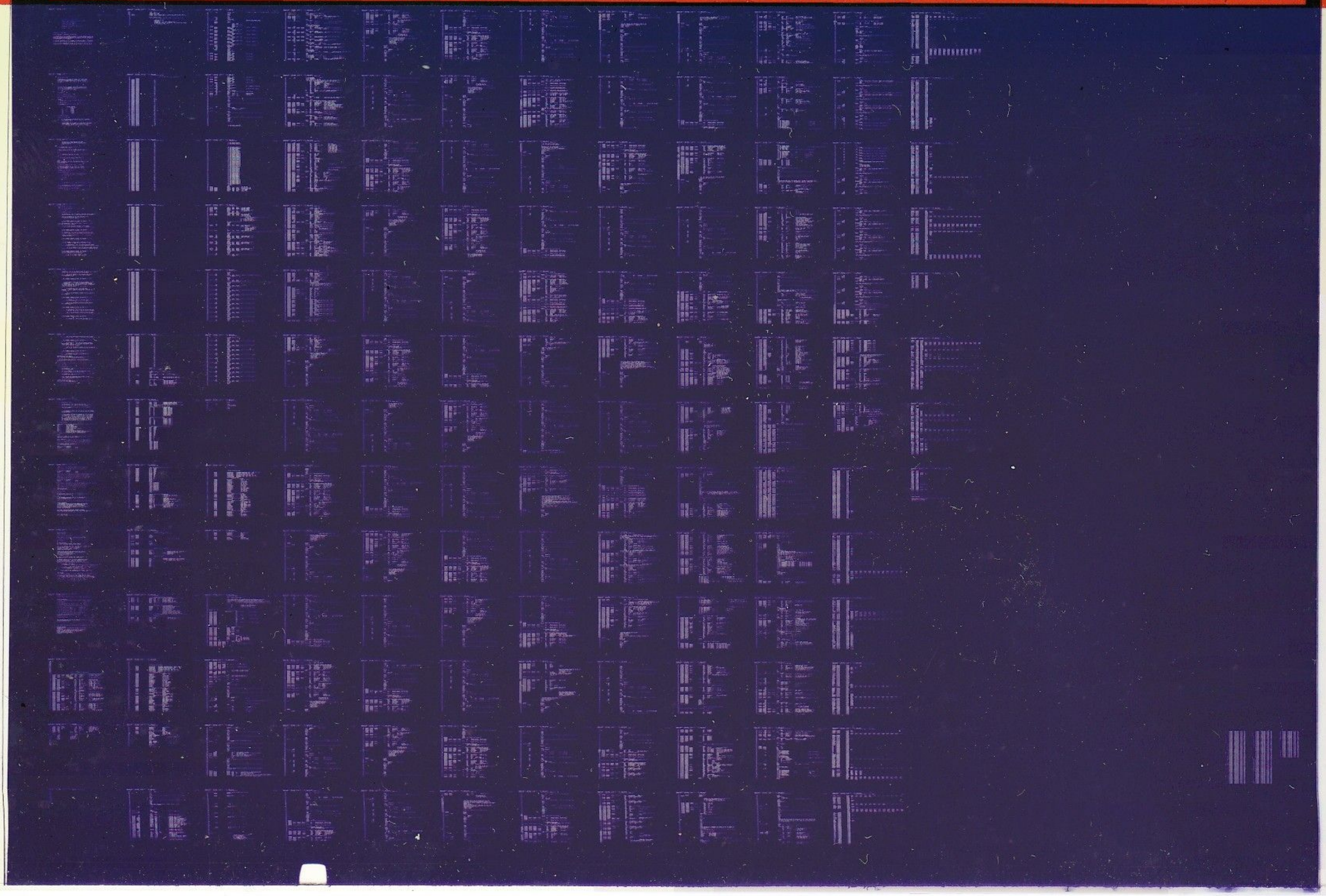
DUV11 OFLNE TMG INTR CNDUUAO

AH-T458A-MC FICHE 1 OF 1



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                                                                .REM    *

                I D E N T I F I C A T I O N
                PRODUCT NAME: CNDUUA0 DUV11 OFLNE  TMG INTR
                PRODUCT CODE: AC-T457A-MC
                PRODUCT DATE:DEC, 1982
                MAINTAINER  :DIAGNOSTICS SERVICES/ISS
                AUTHOR: K.LIND
                                                                *
                                                                .REM    *
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.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 COMBINED TIMING AND INTERRUPT TESTS
VERIFY THAT THE TRANSMITTER AND RECEIVER CAN CORRECTLY
TALK TO EACH OTHER.INTERRUPT LOGIC AND PRIORITY LEVEL
/VECTOR ADDRESSES ARE ALSO VERIFIED

*

.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 000200
THE STARTING ADDRESS TO LOCK ON TEST IS 000200

4.3 PROGRAM AND/OR OPERATOR ACTION

4.3.1 INITIAL PROGRAM START

4.3.1.1 LOAD PROGRAM INTO MEMORY WITH ABSOLUTE LOADER

4.3.1.2 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 CNDUU-A TAPE E" (ONCE ONLY)

.REM

.REM

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. CPERATING 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          !NHIBIT 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 PRFSENTLY 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

9.1 THIS PROGRAM PERFORMS THE OFFLINE COMBINED (TRANSMITTER & RECEIVER)
TIMING & INTERRUPT TESTING OF THE DEVICE
SEE LISTING FOR DETAILS

.REM *

.REM *

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

11. REVISION HISTORY
DZDUUB1 DIAGNOSTIC WAS MODIFIED TO WORK IN 11/21 SBC-
PROCESSOR.
PRIORITY 340 WAS CHANGED TO 300 WHEREVER ENCOUNTERED.
DEFAULT CSR AND VECTOR ADDRESSES WERE CHANGED.
VECTOR 140 WAS INITIALIZED TO ODT ADDRESS AND ALSO
BEVNT HANDLED WITH A MESSAGE.
DIAGNOSTIC WAS RENAMED TO CNDUUA0.

12. LISTINGS

```
 6489
 6583
 6584
 6585
 6596
 6610
 6611
 6612
 6673
 6674
 6879
 7007
 7008                                    .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  012736                  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)                                          .EVEN
   (1)          000246                  APTSIZE=200
   (1)          000200                  APTENV=001
   (1)          000001                  APTSPOOL=100
   (1)          000100                  APTCSUP=040
   (1)          000040                  $TN=1
 7247           000001
 7373
 7377
 7412
 7429
 7442
 7454
 7467
```

```
7491
7557
7563
7699
7727
7760
7801
7832
7883
7931
7984
7999
8011
8113
```

```
 8144                                .LIST   ME
 8145                                .NLIST  MC,MD,CND
 8147                                .ENABLE ABS
 8148  000246                        PRGFRT  ^/DUV11 CNDUU-A TAPE E /,^/CNDUU-A/,^/END OF PASS TAPE E/
  (1)  000246                        $HEADER ^/1977/,<DUV11 CNDUU-A TAPE E >,<CNDUU-A>,<END OF PASS TAPE E>
  (2)
  (2)                                ;DUV11 CNDUU-A TAPE E
  (2)                                ;COPYRIGHT 1977, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754
  (2)
  (2)                                        ;STARTING PROCEDURE
  (2)                                        ;TYPE 200G
  (2)                                        ;PROGRAM WILL TYPE "DUV11 CNDUU-A TAPE E "
  (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 E"
  (2)                                        ;AND THEN RESUME TESTING
  (2)
  (2)                                .TITLE  CNDUU-A
```

```
(2)                                             ;TRAP CATCHER FOR ILLEGAL INTERRUPTS.
(2)
(2)             000000          .=0
(3)  000000  000002                     .+2
(3)  000002  000000                     HALT
(3)  000004  000006                     .+2
(3)  000006  000000                     HALT
(3)  000010  000012                     .+2
(3)  000012  000000                     HALT
(3)  000014  000016                     .+2
(3)  000016  000000                     HALT
(3)  000020  000022                     .+2
(3)  000022  000000                     HALT
(3)  000024  000026                     .+2
(3)  000026  000000                     HALT
(3)  000030  000032                     .+2
(3)  000032  000000                     HALT
(3)  000034  000036                     .+2
(3)  000036  000000                     HALT
(3)  000040  000042                     .+2
(3)  000042  000000                     HALT
(3)  000044  000046                     .+2
(3)  000046  000000                     HALT
(3)  000050  000052                     .+2
(3)  000052  000000                     HALT
(3)  000054  000056                     .+2
(3)  000056  000000                     HALT
(3)  000060  000062                     .+2
(3)  000062  000000                     HALT
(3)  000064  000066                     .+2
(3)  000066  000000                     HALT
(3)  000070  000072                     .+2
(3)  000072  000000                     HALT
(3)  000074  000076                     .+2
(3)  000076  000000                     HALT
(3)  000100  000102                     .+2
(3)  000102  000000                     HALT
(3)  000104  000106                     .+2
(3)  000106  000000                     HALT
(3)  000110  000112                     .+2
(3)  000112  000000                     HALT
(3)  000114  000116                     .+2
(3)  000116  000000                     HALT
(3)  000120  000122                     .+2
(3)  000122  000000                     HALT
(3)  000124  000126                     .+2
(3)  000126  000000                     HALT
(3)  000130  000132                     .+2
(3)  000132  000000                     HALT
(3)  000134  000136                     .+2
(3)  000136  000000                     HALT
(3)  000140  000142                     .+2
(3)  000142  000000                     HALT
(3)  000144  000146                     .+2
(3)  000146  000000                     HALT
(3)  000150  000152                     .+2
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(3)  000152  000000                    HALT
(3)  000154  000156                    .+2
(3)  000156  000000                    HALT
(3)  000160  000162                    .+2
(3)  000162  000000                    HALT
(3)  000164  000166                    .+2
(3)  000166  000000                    HALT
(3)  000170  000172                    .+2
(3)  000172  000000                    HALT
(3)  000174  000176                    .+2
(3)  000176  000000                    HALT
(3)  000200  000202                    .+2
(3)  000202  000000                    HALT
(3)  000204  000206                    .+2
(3)  000206  000000                    HALT
(3)  000210  000212                    .+2
(3)  000212  000000                    HALT
(3)  000214  000216                    .+2
(3)  000216  000000                    HALT
(3)  000220  000222                    .+2
(3)  000222  000000                    HALT
(3)  000224  000226                    .+2
(3)  000226  000000                    HALT
(3)  000230  000232                    .+2
(3)  000232  000000                    HALT
(3)  000234  000236                    .+2
(3)  000236  000000                    HALT
(3)  000240  000242                    .+2
(3)  000242  000000                    HALT
(3)  000244  000246                    .+2
(3)  000246  000000                    HALT
(3)  000250  000252                    .+2
(3)  000252  000000                    HALT
(3)  000254  000256                    .+2
(3)  000256  000000                    HALT
(3)  000260  000262                    .+2
(3)  000262  000000                    HALT
(3)  000264  000266                    .+2
(3)  000266  000000                    HALT
(3)  000270  000272                    .+2
(3)  000272  000000                    HALT
(3)  000274  000276                    .+2
(3)  000276  000000                    HALT
(3)  000300  000302                    .+2
(3)  000302  000000                    HALT
(3)  000304  000306                    .+2
(3)  000306  000000                    HALT
(3)  000310  000312                    .+2
(3)  000312  000000                    HALT
(3)  000314  000316                    .+2
(3)  000316  000000                    HALT
(3)  000320  000322                    .+2
(3)  000322  000000                    HALT
(3)  000324  000326                    .+2
(3)  000326  000000                    HALT
(3)  000330  000332                    .+2
```

