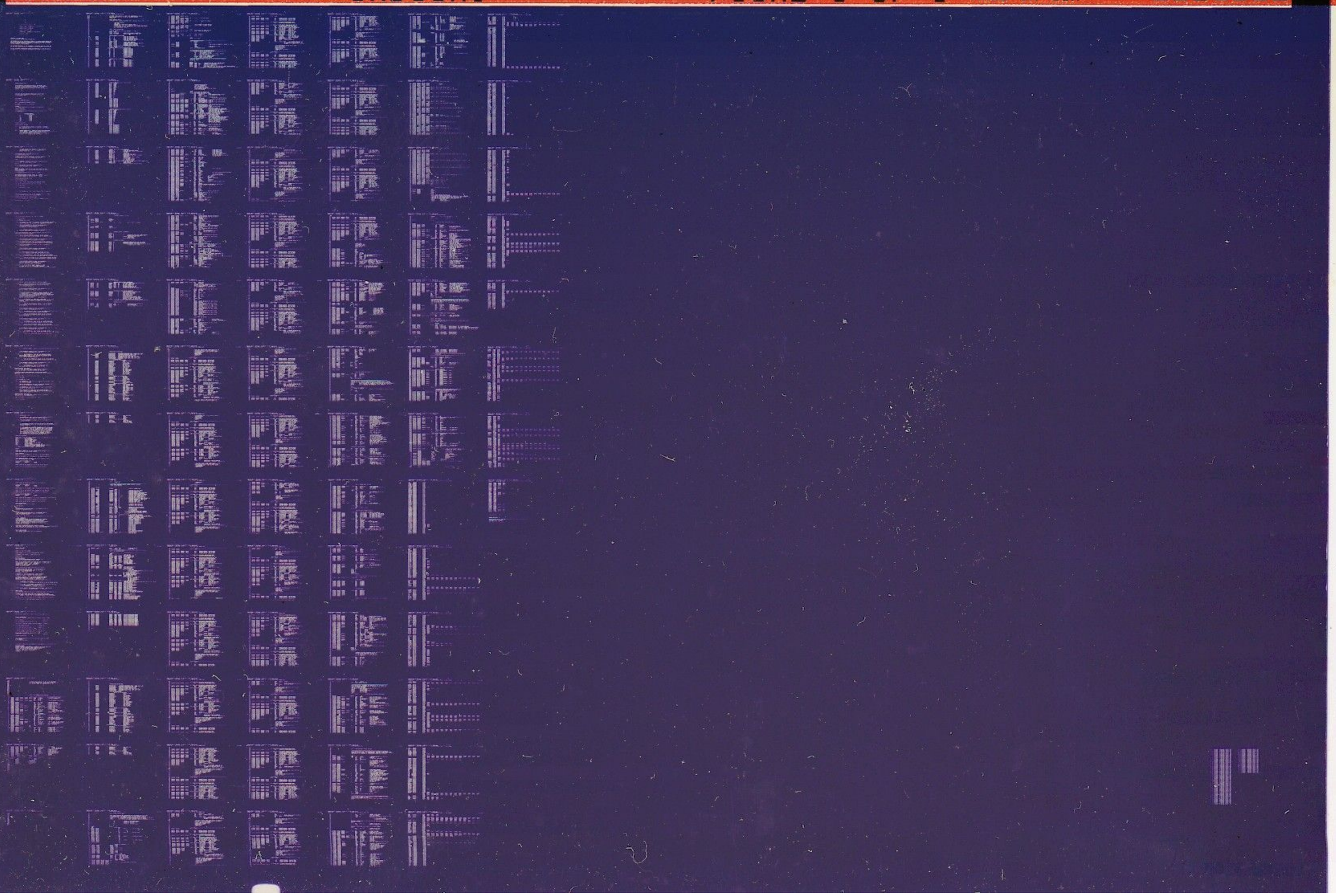
DUV11 OFLNE RCVR TMG CNDUSAO AH-T454A-MC FICHE 1 OF 1



```
                                                                .REM    *
```

```
                I D E N T I F I C A T I O N
                PRODUCT NAME: CNDUSA0 DUV11 OFLNE RCVR TMG
                PRODUCT CODE:AC-T453A-MC
                PRODUCT DATE:DEC,1982
                MAINTAINER  :DIAGNOSTICS SERVICES/ISS
                AUTHOR: K.LIND
                                                                *
                                                                .REM    *
```

.REM *

GENERAL DESCRIPTION

THIS DIAGNOSTIC CAN CHAIN 16 DUV11'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.

*

.REM *

1. THE DUV11 OFFLINE RECEIVER TIMING TESTS VERIFY THAT THE
RECEIVER LOGIC AND ASSOCIATED ERROR FLAGS ASSERT
AT THE PROPPER TIME

*

.REM *

2. REQUIREMENTS

PDP-11/21 COMPUTER (LSI)

DUV11 SYNCRONOUS/ISOCRONOUS OPTION

ONE CONSOLE TELETYPE OR EQUIVALENT

2.2 STORAGE
THE PROGRAM LOADS INTO 4K OF MEMORY WITH BOOTSTRAP

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: ALL SWITCHES RESIDE INTERNAL TO THE CPU AT ADDRESS
176. THESE MAY BE SET VIA THE CONSOLE TTY BY DIRECTLY
MODIFYING LOC. 176.

NOTE: RUNNING UNDER APT-11, THERE IS A USER SWITCH REGISTER
CALLED "$USWR". IN ORDER TO BE FLEXIBLE ON THE AVAILIBILITY OF THE
H315 CONNECTOR, ONE BIT PASSES STATUS TO APT-11.
BIT 0 IN $USWR REFLECTS THIS STATUS, A 0 = CONNECTOR
PRESENT, A 1 = CONNECTOR NOT AVAILIBLE.

THE USER CHANGES THE CONTENTS OF THIS LOCATION
WHEN BUILDING THE E TABLE, BY ANSWERING THE
PROMPT "SWITCH 2".

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)

SW14=1
NOTE1: IN GENERAL SW01 WILL BE USED WHEN SW14=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 RETARTING ADDRESS FOR ALL TESTS IS 000200
THE STARTING ADDRESS TO ENTER A SELECTED TEST IS 000?00
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 SET SWITCH REGISTER (LOC. 176) TO ZERO.

4.3.1.3 TYPE 200G.

4.3.1.4 PROGRAM WILL START.

4.3.1.5 THE PROGRAM WILL TYPE "DUV11 CNDUS-A TAPE C" (ONCE ONLY)

4.3.1.6 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 SET SWITCH REGISTER (LOC. 176) TO A 000001.

4.3.3.2 TYPE 200G.

4.3.3.3 PROGRAM WILL START.

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 DUV11 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 DUV11 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 DUV11 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 DUV11 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 "# OF SYNC CHARS SELECTED (1 OR 2)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD. REFER TO MANUAL FOR PROPER SWITCH SETTINGS OF SWITCH E55-4.

4.3.3.13 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 4.3.3.12

4.3.3.14 THE PROGRAM WILL TYPE " IS SEC XMIT SWITCH E55-2 ON? (Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.15 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 4.3.3.14

4.3.3.16 THE PROGRAM WILL TYPE "IS SEC REC SWITCH E55-3 ON? (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: 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 OPT CLR ENABLE SWITCH E55-1 ON? (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 "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

4.3.3.21 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 "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 SET SW01=1 IN SWITCH REG (LOC. 176)

4.3.4.2 TYPE 200G.

4.3.4.3 PROGRAM WILL START.

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 SW14 =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 SET SW14=1 IN SWITCH REG. (LOC. 176)

4.3.5.2 TYPE 200G.

4.3.5.3 PROGRAM WILL START.

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

5.1 OPERATIONAL SWITCH SETTINGS (INTERNAL TO THE CPU, ACCESSED VIA LOC. 176).

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
SW09 =1	LOOP ON ERROR
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 (UNDER LSI ALL HALT ERRORS RETURN CONTROL TO O.D.T.)
THERE ARE FOUR DISTINCT ERROR TYPEOUTS

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...TYPE 200G...
                        THE PROGRAM WILL CONTINUE WITH THE DEVICE IT WAS IN BEFORE HALTING.

                7.2.2.2 .......OR .....SET SW00=1 IN SWITCH REG (LOC. 176) AND TYPE 200G....
                        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.......TYPE 200G.

        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 11/21 MACHINE.

                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: 174300
            VECTOR ADDRESS-                                DURIV: 330
            ARE YOU RUNNING MULTIPLE DEVICES ?- NO         MULTD: 0
            LAST DEVICE: RECEIVER CONTROL REGISTER ADDRESS-  LASTADD: 0
            # OF SYNC CHARS SELECTED -  2          SYNCNO: 377
            IS SEC XMIT SWITCH E55-2 ON?-  YES     SEXMIT: 377
            IS SEC REC SWITCH E55-3 ON?-  YES      SEREC: 377
            IS OPT CLR ENABLE SWITCH E55-1 ON?- YES OPTCLR: 377
            DO YOU HAVE THE EXTERNAL MODEM BYPASS JUMPER
            CONNECTOR ON (H315)-  YES                      JMRBY: 377
      9.    PROGRAM DESCRIPTION

                                                                  *
                                                          .REM    *
      9.1   THIS PROGRAM PERFOFMS THE OFFLINE RECEIVER TIMING TESTING
            OF THE DEVICE
            SEE LISTING FOR DETAILS
                                                                  *
                                                          .REM    *
      10.   FLOW CHARTS: RECEIVER FLOW,TRANSMITTER FLOW,TRANSMITTER & RECEIVER FLOW

      11.   REVISION HISTORY
            DZDUSB1 DIAGNOSTIC WAS MODIFIED TO WORK IN SBC 11/21 PROCESSOR
            PRIORITY 340 WAS CHANGED TO 300 WHEREVER ENCOUNTERED
            DEFAULT CSR AND VECTOR ADDRESSES WERE CHANGED
            .INIT CALL ADDED AT THE END OF PROGRAM
            DIAGNOSTIC WAS RENAMED TO CNDUSA0.
      12.   LISTINGS
                                                                  *
```

```
 6488
 6489                                   ;IN ORDER TO BE SPECIFIC TO SBC 11/21 PROCESSOR
 6490                                   ;ODT VECTOR ADDRESS AND  BEVNT WERE INITIALIZED AND
 6491                                   ;ALL PRIORITY WORD 340 WERE MODIFIED TO 300.
 6585
 6586
 6587
 6598
 6612
 6613
 6614
 6675
 6676
 6881
 7009
 7010                                   .SBTTL  APT COMMUNICATIONS ROUTINE
  (1)
  (2)                                   ;;*****************************************************************
  (1)  000000  112767  000001  000236  $ATY1:  MOVB    #1,$FFLG        ;;TO REPORT FATAL ERROR
  (1)  000006  112767  000001  000226  $ATY3:  MOVB    #1,$MFLG        ;;TO TYPE A MESSAGE
  (1)  000014  000403                          BR      $ATYC
  (1)  000016  112767  000001  000220  $ATY4:  MOVB    #1,$FFLG        ;;TO ONLY REPORT FATAL ERROR
  (1)  000024                          $ATYC:
  (3)  000024  010046                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
  (3)  000026  010146                          MOV     R1,-(SP)        ;;PUSH R1 ON STACK
  (1)  000030  105767  000206                  TSTB    $MFLG           ;;SHOULD TYPE A MESSAGE?
  (1)  000034  001450                          BEQ     5$              ;;IF NOT:  BR
  (1)  000036  122767  000001  001502          CMPB    #APTENV,$ENV    ;;OPERATING UNDER APT?
  (1)  000044  001031                          BNE     3$              ;;IF NOT:  BR
  (1)  000046  132767  000100  001473          BITB    #APTSPOOL,$ENVM ;;SHOULD SPOOL MESSAGES?
  (1)  000054  001425                          BEQ     3$              ;;IF NOT:  BR
  (1)  000056  017600  000004                  MOV     @4(SP),R0       ;;GET MESSAGE ADDR.
  (1)  000062  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
  (1)  000070  005767  001432          1$:     TST     $MSGTYPE        ;;SEE IF DONE W/ LAST XMISSION?
  (1)  000074  001375                          BNE     1$              ;;IF NOT:  WAIT
  (1)  000076  010067  001440                  MOV     R0,$MSGAD
  (1)                                   ;;PUT ADDR IN MAILBOX
  (1)  000102  105720                  2$:     TSTB    (R0)+           ;;FIND END OF MESSAGE
  (1)  000104  001376                          BNE     2$
  (1)  000106  166700  001430                  SUB     $MSGAD,R0       ;;SUB START OF MESSAGE
  (1)  000112  006200                          ASR     R0              ;;GET MESSAGE LNGTH IN WORDS
  (1)  000114  010067  001424                  MOV     R0,$MSGLGT      ;;PUT LENGTH IN MAILBOX
  (1)  000120  012767  000004  001400          MOV     #4,$MSGTYPE     ;;TELL APT TO TAKE MSG.
  (1)  000126  000413                          BR      5$
  (1)  000130  017667  000004  000016  3$:     MOV     @4(SP),4$       ;;PUT MSG ADDR IN JSR LINKAGE
  (1)  000136  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDRESS
  (3)  000144  016746  177626                  MOV     177776,-(SP)    ;;PUSH 177776 ON STACK
  (1)  000150  004767  012702                  JSR     PC,$TYPE        ;;CALL TYPE MACRO
  (1)  000154  000000                  4$:     .WORD   0
  (1)  000156                          5$:
  (1)  000156  105767  000062          10$:    TSTB    $FFLG           ;;SHOULD REPORT FATAL ERROR?
  (1)  000162  001416                          BEQ     12$             ;;IF NOT:  BR
  (1)  000164  005767  001356                  TST     $ENV            ;;RUNNING UNDER APT?
  (1)  000170  001413                          BEQ     12$             ;;IF NOT:  BR
  (1)  000172  005767  001330          11$:    TST     $MSGTYPE        ;;FINISHED LAST MESSAGE?
  (1)  000176  001375                          BNE     11$             ;;IF NOT:  WAIT
```

```
   (1)  000200  017667  000004  001322          MOV     @4(SP),$FATAL   ;;GET ERROR #
   (1)  000206  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
   (1)  000214  005267  001306                  INC     $MSGTYPE        ;;TELL APT TO TAKE ERROR
   (1)  000220  105067  000020          12$:    CLRB    $FFLG           ;;CLEAR FATAL FLAG
   (1)  000224  105067  000013                  CLRB    $LFLG           ;;CLEAR LOG FLAG
   (1)  000230  105067  000006                  CLRB    $MFLG           ;;CLEAR MESSAGE FLAG
   (3)  000234  012601                          MOV     (SP)+,R1        ;;POP STACK INTO R1
   (3)  000236  012600                          MOV     (SP)+,R0        ;;POP STACK INTO R0
   (1)  000240  000207                          RTS     PC              ;;RETURN
   (1)  000242     000          $MFLG:  .BYTE   0               ;;MESSG. FLAG
   (1)  000243     000          $LFLG:  .BYTE   0
   (1)                                  ;;LOG FLAG
   (1)  000244     000          $FFLG:  .BYTE   0               ;;FATAL FLAG
   (1)          000246                  .EVEN
   (1)          000200          APTSIZE=200
   (1)          000001          APTENV=001
   (1)          000100          APTSPOOL=100
   (1)          000040          APTCSUP=040
 7249           000001          $TN=1
 7375
 7379
 7414
 7431
 7444
 7456
 7469
```

```
7492
7558
7564
7700
7728
7761
7802
7833
7884
7932
7985
8000
8012
8114
```

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CNDUS-A MACY11 30(1046)  14-DEC-82  09:59  PAGE 61
CNDUSA.M11    30-OCT-82 10:55          APT COMMUNICATIONS ROUTINE                                                    SEQ 0014

  8143                                ;IN ORDER TO BE SPECIFIC TO SBC 11/21 PROCESSOR ALL PRIORITY
  8144                                ;WORD 340 WERE MODIFIED TO 300 AND PROGRAM RENAMED.
  8149                                .ENABLE ABS
  8150
   (2)                                ;DUV11 CNDUS-A TAPE C
   (2)                                ;COPYRIGHT 1977, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754
   (2)
   (2)                                        ;STARTING PROCEDURE
   (2)                                        ;TYPE 200G
   (2)                                        ;PROGRAM WILL TYPE "DUV11 CNDUS-A TAPE C "
   (2)                                        ;PROGRAM WILL TYPE "R" TO INDICATE THAT TESTING HAS STARTED
   (2)                                        ;AT THE END OF A PASS, PROGRAM WILL TYPE "END OF PASS TAPE C"
   (2)                                        ;AND THEN RESUME TESTING
   (2)
   (2)                                .SBTTL  BASIC DEFINITIONS
   (2)
   (2)                                ;*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
   (2)          001100                STACK=  1100
   (2)                                .EQUIV  EMT,ERROR       ;;BASIC DEFINITION OF ERROR CALL
   (2)                                .EQUIV  IOT,SCOPE       ;;BASIC DEFINITION OF SCOPE CALL
   (2)
   (2)                                ;*MISCELLANEOUS DEFINITIONS
   (2)          000011                HT=     11              ;;CODE FOR HORIZONTAL TAB
   (2)          000012                LF=     12              ;;CODE FOR LINE FEED
   (2)          000015                CR=     15              ;;CODE FOR CARRIAGE RETURN
   (2)          000200                CRLF=   200             ;;CODE FOR CARRIAGE RETURN-LINE FEED
   (2)          177776                PS=     177776          ;;PROCESSOR STATUS WORD
   (2)                                .EQUIV  PS,PSW
   (2)          177774                STKLMT= 177774          ;;STACK LIMIT REGISTER
   (2)          177772                PIRQ=   177772          ;;PROGRAM INTERRUPT REQUEST REGISTER
   (2)          177570                DSWR=   177570          ;;HARDWARE SWITCH REGISTER
   (2)          177570                DDISP=  177570          ;;HARDWARE DISPLAY REGISTER
   (2)                                ;*****  THE FOLLOWING ODT START ADDRESS FOR SBC 11/21 IS ADDED
   (2)          170000                ODTST=  170000
   (2)                                ;*GENERAL PURPOSE REGISTER DEFINITIONS
   (2)          000000                R0=     %0              ;;GENERAL REGISTER
   (2)          000001                R1=     %1              ;;GENERAL REGISTER
   (2)          000002                R2=     %2              ;;GENERAL REGISTER
   (2)          000003                R3=     %3              ;;GENERAL REGISTER
   (2)          000004                R4=     %4              ;;GENERAL REGISTER
   (2)          000005                R5=     %5              ;;GENERAL REGISTER
   (2)          000006                R6=     %6              ;;GENERAL REGISTER
   (2)          000007                R7=     %7              ;;GENERAL REGISTER
   (2)          000006                SP=     %6              ;;STACK POINTER
   (2)          000007                PC=     %7              ;;PROGRAM COUNTER
   (2)
   (2)                                ;*PRIORITY LEVEL DEFINITIONS
   (2)          000000                PR0=    0               ;;PRIORITY LEVEL 0
   (2)          000040                PR1=    40              ;;PRIORITY LEVEL 1
   (2)          000100                PR2=    100             ;;PRIORITY LEVEL 2
   (2)          000140                PR3=    140             ;;PRIORITY LEVEL 3
   (2)          000200                PR4=    200             ;;PRIORITY LEVEL 4
   (2)          000240                PR5=    240             ;;PRIORITY LEVEL 5
   (2)          000300                PR6=    300             ;;PRIORITY LEVEL 6
   (2)          000340                PR7=    340             ;;PRIORITY LEVEL 7
   (2)
```

```
(2)                             ;*"SWITCH REGISTER" SWITCH DEFINITIONS
(2)             100000          SW15=   100000
(2)             040000          SW14=   40000
(2)             020000          SW13=   20000
(2)             010000          SW12=   10000
(2)             004000          SW11=   4000
(2)             002000          SW10=   2000
(2)             001000          SW09=   1000
(2)             000400          SW08=   400
(2)             000200          SW07=   200
(2)             000100          SW06=   100
(2)             000040          SW05=   40
(2)             000020          SW04=   20
(2)             000010          SW03=   10
(2)             000004          SW02=   4
(2)             000002          SW01=   2
(2)             000001          SW00=   1
(2)                             .EQUIV  SW09,SW9
(2)                             .EQUIV  SW08,SW8
(2)                             .EQUIV  SW07,SW7
(2)                             .EQUIV  SW06,SW6
(2)                             .EQUIV  SW05,SW5
(2)                             .EQUIV  SW04,SW4
(2)                             .EQUIV  SW03,SW3
(2)                             .EQUIV  SW02,SW2
(2)                             .EQUIV  SW01,SW1
(2)                             .EQUIV  SW00,SW0
(2)
(2)                             ;*DATA BIT DEFINITIONS (BIT00 TO BIT15)
(2)             100000          BIT15=  100000
(2)             040000          BIT14=  40000
(2)             020000          BIT13=  20000
(2)             010000          BIT12=  10000
(2)             004000          BIT11=  4000
(2)             002000          BIT10=  2000
(2)             001000          BIT09=  1000
(2)             000400          BIT08=  400
(2)             000200          BIT07=  200
(2)             000100          BIT06=  100
(2)             000040          BIT05=  40
(2)             000020          BIT04=  20
(2)             000010          BIT03=  10
(2)             000004          BIT02=  4
(2)             000002          BIT01=  2
(2)             000001          BIT00=  1
(2)                             .EQUIV  BIT09,BIT9
(2)                             .EQUIV  BIT08,BIT8
(2)                             .EQUIV  BIT07,BIT7
(2)                             .EQUIV  BIT06,BIT6
(2)                             .EQUIV  BIT05,BIT5
(2)                             .EQUIV  BIT04,BIT4
(2)                             .EQUIV  BIT03,BIT3
(2)                             .EQUIV  BIT02,BIT2
(2)                             .EQUIV  BIT01,BIT1
(2)                             .EQUIV  BIT00,BIT0
(2)
```

```
   (2)                              ;*BASIC "CPU" TRAP VECTOR ADDRESSES
   (2)          000004              ERRVEC= 4                ;;TIME OUT AND OTHER ERRORS
   (2)          000010              RESVEC= 10               ;;RESERVED AND ILLEGAL INSTRUCTIONS
   (2)          000014              TBITVEC=14               ;;"T" BIT
   (2)          000014              TRTVEC= 14               ;;TRACE TRAP
   (2)          000014              BPTVEC= 14               ;;BREAKPOINT TRAP (BPT)
   (2)          000020              IOTVEC= 20               ;;INPUT/OUTPUT TRAP (IOT) **SCOPE**
   (2)          000024              PWRVEC= 24               ;;POWER FAIL
   (2)          000030              EMTVEC= 30               ;;EMULATOR TRAP (EMT) **ERROR**
   (2)          000034              TRAPVEC=34               ;;"TRAP" TRAP
   (2)          000060              TKVEC=  60               ;;TTY KEYBOARD VECTOR
   (2)          000064              TPVEC=  64               ;;TTY PRINTER VECTOR
   (2)                              ;*****  THE FOLLOWING BREAK VECTOR AND LINE CLOCK VECTOR ARE INCLUDED
   (2)          000100              LKVEC=  100              ;;LINE CLOCK VECTOR
   (2)          000140              BRKVEC= 140              ;;BREAK VECTOR
   (2)          000240              PIRQVEC=240              ;;PROGRAM INTERRUPT REQUEST VECTOR
```

```
(2)                                     ;STANDARD INTERRUPT VECTORS
(2)
(2)
(2)             000174                  .=174
(2)   000174    000000                  DISPREG:0
(2)   000176    000000                  SWREG:0
(2)             000200                  .=200
(2)   000200    000167  001746                JMP     .START          ;GO TO START OF PROGRAM
(2)
(2)
(2)
(2)             001100                  .=1100
(2)   001100    000000                  .WORD 0
(2)   001102    177570                  LIGHTS:177570
(2)
(2)
(2)
(2)                                     ;PROGRAM CONTROL PARAMETERS
(2)
(2)   001104    000000                  RETURN: 0
(2)   001106    000000                  NEXT:   0                       ;ADDRESS OF NEXT TEST TO BE EXECUTED
(2)   001110    000000                  LOCK:   0                       ;ADDRESS FOR LOCK ON CURRENT DATA
(2)   001112    000000                  PASCNT: 0               ;ADDRESS CONTAINING PASS COUNT
(2)   001114    000000                  ERRCNT: 0                       ;ERROR COUNT
(2)   001116    000000                  SAVSP:  0               ;STACK POINTER STORAGE
(2)
(2)                                     ;PROGRAM VARIABLES
(2)
(2)   001120    000020                  HOLD:   20              ;TEMPORARY STORAGE=DELAY TIME FOR CABLES
(2)   001122    000000                  SHIFT:  0               ;TEMPORARY STORAGE= # OF SHIFTS PER CHAR
(2)   001124    000000                  COUNT:  0               ;TEMPORARY STORAGE= # OF TIMES A CHAR WILL BE SENT
(2)   001126    000000                  SAVPC:  0                       ;PROGRAM COUNTER STORAGE
(2)   001130    000000                  HLD0:   0
(2)   001132    000000                  HLD1:   0
(2)   001134    000000                  HLD2:   0
(2)   001136    000000                  HLD3:   0
(2)   001140    000000                  HLD4:   0
(2)   001142    000000                  HLD5:   0
(2)   001144    000000                  HLD6:   0
(2)
```

```
(2)                                     ;PROGRAM CONVERSATIONAL PARAMETERS
(2)  001146     377             SYNCNO: .BYTE   377     ;# OF SYNC CHARS REQ'D FOR SYNC'ZATION
(2)  001147     377             SEXMIT: .BYTE   377     ;SEC XMIT JUMPER ''IN''
(2)  001150     377             SEREC:  .BYTE   377     ;SEC REC JUMPER ''IN''
(2)  001151     377             OPTCLR: .BYTE   377     ;OPTIONAL JUMPER CLR ''IN''
(2)  001152     000             MULTD:  .BYTE   0       ;NO MULTIPLE DEVICE FLAG
(2)  001153     377             JMRBY:  .BYTE   377     ;EXTERNAL MODEM BYPASS JUMPER ''IN''
(2)                             .EVEN
(2)
(2)                                     ;PROGRAM MULTIPLE DEVICE PARAMETERS
(2)  001154  000000             BASEADD:        0       ;PROG CONTROLLED 1ST DEVICE ADDR
(2)  001156  000000             KEEPADD:        0       ;SAVED 1ST DEVICE ADDR
(2)  001160  000000             LASTADD:        0       ;LAST DEVICE RXCSR ADDR
(2)  001162  000000             BASEIV:         0       ;PROG CONTROLLED IV
(2)  001164  000000             KEEPIV:         0       ;SAVED INTR VECTOR
(2)  001166  000000             ACTREG:         0       ;ACTIVE REGISTER ,,,MODIFY THIS
(2)                                                     ;LOCATION TO DISQUALIFY OR QUALIFY
(2)                                                     ;DEVICES (1= RUN,,,0= DON'T RUN)
(2)  001170  000000             ROTADD:         0       ;ROTATING POINTER FOR ACTREG..POINTS
(2)                                     ;TO DEVICE PRESENTLY UNDER TEST WHEN RUNNING MULTIPLE DEVICES
(2)
(2)                                     ;PROGRAM CONTROL FLAGS
(2)
(2)  001172     000             INIFLG: .BYTE   0               ;PROGRAM INITIALIZATION FLAG
(2)  001173     000             STFLG:  .BYTE   0               ;TEST START FLAG
(2)  001174     000             LOKFLG: .BYTE   0               ;LOCK ON CURRENT TEST FLAG
(2)          001176             .EVEN
(1)          001400             .=1400
(2)
(2)
```

```
(2)
(2)
(2)
(2)                                     ;INSTRUCTION DEFINITIONS
(2)
(2)             005746                  PUSH1SP=5746    ;DECREMENT PROCESSOR STACK 1 WORD =TST -(SP)
(2)             005726                  POP1SP=5726     ;INCREMENT PROCESSOR STACK 1 WORD =TST (SP)+
(2)             010046                  PUSHR0=10046    ;SAVE R0 ON STACK =MOV R0,-(SP)
(2)             012600                  POPR0=12600     ;RESTORE R0 FROM STACK =MOV (SP)+,R0
(2)             024646                  PUSH2SP=24646   ;DECREMENT STACK TWICE =CMP -(SP),-(SP)
(2)             022626                  POP2SP=22626    ;INCREMENT STACK TWICE =CMP (SP)+,(SP)+
(2)                                     ;REGISTER DEFINITIONS
(2)                                             ;RXCSR BIT DEFINITIONS
(2)             100000                  DSC=BIT15                       ;DATA SET CHANGE
(2)             040000                  RING=BIT14                      ;RING
(2)             020000                  CTS=BIT13                       ;CLR TO SEND
(2)             010000                  CARDET=BIT12                    ;CARRIER DETECT
(2)             004000                  RECACT=BIT11                    ;REC ACTIVE
(2)             002000                  SRD=BIT10                       ;SEC REC DATA
(2)             001000                  DSR=BIT9                        ;DATA SET RDY
(2)             000400                  STPSYN=BIT8                     ;STRIP SYNC
(2)             000200                  RXDONE=BIT7                     ;REC DONE
(2)             000100                  RINTEN=BIT6                     ;REC INTR ENABLE
(2)             000040                  DSINTE=BIT5                     ;DSC INTR ENABLE
(2)             000020                  SYNSCH=BIT4                     ;SYNC SEARCH
(2)             000010                  STD=BIT3                        ;SEC XMIT DATA
(2)             000004                  RTS=BIT2                        ;REQ TO SEND
(2)             000002                  DTR=BIT1                        ;DATA TERM RDY
(2)             000001                  VOID=BIT0
(2)                                             ;RXDBUF BIT DEFINITIONS
(2)             100000                  RXERR=BIT15                     ;REC ERROR
(2)             040000                  OVRRUN=BIT14                    ;OVERRUN
(2)             020000                  FRMERR=BIT13                    ;FRAME ERROR
(2)             010000                  PARER=BIT12                     ;PARITY ERROR
(2)                                             ;PARCSR BIT DEFINITIONS
(2)             001000                  PAREN=BIT9                      ;PARITY ENABLE
(2)             000400                  EVPAR=BIT8                      ;EVEN PARITY SENSE
(2)                                             ;PARCSR WRD DEFINITIONS
(2)             030000                  SYNINT=30000                    ;SYNC EXTERNAL MODE
(2)             020000                  SYNEXT=20000                    ;SYNC INTERNAL MODE
(2)             000000                  ISYMOD=0                        ;ISOC MODE
(2)             000000                  FIVE=0                          ;WORD LENGTH 5 BITS
(2)             002000                  SIX=2000                        ;WORD LENGTH 6 BITS
(2)             004000                  SEVEN=4000                      ;WORD LENGTH 7 BITS
(2)             006000                  EIGHT=6000                      ;WORD LENGTH 8 BITS
(2)             000000                  NOPAR=0                         ;NO PARITY
(2)             001000                  ODDPAR=1000                     ;ODD PARITY
(2)             001400                  EVEPAR=1400                     ;EVEN PARITY
(2)                                             ;TXCSR BIT DEFINITIONS
(2)             100000                  DNA=BIT15                       ;DATA NOT AVAILABLE
(2)             040000                  MTDATA=BIT14                    ;MAINT DATA
(2)             020000                  CLK=BIT13                       ;CLK
(2)             002000                  BITW=BIT10                      ;BIT WINDOW
(2)             000400                  MRESET=BIT8                     ;MASTER RESET
(2)             000200                  TXDONE=BIT7                     ;XMIT DONE
(2)             000100                  TXINTE=BIT6                     ;XMIT INTR ENABLE
```

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    (2)          000040                  DNAINTE=BIT5            ;DNA INTR ENAB
    (2)          000020                  SEND=BIT4               ;SEND
    (2)          000010                  HDXEN=BIT3              ;HDX/FDX
    (2)          000001                  BREAK=BIT0              ;BREAK
    (2)                                          ;TXCSR WRD DEFINITIONS
    (2)          000000                  USER=0                  ;USER MODE
    (2)          004000                  MINT=4000               ;MAINT INT MODE
    (2)          010000                  MEXT=10000              ;MAINT EXT MODE
    (2)          014000                  SYSTST=14000            ;SYSTEM TEST MODE
```

```
                                .SBTTL  COMMON TAGS

                                ;;*****************************************************************
                                ;*THIS TABLE CONTAINS VARIOUS COMMON STORAGE LOCATIONS
                                ;*USED IN THE PROGRAM.

