MOV     #1054,TEMP1     ;CHAR TO BE SHIFTED
006676  012767  000012  172234                MOV     #10.,SHIFT      ;# OF SHIFTS
006704  004767  010110                        JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
006710  105777  010400                        TSTB    @RXCSR  ;RXDONE
006714  100001                                BPL     2$
006716  104000                                HLT     ;RXDONE SHOULD NOT BE ASSERTED
006720                                  2$:
006720  005367  172216                        DEC     COUNT   ;# OF SYNC CHARS
006724  001361                                BNE     1$
006726  104400                                SCOPE
                                                ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
                                                ;;OF THE RECEIVER LOGIC
                                                ;;MODE:SYNEXT
                                                ;;LENGTH:FIVE
                                                ;;NOTE: RXDONE SHOULD NEVER ASSERT
                                                ;;CHAR: 26 (SYNC)
                                                ;;
006730  012767  000025  172170  TST21:  MOV     #21,TSTNO       ;SAVE THIS
006736  012767  007100  172152                MOV     #TST22,NEXT             ;GO TO THIS TEST WHEN THRU
006744  052777  000400  010356                BIS     #MRESET,@TXCSR  ;MASTER RESET
006752  012777  020000  010344                MOV     #SYNEXT,@PARCSR ;SET THE MODE
006760  052777  000400  010342                BIS     #MRESET,@TXCSR  ;MASTER RESET

                                        ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
006766  012777  064001  010334                MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR

                                        ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
006774  012777  020026  010322                MOV     #SYNEXT!FIVE!NOPAR!26,@PARCSR
007002  052777  000020  010304                BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
                                        ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
007010  042777  020000  010312                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
007016  052777  020000  010304                BIS     #CLK,@TXCSR     ;POKE CLK UP
007024  052777  000400  010262                BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
007032  012767  000003  172102                MOV     #3,COUNT        ;# OF SYNC CHARS
007040  012767  000026  172076  1$:           MOV     #26,TEMP1       ;CHAR TO BE SHIFTED
007046  012767  000005  172064                MOV     #5,SHIFT        ;# OF SHIFTS
007054  004767  007740                        JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
007060  105777  010230                        TSTB    @RXCSR  ;RXDONE
007064  100001                                BPL     2$
007066  104000                                HLT     ;RXDONE SHOULD NOT BE ASSERTED
007070                                  2$:
007070  005367  172046                        DEC     COUNT   ;# OF SYNC CHARS
007074  001361                                BNE     1$
007076  104400                                SCOPE
                                                ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
                                                ;;OF THE RECEIVER LOGIC
                                                ;;MODE:SYNEXT
                                                ;;LENGTH:SIX
```

```
 1877                                                   ;;NOTE: RXDONE SHOULD NEVER ASSERT
 1878                                                   ;;CHAR: 26 (SYNC)
 1879                                                   ;;
 1880  007100  012767  000026  172020  TST22:  MOV     #22,TSTNO       ;SAVE THIS
 1881  007106  012767  007250  172002          MOV     #TST23,NEXT             ;GO TO THIS TEST WHEN THRU
 1882  007114  052777  000400  010206          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1883  007122  012777  020000  010174          MOV     #SYNEXT,@PARCSR ;SET THE MODE
 1884  007130  052777  000400  010172          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1885
 1886                                         ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1887  007136  012777  064001  010164          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1888
 1889                                         ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1890  007144  012777  022026  010152          MOV     #SYNEXT!SIX!NOPAR!26,@PARCSR
 1891  007152  052777  000020  010134          BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
 1892                                         ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1893  007160  042777  020000  010142          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1894  007166  052777  020000  010134          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1895  007174  052777  000400  010112          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 1896  007202  012767  000003  171732          MOV     #3,COUNT        ;# OF SYNC CHARS
 1897  007210  012767  000026  171726  1$:     MOV     #26,TEMP1       ;CHAR TO BE SHIFTED
 1898  007216  012767  000006  171714          MOV     #6,SHIFT        ;# OF SHIFTS
 1899  007224  004767  007570                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 1900  007230  105777  010060                  TSTB    @RXCSR  ;RXDONE ?
 1901  007234  100001                          BPL     2$
 1902  007236  104000                          HLT     ;RXDONE SHOULD NOT BE ASSERTED
 1903  007240                          2$:
 1904  007240  005367  171676                  DEC     COUNT   ;# OF SYNC CHARS
 1905  007244  001361                          BNE     1$
 1906  007246  104400                          SCOPE
 1907                                         ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
 1908                                         ;;OF THE RECEIVER LOGIC
 1909                                         ;;MODE:SYNEXT
 1910                                         ;;LENGTH:SEVEN
 1911                                         ;;NOTE: RXDONE SHOULD NEVER ASSERT
 1912                                         ;;CHAR: 26 (SYNC)
 1913                                         ;;
 1914  007250  012767  000027  171650  TST23:  MOV     #23,TSTNO       ;SAVE THIS
 1915  007256  012767  007420  171632          MOV     #TST24,NEXT             ;GO TO THIS TEST WHEN THRU
 1916  007264  052777  000400  010036          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1917  007272  012777  020000  010024          MOV     #SYNEXT,@PARCSR ;SET THE MODE
 1918  007300  052777  000400  010022          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1919
 1920                                         ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1921  007306  012777  064001  010014          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1922
 1923                                         ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1924  007314  012777  024026  010002          MOV     #SYNEXT!SEVEN!NOPAR!26,@PARCSR
 1925  007322  052777  000020  007764          BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
 1926                                         ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1927  007330  042777  020000  007772          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1928  007336  052777  020000  007764          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1929  007344  052777  000400  007742          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 1930  007352  012767  000003  171562          MOV     #3,COUNT        ;# OF SYNC CHARS
 1931  007360  012767  000026  171556  1$:     MOV     #26,TEMP1       ;CHAR TO BE SHIFTED
 1932  007366  012767  000007  171544          MOV     #7,SHIFT        ;# OF SHIFTS
```

```
 1933  007374  004767  007420                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 1934  007400  105777  007710                  TSTB    @RXCSR  ;RXDONE ?
 1935  007404  100001                          BPL     2$
 1936  007406  104000                          HLT     ;RXDONE SHOULD NOT BE ASSERTED
 1937  007410                          2$:
 1938  007410  005367  171526                  DEC     COUNT   ;# OF SYNC CHARS
 1939  007414  001361                          BNE     1$
 1940  007416  104400                          SCOPE
 1941                                          ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
 1942                                          ;;OF THE RECEIVER LOGIC
 1943                                          ;;MODE:SYNEXT
 1944                                          ;;LENGTH:EIGHT
 1945                                          ;;NOTE: RXDONE SHOULD NEVER ASSERT
 1946                                          ;;CHAR: 26 (SYNC)
 1947                                          ;;
 1948  007420  012767  000030  171500  TST24:  MOV     #24,TSTNO       ;SAVE THIS
 1949  007426  012767  007570  171462          MOV     #TST25,NEXT             ;GO TO THIS TEST WHEN THRU
 1950  007434  052777  000400  007666          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1951  007442  012777  020000  007654          MOV     #SYNEXT,@PARCSR ;SET THE MODE
 1952  007450  052777  000400  007652          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1953
 1954                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 1955  007456  012777  064001  007644          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1956
 1957                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1958  007464  012777  026026  007632          MOV     #SYNEXT!EIGHT!NOPAR!26,@PARCSR
 1959  007472  052777  000020  007614          BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
 1960                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1961  007500  042777  020000  007622          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1962  007506  052777  020000  007614          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1963  007514  052777  000400  007572          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 1964  007522  012767  000003  171412          MOV     #3,COUNT        ;# OF SYNC CHARS
 1965  007530  012767  000026  171406  1$:     MOV     #26,TEMP1       ;CHAR TO BE SHIFTED
 1966  007536  012767  000010  171374          MOV     #8.,SHIFT       ;# OF SHIFTS
 1967  007544  004767  007250                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 1968  007550  105777  007540                  TSTB    @RXCSR  ;RXDONE ?
 1969  007554  100001                          BPL     2$
 1970  007556  104000                          HLT     ;RXDONE SHOULD NOT BE ASSERTED
 1971  007560                          2$:
 1972  007560  005367  171356                  DEC     COUNT   ;# OF SYNC CHARS
 1973  007564  001361                          BNE     1$
 1974  007566  104400                          SCOPE
 1975                                          ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
 1976                                          ;;OF THE RECEIVER LOGIC
 1977                                          ;;MODE:SYNINT
 1978                                          ;;LENGTH:FIVE
 1979                                          ;;NOTE: RXDONE SHOULD NEVER ASSERT
 1980                                          ;;CHAR: 26 (SYNC)
 1981                                          ;;
 1982  007570  012767  000031  171330  TST25:  MOV     #25,TSTNO       ;SAVE THIS
 1983  007576  012767  007754  171312          MOV     #TST26,NEXT             ;GO TO THIS TEST WHEN THRU
 1984  007604  052777  000400  007516          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1985  007612  012777  030000  007504          MOV     #SYNINT,@PARCSR ;SET THE MODE
 1986  007620  052777  000400  007502          BIS     #MRESET,@TXCSR  ;MASTER RESET
 1987
 1988                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
```

```
 1989  007626  012777  064001  007474          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 1990
 1991                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 1992  007634  012777  030026  007462          MOV     #SYNINT!FIVE!NOPAR!26,@PARCSR
 1993  007642  052777  000020  007444          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 1994                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
 1995  007650  042777  020000  007452          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1996  007656  052777  020000  007444          BIS     #CLK,@TXCSR     ;POKE CLK UP
 1997                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 1998  007664  042777  020000  007436          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 1999  007672  052777  020000  007430          BIS     #CLK,@TXCSR     ;POKE CLK UP
 2000  007700  052777  000400  007406          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 2001  007706  012767  000003  171226          MOV     #3,COUNT        ;# OF SYNC CHARS
 2002  007714  012767  000026  171222  1$:     MOV     #26,TEMP1       ;CHAR TO BE SHIFTED
 2003  007722  012767  000005  171210          MOV     #5,SHIFT        ;# OF SHIFTS
 2004  007730  004767  007064                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 2005  007734  105777  007354                  TSTB    @RXCSR  ;RXDONE ?
 2006  007740  100001                          BPL     2$
 2007  007742  104000                          HLT     ;RXDONE SHOULD NOT BE ASSERTED
 2008  007744                          2$:
 2009  007744  005367  171172                  DEC     COUNT   ;# OF SYNC CHARS
 2010  007750  001361                          BNE     1$
 2011  007752  104400                          SCOPE
 2012                                          ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
 2013                                          ;;OF THE RECEIVER LOGIC
 2014                                          ;;MODE:SYNINT
 2015                                          ;;LENGTH:SIX
 2016                                          ;;NOTE: RXDONE SHOULD NEVER ASSERT
 2017                                          ;;CHAR: 26 (SYNC)
 2018                                          ;;
 2019  007754  012767  000032  171144  TST26:  MOV     #26,TSTNO       ;SAVE THIS
 2020  007762  012767  010140  171126          MOV     #TST27,NEXT             ;GO TO THIS TEST WHEN THRU
 2021  007770  052777  000400  007332          BIS     #MRESET,@TXCSR  ;MASTER RESET
 2022  007776  012777  030000  007320          MOV     #SYNINT,@PARCSR ;SET THE MODE
 2023  010004  052777  000400  007316          BIS     #MRESET,@TXCSR  ;MASTER RESET
 2024
 2025                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 2026  010012  012777  064001  007310          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 2027
 2028                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 2029  010020  012777  032026  007276          MOV     #SYNINT!SIX!NOPAR!26,@PARCSR
 2030  010026  052777  000020  007260          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 2031                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
 2032  010034  042777  020000  007266          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 2033  010042  052777  020000  007260          BIS     #CLK,@TXCSR     ;POKE CLK UP
 2034                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 2035  010050  042777  020000  007252          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 2036  010056  052777  020000  007244          BIS     #CLK,@TXCSR     ;POKE CLK UP
 2037  010064  052777  000400  007222          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 2038  010072  012767  000003  171042          MOV     #3,COUNT        ;# OF SYNC CHARS
 2039  010100  012767  000026  171036  1$:     MOV     #26,TEMP1       ;CHAR TO BE SHIFTED
 2040  010106  012767  000006  171024          MOV     #6,SHIFT        ;# OF SHIFTS
 2041  010114  004767  006700                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 2042  010120  105777  007170                  TSTB    @RXCSR  ;RXDONE ?
 2043  010124  100001                          BPL     2$
 2044  010126  104000                          HLT     ;RXDONE SHOULD NOT BE ASSERTED
```

```
2045  010130                          1$:
2046  010130  005367  171006                DEC     COUNT   ;# OF SYNC CHARS
2047  010134  001361                        BNE     1$
2048  010136  104400                        SCOPE
2049                                        ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
2050                                        ;;OF THE RECEIVER LOGIC
2051                                        ;;MODE:SYNINT
2052                                        ;;LENGTH:SEVEN
2053                                        ;;NOTE: RXDONE SHOULD NEVER ASSERT
2054                                        ;;CHAR: 26 (SYNC)
2055                                        ;;
2056  010140  012767  000033  170760  TST27: MOV     #27,TSTNO       ;SAVE THIS
2057  010146  012767  010324  170742        MOV     #TST28,NEXT             ;GO TO THIS TEST WHEN THRU
2058  010154  052777  000400  007146        BIS     #MRESET,@TXCSR  ;MASTER RESET
2059  010162  012777  030000  007134        MOV     #SYNINT,@PARCSR ;SET THE MODE
2060  010170  052777  000400  007132        BIS     #MRESET,@TXCSR  ;MASTER RESET
2061
2062                                    ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2063  010176  012777  064001  007124        MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
2064
2065                                    ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2066  010204  012777  034026  007112        MOV     #SYNINT!SEVEN!NOPAR!26,@PARCSR
2067  010212  052777  000020  007074        BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
2068                                        ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
2069  010220  042777  020000  007102        BIC     #CLK,@TXCSR     ;POKE CLK DOWN
2070  010226  052777  020000  007074        BIS     #CLK,@TXCSR     ;POKE CLK UP
2071                                    ;POKE CLK TO GET LOGIC INTO SYNCRO..ZATION
2072  010234  042777  020000  007066        BIC     #CLK,@TXCSR     ;POKE CLK DOWN
2073  010242  052777  020000  007060        BIS     #CLK,@TXCSR     ;POKE CLK UP
2074  010250  052777  000400  007036        BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
2075  010256  012767  000003  170656        MOV     #3,COUNT        ;# OF SYNC CHARS
2076  010264  012767  000026  170652  1$:   MOV     #26,TEMP1       ;CHAR TO BE SHIFTED
2077  010272  012767  000007  170640        MOV     #7,SHIFT        ;# OF SHIFTS
2078  010300  004767  006514              JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
2079  010304  105777  007004              TSTB    @RXCSR  ;RXDONE ?
2080  010310  100001                      BPL     2$
2081  010312  104000                      HLT     ;RXDONE SHOULD NOT BE ASSERTED
2082  010314                          2$:
2083  010314  005367  170622                DEC     COUNT   ;# OF SYNC CHARS
2084  010320  001361                        BNE     1$
2085  010322  104400                        SCOPE
2086                                        ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
2087                                        ;;OF THE RECEIVER LOGIC
2088                                        ;;MODE:SYNINT
2089                                        ;;LENGTH:EIGHT
2090                                        ;;NOTE: RXDONE SHOULD NEVER ASSERT
2091                                        ;;CHAR: 26 (SYNC)
2092                                        ;;
2093  010324  012767  000034  170574  TST28: MOV     #28,TSTNO       ;SAVE THIS
2094  010332  012767  010510  170556        MOV     #TST29,NEXT             ;GO TO THIS TEST WHEN THRU
2095  010340  052777  000400  006762        BIS     #MRESET,@TXCSR  ;MASTER RESET
2096  010346  012777  030000  006750        MOV     #SYNINT,@PARCSR ;SET THE MODE
2097  010354  052777  000400  006746        BIS     #MRESET,@TXCSR  ;MASTER RESET
2098
2099                                    ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2100  010362  012777  064001  006740        MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
```