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(3)  000332  000000          HALT
(3)  000334  000336          .+2
(3)  000336  000000          HALT
(3)  000340  000342          .+2
(3)  000342  000000          HALT
(3)  000344  000346          .+2
(3)  000346  000000          HALT
(3)  000350  000352          .+2
(3)  000352  000000          HALT
(3)  000354  000356          .+2
(3)  000356  000000          HALT
(3)  000360  000362          .+2
(3)  000362  000000          HALT
(3)  000364  000366          .+2
(3)  000366  000000          HALT
(3)  000370  000372          .+2
(3)  000372  000000          HALT
(3)  000374  000376          .+2
(3)  000376  000000          HALT
(3)  000400  000402          .+2
(3)  000402  000000          HALT
(3)  000404  000406          .+2
(3)  000406  000000          HALT
(3)  000410  000412          .+2
(3)  000412  000000          HALT
(3)  000414  000416          .+2
(3)  000416  000000          HALT
(3)  000420  000422          .+2
(3)  000422  000000          HALT
(3)  000424  000426          .+2
(3)  000426  000000          HALT
(3)  000430  000432          .+2
(3)  000432  000000          HALT
(3)  000434  000436          .+2
(3)  000436  000000          HALT
(3)  000440  000442          .+2
(3)  000442  000000          HALT
(3)  000444  000446          .+2
(3)  000446  000000          HALT
(3)  000450  000452          .+2
(3)  000452  000000          HALT
(3)  000454  000456          .+2
(3)  000456  000000          HALT
(3)  000460  000462          .+2
(3)  000462  000000          HALT
(3)  000464  000466          .+2
(3)  000466  000000          HALT
(3)  000470  000472          .+2
(3)  000472  000000          HALT
(3)  000474  000476          .+2
(3)  000476  000000          HALT
(3)  000500  000502          .+2
(3)  000502  000000          HALT
(3)  000504  000506          .+2
(3)  000506  000000          HALT
(3)  000510  000512          .+2
```

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(3)  000512  000000                HALT
(3)  000514  000516                .+2
(3)  000516  000000                HALT
(3)  000520  000522                .+2
(3)  000522  000000                HALT
(3)  000524  000526                .+2
(3)  000526  000000                HALT
(3)  000530  000532                .+2
(3)  000532  000000                HALT
(3)  000534  000536                .+2
(3)  000536  000000                HALT
(3)  000540  000542                .+2
(3)  000542  000000                HALT
(3)  000544  000546                .+2
(3)  000546  000000                HALT
(3)  000550  000552                .+2
(3)  000552  000000                HALT
(3)  000554  000556                .+2
(3)  000556  000000                HALT
(3)  000560  000562                .+2
(3)  000562  000000                HALT
(3)  000564  000566                .+2
(3)  000566  000000                HALT
(3)  000570  000572                .+2
(3)  000572  000000                HALT
(3)  000574  000576                .+2
(3)  000576  000000                HALT
(3)  000600  000602                .+2
(3)  000602  000000                HALT
(3)  000604  000606                .+2
(3)  000606  000000                HALT
(3)  000610  000612                .+2
(3)  000612  000000                HALT
(3)  000614  000616                .+2
(3)  000616  000000                HALT
(3)  000620  000622                .+2
(3)  000622  000000                HALT
(3)  000624  000626                .+2
(3)  000626  000000                HALT
(3)  000630  000632                .+2
(3)  000632  000000                HALT
(3)  000634  000636                .+2
(3)  000636  000000                HALT
(3)  000640  000642                .+2
(3)  000642  000000                HALT
(3)  000644  000646                .+2
(3)  000646  000000                HALT
(3)  000650  000652                .+2
(3)  000652  000000                HALT
(3)  000654  000656                .+2
(3)  000656  000000                HALT
(3)  000660  000662                .+2
(3)  000662  000000                HALT
(3)  000664  000666                .+2
(3)  000666  000000                HALT
(3)  000670  000672                .+2
```

```
(3)  000672  000000                    HALT
(3)  000674  000676                    .+2
(3)  000676  000000                    HALT
(3)  000700  000702                    .+2
(3)  000702  000000                    HALT
(3)  000704  000706                    .+2
(3)  000706  000000                    HALT
(3)  000710  000712                    .+2
(3)  000712  000000                    HALT
(3)  000714  000716                    .+2
(3)  000716  000000                    HALT
(3)  000720  000722                    .+2
(3)  000722  000000                    HALT
(3)  000724  000726                    .+2
(3)  000726  000000                    HALT
(3)  000730  000732                    .+2
(3)  000732  000000                    HALT
(3)  000734  000736                    .+2
(3)  000736  000000                    HALT
(3)  000740  000742                    .+2
(3)  000742  000000                    HALT
(3)  000744  000746                    .+2
(3)  000746  000000                    HALT
(3)  000750  000752                    .+2
(3)  000752  000000                    HALT
(3)  000754  000756                    .+2
(3)  000756  000000                    HALT
(3)  000760  000762                    .+2
(3)  000762  000000                    HALT
(3)  000764  000766                    .+2
(3)  000766  000000                    HALT
(3)  000770  000772                    .+2
(3)  000772  000000                    HALT
(3)  000774  000776                    .+2
(3)  000776  000000                    HALT
(1)  001000                        .EQUAT
(2)                                .SBTTL  BASIC DEFINITIONS
(2)
(2)             001                 !F NB
(2)                                ;*INITIAL ADDRESS OF THE STACK POINTER ***  ***
(2)                                STACK=
(2)                                .IFF
(2)                                ;*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
(2)          001100                STACK=  1100
(2)             000                .ENDC
(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
```

```
                        BASIC DEFINITIONS

(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)       001           .IF B <>
(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)               000           .ENDC
(2)               001           .IF B <>
(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)               000           .ENDC
(1)  001000                     $SETVEC
```

```
(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)
(1)  000204                             $VARIA
(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
(1)  001400                     $SYMBOLS
(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
```

```
(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
(1)   001400                          .$CMTAG 6,6,$SYMBOLS,,,ENDTAB
(2)                                   .MACRO  $$CMREG A,B
(2)                                   $REG'A: .WORD   0               ;;CONTAINS (($REGAD)+'B)
(2)                                   .NLIST
(2)                                   $CM1=$CM1+1
(2)                                   $CM2=$CM2+2
(2)                                   .LIST
(2)                                   .ENDM   $$CMREG
(2)                                   .MACRO  $$CMTMP A
(2)                                   $TMP'A: .WORD   0               ;;USER DEFINED
(2)                                   .NLIST
(2)                                   $CM4=$CM4+1
(2)                                   .LIST
(2)                                   .ENDM   $$CMTMP
```

```
(2)                             .SBTTL  COMMON TAGS
(2)
(2)  001400                     STARS
(3)            001              .IF B
(3)                             ;;**********************************************************************
(3)                             .IFF
(3)                             .NLIST
(3)                             .REPT
(3)                             .LIST
(3)                             ;;**********************************************************************
(3)                             .NLIST
(3)                             .ENDR
(3)                             .LIST
(3)            000              .ENDC
(2)                             ;*THIS TABLE CONTAINS VARIOUS COMMON STORAGE LOCATIONS
(2)                             ;*USED IN THE PROGRAM.
(2)
(2)            001              .IF NB .
(2)         001400                      .=.
(2)                             .IFF
(2)                                 .=1100
(2)            000              .ENDC
(2)  001400                     $CMTAG:                         ;;START OF COMMON TAGS
(2)            001              .IF NB ENDTAB
(2)  001400  000000                 .WORD   0
(2)                             .IFF
(2)                             $PASS:  .WORD   0               ;;CONTAINS PASS COUNT
(2)               000           .ENDC
(2)  001402       000           $TSTNM: .BYTE   0               ;;CONTAINS THE TEST NUMBER
(2)  001403       000           $ERFLG: .BYTE   0               ;;CONTAINS ERROR FLAG
(2)  001404  000000             $ICNT:  .WORD   0               ;;CONTAINS SUBTEST ITERATION COUNT
(2)  001406  000000             $LPADR: .WORD   0               ;;CONTAINS SCOPE LOOP ADDRESS
(2)  001410  000000             $LPERR: .WORD   0               ;;CONTAINS SCOPE RETURN FOR ERRORS
(2)  001412  000000             $ERTTL: .WORD   0               ;;CONTAINS TOTAL ERRORS DETECTED
(2)  001414       000           $ITEMB: .BYTE   0               ;;CONTAINS ITEM CONTROL BYTE
(2)  001415       001           $ERMAX: .BYTE   1               ;;CONTAINS MAX. ERRORS PER TEST
(2)  001416  000000             $ERRPC: .WORD   0               ;;CONTAINS PC OF LAST ERROR INSTRUCTION
(2)  001420  000000             $GDADR: .WORD   0               ;;CONTAINS ADDRESS OF 'GOOD' DATA
(2)  001422  000000             $BDADR: .WORD   0               ;;CONTAINS ADDRESS OF 'BAD' DATA
(2)  001424  000000             $GDDAT: .WORD   0               ;;CONTAINS 'GOOD' DATA
(2)  001426  000000             $BDDAT: .WORD   0               ;;CONTAINS 'BAD' DATA
(2)  001430  000000                     .WORD   0               ;;RESERVED--NOT TO BE USED
(2)  001432  000000                     .WORD   0
(2)  001434       000           $AUTOB: .BYTE   0               ;;AUTOMATIC MODE INDICATOR
(2)  001435       000           $INTAG: .BYTE   0               ;;INTERRUPT MODE INDICATOR
(2)  001436  000000                     .WORD   0
(2)  001440  177570             SWR:    .WORD   DSWR            ;;ADDRESS OF SWITCH REGISTER
(2)  001442  177570             DISPLAY: .WORD  DDISP           ;;ADDRESS OF DISPLAY REGISTER
(2)  001444  177560             $TKS:   177560                  ;;TTY KBD STATUS
(2)  001446  177562             $TKB:   177562                  ;;TTY KBD BUFFER
(2)  001450  177564             $TPS:   177564                  ;;TTY PRINTER STATUS REG. ADDRESS
(2)  001452  177566             $TPB:   177566                  ;;TTY PRINTER BUFFER REG. ADDRESS
(2)  001454       000           $NULL:  .BYTE   0               ;;CONTAINS NULL CHARACTER FOR FILLS
(2)  001455       002           $FILLS: .BYTE   2
(2)                                             ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
(2)  001456       012           $FILLC: .BYTE   12              ;;INSERT FILL CHARS. AFTER A "LINE FEED"
```

```
(2)  001457     000                 $TPFLG: .BYTE   0               ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
(2)             001                 .IF B 6
(2)                                 .NLIST
(2)                                 $CM3=0
(2)                                 .LIST
(2)                                 .IFF
(2)          000006                 $CM3=6
(2)             000                 .ENDC
(2)             001                 .IF NE $CM3
(2)  001460  000000                 $REGAD: .WORD   0               ;;CONTAINS THE ADDRESS FROM
(2)                                                                 ;;WHICH  ($REG0) WAS OBTAINED
(2)          000000                 $CM1=0
(2)          000000                 $CM2=0
(2)          000006                         .REPT   $CM3
(2)                                         $$CMREG \$CM1,\$CM2
(3)                                         .ENDR
(3)  001462                                 $$CMREG \$CM1,\$CM2
(4)  001462  000000                 $REG0:  .WORD   0               ;;CONTAINS (($REGAD)+0)
(4)          000001                 $CM1=$CM1+1
(4)          000002                 $CM2=$CM2+2
(3)  001464                                 $$CMREG \$CM1,\$CM2
(4)  001464  000000                 $REG1:  .WORD   0               ;;CONTAINS (($REGAD)+2)
(4)          000002                 $CM1=$CM1+1
(4)          000004                 $CM2=$CM2+2
(3)  001466                                 $$CMREG \$CM1,\$CM2
(4)  001466  000000                 $REG2:  .WORD   0               ;;CONTAINS (($REGAD)+4)
(4)          000003                 $CM1=$CM1+1
(4)          000006                 $CM2=$CM2+2
(3)  001470                                 $$CMREG \$CM1,\$CM2
(4)  001470  000000                 $REG3:  .WORD   0               ;;CONTAINS (($REGAD)+6)
(4)          000004                 $CM1=$CM1+1
(4)          000010                 $CM2=$CM2+2
(3)  001472                                 $$CMREG \$CM1,\$CM2
(4)  001472  000000                 $REG4:  .WORD   0               ;;CONTAINS (($REGAD)+10)
(4)          000005                 $CM1=$CM1+1
(4)          000012                 $CM2=$CM2+2
(3)  001474                                 $$CMREG \$CM1,\$CM2
(4)  001474  000000                 $REG5:  .WORD   0               ;;CONTAINS (($REGAD)+12)
(4)          000006                 $CM1=$CM1+1
(4)          000014                 $CM2=$CM2+2
(2)             000                 .ENDC
(2)             001                 .IF NB 6
(2)          000000                 $CM4=0
(2)          000006                 .REPT   6
(2)                                 $$CMTMP \$CM4
(3)                                 .ENDR
(3)  001476                         $$CMTMP \$CM4
(4)  001476  000000                 $TMP0:  .WORD   0               ;;USER DEFINED
(4)          000001                 $CM4=$CM4+1
(3)  001500                         $$CMTMP \$CM4
(4)  001500  000000                 $TMP1:  .WORD   0               ;;USER DEFINED
(4)          000002                 $CM4=$CM4+1
(3)  001502                         $$CMTMP \$CM4
(4)  001502  000000                 $TMP2:  .WORD   0               ;;USER DEFINED
(4)          000003                 $CM4=$CM4+1
(3)  001504                         $$CMTMP \$CM4
```

```
(4)  001504  000000                 $TMP3:   .WORD   0              ;;USER DEFINED
(4)          000004                 $CM4=$CM4+1
(3)  001506                         $$CMTMP \$CM4
(4)  001506  000000                 $TMP4:   .WORD   0              ;;USER DEFINED
(4)          000005                 $CM4=$CM4+1
(3)  001510                         $$CMTMP \$CM4
(4)  001510  000000                 $TMP5:   .WORD   0              ;;USER DEFINED
(4)          000006                 $CM4=$CM4+1
(2)              000                .ENDC
(2)              001                .IF NE $SWR&4000
(2)  001512  000000                 $TIMES: 0                       ;;MAX. NUMBER OF ITERATIONS
(2)              000                .ENDC
(2)              001                .IF NE 1000&$SWR
(2)  001514  000000                 $ESCAPE:0                       ;;ESCAPE ON ERROR ADDRESS
(2)              000                .ENDC
(2)              001                .IF NE 2000&$SWR
(2)  001516  177607  000377         $BELL:  .ASCIZ  <207><377><377> ;;CODE FOR BELL
(2)              000                .ENDC
(2)  001522      077                $QUES:  .ASCII  /?/             ;;QUESTION MARK
(2)  001523      015                $CRLF:  .ASCII  <15>            ;;CARRIAGE RETURN
(2)  001524  000012                 $LF:    .ASCIZ  <12>            ;;LINE FEED
(2)                                 .IIF NE 1&.,    .EVEN
(2)  001526                         STARS
(3)              001                .IF B
(3)                                 ;;**********************************************************************
(3)                                 .IFF
(3)                                 .NLIST
(3)                                 .REPT
(3)                                 .LIST
(3)                                 ;;**********************************************************************
(3)                                 .NLIST
(3)                                 .ENDR
(3)                                 .LIST
(3)              000                .ENDC
(2)              001                .IF NB ENDTAB
(2)  001526                                 .$APTBLS        <ENDTAB>
(3)                                 .SBTTL  APT MAILBOX-ETABLE
(3)
(3)  001526                         STARS
(4)              002                .IF B
(4)                                 ;;**********************************************************************
(4)                                 .IFF
(4)                                 .NLIST
(4)                                 .REPT
(4)                                 .LIST
(4)                                 ;;**********************************************************************
(4)                                 .NLIST
(4)                                 .ENDR
(4)                                 .LIST
(4)              001                .ENDC
(3)                                 .NLIST ME
(3)                                 ;
(3)                                 ;
(3)
(3)                                 .IIF NDF,AMSGTY,AMSGTY=0
(3)                                 .IIF NDF,ATESTN,ATESTN=0
```

```
(3)                                     .IIF NDF,APASS,APASS=0
(3)                                     .IIF NDF,ADEVCT,ADEVCT=0
(3)                                     .IIF NDF,AFATAL,AFATAL=0
(3)
(3)
(3)                                     .IIF NDF,AUNIT,AUNIT=0
(3)                                     .IIF NDF,AMSGAD,AMSGAD=0
(3)                                     .IIF NDF,AMSGLG,AMSGLG=0
(3)                                     .IIF NDF,AENV,AENV=0
(3)                                     .IIF NDF,AENVM,AENVM=0
(3)                                     .IIF NDF,ASWREG,ASWREG=0
(3)                                     .IIF NDF,AUSWR,AUSWR=0
(3)                                     .IIF NDF,ACPUOP,ACPUOP=0
(3)                                     .IIF NDF,AMAMS1,AMAMS1=0
(3)                                     .IIF NDF,AMTYP1,AMTYP1=0
(3)                                     .IIF NDF,AMADR1,AMADR1=0
(3)                                     .IIF NDF,AMAMS2,AMAMS2=0
(3)                                     .IIF NDF,AMTYP2,AMTYP2=0
(3)                                     .IIF NDF,AMADR2,AMADR2=0
(3)                                     .IIF NDF,AMAMS3,AMAMS3=0
(3)                                     .IIF NDF,AMTYP3,AMTYP3=0
(3)                                     .IIF NDF,AMADR3,AMADR3=0
(3)                                     .IIF NDF,AMAMS4,AMAMS4=0
(3)                                     .IIF NDF,AMTYP4,AMTYP4=0
(3)                                     .IIF NDF,AMADR4,AMADR4=0
(3)                                     .IIF NDF,AVECT1,AVECT1=0
(3)                                     .IIF NDF,AVECT2,AVECT2=0
(3)                                     .IIF NDF,APRIOR,APRIOR=0
(3)                                     .IIF NDF,ABASE,ABASE=0
(3)                                     .IIF NDF,ADEVM,ADEVM=0
(3)                                     .IIF NDF,ACDW1,ACDW1=0
(3)                                     .IIF NDF,ACDW2,ACDW2=0
(3)                                     .IIF NDF,ADDW0,ADDW0=0
(3)                                     .IIF NDF,ADDW1,ADDW1=0
(3)                                     .IIF NDF,ADDW2,ADDW2=0
(3)                                     .IIF NDF,ADDW3,ADDW3=0
(3)                                     .IIF NDF,ADDW4,ADDW4=0
(3)                                     .IIF NDF,ADDW5,ADDW5=0
(3)                                     .IIF NDF,ADDW6,ADDW6=0
(3)                                     .IIF NDF,ADDW7,ADDW7=0
(3)                                     .IIF NDF,ADDW8,ADDW8=0
(3)                                     .IIF NDF,ADDW9,ADDW9=0
(3)                                     .IIF NDF,ADDW10,ADDW10=0
(3)                                     .IIF NDF,ADDW11,ADDW11=0
(3)                                     .IIF NDF,ADDW12,ADDW12=0
(3)                                     .IIF NDF,ADDW13,ADDW13=0
(3)                                     .IIF NDF,ADDW14,ADDW14=0
(3)                                     .IIF NDF,ADDW15,ADDW15=0
(3)                                     .LIST ME
(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                  $CPUOP: .WORD   ACPUOP  ;;CPU TYPE,OPTIONS
(3)                                  ;*                      BITS 15-11=CPU TYPE
(3)                                  ;*                              11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
(3)                                  ;*                              11/70=06,PDQ=07,Q=10
(3)                                  ;*                      BIT 10=REAL TIME CLOCK
(3)                                  ;*                      BIT  9=FLOATING POINT PROCESSOR
(3)                                  ;*                      BIT  8=MEMORY MANAGEMENT
(3)              002                 .IF IDN <ENDTAB>,<$CPUOP>
(3)                                  $ETEND:
(3)                                  .MEXIT
(3)              001                 .ENDC
(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                  $MADR1: .WORD   AMADR1  ;;HIGH ADDRESS,BLK#1
(3)                                  ;*                       MEM.LAST ADDR.=3 BYTES,THIS WORD AND LOW OF "TYPE" ABOVE
(3)              002                 .IF IDN <ENDTAB>,<$MADR1>
(3)                                  $ETEND:
(3)                                  .MEXIT
(3)              001                 .ENDC
(3)  001562      000                 $MAMS2: .BYTE   AMAMS2  ;;HIGH ADDRESS,M.S. BYTE
(3)  001563      000                 $MTYP2: .BYTE   AMTYP2  ;;MEM.TYPE,BLK#2
(3)  001564  000000                  $MADR2: .WORD   AMADR2  ;;MEM.LAST ADDRESS,BLK#2
(3)              002                 .IF IDN <ENDTAB>,<$MADR2>
(3)                                  $ETEND:
(3)                                  .MEXIT
(3)              001                 .ENDC
(3)  001566      000                 $MAMS3: .BYTE   AMAMS3  ;;HIGH ADDRESS,M.S.BYTE
(3)  001567      000                 $MTYP3: .BYTE   AMTYP3  ;;MEM.TYPE,BLK#3
(3)  001570  000000                  $MADR3: .WORD   AMADR3  ;;MEM.LAST ADDRESS,BLK#3
(3)              002                 .IF IDN <ENDTAB>,<$MADR3>
(3)                                  $ETEND:
(3)                                  .MEXIT
(3)              001                 .ENDC
(3)  001572      000                 $MAMS4: .BYTE   AMAMS4  ;;HIGH ADDRESS,M.S.BYTE
(3)  001573      000                 $MTYP4: .BYTE   AMTYP4  ;;MEM.TYPE,BLK#4
(3)  001574  000000                  $MADR4: .WORD   AMADR4  ;;MEM.LAST ADDRESS,BLK#4
(3)              002                 .IF IDN <ENDTAB>,<$MADR4>
(3)                                  $ETEND:
(3)                                  .MEXIT
(3)              001                 .ENDC
(3)  001576  000000                  $VECT1: .WORD   AVECT1  ;;INTERRUPT VECTOR#1,BUS PRIORITY#1
(3)              002                 .IF IDN <ENDTAB>,<$VECT1>
(3)                                          .EVEN
```

```
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001600  000000             $VECT2: .WORD   AVECT2  ;;INTERRUPT VECTOR#2BUS PRIORITY#2
(3)                 002         .IF IDN <ENDTAB>,<$VECT2>
(3)                             .EVEN
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001602  000000             $BASE:  .WORD   ABASE
(3)                             ;;BASE ADDRESS OF EQUIPMENT UNDER TEST
(3)                 002         .IF IDN <ENDTAB>,<$BASE>
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001604  000000             $DEVM:  .WORD   ADEVM   ;;DEVICE MAP
(3)                 002         .IF IDN <ENDTAB>,<$DEVM>
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001606  000000             $CDW1:  .WORD   ACDW1   ;;CONTROLLER DESCRIPTION WORD#1
(3)                 002         .IF IDN <ENDTAB>,<$CDW1>
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001610  000000             $CDW2:  .WORD   ACDW2   ;;CONTROLLER DESCRIPTION WORD#2
(3)                 002         .IF IDN <ENDTAB>,<$CDW2>
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001612  000000             $DDW0:  .WORD   ADDW0   ;;DEVICE DESCRIPTOR WORD#0
(3)                 002         .IF IDN <ENDTAB>,<$DDW0>
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001614  000000             $DDW1:  .WORD   ADDW1   ;;DEVICE DESCRIPTOR WORD#1
(3)                 002         .IF IDN <ENDTAB>,<$DDW1>
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001616  000000             $DDW2:  .WORD   ADDW2   ;;DEVICE DESCRIPTOR WORD#2
(3)                 002         .IF IDN <ENDTAB>,<$DDW2>
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001620  000000             $DDW3:  .WORD   ADDW3   ;;DEVICE DESCRIPTOR WORD#3
(3)                 002         .IF IDN <ENDTAB>,<$DDW3>
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001622  000000             $DDW4:  .WORD   ADDW4   ;;DEVICE DESCRIPTOR WORD#4
(3)                 002         .IF IDN <ENDTAB>,<$DDW4>
(3)                             $ETEND:
(3)                             .MEXIT
(3)                 001         .ENDC
(3)  001624  000000             $DDW5:  .WORD   ADDW5   ;;DEVICE DESCRIPTOR WORD#5
```

```
(3)                 002                     .IF IDN <ENDTAB>,<$DDW5>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001626  000000                        $DDW6:  .WORD   ADDW6   ;;DEVICE DESCRIPTOR WORD#6
(3)                 002                     .IF IDN <ENDTAB>,<$DDW6>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001630  000000                        $DDW7:  .WORD   ADDW7   ;;DEVICE DESCRIPTOR WORD#7
(3)                 002                     .IF IDN <ENDTAB>,<$DDW7>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001632  000000                        $DDW8:  .WORD   ADDW8   ;;DEVICE DESCRIPTOR WORD#8
(3)                 002                     .IF IDN <ENDTAB>,<$DDW8>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001634  000000                        $DDW9:  .WORD   ADDW9   ;;DEVICE DESCRIPTOR WORD#9
(3)                 002                     .IF IDN <ENDTAB>,<$DDW9>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001636  000000                        $DDW10: .WORD   ADDW10  ;;DEVICE DESCRIPTOR WORD#10
(3)                 002                     .IF IDN <ENDTAB>,<$DDW10>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001640  000000                        $DDW11: .WORD   ADDW11  ;;DEVICE DESCRIPTOR WORD#11
(3)                 002                     .IF IDN <ENDTAB>,<$DDW11>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001642  000000                        $DDW12: .WORD   ADDW12  ;;DEVICE DESCRIPTOR WORD#12