                        001400          .=.
001400                  $CMTAG:                         ;;START OF COMMON TAGS
001400  000000                  .WORD   0
001402  000           $TSTNM:   .BYTE   0               ;;CONTAINS THE TEST NUMBER
001403  000           $ERFLG:   .BYTE   0               ;;CONTAINS ERROR FLAG
001404  000000        $ICNT:    .WORD   0               ;;CONTAINS SUBTEST ITERATION COUNT
001406  000000        $LPADR:   .WORD   0               ;;CONTAINS SCOPE LOOP ADDRESS
001410  000000        $LPERR:   .WORD   0               ;;CONTAINS SCOPE RETURN FOR ERRORS
001412  000000        $ERTTL:   .WORD   0               ;;CONTAINS TOTAL ERRORS DETECTED
001414  000           $ITEMB:   .BYTE   0               ;;CONTAINS ITEM CONTROL BYTE
001415  001           $ERMAX:   .BYTE   1               ;;CONTAINS MAX. ERRORS PER TEST
001416  000000        $ERRPC:   .WORD   0               ;;CONTAINS PC OF LAST ERROR INSTRUCTION
001420  000000        $GDADR:   .WORD   0               ;;CONTAINS ADDRESS OF 'GOOD' DATA
001422  000000        $BDADR:   .WORD   0               ;;CONTAINS ADDRESS OF 'BAD' DATA
001424  000000        $GDDAT:   .WORD   0               ;;CONTAINS 'GOOD' DATA
001426  000000        $BDDAT:   .WORD   0               ;;CONTAINS 'BAD' DATA
001430  000000                  .WORD   0               ;;RESERVED--NOT TO BE USED
001432  000000                  .WORD   0
001434  000           $AUTOB:   .BYTE   0               ;;AUTOMATIC MODE INDICATOR
001435  000           $INTAG:   .BYTE   0               ;;INTERRUPT MODE INDICATOR
001436  000000                  .WORD   0
001440  177570        SWR:      .WORD   DSWR            ;;ADDRESS OF SWITCH REGISTER
001442  177570        DISPLAY:  .WORD   DDISP           ;;ADDRESS OF DISPLAY REGISTER
001444  177560        $TKS:     177560                  ;;TTY KBD STATUS
001446  177562        $TKB:     177562                  ;;TTY KBD BUFFER
001450  177564        $TPS:     177564                  ;;TTY PRINTER STATUS REG. ADDRESS
001452  177566        $TPB:     177566                  ;;TTY PRINTER BUFFER REG. ADDRESS
001454  000           $NULL:    .BYTE   0               ;;CONTAINS NULL CHARACTER FOR FILLS
001455  002           $FILLS:   .BYTE   2
                                                        ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
001456  012           $FILLC:   .BYTE   12              ;;INSERT FILL CHARS. AFTER A "LINE FEED"
001457  000           $TPFLG:   .BYTE   0               ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
001460  000000        $REGAD:   .WORD   0               ;;CONTAINS THE ADDRESS FROM
                                                        ;;WHICH  ($REG0) WAS OBTAINED
001462  000000        $REG0:    .WORD   0               ;;CONTAINS (($REGAD)+0)
001464  000000        $REG1:    .WORD   0               ;;CONTAINS (($REGAD)+2)
001466  000000        $REG2:    .WORD   0               ;;CONTAINS (($REGAD)+4)
001470  000000        $REG3:    .WORD   0               ;;CONTAINS (($REGAD)+6)
001472  000000        $REG4:    .WORD   0               ;;CONTAINS (($REGAD)+10)
001474  000000        $REG5:    .WORD   0               ;;CONTAINS (($REGAD)+12)
001476  000000        $TMP0:    .WORD   0               ;;USER DEFINED
001500  000000        $TMP1:    .WORD   0               ;;USER DEFINED
001502  000000        $TMP2:    .WORD   0               ;;USER DEFINED
001504  000000        $TMP3:    .WORD   0               ;;USER DEFINED
001506  000000        $TMP4:    .WORD   0               ;;USER DEFINED
001510  000000        $TMP5:    .WORD   0               ;;USER DEFINED
001512  000000        $TIMES:   0                       ;;MAX. NUMBER OF ITERATIONS
001514  000000        $ESCAPE:0                         ;;ESCAPE ON ERROR ADDRESS
001516  177607  000377$BELL:    .ASCIZ  <207><377><377> ;;CODE FOR BELL
001522  077           $QUES:    .ASCII  /?/             ;;QUESTION MARK
```

```
(2)  001523     015                 $CRLF:  .ASCII  <15>            ;;CARRIAGE RETURN
(2)  001524  000012                 $LF:    .ASCIZ  <12>            ;;LINE FEED
(3)                                 ;;*****************************************************************
(3)                                 .SBTTL  APT MAILBOX-ETABLE
(3)
(4)                                 ;;*****************************************************************
(3)                                 .EVEN
(3)  001526                         $MAIL:                          ;;APT MAILBOX
(3)  001526  000000                 $MSGTY: .WORD   AMSGTY  ;;MESSAGE TYPE CODE
(3)  001530  000000                 $FATAL: .WORD   AFATAL  ;;FATAL ERROR NUMBER
(3)  001532  000000                 $TESTN: .WORD   ATESTN  ;;TEST NUMBER
(3)  001534  000000                 $PASS:  .WORD   APASS   ;;PASS COUNT
(3)  001536  000000                 $DEVCT: .WORD   ADEVCT  ;;DEVICE COUNT
(3)  001540  000000                 $UNIT:  .WORD   AUNIT   ;;I/O UNIT NUMBER
(3)  001542  000000                 $MSGAD: .WORD   AMSGAD  ;;MESSAGE ADDRESS
(3)  001544  000000                 $MSGLG: .WORD   AMSGLG  ;;MESSAGE LENGTH
(3)  001546                         $ETABLE:                        ;;APT ENVIRONMENT TABLE
(3)  001546     000                 $ENV:   .BYTE   AENV    ;;ENVIRONMENT BYTE
(3)  001547     000                 $ENVM:  .BYTE   AENVM
(3)                                 ;;ENVIRONMENT MODE BITS
(3)  001550  000000                 $SWREG: .WORD   ASWREG  ;;APT SWITCH REGISTER
(3)  001552  000000                 $USWR:  .WORD   AUSWR   ;;USER SWITCHES
(3)  001554  000000                 $CPUOP: .WORD   ACPUOP  ;;CPU TYPE,OPTIONS
(3)                                 ;*                      BITS 15-11=CPU TYPE
(3)                                 ;*                              11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
(3)                                 ;*                              11/70=06,PDQ=07,Q=10
(3)                                 ;*                      BIT 10=REAL TIME CLOCK
(3)                                 ;*                      BIT  9=FLOATING POINT PROCESSOR
(3)                                 ;*                      BIT  8=MEMORY MANAGEMENT
(3)  001556     000                 $MAMS1: .BYTE   AMAMS1  ;;HIGH ADDRESS,M.S. BYTE
(3)  001557     000                 $MTYP1: .BYTE   AMTYP1  ;;MEM. TYPE,BLK#1
(3)                                 ;*                      MEM.TYPE BYTE   --  (HIGH BYTE)
(3)                                 ;*                              900 NSEC CORE=001
(3)                                 ;*                              300 NSEC BIPOLAR=002
(3)                                 ;*                              500 NSEC MOS=003
(3)  001560  000000                 $MADR1: .WORD   AMADR1  ;;HIGH ADDRESS,BLK#1
(3)                                 ;*                        MEM.LAST ADDR.=3 BYTES,THIS WORD AND LOW OF "TYPE" ABOVE
(3)  001562     000                 $MAMS2: .BYTE   AMAMS2  ;;HIGH ADDRESS,M.S. BYTE
(3)  001563     000                 $MTYP2: .BYTE   AMTYP2  ;;MEM.TYPE,BLK#2
(3)  001564  000000                 $MADR2: .WORD   AMADR2  ;;MEM.LAST ADDRESS,BLK#2
(3)  001566     000                 $MAMS3: .BYTE   AMAMS3  ;;HIGH ADDRESS,M.S.BYTE
(3)  001567     000                 $MTYP3: .BYTE   AMTYP3  ;;MEM.TYPE,BLK#3
(3)  001570  000000                 $MADR3: .WORD   AMADR3  ;;MEM.LAST ADDRESS,BLK#3
(3)  001572     000                 $MAMS4: .BYTE   AMAMS4  ;;HIGH ADDRESS,M.S.BYTE
(3)  001573     000                 $MTYP4: .BYTE   AMTYP4  ;;MEM.TYPE,BLK#4
(3)  001574  000000                 $MADR4: .WORD   AMADR4  ;;MEM.LAST ADDRESS,BLK#4
(3)  001576  000000                 $VECT1: .WORD   AVECT1  ;;INTERRUPT VECTOR#1,BUS PRIORITY#1
(3)  001600  000000                 $VECT2: .WORD   AVECT2  ;;INTERRUPT VECTOR#2BUS PRIORITY#2
(3)  001602  000000                 $BASE:  .WORD   ABASE
(3)                                 ;;BASE ADDRESS OF EQUIPMENT UNDER TEST
(3)  001604  000000                 $DEVM:  .WORD   ADEVM   ;;DEVICE MAP
(3)  001606  000000                 $CDW1:  .WORD   ACDW1   ;;CONTROLLER DESCRIPTION WORD#1
(3)  001610  000000                 $CDW2:  .WORD   ACDW2   ;;CONTROLLER DESCRIPTION WORD#2
(3)  001612  000000                 $DDW0:  .WORD   ADDW0   ;;DEVICE DESCRIPTOR WORD#0
(3)  001614  000000                 $DDW1:  .WORD   ADDW1   ;;DEVICE DESCRIPTOR WORD#1
(3)  001616  000000                 $DDW2:  .WORD   ADDW2   ;;DEVICE DESCRIPTOR WORD#2
```

```
    (3)  001620  000000                  $DDW3:  .WORD   ADDW3   ;;DEVICE DESCRIPTOR WORD#3
    (3)  001622  000000                  $DDW4:  .WORD   ADDW4   ;;DEVICE DESCRIPTOR WORD#4
    (3)  001624  000000                  $DDW5:  .WORD   ADDW5   ;;DEVICE DESCRIPTOR WORD#5
    (3)  001626  000000                  $DDW6:  .WORD   ADDW6   ;;DEVICE DESCRIPTOR WORD#6
    (3)  001630  000000                  $DDW7:  .WORD   ADDW7   ;;DEVICE DESCRIPTOR WORD#7
    (3)  001632  000000                  $DDW8:  .WORD   ADDW8   ;;DEVICE DESCRIPTOR WORD#8
    (3)  001634  000000                  $DDW9:  .WORD   ADDW9   ;;DEVICE DESCRIPTOR WORD#9
    (3)  001636  000000                  $DDW10: .WORD   ADDW10  ;;DEVICE DESCRIPTOR WORD#10
    (3)  001640  000000                  $DDW11: .WORD   ADDW11  ;;DEVICE DESCRIPTOR WORD#11
    (3)  001642  000000                  $DDW12: .WORD   ADDW12  ;;DEVICE DESCRIPTOR WORD#12
    (3)  001644  000000                  $DDW13: .WORD   ADDW13  ;;DEVICE DESCRIPTOR WORD#13
    (3)  001646  000000                  $DDW14: .WORD   ADDW14  ;;DEVICE DESCRIPTOR WORD#14
    (3)  001650  000000                  $DDW15: .WORD   ADDW15  ;;DEVICE DESCRIPTOR WORD#15
    (3)
    (3)
    (3)  001652                          $ETEND:
    (3)
    (4)
    (4)
```

```
(4)
(4)
(4)
(4)                                 ;INSTRUCTION DEFINITIONS
(4)
(4)          005746                 PUSH1SP=5746     ;DECREMENT PROCESSOR STACK 1 WORD =TST -(SP)
(4)          005726                 POP1SP=5726      ;INCREMENT PROCESSOR STACK 1 WORD =TST (SP)+
(4)          010046                 PUSHR0=10046     ;SAVE R0 ON STACK =MOV R0,-(SP)
(4)          012600                 POPR0=12600      ;RESTORE R0 FROM STACK =MOV (SP)+,R0
(4)          024646                 PUSH2SP=24646    ;DECREMENT STACK TWICE =CMP -(SP),-(SP)
(4)          022626                 POP2SP=22626     ;INCREMENT STACK TWICE =CMP (SP)+,(SP)+
(4)                                 ;REGISTER DEFINITIONS
(4)                                       ;RXCSR BIT DEFINITIONS
(4)          100000                 DSC=BIT15                 ;DATA SET CHANGE
(4)          040000                 RING=BIT14                ;RING
(4)          020000                 CTS=BIT13                 ;CLR TO SEND
(4)          010000                 CARDET=BIT12              ;CARRIER DETECT
(4)          004000                 RECACT=BIT11              ;REC ACTIVE
(4)          002000                 SRD=BIT10                 ;SEC REC DATA
(4)          001000                 DSR=BIT9                  ;DATA SET RDY
(4)          000400                 STPSYN=BIT8               ;STRIP SYNC
(4)          000200                 RXDONE=BIT7               ;REC DONE
(4)          000100                 RINTEN=BIT6               ;REC INTR ENABLE
(4)          000040                 DSINTE=BIT5               ;DSC INTR ENABLE
(4)          000020                 SYNSCH=BIT4               ;SYNC SEARCH
(4)          000010                 STD=BIT3                  ;SEC XMIT DATA
(4)          000004                 RTS=BIT2                  ;REQ TO SEND
(4)          000002                 DTR=BIT1                  ;DATA TERM RDY
(4)          000001                 VOID=BIT0
(4)                                       ;RXDBUF BIT DEFINITIONS
(4)          100000                 RXERR=BIT15               ;REC ERROR
(4)          040000                 OVRRUN=BIT14              ;OVERRUN
(4)          020000                 FRMERR=BIT13              ;FRAME ERROR
(4)          010000                 PARER=BIT12               ;PARITY ERROR
(4)                                       ;PARCSR BIT DEFINITIONS
(4)          001000                 PAREN=BIT9                ;PARITY ENABLE
(4)          000400                 EVPAR=BIT8                ;EVEN PARITY SENSE
(4)                                       ;PARCSR WRD DEFINITIONS
(4)          030000                 SYNINT=30000              ;SYNC EXTERNAL MODE
(4)          020000                 SYNEXT=20000              ;SYNC INTERNAL MODE
(4)          000000                 ISYMOD=0                  ;ISOC MODE
(4)          000000                 FIVE=0                    ;WORD LENGTH 5 BITS
(4)          002000                 SIX=2000                  ;WORD LENGTH 6 BITS
(4)          004000                 SEVEN=4000                ;WORD LENGTH 7 BITS
(4)          006000                 EIGHT=6000                ;WORD LENGTH 8 BITS
(4)          000000                 NOPAR=0                   ;NO PARITY
(4)          001000                 ODDPAR=1000               ;ODD PARITY
(4)          001400                 EVEPAR=1400               ;EVEN PARITY
(4)                                       ;TXCSR BIT DEFINITIONS
(4)          100000                 DNA=BIT15                 ;DATA NOT AVAILABLE
(4)          040000                 MTDATA=BIT14              ;MAINT DATA
(4)          020000                 CLK=BIT13                 ;CLK
(4)          002000                 BITW=BIT10                ;BIT WINDOW
(4)          000400                 MRESET=BIT8               ;MASTER RESET
(4)          000200                 TXDONE=BIT7               ;XMIT DONE
(4)          000100                 TXINTE=BIT6               ;XMIT INTR ENABLE
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   (4)          000040                  DNAINTE=BIT5            ;DNA INTR ENAB
   (4)          000020                  SEND=BIT4               ;SEND
   (4)          000010                  HDXEN=BIT3              ;HDX/FDX
   (4)          000001                  BREAK=BIT0              ;BREAK
   (4)                                          ;TXCSR WRD DEFINITIONS
   (4)          000000                  USER=0                  ;USER MODE
   (4)          004000                  MINT=4000               ;MAINT INT MODE
   (4)          010000                  MEXT=10000              ;MAINT EXT MODE
   (4)          014000                  SYSTST=14000            ;SYSTEM TEST MODE
```

```
(2)                                     .SBTTL  ERROR POINTER TABLE
(2)
(2)                                     ;*THIS TABLE CONTAINS THE INFORMATION FOR EACH ERROR THAT CAN OCCUR.
(2)                                     ;*THE INFORMATION IS OBTAINED BY USING THE INDEX NUMBER FOUND IN
(2)                                     ;*LOCATION $ITEMB. THIS NUMBER INDICATES WHICH ITEM IN THE TABLE IS PERTINENT.
(2)                                     ;*NOTE1:        IF $ITEMB IS 0 THE ONLY PERTINENT DATA IS ($ERRPC).
(2)                                     ;*NOTE2:        EACH ITEM IN THE TABLE CONTAINS 4 POINTERS EXPLAINED AS FOLLOWS:
(2)
(2)                                     ;*      EM              ;;POINTS TO THE ERROR MESSAGE
(2)                                     ;*      DH              ;;POINTS TO THE DATA HEADER
(2)                                     ;*      DT              ;;POINTS TO THE DATA
(2)                                     ;*      DF              ;;POINTS TO THE DATA FORMAT
(2)
(2)
(2)  001652                             $ERRTB:
(1)                                             ;ERROR TABLE
(1)  001652  001762                             EM1     ;ERROR 1        REGISTER ERROR
(1)  001654  002067                             DH1
(1)  001656  002116                             DT1
(1)  001660  002132                             DF1
(1)  001662  002022                             EM2     ;ERROR 2        RECEIVER ERROR
(1)  001664  002067                             DH1
(1)  001666  002116                             DT1
(1)  001670  002132                             DF1
(1)  001672  002043                             EM3     ;ERROR 3        TRANSMITTER ERROR
(1)  001674  002067                             DH1
(1)  001676  002116                             DT1
(1)  001700  002132                             DF1
(1)  001702  001746                             EM4     ;ERROR 4        BIT ERROR (GENERAL)
(1)  001704  000000                             0
(1)  001706  002126                             DT4
(1)  001710  002132                             DF1
(1)
(1)                                             ;DEFAULT DU ADDRESSES
(1)  001712  174300                     RXCSR:  174300
(1)  001714  174301                     HRXCSR: 174301
(1)  001716  174302                     RXDBUF: 174302
(1)  001720  174303                     HRXDBUF:        174303
(1)  001722  174302                     PARCSR: 174302
(1)  001724  174303                     HPARCSR:        174303
(1)  001726  174304                     TXCSR:  174304
(1)  001730  174305                     HTXCSR: 174305
(1)  001732  174306                     TXDBUF: 174306
(1)  001734  174307                     HTXDBUF:        174307
(1)                                             ;DEFAULT DU VECTORS
(1)  001736  000330                     DURIV:  330     ;REC INTR VECTOR
(1)  001740  000332                     DURIS:  332     ;REC INTR STATUS
(1)  001742  000334                     DUTIV:  334     ;XMIT INTR VECTOR
(1)  001744  000336                     DUTIS:  336     ;XMIT INTR STATUS
(1)                                             ;ERROR MESSAGES
(1)  001746  020040  051105  047522     EM4:    .ASCIZ  /  ERROR PC /
(1)  001754  020122  041520  000040
(1)  001762  020040  047503  050115     EM1:    .ASCIZ /  COMPARISON ERROR ON REGISTERS/
(1)  001770  051101  051511  047117
(1)  001776  042440  051122  051117
(1)  002004  047440  020116  042522
```

```
(1)  002012  044507  052123  051105
(1)  002020  000123
(1)  002022  020040  042522  042503  EM2:    .ASCIZ  /  RECEIVER ERROR/
(1)  002030  053111  051105  042440
(1)  002036  051122  051117     000
(1)  002043     040  052040  040522  EM3:    .ASCIZ  /  TRANSMITTER ERROR/
(1)  002050  051516  044515  052124
(1)  002056  051105  042440  051122
(1)  002064  051117     000
(1)                                  ;DATA HEADERS FOR ERROR MESSAGES
(1)  002067     105  051122  041520  DH1:    .ASCIZ  /ERRPC  WANTED  ACTUAL/
(1)  002074  020040  040527  052116
(1)  002102  042105  020040  041501
(1)  002110  052524  046101     000
(1)          002116                  .EVEN
(1)                                  ;DATA TABLES FOR ERROR MESSAGES
(1)  002116  001416  001130  001132  DT1:    .WORD   $ERRPC,HLD0,HLD1,0
(1)  002124  000000
(1)
(1)  002126  001416  000000          DT4:    .WORD   $ERRPC,0
(1)
(1)  002132     000     000     000  DF1:    .BYTE   0,0,0,0
(1)  002135     000
(1)                                  .EVEN
(2)                                  .SBTTL  ACT11 HOOKS
(2)
(3)                                  ;;*****************************************************************
(2)                                  ;HOOKS REQUIRED BY ACT11
(2)          002136                          $SVPC=.                 ;SAVE PC
(2)          000046                          .=46
(2)  000046  012660                          $ENDAD                  ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
(2)          000052                          .=52
(2)  000052  000000                          .WORD   0               ;;2)SET LOC.52 TO ZERO
(2)          002136                          .=$SVPC                 ;; RESTORE PC
(2)                                  .SBTTL  APT PARAMETER BLOCK
(2)
(3)                                  ;;*****************************************************************
(2)                                  ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
(3)                                  ;;*****************************************************************
(2)          002136                          .$X=.   ;;SAVE CURRENT LOCATION
(2)          000024                          .=24    ;;SET POWER FAIL TO POINT TO START OF PROGRAM
(2)  000024  000200                          200     ;;FOR APT START UP
(2)          000044                          .=44    ;;POINT TO APT INDIRECT ADDRESS PNTR.
(2)  000044  002136                          $APTHDR ;;POINT TO APT HEADER BLOCK
(2)          002136                          .=.$X   ;;RESET LOCATION COUNTER
(3)                                  ;;*****************************************************************
(2)                                  ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
(2)                                  ;INTERFACE SPEC.
(2)
(2)  002136                          $APTHD:
(2)  002136  000000                  $HIBTS: .WORD   0       ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
(2)  002140  001526                  $MBADR: .WORD   $MAIL   ;;ADDRESS OF APT MAILBOX (BITS 0-15)
(2)  002142  000010                  $TSTM:  .WORD   10      ;;RUN TIM OF LONGEST TEST
(2)  002144  000010                  $PASTM: .WORD   10      ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
(2)  002146  000000                  $UNITM: .WORD           ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
(2)  002150  000052                          .WORD   $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)
```