```
2101
2102                                            ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2103  010370  012777  036026  006726                    MOV     #SYNINT!EIGHT!NOPAR!26,@PARCSR
2104  010376  052777  000020  006710                    BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
2105                                                    ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
2106  010404  042777  020000  006716                    BIC     #CLK,@TXCSR     ;POKE CLK DOWN
2107  010412  052777  020000  006710                    BIS     #CLK,@TXCSR     ;POKE CLK UP
2108                                            ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2109  010420  042777  020000  006702                    BIC     #CLK,@TXCSR     ;POKE CLK DOWN
2110  010426  052777  020000  006674                    BIS     #CLK,@TXCSR     ;POKE CLK UP
2111  010434  052777  000400  006652                    BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
2112  010442  012767  000003  170472                    MOV     #3,COUNT        ;# OF SYNC CHARS
2113  010450  012767  000026  170466  1$:               MOV     #26,TEMP1       ;CHAR TO BE SHIFTED
2114  010456  012767  000010  170454                    MOV     #8.,SHIFT       ;# OF SHIFTS
2115  010464  004767  006330                          JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
2116  010470  105777  006620                          TSTB    @RXCSR  ;RXDONE
2117  010474  100001                                  BPL     2$
2118  010476  104000                                  HLT     ;RXDONE SHOULD NOT BE ASSERTED
2119  010500                                  2$:
2120  010500  005367  170436                          DEC     COUNT   ;# OF SYNC CHARS
2121  010504  001361                                  BNE     1$
2122  010506  104400                                  SCOPE
2123                                          ;;THIS TEST PROVES THAT RXERR FREEZES THE "RECEIVER RESET"
2124                                          ;;WHILE IN STRIP SYNC MODE
2125                                          ;;THIS TEST FIRST PROVES THAT AUTOMATIC RESETS OCCUR WHEN
2126                                          ;;STRIP SYNC IS SET & SYNC CHARACTERS ARE SENT
2127                                          ;;.....BUT IF AN ERROR SHOULD OCCUR....THIS AUTOMATIC RESET
2128                                          ;;IS DISCOMBOBULATED
2129                                          ;;IE. FORCE PARITY ERROR WHILE STRIP SYNC IS SET
2130                                          ;;NOTE: NORMALLY THE LOGIC RESETS THE RXDONE &ERROR FLAGS
2131                                          ;;PROVIDING THAT ONLY GOOD SYNC CHARACTERS ARE SENT....
2132                                          ;;BUT, IF AN RXERR OCCURS   RXDONE PLUS RXERR ARE ASSERTED
2133                                          ;;MODE: ISOC (ISYMOD)
2134                                          ;;LENGTH: EIGHT
2135                                          ;;PARITY: EVEPAR
2136                                          ;;CHARACTER EXPECTED:26
2137                                          ;;CHARACTER SENT: SYNC CHARACTER
2138                                          ;;NOTE: THIS TEST USES ONLY THE RECEIVER LOGIC
2139                                          ;;
2140  010510  012767  000035  170410  TST29:  MOV     #29,TSTNO       ;SAVE THIS
2141  010516  012767  011112  170372          MOV     #TST30,NEXT             ;GO TO THIS TEST WHEN THRU
2142  010524  052777  000400  006576          BIS     #MRESET,@TXCSR  ;MASTER RESET
2143  010532  012777  000000  006564          MOV     #ISYMOD,@PARCSR ;SET THE MODE
2144  010540  052777  000400  006562          BIS     #MRESET,@TXCSR  ;MASTER RESET
2145
2146                                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2147  010546  012777  064001  006554          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
2148
2149                                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2150  010554  012777  007426  006542          MOV     #ISYMOD!EIGHT!EVEPAR!26,@PARCSR
2151  010562  016703  006532                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MSG
2152  010566  012767  000003  170346          MOV     #3,COUNT        ;# OF TIMES SYNC CHAR WILL BE SENT
2153  010574  052777  000020  006512          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
2154                                                  ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
2155  010602  042777  020000  006520          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
2156  010610  052777  020000  006512          BIS     #CLK,@TXCSR     ;POKE CLK UP
```

```
2157                                        ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2158  010616  042777  020000  006504        BIC     #CLK,@TXCSR     ;POKE CLK DOWN
2159  010624  052777  020000  006476        BIS     #CLK,@TXCSR     ;POKE CLK UP
2160  010632  052777  000400  006454        BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
2161  010640  012767  000013  170272  2$:   MOV     #11.,SHIFT      ;# OF SHIFTS
2162  010646  012767  003054  170270        MOV     #3054,TEMP1     ;SYNC CHAR + START&STOP+ PARITY
2163  010654  004767  006140        1$:     JSR     PC,RPOKE        ;SHIFT IN THIS CHARACTER
2164  010660  105777  006430                TSTB    @RXCSR  ;RXDONE = 0 ?
2165  010664  100001                        BPL     64$
2166  010666  104000                        HLT     ;RXDONE SHOULD NOT BE SET
2167  010670                          64$:
2168  010670  005367  170246                DEC     COUNT   ;# OF  SYNC CHARS
2169  010674  001361                        BNE     2$      ;GO AGAIN ?
2170  010676  012700  000026                MOV     #26,R0  ;EXPECTED
2171  010702  017701  006412                MOV     @RXDBUF,R1      ;ACTUAL
2172                                                  ;NOTE THAT THIS IS THE FIRST TIME
2173                                                  ;RXDBUF IS READ.....THERE SHOULD BE
2174                                                  ;NO OVER RUN ERRORS
2175  010706  020001                        CMP     R0,R1   ;COMPARE EXPECTED VS ACTUAL
2176  010710  001401                        BEQ     65$
2177  010712  104002                        HLT     2       ;DATA CHARS SHOULD COMPARE
2178                                                  ;THERE SHOULD BE NO RXERR'S
2179  010714                          65$:
2180  010714  012767  000004  170220        MOV     #4,COUNT        ;# OF TIMES
2181  010722  012700  110026                MOV     #RXERR!PARER!26,R0      ;EXPECTED
2182  010726  012767  002054  170210        MOV     #2054,TEMP1     ;BAD SYNC CHAR (WRONG PARITY)
2183  010734  012767  000013  170176  3$:   MOV     #11.,SHIFT      ;# OF SHIFTS
2184  010742  004767  006052                JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
2185  010746  105777  006342                TSTB    @RXCSR  ;RXDONE = 1?
2186  010752  100401                        BMI     66$
2187  010754  104000                        HLT     ;RXDONE SHOULD BE SET
2188  010756                          66$:
2189  010756  017701  006336                MOV     @RXDBUF,R1      ;ACTUAL DATA
2190  010762  020001                        CMP     R0,R1   ;COMPARE EXP VS ACT
2191  010764  001401                        BEQ     67$
2192  010766  104002                        HLT     2       ;DID THE RESPECTIVE ERROR STOP THE
2193                                                  ;AUTOMATIC RESSETING OF RXDONE & ERROR FLAGS
2194                                                  ;.....CHECK THIS.....
2195  010770                          67$:
2196  010770  005367  170146                DEC     COUNT   ;# OF SYNC CHARS
2197  010774  001445                        BEQ     5$      ;FINISHED ? GET OUT OF TEST
2198  010776  022767  000003  170136        CMP     #3,COUNT        ;# OF SYNC CHARS
2199  011004  001423                        BEQ     6$      ;CHECK FRAME ERROR ?
2200  011006  022767  000002  170126        CMP     #2,COUNT        ;# OF SYNC CHARS
2201  011014  001426                        BEQ     7$      ;CHECK FRAME ERROR & BAD PARITY ?
2202                                        ;NOPE THEN IT (COUNT) MUST BE = 1  THEREFORE....
2203  011016  012767  000013  170114        MOV     #11.,SHIFT      ;# OF SHIFTS
2204  011024  012767  000054  170112        MOV     #54,TEMP1       ;FRAME & PARITY ERROR
2205  011032  004767  005762                JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
2206                                  ;NOW DON'T READ THE RXDBUF TO CREATE OVER RUN
2207  011036  012767  000054  170100        MOV     #54,TEMP1       ;FRAME & PARITY ERROR
2208  011044  012700  170026                MOV     #RXERR!OVRRUN!FRMERR!PARER!26,R0        ;EXPECTED
2209  011050  000167  177660                JMP     3$      ;DO IT AGAIN
2210  011054  012767  001054  170062  6$:   MOV     #1054,TEMP1     ;BAD STOP BIT  FOR FRAME ERROR
2211  011062  012700  120026                MOV     #RXERR!FRMERR!26,R0     ;EXPECTED
2212  011066  000167  177642                JMP     3$      ;DO IT AGAIN
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2213  011072  012767  000054  170044  7$:     MOV     #54,TEMP1       ;BAD STOP BIT & PARITY
2214  011100  012700  130026                  MOV     #RXERR!FRMERR!PARER!26,R0        ;EXPECTED
2215  011104  000167  177624                  JMP     3$      ;DO IT AGAIN
2216  011110  104400                  5$:     SCOPE
2217                                  ;;THIS TEST PROVES THAT RXERR FREEZES THE "RECEIVER RESET"
2218                                  ;;WHILE IN STRIP SYNC MODE
2219                                  ;;THIS TEST FIRST PROVES THAT AUTOMATIC RESETS OCCUR WHEN
2220                                  ;;STRIP SYNC IS SET & SYNC CHARACTERS ARE SENT
2221                                  ;;.....BUT IF AN ERROR SHOULD OCCUR....THIS AUTOMATIC RESET
2222                                  ;;IS DISCOMBOBULATED
2223                                  ;;IE. FORCE PARITY ERROR WHILE STRIP SYNC IS SET
2224                                  ;;NOTE: NORMALLY THE LOGIC RESETS THE RXDONE &ERROR FLAGS
2225                                  ;;PROVIDING THAT ONLY GOOD SYNC CHARACTERS ARE SENT....
2226                                  ;;BUT, IF AN RXERR OCCURS   RXDONE PLUS RXERR ARE ASSERTED
2227                                  ;;MODE: ISOC (ISYMOD)
2228                                  ;;LENGTH: SEVEN
2229                                  ;;PARITY: EVEPAR
2230                                  ;;CHARACTER EXPECTED:226
2231                                                  ;NOTE THAT THE PARITY BIT SHOULD SHOW
2232                                                  ;UP IN THE DATA     IE. BIT SEVEN FOR
2233                                                  ;SEVEN LEVEL CODE
2234                                  ;;CHARACTER SENT: SYNC CHARACTER
2235                                  ;;NOTE: THIS TEST USES ONLY THE RECEIVER LOGIC
2236                                  ;;
2237  011112  012767  000036  170006  TST30:  MOV     #30,TSTNO       ;SAVE THIS
2238  011120  012767  011514  167770          MOV     #TST31,NEXT             ;GO TO THIS TEST WHEN THRU
2239  011126  052777  000400  006174          BIS     #MRESET,@TXCSR  ;MASTER RESET
2240  011134  012777  000000  006162          MOV     #ISYMOD,@PARCSR ;SET THE MODE
2241  011142  052777  000400  006160          BIS     #MRESET,@TXCSR  ;MASTER RESET
2242
2243                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2244  011150  012777  064001  006152          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
2245
2246                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2247  011156  012777  005626  006140          MOV     #ISYMOD!SEVEN!EVEPAR!226,@PARCSR
2248  011164  016703  006130                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MSG
2249  011170  012767  000003  167744          MOV     #3,COUNT        ;# OF TIMES SYNC CHAR WILL BE SENT
2250  011176  052777  000020  006110          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
2251                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
2252  011204  042777  020000  006116          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
2253  011212  052777  020000  006110          BIS     #CLK,@TXCSR     ;POKE CLK UP
2254                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2255  011220  042777  020000  006102          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
2256  011226  052777  020000  006074          BIS     #CLK,@TXCSR     ;POKE CLK UP
2257  011234  052777  000400  006052          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
2258  011242  012767  000012  167670  2$:     MOV     #10.,SHIFT      ;# OF SHIFTS
2259  011250  012767  001454  167666          MOV     #1454,TEMP1     ;SYNC CHAR + START&STOP+ PARITY
2260  011256  004767  005536          1$:     JSR     PC,RPOKE        ;SHIFT IN THIS CHARACTER
2261  011262  105777  006026                  TSTB    @RXCSR  ;RXDONE = 0 ?
2262  011266  100001                          BPL     64$
2263  011270  104000                          HLT     ;RXDONE SHOULD NOT BE SET
2264  011272                          64$:
2265  011272  005367  167644                  DEC     COUNT   ;# OF  SYNC CHARS
2266  011276  001361                          BNE     2$      ;GO AGAIN ?
2267  011300  012700  000226                  MOV     #226,R0 ;EXPECTED
2268  011304  017701  006010                  MOV     @RXDBUF,R1      ;ACTUAL
```

```
2269                                                    ;NOTE THAT THIS IS THE FIRST TIME
2270                                                    ;RXDBUF IS READ.....THERE SHOULD BE
2271                                                    ;NO OVER RUN ERRORS
2272  011310  020001                           CMP     R0,R1   ;COMPARE EXPECTED VS ACTUAL
2273  011312  001401                           BEQ     65$
2274  011314  104002                           HLT     2       ;DATA CHARS SHOULD COMPARE
2275                                                    ;THERE SHOULD BE NO RXERR'S
2276  011316                          65$:
2277  011316  012767  000004  167616           MOV     #4,COUNT        ;# OF TIMES
2278  011324  012700  110026                   MOV     #RXERR!PARER!26,R0      ;EXPECTED
2279  011330  012767  001054  167606           MOV     #1054,TEMP1     ;BAD SYNC CHAR (WRONG PARITY)
2280  011336  012767  000012  167574  3$:      MOV     #10.,SHIFT      ;# OF SHIFTS
2281  011344  004767  005450                   JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
2282  011350  105777  005740                   TSTB    @RXCSR  ;RXDONE = 1?
2283  011354  100401                           BMI     66$
2284  011356  104000                           HLT     ;RXDONE SHOULD BE SET
2285  011360                          66$:
2286  011360  017701  005734                   MOV     @RXDBUF,R1      ;ACTUAL DATA
2287  011364  020001                           CMP     R0,R1   ;COMPARE EXP VS ACT
2288  011366  001401                           BEQ     67$
2289  011370  104002                           HLT     2       ;DID THE RESPECTIVE ERROR STOP THE
2290                                                    ;AUTOMATIC RESSETING OF RXDONE & ERROR FLAGS
2291                                                    ;.....CHECK THIS.....
2292  011372                          67$:
2293                                                    ;NOTE THAT THE PARITY BIT SHOULD
2294                                                    ;SHOW UP IN THE DATA
2295                                                    ;IE.  BIT SEVEN FOR SEVEN LEVEL CODE
2296  011372  005367  167544                   DEC     COUNT   ;# OF SYNC CHARS
2297  011376  001445                           BEQ     5$      ;FINISHED ? GET OUT OF TEST
2298  011400  022767  000003  167534           CMP     #3,COUNT        ;# OF SYNC CHARS
2299  011406  001423                           BEQ     6$      ;CHECK FRAME ERROR ?
2300  011410  022767  000002  167524           CMP     #2,COUNT        ;# OF SYNC CHARS
2301  011416  001426                           BEQ     7$      ;CHECK FRAME ERROR & BAD PARITY ?
2302                                                    ;NOPE THEN IT (COUNT) MUST BE = 1  THEREFORE....
2303  011420  012767  000012  167512           MOV     #10.,SHIFT      ;# OF SHIFTS
2304  011426  012767  000054  167510           MOV     #54,TEMP1       ;FRAME & PARITY ERROR
2305  011434  004767  005360                   JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
2306                                  ;NOW DON'T READ THE RXDBUF TO CREATE OVER RUN
2307  011440  012767  000054  167476           MOV     #54,TEMP1       ;FRAME & PARITY ERROR
2308  011446  012700  170026                   MOV     #RXERR!OVRRUN!FRMERR!PARER!26,R0        ;EXPECTED
2309  011452  000167  177660                   JMP     3$      ;DO IT AGAIN
2310  011456  012767  000454  167460  6$:      MOV     #454,TEMP1      ;BAD STOP BIT  FOR FRAME ERROR
2311  011464  012700  120226                   MOV     #RXERR!FRMERR!226,R0    ;EXPECTED
2312  011470  000167  177642                   JMP     3$      ;DO IT AGAIN
2313  011474  012767  000054  167442  7$:      MOV     #54,TEMP1       ;BAD STOP BIT & PARITY
2314  011502  012700  130026                   MOV     #RXERR!FRMERR!PARER!26,R0       ;EXPECTED
2315  011506  000167  177624                   JMP     3$      ;DO IT AGAIN
2316  011512  104400                  5$:      SCOPE
2317                                  ;;THIS TEST PROVES THAT RXERR FREEZES THE "RECEIVER RESET"
2318                                  ;;WHILE IN STRIP SYNC MODE
2319                                  ;;THIS TEST FIRST PROVES THAT AUTOMATIC RESETS OCCUR WHEN
2320                                  ;;STRIP SYNC IS SET & SYNC CHARACTERS ARE SENT
2321                                  ;;.....BUT IF AN ERROR SHOULD OCCUR....THIS AUTOMATIC RESET
2322                                  ;;IS DISCOMBOBULATED
2323                                  ;;IE. FORCE PARITY ERROR WHILE STRIP SYNC IS SET
2324                                  ;;NOTE: NORMALLY THE LOGIC RESETS THE RxDONE &ERROR FLAGS
```