(3)                 002                     .IF IDN <ENDTAB>,<$DDW12>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001644  000000                        $DDW13: .WORD   ADDW13  ;;DEVICE DESCRIPTOR WORD#13
(3)                 002                     .IF IDN <ENDTAB>,<$DDW13>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001646  000000                        $DDW14: .WORD   ADDW14  ;;DEVICE DESCRIPTOR WORD#14
(3)                 002                     .IF IDN <ENDTAB>,<$DDW14>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)   001650  000000                        $DDW15: .WORD   ADDW15  ;;DEVICE DESCRIPTOR WORD#15
(3)                 002                     .IF IDN <ENDTAB>,<$DDW15>
(3)                                         $ETEND:
(3)                                         .MEXIT
(3)                 001                     .ENDC
(3)
(3)
```

```
    (3)  001652                     $ETEND:
    (3)
    (2)              000            .ENDC
    (2)              001            .IF NB <$SYMBOLS>
    (2)                             .IRP A,<$SYMBOLS>
    (2)                             A
    (3)                             .ENDM
    (3)  001652                     $SYMBOLS
    (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
```

```
(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)             000                  .ENDC
```

```
(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   $ERRPC,0
(1)
(1)  002132     000      000      000  DF1:    .BYTE   0,0,0,0
(1)  002135     000
(1)                                  .EVEN
(1)  002136                          .$ACT11
(2)                                  .SBTTL  ACT11 HOOKS
(2)
(2)  002136                          STARS
(3)             001                  .IF B
(3)                                  ;;*****************************************************************
(3)                                  .IFF
(3)                                  .NLIST
(3)                                  .REPT
(3)                                  .LIST
(3)                                  ;;*****************************************************************
(3)                                  .NLIST
(3)                                  .ENDR
(3)                                  .LIST
(3)             000                  .ENDC
(2)                                  ;HOOKS REQUIRED BY ACT11
(2)          002136                          $SVPC=.                 ;SAVE PC
(2)             001                  .IF B
(2)          000046                          .=46
(2)  000046  012714                          $ENDAD                  ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
(2)                                  .IFF
(2)                                          .=46
(2)                                                                  ;;1)SET LOC.46 TO ADDRESS OF
(2)             000                  .ENDC
(2)             001                  .IF B
(2)          000052                          .=52
(2)  000052  000000                          .WORD   0               ;;2)SET LOC.52 TO ZERO
(2)                                  .IFF
(2)                                          .=52
(2)                                          .WORD                   ;;2)SET LOC.52 TO
(2)             000                  .ENDC
(2)          002136                          .=$SVPC                 ;; RESTORE PC
```

```
(1)  002136                          .$APTHDR        10,10
(2)                                  .SBTTL  APT PARAMETER BLOCK
(2)
(2)  002136                          STARS
(3)            001                   .IF B
(3)                                  ;;**********************************************************************
(3)                                  .IFF
(3)                                  .NLIST
(3)                                  .REPT
(3)                                  .LIST
(3)                                  ;;**********************************************************************
(3)                                  .NLIST
(3)                                  .ENDR
(3)                                  .LIST
(3)            000                   .ENDC
(2)                                  ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
(2)  002136                                STARS
(3)            001                   .IF B
(3)                                  ;;**********************************************************************
(3)                                  .IFF
(3)                                  .NLIST
(3)                                  .REPT
(3)                                  .LIST
(3)                                  ;;**********************************************************************
(3)                                  .NLIST
(3)                                  .ENDR
(3)                                  .LIST
(3)            000                   .ENDC
(2)       002136                           .$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
(2)  002136                              STARS
(3)            001                   .IF B
(3)                                  ;;**********************************************************************
(3)                                  .IFF
(3)                                  .NLIST
(3)                                  .REPT
(3)                                  .LIST
(3)                                  ;;**********************************************************************
(3)                                  .NLIST
(3)                                  .ENDR
(3)                                  .LIST
(3)            000                   .ENDC
(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)
```

```
026
    (1)  002152                         .SETUP <,$SCOPE,,$ERROR,,$TRAP,,$POWER>
    (2)            000000               $SETUP= 0
    (3)            000000               $STUP=  0
    (3)
    (3)            000001               $SETUP= $SETUP!1        ;;BIT00
    (3)            177777               $STUP=  -1
    (3)
    (3)
    (3)
    (3)
    (3)
    (3)
    (3)
    (3)            000000               $STUP=  0
    (3)
    (3)
    (3)            000003               $SETUP= $SETUP!2        ;;BIT01
    (3)            177777               $STUP=  -1
    (3)
    (3)
    (3)
    (3)
    (3)
    (3)            000000               $STUP=  0
    (3)
    (3)
    (3)            000007               $SETUP= $SETUP!4        ;;BIT02
    (3)            177777               $STUP=  -1
    (3)
    (3)
    (3)
    (3)
    (3)
    (3)            000000               $STUP=  0
    (3)
    (3)
    (3)
    (3)            000017               $SETUP= $SETUP!10       ;;BIT03
    (3)            177777               $STUP=  -1
    (3)
    (3)
    (3)
    (3)
    (1)
    (1)  002152                         $START
    (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)            001                   .IF DF $CMTAG
(3)                                  ;;CLEAR THE COMMON TAGS ($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)            000                   .ENDC
(3)            001                   .IF NB #STACK
(3)  002166  012706  001100                  MOV     ##STACK,SP              ;;SETUP THE STACK POINTER
(3)                                  .IFF
(3)                                          MOV     #STACK,SP       ;;SETUP THE STACK POINTER
(3)            000                   .ENDC
(3)                                  .IIF NDF $SETUP,$SETUP= 0
(3)                                  ;;INITIALIZE A FEW VECTORS
(3)            001                   .IF NE $SETUP&1 ;;BIT00
(3)  002172  012737  016340  000020          MOV     #$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
(3)  002200  012737  000300  000022          MOV     #PR6,@#IOTVEC+2 ;;LEVEL 6
(3)                                  .IIF NDF $CMTAG,        CLRB    $TSTNM          ;;INITIALIZE THE TEST NUMBER
(3)            000                   .ENDC
(3)            001                   .IF NE $SETUP&2 ;;BIT01
(3)  002206  012737  014230  000030          MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
(3)  002214  012737  000300  000032          MOV     #PR6,@#EMTVEC+2 ;;LEVEL 6
(3)            000                   .ENDC
(3)            001                   .IF NE $SETUP&4
(3)                                  ;;BIT02
(3)  002222  012737  016674  000034          MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
(3)  002230  012737  000300  000036          MOV     #PR6,@#TRAPVEC+2;LEVEL 6
(3)            000                   .ENDC
(3)            001                   .IF NE $SETUP&10        ;;BIT03
(3)  002236  012737  015032  000024          MOV     #$PWRDN,@#PWRVEC ;;POWER FAILURE VECTOR
(3)  002244  012737  000300  000026          MOV     #PR6,@#PWRVEC+2 ;;LEVEL 6
(3)            000                   .ENDC
(3)            001                   .IF NE $SETUP&20        ;;BIT04
(3)                                  .IIF NDF $CMTAG,        CLR     $PASS           ;;CLEAR THE PASS COUNT
(3)                                          MOV     $ENDCT,$EOPCT   ;;SETUP END-OF-PROGRAM COUNTER
(3)            000                   .ENDC
(3)            001                   .IF NE $SETUP&40 ;;BIT05
(3)                                          MOV     #176543,$HINUM  ;;PRIME THE RANDOM NUMBER GENERATOR
(3)                                          MOV     #123456,$LONUM  ;;BOTH HIGH AND LOW WORDS
(3)            000                   .ENDC
(3)            001                   .IF NE $SETUP&1 ;;BIT00
(3)            002                   .IF NE $SWR&4000
(3)                                  .IIF NDF $CMTAG,        MOV     #1,$ICNT        ;;INITIALIZE THE ITERATION COUNTER
(3)  002252  005067  177234                  CLR     $TIMES          ;;INITIALIZE NUMBER OF ITERATIONS
(3)            001                   .ENDC
(3)            000                   .ENDC
(3)            001                   .IF NE $SETUP&2 ;;BIT01
(3)                                  .IIF NDF $CMTAG,        CLRB    $ERFLG          ;;CLEAR THE ERROR FLAG
(3)            002                   .IF NE 1000&$SWR
(3)                                  .IIF NDF $CMTAG,        CLR     $ERTTL          ;;CLEAR THE ERROR COUNT
(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)            001                   .ENDC
(3)            000                   .ENDC
```

```
(3)              001                    .IF NE $SETUP&20        ;;BIT04
(3)              002                    .IF NE 10000&$SWR
(3)                                     .MACRO  $$SETUP ?N1,?N2,?N3
(3)                                     ;;INITIALIZE THE "T-BIT" TRAP VECTOR. THEN LOAD LOCATION "$RTRN", IN
(3)                                     ;;THE "END-OF-PASS" ($EOP) ROUTINE, WITH A "RTI" OR "RTT".
(3)                                             MOV     #$RTRN,@#TBITVEC ;;SET "T" BIT VECTOR TO $RTRN
(3)                                             MOV     #PR6,@#TBITVEC+2 ;;LEVEL 6
(3)                                             MOV     #RTI,$RTRN      ;;SET $RTRN TO A RTI
(3)                                             MOV     #N2,@#RESVEC    ;;TRY TO DO A RTT
(3)                                             CLR     -(SP)           ;;DUMMY PS
(3)                                             MOV     #N1,-(SP)       ;;AND PC
(3)                                             RTT                     ;;TRY THE RTT
(3)                                     N1:     MOV     #RTT,$RTRN      ;;RTT IS LEGAL--SET $RTRN TO A RTT
(3)                                             BR      N3
(3)                                     N2:     ADD     #10,SP          ;;RTT ILLEGAL--CLEAN OFF THE STACK
(3)                                     N3:     MOV     #RESVEC+2,@#RESVEC ;;RESTORE TRAP CATCHER
(3)                                             CLR     $TBIT           ;;CLEAR "T" BIT SWITCH
(3)                                     .ENDM   $$SETUP
(3)                                             $$SETUP
(3)              001                    .ENDC
(3)              000                    .ENDC
(3)              001                    .IF NE $SETUP&1
(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
(3)              000                    .ENDC
(3)  002304                                     SWRSU
(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)
(3)              001                    .IF DF $MAIL
(3)                                     .MACRO  $$SETMAIL       ?$ARG1
(3)                                             CLR     $PASS           ;;CLEAR PASS COUNT
(3)                                             BITB    #APTSIZE,$ENVM  ;;TEST USER SIZE UNDER APT
(3)                                             BEQ     $ARG1           ;;YES,USE NON-APT SWITCH
(3)                                             MOV     #$SWREG,SWR     ;;NO,USE APT SWITCH REGISTER
(3)                                     $ARG1:
(3)                                     .ENDM   $$SETMAIL
(3)  002372                                     $$SETMAIL
(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     #$SWREG,SWR     ;;NO,USE APT SWITCH REGISTER
(4)  002414                          67$:
```

```
(3)                 000                     .ENDC
(2)  002414  012706  001100                 MOV     #STACK,SP               ;SET STACK
(2)  002420  106427  000300                 MTPS    #300                    ;LOCK INTERRUPTS
(2)  002424  012737  015032  000024         MOV     #.PFAIL,@#24            ;SET UP POWER FAIL VECTOR
(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  010224          33$:   JSR     PC,CNTLU
(2)  002572  105767  176374          3$:    TSTB    INIFLG                  ;HAS INITIALIZATION BEEN PERFORMED
(2)  002576  001004                         BNE     ONCE
(2)  002600  104401  015172                 TYPE    ,MTITLE                 ;TYPE TITLE MESSAGE
(2)  002604  105167  176362                 COMB    INIFLG                  ;IF NOT SET FLAG AND DO
(1)  002610                         $CLRVEC .BEGIN
(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$:    MOV     #300,R0 ;RESTORE VECTOR AREA TO TRAPCATCHER
(2)  002656  012701  000302                 MOV     #302,R1 ;START AT LOCATION 300
(2)  002662  012702  000004                 MOV     #4,R2
(2)  002666  010110                  2$:    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$
(1)  002704                         $GETPAR MREGAD,DUBASE,1,1,174000,177776
(2)  002704  104406                         INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  002706  015240                         MREGAD  ;MESSAGE
(2)  002710  104410                         PARAM   ;CONVERT STRING
(2)  002712  174000                         174000  ;LOW LIMIT
```

```
(2)  002714  177776                          177776  ;HIGH LIMIT
(2)  002716  017170                          DUBASE  ;STORE AT THIS LOCATION
(2)  002720     001                  .BYTE   1       ;MASK
(2)  002721     001                  .BYTE   1       ;HOW MANY TIMES + 2
(1)  002722  016767  014242  176226          MOV     DUBASE,KEEPADD  ;SAVE
(1)  002730  004767  014102                  JSR     PC,DUADDR
(1)  002734  016767  176216  176212          MOV     KEEPADD,BASEADD ;RESTORE FOR ROTATION
(1)  002742                          $GETPAR MVECTO,DURIV,4,1,300,376
(2)  002742  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  002744  015225                          MVECTO  ;MESSAGE
(2)  002746  104410                          PARAM   ;CONVERT STRING
(2)  002750  000300                          300     ;LOW LIMIT
(2)  002752  000376                          376     ;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
(1)  002774                          $GETFLG MMULT,MULTD
(2)  002774  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  002776  015270                          MMULT   ;MESSAGE
(2)  003000  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003002  001152                          MULTD   ;THIS FLAG
(1)  003004  105767  176142                  TSTB    MULTD   ;ARE THERE MULTIPLE DEVICES
(1)                                                          ;ON THE SYSTEM ?
(1)  003010  100406                          BMI     BBB     ;YES,ASK NEXT QUESTION
(1)  003012  005067  176150                  CLR     ACTREG
(1)  003016  005067  176146                  CLR     ROTADD
(1)  003022  000167  000140                  JMP     OUTMUL  ;JUMP AROUND NEXT QUESTION
(1)  003026                          BBB:
(2)  003026  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003030  015317                          MLASTD  ;MESSAGE
(2)  003032  104410                          PARAM   ;CONVERT STRING
(2)  003034  174000                          174000  ;LOW LIMIT
(2)  003036  177776                          177776  ;HIGH LIMIT
(2)  003040  001160                          LASTADD ;STORE AT THIS LOCATION
(2)  003042     001                  .BYTE   1       ;MASK
(2)  003043     001                  .BYTE   1       ;HOW MANY TIMES + 2
(1)                                  ;THE FOLLOWING ROUTINE SETS UP ACTREG FOR THE FIRST TIME
(1)  003044  012767  000001  176116  1$:     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
(1)  003144                          $GETPAR MRANGE,LASTADD,1,1,174000,177776
```

```
(2)  003144  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003146  015413                          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  013636  OUTMUL: MOV     #300,DUPRT
(1)  003174  004767  013562                  JSR     PC,DULEV
(1)  003200                          $GETSYN MSYNC,SYNCNO,AAA:
(2)                                          ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
(2)                                          ;BUFFER TO THE CHARACTERS "1" AND "2".
(2)                                          ;IF THE CHARACTER IS "1" CLEAR THE FLAG
(2)                                          ;IF THE CHARACTER IS "2" SET THE FLAG
(2)  003200                          AAA:
(2)  003200  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003202  015631                          MSYNC   ;MESSAGE
(2)  003204  122767  000061  012760  3$:     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  012742  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
(1)  003250                          $GETFLG MWIRE6,SEXMIT
(2)  003250  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003252  015677                          MWIRE6  ;MESSAGE
(2)  003254  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003256  001147                          SEXMIT  ;THIS FLAG
(1)  003260                          $GETFLG MWIRE5,SEREC
(2)  003260  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003262  015750                          MWIRE5  ;MESSAGE
(2)  003264  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003266  001150                          SEREC   ;THIS FLAG
(1)  003270                          $GETFLG MWIRE4,OPTCLR
(2)  003270  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003272  016020                          MWIRE4  ;MESSAGE
(2)  003274  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003276  001151                          OPTCLR  ;THIS FLAG
(1)  003300                          $GETFLG MEXTJ,JMRBY
(2)  003300  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(2)  003302  016077                          MEXTJ   ;MESSAGE
(2)  003304  104414                          SETFLG  ;SET FLAG BASED UPON INPUT STRING
(2)  003306  001153                          JMRBY   ;THIS FLAG
(1)  003310                          $BEGIN
(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$
(2)  003330                          $GETPAR MTSTPC,$TSTNM,1,1,TST1,17500
(3)  003330  104406                          INSTR   ;OUTPUT MESSAGE & GET INPUT STRING
(3)  003332  015563                          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$:     MOV     #TST1,RETURN            ;START AT TEST 1
(2)  003364  104401  015557          4$:     TYPE    ,MR                     ;TYPE R
(2)  003370  000177  175510                  JMP     @RETURN                 ;START TESTING
8149
8150 003374                          $TRPAR  SEVEN,10.,,EVEPAR,ISYMOD,125,1252
(1)                                          ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
(1)                                          ;;OF THE TRANSMITTER SECTION.
(1)                                          ;;IT ALSO CHECKS DNA TIMING
(1)                                          ;;MODE:ISYMOD
(1)                                          ;;LENGTH:SEVEN PLUS PARITY
(1)                                          ;;PARITY:EVEPAR
(1)                                          ;;CHARACTER:125
(1)                                          ;;
(1)  003374                          $TSTNO
(2)  003374                          NEWTST
(3)          000000                  $NWTST=0
(3)             001                  .IF B <>
(3)  003374                                  $$NEWTEST       \$TN,<>,SCOPE
(4)                                  .IRP    ASCI,<>
(4)                                  .IF EQ $NWTST
(4)                                  .NLIST
(4)                                  $NWTST=1
(4)                                  .SBTTL  T1      ASCI
(4)                                  .LIST
(4)                                  STARS
(4)                                  ;*TEST 1        ASCI
(4)                                  .IFF
(4)                                          ASCI
(4)                                  .ENDC
(4)                                  .ENDM
(4)  003374                          STARS
(5)             002                  .IF B
(5)                                  ;;**************************************************************
(5)                                  .IFF
(5)                                  .NLIST
(5)                                  .REPT
(5)                                  .LIST
(5)                                  ;;**************************************************************
(5)                                  .NLIST
(5)                                  .ENDR
(5)                                  .LIST
(5)             001                  .ENDC
(4)  003374  000004                  TST1:   SCOPE
```

```
(4)
(4)          000002                  $TN=$TN+1
(3)                                  .IFF
(3)                                          $$NEWTEST       \$TN,<>,<>
(3)              000                 .ENDC
(3)              001                 .IF NE 4000&$SWR
(3)              002                 .IF NB
(3)              003                 .IF LE <-1>
(3)                                          MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                                  .IFF
(3)                                          MOV     #,$TIMES        ;;DO  ITERATIONS
(3)              002                 .ENDC
(3)              001                 .ENDC
(3)              002                 .IF NB
(3)                                          MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)              001                 .ENDC
(3)              000                 .ENDC
(3)              001                 .IF NB
(3)              002                 .IF DF $MAIL
(3)                                  .IRP    TNM,<\$TN-1>
(3)                                          MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                                  .ENDM
(3)              001                 .ENDC
(3)              000                 .ENDC
(2)          000000                  .REPT 0
(2)                                  .NLIST
(2)                                  .RADIX  10
(2)                                  .LIST
(2)                                  .IRP    $DN,<\$N>
(2)                                  NEWTST
(2)                                  ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                                  .ENDM
(2)                                  .NLIST
(2)                                  .RADIX  8
(2)                                  .LIST
(2)                                  ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                                  ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(2)                                  ;.IF NB <>
(2)                                  ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                  .IFF
(2)                                  .NLIST
(2)                                  .RADIX  10
(2)                                  .LIST
(2)                                  .IRP    $DE,<\$E>
(2)                                  .IF DF  TST'$DE
(2)                                  ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                  .ENDM
(2)                                  .NLIST
(2)                                  .RADIX  8
(2)                                  .LIST
(2)                                  .IFF
(2)                                  ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                  .ENDC
(2)                                  .ENDC
(2)                                  ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                  .NLIST
```

```
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  003376                             TSETUP  MINT,ISYMOD,SEVEN,EVEPAR,26
(2)  003376                             $RESET
(3)  003376  052777  000400  176322             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  003404  012777  000000  176310             MOV     #ISYMOD,@PARCSR ;SET THE MODE
(2)  003412                             $RESET
(3)  003412  052777  000400  176306             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
(2)  003420  012777  004020  176300             MOV     #MINT!SEND,@TXCSR
(2)
(2)                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  003426  012777  005426  176266             MOV     #ISYMOD!SEVEN!EVEPAR!26,@PARCSR
(1)  003434  016703  176266                     MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  003440  112777  000125  176264             MOVB    #125,@TXDBUF    ;LOAD DATA CHAR
(1)  003446  012767  001252  176024             MOV     #1252,$TMP1     ;TO BE SHIFTED CHAR
(1)  003454  012767  000012  175440             MOV     #10.,SHIFT      ;# OF SHIFTS
(1)                                     ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  003462                             $POKE
(2)  003462  052777  020000  176236             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  003470  042777  020000  176230             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  003476  005000                     1$:     CLR     R0
(1)  003500  006067  175774                     ROR     $TMP1   ;FORCE CARRY
(1)  003504  103002                             BCC     2$      ;BR IF CARRY CLR
(1)  003506  052700  002000                     BIS     #BITW,R0        ;EQUIV OF BITW
(1)  003512                             2$:
(2)  003512  052777  020000  176206             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  003520  042777  020000  176200             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  003526  017701  176174                     MOV     @TXCSR,R1       ;ACTUAL
(1)  003532  042701  075777                     BIC     #075777,R1      ;SAVE BITW & DNA
(1)  003536  020001                             CMP     R0,R1   ;COMPARE EXP VS ACT
(1)  003540  001401                             BEQ     .+4