```
(1)
(2)
(2)                                             ;PROGRAM INITIALIZATION
(2)                                             ;LOCK OUT INTERRUPTS
(2)                                             ;SET UP PROCESSOR STACK
(2)                                             ;SET UP POWER FAIL VECTOR
(2)                                             ;CLEAR PROGRAM CONTROL FLAGS AND COUNTS
(2)                                             ;TYPE TITLE MESSAGE
(2)
(2)  002152                             .START:
(3)                                     .SBTTL  INITIALIZE THE COMMON TAGS
(3)                                     ;;CLEAR THE COMMON TAGS ($CMTAG) AREA
(3)  002152  012706  001400                     MOV     #$CMTAG,R6      ;;FIRST LOCATION TO BE CLEARED
(3)  002156  005026                             CLR     (R6)+           ;;CLEAR MEMORY LOCATION
(3)  002160  022706  001440                     CMP     #SWR,R6 ;;DONE?
(3)  002164  001374                             BNE     .-6             ;;LOOP BACK IF NO
(3)  002166  012706  001100                     MOV     ##STACK,SP              ;;SETUP THE STACK POINTER
(3)                                     ;;INITIALIZE A FEW VECTORS
(3)  002172  012737  016304  000020             MOV     #$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
(3)  002200  012737  000300  000022             MOV     #PR6,@#IOTVEC+2 ;;LEVEL 6
(3)  002206  012737  014174  000030             MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
(3)  002214  012737  000300  000032             MOV     #PR6,@#EMTVEC+2 ;;LEVEL 6
(3)                                     ;;BIT02
(3)  002222  012737  016640  000034             MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
(3)  002230  012737  000300  000036             MOV     #PR6,@#TRAPVEC+2;LEVEL 6
(3)  002236  012737  014776  000024             MOV     #$PWRDN,@#PWRVEC ;;POWER FAILURE VECTOR
(3)  002244  012737  000300  000026             MOV     #PR6,@#PWRVEC+2 ;;LEVEL 6
(3)  002252  005067  177234                     CLR     $TIMES          ;;INITIALIZE NUMBER OF ITERATIONS
(3)  002256  005067  177232                     CLR     $ESCAPE         ;;CLEAR THE ESCAPE ON ERROR ADDRESS
(3)  002262  112767  000001  177125             MOVB    #1,$ERMAX       ;;ALLOW ONE ERROR PER TEST
(3)  002270  012767  002270  177110             MOV     #.,$LPADR       ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
(3)  002276  012767  002276  177104             MOV     #.,$LPERR       ;;SETUP THE ERROR LOOP ADDRESS
(4)                                     ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
(4)                                     ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
(4)  002304  013746  000004                     MOV     @#ERRVEC,-(SP)  ;;SAVE ERROR VECTOR
(4)  002310  012737  002344  000004             MOV     #64$,@#ERRVEC   ;;SET UP ERROR VECTOR
(4)  002316  012767  177570  177114             MOV     #DSWR,SWR       ;;SETUP FOR A HARDWARE SWICH REGISTER
(4)  002324  012767  177570  177110             MOV     #DDISP,DISPLAY  ;;AND A HARDWARE DISPLAY REGISTER
(4)  002332  022777  177777  177100             CMP     #-1,@SWR        ;;TRY TO REFERENCE HARDWARE SWR
(4)  002340  001012                             BNE     66$             ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
(4)                                                                     ;;AND  THE HARDWARE SWR IS NOT = -1
(4)  002342  000403                             BR      65$             ;;BRANCH IF NO TIMEOUT
(4)  002344  012716  002352          64$:      MOV     #65$,(SP)       ;;SET UP FOR TRAP RETURN
(4)  002350  000002                             RTI
(4)  002352  012767  000176  177060  65$:      MOV     #SWREG,SWR      ;;POINT TO SOFTWARE SWR
(4)  002360  012767  000174  177054             MOV     #DISPREG,DISPLAY
(4)  002366  012637  000004          66$:      MOV     (SP)+,@#ERRVEC  ;;RESTORE ERROR VECTOR
(3)
(4)  002372  005067  177136                     CLR     $PASS           ;;CLEAR PASS COUNT
(4)  002376  132767  000200  177143             BITB    #APTSIZE,$ENVM  ;;TEST USER SIZE UNDER APT
(4)  002404  001403                             BEQ     67$             ;;YES,USE NON-APT SWITCH
(4)  002406  012767  001550  177024             MOV     #$SWREG,SWR     ;;NO,USE APT SWITCH REGISTER
(4)  002414                             67$:
(2)  002414  012706  001100                     MOV     #STACK,SP               ;SET STACK
(2)  002420  106427  000300                     MTPS    #300                    ;LOCK INTERRUPTS
(2)  002424  012737  014776  000024             MOV     #.PFAIL,@#24            ;SET UP POWER FAIL VECTOR
```

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(2)  002432  105067  176535                CLRB    STFLG                   ;CLEAR START FLAG
(2)  002436  005067  176450                CLR     PASCNT                  ;CLEAR PASS COUNT
(2)  002442  105067  176735                CLRB    $ERFLG                  ;CLEAR ERROR FLAG
(2)  002446  005067  176740                CLR     $ERTTL                  ;CLEAR ERROR COUNT
(2)  002452  005067  176740                CLR     $ERRPC                  ;CLEAR LAST ERROR POINTER
(2)  002456  012767  000001  176716        MOV     #1,$TSTNM               ;SET UP FOR TEST 1
(2)  002464  012767  002152  176412        MOV     #.START,RETURN          ;SET UP FOR POWER FAIL BEFORE
(2)                                                                        ;TESTING STARTS
(2)  002472  013746  000006                MOV     @#6,-(SP)
(2)  002476  013746  000004                MOV     @#4,-(SP)
(2)  002502  012737  002516  000004        MOV     #1$,@#4
(2)  002510  005777  176724                TST     @SWR
(2)  002514  000407                        BR      2$
(2)  002516  012767  000176  176714  1$:   MOV     #SWREG,SWR
(2)  002524  012767  000174  176710        MOV     #DISPREG,DISPLAY
(2)  002532  022626                        CMP     (SP)+,(SP)+
(2)  002534  012637  000004          2$:   MOV     (SP)+,@#4
(2)  002540  012637  000006                MOV     (SP)+,@#6
(2)  002544  022767  000176  176666        CMP     #SWREG,SWR
(2)  002552  001007                        BNE     3$
(2)  002554  005737  000042                TST     @#42                    ;CHECK FOR CHAIN
(2)  002560  001402                        BEQ     33$
(2)  002562  000167  000522                JMP     .BEGIN
(2)  002566  004767  010170          33$:  JSR     PC,CNTLU
(2)  002572  105767  176374          3$:   TSTB    INIFLG                  ;HAS INITIALIZATION BEEN PERFORMED
(2)  002576  001004                        BNE     ONCE
(2)  002600  104401  015136                TYPE    ,MTITLE                 ;TYPE TITLE MESSAGE
(2)  002604  105167  176362                COMB    INIFLG                  ;IF NOT SET FLAG AND DO
(2)  002610  105767  176732          ONCE: TSTB    $ENV            ;APT CONTROL?
(2)  002614  001410                        BEQ     11$             ;BR IF NO
(2)  002616  032767  000001  176726        BIT     #1,$USWR        ;EXTENAL JUMPER ON?
(2)  002624  001002                        BNE     12$             ;NO
(2)  002626  105067  176321                CLRB    JMRBY           ;CLEAR FLAG
(2)  002632  000167  000452          12$:  JMP     .BEGIN          ;GO DO IT
(2)  002636  032777  000001  176574  11$:  BIT     #SW00,@SWR      ;RESELECT VECTOR & CONTROL REG?
(2)  002644  001002                        BNE     1$
(2)  002646  000167  000436                JMP     .BEGIN
(2)  002652  012700  000300          1$:   MOV     #300,R0 ;RESTORE VECTOR AREA TO TRAPCATCHER
(2)  002656  0127C1  000302                MOV     #302,R1 ;START AT LOCATION 300
(2)  002662  012702  000004                MOV     #4,R2
(2)  002666  010110                  2$:   MOV     R1,(R0)
(2)  002670  005011                        CLR     (R1)
(2)  002672  060200                        ADD     R2,R0
(2)  002674  060201                        ADD     R2,R1
(2)  002676  022701  001000                CMP     #1000,R1        ;END AT LOCATION 776
(2)  002702  002771                        BLT     2$
(2)  002704  104406                        INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  002706  015204                        MREGAD  ;MESSAGE
(2)  002710  104410                        PARAM   ;CONVERT STRING
(2)  002712  174000                        174000  ;LOW LIMIT
(2)  002714  177776                        177776  ;HIGH LIMIT
(2)  002716  017134                        DUBASE  ;STORE AT THIS LOCATION
(2)  002720     001                .BYTE   1       ;MASK
(2)  002721     001                .BYTE   1       ;HOW MANY TIMES + 2
(1)  002722  016767  014206  176226        MOV     DUBASE,KEEPADD  ;SAVE
(1)  002730  004767  014046                JSR     PC,DUADDR
```

```
(1)  002734  016767  176216  176212          MOV     KEEPADD,BASEADD ;RESTORE FOR ROTATION
(2)  002742  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  002744  015171                          MVECTO  ;MESSAGE
(2)  002746  104410                          PARAM   ;CONVERT STRING
(2)  002750  000300                          300     ;LOW LIMIT
(2)  002752  000776                          776     ;HIGH LIMIT
(2)  002754  001736                          DURIV   ;STORE AT THIS LOCATION
(2)  002756     001                  .BYTE   1       ;MASK
(2)  002757     004                  .BYTE   4       ;HOW MANY TIMES + 2
(1)  002760  016767  176752  176176          MOV     DURIV,KEEPIV    ;SAVE
(1)  002766  016767  176744  176166          MOV     DURIV,BASEIV    ;SET UP FOR ROTATION
(2)  002774  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  002776  015234                          MMULT   ;MESSAGE
(2)  003000  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003002  001152                          MULTD   ;THIS FLAG
(1)  003004  105767  176142                  TSTB    MULTD   ;ARE THERE MULTIPLE DEVICES
(1)                                                          ;ON THE SYSTEM ?
(1)  003010  100406                          BMI     BBB     ;YES,ASK NEXT QUESTION
(1)  003012  005067  176150                  CLR     ACTREG
(1)  003016  005067  176146                  CLR     ROTADD
(1)  003022  000167  000140                  JMP     OUTMUL  ;JUMP AROUND NEXT QUESTION
(1)  003026                          BBB:
(2)  003026  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003030  015263                          MLASTD  ;MESSAGE
(2)  003032  104410                          PARAM   ;CONVERT STRING
(2)  003034  174000                          174000  ;LOW LIMIT
(2)  003036  177776                          177776  ;HIGH LIMIT
(2)  003040  001160                          LASTADD ;STORE AT THIS LOCATION
(2)  003042     001                  .BYTE   1       ;MASK
(2)  003043     001                  .BYTE   1       ;HOW MANY TIMES + 2
(1)                                  ;THE FOLLOWING ROUTINE SETS UP ACTREG FOR THE FIRST TIME
(1)  003044  012767  000001  176116  1$:     MOV     #1,ROTADD       ;SET UP POINTER
(1)  003052  005067  176110                  CLR     ACTREG  ;CLR ACTIVE REGISTER
(1)  003056  056767  176106  176102  2$:     BIS     ROTADD,ACTREG   ;MAKE THIS DEVICE ACTIVE
(1)  003064  000241                          CLC
(1)  003066  006167  176076                  ROL     ROTADD  ;SET UP POINTER
(1)  003072  103421                          BCS     3$      ;ARE YOU OUT OF RANGE ?
(1)  003074  062767  000010  176052          ADD     #10,BASEADD     ;SET UP BASE ADDRESS
(1)  003102  026767  176052  176044          CMP     LASTADD,BASEADD ;IS THIS THE LAST DEVICE ?
(1)  003110  101362                          BHI     2$      ;NO DO IT AGAIN
(1)  003112  056767  176052  176046          BIS     ROTADD,ACTREG   ;THIS ASSUMES THAT THERE ARE AT
(1)                                                          ;LEAST TWO DEVICES WHEN YOU ANSWER YES TO
(1)                                                          ;MULTIPLE DEVICE QUESTION
(1)  003120  012767  000001  176042  4$:     MOV     #1,ROTADD       ;SET UP FOR LATER USE IN END OF PASS ROUTINE
(1)  003126  016767  176024  176020          MOV     KEEPADD,BASEADD ;DITTO
(1)  003134  000414                          BR      OUTMUL  ;CONTINUE QUESTIONS
(1)  003136  016767  176014  176010  3$:     MOV     KEEPADD,BASEADD ;RESTORE
(2)  003144  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003146  015357                          MRANGE  ;MESSAGE
(2)  003150  104410                          PARAM   ;CONVERT STRING
(2)  003152  174000                          174000  ;LOW LIMIT
(2)  003154  177776                          177776  ;HIGH LIMIT
(2)  003156  001160                          LASTADD ;STORE AT THIS LOCATION
(2)  003160     001                  .BYTE   1       ;MASK
(2)  003161     001                  .BYTE   1       ;HOW MANY TIMES + 2
(1)  003162  000167  177656                  JMP     1$      ;DO IT AGAIN
```

```
(1)  003166  012767  000300  013602  OUTMUL: MOV     #300,DUPRT
(1)  003174  004767  013526                  JSR     PC,DULEV
(2)                                          ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
(2)                                          ;BUFFER TO THE CHARACTERS "1" AND "2".
(2)                                          ;IF THE CHARACTER IS "1" CLEAR THE FLAG
(2)                                          ;IF THE CHARACTER IS "2" SET THE FLAG
(2)  003200                          AAA:
(2)  003200  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003202  015575                          MSYNC   ;MESSAGE
(2)  003204  122767  000061  012724  3$:     CMPB    #'1,INBUF       ;IS IT "1" ?
(2)  003212  001003                          BNE     1$
(2)  003214  105067  175726                  CLRB    SYNCNO  ;000
(2)  003220  000412                          BR      4$
(2)  003222  122767  000062  012706  1$:     CMPB    #'2,INBUF       ;IS IT "2" ?
(2)  003230  001004                          BNE     2$
(2)  003232  112767  177777  175706          MOVB    #-1,SYNCNO      ;377
(2)  003240  000402                          BR      4$
(2)  003242  104407                  2$:     INSTER  ;RETRY
(2)  003244  000757                          BR      3$
(2)  003246  000240                  4$:     NOP
(2)  003250  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003252  015643                          MWIRE6  ;MESSAGE
(2)  003254  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003256  001147                          SEXMIT  ;THIS FLAG
(2)  003260  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003262  015714                          MWIRE5  ;MESSAGE
(2)  003264  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003266  001150                          SEREC   ;THIS FLAG
(2)  003270  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003272  015764                          MWIRE4  ;MESSAGE
(2)  003274  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003276  001151                          OPTCLR  ;THIS FLAG
(2)  003300  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003302  016043                          MEXTJ   ;MESSAGE
(2)  003304  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003306  001153                          JMRBY   ;THIS FLAG
(2)
(2)                                          ;TEST START AND RESTART
(2)
(2)  003310  012706  001100          .BEGIN: MOV     #STACK,SP               ;SET UP STACK
(2)  003314  106427  000300                  MTPS    #300                    ;LOCK OUT INTERRUPTS
(2)  003320  032777  000002  176112          BIT     #SW01,@SWR              ;IF SW01=1, GET STARTING PC
(2)  003326  001413                          BEQ     3$
(3)  003330  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(3)  003332  015527                          MTSTPC  ;MESSAGE
(3)  003334  104410                          PARAM   ;CONVERT STRING
(3)  003336  003374                          TST1    ;LOW LIMIT
(3)  003340  017500                          17500   ;HIGH LIMIT
(3)  003342  001402                          $TSTNM  ;STORE AT THIS LOCATION
(3)  003344     001                  .BYTE   1       ;MASK
(3)  003345     001                  .BYTE   1       ;HOW MANY TIMES * 2
(2)  003346  016767  176030  175530          MOV     $TSTNM,RETURN
(2)  003354  000403                          BR      4$
(2)  003356  012767  003374  175520  3$:     MOV     #TST1,RETURN            ;START AT TEST 1
(2)  003364  104401  015523          4$:     TYPE    ,MR                     ;TYPE R
(2)  003370  000177  175510                  JMP     @RETURN                 ;START TESTING
```

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 8151
 8152                                        ;;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
  (1)                                        ;;RECEIVER SECTION,IT USES THE ERROR FLAGS
  (1)                                        ;;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
  (1)                                        ;;(OVRRUN,RXERR)
  (1)                                        ;;MODE:SYNEXT
  (1)                                        ;;LENGTH:SEVEN
  (1)                                        ;;CHAR:177
  (1)                                        ;;
  (5)                                    ;;**********************************************************************
  (4)  003374  000004                    TST1:   SCOPE
  (4)
  (3)  003376  052777  000400  176322            BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)  003404  012777  020000  176310            MOV     #SYNEXT,@PARCSR ;SET THE MODE
  (3)  003412  052777  000400  176306            BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)
  (2)                                    ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (2)  003420  012777  064001  176300            MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (2)
  (2)                                    ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (2)  003426  012777  024000  176266            MOV     #SYNEXT!SEVEN!NOPAR!0,@PARCSR
  (1)  003434  052777  000020  176250            BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
  (2)                                    ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (2)  003442  042777  020000  176256            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  003450  052777  020000  176250            BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  003456  016703  176234                    MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
  (1)  003462  012700  000177                    MOV     #177,R0 ;EXPECTED
  (1)  003466  012767  000007  175426            MOV     #7,SHIFT        ;# OF SHIFTS
  (1)  003474  012767  000177  175776            MOV     #177,$TMP1      ;DATA CHAR
  (1)  003502  004767  013430                    JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)  003506  105777  176200                    TSTB    @RXCSR  ;RXDONE ?
  (1)  003512  100401                            BMI     .+4
  (1)  003514  104004                            ERROR   4       ;RXDONE SHOULD BE SET
  (1)  003516  017701  176174                    MOV     @RXDBUF,R1      ;ACTUAL
  (1)  003522  020001                            CMP     R0,R1   ;COMPARE EXPECTED VS. ACTUAL
  (1)  003524  001401                            BEQ     .+4
  (1)  003526  104002                            ERROR   2       ;RECEIVED DATA DID NOT MATCH
  (1)                                                            ;EXPECTED DATA - CHECK MAINT DATA
  (1)                                                            ;OR RECEIVER LOGIC
  (1)  003530  012767  000007  175364            MOV     #7,SHIFT        ;# OF SHIFTS
  (1)  003536  012767  000177  175734            MOV     #177,$TMP1      ;DATA CHAR
  (1)  003544  004767  013366                    JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)                                    ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
  (1)  003550  012767  000007  175344            MOV     #7,SHIFT        ;# OF SHIFTS
  (1)  003556  012767  000177  175714            MOV     #177,$TMP1      ;DATA CHAR
  (1)  003564  004767  013346                    JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)  003570  012700  140177                    MOV     #140000!177,R0  ;EXPECTED DATA PLUS
  (1)                                                            ;RXERR & OVRRUN
  (1)  003574  017701  176116                    MOV     @RXDBUF,R1      ;ACTUAL
  (1)  003600  020001                            CMP     R0,R1   ;COMPARE EXP VS. ACT
  (1)  003602  001401                            BEQ     .+4
  (1)  003604  104002                            ERROR   2       ;SPECIFICALLY LOOK AT RXERR &
  (1)                                                            ;OVRRUN BITS...THEY BOTH SHOULD BE SET
  (1)
 8153                                        ;;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
  (1)                                        ;;RECEIVER SECTION,IT USES THE ERROR FLAGS
```

```
(1)                                             ;;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
(1)                                             ;;(OVRRUN,RXERR)
(1)                                             ;;MODE:SYNEXT
(1)                                             ;;LENGTH:SEVEN
(1)                                             ;;CHAR:0
(1)                                             ;;
(5)                                     ;;**********************************************************************
(4)  003606  000004                     TST2:   SCOPE
(4)
(3)  003610  052777  000400  176110             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  003616  012777  020000  176076             MOV     #SYNEXT,@PARCSR ;SET THE MODE
(3)  003624  052777  000400  176074             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
(2)  003632  012777  064001  176066             MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
(2)
(2)                                     ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
(2)  003640  012777  024000  176054             MOV     #SYNEXT!SEVEN!NOPAR!0,@PARCSR
(1)  003646  052777  000020  176036             BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
(2)                                     ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
(2)  003654  042777  020000  176044             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(2)  003662  052777  020000  176036             BIS     #CLK,@TXCSR     ;POKE CLK UP
(1)  003670  016703  176022                     MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
(1)  003674  012700  000000                     MOV     #0,R0   ;EXPECTED
(1)  003700  012767  000007  175214             MOV     #7,SHIFT        ;# OF SHIFTS
(1)  003706  012767  000000  175564             MOV     #0,$TMP1        ;DATA CHAR
(1)  003714  004767  013216                     JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
(1)  003720  105777  175766                     TSTB    @RXCSR  ;RXDONE ?
(1)  003724  100401                             BMI     .+4
(1)  003726  104004                             ERROR   4       ;RXDONE SHOULD BE SET
(1)  003730  017701  175762                     MOV     @RXDBUF,R1      ;ACTUAL
(1)  003734  020001                             CMP     R0,R1   ;COMPARE EXPECTED VS. ACTUAL
(1)  003736  001401                             BEQ     .+4
(1)  003740  104002                             ERROR   2       ;RECEIVED DATA DID NOT MATCH
(1)                                             ;EXPECTED DATA - CHECK MAINT DATA
(1)                                             ;OR RECEIVER LOGIC
(1)  003742  012767  000007  175152             MOV     #7,SHIFT        ;# OF SHIFTS
(1)  003750  012767  000000  175522             MOV     #0,$TMP1        ;DATA CHAR
(1)  003756  004767  013154                     JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
(1)                                     ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
(1)  003762  012767  000007  175132             MOV     #7,SHIFT        ;# OF SHIFTS
(1)  003770  012767  000000  175502             MOV     #0,$TMP1        ;DATA CHAR
(1)  003776  004767  013134                     JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
(1)  004002  012700  140000                     MOV     #140000!0,R0    ;EXPECTED DATA PLUS
(1)                                             ;RXERR & OVRRUN
(1)  004006  017701  175704                     MOV     @RXDBUF,R1      ;ACTUAL
(1)  004012  020001                             CMP     R0,R1   ;COMPARE EXP VS. ACT
(1)  004014  001401                             BEQ     .+4
(1)  004016  104002                             ERROR   2       ;SPECIFICALLY LOOK AT RXERR &
(1)                                             ;OVRRUN BITS...THEY BOTH SHOULD BE SET
(1)
8154                                            ;;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
(1)                                             ;;RECEIVER SECTION,IT USES THE ERROR FLAGS
(1)                                             ;;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
(1)                                             ;;(OVRRUN,RXERR)
(1)                                             ;;MODE:SYNEXT
```