```
 2325                                   ;;PROVIDING THAT ONLY GOOD SYNC CHARACTERS ARE SENT....
 2326                                   ;;BUT, IF AN RXERR OCCURS   RXDONE PLUS RXERR ARE ASSERTED
 2327                                   ;;MODE: ISOC (ISYMOD)
 2328                                   ;;LENGTH: SIX
 2329                                   ;;PARITY: EVEPAR
 2330                                   ;;CHARACTER EXPECTED:126
 2331                                                   ;NOTE THAT THE PARITY BIT SHOULD SHOW
 2332                                                   ;UP IN THE DATA     IE. BIT SIX FOR
 2333                                                   ;SIX LEVEL CODE
 2334                                   ;;CHARACTER SENT: SYNC CHARACTER
 2335                                   ;;NOTE: THIS TEST USES ONLY THE RECEIVER LOGIC
 2336                                   ;;
 2337  011514  012767  000037  167404  TST31:  MOV     #31,TSTNO       ;SAVE THIS
 2338  011522  012767  012116  167366          MOV     #TST32,NEXT             ;GO TO THIS TEST WHEN THRU
 2339  011530  052777  000400  005572          BIS     #MRESET,@TXCSR  ;MASTER RESET
 2340  011536  012777  000000  005560          MOV     #ISYMOD,@PARCSR ;SET THE MODE
 2341  011544  052777  000400  005556          BIS     #MRESET,@TXCSR  ;MASTER RESET
 2342
 2343                                   ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 2344  011552  012777  064001  005550          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 2345
 2346                                   ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 2347  011560  012777  003526  005536          MOV     #ISYMOD!SIX!EVEPAR!126,@PARCSR
 2348  011566  016703  005526                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MSG
 2349  011572  012767  000003  167342          MOV     #3,COUNT        ;# OF TIMES SYNC CHAR WILL BE SENT
 2350  011600  052777  000020  005506          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 2351                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
 2352  011606  042777  020000  005514          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 2353  011614  052777  020000  005506          BIS     #CLK,@TXCSR     ;POKE CLK UP
 2354                                   ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 2355  011622  042777  020000  005500          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 2356  011630  052777  020000  005472          BIS     #CLK,@TXCSR     ;POKE CLK UP
 2357  011636  052777  000400  005450          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 2358  011644  012767  000011  167266  2$:     MOV     #9.,SHIFT       ;# OF SHIFTS
 2359  011652  012767  000654  167264          MOV     #654,TEMP1      ;SYNC CHAR + START&STOP+ PARITY
 2360  011660  004767  005134          1$:     JSR     PC,RPOKE        ;SHIFT IN THIS CHARACTER
 2361  011664  105777  005424                  TSTB    @RXCSR  ;RXDONE = 0 ?
 2362  011670  100001                          BPL     64$
 2363  011672  104000                          HLT     ;RXDONE SHOULD NOT BE SET
 2364  011674                          64$:
 2365  011674  005367  167242                  DEC     COUNT   ;# OF  SYNC CHARS
 2366  011700  001361                          BNE     2$      ;GO AGAIN ?
 2367  011702  012700  000126                  MOV     #126,R0 ;EXPECTED
 2368  011706  017701  005406                  MOV     @RXDBUF,R1      ;ACTUAL
 2369                                                  ;NOTE THAT THIS IS THE FIRST TIME
 2370                                                  ;RXDBUF IS READ.....THERE SHOULD BE
 2371                                                  ;NO OVER RUN ERRORS
 2372  011712  020001                          CMP     R0,R1   ;COMPARE EXPECTED VS ACTUAL
 2373  011714  001401                          BEQ     65$
 2374  011716  104002                          HLT     2       ;DATA CHARS SHOULD COMPARE
 2375                                                  ;THERE SHOULD BE NO RXERR'S
 2376  011720                          65$:
 2377  011720  012767  000004  167214          MOV     #4,COUNT        ;# OF TIMES
 2378  011726  012700  110026                  MOV     #RXERR!PARER!26,R0      ;EXPECTED
 2379  011732  012767  000454  167204          MOV     #454,TEMP1      ;BAD SYNC CHAR (WRONG PARITY)
 2380  011740  012767  000011  167172  3$:     MOV     #9.,SHIFT       ;# OF SHIFTS
```

```
2381  011746  004767  005046                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
2382  011752  105777  005336                  TSTB    @RXCSR  ;RXDONE = 1?
2383  011756  100401                          BMI     66$
2384  011760  104000                          HLT     ;RXDONE SHOULD BE SET
2385  011762                          66$:
2386  011762  017701  005332                  MOV     @RXDBUF,R1      ;ACTUAL DATA
2387  011766  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
2388  011770  001401                          BEQ     67$
2389  011772  104002                          HLT     2       ;DID THE RESPECTIVE ERROR STOP THE
2390                                          ;AUTOMATIC RESSETING OF RXDONE & ERROR FLAGS
2391                                          ;.....CHECK THIS.....
2392  011774                          67$:
2393                                          ;NOTE THAT THE PARITY BIT SHOULD
2394                                          ;SHOW UP IN THE DATA
2395                                          ;IE.  BIT SIX FOR SIX LEVEL CODE
2396  011774  005367  167142                  DEC     COUNT   ;# OF SYNC CHARS
2397  012000  001445                          BEQ     5$      ;FINISHED ? GET OUT OF TEST
2398  012002  022767  000003  167132          CMP     #3,COUNT        ;# OF SYNC CHARS
2399  012010  001423                          BEQ     6$      ;CHECK FRAME ERROR ?
2400  012012  022767  000002  167122          CMP     #2,COUNT        ;# OF SYNC CHARS
2401  012020  001426                          BEQ     7$      ;CHECK FRAME ERROR & BAD PARITY ?
2402                                  ;NOPE THEN IT (COUNT) MUST BE = 1  THEREFORE....
2403  012022  012767  000011  167110          MOV     #9.,SHIFT       ;# OF SHIFTS
2404  012030  012767  000054  167106          MOV     #54,TEMP1       ;FRAME & PARITY ERROR
2405  012036  004767  004756                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
2406                          ;NOW DON'T READ THE RXDBUF TO CREATE OVER RUN
2407  012042  012767  000054  167074          MOV     #54,TEMP1       ;FRAME & PARITY ERROR
2408  012050  012700  170026                  MOV     #RXERR!OVRRUN!FRMERR!PARER!26,R0        ;EXPECTED
2409  012054  000167  177660                  JMP     3$      ;DO IT AGAIN
2410  012060  012767  000254  167056  6$:     MOV     #254,TEMP1      ;BAD STOP BIT  FOR FRAME ERROR
2411  012066  012700  120126                  MOV     #RXERR!FRMERR!126,R0    ;EXPECTED
2412  012072  000167  177642                  JMP     3$      ;DO IT AGAIN
2413  012076  012767  000054  167040  7$:     MOV     #54,TEMP1       ;BAD STOP BIT & PARITY
2414  012104  012700  130026                  MOV     #RXERR!FRMERR!PARER!26,R0       ;EXPECTED
2415  012110  000167  177624                  JMP     3$      ;DO IT AGAIN
2416  012114  104400                  5$:     SCOPE
2417                                  ;;THIS TEST PROVES THAT RXERR FREEZES THE "RECEIVER RESET"
2418                                  ;;WHILE IN STRIP SYNC MODE
2419                                  ;;THIS TEST FIRST PROVES THAT AUTOMATIC RESETS OCCUR WHEN
2420                                  ;;STRIP SYNC IS SET & SYNC CHARACTERS ARE SENT
2421                                  ;;.....BUT IF AN ERROR SHOULD OCCUR....THIS AUTOMATIC RESET
2422                                  ;;IS DISCOMBOBULATED
2423                                  ;;IE. FORCE PARITY ERROR WHILE STRIP SYNC IS SET
2424                                  ;;NOTE: NORMALLY THE LOGIC RESETS THE RXDONE &ERROR FLAGS
2425                                  ;;PROVIDING THAT ONLY GOOD SYNC CHARACTERS ARE SENT....
2426                                  ;;BUT, IF AN RXERR OCCURS   RXDONE PLUS RXERR ARE ASSERTED
2427                                  ;;MODE: ISOC (ISYMOD)
2428                                  ;;LENGTH: FIVE
2429                                  ;;PARITY: EVEPAR
2430                                  ;;CHARACTER EXPECTED:66
2431                                                  ;NOTE THAT THE PARITY BIT SHOULD SHOW
2432                                                  ;UP IN THE DATA     IE. BIT FIVE FOR
2433                                                  ;FIVE LEVEL CODE
2434                                  ;;CHARACTER SENT: SYNC CHARACTER
2435                                  ;;NOTE: THIS TEST USES ONLY THE RECEIVER LOGIC
2436                                  ;;
```

```
 2437  012116  012767  000040  167002  TST32:  MOV     #32,TSTNO       ;SAVE THIS
 2438  012124  012767  012520  166764          MOV     #.EOP,NEXT              ;GO TO THIS TEST WHEN THRU
 2439  012132  052777  000400  005170          BIS     #MRESET,@TXCSR  ;MASTER RESET
 2440  012140  012777  000000  005156          MOV     #ISYMOD,@PARCSR ;SET THE MODE
 2441  012146  052777  000400  005154          BIS     #MRESET,@TXCSR  ;MASTER RESET
 2442
 2443                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 2444  012154  012777  064001  005146          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 2445
 2446                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 2447  012162  012777  001466  005134          MOV     #ISYMOD!FIVE!EVEPAR!66,@PARCSR
 2448  012170  016703  005124                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MSG
 2449  012174  012767  000003  166740          MOV     #3,COUNT        ;# OF TIMES SYNC CHAR WILL BE SENT
 2450  012202  052777  000020  005104          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
 2451                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
 2452  012210  042777  020000  005112          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 2453  012216  052777  020000  005104          BIS     #CLK,@TXCSR     ;POKE CLK UP
 2454                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 2455  012224  042777  020000  005076          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 2456  012232  052777  020000  005070          BIS     #CLK,@TXCSR     ;POKE CLK UP
 2457  012240  052777  000400  005046          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
 2458  012246  012767  000010  166664  2$:     MOV     #8.,SHIFT       ;# OF SHIFTS
 2459  012254  012767  000354  166662          MOV     #354,TEMP1      ;SYNC CHAR + START&STOP+ PARITY
 2460  012262  004767  004532          1$:     JSR     PC,RPOKE        ;SHIFT IN THIS CHARACTER
 2461  012266  105777  005022                  TSTB    @RXCSR  ;RXDONE = 0 ?
 2462  012272  100001                          BPL     64$
 2463  012274  104000                          HLT     ;RXDONE SHOULD NOT BE SET
 2464  012276                          64$:
 2465  012276  005367  166640                  DEC     COUNT   ;# OF  SYNC CHARS
 2466  012302  001361                          BNE     2$      ;GO AGAIN ?
 2467  012304  012700  000066                  MOV     #66,R0  ;EXPECTED
 2468  012310  017701  005004                  MOV     @RXDBUF,R1      ;ACTUAL
 2469                                          ;NOTE THAT THIS IS THE FIRST TIME
 2470                                          ;RXDBUF IS READ.....THERE SHOULD BE
 2471                                          ;NO OVER RUN ERRORS
 2472  012314  020001                          CMP     R0,R1   ;COMPARE EXPECTED VS ACTUAL
 2473  012316  001401                          BEQ     65$
 2474  012320  104002                          HLT     2       ;DATA CHARS SHOULD COMPARE
 2475                                          ;THERE SHOULD BE NO RXERR'S
 2476  012322                          65$:
 2477  012322  012767  000004  166612          MOV     #4,COUNT        ;# OF TIMES
 2478  012330  012700  110026                  MOV     #RXERR!PARER!26,R0      ;EXPECTED
 2479  012334  012767  000254  166602          MOV     #254,TEMP1      ;BAD SYNC CHAR (WRONG PARITY)
 2480  012342  012767  000010  166570  3$:     MOV     #8.,SHIFT       ;# OF SHIFTS
 2481  012350  004767  004444                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
 2482  012354  105777  004734                  TSTB    @RXCSR  ;RXDONE = 1?
 2483  012360  100401                          BMI     66$
 2484  012362  104000                          HLT     ;RXDONE SHOULD BE SET
 2485  012364                          66$:
 2486  012364  017701  004730                  MOV     @RXDBUF,R1      ;ACTUAL DATA
 2487  012370  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
 2488  012372  001401                          BEQ     67$
 2489  012374  104002                          HLT     2       ;DID THE RESPECTIVE ERROR STOP THE
 2490                                          ;AUTOMATIC RESSETING OF RXDONE & ERROR FLAGS
 2491                                          ;.....CHECK THIS.....
 2492  012376                          67$:
```