(1)  003542  104003                             ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
(1)                                                             ;BIT,...ALSO CHECK DNA
(1)  003544  005367  175352                     DEC     SHIFT   ;# OF SHIFTS
(1)  003550  001352                             BNE     1$      ;DO IT AGAIN ?
(1)                                     ;NOW POKE CLK TO SEE DNA
(1)  003552  052777  020000  176146             BIS     #CLK,@TXCSR     ;POKE CLK
(1)              001                    .IF     IDN     <ISYMOD>,<ISYMOD>
(1)                                     .IFT
(1)  003560  012700  000000                     MOV     #0,R0   ;EXPECTED
(1)                                     .IFF
(1)                                             MOV     #100000,R0      ;EXPECTED
(1)              000                    .ENDC
(1)  003564  017701  176136                     MOV     @TXCSR,R1       ;ACTUAL
(1)  003570  042701  077777                     BIC     #77777,R1       ;SAVE DNA ONLY
(1)  003574  020001                             CMP     R0,R1           ;COMPARE EXP VS ACT
(1)  003576  001401                             BEQ     .+4
(1)  003600  104003                             ERROR   3       ;DNA SHOULD BE SET
(1)                                                             ;IF DNA DID NOT SET
```

```
  (1)                                                   ;CHECK WORD LENGTH SELECT LOGIC
  (1)
 8151  003602                         $TRPAR  SEVEN,10.,ODDPAR,ISYMOD,125,1652
  (1)                                         ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
  (1)                                         ;;OF THE TRANSMITTER SECTION.
  (1)                                         ;;IT ALSO CHECKS DNA TIMING
  (1)                                         ;;MODE:ISYMOD
  (1)                                         ;;LENGTH:SEVEN PLUS PARITY
  (1)                                         ;;PARITY:ODDPAR
  (1)                                         ;;CHARACTER:125
  (1)                                         ;;
  (1)  003602                                 $TSTNO
  (2)  003602                                 NEWTST
  (3)           000000                        $NWTST=0
  (3)              001                        .IF B <>
  (3)  003602                                         $$NEWTEST       \$TN,<>,SCOPE
  (4)                                         .IRP    ASCI,<>
  (4)                                         .IF EQ $NWTST
  (4)                                         .NLIST
  (4)                                         $NWTST=1
  (4)                                         .SBTTL  T2      ASCI
  (4)                                         .LIST
  (4)                                         STARS
  (4)                                         ;*TEST 2        ASCI
  (4)                                         .IFF
  (4)                                                 ASCI
  (4)                                         .ENDC
  (4)                                         .ENDM
  (4)  003602                                 STARS
  (5)           002                           .IF B
  (5)                                         ;;*****************************************************************
  (5)                                         .IFF
  (5)                                         .NLIST
  (5)                                         .REPT
  (5)                                         .LIST
  (5)                                         ;;*****************************************************************
  (5)                                         .NLIST
  (5)                                         .ENDR
  (5)                                         .LIST
  (5)              001                        .ENDC
  (4)  003602  000004                         TST2:   SCOPE
  (4)
  (4)           000003                        $TN=$TN+1
  (3)                                         .IFF
  (3)                                                 $$NEWTEST       \$TN,<>,<>
  (3)              000                        .ENDC
  (3)              001                        .IF NE 4000&$SWR
  (3)              002                        .IF NB
  (3)              003                        .IF LE <-1>
  (3)                                                 MOV     #1,$TIMES       ;;DO 1 ITERATION
  (3)                                         .IFF
  (3)                                                 MOV     #,$TIMES        ;;DO  ITERATIONS
  (3)              002                        .ENDC
  (3)              001                        .ENDC
  (3)              002                        .IF NB
  (3)                                                 MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
```

```
(3)              001                    .ENDC
(3)              000                    .ENDC
(3)              001                    .IF NB
(3)              002                    .IF DF $MAIL
(3)                                     .IRP    TNM,<\$TN-1>
(3)                                             MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                                     .ENDM
(3)              001                    .ENDC
(3)              000                    .ENDC
(2)           000000                    .REPT 0
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DN,<\$N>
(2)                                     NEWTST
(2)                                     ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(2)                                     ;.IF NB <>
(2)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                     .IFF
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DE,<\$E>
(2)                                     .IF DF  TST'$DE
(2)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1) 003604                              TSETUP  MINT,ISYMOD,SEVEN,ODDPAR,26
(2) 003604                              $RESET
(3) 003604  052777  000400  176114              BIS     #MRESET,@TXCSR  ;MASTER RESET
(2) 003612  012777  000000  176102              MOV     #ISYMOD,@PARCSR ;SET THE MODE
(2) 003620                              $RESET
(3) 003620  052777  000400  176100              BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
```

```
(2)  003626  012777  004020  176072          MOV     #MINT!SEND,@TXCSR
(2)
(2)                                          ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  003634  012777  005026  176060          MOV     #ISYMOD!SEVEN!ODDPAR!26,@PARCSR
(1)  003642  016703  176060                  MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  003646  112777  000125  176056          MOVB    #125,@TXDBUF    ;LOAD DATA CHAR
(1)  003654  012767  001652  175616          MOV     #1652,$TMP1     ;TO BE SHIFTED CHAR
(1)  003662  012767  000012  175232          MOV     #10.,SHIFT      ;# OF SHIFTS
(1)                                          ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  003670                                  $POKE
(2)  003670  052777  020000  176030          BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  003676  042777  020000  176022          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  003704  005000                          1$:     CLR     R0
(1)  003706  006067  175566                  ROR     $TMP1   ;FORCE CARRY
(1)  003712  103002                          BCC     2$      ;BR IF CARRY CLR
(1)  003714  052700  002000                  BIS     #BITW,R0        ;EQUIV OF BITW
(1)  003720                                  2$:
(2)  003720  052777  020000  176000          BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  003726  042777  020000  175772          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  003734  017701  175766                  MOV     @TXCSR,R1       ;ACTUAL
(1)  003740  042701  075777                  BIC     #075777,R1      ;SAVE BITW & DNA
(1)  003744  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
(1)  003746  001401                          BEQ     .+4
(1)  003750  104003                          ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
(1)                                                          ;BIT....ALSO CHECK DNA
(1)  003752  005367  175144                  DEC     SHIFT   ;# OF SHIFTS
(1)  003756  001352                          BNE     1$      ;DO IT AGAIN ?
(1)                                          ;NOW POKE CLK TO SEE DNA
(1)  003760  052777  020000  175740          BIS     #CLK,@TXCSR     ;POKE CLK
(1)             001                  .IF     IDN     <ISYMOD>,<ISYMOD>
(1)                                  .IFT
(1)  003766  012700  000000                  MOV     #0,R0   ;EXPECTED
(1)                                  .IFF
(1)                                          MOV     #100000,R0      ;EXPECTED
(1)             000                  .ENDC
(1)  003772  017701  175730                  MOV     @TXCSR,R1       ;ACTUAL
(1)  003776  042701  077777                  BIC     #77777,R1       ;SAVE DNA ONLY
(1)  004002  020001                          CMP     R0,R1           ;COMPARE EXP VS ACT
(1)  004004  001401                          BEQ     .+4
(1)  004006  104003                          ERROR   3       ;DNA SHOULD BE SET
(1)                                                          ;IF DNA DID NOT SET
(1)                                                          ;CHECK WORD LENGTH SELECT LOGIC
(1)
8152 004010                          $TRPAR  EIGHT,9.,EVEPAR,SYNINT,125,125
(1)                                          ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
(1)                                          ;;OF THE TRANSMITTER SECTION.
(1)                                          ;;IT ALSO CHECKS DNA TIMING
(1)                                          ;;MODE:SYNINT
(1)                                          ;;LENGTH:EIGHT PLUS PARITY
(1)                                          ;;PARITY:EVEPAR
(1)                                          ;;CHARACTER:125
(1)                                          ;;
(1)  004010                          $TSTNO
(2)  004010                          NEWTST
(3)             000000               $NWTS1=0
(3)             001                  .IF B <>
```

```
(3)  004010                          $$NEWTEST       \$TN,<>,SCOPE
(4)                                  .IRP    ASCI,<>
(4)                                  .IF EQ $NWTST
(4)                                  .NLIST
(4)                                  $NWTST=1
(4)                                  .SBTTL  T3      ASCI
(4)                                  .LIST
(4)                                  STARS
(4)                                  ;*TEST 3        ASCI
(4)                                  .IFF
(4)                                          ASCI
(4)                                  .ENDC
(4)                                  .ENDM
(4)  004010                          STARS
(5)              002                 .IF B
(5)                                  ;;**********************************************************************
(5)                                  .IFF
(5)                                  .NLIST
(5)                                  .REPT
(5)                                  .LIST
(5)                                  ;;**********************************************************************
(5)                                  .NLIST
(5)                                  .ENDR
(5)                                  .LIST
(5)              001                 .ENDC
(4)  004010  000004                  TST3:   SCOPE
(4)          000004                  $TN=$TN+1
(3)                                  .IFF
(3)                                          $$NEWTEST       \$TN,<>,<>
(3)              000                 .ENDC
(3)              001                 .IF NE 4000&$SWR
(3)              002                 .IF NB
(3)              003                 .IF LE <-1>
(3)                                          MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                                  .IFF
(3)                                          MOV     #,$TIMES        ;;DO  ITERATIONS
(3)              002                 .ENDC
(3)              001                 .ENDC
(3)              002                 .IF NB
(3)                                          MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)              001                 .ENDC
(3)              000                 .ENDC
(3)              001                 .IF NB
(3)              002                 .IF DF $MAIL
(3)                                  .IRP    TNM,<\$TN-1>
(3)                                          MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                                  .ENDM
(3)              001                 .ENDC
(3)              000                 .ENDC
(2)          000000                  .REPT 0
(2)                                  .NLIST
(2)                                  .RADIX  10
(2)                                  .LIST
(2)                                  .IRP    $DN,<\$N>
(2)                                  NEWTST
```

```
(2)                                     ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(2)                                     ;.IF NB <>
(2)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                     .IFF
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DE,<\$E>
(2)                                     .IF DF  TST'$DE
(2)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  004012                             TSETUP  MINT,SYNINT,EIGHT,EVEPAR,26
(2)  004012                             $RESET
(3)  004012  052777  000400  175706             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  004020  012777  030000  175674             MOV     #SYNINT,@PARCSR ;SET THE MODE
(2)  004026                             $RESET
(3)  004026  052777  000400  175672             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
(2)  004034  012777  004020  175664             MOV     #MINT!SEND,@TXCSR
(2)
(2)                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  004042  012777  037426  175652             MOV     #SYNINT!EIGHT!EVEPAR!26,@PARCSR
(1)  004050  016703  175652                     MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  004054  112777  000125  175650             MOVB    #125,@TXDBUF    ;LOAD DATA CHAR
(1)  004062  012767  000125  175410             MOV     #125,$TMP1      ;TO BE SHIFTED CHAR
(1)  004070  012767  000011  175024             MOV     #9.,SHIFT       ;# OF SHIFTS
(1)                                     ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  004076                             $POKE
(2)  004076  052777  020000  175622             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  004104  042777  020000  175614             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  004112  005000                     1$:     CLR     R0
(1)  004114  006067  175360                     ROR     $TMP1   ;FORCE CARRY
(1)  004120  103002                             BCC     2$      ;BR IF CARRY CLR
```

```
    (1)  004122  052700  002000              BIS     #BITW,R0        ;EQUIV OF BITW
    (1)  004126                        2$:
    (2)  004126  052777  020000  175572      BIS     #CLK,@TXCSR     ;POKE CLK UP
    (2)  004134  042777  020000  175564      BIC     #CLK,@TXCSR     ;POKE CLK DOWN
    (1)  004142  017701  175560              MOV     @TXCSR,R1       ;ACTUAL
    (1)  004146  042701  075777              BIC     #075777,R1      ;SAVE BITW & DNA
    (1)  004152  020001                      CMP     R0,R1   ;COMPARE EXP VS ACT
    (1)  004154  001401                      BEQ     .+4
    (1)  004156  104003                      ERROR   3               ;BIT WINDOW DID NOT MATCH ACTUAL DATA
    (1)                                                              ;BIT,...ALSO CHECK DNA
    (1)  004160  005367  174736              DEC     SHIFT   ;# OF SHIFTS
    (1)  004164  001352                      BNE     1$      ;DO IT AGAIN ?
    (1)                                ;NOW POKE CLK TO SEE DNA
    (1)  004166  052777  020000  175532      BIS     #CLK,@TXCSR     ;POKE CLK
    (1)             001                .IF     IDN     <ISYMOD>,<SYNINT>
    (1)                                .IFT
    (1)                                        MOV     #0,R0   ;EXPECTED
    (1)                                .IFF
    (1)  004174  012700  100000                MOV     #100000,R0      ;EXPECTED
    (1)             000                .ENDC
    (1)  004200  017701  175522                MOV     @TXCSR,R1       ;ACTUAL
    (1)  004204  042701  077777                BIC     #77777,R1       ;SAVE DNA ONLY
    (1)  004210  020001                        CMP     R0,R1           ;COMPARE EXP VS ACT
    (1)  004212  001401                        BEQ     .+4
    (1)  004214  104003                        ERROR   3               ;DNA SHOULD BE SET
    (1)                                                                ;IF DNA DID NOT SET
    (1)                                                                ;CHECK WORD LENGTH SELECT LOGIC
    (1)
 8153  004216                          $TRPAR  EIGHT,9.,ODDPAR,SYNINT,125,525
    (1)                                        ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
    (1)                                        ;;OF THE TRANSMITTER SECTION.
    (1)                                        ;;IT ALSO CHECKS DNA TIMING
    (1)                                        ;;MODE:SYNINT
    (1)                                        ;;LENGTH:EIGHT PLUS PARITY
    (1)                                        ;;PARITY:ODDPAR
    (1)                                        ;;CHARACTER:125
    (1)                                        ;;
    (1)  004216                                $TSTNO
    (2)  004216                                NEWTST
    (3)             000000                     $NWTST=0
    (3)                001                     .IF B <>
    (3)  004216                                        $$NEWTEST       \$TN,<>,SCOPE
    (4)                                .IRP    ASCI,<>
    (4)                                .IF EQ $NWTST
    (4)                                .NLIST
    (4)                                $NWTST=1
    (4)                                .SBTTL  T4      ASCI
    (4)                                .LIST
    (4)                                STARS
    (4)                                ;*TEST 4        ASCI
    (4)                                .IFF
    (4)                                        ASCI
    (4)                                .ENDC
    (4)                                .ENDM
    (4)  004216                        STARS
    (5)             002                .IF B
```

```
                                ;INITIALIZE THE COMMON TAGS                                                    SEQ 0054

(5)                             ;;*****************************************************************
(5)                             .IFF
(5)                             .NLIST
(5)                             .REPT
(5)                             .LIST
(5)                             ;;*****************************************************************
(5)                             .NLIST
(5)                             .ENDR
(5)                             .LIST
(5)               001           .ENDC
(4)  004216  000004             TST4:   SCOPE
(4)
(4)          000005             $TN=$TN+1
(3)                             .IFF
(3)                                     $$NEWTEST       \$TN,<>,<>
(3)               000           .ENDC
(3)               001           .IF NE 4000&$SWR
(3)               002           .IF NB
(3)               003           .IF LE <-1>
(3)                                     MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                             .IFF
(3)                                     MOV     #,$TIMES        ;;DO  ITERATIONS
(3)               002           .ENDC
(3)               001           .ENDC
(3)               002           .IF NB
(3)                                     MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)               001           .ENDC
(3)               000           .ENDC
(3)               001           .IF NB
(3)               002           .IF DF $MAIL
(3)                             .IRP    TNM,<\$TN-1>
(3)                                     MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                             .ENDM
(3)               001           .ENDC
(3)               000           .ENDC
(2)            000000           .REPT 0
(2)                             .NLIST
(2)                             .RADIX  10
(2)                             .LIST
(2)                             .IRP    $DN,<\$N>
(2)                             NEWTST
(2)                             ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                             .ENDM
(2)                             .NLIST
(2)                             .RADIX  8
(2)                             .LIST
(2)                             ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                             ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(2)                             ;.IF NB <>
(2)                             ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                             .IFF
(2)                             .NLIST
(2)                             .RADIX  10
(2)                             .LIST
(2)                             .IRP    $DE,<\$E>
(2)                             .IF DF  TST'$DE
```

```
(2)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  004220                             TSETUP  MINT,SYNINT,EIGHT,ODDPAR,26
(2)  004220                             $RESET
(3)  004220  052777  000400  175500             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  004226  012777  030000  175466             MOV     #SYNINT,@PARCSR ;SET THE MODE
(2)  004234                             $RESET
(3)  004234  052777  000400  175464             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
(2)  004242  012777  004020  175456             MOV     #MINT!SEND,@TXCSR
(2)
(2)                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  004250  012777  037026  175444             MOV     #SYNINT!EIGHT!ODDPAR!26,@PARCSR
(1)  004256  016703  175444             MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  004262  112777  000125  175442             MOVB    #125,@TXDBUF    ;LOAD DATA CHAR
(1)  004270  012767  000525  175202             MOV     #525,$TMP1      ;TO BE SHIFTED CHAR
(1)  004276  012767  000011  174616             MOV     #9.,SHIFT       ;# OF SHIFTS
(1)                                     ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  004304                             $POKE
(2)  004304  052777  020000  175414             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  004312  042777  020000  175406             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  004320  005000                     1$:     CLR     R0
(1)  004322  006067  175152                     ROR     $TMP1   ;FORCE CARRY
(1)  004326  103002                             BCC     2$      ;BR IF CARRY CLR
(1)  004330  052700  002000                     BIS     #BITW,R0        ;EQUIV OF BITW
(1)  004334                             2$:
(2)  004334  052777  020000  175364             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  004342  042777  020000  175356             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  004350  017701  175352             MOV     @TXCSR,R1       ;ACTUAL
(1)  004354  042701  075777             BIC     #075777,R1      ;SAVE BITW & DNA
(1)  004360  020001                     CMP     R0,R1   ;COMPARE EXP VS ACT
(1)  004362  001401                     BEQ     .+4
(1)  004364  104003                     ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
(1)                                             ;BIT,...ALSO CHECK DNA
(1)  004366  005367  174530             DEC     SHIFT   ;# OF SHIFTS
(1)  004372  001352                     BNE     1$      ;DO IT AGAIN ?
(1)                                     ;NOW POKE CLK TO SEE DNA
(1)  004374  052777  020000  175324             BIS     #CLK,@TXCSR     ;POKE CLK
(1)              001                    .IF     IDN     <ISYMOD>,<SYNINT>
```

```
                        INITIALIZE THE COMMON TAGS                                                    SEQ 0056

(1)                     .IFT
(1)                             MOV     #0,R0   ;EXPECTED
(1)                     .IFF
(1)  004402  012700  100000             MOV     #100000,R0      ;EXPECTED
(1)            000      .ENDC
(1)  004406  017701  175314             MOV     @TXCSR,R1       ;ACTUAL
(1)  004412  042701  077777             BIC     #77777,R1       ;SAVE DNA ONLY
(1)  004416  020001                     CMP     R0,R1           ;COMPARE EXP VS ACT
(1)  004420  001401                     BEQ     .+4
(1)  004422  104003                     ERROR   3               ;DNA SHOULD BE SET
(1)                                                             ;IF DNA DID NOT SET
(1)                                                             ;CHECK WORD LENGTH SELECT LOGIC
(1)
8154  004424                    $TRPAR  EIGHT,11.,EVEPAR,ISYMOD,125,2252
(1)                                     ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
(1)                                     ;;OF THE TRANSMITTER SECTION.
(1)                                     ;;IT ALSO CHECKS DNA TIMING
(1)                                     ;;MODE:ISYMOD
(1)                                     ;;LENGTH:EIGHT PLUS PARITY
(1)                                     ;;PARITY:EVEPAR
(1)                                     ;;CHARACTER:125
(1)                                     ;;
(1)  004424                     $TSTNO
(2)  004424                     NEWTST
(3)            000000           $NWTST=0
(3)               001           .IF B <>
(3)  004424                             $$NEWTEST       \$TN,<>,SCOPE
(4)                             .IRP    ASCI,<>
(4)                             .IF EQ $NWTST
(4)                             .NLIST
(4)                             $NWTST=1
(4)                             .SBTTL  T5      ASCI
(4)                             .LIST
(4)                             STARS
(4)                             ;*TEST 5        ASCI
(4)                             .IFF
(4)                                     ASCI
(4)                             .ENDC
(4)                             .ENDM
(4)  004424                     STARS
(5)               002           .IF B
(5)                             ;;**********************************************************************
(5)                             .IFF
(5)                             .NLIST
(5)                             .REPT
(5)                             .LIST
(5)                             ;;**********************************************************************
(5)                             .NLIST
(5)                             .ENDR
(5)                             .LIST
(5)               001           .ENDC
(4)  004424  000004             TST5:   SCOPE
(4)
(4)            000006           $TN=$TN+1
(3)                             .IFF
(3)                                     $$NEWTEST       \$TN,<>,<>
```