```
(1)                                             ;;LENGTH:EIGHT
(1)                                             ;;CHAR:125
(1)                                             ;;
(5)                                     ;;*****************************************************************
(4)  004020  000004                     TST3:   SCOPE
(4)
(3)  004022  052777  000400  175676             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  004030  012777  020000  175664             MOV     #SYNEXT,@PARCSR ;SET THE MODE
(3)  004036  052777  000400  175662             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
(2)  004044  012777  064001  175654             MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
(2)
(2)                                     ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
(2)  004052  012777  026000  175642             MOV     #SYNEXT!EIGHT!NOPAR!0,@PARCSR
(1)  004060  052777  000020  175624             BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
(2)                                     ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
(2)  004066  042777  020000  175632             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(2)  004074  052777  020000  175624             BIS     #CLK,@TXCSR     ;POKE CLK UP
(1)  004102  016703  175610                     MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
(1)  004106  012700  000125                     MOV     #125,R0 ;EXPECTED
(1)  004112  012767  000010  175002             MOV     #8.,SHIFT       ;# OF SHIFTS
(1)  004120  012767  000125  175352             MOV     #125,$TMP1      ;DATA CHAR
(1)  004126  004767  013004                     JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
(1)  004132  105777  175554                     TSTB    @RXCSR  ;RXDONE ?
(1)  004136  100401                             BMI     .+4
(1)  004140  104004                             ERROR   4       ;RXDONE SHOULD BE SET
(1)  004142  017701  175550                     MOV     @RXDBUF,R1      ;ACTUAL
(1)  004146  020001                             CMP     R0,R1   ;COMPARE EXPECTED VS. ACTUAL
(1)  004150  001401                             BEQ     .+4
(1)  004152  104002                             ERROR   2       ;RECEIVED DATA DID NOT MATCH
(1)                                             ;EXPECTED DATA - CHECK MAINT DATA
(1)                                             ;OR RECEIVER LOGIC
(1)  004154  012767  000010  174740             MOV     #8.,SHIFT       ;# OF SHIFTS
(1)  004162  012767  000125  175310             MOV     #125,$TMP1      ;DATA CHAR
(1)  004170  004767  012742                     JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
(1)                                     ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
(1)  004174  012767  000010  174720             MOV     #8.,SHIFT       ;# OF SHIFTS
(1)  004202  012767  000125  175270             MOV     #125,$TMP1      ;DATA CHAR
(1)  004210  004767  012722                     JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
(1)  004214  012700  140125                     MOV     #140000!125,R0  ;EXPECTED DATA PLUS
(1)                                             ;RXERR & OVRRUN
(1)  004220  017701  175472                     MOV     @RXDBUF,R1      ;ACTUAL
(1)  004224  020001                             CMP     R0,R1   ;COMPARE EXP VS. ACT
(1)  004226  001401                             BEQ     .+4
(1)  004230  104002                             ERROR   2       ;SPECIFICALLY LOOK AT RXERR &
(1)                                             ;OVRRUN BITS...THEY BOTH SHOULD BE SET
(1)
8155                                            ;;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
(1)                                             ;;RECEIVER SECTION,IT USES THE ERROR FLAGS
(1)                                             ;;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
(1)                                             ;;(OVRRUN,RXERR)
(1)                                             ;;MODE:SYNEXT
(1)                                             ;;LENGTH:EIGHT
(1)                                             ;;CHAR:252
(1)                                             ;;
```

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    (5)                                 ;;*****************************************************************
    (4)  004232  000004                 TST4:   SCOPE
    (4)
    (3)  004234  052777  000400  175464         BIS     #MRESET,@TXCSR  ;MASTER RESET
    (2)  004242  012777  020000  175452         MOV     #SYNEXT,@PARCSR ;SET THE MODE
    (3)  004250  052777  000400  175450         BIS     #MRESET,@TXCSR  ;MASTER RESET
    (2)
    (2)                                 ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
    (2)  004256  012777  064001  175442         MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
    (2)
    (2)                                 ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
    (2)  004264  012777  026000  175430         MOV     #SYNEXT!EIGHT!NOPAR!0,@PARCSR
    (1)  004272  052777  000020  175412         BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
    (2)
    (2)                                 ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
    (2)  004300  042777  020000  175420         BIC     #CLK,@TXCSR     ;POKE CLK DOWN
    (2)  004306  052777  020000  175412         BIS     #CLK,@TXCSR     ;POKE CLK UP
    (1)  004314  016703  175376                 MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
    (1)  004320  012700  000252                 MOV     #252,R0 ;EXPECTED
    (1)  004324  012767  000010  174570         MOV     #8.,SHIFT       ;# OF SHIFTS
    (1)  004332  012767  000252  175140         MOV     #252,$TMP1      ;DATA CHAR
    (1)  004340  004767  012572                 JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
    (1)  004344  105777  175342                 TSTB    @RXCSR  ;RXDONE ?
    (1)  004350  100401                         BMI     .+4
    (1)  004352  104004                         ERROR   4       ;RXDONE SHOULD BE SET
    (1)  004354  017701  175336                 MOV     @RXDBUF,R1      ;ACTUAL
    (1)  004360  020001                         CMP     R0,R1   ;COMPARE EXPECTED VS. ACTUAL
    (1)  004362  001401                         BEQ     .+4
    (1)  004364  104002                         ERROR   2       ;RECEIVED DATA DID NOT MATCH
    (1)                                                         ;EXPECTED DATA - CHECK MAINT DATA
    (1)                                                         ;OR RECEIVER LOGIC
    (1)  004366  012767  000010  174526         MOV     #8.,SHIFT       ;# OF SHIFTS
    (1)  004374  012767  000252  175076         MOV     #252,$TMP1      ;DATA CHAR
    (1)  004402  004767  012530                 JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
    (1)                                 ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
    (1)  004406  012767  000010  174506         MOV     #8.,SHIFT       ;# OF SHIFTS
    (1)  004414  012767  000252  175056         MOV     #252,$TMP1      ;DATA CHAR
    (1)  004422  004767  012510                 JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
    (1)  004426  012700  140252                 MOV     #140000!252,R0  ;EXPECTED DATA PLUS
    (1)                                                         ;RXERR & OVRRUN
    (1)  004432  017701  175260                 MOV     @RXDBUF,R1      ;ACTUAL
    (1)  004436  020001                         CMP     R0,R1   ;COMPARE EXP VS. ACT
    (1)  004440  001401                         BEQ     .+4
    (1)  004442  104002                         ERROR   2       ;SPECIFICALLY LOOK AT RXERR &
    (1)                                                         ;OVRRUN BITS...THEY BOTH SHOULD BE SET
    (1)
 8156                                           ;;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
    (1)                                         ;;RECEIVER SECTION,IT USES THE ERROR FLAGS
    (1)                                         ;;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
    (1)                                         ;;(OVRRUN,RXERR)
    (1)                                         ;;MODE:SYNEXT
    (1)                                         ;;LENGTH:EIGHT
    (1)                                         ;;CHAR:377
    (1)                                         ;;
    (5)                                 ;;*****************************************************************
    (4)  004444  000004                 TST5:   SCOPE
    (4)
```

```
   (3)  004446  052777  000400  175252          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  004454  012777  020000  175240          MOV     #SYNEXT,@PARCSR ;SET THE MODE
   (3)  004462  052777  000400  175236          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  004470  012777  064001  175230          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  004476  012777  026000  175216          MOV     #SYNEXT!EIGHT!NOPAR!0,@PARCSR
   (1)  004504  052777  000020  175200          BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
   (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  004512  042777  020000  175206          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  004520  052777  020000  175200          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  004526  016703  175164                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
   (1)  004532  012700  000377                  MOV     #377,R0 ;EXPECTED
   (1)  004536  012767  000010  174356          MOV     #8.,SHIFT       ;# OF SHIFTS
   (1)  004544  012767  000377  174726          MOV     #377,$TMP1      ;DATA CHAR
   (1)  004552  004767  012360                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  004556  105777  175130                  TSTB    @RXCSR  ;RXDONE ?
   (1)  004562  100401                          BMI     .+4
   (1)  004564  104004                          ERROR   4       ;RXDONE SHOULD BE SET
   (1)  004566  017701  175124                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  004572  020001                          CMP     R0,R1   ;COMPARE EXPECTED VS. ACTUAL
   (1)  004574  001401                          BEQ     .+4
   (1)  004576  104002                          ERROR   2       ;RECEIVED DATA DID NOT MATCH
   (1)                                                          ;EXPECTED DATA - CHECK MAINT DATA
   (1)                                                          ;OR RECEIVER LOGIC
   (1)  004600  012767  000010  174314          MOV     #8.,SHIFT       ;# OF SHIFTS
   (1)  004606  012767  000377  174664          MOV     #377,$TMP1      ;DATA CHAR
   (1)  004614  004767  012316                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)                                  ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
   (1)  004620  012767  000010  174274          MOV     #8.,SHIFT       ;# OF SHIFTS
   (1)  004626  012767  000377  174644          MOV     #377,$TMP1      ;DATA CHAR
   (1)  004634  004767  012276                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  004640  012700  140377                  MOV     #140000!377,R0  ;EXPECTED DATA PLUS
   (1)                                                          ;RXERR & OVRRUN
   (1)  004644  017701  175046                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  004650  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
   (1)  004652  001401                          BEQ     .+4
   (1)  004654  104002                          ERROR   2       ;SPECIFICALLY LOOK AT RXERR &
   (1)                                                          ;OVRRUN BITS...THEY BOTH SHOULD BE SET
   (1)
8157                                            ;;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
   (1)                                          ;;RECEIVER SECTION,IT USES THE ERROR FLAGS
   (1)                                          ;;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
   (1)                                          ;;(OVRRUN,RXERR)
   (1)                                          ;;MODE:SYNEXT
   (1)                                          ;;LENGTH:EIGHT
   (1)                                          ;;CHAR:0
   (1)                                          ;;
   (5)                                  ;;**************************************************************************
   (4)  004656  000004                  TST6:   SCOPE
   (4)
   (3)  004660  052777  000400  175040          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  004666  012777  020000  175026          MOV     #SYNEXT,@PARCSR ;SET THE MODE
   (3)  004674  052777  000400  175024          BIS     #MRESET,@TXCSR  ;MASTER RESET
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    (2)
    (2)                                         ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
    (2)  004702  012777  064001  175016                MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
    (2)
    (2)                                         ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
    (2)  004710  012777  026000  175004                MOV     #SYNEXT!EIGHT!NOPAR!0,@PARCSR
    (1)  004716  052777  000020  174766                BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
    (2)                                         ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
    (2)  004724  042777  020000  174774                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
    (2)  004732  052777  020000  174766                BIS     #CLK,@TXCSR     ;POKE CLK UP
    (1)  004740  016703  174752                        MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
    (1)  004744  012700  000000                        MOV     #0,R0   ;EXPECTED
    (1)  004750  012767  000010  174144                MOV     #8.,SHIFT       ;# OF SHIFTS
    (1)  004756  012767  000000  174514                MOV     #0,$TMP1        ;DATA CHAR
    (1)  004764  004767  012146                        JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
    (1)  004770  105777  174716                        TSTB    @RXCSR  ;RXDONE ?
    (1)  004774  100401                                BMI     .+4
    (1)  004776  104004                                ERROR   4       ;RXDONE SHOULD BE SET
    (1)  005000  017701  174712                        MOV     @RXDBUF,R1      ;ACTUAL
    (1)  005004  020001                                CMP     R0,R1   ;COMPARE EXPECTED VS. ACTUAL
    (1)  005006  001401                                BEQ     .+4
    (1)  005010  104002                                ERROR   2       ;RECEIVED DATA DID NOT MATCH
    (1)                                                                ;EXPECTED DATA - CHECK MAINT DATA
    (1)                                                                ;OR RECEIVER LOGIC
    (1)  005012  012767  000010  174102                MOV     #8.,SHIFT       ;# OF SHIFTS
    (1)  005020  012767  000000  174452                MOV     #0,$TMP1        ;DATA CHAR
    (1)  005026  004767  012104                        JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
    (1)                                         ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
    (1)  005032  012767  000010  174062                MOV     #8.,SHIFT       ;# OF SHIFTS
    (1)  005040  012767  000000  174432                MOV     #0,$TMP1        ;DATA CHAR
    (1)  005046  004767  012064                        JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
    (1)  005052  012700  140000                        MOV     #140000!0,R0    ;EXPECTED DATA PLUS
    (1)                                                                ;RXERR & OVRRUN
    (1)  005056  017701  174634                        MOV     @RXDBUF,R1      ;ACTUAL
    (1)  005062  020001                                CMP     R0,R1   ;COMPARE EXP VS. ACT
    (1)  005064  001401                                BEQ     .+4
    (1)  005066  104002                                ERROR   2       ;SPECIFICALLY LOOK AT RXERR &
    (1)                                                                ;OVRRUN BITS...THEY BOTH SHOULD BE SET
    (1)
 8158                                                  ;;THIS TEST VERIFYS WORD LENGTH SELECT OF RECEIVER
    (1)                                                ;;SECTION ,IT USES THE ERROR FLAGS TO DETERMINE
    (1)                                                ;;THAT IT WAS SELECTED PROPERLY
    (1)                                                ;;FRAME ERROR (FRMERR,RXERR)
    (1)                                                ;;MODE:ISOC (ISYMOD)
    (1)                                                ;;LENGTH:FIVE
    (1)                                                ;;CHAR: 25
    (1)                                                ;;
    (5)                                         ;;*****************************************************************
    (4)  005070  000004                         TST7:   SCOPE
    (4)
    (3)  005072  052777  000400  174626                BIS     #MRESET,@TXCSR  ;MASTER RESET
    (2)  005100  012777  000000  174614                MOV     #ISYMOD,@PARCSR ;SET THE MODE
    (3)  005106  052777  000400  174612                BIS     #MRESET,@TXCSR  ;MASTER RESET
    (2)
    (2)                                         ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
    (2)  005114  012777  064001  174604                MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
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   (2)
   (2)                                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  005122  012777  000000  174572                MOV     #ISYMOD!FIVE!NOPAR!0,@PARCSR
   (2)  005130  052777  000020  174554                BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                                ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  005136  042777  020000  174562                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  005144  052777  020000  174554                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  005152  042777  020000  174546                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  005160  052777  020000  174540                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  005166  012767  000007  173726                MOV     #7,SHIFT        ;# OF SHIFTS
   (1)  005174  012767  000052  174276                MOV     #52,$TMP1       ;DATA CHAR
   (1)                                          ;NOTE: THE ABOVE CHARACTER IS MISSING STOP BIT
   (1)  005202  004767  011730                        JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  005206  016703  174504                        MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
   (1)  005212  012700  120025                        MOV     #RXERR!FRMERR!25,R0     ;EXPECTED
   (1)  005216  017701  174474                        MOV     @RXDBUF,R1      ;ACTUAL
   (1)  005222  020001                                CMP     R0,R1   ;COMPARE EXP VS ACT
   (1)  005224  001401                                BEQ     .+4
   (1)  005226  104000                                ERROR   ;FRAME ERROR    4 & RX ERROR SHOULD BE SET
   (1)                                                        ;IF LOWER BYTE DOES NOT MATCH  IT
   (1)                                                        ;PROBABLY IS A LENGTH SELECT PROBLEM
   (1)
  8159                                                ;;THIS TEST VERIFYS WORD LENGTH SELECT OF RECEIVER
   (1)                                                ;;SECTION ,IT USES THE ERROR FLAGS TO DETERMINE
   (1)                                                ;;THAT IT WAS SELECTED PROPERLY
   (1)                                                ;;FRAME ERROR (FRMERR,RXERR)
   (1)                                                ;;MODE:ISOC (ISYMOD)
   (1)                                                ;;LENGTH:SIX
   (1)                                                ;;CHAR: 25
   (1)                                                ;;
   (5)                                          ;;*****************************************************************
   (4)  005230  000004                          TST10:  SCOPE
   (4)
   (3)  005232  052777  000400  174466                BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  005240  012777  000000  174454                MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  005246  052777  000400  174452                BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  005254  012777  064001  174444                MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  005262  012777  002000  174432                MOV     #ISYMOD!SIX!NOPAR!0,@PARCSR
   (2)  005270  052777  000020  174414                BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                                ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  005276  042777  020000  174422                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  005304  052777  020000  174414                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  005312  042777  020000  174406                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  005320  052777  020000  174400                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  005326  012767  000010  173566                MOV     #8.,SHIFT       ;# OF SHIFTS
   (1)  005334  012767  000052  174136                MOV     #52,$TMP1       ;DATA CHAR
   (1)                                          ;NOTE: THE ABOVE CHARACTER IS MISSING STOP BIT
   (1)  005342  004767  011570                        JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  005346  016703  174344                        MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
   (1)  005352  012700  120025                        MOV     #RXERR!FRMERR!25,R0     ;EXPECTED
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   (1)  005356  017701  174334                MOV     @RXDBUF,R1      ;ACTUAL
   (1)  005362  020001                        CMP     R0,R1   ;COMPARE EXP VS ACT
   (1)  005364  001401                        BEQ     .+4
   (1)  005366  104000                        ERROR   ;FRAME ERROR    4 & RX ERROR SHOULD BE SET
   (1)                                                        ;IF LOWER BYTE DOES NOT MATCH  IT
   (1)                                                        ;PROBABLY IS A LENGTH SELECT PROBLEM
   (1)
  8160                                        ;;THIS TEST VERIFYS WORD LENGTH SELECT OF RECEIVER
   (1)                                        ;;SECTION ,IT USES THE ERROR FLAGS TO DETERMINE
   (1)                                        ;;THAT IT WAS SELECTED PROPERLY
   (1)                                        ;;FRAME ERROR (FRMERR,RXERR)
   (1)                                        ;;MODE:ISOC (ISYMOD)
   (1)                                        ;;LENGTH:SEVEN
   (1)                                        ;;CHAR: 125
   (1)                                        ;;
   (5)                                    ;;**********************************************************************
   (4)  005370  000004                    TST11:  SCOPE
   (4)
   (3)  005372  052777  000400  174326           BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  005400  012777  000000  174314           MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  005406  052777  000400  174312           BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                    ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  005414  012777  064001  174304           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                    ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  005422  012777  004000  174272           MOV     #ISYMOD!SEVEN!NOPAR!0,@PARCSR
   (2)  005430  052777  000020  174254           BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                           ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  005436  042777  020000  174262           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  005444  052777  020000  174254           BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                    ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  005452  042777  020000  174246           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  005460  052777  020000  174240           BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  005466  012767  000011  173426           MOV     #9.,SHIFT       ;# OF SHIFTS
   (1)  005474  012767  000252  173776           MOV     #252,$TMP1      ;DATA CHAR
   (1)                                    ;NOTE: THE ABOVE CHARACTER IS MISSING STOP BIT
   (1)  005502  004767  011430                   JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  005506  016703  174204                   MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
   (1)  005512  012700  120125                   MOV     #RXERR!FRMERR!125,R0    ;EXPECTED
   (1)  005516  017701  174174                   MOV     @RXDBUF,R1      ;ACTUAL
   (1)  005522  020001                           CMP     R0,R1   ;COMPARE EXP VS ACT
   (1)  005524  001401                           BEQ     .+4
   (1)  005526  104000                           ERROR   ;FRAME ERROR    4 & RX ERROR SHOULD BE SET
   (1)                                                        ;IF LOWER BYTE DOES NOT MATCH  IT
   (1)                                                        ;PROBABLY IS A LENGTH SELECT PROBLEM
   (1)
  8161                                        ;;THIS TEST VERIFYS WORD LENGTH SELECT OF RECEIVER
   (1)                                        ;;SECTION ,IT USES THE ERROR FLAGS TO DETERMINE
   (1)                                        ;;THAT IT WAS SELECTED PROPERLY
   (1)                                        ;;FRAME ERROR (FRMERR,RXERR)
   (1)                                        ;;MODE:ISOC (ISYMOD)
   (1)                                        ;;LENGTH:EIGHT
   (1)                                        ;;CHAR: 125
   (1)                                        ;;
   (5)                                    ;;**********************************************************************
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                                        INITIALIZE THE COMMON TAGS                                              SEQ 0040

   (4)  005530  000004                  TST12:  SCOPE
   (4)
   (3)  005532  052777  000400  174166          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  005540  012777  000000  174154          MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  005546  052777  000400  174152          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  005554  012777  064001  174144          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  005562  012777  006000  174132          MOV     #ISYMOD!EIGHT!NOPAR!0,@PARCSR
   (2)  005570  052777  000020  174114          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  005576  042777  020000  174122          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  005604  052777  020000  174114          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  005612  042777  020000  174106          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  005620  052777  020000  174100          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  005626  012767  000012  173266          MOV     #10.,SHIFT      ;# OF SHIFTS
   (1)  005634  012767  000252  173636          MOV     #252,$TMP1      ;DATA CHAR
   (1)                                  ;NOTE: THE ABOVE CHARACTER IS MISSING STOP BIT
   (1)  005642  004767  011270                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  005646  016703  174044                  MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
   (1)  005652  012700  120125                  MOV     #RXERR!FRMERR!125,R0    ;EXPECTED
   (1)  005656  017701  174034                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  005662  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
   (1)  005664  001401                          BEQ     .+4
   (1)  005666  104000                          ERROR   ;FRAME ERROR    4 & RX ERROR SHOULD BE SET
   (1)                                                  ;IF LOWER BYTE DOES NOT MATCH  IT
   (1)                                                  ;PROBABLY IS A LENGTH SELECT PROBLEM
   (1)
 8162                                           ;;THIS TEST VERIFYS EVEPAR PARITY SENSE
   (1)                                          ;;OF THE RECEIVER
   (1)                                          ;;MODE:ISOC (ISYMOD)
   (1)                                          ;;PARITY:EVEPAR
   (1)                                          ;;LENGTH:FIVE PLUS PARITY
   (1)                                          ;;CHAR: 25
   (1)                                          ;;
   (5)                                  ;;*****************************************************************************
   (4)  005670  000004                  TST13:  SCOPE
   (4)
   (3)  005672  052777  000400  174026          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  005700  012777  000000  174014          MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  005706  052777  000400  174012          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  005714  012777  064001  174004          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  005722  012777  001400  173772          MOV     #ISYMOD!FIVE!EVEPAR!0,@PARCSR
   (2)  005730  052777  000020  173754          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  005736  042777  020000  173762          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  005744  052777  020000  173754          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  005752  042777  020000  173746          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
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   (2)  005760  052777  020000  173740          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  005766  016703  173724                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
   (1)  005772  012700  110025                  MOV     #RXERR!PARER!25,R0      ;EXPECTED
   (1)  005776  012767  000010  173116          MOV     #8.,SHIFT       ;# OF SHIFTS
   (1)  006004  012767  000252  173466          MOV     #252,$TMP1      ;DATA CHAR
   (1)  006012  004767  011120                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  006016  105777  173670                  TSTB    @RXCSR  ;RXDONE ?
   (1)  006022  100401                          BMI     .+4
   (1)  006024  104004                          ERROR   4               ;RXDONE SHOULD BE ASSERTED
   (1)  006026  017701  173664                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  006032  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
   (1)  006034  001401                          BEQ     .+4
   (1)  006036  104000                          ERROR   ;PARITY ERROR   4 &RXERR SHOULD BE SET
   (1)                                                  ;NOTE THAT THE PARITY BIT SHOULD
   (1)                                                  ;SHOW UP IN THE DATA
   (1)                                                  ;IE. BIT FIVE FOR FIVE LEVEL CODE
   (1)
  8163                                  ;;THIS TEST VERIFYS EVEPAR PARITY SENSE
   (1)                                  ;;OF THE RECEIVER
   (1)                                  ;;MODE:ISOC (ISYMOD)
   (1)                                  ;;PARITY:EVEPAR
   (1)                                  ;;LENGTH:SIX PLUS PARITY
   (1)                                  ;;CHAR: 25
   (1)                                  ;;
   (5)                          ;;**************************************************************************
   (4)  006040  000004          TST14:  SCOPE
   (4)
   (3)  006042  052777  000400  173656          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  006050  012777  000000  173644          MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  006056  052777  000400  173642          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  006064  012777  064001  173634          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  006072  012777  003400  173622          MOV     #ISYMOD!SIX!EVEPAR!0,@PARCSR
   (2)  006100  052777  000020  173604          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  006106  042777  020000  173612          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  006114  052777  020000  173604          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  006122  042777  020000  173576          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  006130  052777  020000  173570          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  006136  016703  173554                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
   (1)  006142  012700  110025                  MOV     #RXERR!PARER!25,R0      ;EXPECTED
   (1)  006146  012767  000011  172746          MOV     #9.,SHIFT       ;# OF SHIFTS
   (1)  006154  012767  000452  173316          MOV     #452,$TMP1      ;DATA CHAR
   (1)  006162  004767  010750                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  006166  105777  173520                  TSTB    @RXCSR  ;RXDONE ?
   (1)  006172  100401                          BMI     .+4
   (1)  006174  104004                          ERROR   4               ;RXDONE SHOULD BE ASSERTED
   (1)  006176  017701  173514                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  006202  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
   (1)  006204  001401                          BEQ     .+4
   (1)  006206  104000                          ERROR   ;PARITY ERROR   4 &RXERR SHOULD BE SET
   (1)                                                  ;NOTE THAT THE PARITY BIT SHOULD
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  (1)                                                   ;SHOW UP IN THE DATA
  (1)                                                   ;IE. BIT SIX FOR SIX LEVEL CODE
  (1)
 8164                                           ;;THIS TEST VERIFYS EVEPAR PARITY SENSE
  (1)                                           ;;OF THE RECEIVER
  (1)                                           ;;MODE:ISOC (ISYMOD)
  (1)                                           ;;PARITY:EVEPAR
  (1)                                           ;;LENGTH:SEVEN PLUS PARITY
  (1)                                           ;;CHAR: 325
  (1)                                           ;;
  (5)                                   ;;**********************************************************************
  (4)  006210  000004                   TST15:  SCOPE
  (4)
  (3)  006212  052777  000400  173506           BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)  006220  012777  000000  173474           MOV     #ISYMOD,@PARCSR ;SET THE MODE
  (3)  006226  052777  000400  173472           BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)
  (2)                                   ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (2)  006234  012777  064001  173464           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (2)
  (2)                                   ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (2)  006242  012777  005400  173452           MOV     #ISYMOD!SEVEN!EVEPAR!0,@PARCSR
  (2)  006250  052777  000020  173434           BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
  (2)                                           ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
  (2)  006256  042777  020000  173442           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  006264  052777  020000  173434           BIS     #CLK,@TXCSR     ;POKE CLK UP
  (2)                                   ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (2)  006272  042777  020000  173426           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  006300  052777  020000  173420           BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  006306  016703  173404                   MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
  (1)  006312  012700  110325                   MOV     #RXERR!PARER!325,R0     ;EXPECTED
  (1)  006316  012767  000012  172576           MOV     #10.,SHIFT      ;# OF SHIFTS
  (1)  006324  012767  001652  173146           MOV     #1652,$TMP1     ;DATA CHAR
  (1)  006332  004767  010600                   JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)  006336  105777  173350                   TSTB    @RXCSR  ;RXDONE ?
  (1)  006342  100401                           BMI     .+4
  (1)  006344  104004                           ERROR   4               ;RXDONE SHOULD BE ASSERTED
  (1)  006346  017701  173344                   MOV     @RXDBUF,R1      ;ACTUAL
  (1)  006352  020001                           CMP     R0,R1   ;COMPARE EXP VS. ACT
  (1)  006354  001401                           BEQ     .+4
  (1)  006356  104000                           ERROR   ;PARITY ERROR   4 &RXERR SHOULD BE SET
  (1)                                                   ;NOTE THAT THE PARITY BIT SHOULD
  (1)                                                   ;SHOW UP IN THE DATA
  (1)                                                   ;IE. BIT SEVEN FOR SEVEN LEVEL CODE
  (1)
 8165                                           ;;THIS TEST VERIFYS EVEPAR PARITY SENSE
  (1)                                           ;;OF THE RECEIVER
  (1)                                           ;;MODE:ISOC (ISYMOD)
  (1)                                           ;;PARITY:EVEPAR
  (1)                                           ;;LENGTH:EIGHT PLUS PARITY
  (1)                                           ;;CHAR: 125
  (1)                                           ;;
  (5)                                   ;;**********************************************************************
  (4)  006360  000004                   TST16:  SCOPE
  (4)
  (3)  006362  052777  000400  173336           BIS     #MRESET,@TXCSR  ;MASTER RESET
```

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   (2)  006370  012777  000000  173324          MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  006376  052777  000400  173322          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  006404  012777  064001  173314          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  006412  012777  007400  173302          MOV     #ISYMOD!EIGHT!EVEPAR!0,@PARCSR
   (2)  006420  052777  000020  173264          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  006426  042777  020000  173272          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  006434  052777  020000  173264          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  006442  042777  020000  173256          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  006450  052777  020000  173250          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  006456  016703  173234                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
   (1)  006462  012700  110125                  MOV     #RXERR!PARER!125,R0     ;EXPECTED
   (1)  006466  012767  000013  172426          MOV     #11.,SHIFT      ;# OF SHIFTS
   (1)  006474  012767  003252  172776          MOV     #3252,$TMP1     ;DATA CHAR
   (1)  006502  004767  010430                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  006506  105777  173200                  TSTB    @RXCSR  ;RXDONE ?
   (1)  006512  100401                          BMI     .+4
   (1)  006514  104004                          ERROR   4               ;RXDONE SHOULD BE ASSERTED
   (1)  006516  017701  173174                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  006522  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
   (1)  006524  001401                          BEQ     .+4
   (1)  006526  104000                          ERROR   ;PARITY ERROR   4 &RXERR SHOULD BE SET
   (1)
8166                                            ;;THIS TEST VERIFYS ODDPAR PARITY SENSE
   (1)                                          ;;OF THE RECEIVER
   (1)                                          ;;MODE:ISOC (ISYMOD)
   (1)                                          ;;PARITY:ODDPAR
   (1)                                          ;;LENGTH:FIVE PLUS PARITY
   (1)                                          ;;CHAR: 65
   (1)                                          ;;
   (5)                                  ;;**************************************************************************
   (4)  006530  000004                  TST17:  SCOPE
   (4)
   (3)  006532  052777  000400  173166          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  006540  012777  000000  173154          MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  006546  052777  000400  173152          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  006554  012777  064001  173144          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  006562  012777  001000  173132          MOV     #ISYMOD!FIVE!ODDPAR!0,@PARCSR
   (2)  006570  052777  000020  173114          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  006576  042777  020000  173122          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  006604  052777  020000  173114          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  006612  042777  020000  173106          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  006620  052777  020000  173100          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  006626  016703  173064                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
   (1)  006632  012700  110065                  MOV     #RXERR!PARER!65,R0      ;EXPECTED
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   (1)  006636  012767  000010  172256          MOV     #8.,SHIFT       ;# OF SHIFTS
   (1)  006644  012767  000352  172626          MOV     #352,$TMP1      ;DATA CHAR
   (1)  006652  004767  010260                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  006656  105777  173030                  TSTB    @RXCSR  ;RXDONE ?
   (1)  006662  100401                          BMI     .+4
   (1)  006664  104004                          ERROR   4               ;RXDONE SHOULD BE ASSERTED
   (1)  006666  017701  173024                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  006672  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
   (1)  006674  001401                          BEQ     .+4
   (1)  006676  104000                          ERROR   ;PARITY ERROR   4 &RXERR SHOULD BE SET
   (1)                                                  ;NOTE THAT THE PARITY BIT SHOULD
   (1)                                                  ;SHOW UP IN THE DATA
   (1)                                                  ;IE. BIT FIVE FOR FIVE LEVEL CODE
   (1)
  8167                                  ;;THIS TEST VERIFYS ODDPAR PARITY SENSE
   (1)                                  ;;OF THE RECEIVER
   (1)                                  ;;MODE:ISOC (ISYMOD)
   (1)                                  ;;PARITY:ODDPAR
   (1)                                  ;;LENGTH:SIX PLUS PARITY
   (1)                                  ;;CHAR: 125
   (1)                                  ;;
   (5)                          ;;**************************************************************************
   (4)  006700  000004          TST20:  SCOPE
   (4)
   (3)  006702  052777  000400  173016          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  006710  012777  000000  173004          MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  006716  052777  000400  173002          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  006724  012777  064001  172774          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  006732  012777  003000  172762          MOV     #ISYMOD!SIX!ODDPAR!0,@PARCSR
   (2)  006740  052777  000020  172744          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  006746  042777  020000  172752          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  006754  052777  020000  172744          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  006762  042777  020000  172736          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  006770  052777  020000  172730          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  006776  016703  172714                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
   (1)  007002  012700  110125                  MOV     #RXERR!PARER!125,R0     ;EXPECTED
   (1)  007006  012767  000011  172106          MOV     #9.,SHIFT       ;# OF SHIFTS
   (1)  007014  012767  000652  172456          MOV     #652,$TMP1      ;DATA CHAR
   (1)  007022  004767  010110                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  007026  105777  172660                  TSTB    @RXCSR  ;RXDONE ?
   (1)  007032  100401                          BMI     .+4
   (1)  007034  104004                          ERROR   4               ;RXDONE SHOULD BE ASSERTED
   (1)  007036  017701  172654                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  007042  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
   (1)  007044  001401                          BEQ     .+4
   (1)  007046  104000                          ERROR   ;PARITY ERROR   4 &RXERR SHOULD BE SET
   (1)                                                  ;NOTE THAT THE PARITY BIT SHOULD
   (1)                                                  ;SHOW UP IN THE DATA
   (1)                                                  ;IE. BIT SIX FOR SIX LEVEL CODE
   (1)
```

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  8168                                          ;;THIS TEST VERIFYS ODDPAR PARITY SENSE
   (1)                                          ;;OF THE RECEIVER
   (1)                                          ;;MODE:ISOC (ISYMOD)
   (1)                                          ;;PARITY:ODDPAR
   (1)                                          ;;LENGTH:SEVEN PLUS PARITY
   (1)                                          ;;CHAR: 125
   (1)                                          ;;
   (5)                                  ;;**********************************************************************
   (4)  007050  000004                  TST21:  SCOPE
   (4)
   (3)  007052  052777  000400  172646          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  007060  012777  000000  172634          MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  007066  052777  000400  172632          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  007074  012777  064001  172624          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  007102  012777  005000  172612          MOV     #ISYMOD!SEVEN!ODDPAR!0,@PARCSR
   (2)  007110  052777  000020  172574          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  007116  042777  020000  172602          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  007124  052777  020000  172574          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  007132  042777  020000  172566          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  007140  052777  020000  172560          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  007146  016703  172544                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
   (1)  007152  012700  110125                  MOV     #RXERR!PARER!125,R0     ;EXPECTED
   (1)  007156  012767  000012  171736          MOV     #10.,SHIFT      ;# OF SHIFTS
   (1)  007164  012767  001252  172306          MOV     #1252,$TMP1     ;DATA CHAR
   (1)  007172  004767  007740                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  007176  105777  172510                  TSTB    @RXCSR  ;RXDONE ?
   (1)  007202  100401                          BMI     .+4
   (1)  007204  104004                          ERROR   4               ;RXDONE SHOULD BE ASSERTED
   (1)  007206  017701  172504                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  007212  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
   (1)  007214  001401                          BEQ     .+4
   (1)  007216  104000                          ERROR   ;PARITY ERROR   4 &RXERR SHOULD BE SET
   (1)                                                  ;NOTE THAT THE PARITY BIT SHOULD
   (1)                                                  ;SHOW UP IN THE DATA
   (1)                                                  ;IE. BIT SEVEN FOR SEVEN LEVEL CODE
   (1)
  8169                                          ;;THIS TEST VERIFYS ODDPAR PARITY SENSE
   (1)                                          ;;OF THE RECEIVER
   (1)                                          ;;MODE:ISOC (ISYMOD)
   (1)                                          ;;PARITY:ODDPAR
   (1)                                          ;;LENGTH:EIGHT PLUS PARITY
   (1)                                          ;;CHAR: 125
   (1)                                          ;;
   (5)                                  ;;**********************************************************************
   (4)  007220  000004                  TST22:  SCOPE
   (4)
   (3)  007222  052777  000400  172476          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  007230  012777  000000  172464          MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  007236  052777  000400  172462          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
```

```
  (2)                                   ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (2)  007244  012777  064001  172454          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (2)
  (2)                                   ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (2)  007252  012777  007000  172442          MOV     #ISYMOD!EIGHT!ODDPAR!0,@PARCSR
  (2)  007260  052777  000020  172424          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
  (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
  (2)  007266  042777  020000  172432          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  007274  052777  020000  172424          BIS     #CLK,@TXCSR     ;POKE CLK UP
  (2)                                   ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (2)  007302  042777  020000  172416          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  007310  052777  020000  172410          BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  007316  016703  172374                  MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
  (1)  007322  012700  110125                  MOV     #RXERR!PARER!125,R0     ;EXPECTED
  (1)  007326  012767  000013  171566          MOV     #11.,SHIFT      ;# OF SHIFTS
  (1)  007334  012767  002252  172136          MOV     #2252,$TMP1     ;DATA CHAR
  (1)  007342  004767  007570                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)  007346  105777  172340                  TSTB    @RXCSR  ;RXDONE ?
  (1)  007352  100401                          BMI     .+4
  (1)  007354  104004                          ERROR   4               ;RXDONE SHOULD BE ASSERTED
  (1)  007356  017701  172334                  MOV     @RXDBUF,R1      ;ACTUAL
  (1)  007362  020001                          CMP     R0,R1   ;COMPARE EXP VS. ACT
  (1)  007364  001401                          BEQ     .+4
  (1)  007366  104000                          ERROR   ;PARITY ERROR   4 &RXERR SHOULD BE SET
  (1)
 8170                                          ;;THIS TEST PERFORMS BINARY DATA CHECK ON THE
  (1)                                          ;;RECEIVER
  (1)                                          ;;LENGTH:EIGHT PLUS PARITY
  (1)                                          ;;MODE:ISYMOD
  (1)                                          ;;PARITY:EVEPAR
  (1)                                          ;;
  (5)                                   ;;*****************************************************************
  (4)  007370  000004                   TST23:  SCOPE
  (4)
  (3)  007372  052777  000400  172326          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)  007400  012777  000000  172314          MOV     #ISYMOD,@PARCSR ;SET THE MODE
  (3)  007406  052777  000400  172312          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)
  (2)                                   ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (2)  007414  012777  064001  172304          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (2)
  (2)                                   ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (2)  007422  012777  007400  172272          MOV     #ISYMOD!EIGHT!EVEPAR!0,@PARCSR
  (2)  007430  052777  000020  172254          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
  (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
  (2)  007436  042777  020000  172262          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  007444  052777  020000  172254          BIS     #CLK,@TXCSR     ;POKE CLK UP
  (2)                                   ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (2)  007452  042777  020000  172246          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  007460  052777  020000  172240          BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  007466  016703  172224                  MOV     RXDBUF,R3       ;SET UP ERROR MESSAGE
  (1)  007472  005004                          CLR     R4      ;DATA CHAR
  (1)  007474  010400                   1$:    MOV     R4,R0   ;EXPECTED
  (1)  007476  012767  000013  171416          MOV     #11.,SHIFT      ;# OF SHIFTS
  (1)  007504  010467  171770                  MOV     R4,$TMP1        ;"TO BE SHIFTED CHARACTER"
  (1)  007510  004767  007574                  JSR     PC,EVEN8        ;CALC PARITY
```

INITIALIZE THE COMMON TAGS


```
  (1)  007514  000241                          CLC
  (1)  007516  006167  171756                  ROL     $TMP1   ;GENERATE START BIT
  (1)  007522  052767  002000  171750          BIS     #BIT10,$TMP1    ;GENERATE STOP BIT
  (1)                                ;$TMP1 NOW HAS CHARACTER TO BE POKED INTO RECEIVER
  (1)  007530  004767  007402                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)  007534  017701  172156                  MOV     @RXDBUF,R1      ;ACTUAL
  (1)  007540  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
  (1)  007542  001401                          BEQ     .+4
  (1)  007544  104002                          ERROR   2       ;DATA CHARS SHOULD MATCH
  (1)                                                          ;THERE SHOULD BE NO PARITY ERROR
  (1)  007546  005204                          INC     R4      ;UPGRADE NEXT CHAR
  (1)  007550  105704                          TSTB    R4      ;LAST CHAR ?
  (1)  007552  001350                          BNE     1$
  (1)
 8171                                          ;;THIS TEST PERFORMS BINARY DATA CHECK ON THE
  (1)                                          ;;RECEIVER
  (1)                                          ;;LENGTH:EIGHT PLUS PARITY
  (1)                                          ;;MODE:ISYMOD
  (1)                                          ;;PARITY:ODDPAR
  (1)                                          ;;
  (5)                                ;;*****************************************************************
  (4)  007554  000004                TST24:    SCOPE
  (4)
  (3)  007556  052777  000400  172142          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)  007564  012777  000000  172130          MOV     #ISYMOD,@PARCSR ;SET THE MODE
  (3)  007572  052777  000400  172126          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)
  (2)                                ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (2)  007600  012777  064001  172120          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (2)
  (2)                                ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (2)  007606  012777  007000  172106          MOV     #ISYMOD!EIGHT!ODDPAR!0,@PARCSR
  (2)  007614  052777  000020  172070          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
  (2)                                ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
  (2)  007622  042777  020000  172076          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  007630  052777  020000  172070          BIS     #CLK,@TXCSR     ;POKE CLK UP
  (2)                                ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (2)  007636  042777  020000  172062          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  007644  052777  020000  172054          BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  007652  016703  172040                  MOV     RXDBUF,R3       ;SET UP ERROR MESSAGE
  (1)  007656  005004                          CLR     R4      ;DATA CHAR
  (1)  007660  010400                I$:       MOV     R4,R0   ;EXPECTED
  (1)  007662  012767  000013  171232          MOV     #11.,SHIFT      ;# OF SHIFTS
  (1)  007670  010467  171604                  MOV     R4,$TMP1        ;"TO BE SHIFTED CHARACTER"
  (1)  007674  004767  007324                  JSR     PC,ODD8 ;CALC PARITY
  (1)  007700  000241                          CLC
  (1)  007702  006167  171572                  ROL     $TMP1   ;GENERATE START BIT
  (1)  007706  052767  002000  171564          BIS     #BIT10,$TMP1    ;GENERATE STOP BIT
  (1)                                ;$TMP1 NOW HAS CHARACTER TO BE POKED INTO RECEIVER
  (1)  007714  004767  007216                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)  007720  017701  171772                  MOV     @RXDBUF,R1      ;ACTUAL
  (1)  007724  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
  (1)  007726  001401                          BEQ     .+4
  (1)  007730  104002                          ERROR   2       ;DATA CHARS SHOULD MATCH
  (1)                                                          ;THERE SHOULD BE NO PARITY ERROR
  (1)  007732  005204                          INC     R4      ;UPGRADE NEXT CHAR
```