```
2493                                                    ;NOTE THAT THE PARITY BIT SHOULD
2494                                                    ;SHOW UP IN THE DATA
2495                                                    ;IE.  BIT FIVE FOR FIVE LEVEL CODE
2496  012376  005367  166540                  DEC     COUNT   ;# OF SYNC CHARS
2497  012402  001445                          BEQ     5$      ;FINISHED ? GET OUT OF TEST
2498  012404  022767  000003  166530          CMP     #3,COUNT        ;# OF SYNC CHARS
2499  012412  001423                          BEQ     6$      ;CHECK FRAME ERROR ?
2500  012414  022767  000002  166520          CMP     #2,COUNT        ;# OF SYNC CHARS
2501  012422  001426                          BEQ     7$      ;CHECK FRAME ERROR & BAD PARITY ?
2502                                          ;NOPE THEN IT (COUNT) MUST BE = 1  THEREFORE....
2503  012424  012767  000010  166506          MOV     #8.,SHIFT       ;# OF SHIFTS
2504  012432  012767  000054  166504          MOV     #54,TEMP1       ;FRAME & PARITY ERROR
2505  012440  004767  004354                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
2506                                  ;NOW DON'T READ THE RXDBUF TO CREATE OVER RUN
2507  012444  012767  000054  166472          MOV     #54,TEMP1       ;FRAME & PARITY ERROR
2508  012452  012700  170026                  MOV     #RXERR!OVRRUN!FRMERR!PARER!26,R0        ;EXPECTED
2509  012456  000167  177660                  JMP     3$      ;DO IT AGAIN
2510  012462  012767  000154  166454  6$:     MOV     #154,TEMP1      ;BAD STOP BIT  FOR FRAME ERROR
2511  012470  012700  120066                  MOV     #RXERR!FRMERR!66,R0     ;EXPECTED
2512  012474  000167  177642                  JMP     3$      ;DO IT AGAIN
2513  012500  012767  000054  166436  7$:     MOV     #54,TEMP1       ;BAD STOP BIT & PARITY
2514  012506  012700  130026                  MOV     #RXERR!FRMERR!PARER!26,R0       ;EXPECTED
2515  012512  000167  177624                  JMP     3$      ;DO IT AGAIN
2516  012516  104400                  5$:     SCOPE
```

```
                                        ;END OF PASS
                                        ;TYPE NAME OF TEST
                                        ;UPDATE PASS COUNT
                                        ;CHECK FOR EXIT TO ACT-11
                                        ;RESTART TEST

012520  104402                .EOP:   TYPE                            ;TYPE NAME OF TEST
012522  015662                        MEPASS
012524  104410  012756                CONVRT  ,OUTCRY
012530  104402  015403                TYPE    ,DEVICE
012534  105767  166442                TSTB    MULTD                   ;ARE YOU RUNNING MULTIPLE DEVICES ?
012540  001511                        BEQ     CCC                     ;NO,JUMP AROUND
012542  005767  166450                TST     ACTREG                  ;ARE ANY DEVICES ACTIVE ?
012546  001007                        BNE     RUNIT                   ;YES
012550  104402  015415                TYPE    ,MCOW                   ;NO
012554  016700  166436                MOV     ACTREG,R0               ;DISPLAY ACTREG
012560  000000                        HALT                            ;SELECT SOMETHING TO RUN @ ACTREG:
                                        ;SELECT SWITCHES & HIT CONTINUE (PUT SW00 =1)
012562  000167  166472                JMP     .START                  ;START OVER AGAIN.....YOU DESELECTED EVERYTHING
012566  062767  000010  166410  RUNIT:  ADD     #10,BASEADD             ;NEXT BLOCK (ADDRESSES)
012574  062767  000010  166410  ZERO:   ADD     #10,BASEIV              ;NEXT BLOCK (VECTORS)
012602  000241                        CLC
012604  006167  166410                ROL     ROTADD                  ;UP DATE ROTATING POINTER
012610  103410                        BCS     2$                      ;IS IT THE LAST DEVICE
                                                                        ;TO BE TESTED IN THIS PASS ?
012612  036767  166402  166376        BIT     ROTADD,ACTREG           ;TEST THIS DEVICE FOR ACTIVE STATUS
012620  001762                        BEQ     RUNIT                   ;IF NOT ACTIVE, TRY NEXT ADDRESS
012622  004767  000034                JSR     PC,REPLAY               ;CALCULATE NEW PARAMETERS
012626  000167  000174                JMP     RESTRT                  ;YES IT WAS ACTIVE,TEST THIS DEVICE
012632  012767  000001  166360  2$:   MOV     #1,ROTADD               ;OK!,NOW SET UP  ROTATING
                                                                        ;POINTER FOR NEXT MULTIPLE PASS
012640  016767  166342  166336        MOV     KEEPADD,BASEADD         ;RESTORE BASE ADDRESS
012646  016767  166342  166336        MOV     KEEPIV,BASEIV           ;RESTORE BASE INTERRUPT VECTORS
012654  004767  000002                JSR     PC,REPLAY               ;CALC NEW PARAMETERS
012660  000441                        BR      CCC                     ;JUMP AROUND REPLAY
012662  016767  166316  004126  REPLAY: MOV     BASEADD,DUBASE          ;SET UP FOR NEW ADDRESSES
012670  004767  003770                JSR     PC,DUADDR               ;CREATE NEW ADDRESSES
012674  016767  166312  004436        MOV     BASEIV,DURIV            ;CREATE DURIV
012702  062767  000002  166302        ADD     #2,BASEIV
012710  016767  166276  004424        MOV     BASEIV,DURIS            ;CREATE DURIS
012716  062767  000002  166266        ADD     #2,BASEIV
012724  016767  166262  004412        MOV     BASEIV,DUTIV            ;CREATE DUTIV
012732  062767  000002  166252        ADD     #2,BASEIV
012740  016767  166246  004400        MOV     BASEIV,DUTIS            ;CREATE DUTIS
012746  016767  004366  166236        MOV     DURIV,BASEIV            ;RESTORE
012754  000207                        RTS     PC

012756  000001                OUTCRY: 1
012760     006      002                .BYTE   6,2
012762  017314                        RXCSR

012764                          CCC:
012764  005067  166144                CLR     LSTERR                  ;CLEAR LAST ERROR PC
012770  005067  166230                CLR     ERRFLG                  ;CLEAR ERROR FLAG
012774  005267  166130                INC     PASCNT                  ;UPDATE PASS COUNT
```

```
 2573  013000  016777  166124  166074          MOV     PASCNT,@LIGHTS          ;DISPLAY PASS COUNT
 2574  013006  013701  000042                  MOV     @#42,R1                 ;CHECK FOR ACT-11 OR DDP
 2575  013012  001405                          BEQ     RESTRT                  ;IF NOT, CONTINUE TESTING
 2576  013014  000005                          RESET
 2577  013016  004711                  LOGICAL:        JSR     PC,(R1)
 2578  013020  000240                          NOP
 2579  013022  000240                          NOP
 2580  013024  000240                          NOP
 2581  013026  012767  000340  164742  RESTRT: MOV     #340,PS                 ;PREVENT INTERRUPTS (PRIO: 7)
 2582  013034  104413                          CKSWR                           ;CHECK FOR ↑G
 2583  013036  012767  002350  166050          MOV     #TST1,RTRN
 2584  013044  000167  167300                  JMP     TST1
 2585
 2586                                          ;SCOPE LOOP AND INTERATION HANDLER
 2587
 2588  013050                          .SCOPE:
 2589                                  ;**** START OF CODE FOR THE X OR TESTER ******
 2590  013050  000424                          BR      4$                      ;IF RUNNING ON THE X OR TESTER CHANGE
 2591                                                                          ;THIS INSTRUCTION TO A "NOP"(NOP=240)
 2592  013052  013746  000004                  MOV     @#4,-(SP)               ;SAVE CONTENTS OF ERROR VECTOR
 2593  013056  012737  013076  000004          MOV     #1$,@#4                 ;SET FOR TIME OUT
 2594  013064  005737  177060                  TST     @#177060                ;TIME OUT ON  X OR ?
 2595  013070  012637  000004                  MOV     (SP)+,@#4               ;RESTORE ERROR VECTOR
 2596  013074  000404                          BR      2$                      ;GO TO NEXT TEST
 2597  013076  022626                  1$:     CMP     (SP)+,(SP)+             ;CLEAR THE STACK AFTER A TIMEOUT
 2598  013100  012637  000004                  MOV     (SP)+,@#4               ;RESTORE ERROR VECTOR
 2599  013104  000403                          BR      3$                      ;LOOP ON PRESENT TEST
 2600  013106  016767  166004  166000  2$:     MOV     NEXT,RTRN               ;SET UP NEXT TEST IN RTRN
 2601  013114  016716  165774          3$:     MOV     RTRN,(SP)               ;SET UP STACK FOR RTI
 2602  013120  000002                          RTI
 2603  013122                          4$:     ;**** END OF CODE FOR THE  X OR TESTER ******
 2604  013122  104413                          CKSWR                           ;CHECK FOR ↑G
 2605  013124  032777  040000  165746          BIT     #SW14,@SWR              ;LOOP ON CURRENT TEST ?
 2606  013132  001407                  TTST:   BEQ     1$
 2607  013134  000432                          BR      3$
 2608  013136  105777  165742                  TSTB    @TKCSR                  ;TEST TTY FLAG
 2609  013142  100027                          BPL     3$
 2610  013144  017700  165736                  MOV     @TKDBR,R0               ;CLR DONE BIT
 2611  013150  000412                          BR      2$                      ;IF A TTY KEY IS STRUCK GO TO NEXT TST
 2612  013152  032777  004000  165720  1$:     BIT     #SW11,@SWR              ;INHIBIT ITERATIONS ?
 2613  013160  001006                          BNE     2$
 2614  013162  005267  165736                  INC     LPCNT
 2615  013166  026767  165732  165726          CMP     LPCNT,ICOUNT            ;CHECK FOR ITERATION CNT FINISH
 2616  013174  101412                          BLOS    3$
 2617  013176  105067  166022          2$:     CLRB    ERRFLG
 2618  013202  005067  165716                  CLR     LPCNT
 2619  013206  012767  000005  165706          MOV     #5,ICOUNT               ;SET UP ITERATION COUNT
 2620  013214  016767  165676  165672          MOV     NEXT,RTRN               ;SET UP NEXT TEST IN RTRN
 2621  013222  016716  165666          3$:     MOV     RTRN,(SP)               ;SET UP STACK FOR RTI
 2622  013226  000002                          RTI
 2623  013230  001407                  BRW:    1407                            ;RESTORE "BEQ 1$" INSTRUCTION
 2624  013232  000432                  BRX:    432                             ;RESTORE "BR 3$" INSTRUCTION
 2625
 2626                                          ;CHECK FOR FREEZE ON CURRENT DATA
 2627
 2628  013234  104413                  .SCOP1: CKSWR                           ;CHECK  FOR ↑G
```

```
 2629  013236  032777  001000  165634          BIT     #SW09,@SWR
 2630  013244  001402                          BEQ     1$
 2631  013246  016716  165646                  MOV     LOCK,(SP)
 2632  013252  000002                  1$:     RTI
 2633
 2634                                          ;TELETYPE OUTPUT ROUTINE
 2635
 2636  013254  010546                  .TYPE:  MOV     R5,-(SP)
 2637  013256  017605  000002                  MOV     @2(SP),R5
 2638  013262  062766  000002  000002          ADD     #2,2(SP)
 2639  013270  105715                  1$:     TSTB    (R5)                    ;LOOK FOR "0"
 2640  013272  001406                          BEQ     3$
 2641  013274  105777  165610          2$:     TSTB    @TPCSR                  ;TEST DONE BIT
 2642  013300  100375                          BPL     2$
 2643  013302  112577  165604                  MOVB    (R5)+,@TPDBR            ;TYPE CHAR
 2644  013306  000770                          BR      1$                      ;DO IT AGAIN UNTIL "0" IS SEEN
 2645  013310  012605                  3$:     MOV     (SP)+,R5
 2646  013312  000002                          RTI
 2647
 2648                                          ;ASCII STRING INPUT ROUTINE
 2649
 2650  013314  010346                  .INSTR: MOV     R3,-(SP)
 2651  013316  010446                          MOV     R4,-(SP)
 2652  013320  017667  000004  000010          MOV     @4(SP),.MSG
 2653  013326  062766  000002  000004          ADD     #2,4(SP)
 2654  013334  104402                  .INST1: TYPE
 2655  013336  000000                  .MSG:   0
 2656  013340  012704  016450                  MOV     #INBUF,R4
 2657  013344  012703  000007                  MOV     #7,R3
 2658  013350  105777  165530          1$:     TSTB    @TKCSR
 2659  013354  100375                          BPL     1$
 2660  013356  117714  165524                  MOVB    @TKDBR,(R4)
 2661  013362  142714  000200                  BICB    #200,(R4)
 2662  013366  121427  000025                  CMPB    (R4),#25                ;IS IT <↑U>
 2663  013372  001003                          BNE     200$
 2664  013374  104402  015572                  TYPE,MCRLF
 2665  013400  000755                          BR      .INST1
 2666  013402  122427  000015          200$:   CMPB    (R4)+,#15
 2667  013406  001423                          BEQ     INSTR2
 2668  013410  117777  165472  165474          MOVB    @TKDBR,@TPDBR
 2669  013416  105777  165466          2$:     TSTB    @TPCSR
 2670  013422  100375                          BPL     2$
 2671  013424  005303                          DEC     R3
 2672  013426  001350                          BNE     1$
 2673  013430  000402                          BR      .INSTG
 2674  013432  010346                  .INSTE: MOV     R3,-(SP)
 2675  013434  010446                          MOV     R4,-(SP)
 2676  013436  104402                  .INSTG: TYPE
 2677  013440  015566                          MQM
 2678  013442  005737  014730                  TST     @#RDSW
 2679  013446  001402                          BEQ     400$
 2680  013450  104402  015572                  TYPE,MCRLF
 2681  013454  000727                  400$:   BR      .INST1
 2682  013456  012604                  INSTR2: MOV     (SP)+,R4
 2683  013460  012603                          MOV     (SP)+,R3
 2684  013462  000002                          RTI
```

```
2685
2686                                        ;CONVERT ASCII STRING TO OCTAL
2687
2688  013464  010546                .PARAM: MOV     R5,-(SP)
2689  013466  010446                        MOV     R4,-(SP)
2690  013470  016605  000004                MOV     4(SP),R5
2691  013474  012567  000170                MOV     (R5)+,LOLIM
2692  013500  012567  000166                MOV     (R5)+,HILIM
2693  013504  012567  000164                MOV     (R5)+,DEVADR
2694  013510  112567  000162                MOVB    (R5)+,LOBITS
2695  013514  112567  000157                MOVB    (R5)+,ADRCNT
2696  013520  010566  000004                MOV     R5,4(SP)
2697  013524  005005                PARAM1: CLR     R5
2698  013526  012704  016450                MOV     #INBUF,R4
2699  013532  122714  000015                CMPB    #15,(R4)
2700  013536  001420                        BEQ     PARERR
2701  013540  121427  000060        1$:     CMPB    (R4),#60
2702  013544  002415                        BLT     PARERR
2703  013546  121427  000067                CMPB    (R4),#67
2704  013552  003012                        BGT     PARERR
2705  013554  142714  000060                BICB    #60,(R4)
2706  013560  152405                        BISB    (R4)+,R5
2707  013562  122714  000015                CMPB    #15,(R4)
2708  013566  001414                        BEQ     LIMITS
2709  013570  006305                        ASL     R5
2710  013572  006305                        ASL     R5
2711  013574  006305                        ASL     R5
2712  013576  000760                        BR      1$
2713  013600  122714  000015        PARERR: CMPB    #15,(R4)                ;IS FIRST CHARACTER A <CR>
2714  013604  001003                        BNE     120$
2715  013606  005737  014730                TST     @#RDSW                  ;IS CKSWR ROUTINE BEING USED
2716  013612  001023                        BNE     PARTI
2717  013614  104404                120$:   INSTER
2718  013616  000742                        BR      PARAM1
2719
2720                                        ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
2721
2722  013620  020567  000046        LIMITS: CMP     R5,HILIM
2723  013624  101365                        BHI     PARERR
2724  013626  020567  000036                CMP     R5,LOLIM
2725  013632  103762                        BLO     PARERR
2726  013634  136705  000036                BITB    LOBITS,R5
2727  013640  001357                        BNE     PARERR
2728
2729                                        ;STORE NUMBER AT SPECIFIED ADDRESS
2730
2731  013642  016704  000026                MOV     DEVADR,R4
2732  013646  010524                1$:     MOV     R5,(R4)+
2733  013650  062705  000002                ADD     #2,R5
2734  013654  105367  000017                DECB    ADRCNT
2735  013660  001372                        BNE     1$
2736  013662  012604                PARTI:  MOV     (SP)+,R4
2737  013664  012605                        MOV     (SP)+,R5
2738  013666  000002                        RTI
2739  013670  000000                LOLIM:  0
2740  013672  000000                HILIM:  0
```