INITIALIZE THE COMMON TAGS

SEQ 0057

```
(3)             000                     .ENDC
(3)             001                     .IF NE 4000&$SWR
(3)             002                     .IF NB
(3)             003                     .IF LE <-1>
(3)                                             MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                                     .IFF
(3)                                             MOV     #,$TIMES        ;;DO  ITERATIONS
(3)             002                     .ENDC
(3)             001                     .ENDC
(3)             002                     .IF NB
(3)                                             MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)             001                     .ENDC
(3)             000                     .ENDC
(3)             001                     .IF NB
(3)             002                     .IF DF $MAIL
(3)                                     .IRP    TNM,<\$TN-1>
(3)                                             MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                                     .ENDM
(3)             001                     .ENDC
(3)             000                     .ENDC
(2)          000000                     .REPT 0
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DN,<\$N>
(2)                                     NEWTST
(2)                                     ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(2)                                     ;.IF NB <>
(2)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                     .IFF
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DE,<\$E>
(2)                                     .IF DF  TST'$DE
(2)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2                                      .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
```

```
    (2)                                 .LIST
    (2)                                 .ENDR
    (1)  004426                         TSETUP  MINT,ISYMOD,EIGHT,EVEPAR,26
    (2)  004426                         $RESET
    (3)  004426  052777  000400  175272          BIS     #MRESET,@TXCSR  ;MASTER RESET
    (2)  004434  012777  000000  175260          MOV     #ISYMOD,@PARCSR ;SET THE MODE
    (2)  004442                         $RESET
    (3)  004442  052777  000400  175256          BIS     #MRESET,@TXCSR  ;MASTER RESET
    (2)
    (2)                                 ;SET MAINTENANCE MODE & SEND
    (2)                                       ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
    (2)  004450  012777  004020  175250          MOV     #MINT!SEND,@TXCSR
    (2)
    (2)                                 ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
    (2)  004456  012777  007426  175236          MOV     #ISYMOD!EIGHT!EVEPAR!26,@PARCSR
    (1)  004464  016703  175236                 MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
    (1)  004470  112777  000125  175234         MOVB    #125,@TXDBUF    ;LOAD DATA CHAR
    (1)  004476  012767  002252  174774         MOV     #2252,$TMP1     ;TO BE SHIFTED CHAR
    (1)  004504  012767  000013  174410         MOV     #11.,SHIFT      ;# OF SHIFTS
    (1)                                 ;POKE CLK TO GET INTO SYNCRONIZATION
    (1)  004512                         $POKE
    (2)  004512  052777  020000  175206          BIS     #CLK,@TXCSR     ;POKE CLK UP
    (2)  004520  042777  020000  175200          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
    (1)  004526  005000                 1$:     CLR     R0
    (1)  004530  006067  174744                 ROR     $TMP1   ;FORCE CARRY
    (1)  004534  103002                         BCC     2$      ;BR IF CARRY CLR
    (1)  004536  052700  002000                 BIS     #BITW,R0        ;EQUIV OF BITW
    (1)  004542                         2$:
    (2)  004542  052777  020000  175156          BIS     #CLK,@TXCSR     ;POKE CLK UP
    (2)  004550  042777  020000  175150          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
    (1)  004556  017701  175144                 MOV     @TXCSR,R1       ;ACTUAL
    (1)  004562  042701  075777                 BIC     #075777,R1      ;SAVE BITW & DNA
    (1)  004566  020001                         CMP     R0,R1   ;COMPARE EXP VS ACT
    (1)  004570  001401                         BEQ     .+4
    (1)  004572  104003                         ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
    (1)                                                         ;BIT,...ALSO CHECK DNA
    (1)  004574  005367  174322                 DEC     SHIFT   ;# OF SHIFTS
    (1)  004600  001352                         BNE     1$      ;DO IT AGAIN ?
    (1)                                 ;NOW POKE CLK TO SEE DNA
    (1)  004602  052777  020000  175116          BIS     #CLK,@TXCSR     ;POKE CLK
    (1)             001                 .IF     IDN     <ISYMOD>,<ISYMOD>
    (1)                                 .IFT
    (1)  004610  012700  000000                 MOV     #0,R0   ;EXPECTED
    (1)                                 .IFF
    (1)                                 MOV     #100000,R0      ;EXPECTED
    (1)             000                 .ENDC
    (1)  004614  017701  175106                 MOV     @TXCSR,R1       ;ACTUAL
    (1)  004620  042701  077777                 BIC     #77777,R1       ;SAVE DNA ONLY
    (1)  004624  020001                         CMP     R0,R1           ;COMPARE EXP VS ACT
    (1)  004626  001401                         BEQ     .+4
    (1)  004630  104003                         ERROR   3       ;DNA SHOULD BE SET
    (1)                                                         ;IF DNA DID NOT SET
    (1)                                                         ;CHECK WORD LENGTH SELECT LOGIC
    (1)
 8155  004632                         $TRPAR  EIGHT,11.,ODDPAR,ISYMOD,125,3252
    (1)                                 ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
```

```
(1)                                     ;;OF THE TRANSMITTER SECTION.
(1)                                     ;;IT ALSO CHECKS DNA TIMING
(1)                                     ;;MODE:ISYMOD
(1)                                     ;;LENGTH:EIGHT PLUS PARITY
(1)                                     ;;PARITY:ODDPAR
(1)                                     ;;CHARACTER:125
(1)                                     ;;
(1)  004632                         $TSTNO
(2)  004632                         NEWTST
(3)          000000                 $NWTST=0
(3)             001                 .IF B <>
(3)  004632                                 $$NEWTEST       \$TN,<>,SCOPE
(4)                                 .IRP    ASCI,<>
(4)                                 .IF EQ $NWTST
(4)                                 .NLIST
(4)                                 $NWTST=1
(4)                                 .SBTTL  T6      ASCI
(4)                                 .LIST
(4)                                 STARS
(4)                                 ;*TEST 6        ASCI
(4)                                 .IFF
(4)                                         ASCI
(4)                                 .ENDC
(4)                                 .ENDM
(4)  004632                         STARS
(5)             002                 .IF B
(5)                                 ;;**********************************************************************
(5)                                 .IFF
(5)                                 .NLIST
(5)                                 .REPT
(5)                                 .LIST
(5)                                 ;;**********************************************************************
(5)                                 .NLIST
(5)                                 .ENDR
(5)                                 .LIST
(5)             001                 .ENDC
(4)  004632  000004                 TST6:   SCOPE
(4)
(4)          000007                 $TN=$TN+1
(3)                                 .IFF
(3)                                         $$NEWTEST       \$TN,<>,<>
(3)             000                 .ENDC
(3)             001                 .IF NE 4000&$SWR
(3)             002                 .IF NB
(3)             003                 .IF LE <-1>
(3)                                         MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                                 .IFF
(3)                                         MOV     #,$TIMES        ;;DO  ITERATIONS
(3)             002                 .ENDC
(3)             001                 .ENDC
(3)             002                 .IF NB
(3)                                         MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)             001                 .ENDC
(3)             000                 .ENDC
(3)             001                 .IF NB
(3)             002                 .IF DF $MAIL
```

```
(3)                                     .IRP    TNM,<\$TN-1>
(3)                                             MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                                     .ENDM
(3)                 001                 .ENDC
(3)                 000                 .ENDC
(2)              000000                 .REPT 0
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DN,<\$N>
(2)                                     NEWTST
(2)                                     ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(2)                                     ;.IF NB <>
(2)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                     .IFF
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DE,<\$E>
(2)                                     .IF DF  TST'$DE
(2)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  004634                             TSETUP  MINT,ISYMOD,EIGHT,ODDPAR,26
(2)  004634                             $RESET
(3)  004634  052777  000400  175064             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  004642  012777  000000  175052             MOV     #ISYMOD,@PARCSR ;SET THE MODE
(2)  004650                             $RESET
(3)  004650  052777  000400  175050             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
(2)  004656  012777  004020  175042             MOV     #MINT!SEND,@TXCSR
(2)
(2)                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  004664  012777  007026  175030             MOV     #ISYMOD!EIGHT!ODDPAR!26,@PARCSR
```

```
(1)  004672  016703  175030          MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  004676  112777  000125  175026  MOVB    #125,@TXDBUF    ;LOAD DATA CHAR
(1)  004704  012767  003252  174566  MOV     #3252,$TMP1     ;TO BE SHIFTED CHAR
(1)  004712  012767  000013  174202  MOV     #11.,SHIFT      ;# OF SHIFTS
(1)                                 ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  004720                         $POKE
(2)  004720  052777  020000  175000  BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  004726  042777  020000  174772  BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  004734  005000                 1$:     CLR     R0
(1)  004736  006067  174536          ROR     $TMP1   ;FORCE CARRY
(1)  004742  103002                  BCC     2$      ;BR IF CARRY CLR
(1)  004744  052700  002000          BIS     #BITW,R0        ;EQUIV OF BITW
(1)  004750                         2$:
(2)  004750  052777  020000  174750  BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  004756  042777  020000  174742  BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  004764  017701  174736          MOV     @TXCSR,R1       ;ACTUAL
(1)  004770  042701  075777          BIC     #075777,R1      ;SAVE BITW & DNA
(1)  004774  020001                  CMP     R0,R1   ;COMPARE EXP VS ACT
(1)  004776  001401                  BEQ     .+4
(1)  005000  104003                  ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
(1)                                                 ;BIT,...ALSO CHECK DNA
(1)  005002  005367  174114          DEC     SHIFT   ;# OF SHIFTS
(1)  005006  001352                  BNE     1$      ;DO IT AGAIN ?
(1)                                 ;NOW POKE CLK TO SEE DNA
(1)  005010  052777  020000  174710  BIS     #CLK,@TXCSR     ;POKE CLK
(1)              001                .IF     IDN     <ISYMOD>,<ISYMOD>
(1)                                 .IFT
(1)  005016  012700  000000          MOV     #0,R0   ;EXPECTED
(1)                                 .IFF
(1)                                  MOV     #100000,R0      ;EXPECTED
(1)              000                .ENDC
(1)  005022  017701  174700          MOV     @TXCSR,R1       ;ACTUAL
(1)  005026  042701  077777          BIC     #77777,R1       ;SAVE DNA ONLY
(1)  005032  020001                  CMP     R0,R1           ;COMPARE EXP VS ACT
(1)  005034  001401                  BEQ     .+4
(1)  005036  104003                  ERROR   3       ;DNA SHOULD BE SET
(1)                                                 ;IF DNA DID NOT SET
(1)                                                 ;CHECK WORD LENGTH SELECT LOGIC
(1)
8156
8157 005040                         $TRPAR  EIGHT,9.,EVEPAR,SYNINT,252,252
(1)                                         ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
(1)                                         ;;OF THE TRANSMITTER SECTION.
(1)                                         ;;IT ALSO CHECKS DNA TIMING
(1)                                         ;;MODE:SYNINT
(1)                                         ;;LENGTH:EIGHT PLUS PARITY
(1)                                         ;;PARITY:EVEPAR
(1)                                         ;;CHARACTER:252
(1)                                         ;;
(1)  005040                         $TSTNO
(2)  005040                         NEWTST
(3)              000000             $NWTST=0
(3)                 001             .IF B <>
(3)  005040                                 $$NEWTEST       \$TN,<>,SCOPE
(4)                                 .IRP    ASCI,<>
(4)                                 .IF EQ $NWTST
```

```
(4)                             .NLIST
(4)                             $NWTST=1
(4)                             .SBTTL  T7      ASCI
(4)                             .LIST
(4)                             STARS
(4)                             ;*TEST 7        ASCI
(4)                             .IFF
(4)                                     ASCI
(4)                             .ENDC
(4)                             .ENDM
(4)  005040                     STARS
(5)            002              .IF B
(5)                             ;;**********************************************************************
(5)                             .IFF
(5)                             .NLIST
(5)                             .REPT
(5)                             .LIST
(5)                             ;;**********************************************************************
(5)                             .NLIST
(5)                             .ENDR
(5)                             .LIST
(5)              001            .ENDC
(4)  005040  000004             TST7:   SCOPE
(4)
(4)          000010             $TN=$TN+1
(3)                             .IFF
(3)                                     $$NEWTEST       \$TN,<>,<>
(3)              000            .ENDC
(3)              001            .IF NE 4000&$SWR
(3)              002            .IF NB
(3)              003            .IF LE <-1>
(3)                                     MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                             .IFF
(3)                                     MOV     #,$TIMES        ;;DO  ITERATIONS
(3)              002            .ENDC
(3)              001            .ENDC
(3)              002            .IF NB
(3)                                     MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)              001            .ENDC
(3)              000            .ENDC
(3)              001            .IF NB
(3)              002            .IF DF $MAIL
(3)                             .IRP    TNM,<\$TN-1>
(3)                                     MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                             .ENDM
(3)              001            .ENDC
(3)              000            .ENDC
(2)           000000            .REPT 0
(2)                             .NLIST
(2)                             .RADIX  10
(2)                             .LIST
(2)                             .IRP    $DN,<\$N>
(2)                             NEWTST
(2)                             ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                             .ENDM
(2)                             .NLIST
```

```
                                        INITIALIZE THE COMMON TAGS

(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(2)                                     ;.IF NB <>
(2)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                     .IFF
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DE,<\$E>
(2)                                     .IF DF  TST'$DE
(2)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  005042                             TSETUP  MINT,SYNINT,EIGHT,EVEPAR,26
(2)  005042                             $RESET
(3)  005042  052777  000400  174656             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  005050  012777  030000  174644             MOV     #SYNINT,@PARCSR ;SET THE MODE
(2)  005056                             $RESET
(3)  005056  052777  000400  174642             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
(2)  005064  012777  004020  174634             MOV     #MINT!SEND,@TXCSR
(2)
(2)                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  005072  012777  037426  174622             MOV     #SYNINT!EIGHT!EVEPAR!26,@PARCSR
(1)  005100  016703  174622                     MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  005104  112777  000252  174620             MOVB    #252,@TXDBUF    ;LOAD DATA CHAR
(1)  005112  012767  000252  174360             MOV     #252,$TMP1      ;TO BE SHIFTED CHAR
(1)  005120  012767  000011  173774             MOV     #9.,SHIFT       ;# OF SHIFTS
(1)                                     ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  005126                             $POKE
(2)  005126  052777  020000  174572             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  005134  042777  020000  174564             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  005142  005000                     1$:     CLR     R0
(1)  005144  006067  174330                     ROR     $TMP1   ;FORCE CARRY
(1)  005150  103002                             BCC     2$      ;BR IF CARRY CLR
(1)  005152  052700  002000                     BIS     #BITW,R0        ;EQUIV OF BITW
(1)  005156                             2$:
(2)  005156  052777  020000  174542             BIS     #CLK,@TXCSR     ;POKE CLK UP
```

```
    (2)  005164  042777  020000  174534          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
    (1)  005172  017701  174530                  MOV     @TXCSR,R1       ;ACTUAL
    (1)  005176  042701  075777                  BIC     #075777,R1      ;SAVE BITW & DNA
    (1)  005202  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
    (1)  005204  001401                          BEQ     .+4
    (1)  005206  104003                          ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
    (1)                                                          ;BIT,...ALSO CHECK DNA
    (1)  005210  005367  173706                  DEC     SHIFT   ;# OF SHIFTS
    (1)  005214  001352                          BNE     1$      ;DO IT AGAIN ?
    (1)                                  ;NOW POKE CLK TO SEE DNA
    (1)  005216  052777  020000  174502          BIS     #CLK,@TXCSR     ;POKE CLK
    (1)            001                   .IF     IDN     <ISYMOD>,<SYNINT>
    (1)                                  .IFT
    (1)                                          MOV     #0,R0   ;EXPECTED
    (1)                                  .IFF
    (1)  005224  012700  100000                  MOV     #100000,R0      ;EXPECTED
    (1)            000                   .ENDC
    (1)  005230  017701  174472                  MOV     @TXCSR,R1       ;ACTUAL
    (1)  005234  042701  077777                  BIC     #77777,R1       ;SAVE DNA ONLY
    (1)  005240  020001                          CMP     R0,R1           ;COMPARE EXP VS ACT
    (1)  005242  001401                          BEQ     .+4
    (1)  005244  104003                          ERROR   3       ;DNA SHOULD BE SET
    (1)                                                          ;IF DNA DID NOT SET
    (1)                                                          ;CHECK WORD LENGTH SELECT LOGIC
    (1)
 8158  005246                          $TRPAR  EIGHT,9.,ODDPAR,SYNINT,252,652
    (1)                                      ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
    (1)                                      ;;OF THE TRANSMITTER SECTION.
    (1)                                      ;;IT ALSO CHECKS DNA TIMING
    (1)                                      ;;MODE:SYNINT
    (1)                                      ;;LENGTH:EIGHT PLUS PARITY
    (1)                                      ;;PARITY:ODDPAR
    (1)                                      ;;CHARACTER:252
    (1)                                      ;;
    (1)  005246                          $TSTNO
    (2)  005246                          NEWTST
    (3)            000000                $NWTST=0
    (3)              001                 .IF B <>
    (3)  005246                                  $$NEWTEST       \$TN,<>,SCOPE
    (4)                                  .IRP    ASCI,<>
    (4)                                  .IF EQ $NWTST
    (4)                                  .NLIST
    (4)                                  $NWTST=1
    (4)                                  .SBTTL  T10     ASCI
    (4)                                  .LIST
    (4)                                  STARS
    (4)                                  ;*TEST 10       ASCI
    (4)                                  .IFF
    (4)                                          ASCI
    (4)                                  .ENDC
    (4)                                  .ENDM
    (4)  005246                          STARS
    (5)              002                 .IF B
    (5)                                  ;;**************************************************************************
    (5)                                  .IFF
    (5)                                  .NLIST
```

```
    (5)                         .REPT
    (5)                         .LIST
    (5)                         ;;*****************************************************************
    (5)                         .NLIST
    (5)                         .ENDR
    (5)                         .LIST
    (5)           001           .ENDC
    (4)  005246  000004         TST10:  SCOPE
    (4)
    (4)          000011         $TN=$TN+1
    (3)                         .IFF
    (3)                                 $$NEWTEST       \$TN,<>,<>
    (3)              000        .ENDC
    (3)              001        .IF NE 4000&$SWR
    (3)              002        .IF NB
    (3)              003        .IF LE <-1>
    (3)                                 MOV     #1,$TIMES       ;;DO 1 ITERATION
    (3)                         .IFF
    (3)                                 MOV     #,$TIMES        ;;DO  ITERATIONS
    (3)              002        .ENDC
    (3)              001        .ENDC
    (3)              002        .IF NB
    (3)                                 MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
    (3)              001        .ENDC
    (3)              000        .ENDC
    (3)              001        .IF NB
    (3)              002        .IF DF $MAIL
    (3)                         .IRP    TNM,<\$TN-1>
    (3)                                 MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
    (3)                         .ENDM
    (3)              001        .ENDC
    (3)              000        .ENDC
    (2)           000000        .REPT 0
    (2)                         .NLIST
    (2)                         .RADIX  10
    (2)                         .LIST
    (2)                         .IRP    $DN,<\$N>
    (2)                         NEWTST
    (2)                         ;       MOV     #$DN,$TSTNM     ;SAVE THIS
    (2)                         .ENDM
    (2)                         .NLIST
    (2)                         .RADIX  8
    (2)                         .LIST
    (2)                         ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
    (2)                         ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
    (2)                         ;.IF NB <>
    (2)                         ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
    (2)                         .IFF
    (2)                         .NLIST
    (2)                         .RADIX  10
    (2)                         .LIST
    (2)                         .IRP    $DE,<\$E>
    (2)                         .IF DF  TST'$DE
    (2)                         ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
    (2)                         .ENDM
    (2)                         .NLIST
```

```
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  005250                             TSETUP  MINT,SYNINT,EIGHT,ODDPAR,26
(2)  005250                             $RESET
(3)  005250  052777  000400  174450             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  005256  012777  030000  174436             MOV     #SYNINT,@PARCSR ;SET THE MODE
(2)  005264                             $RESET
(3)  005264  052777  000400  174434             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
(2)  005272  012777  004020  174426             MOV     #MINT!SEND,@TXCSR
(2)
(2)                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  005300  012777  037026  174414             MOV     #SYNINT!EIGHT!ODDPAR!26,@PARCSR
(1)  005306  016703  174414             MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  005312  112777  000252  174412             MOVB    #252,@TXDBUF    ;LOAD DATA CHAR
(1)  005320  012767  000652  174152             MOV     #652,$TMP1      ;TO BE SHIFTED CHAR
(1)  005326  012767  000011  173566             MOV     #9.,SHIFT       ;# OF SHIFTS
(1)                                     ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  005334                             $POKE
(2)  005334  052777  020000  174364             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  005342  042777  020000  174356             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  005350  005000                     1$:     CLR     R0
(1)  005352  006067  174122             ROR     $TMP1   ;FORCE CARRY
(1)  005356  103002                             BCC     2$      ;BR IF CARRY CLR
(1)  005360  052700  002000             BIS     #BITW,R0        ;EQUIV OF BITW
(1)  005364                             2$:
(2)  005364  052777  020000  174334             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  005372  042777  020000  174326             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  005400  017701  174322             MOV     @TXCSR,R1       ;ACTUAL
(1)  005404  042701  075777             BIC     #075777,R1      ;SAVE BITW & DNA
(1)  005410  020001                             CMP     R0,R1   ;COMPARE EXP VS ACT
(1)  005412  001401                             BEQ     .+4
(1)  005414  104003                             ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
(1)                                             ;BIT,...ALSO CHECK DNA
(1)  005416  005367  173500             DEC     SHIFT   ;# OF SHIFTS
(1)  005422  001352                             BNE     1$      ;DO IT AGAIN ?
(1)                                     ;NOW POKE CLK TO SEE DNA
(1)  005424  052777  020000  174274             BIS     #CLK,@TXCSR     ;POKE CLK
(1)              001                    .IF     IDN     <ISYMOD>,<SYNINT>
(1)                                     .IFT
(1)                                             MOV     #0,R0   ;EXPECTED
(1)                                     .IFF
```

```
                                        INITIALIZE THE COMMON TAGS                                                    SEQ 0067

(1)  005432  012700  100000                  MOV     #100000,R0      ;EXPECTED
(1)                 000              .ENDC
(1)  005436  017701  174264                  MOV     @TXCSR,R1       ;ACTUAL
(1)  005442  042701  077777                  BIC     #77777,R1       ;SAVE DNA ONLY
(1)  005446  020001                          CMP     R0,R1           ;COMPARE EXP VS ACT
(1)  005450  001401                          BEQ     .+4
(1)  005452  104003                          ERROR   3               ;DNA SHOULD BE SET
(1)                                                                  ;IF DNA DID NOT SET
(1)                                                                  ;CHECK WORD LENGTH SELECT LOGIC
(1)
8159 005454                             $TRPAR  EIGHT,9.,EVEPAR,SYNINT,0,0
(1)                                             ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
(1)                                             ;;OF THE TRANSMITTER SECTION.
(1)                                             ;;IT ALSO CHECKS DNA TIMING
(1)                                             ;;MODE:SYNINT
(1)                                             ;;LENGTH:EIGHT PLUS PARITY
(1)                                             ;;PARITY:EVEPAR
(1)                                             ;;CHARACTER:0
(1)                                             ;;
(1)  005454                             $TSTNO
(2)  005454                             NEWTST
(3)         000000                      $NWTST=0
(3)            001                      .IF B <>
(3)  005454                                     $$NEWTEST       \$TN,<>,SCOPE
(4)                                     .IRP    ASCI,<>
(4)                                     .IF EQ $NWTST
(4)                                     .NLIST
(4)                                     $NWTST=1
(4)                                     .SBTTL  T11     ASCI
(4)                                     .LIST
(4)                                     STARS
(4)                                     ;*TEST 11       ASCI
(4)                                     .IFF
(4)                                             ASCI
(4)                                     .ENDC
(4)                                     .ENDM
(4)  005454                             STARS
(5)            002                      .IF B
(5)                                     ;;**********************************************************************
(5)                                     .IFF
(5)                                     .NLIST
(5)                                     .REPT
(5)                                     .LIST
(5)                                     ;;**********************************************************************
(5)                                     .NLIST
(5)                                     .ENDR
(5)                                     .LIST
(5)            001                      .ENDC
(4)  005454  000004                     TST11:  SCOPE
(4)
(4)         000012                      $TN=$TN+1
(3)                                     .IFF
(3)                                             $$NEWTEST       \$TN,<>,<>
(3)            000                      .ENDC
(3)            001                      .IF NE 4000&$SWR
(3)            002                      .IF NB
```

```
(3)              003                    .IF LE <-1>
(3)                                             MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                                     .IFF
(3)                                             MOV     #,$TIMES        ;;DO  ITERATIONS
(3)              002                    .ENDC
(3)              001                    .ENDC
(3)              002                    .IF NB
(3)                                             MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)              001                    .ENDC
(3)              000                    .ENDC
(3)              001                    .IF NB
(3)              002                    .IF DF $MAIL
(3)                                     .IRP    TNM,<\$TN-1>
(3)                                             MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                                     .ENDM
(3)              001                    .ENDC
(3)              000                    .ENDC
(2)           000000                    .REPT 0
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DN,<\$N>
(2)                                     NEWTST
(2)                                     ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(2)                                     ;.IF NB <>
(2)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                     .IFF
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DE,<\$E>
(2)                                     .IF DF  TST'$DE
(2)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  005456                             TSETUP  MINT,SYNINT,EIGHT,EVEPAR,26
```