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   (1)  007734  105704                          TSTB    R4      ;LAST CHAR ?
   (1)  007736  001350                          BNE     1$
   (1)
  8172                                          ;;THIS TEST PERFORMS BINARY DATA CHECK ON THE
   (1)                                          ;;RECEIVER
   (1)                                          ;;LENGTH:EIGHT PLUS PARITY
   (1)                                          ;;MODE:SYNEXT
   (1)                                          ;;PARITY:EVEPAR
   (1)                                          ;;
   (5)                                          ;;*****************************************************************
   (4)  007740  000004                          TST25:  SCOPE
   (4)
   (3)  007742  052777  000400  171756          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  007750  012777  020000  171744          MOV     #SYNEXT,@PARCSR ;SET THE MODE
   (3)  007756  052777  000400  171742          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  007764  012777  064001  171734          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  007772  012777  027400  171722          MOV     #SYNEXT!EIGHT!EVEPAR!0,@PARCSR
   (1)  010000  052777  000020  171704          BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
   (2)                                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  010006  042777  020000  171712          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  010014  052777  020000  171704          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  010022  016703  171670                  MOV     RXDBUF,R3       ;SET UP ERROR MESSAGE
   (1)  010026  005004                          CLR     R4      ;DATA CHAR
   (1)  010030  010400                  1$:     MOV     R4,R0   ;EXPECTED
   (1)  010032  012767  000011  171062          MOV     #9.,SHIFT       ;# OF SHIFTS
   (1)  010040  010467  171434                  MOV     R4,$TMP1        ;"TO BE SHIFTED CHARACTER"
   (1)  010044  004767  007240                  JSR     PC,EVEN8        ;CALC PARITY
   (1)                                          ;$TMP1 NOW HAS CHARACTER TO BE POKED INTO RECEIVER
   (1)  010050  004767  007062                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  010054  017701  171636                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  010060  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
   (1)  010062  001401                          BEQ     .+4
   (1)  010064  104002                          ERROR   2       ;DATA CHARS SHOULD MATCH
   (1)                                          ;THERE SHOULD BE NO PARITY ERROR
   (1)  010066  005204                          INC     R4      ;UPGRADE NEXT CHAR
   (1)  010070  105704                          TSTB    R4      ;LAST CHAR ?
   (1)  010072  001356                          BNE     1$
   (1)
  8173                                          ;;THIS TEST PERFORMS BINARY DATA CHECK ON THE
   (1)                                          ;;RECEIVER
   (1)                                          ;;LENGTH:EIGHT PLUS PARITY
   (1)                                          ;;MODE:SYNEXT
   (1)                                          ;;PARITY:ODDPAR
   (1)                                          ;;
   (5)                                          ;;*****************************************************************
   (4)  010074  000004                          TST26:  SCOPE
   (4)
   (3)  010076  052777  000400  171622          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  010104  012777  020000  171610          MOV     #SYNEXT,@PARCSR ;SET THE MODE
   (3)  010112  052777  000400  171606          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
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   (2)  010120  012777  064001  171600          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  010126  012777  027000  171566          MOV     #SYNEXT!EIGHT!ODDPAR!0,@PARCSR
   (1)  010134  052777  000020  171550          BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
   (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  010142  042777  020000  171556          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  010150  052777  020000  171550          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  010156  016703  171534                  MOV     RXDBUF,R3       ;SET UP ERROR MESSAGE
   (1)  010162  005004                          CLR     R4      ;DATA CHAR
   (1)  010164  010400                  1$:     MOV     R4,R0   ;EXPECTED
   (1)  010166  012767  000011  170726          MOV     #9.,SHIFT       ;# OF SHIFTS
   (1)  010174  010467  171300                  MOV     R4,$TMP1        ;"TO BE SHIFTED CHARACTER"
   (1)  010200  004767  007020                  JSR     PC,ODD8 ;CALC PARITY
   (1)                                  ;$TMP1 NOW HAS CHARACTER TO BE POKED INTO RECEIVER
   (1)  010204  004767  006726                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  010210  017701  171502                  MOV     @RXDBUF,R1      ;ACTUAL
   (1)  010214  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
   (1)  010216  001401                          BEQ     .+4
   (1)  010220  104002                          ERROR   2       ;DATA CHARS SHOULD MATCH
   (1)                                                          ;THERE SHOULD BE NO PARITY ERROR
   (1)  010222  005204                          INC     R4      ;UPGRADE NEXT CHAR
   (1)  010224  105704                          TSTB    R4      ;LAST CHAR ?
   (1)  010226  001356                          BNE     1$
   (1)
  8174                                          ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
   (1)                                          ;;OF THE RECEIVER LOGIC
   (1)                                          ;;MODE:ISYMOD
   (1)                                          ;;LENGTH:FIVE
   (1)                                          ;;NOTE: RXDONE SHOULD NEVER ASSERT
   (1)                                          ;;CHAR: 26 (SYNC)
   (1)                                          ;;
   (5)                                  ;;**************************************************************************
   (4)  010230  000004                  TST27:  SCOPE
   (4)
   (3)  010232  052777  000400  171466          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  010240  012777  000000  171454          MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  010246  052777  000400  171452          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  010254  012777  064001  171444          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  010262  012777  000026  171432          MOV     #ISYMOD!FIVE!NOPAR!26,@PARCSR
   (2)  010270  052777  000020  171414          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  010276  042777  020000  171422          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  010304  052777  020000  171414          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  010312  042777  020000  171406          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  010320  052777  020000  171400          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  010326  052777  000400  171356          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
   (1)  010334  012767  000003  170562          MOV     #3,COUNT        ;# OF SYNC CHARS
   (1)  010342  012767  000154  171130  1$:     MOV     #154,$TMP1      ;CHAR TO BE SHIFTED
   (1)  010350  012767  000007  170544          MOV     #7,SHIFT        ;# OF SHIFTS
   (1)  010356  004767  006554                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
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  (1)  010362  105777  171324                    TSTB    @RXCSR  ;RXDONE ?
  (1)  010366  100001                            BPL     .+4
  (1)  010370  104004                            ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
  (1)  010372  005367  170526                    DEC     COUNT   ;# OF SYNC CHARS
  (1)  010376  001361                            BNE     1$
  (1)
 8175                                            ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
  (1)                                            ;;OF THE RECEIVER LOGIC
  (1)                                            ;;MODE:ISYMOD
  (1)                                            ;;LENGTH:SIX
  (1)                                            ;;NOTE: RXDONE SHOULD NEVER ASSERT
  (1)                                            ;;CHAR: 26 (SYNC)
  (1)                                            ;;
  (5)                                    ;;*****************************************************************
  (4)  010400  000004                    TST30:  SCOPE
  (4)
  (3)  010402  052777  000400  171316            BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)  010410  012777  000000  171304            MOV     #ISYMOD,@PARCSR ;SET THE MODE
  (3)  010416  052777  000400  171302            BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)
  (2)                                    ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (2)  010424  012777  064001  171274            MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (2)
  (2)                                    ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (2)  010432  012777  002026  171262            MOV     #ISYMOD!SIX!NOPAR!26,@PARCSR
  (2)  010440  052777  000020  171244            BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
  (2)                                            ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
  (2)  010446  042777  020000  171252            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  010454  052777  020000  171244            BIS     #CLK,@TXCSR     ;POKE CLK UP
  (2)
  (2)                                    ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (2)  010462  042777  020000  171236            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  010470  052777  020000  171230            BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  010476  052777  000400  171206            BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
  (1)  010504  012767  000003  170412            MOV     #3,COUNT        ;# OF SYNC CHARS
  (1)  010512  012767  000254  170760  1$:       MOV     #254,$TMP1      ;CHAR TO BE SHIFTED
  (1)  010520  012767  000010  170374            MOV     #8.,SHIFT       ;# OF SHIFTS
  (1)  010526  004767  006404                    JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)  010532  105777  171154                    TSTB    @RXCSR  ;RXDONE ?
  (1)  010536  100001                            BPL     .+4
  (1)  010540  104004                            ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
  (1)  010542  005367  170356                    DEC     COUNT   ;# OF SYNC CHARS
  (1)  010546  001361                            BNE     1$
  (1)
 8176                                            ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
  (1)                                            ;;OF THE RECEIVER LOGIC
  (1)                                            ;;MODE:ISYMOD
  (1)                                            ;;LENGTH:SEVEN
  (1)                                            ;;NOTE: RXDONE SHOULD NEVER ASSERT
  (1)                                            ;;CHAR: 26 (SYNC)
  (1)                                            ;;
  (5)                                    ;;*****************************************************************
  (4)  010550  000004                    TST31:  SCOPE
  (4)
  (3)  010552  052777  000400  171146            BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)  010560  012777  000000  171134            MOV     #ISYMOD,@PARCSR ;SET THE MODE
  (3)  010566  052777  000400  171132            BIS     #MRESET,@TXCSR  ;MASTER RESET
```

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   (2)
   (2)                                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  010574  012777  064001  171124                MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  010602  012777  004026  171112                MOV     #ISYMOD!SEVEN!NOPAR!26,@PARCSR
   (2)  010610  052777  000020  171074                BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                                ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  010616  042777  020000  171102                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  010624  052777  020000  171074                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  010632  042777  020000  171066                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  010640  052777  020000  171060                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  010646  052777  000400  171036                BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
   (1)  010654  012767  000003  170242                MOV     #3,COUNT        ;# OF SYNC CHARS
   (1)  010662  012767  000454  170610  1$:           MOV     #454,$TMP1      ;CHAR TO BE SHIFTED
   (1)  010670  012767  000011  170224                MOV     #9.,SHIFT       ;# OF SHIFTS
   (1)  010676  004767  006234                       JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  010702  105777  171004                       TSTB    @RXCSR  ;RXDONE ?
   (1)  010706  100001                               BPL     .+4
   (1)  010710  104004                               ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
   (1)  010712  005367  170206                       DEC     COUNT   ;# OF SYNC CHARS
   (1)  010716  001361                               BNE     1$
   (1)
  8177                                              ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
   (1)                                              ;;OF THE RECEIVER LOGIC
   (1)                                              ;;MODE:ISYMOD
   (1)                                              ;;LENGTH:EIGHT
   (1)                                              ;;NOTE: RXDONE SHOULD NEVER ASSERT
   (1)                                              ;;CHAR: 26 (SYNC)
   (1)                                              ;;
   (5)                                          ;;**********************************************************************
   (4)  010720  000004                          TST32:  SCOPE
   (4)
   (3)  010722  052777  000400  170776                BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  010730  012777  000000  170764                MOV     #ISYMOD,@PARCSR ;SET THE MODE
   (3)  010736  052777  000400  170762                BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                          ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  010744  012777  064001  170754                MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                          ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  010752  012777  006026  170742                MOV     #ISYMOD!EIGHT!NOPAR!26,@PARCSR
   (2)  010760  052777  000020  170724                BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                                ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  010766  042777  020000  170732                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  010774  052777  020000  170724                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                          ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  011002  042777  020000  170716                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  011010  052777  020000  170710                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  011016  052777  000400  170666                BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
   (1)  011024  012767  000003  170072                MOV     #3,COUNT        ;# OF SYNC CHARS
   (1)  011032  012767  001054  170440  1$:           MOV     #1054,$TMP1     ;CHAR TO BE SHIFTED
   (1)  011040  012767  000012  170054                MOV     #10.,SHIFT      ;# OF SHIFTS
   (1)  011046  004767  006064                       JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  011052  105777  170634                       TSTB    @RXCSR  ;RXDONE ?
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  (1)  011056  100001                          BPL     .+4
  (1)  011060  104004                          ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
  (1)  011062  005367  170036                  DEC     COUNT   ;# OF SYNC CHARS
  (1)  011066  001361                          BNE     1$
  (1)
 8178                                          ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
  (1)                                          ;;OF THE RECEIVER LOGIC
  (1)                                          ;;MODE:SYNEXT
  (1)                                          ;;LENGTH:FIVE
  (1)                                          ;;NOTE: RXDONE SHOULD NEVER ASSERT
  (1)                                          ;;CHAR: 26 (SYNC)
  (1)                                          ;;
  (5)                                  ;;**************************************************************************
  (4)  011070  000004                  TST33:  SCOPE
  (4)
  (3)  011072  052777  000400  170626          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)  011100  012777  020000  170614          MOV     #SYNEXT,@PARCSR ;SET THE MODE
  (3)  011106  052777  000400  170612          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)
  (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (2)  011114  012777  064001  170604          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (2)
  (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (2)  011122  012777  020026  170572          MOV     #SYNEXT!FIVE!NOPAR!26,@PARCSR
  (1)  011130  052777  000020  170554          BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
  (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (2)  011136  042777  020000  170562          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  011144  052777  020000  170554          BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  011152  052777  000400  170532          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
  (1)  011160  012767  000003  167736          MOV     #3,COUNT        ;# OF SYNC CHARS
  (1)  011166  012767  000026  170304  1$:     MOV     #26,$TMP1       ;CHAR TO BE SHIFTED
  (1)  011174  012767  000005  167720          MOV     #5,SHIFT        ;# OF SHIFTS
  (1)  011202  004767  005730                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)  011206  105777  170500                  TSTB    @RXCSR  ;RXDONE ?
  (1)  011212  100001                          BPL     .+4
  (1)  011214  104004                          ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
  (1)  011216  005367  167702                  DEC     COUNT   ;# OF SYNC CHARS
  (1)  011222  001361                          BNE     1$
  (1)
 8179                                          ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
  (1)                                          ;;OF THE RECEIVER LOGIC
  (1)                                          ;;MODE:SYNEXT
  (1)                                          ;;LENGTH:SIX
  (1)                                          ;;NOTE: RXDONE SHOULD NEVER ASSERT
  (1)                                          ;;CHAR: 26 (SYNC)
  (1)                                          ;;
  (5)                                  ;;**************************************************************************
  (4)  011224  000004                  TST34:  SCOPE
  (4)
  (3)  011226  052777  000400  170472          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)  011234  012777  020000  170460          MOV     #SYNEXT,@PARCSR ;SET THE MODE
  (3)  011242  052777  000400  170456          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)
  (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (2)  011250  012777  064001  170450          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (2)
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INITIALIZE THE COMMON TAGS SEQ 0053

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(2)                                     ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
(2)  011256  012777  022026  170436             MOV     #SYNEXT!SIX!NOPAR!26,@PARCSR
(1)  011264  052777  000020  170420             BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
(2)                                     ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
(2)  011272  042777  020000  170426             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(2)  011300  052777  020000  170420             BIS     #CLK,@TXCSR     ;POKE CLK UP
(1)  011306  052777  000400  170376             BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
(1)  011314  012767  000003  167602             MOV     #3,COUNT        ;# OF SYNC CHARS
(1)  011322  012767  000026  170150  1$:        MOV     #26,$TMP1       ;CHAR TO BE SHIFTED
(1)  011330  012767  000006  167564             MOV     #6,SHIFT        ;# OF SHIFTS
(1)  011336  004767  005574                     JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
(1)  011342  105777  170344                     TSTB    @RXCSR  ;RXDONE ?
(1)  011346  100001                             BPL     .+4
(1)  011350  104004                             ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
(1)  011352  005367  167546                     DEC     COUNT   ;# OF SYNC CHARS
(1)  011356  001361                             BNE     1$
(1)
8180                                            ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
(1)                                             ;;OF THE RECEIVER LOGIC
(1)                                             ;;MODE:SYNEXT
(1)                                             ;;LENGTH:SEVEN
(1)                                             ;;NOTE: RXDONE SHOULD NEVER ASSERT
(1)                                             ;;CHAR: 26 (SYNC)
(1)                                             ;;
(5)                                     ;;**************************************************************************
(4)  011360  000004                     TST35:  SCOPE
(4)
(3)  011362  052777  000400  170336             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  011370  012777  020000  170324             MOV     #SYNEXT,@PARCSR ;SET THE MODE
(3)  011376  052777  000400  170322             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
(2)  011404  012777  064001  170314             MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
(2)
(2)                                     ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
(2)  011412  012777  024026  170302             MOV     #SYNEXT!SEVEN!NOPAR!26,@PARCSR
(1)  011420  052777  000020  170264             BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
(2)                                     ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
(2)  011426  042777  020000  170272             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(2)  011434  052777  020000  170264             BIS     #CLK,@TXCSR     ;POKE CLK UP
(1)  011442  052777  000400  170242             BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
(1)  011450  012767  000003  167446             MOV     #3,COUNT        ;# OF SYNC CHARS
(1)  011456  012767  000026  170014  1$:        MOV     #26,$TMP1       ;CHAR TO BE SHIFTED
(1)  011464  012767  000007  167430             MOV     #7,SHIFT        ;# OF SHIFTS
(1)  011472  004767  005440                     JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
(1)  011476  105777  170210                     TSTB    @RXCSR  ;RXDONE ?
(1)  011502  100001                             BPL     .+4
(1)  011504  104004                             ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
(1)  011506  005367  167412                     DEC     COUNT   ;# OF SYNC CHARS
(1)  011512  001361                             BNE     1$
(1)
8181                                            ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
(1)                                             ;;OF THE RECEIVER LOGIC
(1)                                             ;;MODE:SYNEXT
(1)                                             ;;LENGTH:EIGHT
(1)                                             ;;NOTE: RXDONE SHOULD NEVER ASSERT
```

INITIALIZE THE COMMON TAGS

SEQ 0054

```
(1)                                             ;;CHAR: 26 (SYNC)
(1)                                             ;;
(5)                                     ;;*****************************************************************
(4)  011514  000004                     TST36:  SCOPE
(4)
(3)  011516  052777  000400  170202             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  011524  012777  020000  170170             MOV     #SYNEXT,@PARCSR ;SET THE MODE
(3)  011532  052777  000400  170166             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
(2)  011540  012777  064001  170160             MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
(2)
(2)                                     ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
(2)  011546  012777  026026  170146             MOV     #SYNEXT!EIGHT!NOPAR!26,@PARCSR
(1)  011554  052777  000020  170130             BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
(2)                                     ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
(2)  011562  042777  020000  170136             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(2)  011570  052777  020000  170130             BIS     #CLK,@TXCSR     ;POKE CLK UP
(1)  011576  052777  000400  170106             BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
(1)  011604  012767  000003  167312             MOV     #3,COUNT        ;# OF SYNC CHARS
(1)  011612  012767  000026  167660  1$:        MOV     #26,$TMP1       ;CHAR TO BE SHIFTED
(1)  011620  012767  000010  167274             MOV     #8.,SHIFT       ;# OF SHIFTS
(1)  011626  004767  005304                     JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
(1)  011632  105777  170054                     TSTB    @RXCSR  ;RXDONE ?
(1)  011636  100001                             BPL     .+4
(1)  011640  104004                             ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
(1)  011642  005367  167256                     DEC     COUNT   ;# OF SYNC CHARS
(1)  011646  001361                             BNE     1$
(1)
8182                                            ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
(1)                                             ;;OF THE RECEIVER LOGIC
(1)                                             ;;MODE:SYNINT
(1)                                             ;;LENGTH:FIVE
(1)                                             ;;NOTE: RXDONE SHOULD NEVER ASSERT
(1)                                             ;;CHAR: 26 (SYNC)
(1)                                             ;;
(5)                                     ;;*****************************************************************
(4)  011650  000004                     TST37:  SCOPE
(4)
(3)  011652  052777  000400  170046             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  011660  012777  030000  170034             MOV     #SYNINT,@PARCSR ;SET THE MODE
(3)  011666  052777  000400  170032             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
(2)  011674  012777  064001  170024             MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
(2)
(2)                                     ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
(2)  011702  012777  030026  170012             MOV     #SYNINT!FIVE!NOPAR!26,@PARCSR
(2)  011710  052777  000020  167774             BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
(2)                                             ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
(2)  011716  042777  020000  170002             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(2)  011724  052777  020000  167774             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)                                     ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
(2)  011732  042777  020000  167766             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(2)  011740  052777  020000  167760             BIS     #CLK,@TXCSR     ;POKE CLK UP
(1)  011746  052777  000400  167736             BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
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   (1)  011754  012767  000003  167142          MOV     #3,COUNT        ;# OF SYNC CHARS
   (1)  011762  012767  000026  167510  1$:     MOV     #26,$TMP1       ;CHAR TO BE SHIFTED
   (1)  011770  012767  000005  167124          MOV     #5,SHIFT        ;# OF SHIFTS
   (1)  011776  004767  005134                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  012002  105777  167704                  TSTB    @RXCSR  ;RXDONE ?
   (1)  012006  100001                          BPL     .+4
   (1)  012010  104004                          ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
   (1)  012012  005367  167106                  DEC     COUNT   ;# OF SYNC CHARS
   (1)  012016  001361                          BNE     1$
   (1)
  8183                                          ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
   (1)                                          ;;OF THE RECEIVER LOGIC
   (1)                                          ;;MODE:SYNINT
   (1)                                          ;;LENGTH:SIX
   (1)                                          ;;NOTE: RXDONE SHOULD NEVER ASSERT
   (1)                                          ;;CHAR: 26 (SYNC)
   (1)                                          ;;
   (5)                                  ;;**************************************************************************
   (4)  012020  000004                  TST40:  SCOPE
   (4)
   (3)  012022  052777  000400  167676          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  012030  012777  030000  167664          MOV     #SYNINT,@PARCSR ;SET THE MODE
   (3)  012036  052777  000400  167662          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (2)  012044  012777  064001  167654          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (2)
   (2)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (2)  012052  012777  032026  167642          MOV     #SYNINT!SIX!NOPAR!26,@PARCSR
   (2)  012060  052777  000020  167624          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (2)  012066  042777  020000  167632          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  012074  052777  020000  167624          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (2)  012102  042777  020000  167616          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (2)  012110  052777  020000  167610          BIS     #CLK,@TXCSR     ;POKE CLK UP
   (1)  012116  052777  000400  167566          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
   (1)  012124  012767  000003  166772          MOV     #3,COUNT        ;# OF SYNC CHARS
   (1)  012132  012767  000026  167340  1$:     MOV     #26,$TMP1       ;CHAR TO BE SHIFTED
   (1)  012140  012767  000006  166754          MOV     #6,SHIFT        ;# OF SHIFTS
   (1)  012146  004767  004764                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
   (1)  012152  105777  167534                  TSTB    @RXCSR  ;RXDONE ?
   (1)  012156  100001                          BPL     .+4
   (1)  012160  104004                          ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
   (1)  012162  005367  166736                  DEC     COUNT   ;# OF SYNC CHARS
   (1)  012166  001361                          BNE     1$
   (1)
  8184                                          ;;THIS TEST CHECKS THE STRIP SYNC FUNCTION
   (1)                                          ;;OF THE RECEIVER LOGIC
   (1)                                          ;;MODE:SYNINT
   (1)                                          ;;LENGTH:SEVEN
   (1)                                          ;;NOTE: RXDONE SHOULD NEVER ASSERT
   (1)                                          ;;CHAR: 26 (SYNC)
   (1)                                          ;;
   (5)                                  ;;**************************************************************************
   (4)  012170  000004                  TST41:  SCOPE
```

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  (4)
  (3)  012172  052777  000400  167526          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)  012200  012777  030000  167514          MOV     #SYNINT,@PARCSR ;SET THE MODE
  (3)  012206  052777  000400  167512          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (2)
  (2)                                      ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (2)  012214  012777  064001  167504          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (2)
  (2)                                      ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (2)  012222  012777  034026  167472          MOV     #SYNINT!SEVEN!NOPAR!26,@PARCSR
  (2)  012230  052777  000020  167454          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
  (2)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
  (2)  012236  042777  020000  167462          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  012244  052777  020000  167454          BIS     #CLK,@TXCSR     ;POKE CLK UP
  (2)                                      ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (2)  012252  042777  020000  167446          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (2)  012260  052777  020000  167440          BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  012266  052777  000400  167416          BIS     #STPSYN,@RXCSR  ;SET STRIP SYNC
  (1)  012274  012767  000003  166622          MOV     #3,COUNT        ;# OF SYNC CHARS
  (1)  012302  012767  000026  167170  1$:     MOV     #26,$TMP1       ;CHAR TO BE SHIFTED
  (1)  012310  012767  000007  166604          MOV     #7,SHIFT        ;# OF SHIFTS
  (1)  012316  004767  004614                  JSR     PC,RPOKE        ;SHIFT IN THIS CHAR
  (1)  012322  105777  167364                  TSTB    @RXCSR  ;RXDONE ?
  (1)  012326  100001                          BPL     .+4
  (1)  012330  104004                          ERROR   4       ;RXDONE SHOULD NOT BE ASSERTED
  (1)  012332  005367  166566                  DEC     COUNT   ;# OF SYNC CHARS
  (1)  012336  001361                          BNE     1$
  (1)
 8185
  (2)                                          ;END OF PASS
  (2)                                          ;TYPE NAME OF TEST
  (2)                                          ;UPDATE PASS COUNT
  (2)                                          ;CHECK FOR EXIT TO ACT-11
  (2)                                          ;RESTART TEST
  (2)
  (2)  012340  000004                  .EOP:   SCOPE
  (2)  012342  004767  000340                  JSR     PC,CKSWR
  (2)  012346  104401                          TYPE                            ;TYPE NAME OF TEST
  (2)  012350  015476                          MEPASS
  (2)  012352  104413  012604                  CONVRT  ,OUTCRY
  (2)  012356  104401  015315                  TYPE    ,DEVICE
  (2)  012362  105767  166564                  TSTB    MULTD   ;ARE YOU RUNNING MULTIPLE DEVICES ?
  (2)  012366  001511                          BEQ     CCC     ;NO,JUMP AROUND
  (2)  012370  005767  166572                  TST     ACTREG  ;ARE ANY DEVICES ACTIVE ?
  (2)  012374  001007                          BNE     RUNIT   ;YES
  (2)  012376  104401  015327                  TYPE    ,MCOW   ;NO
  (2)  012402  016700  166560                  MOV     ACTREG,R0       ;DISPLAY ACTREG
  (2)  012406  000000                          HALT                    ;SELECT SOMETHING TO RUN @ ACTREG:
  (2)                                          ;SELECT SWITCHES & HIT CONTINUE (PUT SW00 =1)
  (2)  012410  000167  167536                  JMP     .START  ;START OVER AGAIN.....YOU DESELECTED EVERYTHING
  (2)  012414  062767  000010  166532  RUNIT: ADD     #10,BASEADD     ;NEXT BLOCK (ADDRESSES)
  (2)  012422  062767  000010  166532  ZERO:  ADD     #10,BASEIV      ;NEXT BLOCK (VECTORS)
  (2)  012430  000241                          CLC
  (2)  012432  006167  166532                  ROL     ROTADD  ;UP DATE ROTATING POINTER
  (2)  012436  103410                          BCS     2$      ;IS IT THE LAST DEVICE
  (2)                                                          ;TO BE TESTED IN THIS PASS ?
```

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(2)  012440  036767  166524  166520          BIT     ROTADD,ACTREG   ;TEST THIS DEVICE FOR ACTIVE STATUS
(2)  012446  001762                          BEQ     RUNIT   ;IF NOT ACTIVE, TRY NEXT ADDRESS
(2)  012450  004767  000034                  JSR     PC,REPLAY       ;CALCULATE NEW PARAMETERS
(2)  012454  000167  000210                  JMP     RESTRT  ;YES IT WAS ACTIVE,TEST THIS DEVICE
(2)  012460  012767  000001  166502  2$:     MOV     #1,ROTADD       ;OK!,NOW SET UP  ROTATING
(2)                                                  ;POINTER FOR NEXT MULTIPLE PASS
(2)  012466  016767  166464  166460          MOV     KEEPADD,BASEADD ;RESTORE BASE ADDRESS
(2)  012474  016767  166464  166460          MOV     KEEPIV,BASEIV   ;RESTORE BASE INTERRUPT VECTORS
(2)  012502  004767  000002                  JSR     PC,REPLAY       ;CALC NEW PARAMETERS
(2)  012506  000441                          BR      CCC     ;JUMP AROUND REPLAY
(2)  012510  016767  166440  004416  REPLAY: MOV     BASEADD,DUBASE  ;SET UP FOR NEW ADDRESSES
(2)  012516  004767  004260                  JSR     PC,DUADDR       ;CREATE NEW ADDRESSES
(2)  012522  016767  166434  167206          MOV     BASEIV,DURIV    ;CREATE DURIV
(2)  012530  062767  000002  166424          ADD     #2,BASEIV
(2)  012536  016767  166420  167174          MOV     BASEIV,DURIS    ;CREATE DURIS
(2)  012544  062767  000002  166410          ADD     #2,BASEIV
(2)  012552  016767  166404  167162          MOV     BASEIV,DUTIV    ;CREATE DUTIV
(2)  012560  062767  000002  166374          ADD     #2,BASEIV
(2)  012566  016767  166370  167150          MOV     BASEIV,DUTIS    ;CREATE DUTIS
(2)  012574  016767  167136  166360          MOV     DURIV,BASEIV    ;RESTORE
(2)  012602  000207                          RTS     PC
(2)
(2)  012604  000001                  OUTCRY: 1
(2)  012606     006     002                  .BYTE   6,2
(2)  012610  001712                          RXCSR
(2)
(2)  012612                          CCC:
(2)  012612  005067  166564                  CLR     $TSTNM                  ;CLEAR TEST NUMBER
(2)  012616  005067  166574                  CLR     $ERRPC                  ;CLEAR LAST ERROR PC
(2)  012622  005067  166555                  CLR     $ERFLG                  ;CLEAR ERROR FLAG
(2)  012626  005267  166260                  INC     PASCNT                  ;UPDATE PASS COUNT
(2)  012632  016767  166254  166242          MOV     PASCNT,LIGHTS           ;DISPLAY PASS COUNT
(2)  012640  016767  166246  166666          MOV     PASCNT,$PASS            ;PASS COUNT TO APT
(2)  012646  013701  000042                  MOV     @#42,R1                 ;CHECK FOR ACT-11 OR DDP
(2)  012652  001406                          BEQ     RESTRT          ;IF NO CONTINUE TESTING
(2)  012654  000005                          RESET
(2)  012656  000005                          RESET
(2)  012660  004711                  $ENDAD: JSR     PC,(R1)
(2)  012662  000240                          NOP
(2)  012664  000240                          NOP
(2)  012666  000240                          NOP
(2)  012670                          RESTRT:
(2)  012670  012767  003376  166510          MOV     #TST1+2,$LPADR  ;LOAD LAST ADDR
(2)  012676  004767  000004                  JSR     PC,CKSWR
(2)  012702  000167  170402                  JMP     .BEGIN
(2)
(2)                                          ;CHECK SWITCH REGISTER ROUTINE.
(2)                                          ;CHECKS TO ALLOW FOR <^G> TO ALLOW
(2)                                          ;THE CHANGING OF LOCATION 176
(2)
(2)  012706  005737  000042          CKSWR:  TST     @#42
(2)  012712  001040                          BNE     OUT
(2)  012714  022767  000176  166516          CMP     #SWREG,SWR      ;SOFTWARE SWR PRESENT?
(2)  012722  001034                          BNE     OUT             ;NO--LEAVE
(2)  012724  105777  166514                  TSTB    @$TKS           ;CHECK TTY READY
(2)  012730  100031                          BPL     OUT             ;NO--LEAVE
```