```
2741  013674  000000                  DEVADR: 0
2742  013676  000000                  LOBITS: 0
2743          013677                  ADRCNT=LOBITS+1
2744
2745                                          ;SAVE PC OF TEST THAT FAILED AND R0-R5
2746
2747  013700  016667  000004  165266  .SAV05: MOV     4(SP),SAVPC
2748
2749                                          ;SAVE R0-R5
2750
2751  013706  010567  165256          SV05:   MOV     R5,SAVR5
2752  013712  010467  165250                  MOV     R4,SAVR4
2753  013716  010367  165242                  MOV     R3,SAVR3
2754  013722  010267  165234                  MOV     R2,SAVR2
2755  013726  010167  165226                  MOV     R1,SAVR1
2756  013732  010067  165220                  MOV     R0,SAVR0
2757  013736  000002                          RTI
2758
2759                                          ;RESTORE R0-R5
2760
2761  013740  016700  165212          .RES05: MOV     SAVR0,R0
2762  013744  016701  165210                  MOV     SAVR1,R1
2763  013750  016702  165206                  MOV     SAVR2,R2
2764  013754  016703  165204                  MOV     SAVR3,R3
2765  013760  016704  165202                  MOV     SAVR4,R4
2766  013764  016705  165200                  MOV     SAVR5,R5
2767  013770  000002                          RTI
2768
2769                                          ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
2770
2771  013772  104402                  .CONVR: TYPE
2772  013774  015572                          MCRLF
2773  013776  010046                  .CNVRT: MOV     R0,-(SP)
2774  014000  010146                          MOV     R1,-(SP)
2775  014002  010346                          MOV     R3,-(SP)
2776  014004  010446                          MOV     R4,-(SP)
2777  014006  010546                          MOV     R5,-(SP)
2778  014010  017601  000012                  MOV     @12(SP),R1
2779  014014  016767  002470  165126          MOV     TEMP,TEMP3
2780  014022  062766  000002  000012          ADD     #2,12(SP)
2781  014030  012167  000154                  MOV     (R1)+,WRDCNT
2782  014034  112167  000152          1$:     MOVB    (R1)+,CHRCNT
2783  014040  112167  000147                  MOVB    (R1)+,SPACNT
2784  014044  013167  000144                  MOV     @(R1)+,BINWRD
2785  014050  016704  000140          2$:     MOV     BINWRD,R4
2786  014054  116705  000132                  MOVB    CHRCNT,R5
2787  014060  012700  016510                  MOV     #TEMP,R0
2788  014064  010403                  3$:     MOV     R4,R3
2789  014066  042703  177770                  BIC     #177770,R3
2790  014072  062703  000060                  ADD     #060,R3
2791  014076  110320                          MOVB    R3,(R0)+
2792  014100  006204                          ASR     R4                      ;SHIFT FOR NEXT #
2793  014102  042704  100000                  BIC     #100000,R4              ;CLUGE TO STOP BIT 15 PROPAGATING
2794  014106  006204                          ASR     R4                      ;DITTO
2795  014110  006204                          ASR     R4                      ;DITTO
2796  014112  005305                          DEC     R5
```

```
2797  014114  001363                          BNE     3$
2798  014116  012703  016550                  MOV     #MDATA,R3
2799  014122  114023                  4$:     MOVB    -(R0),(R3)+
2800  014124  105367  000062                  DECB    CHRCNT
2801  014130  001374                          BNE     4$
2802  014132  105767  000055                  TSTB    SPACNT
2803  014136  001405                          BEQ     6$
2804  014140  112723  000040          5$:     MOVB    #040,(R3)+
2805  014144  105367  000043                  DECB    SPACNT
2806  014150  001373                          BNE     5$
2807  014152  105013                  6$:     CLRB    (R3)
2808  014154  104402                          TYPE
2809  014156  016550                          MDATA
2810  014160  005367  000024                  DEC     WRDCNT
2811  014164  001323                          BNE     1$
2812  014166  016767  164756  002314          MOV     TEMP3,TEMP
2813  014174  012605                          MOV     (SP)+,R5
2814  014176  012604                          MOV     (SP)+,R4
2815  014200  012603                          MOV     (SP)+,R3
2816  014202  012601                          MOV     (SP)+,R1
2817  014204  012600                          MOV     (SP)+,R0
2818  014206  000002                          RTI
2819  014210  000000                  WRDCNT: 0
2820  014212  000000                  CHRCNT: 0
2821          014213                  SPACNT=CHRCNT+1
2822  014214  000000                  BINWRD: 0
2823
2824                                  ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
2825                                  ;BUFFER TO THE CHARACTERS "N" AND "Y".
2826                                  ;IF THE CHARACTER IS "N" CLEAR THE FLAG
2827                                  ;IF THE CHARACTER IS "Y" SET THE FLAG
2828
2829  014216  017605  000000  .SETFLG:MOV     @(SP),R5
2830  014222  122767  000116  002220          CMPB    #'N,INBUF       ;IS IT "N" ?
2831  014230  001002                          BNE     1$
2832  014232  105015                          CLRB    (R5)    ;000
2833  014234  000406                          BR      2$
2834  014236  122767  000131  002204  1$:     CMPB    #'Y,INBUF               ;IS IT "Y" ?
2835  014244  001005                          BNE     3$
2836  014246  112715  177777                  MOVB    #-1,(R5)                ;377
2837  014252  062716  000002          2$:     ADD     #2,(SP)
2838  014256  000002                          RTI
2839  014260  104404                  3$:     INSTER                          ;RETRY
2840  014262  000755                          BR      .SETFLG
2841                                  ;TRAP DISPATCH SERVICE
2842                                  ;ARGUMENT OF TRAP IS EXTRACTED
2843                                  ;AND USED AS OFFSET TO OBTAIN POINTER
2844                                  ;TO SELECTED SUBROUTINE
2845
2846  014264  011646                  .TRPSR: MOV     (SP),-(SP)              ;GET PC OF RETURN
2847  014266  162716  000002                  SUB     #2,(SP)                 ;=PC OF TRAP
2848  014272  017616  000000                  MOV     @(SP),(SP)              ;GET TRP
2849  014276  006316                  TRPOK:  ASL     (SP)                    ;MULTIPLY TRAP ARG BY 2
2850  014300  042716  177001                  BIC     #177001,(SP)            ;CLEAR UNWANTED BITS
2851  014304  062716  001226                  ADD     #.TRPTAB,(SP)           ;POINTER TO SUBROUTINE ADDRESS
2852  014310  017616  000000                  MOV     @(SP),(SP)              ;SUBROUTINE ADDRESS
```

```
2853  014314  000136                          JMP     @(SP)+          ;GO TO SUBROUTINE
2854
2855                                          ;ERROR HANDLER
2856
2857  014316  104413                  .HLT:   CKSWR                   ;CHECK FOR ↑G
2858  014320  032777  020000  164552          BIT     #SW13,@SWR      ;INHIBIT ERROR TYPE OUT ?
2859  014326  001061                          BNE     HALTS
2860  014330  021667  164600                  CMP     (SP),LSTERR
2861  014334  001404                          BEQ     1$
2862  014336  011667  164572                  MOV     (SP),LSTERR
2863  014342  105067  164656                  CLRB    ERRFLG
2864  014346  104406                  1$:     SAV05
2865  014350  011605                          MOV     (SP),R5
2866  014352  162705  000002                  SUB     #2,R5
2867  014356  011504                          MOV     (R5),R4
2868  014360  006304                          ASL     R4
2869  014362  061504                          ADD     (R5),R4
2870  014364  006304                          ASL     R4
2871  014366  042704  177001                  BIC     #177001,R4
2872  014372  062704  017264                  ADD     #.ERRTAB,R4
2873  014376  012467  000040                  MOV     (R4)+,ERRMSG
2874  014402  012467  000046                  MOV     (R4)+,DATAHD
2875  014406  011467  000054                  MOV     (R4),DATABP
2876  014412  105767  164606                  TSTB    ERRFLG
2877  014416  001403                          BEQ     TYPMSG
2878  014420  005767  000042                  TST     DATABP
2879  014424  001014                          BNE     TYPDAT
2880  014426  104410                  TYPMSG: CONVRT
2881  014430  014560                          ERTABO
2882  014432  112767  177777  164564          MOVB    #-1,ERRFLG
2883  014440  104402                          TYPE
2884  014442  000000                  ERRMSG: 0
2885  014444  005767  000004                  TST     DATAHD
2886  014450  001402                          BEQ     TYPDAT
2887  014452  104402                          TYPE
2888  014454  000000                  DATAHD: 0
2889  014456  005767  000004          TYPDAT: TST     DATABP
2890  014462  001402                          BEQ     RESREG
2891  014464  104410                          CONVRT
2892  014466  000000                  DATABP: 0
2893  014470  104407                  RESREG: RESO5
2894  014472  005777  164402          HALTS:  TST     @SWR
2895  014476  100005                          BPL     EXITER
2896  014500  010046                          PUSHRO
2897  014502  016600  000002                  MOV     2(SP),RO
2898  014506  000000                          HALT
2899  014510  012600                          POPRO
2900  014512  104413                  EXITER: CKSWR                   ;CHECK FOR ↑G
2901  014514  005267  164412                  INC     ERRCNT
2902  014520  032777  000400  164352          BIT     #SW08,@SWR      ;LOOP ON ERROR ?
2903  014526  001007                          BNE     1$
2904  014530  032777  002000  164342          BIT     #SW10,@SWR      ;ESCAPE TO NEXT ON ERROR ?
2905  014536  001407                          BEQ     2$
2906  014540  016767  164352  164346          MOV     NEXT,RTRN       ;SET UP FOR NEXT TEST
2907  014546  012706  001100          1$:     MOV     #STACK,SP       ;REINITIALIZE SP
2908  014552  000177  164336                  JMP     @RTRN
```

```
2909  014556  000002                  2$:     RTI
2910  014560  000001                  ERTABO: 1
2911  014562     006     002                  .BYTE   6,2
2912  014564  001174                  SAVPC
2913                                  ;ENTER HERE ON POWER FAILURE
2914
2915
2916  014566  010046                  .PFAIL: MOV     R0,-(SP)                ;SAVE R0-R5 ON PROCESSOR STACK
2917  014570  010146                          MOV     R1,-(SP)
2918  014572  010246                          MOV     R2,-(SP)
2919  014574  010346                          MOV     R3,-(SP)
2920  014576  010446                          MOV     R4,-(SP)
2921  014600  010546                          MOV     R5,-(SP)
2922  014602  016746  163216                  MOV     24,-(SP)
2923  014606  010667  164360                  MOV     SP,SAVSP                ;SAVE STACK POINTER
2924  014612  012767  014624  163204          MOV     #RESTART,24             ;SET UP FOR POWER UP TRAP
2925  014620  000000                          HALT                            ;HALT ON POWER DOWN NORMAL
2926  014622  000777                  1$:     BR      1$
2927
2928                                  ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
2929
2930  014624  016706  164342          RESTAR: MOV     SAVSP,SP                ;RESTORE STACK POINTER
2931  014630  012605                          MOV     (SP)+,R5                ;RESTORE R0-R5
2932  014632  012604                          MOV     (SP)+,R4
2933  014634  012603                          MOV     (SP)+,R3
2934  014636  012602                          MOV     (SP)+,R2
2935  014640  012601                          MOV     (SP)+,R1
2936  014642  012600                          MOV     (SP)+,R0
2937  014644  012767  014566  163152          MOV     #.PFAIL,24              ;SET UP FOR POWER FAILURE
2938  014652  012767  000340  163116          MOV     #340,PS
2939  014660  012706  001100                  MOV     #STACK,SP
2940  014664  005067  001620                  CLR     TEMP
2941  014670  005267  001614          1$:     INC     TEMP
2942  014674  001375                          BNE     1$
2943  014676  104410                          CONVRT
2944  014700  014722                          PFTAB
2945  014702  104402                          TYPE
2946  014704  015575                          MPFAIL
2947  014706  005067  164312                  CLR     ERRFLG
2948  014712  005067  164216                  CLR     LSTERR
2949  014716  000177  164172                  JMP     @RTRN
2950  014722  000001                  PFTAB:  1
2951  014724     006     002                  .BYTE   6,2
2952  014726  001114                          RTRN
2953
2954
2955                                  ;CHECK SWITCH REGISTER ROUTINE. CHECKS FOR ↑G TO ALLOW CHANGING
2956                                  ;OF LOC.176.
2957                                  ;LOCATIONS USED:
2958  014730  000000                  RDSW:   .WORD   0
2959
2960
2961  014732  005737  000042          .CKSWR: TST     @#42
2962  014736  001042                          BNE     OUT
2963  014740  022767  000176  164132          CMP     #SWREG,SWR              ;SOFTWARE SWITCH REGISTER PRESENT
2964  014746  001036                          BNE     OUT                     ;NO, GET OUT
```

```
2965  014750  105777  164130                TSTB    @TKCSR          ;YES,WAIT FOR
2966  014754  100033                      BPL     OUT             ;READY, GET CHARACTER
2967  014756  017767  164124  176352      MOV     @TKDBR,.MSG     ;AND STRIP OFF
2968  014764  042767  177600  176344      BIC     #177600,.MSG    ;THE GARBAGE
2969  014772  122767  000007  176336      CMPB    #7,.MSG         ;IS IT A <^G>
2970  015000  001021                      BNE     OUT
2971  015002  104402  015060              TYPE,$CNTG
2972  015006  005137  014730      .CNTLU: COM     @#RDSW
2973  015012  104402  015065              TYPE,$MSWR
2974  015016  104411  015052              CNVRT,SWREGC
2975  015022  104403  015075              INSTR,$MNEW
2976  015026  104405                      PARAM
2977  015030  000000                      0
2978  015032  177777                      177777
2979  015034  000176                      SWREG
2980  015036     000     001      .BYTE           0,1
2981  015040  104402  015572              TYPE,MCRLF
2982  015044  005037  014730      OUT:    CLR     @#RDSW
2983  015050  000002                      RTI
2984  015052  000001              SWREGC: 1
2985  015054     006     002      .BYTE   6,2
2986  015056  000176                      SWREG
2987  015060  005015  043536     000  $CNTG:  .ASCIZ  <15><12>/^G/
2988  015065     015  051412  051127  $MSWR:  .ASCIZ  <15><12>/SWR= /
2989  015072  020075     000
2990  015075     040  047040  053505  $MNEW:  .ASCIZ  /  NEW= /
2991  015102  020075     000
2992          015106                  .EVEN
2993  015106  005015  042012  030525  MTITLE: .ASCIZ  <15><12><12>/DU11 DZDUC-B TAPE C /<15><12>
2994  015114  020061  055104  052504
2995  015122  026503  020102  040524
2996  015130  042520  041440  006440
2997  015136  000012
2998  015140  005015  042526  052103  MVECTO: .ASCIZ  <15><12>/VECTOR ADDRESS-/
2999  015146  051117  040440  042104
3000  015154  042522  051523  000055
3001  015162  005015  051461  020124  MREGAD: .ASCIZ  <15><12>/1ST DEVICE: RECEIVER CONTROL REGISTER ADDRESS-/
3002  015170  042504  044526  042503
3003  015176  020072  042522  042503
3004  015204  053111  051105  041440
3005  015212  047117  051124  046117
3006  015220  051040  043505  051511
3007  015226  042524  020122  042101
3008  015234  051104  051505  026523
3009  015242     000
3010  015243     015  040412  042522  MMULT:  .ASCIZ  <15><12>/ARE YOU RUNNING MULTIPLE DEVICES ? (Y OR N)-/
3011  015250  054440  052517  051040
3012  015256  047125  044516  043516
3013  015264  046440  046125  044524
3014  015272  046120  020105  042504
3015  015300  044526  042503  020123
3016  015306  020077  054450  047440
3017  015314  020122  024516  000055
3018  015322  005015  040514  052123  MLASTD: .ASCIZ  <15><12>/LAST DEVICE:RECEIVER CONTROL REGISTER ADDRESS-/
3019  015330  042040  053105  041511
3020  015336  035105  042522  042503
```