INITIALIZE THE COMMON TAGS

SEQ 0069

```
   (2)  005456                                  $RESET
   (3)  005456  052777  000400  174242                BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)  005464  012777  030000  174230                MOV     #SYNINT,@PARCSR ;SET THE MODE
   (2)  005472                                  $RESET
   (3)  005472  052777  000400  174226                BIS     #MRESET,@TXCSR  ;MASTER RESET
   (2)
   (2)                                          ;SET MAINTENANCE MODE & SEND
   (2)                                                  ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
   (2)  005500  012777  004020  174220                MOV     #MINT!SEND,@TXCSR
   (2)
   (2)                                          ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
   (2)  005506  012777  037426  174206                MOV     #SYNINT!EIGHT!EVEPAR!26,@PARCSR
   (1)  005514  016703  174206                        MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
   (1)  005520  112777  000000  174204                MOVB    #0,@TXDBUF      ;LOAD DATA CHAR
   (1)  005526  012767  000000  173744                MOV     #0,$TMP1        ;TO BE SHIFTED CHAR
   (1)  005534  012767  000011  173360                MOV     #9.,SHIFT       ;# OF SHIFTS
   (1)                                          ;POKE CLK TO GET INTO SYNCRONIZATION
   (1)  005542                                  $POKE
   (2)  005542  052777  020000  174156                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)  005550  042777  020000  174150                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (1)  005556  005000                          1$:   CLR     R0
   (1)  005560  006067  173714                        ROR     $TMP1   ;FORCE CARRY
   (1)  005564  103002                                BCC     2$      ;BR IF CARRY CLR
   (1)  005566  052700  002000                        BIS     #BITW,R0        ;EQUIV OF BITW
   (1)  005572                                  2$:
   (2)  005572  052777  020000  174126                BIS     #CLK,@TXCSR     ;POKE CLK UP
   (2)  005600  042777  020000  174120                BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (1)  005606  017701  174114                        MOV     @TXCSR,R1       ;ACTUAL
   (1)  005612  042701  075777                        BIC     #075777,R1      ;SAVE BITW & DNA
   (1)  005616  020001                                CMP     R0,R1   ;COMPARE EXP VS ACT
   (1)  005620  001401                                BEQ     .+4
   (1)  005622  104003                                ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
   (1)                                                                ;BIT,...ALSO CHECK DNA
   (1)  005624  005367  173272                        DEC     SHIFT   ;# OF SHIFTS
   (1)  005630  001352                                BNE     1$      ;DO IT AGAIN ?
   (1)                                          ;NOW POKE CLK TO SEE DNA
   (1)  005632  052777  020000  174066                BIS     #CLK,@TXCSR     ;POKE CLK
   (1)             001                          .IF     IDN     <ISYMOD>,<SYNINT>
   (1)                                          .IFT
   (1)                                                MOV     #0,R0   ;EXPECTED
   (1)                                          .IFF
   (1)  005640  012700  100000                        MOV     #100000,R0      ;EXPECTED
   (1)             000                          .ENDC
   (1)  005644  017701  174056                        MOV     @TXCSR,R1       ;ACTUAL
   (1)  005650  042701  077777                        BIC     #77777,R1       ;SAVE DNA ONLY
   (1)  005654  020001                                CMP     R0,R1           ;COMPARE EXP VS ACT
   (1)  005656  001401                                BEQ     .+4
   (1)  005660  104003                                ERROR   3       ;DNA SHOULD BE SET
   (1)                                                                ;IF DNA DID NOT SET
   (1)                                                                ;CHECK WORD LENGTH SELECT LOGIC
   (1)
8160  005662                                  $TRPAR  EIGHT,9.,ODDPAR,SYNINT,0,400
   (1)                                                ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
   (1)                                                ;;OF THE TRANSMITTER SECTION.
   (1)                                                ;;IT ALSO CHECKS DNA TIMING
   (1)                                                ;;MODE:SYNINT
```

```
(1)                                     ;;LENGTH:EIGHT PLUS PARITY
(1)                                     ;;PARITY:ODDPAR
(1)                                     ;;CHARACTER:0
(1)                                     ;;
(1)  005662                             $TSTNO
(2)  005662                             NEWTST
(3)          000000                     $NWTST=0
(3)             001                     .IF B <>
(3)  005662                                     $$NEWTEST       \$TN,<>,SCOPE
(4)                                     .IRP    ASCI,<>
(4)                                     .IF EQ $NWTST
(4)                                     .NLIST
(4)                                     $NWTST=1
(4)                                     .SBTTL  T12     ASCI
(4)                                     .LIST
(4)                                     STARS
(4)                                     ;*TEST 12       ASCI
(4)                                     .IFF
(4)                                             ASCI
(4)                                     .ENDC
(4)                                     .ENDM
(4)  005662                             STARS
(5)             002                     .IF B
(5)                                     ;;**************************************************************************
(5)                                     .IFF
(5)                                     .NLIST
(5)                                     .REPT
(5)                                     .LIST
(5)                                     ;;**************************************************************************
(5)                                     .NLIST
(5)                                     .ENDR
(5)                                     .LIST
(5)                001                  .ENDC
(4)  005662  000004                     TST12:  SCOPE
(4)
(4)          000013                     $TN=$TN+1
(3)                                     .IFF
(3)                                             $$NEWTEST       \$TN,<>,<>
(3)             000                     .ENDC
(3)             001                     .IF NE 4000&$SWR
(3)             002                     .IF NB
(3)             003                     .IF LE <-1>
(3)                                             MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                                     .IFF
(3)                                             MOV     #,$TIMES        ;;DO  ITERATIONS
(3)             002                     .ENDC
(3)             001                     .ENDC
(3)             002                     .IF NB
(3)                                             MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)             001                     .ENDC
(3)             000                     .ENDC
(3)             001                     .IF NB
(3)             002                     .IF DF $MAIL
(3)                                     .IRP    TNM,<\$TN-1>
(3)                                             MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                                     .ENDM
```

```
(3)              001                    .ENDC
(3)              000                    .ENDC
(2)           000000                    .REPT 0
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DN,<\$N>
(2)                                     NEWTST
(2)                                     ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SFT UP THIS ICOUNT
(2)                                     ;.IF NB <>
(2)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                     .IFF
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DE,<\$E>
(2)                                     .IF DF  TST'$DE
(2)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  005664                             TSETUP  MINT,SYNINT,EIGHT,ODDPAR,26
(2)  005664                             $RESET
(3)  005664  052777  000400  174034            BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  005672  012777  030000  174022            MOV     #SYNINT,@PARCSR ;SET THE MODE
(2)  005700                             $RESET
(3)  005700  052777  000400  174020            BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
(2)  005706  012777  004020  174012            MOV     #MINT!SEND,@TXCSR
(2)
(2)                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  005714  012777  037026  174000            MOV     #SYNINT!EIGHT!ODDPAR!26,@PARCSR
(1)  005722  016703  174000                    MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  005726  112777  000000  173776            MOVB    #0,@TXDBUF      ;LOAD DATA CHAR
(1)  005734  012767  000400  173536            MOV     #400,$TMP1      ;TO BE SHIFTED CHAR
```

```
(1)  005742  012767  000011  173152          MOV     #9.,SHIFT       ;# OF SHIFTS
(1)                                  ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  005750                          $POKE
(2)  005750  052777  020000  173750          BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  005756  042777  020000  173742          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  005764  005000                  1$:     CLR     R0
(1)  005766  006067  173506                  ROR     $TMP1   ;FORCE CARRY
(1)  005772  103002                          BCC     2$      ;BR IF CARRY CLR
(1)  005774  052700  002000                  BIS     #BITW,R0        ;EQUIV OF BITW
(1)  006000                          2$:
(2)  006000  052777  020000  173720          BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  006006  042777  020000  173712          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  006014  017701  173706                  MOV     @TXCSR,R1       ;ACTUAL
(1)  006020  042701  075777                  BIC     #075777,R1      ;SAVE BITW & DNA
(1)  006024  020001                          CMP     R0,R1   ;COMPARE EXP VS ACT
(1)  006026  001401                          BEQ     .+4
(1)  006030  104003                          ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
(1)                                                  ;BIT,...ALSO CHECK DNA
(1)  006032  005367  173064                  DEC     SHIFT   ;# OF SHIFTS
(1)  006036  001352                          BNE     1$      ;DO IT AGAIN ?
(1)                                  ;NOW POKE CLK TO SEE DNA
(1)  006040  052777  020000  173660          BIS     #CLK,@TXCSR     ;POKE CLK
(1)             001                  .IF     IDN     <ISYMOD>,<SYNINT>
(1)                                  .IFT
(1)                                          MOV     #0,R0   ;EXPECTED
(1)                                  .IFF
(1)  006046  012700  100000                  MOV     #100000,R0      ;EXPECTED
(1)             000                  .ENDC
(1)  006052  017701  173650                  MOV     @TXCSR,R1       ;ACTUAL
(1)  006056  042701  077777                  BIC     #77777,R1       ;SAVE DNA ONLY
(1)  006062  020001                          CMP     R0,R1           ;COMPARE EXP VS ACT
(1)  006064  001401                          BEQ     .+4
(1)  006066  104003                          ERROR   3       ;DNA SHOULD BE SET
(1)                                                  ;IF DNA DID NOT SET
(1)                                                  ;CHECK WORD LENGTH SELECT LOGIC
(1)
8161 006070                          $TRPAR  EIGHT,9.,EVEPAR,SYNINT,377,377
(1)                                          ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
(1)                                          ;;OF THE TRANSMITTER SECTION.
(1)                                          ;;IT ALSO CHECKS DNA TIMING
(1)                                          ;;MODE:SYNINT
(1)                                          ;;LENGTH:EIGHT PLUS PARITY
(1)                                          ;;PARITY:EVEPAR
(1)                                          ;;CHARACTER:377
(1)                                          ;;
(1)  006070                          $TSTNO
(2)  006070                          NEWTST
(3)             000000               $NWTST=0
(3)                001               .IF B <>
(3)  006070                                  $$NEWTEST       \$TN,<>,SCOPE
(4)                                  .IRP    ASCI,<>
(4)                                  .IF EQ $NWTST
(4)                                  .NLIST
(4)                                  $NWTST=1
(4)                                  .SBTTL  T13     ASCI
(4)                                  .LIST
```

```
(4)                             STARS
(4)                             ;*TEST 13       ASCI
(4)                             .IFF
(4)                                     ASCI
(4)                             .ENDC
(4)                             .ENDM
(4)  006070                     STARS
(5)            002              .IF B
(5)                             ;;**********************************************************************
(5)                             .IFF
(5)                             .NLIST
(5)                             .REPT
(5)                             .LIST
(5)                             ;;**********************************************************************
(5)                             .NLIST
(5)                             .ENDR
(5)                             .LIST
(5)            001              .ENDC
(4)  006070  000004             TST13:  SCOPE
(4)
(4)          000014             $TN=$TN+1
(3)                             .IFF
(3)                                     $$NEWTEST       \$TN,<>,<>
(3)            000              .ENDC
(3)            001              .IF NE 4000&$SWR
(3)            002              .IF NB
(3)            003              .IF LE <-1>
(3)                                     MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                             .IFF
(3)                                     MOV     #,$TIMES        ;;DO  ITERATIONS
(3)          002                .ENDC
(3)          001                .ENDC
(3)          002                .IF NB
(3)                                     MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)          001                .ENDC
(3)          000                .ENDC
(3)          001                .IF NB
(3)          002                .IF DF $MAIL
(3)                             .IRP    TNM,<\$TN-1>
(3)                                     MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                             .ENDM
(3)            001              .ENDC
(3)            000              .ENDC
(2)        000000               .REPT 0
(2)                             .NLIST
(2)                             .RADIX  10
(2)                             .LIST
(2)                             .IRP    $DN,<\$N>
(2)                             NEWTST
(2)                             ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                             .ENDM
(2)                             .NLIST
(2)                             .RADIX  8
(2)                             .LIST
(2)                             ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                             ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
```