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(2)  012732  017767  166510  000422          MOV     @$TKB,.MSG      ;GET CHARACTER
(2)  012740  042767  177600  000414          BIC     #177600,.MSG    ;STRIP JUNK
(2)  012746  122767  000007  000406          CMPB    #7,.MSG         ;IS IT <^G> ?
(2)  012754  001017                          BNE     OUT             ;NO
(2)  012756  104401  016103                  TYPE    ,MCNTG
(2)  012762  005137  013022          CNTLU:  COM     @#RDSW
(2)  012766  104401  016113                  TYPE    ,MMSWR
(2)  012772  104413                          CONVRT
(2)  012774  013024                          SWREGL
(2)  012776  104406  016124                  INSTR,MMNEW
(2)  013002  104410                          PARAM
(2)  013004  000000                          0
(2)  013006  177777                          177777
(2)  013010  000176                          SWREG
(2)  013012     000     001          .BYTE   0,1
(2)  013014  005037  013022          OUT:    CLR     @#RDSW
(2)  013020  000207                          RTS     PC
(2)  013022  000000                  RDSW:   .WORD   0
(2)  013024  000001                  SWREGL: 1
(2)  013026     006     002                  .BYTE   6,2
(2)  013030  000176                          SWREG
(2)
(1)  013032  000005                          5
(2)
(2)                                          ;CHECK FOR FREEZE ON CURRENT DATA
(2)
(2)  013034  004767  177646          .SCOP1: JSR     PC,CKSWR
(2)  013040  032777  001000  166372          BIT     #SW09,@SWR
(2)  013046  001402                          BEQ     1$
(2)  013050  016716  166034                  MOV     LOCK,(SP)
(2)  013054  000002                  1$:     RTI
(2)                                  .SBTTL  TYPE ROUTINE
(2)
(3)                                  ;;**********************************************************************
(2)                                  ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
(2)                                  ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
(2)                                  ;*NOTE1:        $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
(2)                                  ;*NOTE2:        $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
(2)                                  ;*NOTE3:        $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
(2)                                  ;*
(2)                                  ;*CALL:
(2)                                  ;*1) USING A TRAP INSTRUCTION
(2)                                  ;*      TYPE    ,MESADR         ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
(2)                                  ;*OR
(2)                                  ;*      TYPE
(2)                                  ;*      MESADR
(2)                                  ;*
(2)
(2)  013056  105767  166375          $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
(2)  013062  100002                          BPL     1$              ;;BR IF YES
(2)  013064  000000                          HALT                    ;;HALT HERE IF NO TERMINAL
(2)  013066  000430                          BR      3$              ;;LEAVE
(2)  013070  010046                  1$:     MOV     R0,-(SP)        ;;SAVE R0
(2)  013072  017600  000002                  MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
(2)  013076  122767  000001  166442          CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
(2)  013104  001011                          BNE     62$             ;;NO,GO CHECK FOR APT CONSOLE
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(2)  013106  132767  000100  166433          BITB    #APTSPOOL,$ENVM ;;SPOOL MESSAGE TO APT
(2)  013114  001405                          BEQ     62$             ;;NO,GO CHECK FOR CONSOLE
(2)  013116  010067  000004                  MOV     R0,61$          ;;SETUP MESSAGE ADDRESS FOR APT
(2)  013122  004767  164660                  JSR     PC,$ATY3        ;;SPOOL MESSAGE TO APT
(2)  013126  000000                  61$:    .WORD   0               ;;MESSAGE ADDRESS
(2)  013130  132767  000040  166411  62$:    BITB    #APTCSUP,$ENVM  ;;APT CONSOLE SUPPRESSED
(2)  013136  001003                          BNE     60$             ;;YES,SKIP TYPE OUT
(2)  013140  112046                  2$:     MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
(2)  013142  001005                          BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
(2)  013144  005726                          TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
(2)  013146  012600                  60$:    MOV     (SP)+,R0        ;;RESTORE R0
(2)  013150  062716  000002          3$:     ADD     #2,(SP)         ;;ADJUST RETURN PC
(2)  013154  000002                          RTI                     ;;RETURN
(2)  013156  122716  000011          4$:     CMPB    #HT,(SP)        ;;BRANCH IF <HT>
(2)  013162  001430                          BEQ     8$
(2)  013164  122716  000200                  CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
(2)  013170  001006                          BNE     5$
(2)  013172  005726                          TST     (SP)+           ;;POP  <CR><LF> EQUIV
(2)  013174  104401                          TYPE                    ;;TYPE A CR AND LF
(2)  013176  001523                          $CRLF
(2)  013200  105067  000130                  CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
(2)  013204  000755                          BR      2$              ;;GET NEXT CHARACTER
(2)  013206  004767  000056          5$:     JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
(2)  013212  126726  166240          6$:     CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
(2)  013216  001350                          BNE     2$              ;;IF NO GO GET NEXT CHAR.
(2)  013220  016746  166230                  MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
(2)                                                                  ;;AND THE NULL CHAR.
(2)  013224  105366  000001          7$:     DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
(2)  013230  002770                          BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
(2)  013232  004767  000032                  JSR     PC,$TYPEC       ;;GO TYPE A NULL
(2)  013236  105367  000072                  DECB    $CHARCNT        ;;DO NOT COUNT AS A COUNT
(2)  013242  000770                          BR      7$              ;;LOOP
(2)
(2)                                  ;HORIZONTAL TAB PROCESSOR
(2)
(2)  013244  112716  000040          8$:     MOVB    #' ,(SP)        ;;REPLACE TAB WITH SPACE
(2)  013250  004767  000014          9$:     JSR     PC,$TYPEC       ;;TYPE A SPACE
(2)  013254  132767  000007  000052          BITB    #7,$CHARCNT     ;;BRANCH IF NOT AT
(2)  013262  001372                          BNE     9$              ;;TAB STOP
(2)  013264  005726                          TST     (SP)+           ;;POP SPACE OFF STACK
(2)  013266  000724                          BR      2$              ;;GET NEXT CHARACTER
(2)  013270  105777  166154          $TYPEC: TSTB    @$TPS           ;;WAIT UNTIL PRINTER IS READY
(2)  013274  100375                          BPL     $TYPEC
(2)  013276  116677  000002  166146          MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
(2)
(2)  013304  122766  000015  000002  CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
(2)  013312  001003                          BNE     1$              ;;BRANCH IF NO
(2)  013314  105067  000014                  CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
(2)  013320  000406                          BR      $TYPEX          ;;EXIT
(2)  013322  122766  000012  000002  1$:     CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
(2)  013330  001402                          BEQ     $TYPEX          ;;BRANCH IF YES
(2)  013332  105227                          INCB    (PC)+           ;;COUNT THE CHARACTER
(2)  013334  000000                  $CHARCNT:.WORD  0               ;;CHARACTER COUNT STORAGE
(2)  013336  000207                  $TYPEX: RTS     PC
(2)
(2)
```

```
(2)
(2)
(2)                                     ;ASCII STRING INPUT ROUTINE
(2)
(2)  013340  017667  000000  000014  .INSTR: MOV     @(SP),.MSG      ;PICK UP MESSAGE
(2)  013346  062716  000002                  ADD     #2,(SP)         ;JUMP AROUND MESSAGE FOR RTI
(2)  013352  105767  166170                  TSTB    $ENV            ;APT CONTROL
(2)  013356  001036                          BNE     INSTR2          ;YES NO TYPE
(2)  013360  104401                  .INST1: TYPE
(2)  013362  000000                  .MSG:   0
(2)  013364  012704  016136                  MOV     #INBUF,R4       ;GET STARTING LOC OF INBUF
(2)  013370  012703  000007                  MOV     #7,R3           ;MAX # OF CHARS
(2)  013374  105777  166044          1$:     TSTB    @$TKS   ;TTY FLAG
(2)  013400  100375                          BPL     1$
(2)  013402  117714  166040                  MOVB    @$TKB,(R4)      ;TAKE CHAR
(2)  013406  142714  000200                  BICB    #200,(R4)       ;STRIP
(2)  013412  121427  000025                  CMPB    (R4),#25        ;IS IT <^G>
(2)  013416  001760                          BEQ     .INST1
(2)  013420  122427  000015                  CMPB    (R4)+,#15       ;CHECK FOR CR
(2)  013424  001413                          BEQ     INSTR2
(2)  013426  105777  166016          2$:     TSTB    @$TPS   ;TEST FLAG
(2)  013432  100375                          BPL     2$
(2)  013434  117777  166006  166010          MOVB    @$TKB,@$TPB     ;ECHO CHARACTER
(2)  013442  005303                          DEC     R3      ;DID YOU TYPE TOO MANY CHARS ?
(2)  013444  001353                          BNE     1$
(2)  013446  104401                  .INSTE: TYPE
(2)  013450  015423                          MQM     ;?
(2)  013452  000742                          BR      .INST1  ;RETRY
(2)  013454  000002                  INSTR2: RTI
(2)
(2)                                     ;CONVERT ASCII STRING TO OCTAL
(2)
(2)  013456  011605                  .PARAM: MOV     (SP),R5 ;PUT CONTENTS OF SP INTO R5
(2)  013460  012567  000162                  MOV     (R5)+,LOLIM     ;PUT LOW LIMIT INTO LOLIM
(2)  013464  012567  000160                  MOV     (R5)+,HILIM     ;PUT HIGH LIMIT INTO HILIM
(2)  013470  012567  000156                  MOV     (R5)+,DEVADR    ;PUT STORE LOC INTO DEVADR
(2)  013474  112567  000154                  MOVB    (R5)+,LOBITS    ;PUT MASK INTO LOBITS
(2)  013500  112567  000151                  MOVB    (R5)+,ADRCNT    ;PUT COUNT INTO ADRCNT
(2)  013504  010516                          MOV     R5,(SP) ;RESTORE RETURN ADDR ON STACK FOR RTI
(2)  013506  005005                  PARAM1: CLR     R5
(2)  013510  012704  016136                  MOV     #INBUF,R4
(2)  013514  122714  000015                  CMPB    #15,(R4)        ;CR ?
(2)  013520  001420                          BEQ     PARERR  ;YOU TYPED CR TOO SOON !
(2)  013522  121427  000060          1$:     CMPB    (R4),#60        ;LOW LIMIT ASCII 0
(2)  013526  002415                          BLT     PARERR
(2)  013530  121427  000067                  CMPB    (R4),#67        ;HIGH LIMIT ASCII 7
(2)  013534  003012                          BGT     PARERR
(2)  013536  142714  000060                  BICB    #60,(R4)        ;CONVERT TO OCTAL
(2)  013542  152405                          BISB    (R4)+,R5        ;STORE AWAY ITS AN OK CHAR
(2)  013544  122714  000015                  CMPB    #15,(R4)        ;CR ?
(2)  013550  001414                          BEQ     LIMITS  ;NOW CHECK FOR HIGH &LOW LIMIT CONDS
(2)  013552  006305                          ASL     R5      ;ALLOCATE ROOM FOR NEXT CHAR
(2)  013554  006305                          ASL     R5
(2)  013556  006305                          ASL     R5
(2)  013560  000760                          BR      1$
(2)  013562  122714  000015          PARERR: CMPB    #15,(R4)        ;CR?
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(2)  013566  001003                        BNE     120$
(2)  013570  005737  013022                TST     @#RDSW          ;CK SWR USED
(2)  013574  001023                        BNE     PARTI
(2)  013576  104407                 120$:  INSTER  ;RETRY
(2)  013600  000742                        BR      PARAM1
(2)
(2)                                         ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
(2)
(2)  013602  020567  000042         LIMITS: CMP     R5,HILIM
(2)  013606  101365                        BHI     PARERR  ;THE # IS TOO HIGH
(2)  013610  020567  000032                CMP     R5,LOLIM
(2)  013614  103762                        BLO     PARERR  ;THE # IS TOO LOW
(2)  013616  136705  000032                BITB    LOBITS,R5       ;TEST BY MASKINGTHE #
(2)  013622  001357                        BNE     PARERR
(2)
(2)                                         ;STORE NUMBER AT SPECIFIED ADDRESS
(2)
(2)  013624  016704  000022                MOV     DEVADR,R4       ;GET STARTING ADDR OF
(2)  013630  010524                 1$:    MOV     R5,(R4)+        ;STORE AT THIS ADDR
(2)  013632  062705  000002                ADD     #2,R5
(2)  013636  105367  000013                DECB    ADRCNT  ;HOW MANY TIMES + 2 ?
(2)  013642  001372                        BNE     1$
(2)  013644  000002                 PARTI: RTI
(2)  013646  000000                 LOLIM: 0
(2)  013650  000000                 HILIM: 0
(2)  013652  000000                 DEVADR: 0
(2)  013654  000000                 LOBITS: 0
(2)          013655                 ADRCNT=LOBITS+1
(2)
(2)                                         ;SAVE PC OF TEST THAT FAILED AND R0-R5
(2)
(2)  013656  016667  000004  165242 .SAV05: MOV     4(SP),SAVPC
(2)
(2)                                         ;SAVE R0-R5
(2)
(2)  013664  010567  165604         SV05:  MOV     R5,$REG5
(2)  013670  010467  165576                MOV     R4,$REG4
(2)  013674  010367  165570                MOV     R3,$REG3
(2)  013700  010267  165562                MOV     R2,$REG2
(2)  013704  010167  165554                MOV     R1,$REG1
(2)  013710  010067  165546                MOV     R0,$REG0
(2)  013714  000002                        RTI
(2)
(2)                                         ;RESTORE R0-R5
(2)
(2)  013716  016700  165540         .RES05: MOV     $REG0,R0
(2)  013722  016701  165536                MOV     $REG1,R1
(2)  013726  016702  165534                MOV     $REG2,R2
(2)  013732  016703  165532                MOV     $REG3,R3
(2)  013736  016704  165530                MOV     $REG4,R4
(2)  013742  016705  165526                MOV     $REG5,R5
(2)  013746  000002                        RTI
(2)
(2)                                         ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
(2)
(2)  013750  104401                 .CONVR: TYPE
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(2)  013752  015427                          MCRLF   ;CR  LF
(2)  013754  017601  000000                  MOV     @(SP),R1        ;PICK UP DATA POINTER
(2)  013760  062716  000002                  ADD     #2,(SP) ;SET UP SP FOR RTI
(2)  013764  012167  000130                  MOV     (R1)+,WRDCNT    ;PICK UP # OF WORDS FROM TABLE
(2)  013770  112167  000126          1$:     MOVB    (R1)+,CHRCNT    ;PICK UP # OF CHARS FROM TABLE
(2)  013774  112167  000123                  MOVB    (R1)+,SPACNT    ;PICK UP # OF SPACES FROM TABLE
(2)  014000  013167  000120                  MOV     @(R1)+,BINWRD   ;PICK UP ADDRESS OF  MSG
(2)                                                                  ;FROM TABLE
(2)  014004  016704  000114          2$:     MOV     BINWRD,R4       ;SAVE
(2)  014010  116705  000106                  MOVB    CHRCNT,R5       ;SAVE
(2)  014014  012700  016200                  MOV     #TEMP,R0        ;STARTING ADDRESS OF TEMP BLOCK
(2)  014020  010403                  3$:     MOV     R4,R3           ;SAVE
(2)  014022  042703  177770                  BIC     #177770,R3      ;CLR OUT UPPER BITS .. SAVE CHAR
(2)  014026  062703  000260                  ADD     #260,R3 ;CONVERT TO ASCII
(2)  014032  110320                          MOVB    R3,(R0)+        ;STORE AWAY
(2)  014034  006204                          ASR     R4      ;SHIFT FOR NEXT #
(2)  014036  006204                          ASR     R4      ;DITTO
(2)  014040  006204                          ASR     R4      ;DITTO
(2)  014042  005305                          DEC     R5      ;DEC CHAR COUNT
(2)  014044  001365                          BNE     3$      ;DO IT AGAIN ?
(2)  014046  012703  016242                  MOV     #MDATA,R3       ;STARTING ADDRESS OF MDATA BLOCK
(2)  014052  114023                  4$:     MOVB    -(R0),(R3)+     ;REVERSE THE ORDER OF NUMBERS
(2)  014054  105367  000042                  DECB    CHRCNT  ;DEC CHAR COUNT
(2)  014060  001374                          BNE     4$      ;DO IT AGAIN ?
(2)  014062  105767  000035                  TSTB    SPACNT  ;HOW MANY SPACES ?
(2)  014066  001405                          BEQ     6$      ;TYPE # IF BR =0
(2)  014070  112723  000240          5$:     MOVB    #240,(R3)+      ;"SPACE" IN ASCII
(2)  014074  105367  000023                  DECB    SPACNT  ;DEC # OF SPACE COUNT
(2)  014100  001373                          BNE     5$      ;DO IT AGAIN ?
(2)  014102  105013                  6$:     CLRB    (R3)    ;INSERT "0" FOR TTY OUTPUT ROUTINE
(2)  014104  104401                          TYPE
(2)  014106  016242                          MDATA   ;THIS MESSAGE
(2)  014110  005367  000004                  DEC     WRDCNT  ;HOW MANY #'S ?
(2)  014114  001325                          BNE     1$      ;DO THIS ROUTINE AGAIN IF NOT EQUAL TO 0
(2)  014116  000002                          RTI     ;RETURN TO PROGRAM
(2)  014120  000000                  WRDCNT: 0
(2)  014122  000000                  CHRCNT: 0
(2)          014123                  SPACNT=CHRCNT+1
(2)  014124  000000                  BINWRD: 0
(2)
(2)                                          ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
(2)                                          ;BUFFER TO THE CHARACTERS "N" AND "Y".
(2)                                          ;IF THE CHARACTER IS "N" CLEAR THE FLAG
(2)                                          ;IF THE CHARACTER IS "Y" SET THE FLAG
(2)
(2)  014126  017605  000000          .SETFLG:MOV     @(SP),R5
(2)  014132  122767  000116  001776          CMPB    #'N,INBUF       ;IS IT "N" ?
(2)  014140  001002                          BNE     1$
(2)  014142  105015                          CLRB    (R5)    ;000
(2)  014144  000406                          BR      2$
(2)  014146  122767  000131  001762  1$:     CMPB    #'Y,INBUF       ;IS IT "Y" ?
(2)  014154  001005                          BNE     3$
(2)  014156  112715  177777                  MOVB    #-1,(R5)        ;377
(2)  014162  062716  000002          2$:     ADD     #2,(SP)
(2)  014166  000002                          RTI
(2)  014170  104407                  3$:     INSTER  ;RETRY
```

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(2)  014172  000755                          BR      .SETFLG
(2)                                  .SBTTL  ERROR HANDLER ROUTINE
(2)
(3)                                  ;;**********************************************************************
(2)                                  ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
(2)                                  ;*SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
(2)                                  ;*AND GO TO SAVIT ON ERROR
(2)                                  ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
(2)                                  ;*SW15=1        HALT ON ERROR
(2)                                  ;*SW13=1        INHIBIT ERROR TYPEOUTS
(2)                                  ;*SW10=1        BELL ON ERROR
(2)                                  ;*SW09=1        LOOP ON ERROR
(2)                                  ;*CALL
(2)                                  ;*      ERROR   N       ;;ERROR=EMT AND N=ERROR ITEM NUMBER
(2)
(2)  014174                          $ERROR:
(2)  014174  105267  165203          7$:     INCB    $ERFLG          ;;SET THE ERROR FLAG
(2)  014200  001775                          BEQ     7$              ;;DON'T LET THE FLAG GO TO ZERO
(2)  014202  016777  165174  165232          MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER AND ERROR FLAG
(2)  014210  032777  002000  165222          BIT     #BIT10,@SWR     ;;BELL ON ERROR?
(2)  014216  001402                          BEQ     1$              ;;NO - SKIP
(2)  014220  104401  001516                  TYPE    ,$BELL          ;;RING BELL
(2)  014224  005267  165162          1$:     INC     $ERTTL          ;;COUNT THE NUMBER OF ERRORS
(2)  014230  011667  165162                  MOV     (SP),$ERRPC     ;;GET ADDRESS OF ERROR INSTRUCTION
(2)  014234  162767  000002  165154          SUB     #2,$ERRPC
(2)  014242  117767  165150  165144          MOVB    @$ERRPC,$ITEMB  ;;STRIP AND SAVE THE ERROR ITEM CODE
(2)  014250  032777  020000  165162          BIT     #BIT13,@SWR     ;;SKIP TYPEOUT IF SET
(2)  014256  001004                          BNE     20$             ;;SKIP TYPEOUTS
(2)  014260  004767  000072                  JSR     PC,SAVIT        ;;GO TO USER ERROR ROUTINE
(2)  014264  104401  001523                  TYPE    ,$CRLF
(2)  014270                          20$:
(2)  014270  122767  000001  165250          CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
(2)  014276  001007                          BNE     2$              ;;NO,SKIP APT ERROR REPORT
(2)  014300  116767  165110  000004          MOVB    $ITEMB,21$      ;;SET ITEM NUMBER AS ERROR NUMBER
(2)  014306  004767  163504                  JSR     PC,$ATY4        ;;REPORT FATAL ERROR TO APT
(2)  014312     000                  21$:    .BYTE   0
(2)  014313     000                          .BYTE   0
(2)  014314  000777                  22$:    BR      22$             ;;APT ERROR LOOP
(2)  014316  005777  165116          2$:     TST     @SWR            ;;HALT ON ERROR
(2)  014322  100001                          BPL     3$              ;;SKIP IF CONTINUE
(2)  014324  000000                          HALT                    ;;HALT ON ERROR!
(2)  014326  032777  001000  165104  3$:     BIT     #BIT09,@SWR     ;;LOOP ON ERROR SWITCH SET?
(2)  014334  001402                          BEQ     4$              ;;BR IF NO
(2)  014336  016716  165046                  MOV     $LPERR,(SP)     ;;FUDGE RETURN FOR LOOPING
(2)  014342  005767  165146          4$:     TST     $ESCAPE         ;;CHECK FOR AN ESCAPE ADDRESS
(2)  014346  001402                          BEQ     5$              ;;BR IF NONE
(2)  014350  016716  165140                  MOV     $ESCAPE,(SP)    ;;FUDGE RETURN ADDRESS FOR ESCAPE
(2)  014354                          5$:
(2)  014354  000002                          RTI                     ;;RETURN
(2)  014356  010067  164546          SAVIT:  MOV     R0,HLD0
(2)  014362  010167  164544                  MOV     R1,HLD1
(2)  014366  010267  164542                  MOV     R2,HLD2
(2)  014372  010367  164540                  MOV     R3,HLD3
(2)  014376  010467  164536                  MOV     R4,HLD4
(2)  014402  010567  164534                  MOV     R5,HLD5
(2)  014406  016767  164770  164530          MOV     $TSTNM,HLD6
```

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(2)
(3)                                     .SBTTL  ERROR MESSAGE TYPEOUT ROUTINE
(3)
(4)                                     ;;**********************************************************************
(3)                                     ;*THIS ROUTINE USES THE "ITEM CONTROL BYTE" ($ITEMB) TO DETERMINE WHICH
(3)                                     ;*ERROR IS TO BE REPORTED. IT THEN OBTAINS, FROM THE "ERROR TABLE" ($ERRTB),
(3)                                     ;*AND REPORTS THE APPROPRIATE INFORMATION CONCERNING THE ERROR.
(3)
(3)  014414                             $ERRTYP:
(3)  014414  104401  001523                     TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
(3)  014420  010046                             MOV     R0,-(SP)        ;;SAVE R0
(3)  014422  005000                             CLR     R0              ;;PICKUP THE ITEM INDEX
(3)  014424  153700  001414                     BISB    @#$ITEMB,R0
(3)  014430  001004                             BNE     1$              ;;IF ITEM NUMBER IS ZERO, JUST
(3)                                                                     ;;TYPE THE PC OF THE ERROR
(4)  014432  016746  164760                     MOV     $ERRPC,-(SP)    ;;SAVE $ERRPC FOR TYPEOUT
(4)                                                                     ;;ERROR ADDRESS
(4)  014436  104402                             TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
(3)  014440  000426                             BR      6$              ;;GET OUT
(3)  014442  005300                     1$:     DEC     R0              ;;ADJUST THE INDEX SO THAT IT WILL
(3)  014444  006300                             ASL     R0              ;;      WORK FOR THE ERROR TABLE
(3)  014446  006300                             ASL     R0
(3)  014450  006300                             ASL     R0
(3)  014452  062700  001652                     ADD     #$ERRTB,R0      ;;FORM TABLE POINTER
(3)  014456  012067  000004                     MOV     (R0)+,2$        ;;PICKUP "ERROR MESSAGE" POINTER
(3)  014462  001404                             BEQ     3$              ;;SKIP TYPEOUT IF NO POINTER
(3)  014464  104401                             TYPE                    ;;TYPE THE "ERROR MESSAGE"
(3)  014466  000000                     2$:     .WORD   0               ;;"ERROR MESSAGE" POINTER GOES HERE
(3)  014470  104401  001523                     TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
(3)  014474  012067  000004             3$:     MOV     (R0)+,4$        ;;PICKUP "DATA HEADER" POINTER
(3)  014500  001404                             BEQ     5$              ;;SKIP TYPEOUT IF 0
(3)  014502  104401                             TYPE                    ;;TYPE THE "DATA HEADER"
(3)  014504  000000                     4$:     .WORD   0               ;;"DATA HEADER" POINTER GOES HERE
(3)  014506  104401  001523                     TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
(3)  014512  011000                     5$:     MOV     (R0),R0         ;;PICKUP "DATA TABLE" POINTER
(3)  014514  001004                             BNE     7$              ;;GO TYPE THE DATA
(3)  014516  012600                     6$:     MOV     (SP)+,R0        ;;RESTORE R0
(3)
(3)  014520  104401  001523                     TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
(3)  014524  000207                             RTS     PC              ;;RETURN
(3)  014526                             7$:
(4)  014526  013046                             MOV     @(R0)+,-(SP)    ;;SAVE @(R0)+ FOR TYPEOUT
(4)  014530  104402                             TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
(3)  014532  005710                             TST     (R0)            ;;IS THERE ANOTHER NUMBER?
(3)  014534  001770                             BEQ     6$              ;;BR IF NO
(3)  014536  104401  014544                     TYPE    ,8$             ;;TYPE TWO(2) SPACES
(3)  014542  000771                             BR      7$              ;;LOOP
(3)  014544  020040      000           8$:     .ASCIZ  /  /            ;;TWO(2) SPACES
(3)          014550                             .EVEN
(2)                                     .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE
(2)
(3)                                     ;;**********************************************************************
(2)                                     ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
(2)                                     ;*OCTAL (ASCII) NUMBER AND TYPE IT.
(2)                                     ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
(2)                                     ;*CALL:.
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(2)                                   ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
(2)                                   ;*      TYPOS                   ;;CALL FOR TYPEOUT
(2)                                   ;*      .BYTE   N               ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
(2)                                   ;*      .BYTE   M               ;;M=1 OR 0
(2)                                   ;*                                      ;;1=TYPE LEADING ZEROS
(2)                                   ;*                                      ;;0=SUPPRESS LEADING ZEROS
(2)                                   ;*
(2)                                   ;*$TYPON----ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
(2)                                   ;*$TYPOS OR $TYPOC
(2)                                   ;*CALL:
(2)                                   ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
(2)                                   ;*      TYPON                   ;;CALL FOR TYPEOUT
(2)                                   ;*
(2)                                   ;*$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
(2)                                   ;*CALL:
(2)                                   ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
(2)                                   ;*      TYPOC                   ;;CALL FOR TYPEOUT
(2)
(2)  014550  017646  000000           $TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
(2)  014554  116667  000001  000211           MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
(2)  014562  112667  000207                   MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
(2)  014566  062716  000002                   ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
(2)  014572  000406                           BR      $TYPON
(2)  014574  112767  000001  000171   $TYPOC: MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
(2)  014602  112767  000006  000165           MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
(2)  014610  112767  000005  000154   $TYPON: MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
(2)  014616  010346                           MOV     R3,-(SP)        ;;SAVE R3
(2)  014620  010446                           MOV     R4,-(SP)        ;;SAVE R4
(2)  014622  010546                           MOV     R5,-(SP)        ;;SAVE R5
(2)  014624  116704  000145                   MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
(2)  014630  005404                           NEG     R4
(2)  014632  062704  000006                   ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
(2)  014636  110467  000132                   MOVB    R4,$OMODE       ;;SAVE IT FOR USE
(2)  014642  116704  000125                   MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
(2)  014646  016605  000012                   MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
(2)  014652  005003                           CLR     R3              ;;CLEAR THE OUTPUT WORD
(2)  014654  006105                   1$:     ROL     R5              ;;ROTATE MSB INTO "C"
(2)  014656  000404                           BR      3$              ;;GO DO MSB
(2)  014660  006105                   2$:     ROL     R5              ;;FORM THIS DIGIT
(2)  014662  006105                           ROL     R5
(2)  014664  006105                           ROL     R5
(2)  014666  010503                           MOV     R5,R3
(2)  014670  006103                   3$:     ROL     R3              ;;GET LSB OF THIS DIGIT
(2)  014672  105367  000076                   DECB    $OMODE          ;;TYPE THIS DIGIT?
(2)  014676  100016                           BPL     7$              ;;BR IF NO
(2)  014700  042703  177770                   BIC     #177770,R3      ;;GET RID OF JUNK
(2)  014704  001002                           BNE     4$              ;;TEST FOR 0
(2)  014706  005704                           TST     R4              ;;SUPPRESS THIS 0?
(2)  014710  001403                           BEQ     5$              ;;BR IF YES
(2)  014712  005204                   4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
(2)  014714  052703  000060                   BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
(2)  014720  052703  000040           5$:     BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
(2)  014724  110367  000040                   MOVB    R3,8$           ;;SAVE FOR TYPING
(2)  014730  104401  014770                   TYPE    ,8$             ;;GO TYPE THIS DIGIT
(2)  014734  105367  000032           7$:     DECB    $OCNT           ;;COUNT BY 1
(2)  014740  003347                           BGT     2$              ;;BR IF MORE TO DO
```