```
 3021  015344  053111  051105  041440
 3022  015352  047117  051124  046117
 3023  015360  051040  043505  051511
 3024  015366  042524  020122  042101
 3025  015374  051104  051505  026523
 3026  015402     000
 3027  015403     075  042504  044526  DEVICE: .ASCIZ  /=DEVICE  /
 3028  015410  042503  020040     000
 3029  015415     015  044012  053517  MCOW:   .ASCIZ  <15><12>/HOW NOW BROWN COW? ...SELECT SOMETHING TO RUN @ACTREG/
 3030  015422  047040  053517  041040
 3031  015430  047522  047127  041440
 3032  015436  053517  020077  027056
 3033  015444  051456  046105  041505
 3034  015452  020124  047523  042515
 3035  015460  044124  047111  020107
 3036  015466  047524  051040  047125
 3037  015474  040040  041501  051124
 3038  015502  043505     000
 3039  015505     015  047412  052125  MRANGE: .ASCIZ  <15><12>/OUT OF RANGE:RETYPE LAST DEVICE RXCSR ADDRESS-/
 3040  015512  047440  020106  040522
 3041  015520  043516  035105  042522
 3042  015526  054524  042520  046040
 3043  015534  051501  020124  042504
 3044  015542  044526  042503  051040
 3045  015550  041530  051123  040440
 3046  015556  042104  042522  051523
 3047  015564  000055
 3048  015566  020040  000077          MQM:    .ASCIZ  /  ?/
 3049  015572  005015     000          MCRLF:  .ASCIZ  <15><12>
 3050  015575     040  050040  053517  MPFAIL: .ASCIZ  /  POWER FAILURE, PROGRAM RESTART AT TEST IN PROGRESS/
 3051  015602  051105  043040  044501
 3052  015610  052514  042522  020054
 3053  015616  051120  043517  040522
 3054  015624  020115  042522  052123
 3055  015632  051101  020124  052101
 3056  015640  052040  051505  020124
 3057  015646  047111  050040  047522
 3058  015654  051107  051505  000123
 3059  015662  005015  047105  020104  MEPASS: .ASCIZ  <15><12>/END OF PASS TAPE C/
 3060  015670  043117  050040  051501
 3061  015676  020123  040524  042520
 3062  015704  041440     000
 3063  015707     015  051012     000  MR:     .ASCIZ  <15><12>/R/
 3064  015713     015  052012  051505  MTSTPC: .ASCIZ  <15><12>/TEST PC-/
 3065  015720  020124  041520  000055
 3066  015726  005015  047514  045503  MLOCK:  .ASCIZ  <15><12>/LOCK ON SELECTED TEST? (Y OR N)-/
 3067  015734  047440  020116  042523
 3068  015742  042514  052103  042105
 3069  015750  052040  051505  037524
 3070  015756  024040  020131  051117
 3071  015764  047040  026451     000
 3072  015771     015  042012  020125  MLEVEL: .ASCIZ  <15><12>/DU PRIORITY LEVEL-/
 3073  015776  051120  047511  044522
 3074  016004  054524  046040  053105
 3075  016012  046105  000055
 3076  016016  005015  020043  043117  MSYNC:  .ASCIZ  <15><12>/# OF SYNC CHARS SELECTED ( 1 OR 2)-/
```

```
 3077  016024  051440  047131  020103
 3078  016032  044103  051101  020123
 3079  016040  042523  042514  052103
 3080  016046  042105  024040  030440
 3081  016054  047440  020122  024462
 3082  016062  000055
 3083  016064  005015  051511  051440  MWIRE6: .ASCIZ  <15><12>/IS SEC XMIT JUMPER #6 IN? (Y OR N)-/
 3084  016072  041505  054040  044515
 3085  016100  020124  052512  050115
 3086  016106  051105  021440  020066
 3087  016114  047111  020077  054450
 3088  016122  047440  020122  024516
 3089  016130  000055
 3090  016132  005015  051511  051440  MWIRE5: .ASCIZ  <15><12>/IS SEC REC JUMPER #5 IN? (Y OR N)-/
 3091  016140  041505  051040  041505
 3092  016146  045040  046525  042520
 3093  016154  020122  032443  044440
 3094  016162  037516  024040  020131
 3095  016170  051117  047040  026451
 3096  016176     000
 3097  016177     015  044412  020123  MWIRE4: .ASCIZ  <15><12>/IS OPT CLR ENABLE JUMPER #4 IN? (Y OR N)-/
 3098  016204  050117  020124  046103
 3099  016212  020122  047105  041101
 3100  016220  042514  045040  046525
 3101  016226  042520  020122  032043
 3102  016234  044440  037516  024040
 3103  016242  020131  051117  047040
 3104  016250  026451     000
 3105  016253     015  040412  042522  MEXTJ:  .ASCII  <15><12>/ARE YOU RUNNING IN MAINT MODE EXTERNAL?/
 3106  016260  054440  052517  051040
 3107  016266  047125  044516  043516
 3108  016274  044440  020116  040515
 3109  016302  047111  020124  047515
 3110  016310  042504  042440  052130
 3111  016316  051105  040516  037514
 3112  016324  005015  040401  042116          .ASCII  <15><12><1>/AND ..... DO YOU HAVE THE EXTERNAL MODEM BYPASS/
 3113  016332  027040  027056  027056
 3114  016340  042040  020117  047531
 3115  016346  020125  040510  042526
 3116  016354  052040  042510  042440
 3117  016362  052130  051105  040516
 3118  016370  020114  047515  042504
 3119  016376  020115  054502  040520
 3120  016404  051523
 3121  016406  005015  045001  046525          .ASCIZ  <15><12><1>/JUMPER CONNECTOR ON ?(Y OR N)-/
 3122  016414  042520  020122  047503
 3123  016422  047116  041505  047524
 3124  016430  020122  047117  037440
 3125  016436  054450  047440  020122
 3126  016444  024516  000055
 3127                                  .EVEN
 3128
 3129                                  ;BUFFERS FOR INPUT-OUTPUT
 3130
 3131  016450  000040                  INBUF:  .BLKB   40
 3132  016510  000040                  TEMP:   .BLKB   40
```

```
3133  016550  000040                    MDATA:  .BLKB   40
3134                                    ;*************************************************************
3135                                            ;UTILITIES
3136                                    ;*************************************************************
3137
3138                                    ;THIS UTILITY CALCULATES PRIORITY LEVEL
3139  016610  006367  000044            DULEV:  ASL     DUPRT   ;SHIFT LEFT
3140  016614  006367  000040                    ASL     DUPRT   ;
3141  016620  006367  000034                    ASL     DUPRT   ;
3142  016624  006367  000030                    ASL     DUPRT   ;
3143  016630  006367  000024                    ASL     DUPRT   ;
3144  016634  016767  000020  000020           MOV     DUPRT,LESS1     ;MOVE THIS TO LESS1
3145  016642  162767  000001  000012           SUB     #1,LESS1        ;CREATE LESS1
3146  016650  042767  000037  000004           BIC     #37,LESS1       ;CLEAR TNZVC
3147  016656  000207                    RTS     PC
3148  016660  000240                    DUPRT:  LEVEL5
3149  016662  000200                    LESS1:  LEVEL4  ;LEVEL TO ALLOW INTERRUPTS
3150
3151                                            ;NEW DU ADDRESSES
3152  016664  016767  000126  000422    DUADDR: MOV     DUBASE,RXCSR    ;XXX0
3153  016672  005267  000120                    INC     DUBASE
3154  016676  016767  000114  000412           MOV     DUBASE,HRXCSR   ;XXX1
3155  016704  005267  000106                    INC     DUBASE
3156  016710  016767  000102  000402           MOV     DUBASE,RXDBUF   ;XXX2
3157  016716  016767  000074  000400           MOV     DUBASE,PARCSR   ;XXX2
3158  016724  005267  000066                    INC     DUBASE
3159  016730  016767  000062  000364           MOV     DUBASE,HRXDBUF  ;XXX3
3160  016736  016767  000054  000362           MOV     DUBASE,HPARCSR  ;XXX3
3161  016744  005267  000046                    INC     DUBASE
3162  016750  016767  000042  000352           MOV     DUBASE,TXCSR    ;XXX4
3163  016756  005267  000034                    INC     DUBASE
3164  016762  016767  000030  000342           MOV     DUBASE,HTXCSR   ;XXX5
3165  016770  005267  000022                    INC     DUBASE
3166  016774  016767  000016  000332           MOV     DUBASE,TXDBUF   ;XXX6
3167  017002  005267  000010                    INC     DUBASE
3168  017006  016767  000004  000322           MOV     DUBASE,HTXDBUF  ;XXX7
3169  017014  000207                    RTS     PC
3170  017016  000000                    DUBASE: 0
3171
3172                                    ;THIS UTILITY POKES THE MAINT DATA BASED UPON THE
3173                                    ;INFORMATION CONTAINED IN TEMP1 AND IT IS
3174                                    ;SHIFTED IN BY THE CONTENTS OF SHIFT
3175  017020  042777  040000  000302    RPOKE:  BIC     #MTDATA,@TXCSR
3176  017026  005067  162114                    CLR     TEMP2
3177  017032  006067  162106                    ROR     TEMP1   ;FORCE CARRY
3178  017036  006067  162104                    ROR     TEMP2   ;PICK UP CARRY IN BIT 15
3179  017042  006267  162100                    ASR     TEMP2   ;SHIFT INTO BIT 14
3180  017046  042767  100000  162072           BIC     #BIT15,TEMP2    ;CLR BIT 15
3181  017054  056777  162066  000246           BIS     TEMP2,@TXCSR    ;POKE MAINT DATA
3182  017062  042777  020000  000240           BIC     #CLK,@TXCSR     ;POKE CLK
3183  017070  052777  020000  000232           BIS     #CLK,@TXCSR     ;
3184  017076  005367  162036                    DEC     SHIFT
3185  017102  001346                    BNE     RPOKE
3186  017104  000207                    RTS     PC
3187                                    ;THIS ROUTINE CALCULATES ODD PARITY FOR AN 8 BIT CHAR
3188  017106  016767  162032  162032    ODD8:   MOV     TEMP1,TEMP2     ;SAVE TEMP1
```

```
 3189  017114  005067  162030                  CLR     TEMP3
 3190  017120  012727  000010                  MOV     #8.,(PC)+
 3191  017124  000000                  4$:     0
 3192  017126  006067  162014          1$:     ROR     TEMP2
 3193  017132  005567  162012                  ADC     TEMP3
 3194  017136  005367  177762                  DEC     4$
 3195  017142  001371                          BNE     1$
 3196  017144  006067  162000                  ROR     TEMP3
 3197  017150  103404                          BCS     2$
 3198  017152  052767  000400  161764          BIS     #BIT8,TEMP1     ;SET ODD PARITY
 3199  017160  000403                          BR      3$
 3200  017162  042767  000400  161754  2$:     BIC     #BIT8,TEMP1     ;CLR EVEN PARITY
 3201                                          ;TEMP1 NOW HAS ODD PARITY CHARACTER
 3202  017170  000207                  3$:     RTS     PC
 3203
 3204                                  ;THIS ROUTINE CALCULATES EVEN PARITY FOR AN 8 BIT CHARACTER
 3205  017172  016767  161746  161746  EVEN8:  MOV     TEMP1,TEMP2     ;SAVE TEMP1
 3206  017200  005067  161744                  CLR     TEMP3
 3207  017204  012727  000010                  MOV     #8.,(PC)+
 3208  017210  000000                  4$:     0
 3209  017212  006067  161730          1$:     ROR     TEMP2
 3210  017216  005567  161726                  ADC     TEMP3
 3211  017222  005367  177762                  DEC     4$
 3212  017226  001371                          BNE     1$
 3213  017230  006067  161714                  ROR     TEMP3
 3214  017234  103004                          BCC     2$
 3215  017236  052767  000400  161700          BIS     #BIT8,TEMP1     ;SET EVEN PARITY
 3216  017244  000403                          BR      3$
 3217  017246  042767  000400  161670  2$:     BIC     #BIT8,TEMP1     ;CLR ODD PARITY
 3218                                          ;TEMP1 NOW HAS EVEN PARITY CHARACTER
 3219  017254  000207                  3$:     RTS     PC
 3220
 3221  017256  062716  000002          TRPREG: ADD     #2,(SP) ;ALLOW IT TO "CRUNCH" INTO HLT BACK
 3222                                                          ;IN MAIN PART OF THE PROGRAM
 3223  017262  000002                          RTI
 3224                                          ;ERROR HLT TABLE
 3225  017264  017350                  .ERRTAB:        EM0     ;HLT 0  BIT ERROR (GENERAL)
 3226  017266  000000                                  0
 3227  017270  000000                                  0
 3228  017272  017364                          EM1     ;HLT 1  REGISTER ERROR
 3229  017274  017535                          DH1
 3230  017276  017556                          DT1
 3231  017300  017426                          EM2     ;HLT 2  RECEIVER ERROR
 3232  017302  017535                          DH1
 3233  017304  017556                          DT1
 3234  017306  017470                          EM3     ;HLT 3  TRANSMITTER ERROR
 3235  017310  017535                          DH1
 3236  017312  017556                          DT1
 3237                                          ;DEFAULT DU ADDRESSES
 3238  017314  160040                  RXCSR:  160040
 3239  017316  160041                  HRXCSR: 160041
 3240  017320  160042                  RXDBUF: 160042
 3241  017322  160043                  HRXDBUF:        160043
 3242  017324  160042                  PARCSR: 160042
 3243  017326  160043                  HPARCSR:        160043
 3244  017330  160044                  TXCSR:  160044
```

```
3245  017332  160045                  HTXCSR: 160045
3246  017334  160046                  TXDBUF: 160046
3247  017336  160047                  HTXDBUF:        160047
3248                                          ;DEFAULT DU VECTORS
3249  017340  000770                  DURIV:  770     ;REC INTR VECTOR
3250  017342  000772                  DURIS:  772     ;REC INTR STATUS
3251  017344  000774                  DUTIV:  774     ;XMIT INTR VECTOR
3252  017346  000776                  DUTIS:  776     ;XMIT INTR STATUS
3253                                          ;ERROR MESSAGES
3254  017350  036440  042440  051122  EM0:    .ASCIZ  / = ERROR PC/
3255  017356  051117  050040  000103
3256  017364  036440  051040  043505  EM1:    .ASCIZ  / = REGISTER ERROR PC/<15><12><1>/REGISTER  /
3257  017372  051511  042524  020122
3258  017400  051105  047522  020122
3259  017406  041520  005015  051001
3260  017414  043505  051511  042524
3261  017422  020122  000040
3262  017426  036440  051040  041505  EM2:    .ASCIZ  / = RECEIVER ERROR PC/<15><12><1>/REGISTER  /
3263  017434  044505  042526  020122
3264  017442  051105  047522  020122
3265  017450  041520  005015  051001
3266  017456  043505  051511  042524
3267  017464  020122  000040
3268  017470  036440  052040  040522  EM3:    .ASCIZ  / = TRANSMITTER ERROR PC/<15><12><1>/REGISTER  /
3269  017476  051516  044515  052124
3270  017504  051105  042440  051122
3271  017512  051117  050040  006503
3272  017520  000412  042522  044507
3273  017526  052123  051105  020040
3274  017534     000
3275                                  ;DATA HEADERS FOR ERROR MESSAGES
3276  017535     105  050130  041505  DH1:    .ASCIZ  /EXPECTED  ACTUAL/
3277  017542  042524  020104  040440
3278  017550  052103  040525  000114
3279                          .EVEN
3280                                  ;DATA TABLES FOR ERROR MESSAGES
3281  017556  000003          DT1:    3
3282  017560     006     004          .BYTE   6,4
3283  017562  001164                  SAVR3   ;REGISTER
3284  017564     006     004          .BYTE   6,4
3285  017566  001156                  SAVR0   ;EXPECTED DATA
3286  017570     006     002          .BYTE   6,2
3287  017572  001160                  SAVR1   ;ACTUAL DATA
3288     000001               .END
```