1 INITIALIZE THE COMMON TAGS SEQ 0074

```
(2)                                     ;.IF NB <>
(2)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                     .IFF
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     .LIST
(2)                                     .IRP    $DE,<\$E>
(2)                                     .IF DF  TST'$DE
(2)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDM
(2)                                     .NLIST
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .IFF
(2)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  006072                             TSETUP  MINT,SYNINT,EIGHT,EVEPAR,26
(2)  006072                             $RESET
(3)  006072  052777  000400  173626             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  006100  012777  030000  173614             MOV     #SYNINT,@PARCSR ;SET THE MODE
(2)  006106                             $RESET
(3)  006106  052777  000400  173612             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
(2)  006114  012777  004020  173604             MOV     #MINT!SEND,@TXCSR
(2)
(2)                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  006122  012777  037426  173572             MOV     #SYNINT!EIGHT!EVEPAR!26,@PARCSR
(1)  006130  016703  173572                     MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  006134  112777  000377  173570             MOVB    #377,@TXDBUF    ;LOAD DATA CHAR
(1)  006142  012767  000377  173330             MOV     #377,$TMP1      ;TO BE SHIFTED CHAR
(1)  006150  012767  000011  172744             MOV     #9.,$SHIFT      ;# OF SHIFTS
(1)                                     ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  006156                             $POKE
(2)  006156  052777  020000  173542             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  006164  042777  020000  173534             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  006172  005000                     1$:     CLR     R0
(1)  006174  006067  173300                     ROR     $TMP1   ;FORCE CARRY
(1)  006200  103002                             BCC     2$      ;BR IF CARRY CLR
(1)  006202  052700  002000                     BIS     #BITW,R0        ;EQUIV OF BITW
(1)  006206                             2$:
(2)  006206  052777  020000  173512             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  006214  042777  020000  173504             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  006222  017701  173500                     MOV     @TXCSR,R1       ;ACTUAL
(1)  006226  042701  075777                     BIC     #075777,R1      ;SAVE BITW & DNA
(1)  006232  020001                             CMP     R0,R1   ;COMPARE EXP VS ACT
```

```
(1)  006234  001401                          BEQ     .+4
(1)  006236  104003                          ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
(1)                                                         ;BIT,...ALSO CHECK DNA
(1)  006240  005367  172656                  DEC     SHIFT   ;# OF SHIFTS
(1)  006244  001352                          BNE     1$      ;DO IT AGAIN ?
(1)                                  ;NOW POKE CLK TO SEE DNA
(1)  006246  052777  020000  173452          BIS     #CLK,@TXCSR     ;POKE CLK
(1)             001                  .IF     IDN     <ISYMOD>,<SYNINT>
(1)                                  .IFT
(1)                                          MOV     #0,R0   ;EXPECTED
(1)                                  .IFF
(1)  006254  012700  100000                  MOV     #100000,R0      ;EXPECTED
(1)             000                  .ENDC
(1)  006260  017701  173442                  MOV     @TXCSR,R1       ;ACTUAL
(1)  006264  042701  077777                  BIC     #77777,R1       ;SAVE DNA ONLY
(1)  006270  020001                          CMP     R0,R1           ;COMPARE EXP VS ACT
(1)  006272  001401                          BEQ     .+4
(1)  006274  104003                          ERROR   3       ;DNA SHOULD BE SET
(1)                                                         ;IF DNA DID NOT SET
(1)                                                         ;CHECK WORD LENGTH SELECT LOGIC
(1)
8162  006276                           $TRPAR  EIGHT,9.,ODDPAR,SYNINT,377,777
(1)                                          ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
(1)                                          ;;OF THE TRANSMITTER SECTION.
(1)                                          ;;IT ALSO CHECKS DNA TIMING
(1)                                          ;;MODE:SYNINT
(1)                                          ;;LENGTH:EIGHT PLUS PARITY
(1)                                          ;;PARITY:ODDPAR
(1)                                          ;;CHARACTER:377
(1)                                          ;;
(1)  006276                          $TSTNO
(2)  006276                          NEWTST
(3)             000000               $NWTST=0
(3)                001               .IF B <>
(3)  006276                                  $$NEWTEST       \$TN,<>,SCOPE
(4)                                  .IRP    ASCI,<>
(4)                                  .IF EQ $NWTST
(4)                                  .NLIST
(4)                                  $NWTST=1
(4)                                  .SBTTL  T14     ASCI
(4)                                  .LIST
(4)                                  STARS
(4)                                  ;*TEST 14       ASCI
(4)                                  .IFF
(4)                                          ASCI
(4)                                  .ENDC
(4)                                  .ENDM
(4)  006276                          STARS
(5)                002               .IF B
(5)                                  ;;**************************************************************
(5)                                  .IFF
(5)                                  .NLIST
(5)                                  .REPT
(5)                                  .LIST
(5)                                  ;;**************************************************************
(5)                                  .NLIST
```

```
(5)                                 .ENDR
(5)                                 .LIST
(5)                   001           .ENDC
(4)   006276  000004                TST14:  SCOPE
(4)
(4)           000015                $TN=$TN+1
(3)                                 .IFF
(3)                                       $$NEWTEST       \$TN,<>,<>
(3)                   000           .ENDC
(3)                   001           .IF NE 4000&$SWR
(3)                   002           .IF NB
(3)                   003           .IF LE <-1>
(3)                                       MOV     #1,$TIMES       ;;DO 1 ITERATION
(3)                                 .IFF
(3)                                       MOV     #,$TIMES        ;;DO  ITERATIONS
(3)                   002           .ENDC
(3)                   001           .ENDC
(3)                   002           .IF NB
(3)                                       MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(3)                   001           .ENDC
(3)                   000           .ENDC
(3)                   001           .IF NB
(3)                   002           .IF DF $MAIL
(3)                                 .IRP    TNM,<\$TN-1>
(3)                                       MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(3)                                 .ENDM
(3)                   001           .ENDC
(3)                   000           .ENDC
(2)           000000                .REPT 0
(2)                                 .NLIST
(2)                                 .RADIX  10
(2)                                 .LIST
(2)                                 .IRP    $DN,<\$N>
(2)                                 NEWTST
(2)                                 ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(2)                                 .ENDM
(2)                                 .NLIST
(2)                                 .RADIX  8
(2)                                 .LIST
(2)                                 ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(2)                                 ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(2)                                 ;.IF NB <>
(2)                                 ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(2)                                 .IFF
(2)                                 .NLIST
(2)                                 .RADIX  10
(2)                                 .LIST
(2)                                 .IRP    $DE,<\$E>
(2)                                 .IF DF  TST'$DE
(2)                                 ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(2)                                 .ENDM
(2)                                 .NLIST
(2)                                 .RADIX  8
(2)                                 .LIST
(2)                                 .IFF
(2)                                 ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
```

```
(2)                                     .ENDC
(2)                                     .ENDC
(2)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(2)                                     .NLIST
(2)                                     .RADIX  10
(2)                                     $N=$N+1
(2)                                     $E=$E+1
(2)                                     .RADIX  8
(2)                                     .LIST
(2)                                     .ENDR
(1)  006300                             TSETUP  MINT,SYNINT,EIGHT,ODDPAR,26
(2)  006300                             $RESET
(3)  006300  052777  000400  173420             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)  006306  012777  030000  173406             MOV     #SYNINT,@PARCSR ;SET THE MODE
(2)  006314                             $RESET
(3)  006314  052777  000400  173404             BIS     #MRESET,@TXCSR  ;MASTER RESET
(2)
(2)                                     ;SET MAINTENANCE MODE & SEND
(2)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
(2)  006322  012777  004020  173376             MOV     #MINT!SEND,@TXCSR
(2)
(2)                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
(2)  006330  012777  037026  173364             MOV     #SYNINT!EIGHT!ODDPAR!26,@PARCSR
(1)  006336  016703  173364                     MOV     TXCSR,R3        ;SET UP FOR ERROR MSG
(1)  006342  112777  000377  173362             MOVB    #377,@TXDBUF    ;LOAD DATA CHAR
(1)  006350  012767  000777  173122             MOV     #777,$TMP1      ;TO BE SHIFTED CHAR
(1)  006356  012767  000011  172536             MOV     #9.,SHIFT       ;# OF SHIFTS
(1)                                     ;POKE CLK TO GET INTO SYNCRONIZATION
(1)  006364                             $POKE
(2)  006364  052777  020000  173334             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  006372  042777  020000  173326             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  006400  005000                     1$:     CLR     R0
(1)  006402  006067  173072                     ROR     $TMP1   ;FORCE CARRY
(1)  006406  103002                             BCC     2$      ;BR IF CARRY CLR
(1)  006410  052700  002000                     BIS     #BITW,R0        ;EQUIV OF BITW
(1)  006414                             2$:
(2)  006414  052777  020000  173304             BIS     #CLK,@TXCSR     ;POKE CLK UP
(2)  006422  042777  020000  173276             BIC     #CLK,@TXCSR     ;POKE CLK DOWN
(1)  006430  017701  173272                     MOV     @TXCSR,R1       ;ACTUAL
(1)  006434  042701  075777                     BIC     #075777,R1      ;SAVE BITW & DNA
(1)  006440  020001                             CMP     R0,R1   ;COMPARE EXP VS ACT
(1)  006442  001401                             BEQ     .+4
(1)  006444  104003                             ERROR   3       ;BIT WINDOW DID NOT MATCH ACTUAL DATA
(1)                                             ;BIT,...ALSO CHECK DNA
(1)  006446  005367  172450                     DEC     SHIFT   ;# OF SHIFTS
(1)  006452  001352                             BNE     1$      ;DO IT AGAIN ?
(1)                                     ;NOW POKE CLK TO SEE DNA
(1)  006454  052777  020000  173244             BIS     #CLK,@TXCSR     ;POKE CLK
(1)             001                     .IF     IDN     <ISYMOD>,<SYNINT>
(1)                                     .IFT
(1)                                             MOV     #0,R0   ;EXPECTED
(1)                                     .IFF
(1)  006462  012700  100000                     MOV     #100000,R0      ;EXPECTED
(1)             000                     .ENDC
(1)  006466  017701  173234                     MOV     @TXCSR,R1       ;ACTUAL
(1)  006472  042701  077777                     BIC     #77777,R1       ;SAVE DNA ONLY
```

```
(1)  006476  020001                    CMP     R0,R1           ;COMPARE EXP VS ACT
(1)  006500  001401                    BEQ     .+4
(1)  006502  104003                    ERROR   3       ;DNA SHOULD BE SET
(1)                                                    ;IF DNA DID NOT SET
(1)                                                    ;CHECK WORD LENGTH SELECT LOGIC
(1)
8163
8164
8165                                 ;;THIS TEST VERIFYS THAT BY SENDING ONLY ONE SYNC
8166                                 ;;CHARACTER (TWO SELECTED BY STRAPPING ) RECACT =0
8167                                 ;;THEN SEND ONE ORDINARY CHARACTER (TO BREAK UP THE SEQUENCE)
8168                                 ;;RECACT =0.............IT WILL TAKE TWO MORE SYNC CHARS
8169                                 ;;BEFORE RECACT =1
8170                                 ;;NOTE: THIS TEST WILL ONLY WORK WHEN TWO SYNC CHARS
8171                                 ;;HAS BEEN BEEN SELECTED ...OTHERWISE JUMP AROUND THIS TEST
8172                                 ;;MODE:SYNC INTERNAL (SYNINT)
8173                                 ;;PARITY: NOPAR
8174                                 ;;LENGTH: EIGHT
8175                                 ;;
8176                                 ;;THIS TEST CHECKS ONLY THE RECEIVER SECTION
8177                                 ;;
8178  006504                         $TSTNO
 (1)  006504                         NEWTST
 (2)          000000                 $NWTST=0
 (2)             001                 .IF B <>
 (2)  006504                                 $$NEWTEST       \$TN,<>,SCOPE
 (3)                                 .IRP    ASCI,<>
 (3)                                 .IF EQ $NWTST
 (3)                                 .NLIST
 (3)                                 $NWTST=1
 (3)                                 .SBTTL  T15     ASCI
 (3)                                 .LIST
 (3)                                 STARS
 (3)                                 :*TEST 15       ASCI
 (3)                                 .IFF
 (3)                                         ASCI
 (3)                                 .ENDC
 (3)                                 .ENDM
 (3)  006504                         STARS
 (4)             002                 .IF B
 (4)                                 ;;**************************************************************
 (4)                                 .IFF
 (4)                                 .NLIST
 (4)                                 .REPT
 (4)                                 .LIST
 (4)                                 ;;**************************************************************
 (4)                                 .NLIST
 (4)                                 .ENDR
 (4)                                 .LIST
 (4)             001                 .ENDC
 (3)  006504  000004                 TST15:  SCOPE
 (3)
 (3)          000016                 $TN=$TN+1
 (2)                                 .IFF
 (2)                                         $$NEWTEST       \$TN,<>,<>
 (2)              000                .ENDC
```

```
(2)          001                    .IF NE 4000&$SWR
(2)          002                    .IF NB
(2)          003                    .IF LE <-1>
(2)                                         MOV     #1,$TIMES       ;;DO 1 ITERATION
(2)                                 .IFF
(2)                                         MOV     #,$TIMES        ;;DO  ITERATIONS
(2)          002                    .ENDC
(2)          001                    .ENDC
(2)          002                    .IF NB
(2)                                         MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(2)          001                    .ENDC
(2)          000                    .ENDC
(2)          001                    .IF NB
(2)          002                    .IF DF $MAIL
(2)                                 .IRP    TNM,<\$TN-1>
(2)                                         MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                                 .ENDM
(2)          001                    .ENDC
(2)          000                    .ENDC
(1)       000000                    .REPT 0
(1)                                 .NLIST
(1)                                 .RADIX  10
(1)                                 .LIST
(1)                                 .IRP    $DN,<\$N>
(1)                                 NEWTST
(1)                                 ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                                 .ENDM
(1)                                 .NLIST
(1)                                 .RADIX  8
(1)                                 .LIST
(1)                                 ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(1)                                 ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(1)                                 ;.IF NB <>
(1)                                 ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(1)                                 .IFF
(1)                                 .NLIST
(1)                                 .RADIX  10
(1)                                 .LIST
(1)                                 .IRP    $DE,<\$E>
(1)                                 .IF DF  TST'$DE
(1)                                 ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(1)                                 .ENDM
(1)                                 .NLIST
(1)                                 .RADIX  8
(1)                                 .LIST
(1)                                 .IFF
(1)                                 ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(1)                                 .ENDC
(1)                                 .ENDC
(1)                                 ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(1)                                 .NLIST
(1)                                 .RADIX  10
(1)                                 $N=$N+1
(1)                                 $E=$E+1
(1)                                 .RADIX  8
(1)                                 .LIST
```