```
(2)  014742  002402                          BLT     6$              ;;BR IF DONE
(2)  014744  005204                          INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
(2)  014746  000744                          BR      2$              ;;GO DO THE LAST DIGIT
(2)  014750  012605                  6$:     MOV     (SP)+,R5        ;;RESTORE R5
(2)  014752  012604                          MOV     (SP)+,R4        ;;RESTORE R4
(2)  014754  012603                          MOV     (SP)+,R3        ;;RESTORE R3
(2)  014756  016666  000002  000004          MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
(2)  014764  012616                          MOV     (SP)+,(SP)
(2)  014766  000002                          RTI                     ;;RETURN
(2)  014770     000                  8$:     .BYTE   0               ;;STORAGE FOR ASCII DIGIT
(2)  014771     000                          .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
(2)  014772     000                  $OCNT:  .BYTE   0               ;;OCTAL DIGIT COUNTER
(2)  014773     000                  $OFILL: .BYTE   0               ;;ZERO FILL SWITCH
(2)  014774  000000                  $OMODE: .WORD   0               ;;NUMBER OF DIGITS TO TYPE
(2)                                          ;ENTER HERE ON POWER FAILURE
(2)
(2)
(2)  014776                          $PWRDN:
(2)  014776  010046                  .PFAIL: MOV     R0,-(SP)                ;SAVE R0-R5 ON PROCESSOR STACK
(2)  015000  010146                          MOV     R1,-(SP)
(2)  015002  010246                          MOV     R2,-(SP)
(2)  015004  010346                          MOV     R3,-(SP)
(2)  015006  010446                          MOV     R4,-(SP)
(2)  015010  010546                          MOV     R5,-(SP)
(2)  015012  016746  163006                  MOV     24,-(SP)
(2)  015016  010667  164074                  MOV     SP,SAVSP                ;SAVE STACK POINTER
(2)  015022  012767  015034  162774          MOV     #RESTART,24             ;SET UP FOR POWER UP TRAP
(2)  015030  000000                          HALT                            ;HALT ON POWER DOWN NORMAL
(2)  015032  000777                          BR      .
(2)
(2)                                          ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
(2)
(2)  015034  016706  164056          RESTAR: MOV     SAVSP,SP                ;RESTORE STACK POINTER
(2)  015040  012605                          MOV     (SP)+,R5                ;RESTORE R0-R5
(2)  015042  012604                          MOV     (SP)+,R4
(2)  015044  012603                          MOV     (SP)+,R3
(2)  015046  012602                          MOV     (SP)+,R2
(2)  015050  012601                          MOV     (SP)+,R1
(2)  015052  012600                          MOV     (SP)+,R0
(2)  015054  012767  014776  162742          MOV     #.PFAIL,24              ;SET UP FOR POWER FAILURE
(2)  015062  106427  000300                  MTPS    #300
(2)  015066  012706  001100                  MOV     #STACK,SP
(2)  015072  005067  001102                  CLR     TEMP
(2)  015076  005267  001076                  INC     TEMP
(2)  015102  001375                          BNE     .-4
(2)  015104  104413                          CONVRT
(2)  015106  015130                          PFTAB
(2)  015110  104401                          TYPE
(2)  015112  015432                          MPFAIL
(2)  015114  005067  164263                  CLR     $ERFLG
(2)  015120  005067  164272                  CLR     $ERRPC
(2)  015124  000177  163754                  JMP     @RETURN
(2)  015130  000001                  PFTAB:  1
(2)  015132     006     002                  .BYTE   6,2
(2)  015134  000207                          RETURN
(2)  015136  005015  042012  053125  MTITLE: .ASCIZ  <15><12><12>/DUV11 CNDUS-A TAPE C /<15><12>
```