```
AAA     002046            954#
ACTREG  001216            772#   902#   916#   917#   924#  2530   2533   2543
ADRCNT= 013677           2695#  2734#  2743#
BASEAD  001204            767#   884#   921#   922    928#   930#  2537#  2549#  2553
BASEIV  001212            770#   894#  2538#  2550#  2555   2556#  2557   2558#  2559   2560#  2561   2562#
BBB     001664            901    905#
BINWRD  014214           2784#  2785   2822#
BITW  = 002000            682#
BIT0  = 000001            630#   658    689
BIT1  = 000002            629#   657
BIT10 = 002000            620#   648    682   1555   1600
BIT11 = 004000            619#   647
BIT12 = 010000            618#   646    663
BIT13 = 020000            617#   645    662    681
BIT14 = 040000            616#   644    661    680
BIT15 = 100000            615#   643    660    679   3180
BIT2  = 000004            628#   656    997
BIT3  = 000010            627#   655    688
BIT4  = 000020            626#   654    687
BIT5  = 000040            625#   653    686
BIT6  = 000100            624#   652    685
BIT7  = 000200            623#   651    684
BIT8  = 000400            622#   650    666    683   3198   3200   3215   3217
BIT9  = 001000            621#   649    665
BREAK = 000001            689#  1040   1080   1120   1160   1199   1242   1285   1328   1368   1411   1454   1497
                         1536   1581   1626   1665   1705   1742   1779   1816   1853   1887   1921   1955   1989
                         2026   2063   2100   2147   2244   2344   2444
BRW     013230            994   1008   2623#
BRX     013232            995   1009   2624#
CARDET= 010000            646#
CCC     012764           2529   2552   2569#
CHRCNT  014212           2782#  2786   2800#  2820#  2821
CKSWR = 104413            814#  2582   2604   2628   2857   2900
CLK   = 020000            681#  1040   1046   1047   1049   1050   1080   1086   1087   1089   1090   1120   1126
                         1127   1129   1130   1160   1166   1167   1169   1170   1199   1205   1206   1208   1209
                         1242   1248   1249   1251   1252   1285   1291   1292   1294   1295   1328   1334   1335
                         1337   1338   1368   1374   1375   1377   1378   1411   1417   1418   1420   1421   1454
                         1460   1461   1463   1464   1497   1503   1504   1506   1507   1536   1542   1543   1545
                         1546   1581   1587   1588   1590   1591   1626   1632   1633   1665   1671   1672   1705
                         1711   1712   1714   1715   1742   1748   1749   1751   1752   1779   1785   1786   1788
                         1789   1816   1822   1823   1825   1826   1853   1859   1860   1887   1893   1894   1921
                         1927   1928   1955   1961   1962   1989   1995   1996   1998   1999   2026   2032   2033
                         2035   2036   2063   2069   2070   2072   2073   2100   2106   2107   2109   2110   2147
                         2155   2156   2158   2159   2244   2252   2253   2255   2256   2344   2352   2353   2355
                         2356   2444   2452   2453   2455   2456   3182   3183
CNTLU = 104414            816#   861
CNVRT = 104411            810#  2974
CONVRT= 104410            808#  2526   2880   2891   2943
COUNT   001142            743#  1717#  1725#  1754#  1762#  1791#  1799#  1828#  1836#  1862#  1870#  1896#  1904#
                         1930#  1938#  1964#  1972#  2001#  2009#  2038#  2046#  2075#  2083#  2112#  2120#  2152#
                         2168#  2180#  2196#  2198   2200   2249#  2265#  2277#  2296#  2298   2300   2349#  2365#
                         2377#  2396#  2398   2400   2449#  2465#  2477#  2496#  2498   2500
CTS   = 020000            645#
DATABP  014466           2875#  2878   2889   2892#
DATAHD  014454           2874#  2885   2888#
DEVADR  013674           2693#  2731   2741#
```

```
DEVICE  015403          2527    3027#
DH1     017535          3229    3232    3235    3276#
DISPRE  000174           710#    854
DLIGHT= 177570           600#    845
DNA    = 100000           679#
DNAINT= 000040           686#
DSC    = 100000           643#
DSINTE= 000040           653#
DSR    = 001000           649#
DSWR   = 177570           599#    844
DTR    = 000002           657#
DT1     017556          3230    3233    3236    3281#
DUADDR  016664           883    2554    3152#
DUBASE  017016           879     882    2553*   3152    3153*   3154    3155*   3156    3157    3158*   3159    3160    3161*
                        3162    3163*   3164    3165*   3166    3167*   3168    3170#
DULEV   016610           949    3139#
DUPRT   016660           946    3139*   3140*   3141*   3142*   3143*   3144    3148#
DURIS   017342          2557*   3250#
DURIV   017340           890     893     894    2555*   2562    3249#
DUTIS   017346          2561*   3252#
DUTIV   017344          2559*   3251#
EIGHT = 006000           674#   1163    1331    1500    1539    1584    1629    1668    1819    1958    2103    2150
EM0     017350          3225    3254#
EM1     017364          3228    3256#
EM2     017426          3231    3262#
EM3     017470          3234    3268#
ERRCNT  001132           736#    835*   2901*
ERRFLG  001224           782#    834*   2571*   2617*   2863*   2876    2882*   2947*
ERRMSG  014442          2873*   2884#
ERTABO  014560          2881    2910#
EVEN8   017172          1552    1639    3205#
EVEPAR= 001400           677#   1202    1245    1288    1331    1539    1629    2150    2247    2347    2447
EVPAR  = 000400           666#
EXITER  014512          2895    2900#
FIVE   = 000000           671#   1043    1202    1371    1708    1856    1992    2447
FRMERR= 020000           662#   1056    1096    1136    1176    2208    2211    2214    2308    2311    2314    2408    2411
                        2414    2508    2511    2514
HALTS   014472          2859    2894#
HDXEN = 000010           688#
HILIM   013672          2692*   2722    2740#
HOLD    001136           741#
HPARCS  017326          3160*   3243#
HRXCSR  017316          3154*   3239#
HRXDBU  017322          3159*   3241#
HTXCSR  017332          3164*   3245#
HTXDBU  017336          3168*   3247#
ICOUNT  001122           732#   2615    2619*
INBUF   016450           957     961    2656    2698    2830    2834    3131#
INIFLG  001222           780#    840     843*
INSTER= 104404           800#    965    2717    2839
INSTR  = 104403           798#    874     885     895     906     931     941     955     968     972     976     980     999
                        1012    2975
INSTR2  013456          2667    2682#
ISYMOD= 000000           670#   1036    1043    1076    1083    1116    1123    1156    1163    1195    1202    1238    1245
                        1281    1288    1324    1331    1364    1371    1407    1414    1450    1457    1493    1500    1532
                        1539    1577    1584    1701    1708    1738    1745    1775    1782    1812    1819    2143    2150
```

```
                        2240    2247    2340    2347    2440    2447
JMRBY   001203           763#    983
KEEPAD  001206           768#    882*    884     928     930    2549
KEEPIV  001214           771#    893*   2550
LASTAD  001210           769#    911     922     936
LESS1   016662          3144*   3145*   3146*   3149*
LEVEL0= 000000           640#
LEVEL1= 000040           639#
LEVEL2= 000100           638#
LEVEL3= 000140           637#
LEVEL4= 000200           636#   3149
LEVEL5= 000240           635#   3148
LEVEL6= 000300           634#
LEVEL7= 000340           633#
LIGHTS  001102           721#    845*    854*   2573*
LIMITS  013620          2708    2722#
LOBITS  013676          2694*   2726    2742#   2743
LOCK    001120           731#   2631
LOGICA  013016          2577#
LOKFLG  001225           783#   1002    1003
LOLIM   013670          2691*   2724    2735#
LPCNT   001124           733#    831*   2614*   2615    2618*
LSTERR  001134           737#    836*   2570*   2860    2862*   2948*
MCOW    015415          2532    3029#
MCRLF   015572          2664    2680    2772    2981    3049#
MDATA   016550          2798    2809    3133#
MEPASS  015662          2525    3059#
MEXT  = 010000           693#
MEXTJ   016253           981    3105#
MINT  = 004000           692#   1040    1080    1120    1160    1199    1242    1285    1328    1368    1411    1454    1497
                        1536    1581    1626    1665    1705    1742    1779    1816    1853    1887    1921    1955    1989
                        2026    2063    2100    2147    2244    2344    2444
MLASTD  015322           907    3018#
MLEVEL  015771           942    3072#
MLOCK   015726          1000    3066#
MMULT   015243           896    3010#
MPFAIL  015575          2946    3050#
MQM     015566          2677    3048#
MR      015707          1022    3063#
MRANGE  015505           932    3039#
MREGAD  015162           875    3001#
MRESET= 000400           683#   1035    1037    1075    1077    1115    1117    1155    1157    1194    1196    1237    1239
                        1280    1282    1323    1325    1363    1365    1406    1408    1449    1451    1492    1494    1531
                        1533    1576    1578    1621    1623    1660    1662    1700    1702    1737    1739    1774    1776
                        1811    1813    1848    1850    1882    1884    1916    1918    1950    1952    1984    1986    2021
                        2023    2058    2060    2095    2097    2142    2144    2239    2241    2339    2341    2439    2441
MSYNC   016016           956    3076#
MTDATA= 040000           680#   1040    1080    1120    1160    1199    1242    1285    1328    1368    1411    1454    1497
                        1536    1581    1626    1665    1705    1742    1779    1816    1853    1887    1921    1955    1989
                        2026    2063    2100    2147    2244    2344    2444    3175
MTITLE  015106           842    2993#
MTSTPC  015713          1013    3064#
MULTD   001202           762#    898     899     991    2528
MVECTO  015140           886    2998#
MWIRE4  016177           977    3097#
MWIRE5  016132           973    3090#
```

CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0066

```
%WIRE6  016064            969    3083#
NEXT    001116            730#   1034#  1074#  1114#  1154#  1193#  1236#  1279#  1322#  1362#  1405#  1448#  1491#
                         1530#  1575#  1620#  1659#  1699#  1736#  1773#  1810#  1847#  1881#  1915#  1949#  1983#
                         2020#  2057#  2094#  2141#  2238#  2338#  2438#  2600   2620   2906
NOPAR = 000000            675#  1043   1083   1123   1163   1708   1745   1782   1819   1956   1890   1924   1958
                         1992   2029   2066   2103
OCOPAR= 001000            676#  1371   1414   1457   1500   1584   1668
OOOB    017106           1597   1678   3189#
ONCE    001362            841    844#
OPTCLR  001201            761#   979
OUT     015044           2962   2964   2966   2970   2982#
OUTCRY  012756           2526   2565#
OUTMUL  002024            904    929    940#
OVRRUN= 040000            661#  2208   2308   2408   2508
PARAM = 104405            802#   876    887    908    933    943   1014   2976
PARAM1  013524           2697#  2718
PARCSR  017324           1036#  1043#  1076#  1083#  1116#  1123#  1156#  1163#  1195#  1202#  1238#  1245#  1281#
                         1288#  1324#  1331#  1364#  1371#  1407#  1414#  1450#  1457#  1493#  1500#  1532#  1539#
                         1577#  1584#  1622#  1629#  1661#  1668#  1701#  1708#  1738#  1745#  1775#  1782#  1812#
                         1819#  1849#  1856#  1283#  1890#  1917#  1924#  1951#  1958#  1985#  1992#  2022#  2029#
                         2059#  2066#  2096#  2103#  2143#  2150#  2240#  2247#  2340#  2347#  2440#  2447#  3157#
                         3242#
PAREN = 001000            665#
PARER = 010000            663#  1211   1254   1297   1340   1380   1423   1466   1509   2181   2208   2214   2278
                         2309   2314   2378   2408   2414   2478   2508   2514
PARERR  013600           2700   2702   2704   2713#  2723   2725   2727
PARTI   013662           2716   2736#
PASCNT  001130            735#   833#  2572#  2573
PFTAB   014722           2944   2950#
POPRO = 012600            609#  2899
POP1SP= 005726            607#
POP2SP= 022626            611#
PS    = 177776            601#   828#   987#  2581#  2938#
PUSHRO= 010046            608#  2896
PUSH1S= 005746            606#
PUSH2S= 024646            610#
ROSW    014730           2678   2715   2958#  2972#  2982#
RECACT= 004000            647#
REPLAY  012662           2545   2551   2553#
RESREG  014470           2890   2893#
RESTAR  014624           2924   2930#
RESTRT  013026           2546   2575   2581#
RESOS = 104407            806#  2893
RING  = 040000            644#
RINTEN= 000100            652#
ROTADD  001220            775#   903#   915#   917    919#   924    927#  2540#  2543   2547#
RPOKE   017020           1054   1094   1134   1174   1214   1257   1300   1343   1383   1426   1469   1512   1557
                         1602   1641   1680   1720   1757   1794   1831   1865   1899   1933   1967   2004   2041
                         2078   2115   2163   2184   2205   2260   2281   2305   2360   2381   2405   2460   2481
                         2505   3175#  3185
RTRN    001114            729#   838#  1017   1021#  1023   2583#  2600#  2601   2620#  2621   2906#  2908   2949
                         2952
RTS   = 000004            656#
RUNA  = ****** U            1     33     45    108    546
RUNB  = ****** U            1     33     45    108    546
RUNC  = ****** U            1     33     45    108    546
```