```
(2)  015144  030461  041440  042116
(2)  015152  051525  040455  052040
(2)  015160  050101  020105  020103
(2)  015166  005015     000
(2)  015171     015  053012  041505  MVECTO: .ASCIZ  <15><12>/VEC ADD-/
(2)  015176  040440  042104  000055
(2)  015204  005015  051461  020124  MREGAD: .ASCIZ  <15><12>/1ST DEV: REC CSR ADD-/
(2)  015212  042504  035126  051040
(2)  015220  041505  041440  051123
(2)  015226  040440  042104  000055
(2)  015234  005015  052515  052114  MMULT:  .ASCIZ  <15><12>/MULT DEV ? (Y OR N)-/
(2)  015242  042040  053105  037440
(2)  015250  024040  020131  051117
(2)  015256  047040  026451     000
(2)  015263     015  046012  051501  MLASTD: .ASCIZ  <15><12>/LAST DEV: REC CSR ADDR-/
(2)  015270  020124  042504  035126
(2)  015276  051040  041505  041440
(2)  015304  051123  040440  042104
(2)  015312  026522     000
(2)  015315     075  042504  044526  DEVICE: .ASCIZ  /=DEVICE  /
(2)  015322  042503  020040     000
(2)  015327     015  051412  046105  MCOW:   .ASCIZ  <15><12>/SELECT TO RUN @ACTREG/
(2)  015334  041505  020124  047524
(2)  015342  051040  047125  040040
(2)  015350  041501  051124  043505
(2)  015356     000
(2)  015357     015  047412  043126  MRANGE: .ASCIZ  <15><12>/OVFLO:RETYPE LAST DEV RXCSR ADDS-/
(2)  015364  047514  051072  052105
(2)  015372  050131  020105  040514
(2)  015400  052123  042040  053105
(2)  015406  051040  041530  051123
(2)  015414  040440  042104  026523
(2)  015422     000
(2)  015423     040  037440     000  MQM:    .ASCIZ  /  ?/
(2)  015427     015  000012          MCRLF:  .ASCIZ   <15><12>
(2)  015432  043120  044501  026114  MPFAIL: .ASCIZ  /PFAIL,  RESTART AT TEST IN PROGRESS/
(2)  015440  020040  042522  052123
(2)  015446  051101  020124  052101
(2)  015454  052040  051505  020124
(2)  015462  047111  050040  047522
(2)  015470  051107  051505  000123
(2)  015476  005015  047105  020104  MEPASS: .ASCIZ  <15><12>/END OF PASS TAPE C/
(2)  015504  043117  050040  051501
(2)  015512  020123  040524  042520
(2)  015520  041440     000
(2)  015523     015  051012     000  MR:     .ASCIZ  <15><12>/R/
(2)  015527     015  052012  051505  MTSTPC: .ASCIZ  <15><12>/TEST PC-/
(2)  015534  020124  041520  000055
(2)  015542  005015  047514  045503  MLOCK:  .ASCIZ  <15><12>/LOCK ON  TEST? (Y OR N)-/
(2)  015550  047440  020116  052040
(2)  015556  051505  037524  024040
(2)  015564  020131  051117  047040
(2)  015572  026451     000
(2)  015575     015  021412  047440  MSYNC:  .ASCIZ  <15><12>/# OF SYNC CHARS SELECTED ( 1 OR 2)-/
(2)  015602  020106  054523  041516
(2)  015610  041440  040510  051522
```

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(2)  015616  051440  046105  041505
(2)  015624  042524  020104  020050
(2)  015632  020061  051117  031040
(2)  015640  026451     000
(2)  015643     015  044412  020123  MWIRE6: .ASCIZ  <15><12>/IS SEC XMIT SWITCH E55-2 IN? (Y OR N)-/
(2)  015650  042523  020103  046530
(2)  015656  052111  051440  044527
(2)  015664  041524  020110  032505
(2)  015672  026465  020062  047111
(2)  015700  020077  054450  047440
(2)  015706  020122  024516  000055
(2)  015714  005015  051511  051440  MWIRE5: .ASCIZ  <15><12>/IS SEC REC SWITCH E55-3 IN? (Y OR N)-/
(2)  015722  041505  051040  041505
(2)  015730  051440  044527  041524
(2)  015736  020110  032505  026465
(2)  015744  020063  047111  020077
(2)  015752  054450  047440  020122
(2)  015760  024516  000055
(2)  015764  005015  051511  047440  MWIRE4: .ASCIZ  <15><12>/IS OPT CLP ENABLE SWITCH E55-1 IN? (Y OR N)-/
(2)  015772  052120  041440  051114
(2)  016000  042440  040516  046102
(2)  016006  020105  053523  052111
(2)  016014  044103  042440  032465
(2)  016022  030455  044440  037516
(2)  016030  024040  020131  051117
(2)  016036  047040  026451     000
(2)  016043     015  005012  031510  MEXTJ:  .ASCIZ  <15><12><12>/H315 CONNECTOR ON ?(Y OR N)-/
(2)  016050  032461  041440  047117
(2)  016056  042516  052103  051117
(2)  016064  047440  020116  024077
(2)  016072  020131  051117  047040
(2)  016100  026451     000
(2)  016103     015  020012  043536  MCNTG:  .ASCIZ  <15><12>/ ^G  /
(2)  016110  020040     000
(2)  016113     040  053523  036522  MMSWR:  .ASCIZ  / SWR=   /
(2)  016120  020040  000040
(2)  016124  020040  047040  053505  MMNEW:  .ASCIZ  /   NEW=  /
(2)  016132  020075  000040
(2)                                  .EVEN
(2)
(2)                                          ;BUFFERS FOR INPUT-OUTPUT
(2)
(2)  016136  000000                  INBUF:  0
(2)          016200                  .=.+40
(2)  016200  000000                  TEMP:   0
(2)          016242                  .=.+40
(2)  016242  000000                  MDATA:  0
(2)          016304                  .=.+40
(3)                                  .SBTTL  SCOPE HANDLER ROUTINESTARS
(3)                                  ;*THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
(3)                                  ;*AND LOAD THE TEST NUMBER($TSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
(3)                                  ;*AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
(3)                                  ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
(3)                                  ;*SW14=1         LOOP ON TEST
(3)                                  ;*SW11=1         INHIBIT ITERATIONS
(3)                                  ;*SW09=1         LOOP ON ERROR
```

```
(3)                                   ;*SW08=1        LOOP ON TEST IN SWR<7:0>
(3)                                   ;*CALL
(3)                                   ;*      SCOPE           ;;SCOPE=IOT
(3)
(3)   016304                          $SCOPE:
(5)
(5)                                           ;SCOPE LOOP AND INTERATION HANDLER
(5)
(5)   016304                          .SCOPE:
(5)   016304  004767  174376                  JSR     PC,CKSWR
(5)   016310  005067  163102                  CLR     $ERRPC          ;CLEAR LAST ERROR PC
(5)   016314  022716  003376                  CMP     #TST1+2,(SP)    ;IS SCOPE AT BEGINING OF TEST 1?
(5)   016320  001422                          BEQ     $XTSTR          ;YES NO LOOP.
(5)
(5)   016322  032777  040000  163110  TTST:   BIT     #BIT14,@SWR     ;THIS CODE IS FOR TESTING FOR BIT 14
(5)   016330  001412                          BEQ     1$              ;ON LSI WHICH SYSMAC CANNOT HANDLE
(5)   016332  016767  163044  163046          MOV     $TSTNM,$LPADR
(5)   016340  000406                          BR      1$
(5)   016342  105777  163076                  TSTB    @$TKS           ;KEYBOARD DONE?
(5)   016346  100123                          BPL     $OVER           ;BR IF NO
(5)   016350  017766  163072  177776          MOV     @$TKB,-2(SP)    ;CLEAR DONE BIT
(3)   016356  032777  040000  163054  1$:     BIT     #BIT14,@SWR     ;;LOOP ON PRESENT TEST?
(3)   016364  001114                          BNE     $OVER           ;;YES IF SW14=1
(3)                                   ;#####START OF CODE FOR THE XOR TESTER#####
(3)   016366  000416                  $XTSTR: BR      6$              ;;IF RUNNING ON THE "XOR" TESTER CHANGE
(3)                                                                   ;;THIS INSTRUCTION TO A "NOP" (NOP=240)
(3)   016370  013746  000004                  MOV     @#ERRVEC,-(SP)  ;;SAVE THE CONTENTS OF THE ERROR VECTOR
(3)   016374  012737  016414  000004          MOV     #5$,@#ERRVEC    ;;SET FOR TIMEOUT
(3)   016402  005737  177060                  TST     @#177060        ;;TIME OUT ON XOR?
(3)   016406  012637  000004                  MOV     (SP)+,@#ERRVEC  ;;RESTORE THE ERROR VECTOR
(3)   016412  000463                          BR      $SVLAD          ;;GO TO THE NEXT TEST
(3)   016414  022626                  5$:     CMP     (SP)+,(SP)+     ;;CLEAR THE STACK AFTER A TIME OUT
(3)   016416  012637  000004                  MOV     (SP)+,@#ERRVEC  ;;RESTORE THE ERROR VECTOR
(3)   016422  000423                          BR      7$              ;;LOOP ON THE PRESENT TEST
(3)   016424                          6$:;#####END OF CODE FOR THE XOR TESTER#####
(3)   016424  032777  000400  163006          BIT     #BIT08,@SWR     ;;LOOP ON SPEC. TEST?
(3)   016432  001404                          BEQ     2$              ;;BR IF NO
(3)   016434  127767  163000  162740          CMPB    @SWR,$TSTNM     ;;ON THE RIGHT TEST?    SWR<7:0>
(3)   016442  001465                          BEQ     $OVER           ;;BR IF YES
(3)   016444  105767  162733          2$:     TSTB    $ERFLG          ;;HAS AN ERROR OCCURRED?
(3)   016450  001421                          BEQ     3$              ;;BR IF NO
(3)   016452  126767  162737  162723          CMPB    $ERMAX,$ERFLG   ;;MAX. ERRORS FOR THIS TEST OCCURRED?
(3)   016460  101015                          BHI     3$              ;;BR IF NO
(3)   016462  032777  001000  162750          BIT     #BIT09,@SWR     ;;LOOP ON ERROR?
(3)   016470  001404                          BEQ     4$              ;;BR IF NO
(3)   016472  016767  162712  162706  7$:     MOV     $LPERR,$LPADR   ;;SET LOOP ADDRESS TO LAST SCOPE
(3)   016500  000446                          BR      $OVER
(3)   016502  105067  162675          4$:     CLRB    $ERFLG          ;;ZERO THE ERROR FLAG
(3)   016506  005067  163000                  CLR     $TIMES          ;;CLEAR THE NUMBER OF ITERATIONS TO MAKE
(3)   016512  000415                          BR      1$              ;;ESCAPE TO THE NEXT TEST
(3)   016514  032777  004000  162716  3$:     BIT     #BIT11,@SWR     ;;INHIBIT ITERATIONS?
(3)   016522  001011                          BNE     1$              ;;BR IF YES
(3)   016524  005767  163004                  TST     $PASS           ;;IF FIRST PASS OF PROGRAM
(3)   016530  001406                          BEQ     1$              ;;      INHIBIT ITERATIONS
(3)   016532  005267  162646                  INC     $ICNT           ;;INCREMENT ITERATION COUNT
(3)   016536  026767  162750  162640          CMP     $TIMES,$ICNT    ;;CHECK THE NUMBER OF ITERATIONS MADE
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(3)  016544  002024                        BGE     $OVER           ;;BR IF MORE ITERATION REQUIRED
(3)  016546  012767  000001  162630  1$:   MOV     #1,$ICNT        ;;REINITIALIZE THE ITERATION COUNTER
(3)  016554  016767  000056  162730        MOV     $MXCNT,$TIMES   ;;SET NUMBER OF ITERATIONS TO DO
(3)  016562  105267  162614        $SVLAD: INCB    $TSTNM          ;;COUNT TEST NUMBERS
(3)  016566  116767  162610  162736        MOVB    $TSTNM,$TESTN   ;;SET TEST NUMBER IN APT MAILBOX
(3)  016574  011667  162606                MOV     (SP),$LPADR     ;;SAVE SCOPE LOOP ADDRESS
(3)  016600  011667  162604                MOV     (SP),$LPERR     ;;SAVE ERROR LOOP ADDRESS
(3)  016604  005067  162704                CLR     $ESCAPE         ;;CLEAR THE ESCAPE FROM ERROR ADDRESS
(3)  016610  112767  000001  162577        MOVB    #1,$ERMAX       ;;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
(3)  016616  016777  162560  162616  $OVER: MOV    $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER
(3)  016624  016716  162556                MOV     $LPADR,(SP)     ;;FUDGE RETURN ADDRESS
(5)  016630  000002                  4$:   RTI
(5)  016632  001407                  BRW:  1407
(5)  016634  000432                  BRX:  432
(3)  016636  000005                  $MXCNT: 5                     ;;MAX. NUMBER OF ITERATIONS
(2)                                  .SBTTL  TRAP DECODER
(2)
(3)                                  ;;*****************************************************************
(2)                                  ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
(2)                                  ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
(2)                                  ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
(2)                                  ;*GO TO THAT ROUTINE.
(2)
(2)  016640  010046                  $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
(2)  016642  016600  000002                  MOV     2(SP),R0        ;;GET TRAP ADDRESS
(2)  016646  005740                          TST     -(R0)           ;;BACKUP BY 2
(2)  016650  111000                          MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
(2)  016652  006300                          ASL     R0              ;;POSITION FOR INDEXING
(2)  016654  016000  016674                  MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
(2)  016660  000200                          RTS     R0              ;;GO TO ROUTINE
(2)
(2)
(2)                                  ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO
(2)
(2)  016662  011646                  $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
(2)  016664  016666  000004  000002          MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
(2)  016672  000002                          RTI                     ;;RESTORE THE PSW
(2)
(4)                                  .SBTTL  TRAP TABLE
(4)
(4)                                  ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(4)                                  ;*BY THE "TRAP" INSTRUCTION.
(4)
(4)                                  ;       ROUTINE
(4)                                  ;       -------
(4)  016674  016662                  $TRPAD: .WORD   $TRAP2
(4)  016676  013056                          $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
(4)  016700  014574                          $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
(4)  016702  014550                          $TYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
(4)  016704  014610                          $TYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
(2)
(2)
(3)  016706  013034                          .SCOP1  ;;CALL=SCOP1    TRAP+5(104405)
(3)  016710  013340                          .INSTR  ;;CALL=INSTR    TRAP+6(104406)
(3)  016712  013446                          .INSTER ;;CALL=INSTER   TRAP+7(104407)
(3)  016714  013456                          .PARAM  ;;CALL=PARAM    TRAP+10(104410)
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  (3)  016716  013656                        .SAV05  ;;CALL=SAV05    TRAP+11(104411)
  (3)  016720  013716                        .RES05  ;;CALL=RES05    TRAP+12(104412)
  (3)  016722  013750                        .CONVRT ;;CALL=CONVRT   TRAP+13(104413)
  (3)  016724  014126                        .SETFLG ;;CALL=SETFLG   TRAP+14(104414)
 8186                                ;*****************************************************************
 8187                                ;UTILITIES
 8188                                ;*****************************************************************
 8189
 8190                                ;THIS UTILITY CALCULATES PRIORITY LEVEL
 8191  016726  006367  000044       DULEV:  ASL     DUPRT   ;SHIFT LEFT
 8192  016732  006367  000040               ASL     DUPRT   ;
 8193  016736  006367  000034               ASL     DUPRT   ;
 8194  016742  006367  000030               ASL     DUPRT   ;
 8195  016746  006367  000024               ASL     DUPRT   ;
 8196  016752  016767  000020  000020       MOV     DUPRT,LESS1     ;MOVE THIS TO LESS1
 8197  016760  162767  000001  000012       SUB     #1,LESS1        ;CREATE LESS1
 8198  016766  042767  000037  000004       BIC     #37,LESS1       ;CLEAR TNZVC
 8199  016774  000207                       RTS     PC
 8200  016776  000240                DUPRT:  PR5
 8201  017000  000200                LESS1:  PR4     ;LEVEL TO ALLOW INTERRUPTS
 8202
 8203                                ;NEW DU ADDRESSES
 8204  017002  016767  000126  162702 DUADDR: MOV     DUBASE,RXCSR    ;XXX0
 8205  017010  005267  000120               INC     DUBASE
 8206  017014  016767  000114  162672       MOV     DUBASE,HRXCSR   ;XXX1
 8207  017022  005267  000106               INC     DUBASE
 8208  017026  016767  000102  162662       MOV     DUBASE,RXDBUF   ;XXX2
 8209  017034  016767  000074  162660       MOV     DUBASE,PARCSR   ;XXX2
 8210  017042  005267  000066               INC     DUBASE
 8211  017046  016767  000062  162644       MOV     DUBASE,HRXDBUF  ;XXX3
 8212  017054  016767  000054  162642       MOV     DUBASE,HPARCSR  ;XXX3
 8213  017062  005267  000046               INC     DUBASE
 8214  017066  016767  000042  162632       MOV     DUBASE,TXCSR    ;XXX4
 8215  017074  005267  000034               INC     DUBASE
 8216  017100  016767  000030  162622       MOV     DUBASE,HTXCSR   ;XXX5
 8217  017106  005267  000022               INC     DUBASE
 8218  017112  016767  000016  162612       MOV     DUBASE,TXDBUF   ;XXX6
 8219  017120  005267  000010               INC     DUBASE
 8220  017124  016767  000004  162602       MOV     DUBASE,HTXDBUF  ;XXX7
 8221  017132  000207                       RTS     PC
 8222  017134  000000                DUBASE: 0
 8223
 8224                                ;THIS UTILITY POKES THE MAINT DATA BASED UPON THE
 8225                                ;INFORMATION CONTAINED IN $TMP1 AND IT IS
 8226                                ;SHIFTED IN BY THE CONTENTS OF SHIFT
 8227  017136  042777  040000  162562 RPOKE:  BIC     #MTDATA,@TXCSR
 8228  017144  005067  162332               CLR     $TMP2
 8229  017150  006067  162324               ROR     $TMP1   ;FORCE CARRY
 8230  017154  006067  162322               ROR     $TMP2   ;PICK UP CARRY IN BIT 15
 8231  017160  006267  162316               ASR     $TMP2   ;SHIFT INTO BIT 14
 8232  017164  042767  100000  162310       BIC     #BIT15,$TMP2    ;CLR BIT 15
 8233  017172  056777  162304  162526       BIS     $TMP2,@TXCSR    ;POKE MAINT DATA
 8234  017200  042777  020000  162520       BIC     #CLK,@TXCSR     ;POKE CLK
 8235  017206  052777  020000  162512       BIS     #CLK,@TXCSR     ;
 8236  017214  005367  161702               DEC     SHIFT
 8237  017220  001346                       BNE     RPOKE
```

```
 8238  017222  000207                          RTS     PC
 8239                                          ;THIS ROUTINE CALCULATES ODD PARITY FOR AN 8 BIT CHAR
 8240  017224  016767  162250  162250  ODD8:   MOV     $TMP1,$TMP2     ;SAVE TEMP1
 8241  017232  005067  162246                  CLR     $TMP3
 8242  017236  012727  000010                  MOV     #8.,(PC)+
 8243  017242  000000                  4$:     0
 8244  017244  006067  162232          1$:     ROR     $TMP2
 8245  017250  005567  162230                  ADC     $TMP3
 8246  017254  005367  177762                  DEC     4$
 8247  017260  001371                          BNE     1$
 8248  017262  006067  162216                  ROR     $TMP3
 8249  017266  103404                          BCS     2$
 8250  017270  052767  000400  162202          BIS     #BIT8,$TMP1     ;SET ODD PARITY
 8251  017276  000403                          BR      3$
 8252  017300  042767  000400  162172  2$:     BIC     #BIT8,$TMP1     ;CLR EVEN PARITY
 8253                                          ;$TMP1 NOW HAS ODD PARITY CHARACTER
 8254  017306  000207                  3$:     RTS     PC
 8255
 8256                                          ;THIS ROUTINE CALCULATES EVEN PARITY FOR AN 8 BIT CHARACTER
 8257  017310  016767  162164  162164  EVEN8:  MOV     $TMP1,$TMP2     ;SAVE TEMP1
 8258  017316  005067  162162                  CLR     $TMP3
 8259  017322  012727  000010                  MOV     #8.,(PC)+
 8260  017326  000000                  4$:     0
 8261  017330  006067  162146          1$:     ROR     $TMP2
 8262  017334  005567  162144                  ADC     $TMP3
 8263  017340  005367  177762                  DEC     4$
 8264  017344  001371                          BNE     1$
 8265  017346  006067  162132                  ROR     $TMP3
 8266  017352  103004                          BCC     2$
 8267  017354  052767  000400  162116          BIS     #BIT8,$TMP1     ;SET EVEN PARITY
 8268  017362  000403                          BR      3$
 8269  017364  042767  000400  162106  2$:     BIC     #BIT8,$TMP1     ;CLR ODD PARITY
 8270                                          ;$TMP1 NOW HAS EVEN PARITY CHARACTER
 8271  017372  000207                  3$:     RTS     PC
 8272
 8273  017374  062716  000002          TRPREG: ADD     #2,(SP) ;ALLOW IT TO "CRUNCH" INTO HLT BACK
 8274                                                          ;IN MAIN PART OF THE PROGRAM
 8275  017400  000002                          RTI
 8276          017402                  POINT=.                 ;SAVE POINTER
  (1)          000100                  .=100
  (1)  000100  017402                  $CLKVEC                 ;LKVEC  HANDLER
  (1)  000102  000300                  300                     ;INTERRUPT HANDLER PRI
  (1)          000140                  .=140                   ;BRKVEC
  (1)  000140  170000                  170000                  ;ODT START ADDRESS
  (1)  000142  000300                  300                     ;PRIORITY
  (1)          017402                  .=POINT                 ;RESTORE POINTER
  (1)  017402  104401  017410          $CLKVEC:        TYPE,CLKMES
  (1)  017406  000000                  HALT
  (1)  017410  005015  045514  042526  CLKMES:  .ASCIZ <15><12>/LKVEC INTERRUPT - DISCONNECT L1C /
  (1)  017416  020103  047111  042524
  (1)  017424  051122  050125  020124
  (1)  017432  020055  044504  041523
  (1)  017440  047117  042516  052103
  (1)  017446  046040  041524  000040
 8277                                                           ;SPECIFIC VECTORS.
 8278          000001                  .END
```

```
AAA     003200          8150#
ABASE = 000000          8150
ACDW1 = 000000          8150
ACDW2 = 000000          8150
ACPUOP= 000000          8150
ACTREG  001166          8150#*  8185
ADDW0 = 000000          8150
ADDW1 = 000000          8150
ADDW10= 000000          8150
ADDW11= 000000          8150
ADDW12= 000000          8150
ADDW13= 000000          8150
ADDW14= 000000          8150
ADDW15= 000000          8150
ADDW2 = 000000          8150
ADDW3 = 000000          8150
ADDW4 = 000000          8150
ADDW5 = 000000          8150
ADDW6 = 000000          8150
ADDW7 = 000000          8150
ADDW8 = 000000          8150
ADDW9 = 000000          8150
ADEVCT= 000000          8150
ADEVM = 000000          8150
ADRCNT= 013655          8185#*
AENV  = 000000          8150
AENVM = 000000          8150
AFATAL= 000000          8150
AMADR1= 000000          8150
AMADR2= 000000          8150
AMADR3= 000000          8150
AMADR4= 000000          8150
AMAMS1= 000000          8150
AMAMS2= 000000          8150
AMAMS3= 000000          8150
AMAMS4= 000000          8150
AMSGAD= 000000          8150
AMSGLG= 000000          8150
AMSGTY= 000000          8150
AMTYP1= 000000          8150
AMTYP2= 000000          8150
AMTYP3= 000000          8150
AMTYP4= 000000          8150
APASS = 000000          8150
APRIOR= 000000          8150
APTCSU= 000040          7010#   8185
APTENV= 000001          7010#   8185
APTSIZ= 000200          7010#   8150
APTSPO= 000100          7010#   8185
ASWREG= 000000          8150
ATESTN= 000000          8150
AUNIT = 000000          8150
AUSWR = 000000          8150
AVECT1= 000000          8150
AVECT2= 000000          8150
BASEAD  001154          8150#*  8185*
```

```
BASEIV  001162          8150#* 8185*
BBB     003026          8150#
BINWRD  014124          8185#*
BITW  = 002000          8150#
BIT0  = 000001          8150#
BIT00 = 000001          8150#
BIT01 = 000002          8150#
BIT02 = 000004          8150#
BIT03 = 000010          8150#
BIT04 = 000020          8150#
BIT05 = 000040          8150#
BIT06 = 000100          8150#
BIT07 = 000200          8150#
BIT08 = 000400          8150#  8185
BIT09 = 001000          8150#  8185
BIT1  = 000002          8150#
BIT10 = 002000          8150#  8170  8171  8185
BIT11 = 004000          8150#  8185
BIT12 = 010000          8150#
BIT13 = 020000          8150#  8185
BIT14 = 040000          8150#  8185
BIT15 = 100000          8150#  8232
BIT2  = 000004          8150#
BIT3  = 000010          8150#
BIT4  = 000020          8150#
BIT5  = 000040          8150#
BIT6  = 000100          8150#
BIT7  = 000200          8150#
BIT8  = 000400          8150#  8250  8252  8267  8269
BIT9  = 001000          8150#
BPTVEC= 000014          8150#
BREAK = 000001          8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163
                        8164   8165  8166  8167  8168  8169  8170  8171  8172  8173  8174  8175  8176
                        8177   8178  8179  8180  8181  8182  8183  8184
BRKVEC= 000140          8150#
BRW     016632          8185#
BRX     016634          8185#
CARDET= 010000          8150#
CCC     012612          8185#
CHRCNT  014122          8185#*
CKSWR   012706          8185#
CLK   = 020000          8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163
                        8164   8165  8166  8167  8168  8169  8170  8171  8172  8173  8174  8175  8176
                        8177   8178  8179  8180  8181  8182  8183  8184  8234  8235
CLKMES  017410          8276#
CNTLU   012762          8150   8185#
CONVRT= 104413          8185#
COUNT   001124          8150#  8174* 8175* 8176* 8177* 8178* 8179* 8180* 8181* 8182* 8183* 8184*
CR    = 000015          8150#  8185
CRLF  = 000200          8150#  8185
CTS   = 020000          8150#
DDISP = 177570          8150#
DEVADR  013652          8185#*
DEVICE  015315          8185#
DF1     002132          8150#
DH1     002067          8150#
```

```
DISPLA  001442            8150#* 8185*
DISPRE  000174            8150#
DNA    = 100000           8150#
DNAINT= 000040            8150#
DSC    = 100000           8150#
DSINTE= 000040            8150#
DSR    = 001000           8150#
DSWR   = 177570           8150#
DTR    = 000002           8150#
DT1     002116            8150#
DT4     002126            8150#
DUADDR  017002            8150   8185   8204#
DUBASE  017134            8150   8185*  8204   8205*  8206   8207*  8208   8209   8210*  8211   8212   8213*  8214
                          8215*  8216   8217*  8218   8219*  8220   8222#
DULEV   016726            8150   8191#
DUPRT   016776            8150*  8191*  8192*  8193*  8194*  8195*  8196   8200#
DURIS   001740            8150#  8185*
DURIV   001736            8150#  8185*
DUTIS   001744            8150#  8185*
DUTIV   001742            8150#  8185*
EIGHT = 006000            8150#  8154   8155   8156   8157   8161   8165   8169   8170   8171   8172   8173   8177
                          8181
EMTVEC= 000030            8150#*
EM1     001762            8150#
EM2     002022            8150#
EM3     002043            8150#
EM4     001746            8150#
ERRCNT  001114            8150#
ERRVEC= 000004            8150#* 8185*
EVEN8   017310            8170   8172   8257#
EVEPAR= 001400            8150#  8162   8163   8164   8165   8170   8172
EVPAR  = 000400           8150#
FIVE   = 000000           8150#  8158   8162   8166   8174   8178   8182
FRMERR= 020000            8150#  8158   8159   8160   8161
GNS    = ****** U         8185
HDXEN  = 000010           8150#
HILIM   013650            8185#*
HLD0    001130            8150#  8185*
HLD1    001132            8150#  8185*
HLD2    001134            8150#  8185*
HLD3    001136            8150#  8185*
HLD4    001140            8150#  8185*
HLD5    001142            8150#  8185*
HLD6    001144            8150#  8185*
HOLD    001120            8150#
HPARCS  001724            8150#  8212*
HRXCSR  001714            8150#  8206*
HRXDBU  001720            8150#  8211*
HT     = 000011           8150#  8185
HTXCSR  001730            8150#  8216*
HTXDBU  001734            8150#  8220*
INBUF   016136            8150   8185#
INIFLG  001172            8150#*
INSTER= 104407            8150   8185#
INSTR  = 104406           8150   8185#
INSTR2  013454            8185#
```

```
IOTVEC= 000020  8150#*
ISYMOD= 000000  8150#  8158  8159  8160  8161  8162  8163  8164  8165  8166  8167  8168  8169
                8170  8171  8174  8175  8176  8177
JMRBY   001153  8150#*
KEEPAD  001156  8150#*  8185
KEEPIV  001164  8150#*  8185
LASTAD  001160  8150#
LESS1   017000  8196*  8197*  8198*  8201#
LF    = 000012  8150#  8185
LIGHTS  001102  8150#  8185*
LIMITS  013602  8185#
LKVEC = 000100  8150#
LOBITS  013654  8185#*
LOCK    001110  8150#  8185
LOKFLG  001174  8150#
LOLIM   013646  8185#*
MCNTG   016103  8185#
MCOW    015327  8185#
MCRLF   015427  8185#
MDATA   016242  8185#
MEPASS  015476  8185#
MEXT  = 010000  8150#
MEXTJ   016043  8150  8185#
MINT  = 004000  8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163
                8164  8165  8166  8167  8168  8169  8170  8171  8172  8173  8174  8175  8176
                8177  8178  8179  8180  8181  8182  8183  8184
MLASTD  015263  8150  8185#
MLOCK   015542  8185#
MMNEW   016124  8185#
MMSWR   016113  8185#
MMULT   015234  8150  8185#
MPFAIL  015432  8185#
MQM     015423  8185#
MR      015523  8150  8185#
MRANGE  015357  8150  8185#
MREGAD  015204  8150  8185#
MRESET= 000400  8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163
                8164  8165  8166  8167  8168  8169  8170  8171  8172  8173  8174  8175  8176
                8177  8178  8179  8180  8181  8182  8183  8184
MSYNC   015575  8150  8185#
MTDATA= 040000  8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163
                8164  8165  8166  8167  8168  8169  8170  8171  8172  8173  8174  8175  8176
                8177  8178  8179  8180  8181  8182  8183  8184  8227
MTITLE  015136  8150  8185#
MTSTPC  015527  8150  8185#
MULTD   001152  8150#  8185
MVECTO  015171  8150  8185#
MWIRE4  015764  8150  8185#
MWIRE5  015714  8150  8185#
MWIRE6  015643  8150  8185#
NEXT    001106  8150#
NOPAR = 000000  8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8174  8175
                8176  8177  8178  8179  8180  8181  8182  8183  8184
ODDPAR= 001000  8150#  8166  8167  8168  8169  8171  8173
ODD8    017224  8171  8173  8240#
ODTST = 170000  8150#
```

```
ONCE    002610          8150#
OPTCLR  001151          8150#
OUT     013014          8185#
OUTCRY  012604          8185#
OUTMUL  003166          8150#
OVRRUN= 040000          8150#
PARAM = 104410          8150    8185#
PARAM1  013506          8185#
PARCSR  001722          8150#   8152*   8153*   8154*   8155*   8156*   8157*   8158*   8159*   8160*   8161*   8162*   8163*
                        8164*   8165*   8166*   8167*   8168*   8169*   8170*   8171*   8172*   8173*   8174*   8175*   8176*
                        8177*   8178*   8179*   8180*   8181*   8182*   8183*   8184*   8209*
PAREN = 001000          8150#
PARER = 010000          8150#   8162    8163    8164    8165    8166    8167    8168    8169
PARERR  013562          8185#
PARTI   013644          8185#
PASCNT  001112          8150#*  8185*
PFTAB   015130          8185#
PIRQ  = 177772          8150#
PIRQVE= 000240          8150#
POINT = 017402          8276#
POPR0 = 012600          8150#
POP1SP= 005726          8150#
POP2SP= 022626          8150#
PR0   = 000000          8150#
PR1   = 000040          8150#
PR2   = 000100          8150#
PR3   = 000140          8150#
PR4   = 000200          8150#   8201
PR5   = 000240          8150#   8200
PR6   = 000300          8150#
PR7   = 000340          8150#
PS    = 177776          8150#
PSW   = 177776          8150#
PUSHR0= 010046          8150#
PUSH1S= 005746          8150#
PUSH2S= 024646          8150#
PWRVEC= 000024          8150#*
RDSW    013022          8185#*
RECACT= 004000          8150#
REPLAY  012510          8185#
RESTAR  015034          8185#
RESTRT  012670          8185#
RESVEC= 000010          8150#
RES05 = 104412          8185#
RETURN  001104          8150#*  8185
RING  = 040000          8150#
RINTEN= 000100          8150#
ROTADD  001170          8150#*  8185*
RPOKE   017136          8152    8153    8154    8155    8156    8157    8158    8159    8160    8161    8162    8163    8164
                        8165    8166    8167    8168    8169    8170    8171    8172    8173    8174    8175    8176    8177
                        8178    8179    8180    8181    8182    8183    8184    8227#   8237
RTS   = 000004          8150#
RUNA  = ****** U        5678    5862    6003    6417
RUNB  = ****** U        5703    5871    6010    6426
RUNC  = 000000          5676#   5728    5879    6017    6435
RUND  = ****** U        5754    5888    6024    6444
```

```
RUNE   = ****** U        5779    5898    6031    6453
RUNF   = ****** U        5804    5908    6038    6462
RUNIT    012414          8185#
RXCSR    001712          8150#   8152*   8153*   8154*   8155*   8156*   8157*   8158*   8159*   8160*   8161*   8162*   8163*
                         8164*   8165*   8166*   8167*   8168*   8169*   8170*   8171*   8172*   8173*   8174*   8175*   8176*
                         8177*   8178*   8179*   8180*   8181*   8182*   8183*   8184*   8185    8204*
RXDBUF   001716          8150#   8152    8153    8154    8155    8156    8157    8158    8159    8160    8161    8162    8163
                         8164    8165    8166    8167    8168    8169    8170    8171    8172    8173    8208*
RXDONE=  000200          8150#
RXERR  = 100000          8150#   8158    8159    8160    8161    8162    8163    8164    8165    8166    8167    8168    8169
SAVIT    014356          8185#
SAVPC    001126          8150#   8185*
SAVSP    001116          8150#   8185*
SAV05  = 104411          8185#
SCOP1  = 104405          8185#
SEND   = 000020          8150#
SEREC    001150          8150#
SETFLG=  104414          8150    8185#
SEVEN  = 004000          8150#   8152    8153    8160    8164    8168    8176    8180    8184
SEXMIT   001147          8150#
SHIFT    001122          8150#   8152*   8153*   8154*   8155*   8156*   8157*   8158*   8159*   8160*   8161*   8162*   8163*
                         8164*   8165*   8166*   8167*   8168*   8169*   8170*   8171*   8172*   8173*   8174*   8175*   8176*
                         8177*   8178*   8179*   8180*   8181*   8182*   8183*   8184*   8236*
SIX    = 002000          8150#   8159    8163    8167    8175    8179    8183
SPACNT=  014123          8185#*
SRD    = 002000          8150#
STACK  = 001100          8150#   8185
STD    = 000010          8150#
STFLG    001173          8150#*
STKLMT=  177774          8150#
STPSYN=  000400          8150#   8174    8175    8176    3177    8178    8179    8180    8181    8182    8183    8184
SV05     013664          8185#
SWR      001440          8150#*  8185
SWREG    000176          8150#   8185
SWREGL   013024          8185#
SW0    = 000001          8150#
SW00   = 000001          8150#
SW01   = 000002          8150#
SW02   = 000004          8150#
SW03   = 000010          8150#
SW04   = 000020          8150#
SW05   = 000040          8150#
SW06   = 000100          8150#
SW07   = 000200          8150#
SW08   = 000400          8150#
SW09   = 001000          8150#   8185
SW1    = 000002          8150#
SW10   = 002000          8150#
SW11   = 004000          8150#
SW12   = 010000          8150#
SW13   = 020000          8150#
SW14   = 040000          8150#
SW15   = 100000          8150#
SW2    = 000004          8150#
SW3    = 000010          8150#
SW4    = 000020          8150#
```

```
SW5    = 000040            8150#
SW6    = 000100            8150#
SW7    = 000200            8150#
SW8    = 000400            8150#
SW9    = 001000            8150#
SYNCNO  001146             8150#*
SYNEXT= 020000             8150#  8152   8153   8154   8155   8156   8157   8172   8173   8178   8179   8180   8181
SYNINT= 030000             8150#  8182   8183   8184
SYNSCH= 000020             8150#  8152   8153   8154   8155   8156   8157   8158   8159   8160   8161   8162   8163
                           8164   8165   8166   8167   8168   8169   8170   8171   8172   8173   8174   8175   8176
                           8177   8178   8179   8180   8181   8182   8183   8184
SYSTST= 014000             8150#
TBITVE= 000014             8150#
TEMP    016200             8185#*
TKVEC  = 000060            8150#
TPVEC  = 000064            8150#
TRAPVE= 000034             8150#*
TRPREG  017374             8273#
TRTVEC= 000014             8150#
TST1    003374             8150   8152#  8185
TST10   005230             8159#
TST11   005370             8160#
TST12   005530             8161#
TST13   005670             8162#
TST14   006040             8163#
TST15   006210             8164#
TST16   006360             8165#
TST17   006530             8166#
TST2    003606             8153#
TST20   006700             8167#
TST21   007050             8168#
TST22   007220             8169#
TST23   007370             8170#
TST24   007554             8171#
TST25   007740             8172#
TST26   010074             8173#
TST27   010230             8174#
TST3    004020             8154#
TST30   010400             8175#
TST31   010550             8176#
TST32   010720             8177#
TST33   011070             8178#
TST34   011224             8179#
TST35   011360             8180#
TST36   011514             8181#
TST37   011650             8182#
TST4    004232             8155#
TST40   012020             8183#
TST41   012170             8184#
TST5    004444             8156#
TST6    004656             8157#
TST7    005070             8158#
TTST    016322             8185#
TXCSR   001726             8150#  8152*  8153*  8154*  8155*  8156*  8157*  8158*  8159*  8160*  8161*  8162*  8163*
                           8164*  8165*  8166*  8167*  8168*  8169*  8170*  8171*  8172*  8173*  8174*  8175*  8176*
                           8177*  8178*  8179*  8180*  8181*  8182*  8183*  8184*  8214*  8227*  8233*  8234*  8235*
```

```
TXDBUF  001732           8150#   8218*
TXDONE= 000200           8150#
TXINTE= 000100           8150#
TYPE   = 104401          8150    8185#   8276
TYPOC  = 104402          8185#
TYPON  = 104404          8185#
TYPOS  = 104403          8185#
USER   = 000000          8150#
VOID   = 000001          8150#
WRDCNT  014120           8185#*
ZERO    012422           8185#
$APTHD  002136           8150#
$ASTAT= ****** U         7010
$ATYC   000024           7010#
$ATY1   000000           7010#
$ATY3   000006           7010#   8185
$ATY4   000016           7010#   8185
$AUTOB  001434           8150#
$BASE   001602           8150#
$BDADR  001422           8150#
$BDDAT  001426           8150#
$BELL   001516           8150#   8185
$CDW1   001606           8150#
$CDW2   001610           8150#
$CHARC  013334           8185#*
$CKSWR= ****** U         8185
$CLKVE  017402           8276#
$CMTAG  001400           8150#
$CM1   = 000006          8150#
$CM2   = 000014          8150#
$CM3   = 000006          8150#
$CM4   = 000006          8150#
$CPUOP  001554           8150#
$CRLF   001523           8150#   8185
$DDW0   001612           8150#
$DDW1   001614           8150#
$DDW10  001636           8150#
$DDW11  001640           8150#
$DDW12  001642           8150#
$DDW13  001644           8150#
$DDW14  001646           8150#
$DDW15  001650           8150#
$DDW2   001616           8150#
$DDW3   001620           8150#
$DDW4   001622           8150#
$DDW5   001624           8150#
$DDW6   001626           8150#
$DDW7   001630           8150#
$DDW8   001632           8150#
$DDW9   001634           8150#
$DEVCT  001536           8150#
$DEVM   001604           8150#
$E     = 000002          6838#
$ENDAD  012660           8150    8185#
$ENV    001546           7010    8150#   8185
$ENVM   001547           7010    8150#   8185
```

```
$ERFLG  001403            8150#*  8185*
$ERMAX  001415            8150#*  8185*
$ERROR  014174            8150    8185#
$ERRPC  001416            8150#*  8185*
$ERRTB  001652            8150#   8185
$ERRTY  014414            8185#
$ERTTL  001412            8150#*  8185*
$ESCAP  001514            8150#*  8185*
$ETABL  001546            8150#
$ETEND  001652            8150#
$FATAL  001530            7010*   8150#
$FFLG   000244            7010#*
$FILLC  001456            8150#   8185
$FILLS  001455            8150#   8185
$GDADR  001420            8150#
$GDDAT  001424            8150#
$GTSWR= ****** U          8185
$HIBTS  002136            8150#
$ICNT   001404            8150#   8185*
$INTAG  001435            8150#
$ITEMB  001414            8150#   8185*
$LF     001524            8150#   8185
$LFLG   000243            7010#*
$LPADR  001406            8150#*  8185*
$LPERR  001410            8150#*  8185*
$MADR1  001560            8150#
$MADR2  001564            8150#
$MADR3  001570            8150#
$MADR4  001574            8150#
$MAIL   001526            8150#   8185
$MAMS1  001556            8150#
$MAMS2  001562            8150#
$MAMS3  001566            8150#
$MAMS4  001572            8150#
$MBADR  002140            8150#
$MFLG   000242            7010#*
$MSGAD  001542            7010*   8150#
$MSGLG  001544            7010*   8150#
$MSGTY  001526            7010*   8150#
$MTYP1  001557            8150#
$MTYP2  001563            8150#
$MTYP3  001567            8150#
$MTYP4  001573            8150#
$MXCNT  016636            8185#
$N      =  000000         6837#   8185#
$NULL   001454            8150#   8185
$NWTST= 000000            8152#   8153#   8154#   8155#   8156#   8157#   8158#   8159#   8160#   8161#   8162#   8163#   8164#
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                          8178#   8179#   8180#   8181#   8182#   8183#   8184#
$OCNT   014772            8185#*
$OMODE  014774            8185#*
$OVER   016616            8185#
$PASS   001534            8150#*  8185*
$PASTM  002144            8150#
$PWRDN  014776            8150    8185#
$QUES   001522            8150#   8185
```

```
$RDCHR= ****** U          8185
$RDDEC= ****** U          8185
$RDLIN= ****** U          8185
$RDOCT= ****** U          8185
$REGAD  001460            8150#
$REG0   001462            8150#   8185*
$REG1   001464            8150#   8185*
$REG2   001466            8150#   8185*
$REG3   001470            8150#   8185*
$REG4   001472            8150#   8185*
$REG5   001474            8150#   8185*
$R2A  = ****** U          8185
$SAVRE= ****** U          8185
$SCOPE  016304            8150    8185#
$SETUP= 000017            8150#   8185
$STUP = 177777            8150#
$SVLAD  016562            8185#
$SVPC = 002136            8150#
$SWR  = 177400            6497#   8150    8152    8153    8154    8155    8156    8157    8158    8159    8160    8161    8162
                          8163    8164    8165    8166    8167    8168    8169    8170    8171    8172    8173    8174    8175
                          8176    8177    8178    8179    8180    8181    8182    8183    8184    8185
$SWREG  001550            8150#
$SWRMK= 000000            8185
$TESTN  001532            8150#   8185*
$TIMES  001512            8150#*  8185*
$TKB    001446            8150#   8185
$TKS    001444            8150#   8185
$TMP0   001476            8150#
$TMP1   001500            8150#   8152*   8153*   8154*   8155*   8156*   8157*   8158*   8159*   8160*   8161*   8162*   8163*
                          8164*   8165*   8166*   8167*   8168*   8169*   8170*   8171*   8172*   8173*   8174*   8175*   8176*
                          8177*   8178*   8179*   8180*   8181*   8182*   8183*   8184*   8229*   8240    8250*   8252*   8257
                          8267*   8269*
$TMP2   001502            8150#   8228*   8230*   8231*   8232*   8233    8240*   8244*   8257*   8261*
$TMP3   001504            8150#   8241*   8245*   8248*   8258*   8262*   8265*
$TMP4   001506            8150#
$TMP5   001510            8150#
$TN   = 000042            7249#   8152#   8153#   8154#   8155#   8156#   8157#   8158#   8159#   8160#   8161#   8162#   8163#
                          8164#   8165#   8166#   8167#   8168#   8169#   8170#   8171#   8172#   8173#   8174#   8175#   8176#
                          8177#   8178#   8179#   8180#   8181#   8182#   8183#   8184#
$TPB    001452            8150#   8185*
$TPFLG  001457            8150#   8185
$TPS    001450            8150#   8185
$TRAP   016640            8150    8185#
$TRAP2  016662            8185#
$TRP  = 000015            8185#
$TRPAD  016674            8185#
$TSTM   002142            8150#
$TSTNM  001402            8150#*  8185*
$TYPBN= ****** U          8185
$TYPDS= ****** U          8185
$TYPE   013056            7010    8185#
$TYPEC  013270            8185#
$TYPEX  013336            8185#
$TYPOC  014574            8185#
$TYPON  014610            8185#
$TYPOS  014550            8185#
```

```
$UNIT   001540            8150#
$UNITM  002146            8150#
$USWR   001552            8150#
$VECT1  001576            8150#
$VECT2  001600            8150#
$XTSTR  016366            8185#
$OFILL  014773            8185#*
$40CAT= ****** U          8185
.     = 017454            7010#   8150#   8152    8153    8154    8155    8156    8157    8158    8159    8160    8161    8162
                          8163    8164    8165    8166    8167    8168    8169    8170    8171    8172    8173    8174    8175
                          8176    8177    8178    8179    8180    8181    8182    8183    8184    8185#   8276#
.BEGIN  003310            8150#   8185
.CONVR  013750            8185#
.EOP    012340            8185#
.INSTE  013446            8185#
.INSTR  013340            8185#
.INST1  013360            8185#
.MSG    013362            8185#*
.PARAM  013456            8185#
.PFAIL  014776            8150    8185#
.RES05  013716            8185#
.SAV05  013656            8185#
.SCOPE  016304            8185#
.SCOP1  013034            8185#
.SETFL  014126            8185#
.START  002152            8150#   8185
.$ASTA= ****** U          7010
.$X   = 002136            8150#
```

```
COMMEN  1566#  8150#
ENDCOM  1578#  8150#
ERROR   8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163  8164  8165
        8166   8167  8168  8169  8170  8171  8172  8173  8174  8175  8176  8177  8178  8179  8180
        8181   8182  8183  8184
ESCAPE  1698#  8150#
GETPRI  1312#  8150#
GETSWR  1771#  8150#
MULT    4484#  8150#
NEWTST  1626#  8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163  8164
        8165   8166  8167  8168  8169  8170  8171  8172  8173  8174  8175  8176  8177  8178  8179
        8180   8181  8182  8183  8184
POP     2153#  7010  8150#
PRGEND  8115#  8185
PRGFRT  7250#  8150
PUSH    2145#  7010  8150#
PUSSYF  7986#
REPORT  5463#  6496#  8150#
RSETUP  7445#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163  8164  8165
        8166   8167  8168  8169  8170  8171  8172  8173  8174  8175  8176  8177  8178  8179  8180
        8181   8182  8183  8184
SC      6810#  8185
SCOPE   8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163  8164  8165
        8166   8167  8168  8169  8170  8171  8172  8173  8174  8175  8176  8177  8178  8179  8180
        8181   8182  8183  8184  8185
SC1     6828#  8185
SETPRI  1279#  8150#
SETTRA  6495#  8185#
SETUP   1337#  8150#
SKIP    1733#  8150#
SLASH   1517#  8150#
SPACE   8150#
STARS   1485#  7010  8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163
        8164   8165  8166  8167  8168  8169  8170  8171  8172  8173  8174  8175  8176  8177  8178
        8179   8180  8181  8182  8183  8184  8185
SWRSU   1453#  8150#
TRMTRP  8185#
TSETUP  7457#
TYPBIN  2088#  8150#
TYPDEC  2058#  8150#
TYPNAM  1826#  8150#
TYPNUM  2025#  8150#
TYPOCS  1978#  8150#
TYPOCT  1941#  8150#  8185
TYPTXT  1894#  8150#
$BEGIN  6719#  8150
$BINAR  7933#
$BUFFE  7124#  8185
$CABLE  8001#
$CATCH  6588#  8150
$CK     6964#  8185
$CLRVE  6734#  8150
$CONVR  7135#  8185
$DNA    7834#
$EOP    6882#  8185
$GETFL  6764#  8150
```

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$GETPA   6754#  8150
$GETSY   6770#  8150
$HEADE   6499#  8150
$INSTR   7011#  8185
$ISOB    7762#  8170  8171  8172  8173
$MATCH   7571#
$MRR     7432#
$MRRW    7380#
$MRW     7415#
$MSG     7098#  8185
$NEED    8103#  8185
$PARAM   7041#  8185
$PFAIL   7180#  8185
$POKE    7554#
$POKER   7559#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163  8164  8165
         8166   8167  8168  8169  8170  8171  8172  8173  8174  8175  8176  8177  8178  8179  8180
         8181   8182  8183  8184
$RCNET   8013#
$RECAC   7493#
$REG     7223#  8185
$RESET   7376#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163  8164  8165
         8166   8167  8168  8169  8170  8171  8172  8173  8174  8175  8176  8177  8178  8179  8180
         8181   8182  8183  8184
$RXACT   7470#
$SCOPE   6833#  8185
$SCOP1   6999#  8185
$SETFL   6790#  8185
$SETVE   6599#  8150
$START   6677#  8150
$STRIP   7803#  8174  8175  8176  8177  8178  8179  8180  8181  8182  8183  8184
$SYMBO   6515#  8150
$SYNCR   7565#  8158  8159  8160  8161  8162  8163  8164  8165  8166  8167  8168  8169  8170  8171
         8174   8175  8176  8177  8182  8183  8184
$TRPAR   7885#
$TSTNO   6840#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163  8164  8165
         8166   8167  8168  8169  8170  8171  8172  8173  8174  8175  8176  8177  8178  8179  8180
         8181   8182  8183  8184
$UNIBU   7359#
$VARIA   6615#  8150
$WORDF   7701#  8158  8159  8160  8161
$WORDO   7651#  8152  8153  8154  8155  8156  8157
$WORDP   7729#  8162  8163  8164  8165  8166  8167  8168  8169
$$CMRE   8150#
$$CMTM   8150#
$$ESCA   1711#  8150#
$$NEWT   1662#  8150#  8152  8153  8154  8155  8156  8157  8158  8159  8160  8161  8162  8163  8164
         8165   8166   8167  8168  8169  8170  8171  8172  8173  8174  8175  8176  8177  8178  8179
         8180   8181   8182  8183  8184
$$SET    8185#
$$SETM   8150#
$$SKIP   1746#  8150#
.EQUAT    189#  6495#  8150
.HEADE     61#  6494#
.INIT    5658#  8150#  8276
.SETUP   1213#  6494#  8150
.SWRHI    104#
```

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.$ACT1    5064#   6496#   8150
.$APTB    5109#   6496#   8150#
.$APTH    5370#   6496#   8150
.$APTY    5547#   6496#   7010
.$ASTA    5417#
.$CATC     932#   6494#
.$CMTA    1047#   6494#   8150
.$DB2D    4686#
.$DB2O    4812#
.$DIV     4587#
.$EOP     2214#   6494#
.$ERRO    2700#   6495#   8185
.$ERRT    2896#   6495#   8185
.$MULT    4523#
.$POWE    4229#   6495#
.$RAND    4307#
.$RDDE    3891#
.$RDOC    3797#
.$READ    3395#
.$R2AZ    4958#
.$SAVE    3969#
.$SB2D    4771#
.$SB2O    4874#
.$SCOP    2454#   6495#   8185
.$SIZE    4361#
.$SUPR    4913#
.$TRAP    4073#   6495#   8185
.$TYPB    3287#
.$TYPD    3209#
.$TYPE    2985#   6494#   8185
.$TYPO    3112#   6495#   8185
.$40CA     972#


. ABS.  017454     000

 ERRORS DETECTED:  0

 CNDUSA,CNDUSA/CRF/NL:TOC=CNMAC2.SML,CNDUS1.M11,CNDUS2.M11,CNDUSA.M11
 RUN-TIME: 18 17 1 SECONDS
 RUN-TIME RATIO: 90/37=2.4
 CORE USED:  43K  (86 PAGES)
```