```
RUNO  = ****** U          1     33     45    108    546
RUNE  = ****** U          1     33     45    108    546
RUNF  = ****** U          1     33     45    108    546
RUNIT   012566         2531   2537*  2544
RXCSR   017214         1044*  1084*  1124*  1164*  1203*  1215   1246*  1258   1289*  1301   1332*  1344   1372*
                       1384   1415*  1427   1458*  1470   1501*  1513   1540*  1585*  1630*  1669*  1709*  1716*
                       1721   1746*  1753*  1758   1783*  1790*  1795   1820*  1827*  1832   1857*  1661*  1866
                       1891*  1895*  1900   1925*  1929*  1934   1959*  1963*  1968   1993*  2000*  2005   2030*
                       2037*  2042   2067*  2074*  2079   2104*  2111*  2116   2153*  2160*  2164   2185   2250*
                       2257*  2261   2282   2350*  2357*  2361   2382   2450*  2457*  2461   2482   2567   3152*
                       3238*
RXCBUF  017320         1055   1057   1095   1097   1135   1137   1175   1177   1210   1219   1253   1262   1296
                       1305   1339   1348   1379   1388   1422   1431   1465   1474   1508   1517   1547   1558
                       1592   1603   1634   1642   1673   1681   2151   2171   2189   2248   2268   2286   2348
                       2368   2386   2448   2468   2486   3156*  3240*
RXDONE= 000200          651*
RXERR = 100000          660*  1056   1096   1136   1176   1211   1254   1297   1340   1380   1423   1466   1509
                       2181   2208   2211   2214   2278   2308   2311   2314   2378   2408   2411   2414   2478
                       2508   2511   2514
SAVPC   001174          756*  2747*  2912
SAVR0   001156          749*  2756*  2761   3285
SAVR1   001160          750*  2755*  2762   3287
SAVR2   001162          751*  2754*  2763
SAVR3   001164          752*  2753*  2764   3283
SAVR4   001166          753*  2752*  2765
SAVR5   001170          754*  2751*  2766
SAVSP   001172          755*  2923*  2930
SAVOS = 104406          804*  2864
SCOPE = 104400          792*  1064   1104   1144   1184   1227   1270   1313   1353   1396   1439   1482   1522
                       1567   1612   1651   1690   1727   1764   1801   1838   1872   1906   1940   1974   2011
                       2048   2085   2122   2216   2316   2416   2516
SCOPI = 104401          794*
SEND  = 000020          687*
SEREC   001200          760*   975
SETFLG= 104412          812*   897    970    974    978    982   1001
SEVEN = 004000          673*  1123   1288   1457   1782   1924   2066   2247
SEXMIT  001177          759*   971
SHIFT   001140          742*  1051*  1091*  1131*  1171*  1212*  1255*  1298*  1341*  1381*  1424*  1467*  1510*
                       1550*  1595*  1637*  1676*  1719*  1756*  1793*  1830*  1864*  1898*  1932*  1966*  2003*
                       2040*  2077*  2114*  2161*  2183*  2203*  2258*  2280*  2303*  2358*  2380*  2403*  2458*
                       2480*  2503*  3184*
SIX   = 002000          672*  1083   1245   1414   1745   1890   2029   2347
SPACNT= 014213         2783*  2802   2805*  2821*
SRC   = 002000          648*
STACK = 001100          602*   829    988   2907   2939
STD   = 000010          655*
STFLG   001223          781*   832*
STPSYN= 000400          650*  1716   1753   1790   1827   1861   1895   1929   1963   2000   2037   2074   2111
                       2160   2257   2357   2457
SVOS    013706         2751*
SWR     001100          720*   844*   849    853*   859    862    997   1010   2605   2612   2629   2858   2894
                       2902   2904   2963
SWREG   000176          711*   853    859   2963   2979   2986
SWREGC  015052         2974   2984*
SW00  = 000001          582*   862
SW01  = 000002          581*  1010
```

```
SW02  = 000004   580#
SW03  = 000010   579#
SW04  = 000020   578#
SW05  = 000040   577#
SW06  = 000100   576#
SW08  = 000400   575#  2902
SW09  = 001000   574#  2629
SW10  = 002000   573#  2904
SW11  = 004000   572#  2612
SW12  = 010000   571#
SW13  = 020000   570#  2858
SW14  = 040000   569#  2605
SW15  = 100000   568#
SYNCNO  001176   758#   959*   963*
SYNEXT= 020000   669#  1622   1629   1661   1668   1849   1856   1883   1890   1917   1924   1951   1958
SYNINT= 030000   668#  1985   1992   2022   2029   2059   2066   2096   2103
SYNSCH= 000020   654#  1044   1084   1124   1164   1203   1246   1289   1332   1372   1415   1458   1501
                1540   1585   1630   1669   1709   1746   1783   1820   1857   1891   1925   1959   1993
                2030   2067   2104   2153   2250   2350   2450
SYSTST= 014000   694#
TEMP    016510  2779   2787   2812*  2940*  2941*  3132#
TEMP1   001144   744#  1052*  1092*  1132*  1172*  1213*  1256*  1299*  1342*  1382*  1425*  1468*  1511*
                1551*  1554*  1555*  1596*  1599*  1600*  1638*  1677*  1718*  1755*  1792*  1829*  1863*
                1897*  1931*  1965*  2002*  2039*  2076*  2113*  2162*  2182*  2204*  2207*  2210*  2213*
                2259*  2279*  2304*  2307*  2310*  2313*  2359*  2379*  2404*  2407*  2410*  2413*  2459*
                2479*  2504*  2507*  2510*  2513*  3177*  3188   3198*  3200*  3205   3215*  3217*
TEMP2   001146   745#  3176*  3178*  3179*  3180*  3181   3188*  3192*  3205*  3209*
TEMP3   001150   746#  2779*  2812   3189*  3193*  3196*  3206*  3210*  3213*
TEMP4   001152   747#
TEMP5   001154   748#
TKCSR   001104   722#  2608   2658   2965
TKDBR   001106   723#  2610   2660   2668   2967
TLAST = 012116  1016   2518#
TPCSR   001110   724#  2641   2669
TPDBR   001112   725#  2643*  2668*
TRPOK   014276  2849#
TRPREG  017256  3221#
TSTNO   001126   734#   837*  1033*  1073*  1113*  1153*  1192*  1235*  1278*  1321*  1361*  1404*  1447*
                1490*  1529*  1574*  1619*  1658*  1698*  1735*  1772*  1809*  1846*  1880*  1914*  1948*
                1982*  2019*  2056*  2093*  2140*  2237*  2337*  2437*
TST1    002350  1015   1021   1033#  2583   2584
TST10   004334  1362   1404#
TST11   004520  1405   1447#
TST12   004704  1448   1490#
TST13   005070  1491   1529#
TST14   005270  1530   1574#
TST15   005470  1575   1619#
TST16   005640  1620   1658#
TST17   006010  1659   1698#
TST18   006174  1699   1735#
TST19   006360  1736   1772#
TST2    002524  1034   1073#
TST20   006544  1773   1809#
TST21   006730  1810   1846#
TST22   007100  1847   1880#
TST23   007250  1881   1914#
```

```
TST24   007420          1915    1948#
TST25   007570          1949    1982#
TST26   007754          1983    2019#
TST27   010140          2020    2056#
TST28   010324          2057    2093#
TST29   010510          2094    2140#
TST3    002700          1074    1113#
TST30   011112          2141    2237#
TST31   011514          2238    2337#
TST32   012116          2338    2437#   2519
TST33 = ****** U        2438
TST4    003054          1114    1153#
TST5    003230          1154    1192#
TST6    003414          1193    1235#
TST7    003600          1236    1278#
TST8    003764          1279    1321#
TST9    004150          1322    1361#
TTST    013132           994#    995#   1005#   1006#   1008#   1009#   2606#
TXCSR   017330          1035#   1037#   1040#   1046#   1047#   1049#   1050#   1075#   1077#   1080#   1086#   1087#   1089#
                        1090#   1115#   1117#   1120#   1126#   1127#   1129#   1130#   1155#   1157#   1160#   1166#   1167#
                        1169#   1170#   1194#   1196#   1199#   1205#   1206#   1208#   1209#   1237#   1239#   1242#   1248#
                        1249#   1251#   1252#   1280#   1282#   1285#   1291#   1292#   1294#   1295#   1323#   1325#   1328#
                        1334#   1335#   1337#   1338#   1363#   1365#   1368#   1374#   1375#   1377#   1378#   1406#   1408#
                        1411#   1417#   1418#   1420#   1421#   1449#   1451#   1454#   1460#   1461#   1463#   1464#   1492#
                        1494#   1497#   1503#   1504#   1506#   1507#   1531#   1533#   1536#   1542#   1543#   1545#   1546#
                        1576#   1578#   1581#   1587#   1588#   1590#   1591#   1621#   1623#   1626#   1632#   1633#   1660#
                        1662#   1665#   1671#   1672#   1700#   1702#   1705#   1711#   1712#   1714#   1715#   1737#   1739#
                        1742#   1748#   1749#   1751#   1752#   1774#   1776#   1779#   1785#   1786#   1788#   1789#   1811#
                        1813#   1816#   1822#   1823#   1825#   1826#   1848#   1850#   1853#   1859#   1860#   1882#   1884#
                        1887#   1893#   1894#   1916#   1918#   1921#   1927#   1928#   1950#   1952#   1955#   1961#   1962#
                        1984#   1986#   1989#   1995#   1996#   1998#   1999#   2021#   2023#   2026#   2032#   2033#   2035#
                        2036#   2058#   2060#   2063#   2069#   2070#   2072#   2073#   2095#   2097#   2100#   2106#   2107#
                        2109#   2110#   2142#   2144#   2147#   2155#   2156#   2158#   2159#   2239#   2241#   2244#   2252#
                        2253#   2255#   2256#   2339#   2341#   2344#   2352#   2353#   2355#   2356#   2439#   2441#   2444#
                        2452#   2453#   2455#   2456#   3162#   3175#   3181#   3182#   3183#   3244#
TXDBUF  017334          3166#   3246#
TXDONE= 000200           684#
TXINTE= 000100           685#
TYPDAT  014456          2879    2886    2889#
TYPE  = 104402           796#    842    1022    2524    2527    2532    2654    2664    2676    2680    2771    2808    2883
                        2887    2945    2971    2973    2981
TYPMSG  014426          2877    2880#
USER  = 000000           691#
VOID  = 000001           658#
WPDCNT  014210          2781#   2810#   2819#
ZERO    012574          2538#
$CNTG   015060          2971    2987#
$E    = 000042           552#    1034    1035#   1074    1075#   1114    1115#   1154    1155#   1193    1194#   1236    1237#
                        1279    1280#   1322    1323#   1362    1363#   1405    1406#   1448    1449#   1491    1492#   1530
                        1531#   1575    1576#   1620    1621#   1659    1660#   1699    1700#   1736    1737#   1773    1774#
                        1810    1811#   1847    1848#   1881    1882#   1915    1916#   1949    1950#   1983    1984#   2020
                        2021#   2057    2058#   2094    2095#   2141    2142#   2238    2239#   2338    2339#   2438    2439#
$MNEW   015075          2975    2990#
$MSWR   015065          2973    2988#
$N    = 000040           552#    1033    1035#   1073    1075#   1113    1115#   1153    1155#   1192    1194#   1235    1237#
                        1278    1280#   1321    1323#   1361    1363#   1404    1406#   1447    1449#   1490    1492#   1529
```

F06


```
                      1531#   1574    1576#   1619    1621#   1658    1660#   1698    1700#   1735    1737#   1772    1774#
                      1809    1811#   1846    1848#   1880    1882#   1914    1916#   1948    1950#   1982    1984#   2019
                      2021#   2056    2058#   2093    2095#   2140    2142#   2237    2239#   2337    2339#   2437    2439#
                      2518#
$Y     = 000015        784#    792     794#    796#    798#    800#    802#    804#    806#    808#    810#    812#    814#
                       816#    818#
.      = 017574        696#    699#    709#    716#   2992#   3131#   3132#   3133#
.BEGIN  002156         864     987#
.CKSWR  014732         815    2961#
.CNTLU  015006         817    2972#
.CNVRT  013776         811    2773#
.CONVR  013772         809    2771#
.EOP    012520        2438    2524#
.ERRTA  017264        2872    3225#
.HLT    014316         702    2857#
.INSTE  013432         801    2674#
.INSTG  013436        2673    2676#
.INSTR  013314         799    2650#
.INSTI  013334        2654#   2665    2681
.MSG    013336        2652*   2655#   2967*   2968*   2969
.PARAM  013464         803    2688#
.PFAIL  014566         700     830    2916#   2937
.RESOS  013740         807    2761#
.SAVOS  013700         805    2747#
.SCOPE  013050         793    2588#
.SCOPI  013234         795    2628#
.SETFL  014216         813    2829#   2840
.START  001260         712     828#    838    2536
.TRPSR  014264         704    2846#
.TRPTA  001226         789#   2851
.TYPE   013254         797    2636#
```

```
4LT      612#  1060  1100  1140  1180  1217  1222  1260  1265  1303  1308  1346  1351  1386  1391
        1429   1434  1472  1477  1515  1520  1561  1606  1645  1684  1723  1760  1797  1834  1868
        1902   1936  1970  2007  2044  2081  2118  2166  2177  2187  2192  2263  2274  2284  2289
        2363   2374  2384  2389  2463  2474  2484  2489
PRGEND   552#  2517
PRGFRT   552#   553
PUSSYF   552#
RSETUP   552#  1035  1075  1115  1155  1194  1237  1280  1323  1363  1406  1449  1492  1531  1576
        1621   1660  1700  1737  1774  1811  1848  1882  1916  1950  1984  2021  2058  2095  2142
        2239   2339  2439
TSETUP   552#
$BEGIN   552#   984
$BINAR   552#
$BUFFE   552#  3128
$CABLE   552#
$CATCH   552#   695
$CLRVE   552#   844
$CONVR   552#  2768
$DNA     552#
$EOP     552#  2517
$GETFL   552#   895   968   972   976   980   999
$GETPA   552#   874   885   905   931   940  1012
$GETSY   552#   950
$HEADE   552#   553
$HLT     552#  2854
$INSTR   552#  2647
$ISOB    552#  1523  1568  1613  1652
$MATCH   552#
$MRR     552#
$MRRW    552#
$MRW     552#
$MSG     552#  2993
$PARAM   552#  2685
$PFAIL   552#  2913
$POKE    552#
$POKER   552#  1048  1088  1128  1168  1207  1250  1293  1336  1376  1419  1462  1505  1544  1589
        1631   1670  1713  1750  1787  1824  1858  1892  1926  1960  1997  2034  2071  2108  2157
        2254   2354  2454
$RCNET   552#  2123  2217  2317  2417
$RECAC   552#
$REG     552#  2744
$RESET   552#  1035  1037  1075  1077  1115  1117  1155  1157  1194  1196  1237  1239  1280  1282
        1323   1325  1363  1365  1406  1408  1449  1451  1492  1494  1531  1533  1576  1578  1621
        1623   1660  1662  1700  1702  1737  1739  1774  1776  1811  1813  1848  1850  1882  1884
        1916   1918  1950  1952  1984  1986  2021  2023  2058  2060  2095  2097  2142  2144  2239
        2241   2339  2341  2439  2441
$RXACT   552#
$SCOPE   552#  2585
$SCOPI   552#  2625
$SETFL   552#  2823
$SETVE   552#   696
$START   552#   820
$STRIP   552#  1691  1728  1765  1802  1839  1873  1907  1941  1975  2012  2049  2086
$SYMBO   552#   565
$SYNCR   552#  1044  1084  1124  1164  1203  1246  1289  1332  1372  1415  1458  1501  1540  1585
        1709   1746  1783  1820  1993  2030  2067  2104  2153  2250  2350  2450
```

```
$TRAPS    552#    784
$TRPAR    552#
$TRPDE    552#    792     794     796     798     800     802     804     806     808     810     812     814     816
$TRPSR    552#   2841
$TSTNO    552#   1033    1073    1113    1153    1192    1235    1278    1321    1361    1404    1447    1490    1529    1574
         1619    1658    1698    1735    1772    1809    1846    1880    1914    1948    1982    2019    2056    2093    2140
         2237    2337    2437
$TYPE     552#   2633
$UNIBU    552#
$VARIA    552#    715
$WORDF    552#   1025    1065    1105    1145
$WCRDO    552#
$WORDP    552#   1185    1228    1271    1314    1354    1397    1440    1483


. ABS.  017574     000

 ERRORS DETECTED:  0
 DEFAULT GLOBALS GENERATED:  0

 DZDUCC,DZDUCC/CRF/SOL=HELLO.P11,PARA.P11,KEET.P11,DZDUCC.P11
 RUN-TIME: 22 32 3 SECONDS
 RUN-TIME RATIO: 210/58=3.6
 CORE USED:  18K  (35 PAGES)
```

Spooler runtime 10 Seconds, 47 KCS, 304 disk reads, 0 disk writes, 72 pages