SEQ 0080

```
  (1)                                   .ENDR
8179  006506  105767  172434                    TSTB    SYNCNO  ;TEST FOR  # OF SYNC CHARS REQUIRED
8180  006512  100127                            BPL     2$      ;IF NOT TWO  GET OUT OF TEST
8181  006514                              RSETUP  MINT,SYNINT,EIGHT,NOPAR,26
  (1) 006514                              $RESET
  (2) 006514  052777  000400  173204            BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1) 006522  012777  030000  173172            MOV     #SYNINT,@PARCSR ;SET THE MODE
  (1) 006530                              $RESET
  (2) 006530  052777  000400  173170            BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1)
  (1)                                   ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (1) 006536  012777  064001  173162            MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (1)
  (1)                                   ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (1) 006544  012777  036026  173150            MOV     #SYNINT!EIGHT!NOPAR!26,@PARCSR
8182  006552                              $SYNCR
  (1) 006552  052777  000020  173132            BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
  (1)                                           ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
  (1) 006560  042777  020000  173140            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (1) 006566  052777  020000  173132            BIS     #CLK,@TXCSR     ;POKE CLK UP
8183  006574                              $POKER
  (1)                                   ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (1) 006574  042777  020000  173124            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (1) 006602  052777  020000  173116            BIS     #CLK,@TXCSR     ;POKE CLK UP
8184  006610  012767  000010  172304            MOV     #8.,SHIFT       ;# OF SHIFTS
8185  006616  012767  000026  172654            MOV     #26,$TMP1       ;SYNC CHAR TO BE SHIFTED IN
8186  006624  004767  010342                    JSR     PC,RPOKE        ;SHIFT IN THIS SYNC CHAR
8187  006630  032777  004000  173054            BIT     #RECACT,@RXCSR  ;RECACT = 0 ?
8188  006636  001401                            BEQ     .+4
8189  006640  104004                            ERROR   4       ;RECACT SHOULD BE 0
8190  006642  012767  000010  172252            MOV     #8.,SHIFT       ;# OF SHIFTS
8191  006650  012767  000025  172622            MOV     #25,$TMP1       ;ANY CHARACTER
8192  006656  004767  010310                    JSR     PC,RPOKE        ;SHIFT IN THIS CHARACTER
8193                                  ;YOU HAVE JUST LOST SYNCRONIZATION.....................
8194                                  ;POKE THE CLK TWICE TO GET INTO SYNCRONIZATION
8195  006662                          $POKER
  (1)                                   ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (1) 006662  042777  020000  173036            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (1) 006670  052777  020000  173030            BIS     #CLK,@TXCSR     ;POKE CLK UP
8196  006676                          $POKER
  (1)                                   ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (1) 006676  042777  020000  173022            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (1) 006704  052777  020000  173014            BIS     #CLK,@TXCSR     ;POKE CLK UP
8197  006712  012767  000002  172204            MOV     #2,COUNT        ;# OF SYNC CHARS
8198  006720  032777  004000  172764  1$:       BIT     #RECACT,@RXCSR  ;RECACT = 0 ?
8199  006726  001401                            BEQ     .+4
8200  006730  104004                            ERROR   4               ;RECACT SHOULD BE  0
8201  006732  012767  000010  172162            MOV     #8.,SHIFT       ;# OF SHIFTS
8202  006740  012767  000026  172532            MOV     #26,$TMP1       ;SYNC CHAR
8203  006746  004767  010220                    JSR     PC,RPOKE        ;SHIFT IN THIS SYNC CHAR
8204  006752  005367  172146                    DEC     COUNT
8205  006756  001360                            BNE     1$      ;IS COUNT = 0 ? NO GO AGAIN
8206  006760  032777  004000  172724            BIT     #RECACT,@RXCSR  ;RECACT = 1 ?
8207  006766  001001                            BNE     .+4
8208  006770  104004                            ERROR   4       ;RECACT SHOULD BE ASSERTED
8209  006772                          2$:
```

```
                                ;;THIS TEST VERIFYS MODE SELECT.....
                                ;;SYNC EXTERNAL VS. SYNC INTERNAL
                                ;;
                                ;BASICALLY THE TEST CHECKS THAT THE RECEIVED
                                ;DATA FREEZES  IN SYNC INTERNAL
                                ;IN SYNC EXTERNAL THIS DATA IS TRANSPARENT
                                ;THIS TEST ONLY APPLIES TO THE RECEIVER SECTION
                                ;;LENGTH: EIGHT
                                ;NOTE:SEARCH SYNC IS NOT SET
 8219  006772                   $TSTNO
  (1)  006772                   NEWTST
  (2)           000000          $NWTST=0
  (2)              001          .IF B <>
  (2)  006772                           $$NEWTEST       \$TN,<>,SCOPE
  (3)                           .IRP    ASCI,<>
  (3)                           .IF EQ $NWTST
  (3)                           .NLIST
  (3)                           $NWTST=1
  (3)                           .SBTTL  T16     ASCI
  (3)                           .LIST
  (3)                           STARS
  (3)                           ;*TEST 16       ASCI
  (3)                           .IFF
  (3)                                   ASCI
  (3)                           .ENDC
  (3)                           .ENDM
  (3)  006772                   STARS
  (4)              002          .IF B
  (4)                           ;;**************************************************************************
  (4)                           .IFF
  (4)                           .NLIST
  (4)                           .REPT
  (4)                           .LIST
  (4)                           ;;**************************************************************************
  (4)                           .NLIST
  (4)                           .ENDR
  (4)                           .LIST
  (4)              001          .ENDC
  (3)  006772  000004           TST16:  SCOPE
  (3)
  (3)           000017          $TN=$TN+1
  (2)                           .IFF
  (2)                                   $$NEWTEST       \$TN,<>,<>
  (2)              000          .ENDC
  (2)              001          .IF NE 4000&$SWR
  (2)              002          .IF NB
  (2)              003          .IF LE <-1>
  (2)                                   MOV     #1,$TIMES       ;;DO 1 ITERATION
  (2)                           .IFF
  (2)                                   MOV     #,$TIMES        ;;DO  ITERATIONS
  (2)              002          .ENDC
  (2)              001          .ENDC
  (2)              002          .IF NB
  (2)                                   MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
  (2)              001          .ENDC
  (2)              000          .ENDC
```

```
(2)              001                    .IF NB
(2)              002                    .IF DF $MAIL
(2)                                     .IRP    TNM,<\$TN-1>
(2)                                             MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                                     .ENDM
(2)              001                    .ENDC
(2)              000                    .ENDC
(1)           000000                    .REPT 0
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     .LIST
(1)                                     .IRP    $DN,<\$N>
(1)                                     NEWTST
(1)                                     ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                                     .ENDM
(1)                                     .NLIST
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(1)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(1)                                     ;.IF NB <>
(1)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(1)                                     .IFF
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     .LIST
(1)                                     .IRP    $DE,<\$E>
(1)                                     .IF DF  TST'$DE
(1)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(1)                                     .ENDM
(1)                                     .NLIST
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     .IFF
(1)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(1)                                     .ENDC
(1)                                     .ENDC
(1)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     $N=$N+1
(1)                                     $E=$E+1
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     .ENDR
8220  006774                            RSETUP  MINT,SYNINT,EIGHT,NOPAR,26
 (1)  006774                            $RESET
 (2)  006774  052777  000400  172724            BIS     #MRESET,@TXCSR  ;MASTER RESET
 (1)  007002  012777  030000  172712            MOV     #SYNINT,@PARCSR ;SET THE MODE
 (1)  007010                            $RESET
 (2)  007010  052777  000400  172710            BIS     #MRESET,@TXCSR  ;MASTER RESET
 (1)
 (1)                                    ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 (1)  007016  012777  064001  172702            MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 (1)
 (1)                                    ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
```

```
  (1)  007024  012777  036026  172670          MOV     #SYNINT!EIGHT!NOPAR!26,@PARCSR
8221   007032                                 $POKER
  (1)                                         ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (1)  007032  042777  020000  172666          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (1)  007040  052777  020000  172660          BIS     #CLK,@TXCSR     ;POKE CLK UP
8222   007046                                 $POKER
  (1)                                         ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (1)  007046  042777  020000  172652          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (1)  007054  052777  020000  172644          BIS     #CLK,@TXCSR     ;POKE CLK UP
8223   007062  012767  000010  172032          MOV     #8.,SHIFT       ;# OF SHIFTS
8224   007070  012767  000125  172402          MOV     #125,$TMP1      ;DATA CHARACTER
8225   007076  016703  172614                  MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
8226   007102  042777  040000  172616  1$:     BIC     #MTDATA,@TXCSR  ;CLEAR MAINT DATA
8227   007110  000241                          CLC
8228   007112  006067  172362                  ROR     $TMP1   ;FORCE CARRY
8229   007116  103003                          BCC     2$
8230   007120  052777  040000  172600          BIS     #MTDATA,@TXCSR  ;SET MTDATA
8231   007126  042777  020000  172572  2$:     BIC     #CLK,@TXCSR     ;POKE CLK
8232   007134  052777  020000  172564          BIS     #CLK,@TXCSR     ;
8233   007142  012700  000377                  MOV     #377,R0 ;EXPECTED
8234   007146  017701  172544                  MOV     @RXDBUF,R1      ;ACTUAL
8235   007152  020001                          CMP     R0,R1
8236   007154  001401                          BEQ     .+4
8237   007156  104002                          ERROR   2
8238                                           ;DATA CHARACTER SHOULD COMPARE.....
8239   007160  005367  171736                  DEC     SHIFT   ;IS IT THE LAST SHIFT ?
8240   007164  001346                          BNE     1$      ;NO ...SHIFT SOME MORE
8241   007166                                 RSETUP  MINT,SYNEXT,EIGHT,NOPAR,26
  (1)  007166                                 $RESET
  (2)  007166  052777  000400  172532          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1)  007174  012777  020000  172520          MOV     #SYNEXT,@PARCSR ;SET THE MODE
  (1)  007202                                 $RESET
  (2)  007202  052777  000400  172516          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1)
  (1)                                         ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
  (1)  007210  012777  064001  172510          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
  (1)
  (1)                                         ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
  (1)  007216  012777  026026  172476          MOV     #SYNEXT!EIGHT!NOPAR!26,@PARCSR
8242   007224                                 $POKER
  (1)                                         ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
  (1)  007224  042777  020000  172474          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (1)  007232  052777  020000  172466          BIS     #CLK,@TXCSR     ;POKE CLK UP
8243   007240  012767  000010  171654          MOV     #8.,SHIFT       ;# OF SHIFTS
8244   007246  012767  000125  172224          MOV     #125,$TMP1      ;DATA CHARACTER
8245   007254  005067  172222                  CLR     $TMP2
8246   007260  105167  172216                  COMB    $TMP2   ;MAKE LOW BYTE ALL 1'S
8247                                           ;TO MATCH RXDBUF'S CONTENTS AFTER A MASTER RESET
8248   007264  042777  040000  172434  5$:     BIC     #MTDATA,@TXCSR  ;CLR MAINT DATA
8249   007272  000241                          CLC
8250   007274  006067  172200                  ROR     $TMP1   ;FORCE CARRY
8251   007300  103003                          BCC     6$
8252   007302  052777  040000  172416          BIS     #MTDATA,@TXCSR
8253   007310  106067  172166          6$:     RORB    $TMP2   ;PICK UP CARRY BIT
8254   007314  042777  020000  172404          BIC     #CLK,@TXCSR
8255   007322  052777  020000  172376          BIS     #CLK,@TXCSR
```

```
 8256  007330  016700  172146                  MOV     $TMP2,R0        ;EXPECTED
 8257  007334  017701  172356                  MOV     @RXDBUF,R1      ;ACTUAL
 8258  007340  020001                          CMP     R0,R1
 8259  007342  001401                          BEQ     .+4
 8260  007344  104002                          ERROR   2       ;DATA CHARACTER SHOULD COMPARE...
 8261                                          ;THE DATA CHARACTER SHOULD BE SEEN AS IT
 8262                                          ;SHIFTS ACROSS THE RECEIVER DATA OUTPUT
 8263  007346  005367  171550                  DEC     SHIFT
 8264  007352  001344                          BNE     5$
 8265
 8266                                  ;;THIS TEST VERIFYS TX DONE FUNCTION, DONE = 1
 8267                                  ;;MODE:  SYNC INTERNAL
 8268                                  ;;PARITY:  NO PARITY (NOPAR)
 8269                                  ;;LENGTH:  EIGHT
 8270                                  ;;
 8271  007354                          $TSTNO
  (1)  007354                          NEWTST
  (2)           000000                 $NWTST=0
  (2)              001                 .IF B <>
  (2)  007354                                  $$NEWTEST       \$TN,<>,SCOPE
  (3)                                  .IRP    ASCI,<>
  (3)                                  .IF EQ $NWTST
  (3)                                  .NLIST
  (3)                                  $NWTST=1
  (3)                                  .SBTTL  T17     ASCI
  (3)                                  .LIST
  (3)                                  STARS
  (3)                                  ;*TEST 17       ASCI
  (3)                                  .IFF
  (3)                                          ASCI
  (3)                                  .ENDC
  (3)                                  .ENDM
  (3)  007354                          STARS
  (4)              002                 .IF B
  (4)                                  ;;**********************************************************************
  (4)                                  .IFF
  (4)                                  .NLIST
  (4)                                  .REPT
  (4)                                  .LIST
  (4)                                  ;;**********************************************************************
  (4)                                  .NLIST
  (4)                                  .ENDR
  (4)                                  .LIST
  (4)              001                 .ENDC
  (3)  007354  000004                  TST17:  SCOPE
  (3)
  (3)           000020                 $TN=$TN+1
  (2)                                  .IFF
  (2)                                          $$NEWTEST       \$TN,<>,<>
  (2)              000                 .ENDC
  (2)              001                 .IF NE 4000&$SWR
  (2)              002                 .IF NB
  (2)              003                 .IF LE <-1>
  (2)                                          MOV     #1,$TIMES       ;;DC 1 ITERATION
  (2)                                  .IFF
  (2)                                          MOV     #,$TIMES        ;;DO  ITERATIONS
```

```
(2)             002                     .ENDC
(2)             001                     .ENDC
(2)             002                     .IF NB
(2)                                             MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(2)             001                     .ENDC
(2)             000                     .ENDC
(2)             001                     .IF NB
(2)             002                     .IF DF $MAIL
(2)                                     .IRP    TNM,<\$TN-1>
(2)                                             MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                                     .ENDM
(2)             001                     .ENDC
(2)             000                     .ENDC
(1)          000000                     .REPT 0
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     .LIST
(1)                                     .IRP    $DN,<\$N>
(1)                                     NEWTST
(1)                                     ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                                     .ENDM
(1)                                     .NLIST
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(1)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(1)                                     ;.IF NB <>
(1)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(1)                                     .IFF
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     .LIST
(1)                                     .IRP    $DE,<\$E>
(1)                                     .IF DF  TST'$DE
(1)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(1)                                     .ENDM
(1)                                     .NLIST
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     .IFF
(1)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(1)                                     .ENDC
(1)                                     .ENDC
(1)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     $N=$N+1
(1)                                     $E=$E+1
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     .ENDR
8272
8273  007356                            TSETUP  MINT,SYNINT,EIGHT,NOPAR,26
 (1)  007356                            $RESET
 (2)  007356  052777  000400  172342            BIS     #MRESET,@TXCSR  ;MASTER RESET
 (1)  007364  012777  030000  172330            MOV     #SYNINT,@PARCSR ;SET THE MODE
```

```
  (1)  007372                          $RESET
  (2)  007372  052777  000400  172326          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1)
  (1)                                  ;SET MAINTENANCE MODE & SEND
  (1)                                        ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
  (1)  007400  012777  004020  172320        MOV     #MINT!SEND,@TXCSR
  (1)
  (1)                                  ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
  (1)  007406  012777  036026  172306        MOV     #SYNINT!EIGHT!NOPAR!26,@PARCSR
8274
8275  007414  105777  172306                TSTB    @TXCSR          ;TXDONE?
8276  007420  100401                        BMI     .+4
8277  007422  104004                        ERROR   4                       ;TXDONE SHOULD BE SET
8278  007424  112777  000021  172300        MOVB    #21,@TXDBUF     ;LOAD ANY CHAR
8279  007432                       $POKE    ;POKE   CLK TO GET INTO SYNCIRONIZATION
  (1)  007432  052777  020000  172266        BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  007440  042777  020000  172260        BIC     #CLK,@TXCSR     ;POKE CLK DOWN
8280  007446  105777  172254                TSTB    @TXCSR
8281  007452  100001                        BPL     .+4
8282  007454  104004                        ERROR   4                       ;TXDONE SHOULD BE CLR
8283
8284  007456                               $POKE
  (1)  007456  052777  020000  172242        BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  007464  042777  020000  172234        BIC     #CLK,@TXCSR     ;POKE CLK DOWN
8285  007472  105777  172230                TSTB    @TXCSR
8286  007476  100401                        BMI     .+4
8287  007500  104004                        ERROR   4                       ;TXDONE SHOULD BE SET
8288
8289
8290
8291                                       ;;THIS TEST PROVES THAT RXERR FREEZES THE "RECEIVER
8292                                       ;;RESET" WHILE IN STRIP SYNC MODE
8293                                       ;;THIS TEST FIRST PROVES THAT AUTOMATIC RESETS OCCUR
8294                                       ;;WHEN STRIP SYNC IS SET AND SYNC CHARACTERS ARE SENT
8295                                       ;;BUT IF AN ERROR SHOULD OCCUR...THIS AUTOMATIC RESET
8296                                       ;;IS DISCOMBOBULATED
8297                                       ;;IE:  FORCE OVERRUN (OVERRUN) WHILE STRIP SYNC IS SET
8298                                       ;;BY TRANSMITTING A DATA CHARACTER THEN TRANSMIT A SYNC CHARACTER
8299                                       ;;AND DON'T READ THAT DATA CHARACTER.  NOTE:  NORMALLY THE LOGIC
8300                                       ;;RESETS THE RXDONE & ERROR FLAGS PROVIDING THAT ONLY SYNC CHARACTERS ARE
8301                                       ;;STRIPPED
8302                                       ;;MODE:  SYNC EXTERNAL (SYNEXT)
8303                                       ;;LENGTH:  EIGHT
8304                                       ;;NOTE:  THIS TEST USES BOTH RECEIVER AND TRANSMITTER LOGIC
8305                                       ;;
8306
8307  007502                               $TSTNO
  (1)  007502                          NEWTST
  (2)          000000                  $NWTST=0
  (2)             001                  .IF B <>
  (2)  007502                                $$NEWTEST       \$TN,<>,SCOPE
  (3)                                  .IRP    ASCI,<>
  (3)                                  .IF EQ $NWTST
  (3)                                  .NLIST
  (3)                                  $NWTST=1
  (3)                                  .SBTTL  T20     ASCI
```

```
(3)                                 .LIST
(3)                                 STARS
(3)                                 ;*TEST 20       ASCI
(3)                                 .IFF
(3)                                       ASCI
(3)                                 .ENDC
(3)                                 .ENDM
(3)  007502                         STARS
(4)            002                  .IF B
(4)                                 ;;*****************************************************************
(4)                                 .IFF
(4)                                 .NLIST
(4)                                 .REPT
(4)                                 .LIST
(4)                                 ;;*****************************************************************
(4)                                 .NLIST
(4)                                 .ENDR
(4)                                 .LIST
(4)            001                  .ENDC
(3)  007502  000004                 TST20:  SCOPE
(3)
(3)          000021                 $TN=$TN+1
(2)                                 .IFF
(2)                                       $$NEWTEST       \$TN,<>,<>
(2)              000                .ENDC
(2)              001                .IF NE 4000&$SWR
(2)              002                .IF NB
(2)              003                .IF LE <-1>
(2)                                       MOV     #1,$TIMES       ;;DO 1 ITERATION
(2)                                 .IFF
(2)                                       MOV     #,$TIMES        ;;DO  ITERATIONS
(2)              002                .ENDC
(2)              001                .ENDC
(2)              002                .IF NB
(2)                                       MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(2)              001                .ENDC
(2)              000                .ENDC
(2)              001                .IF NB
(2)              002                .IF DF $MAIL
(2)                                 .IRP    TNM,<\$TN-1>
(2)                                       MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                                 .ENDM
(2)              001                .ENDC
(2)              000                .ENDC
(1)            000000               .REPT 0
(1)                                 .NLIST
(1)                                 .RADIX  10
(1)                                 .LIST
(1)                                 .IRP    $DN,<\$N>
(1)                                 NEWTST
(1)                                 ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                                 .ENDM
(1)                                 .NLIST
(1)                                 .RADIX  8
(1)                                 .LIST
(1)                                 ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
```

INITIALIZE THE COMMON TAGS SEQ 0088

```
    (1)                                 ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
    (1)                                 ;.IF NB <>
    (1)                                 ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
    (1)                                 .IFF
    (1)                                 .NLIST
    (1)                                 .RADIX  10
    (1)                                 .LIST
    (1)                                 .IRP    $DE,<\$E>
    (1)                                 .IF DF  TST'$DE
    (1)                                 ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
    (1)                                 .ENDM
    (1)                                 .NLIST
    (1)                                 .RADIX  8
    (1)                                 .LIST
    (1)                                 .IFF
    (1)                                 ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
    (1)                                 .ENDC
    (1)                                 .ENDC
    (1)                                 ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
    (1)                                 .NLIST
    (1)                                 .RADIX  10
    (1)                                 $N=$N+1
    (1)                                 $E=$E+1
    (1)                                 .RADIX  8
    (1)                                 .LIST
    (1)                                 .ENDR
8308
8309  007504                            TSETUP  MINT,SYNEXT,EIGHT,NOPAR,26
 (1)  007504                            $RESET
 (2)  007504  052777  000400  172214            BIS     #MRESET,@TXCSR  ;MASTER RESET
 (1)  007512  012777  020000  172202            MOV     #SYNEXT,@PARCSR ;SET THE MODE
 (1)  007520                            $RESET
 (2)  007520  052777  000400  172200            BIS     #MRESET,@TXCSR  ;MASTER RESET
 (1)
 (1)                                    ;SET MAINTENANCE MODE & SEND
 (1)                                            ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
 (1)  007526  012777  004020  172172            MOV     #MINT!SEND,@TXCSR
 (1)
 (1)                                    ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
 (1)  007534  012777  026026  172160            MOV     #SYNEXT!EIGHT!NOPAR!26,@PARCSR
8310  007542  112777  000026  172162            MOVB    #26,@TXDBUF     ;LOAD SYNC CHAR
8311  007550  052777  000420  172134            BIS     #SYNSCH!STPSYN,@RXCSR   ;SET SYNC SEARCH & STRIP SYNC
8312  007556  016703  172134                    MOV     RXDBUF,R3       ;SET UP FOR ERROR MESSAGE
8313  007562  012767  000003  171334            MOV     #3,COUNT        ;# OF TIMES SYNC WILL BE SENT
8314  007570                            $POKE
 (1)  007570  052777  020000  172130            BIS     #CLK,@TXCSR     ;POKE CLK UP
 (1)  007576  042777  020000  172122            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
8315  007604  012767  000010  171310  2$:       MOV     #8.,SHIFT       ;# OF SHIFTS
8316  007612                            1$:
 (1)  007612  052777  020000  172106            BIS     #CLK,@TXCSR     ;POKE CLK UP
 (1)  007620  042777  020000  172100            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
8317  007626  005367  171270                    DEC     SHIFT
8318  007632  001367                            BNE     1$
8319  007634  105777  172052                    TSTB    @RXCSR          ;RXDONE?
8320  007640  100001                            BPL     .+4
8321  007642  104004                            ERROR   4                       ;RXDONE SHOULD NOT ASSERT
```

```
 8322  007644  005367  171254                DEC     COUNT
 8323  007650  001355                        BNE     2$
 8324  007652  012700  000026                MOV     #26,R0          ;EXPECTED
 8325  007656  017701  172034                MOV     @RXDBUF,R1      ;ACTUAL
 8326  007662  020001                        CMP     R0,R1
 8327  007664  001401                        BEQ     .+4
 8328  007666  104002                        ERROR   2               ;NOTE THAT OVERRUN SHOULD NOT OCCUR, ALSO
 8329                                                                ;SECOND & 3RD SYNC CHARACTER CAME FROM
 8330                                                                ;SYNC HOLDING REGISTER
 8331  007670  012767  000003  171226        MOV     #3,COUNT        ;# OF TIMES
 8332  007676  112777  000025  172026        MOVB    #25,@TXDBUF     ;LOAD ANY CHAR....HOWEVER...
 8333                                        ;ONE MORE SYNC CHAR WILL BE SENT BEFORE
 8334                                        ;THE "25" CHAR IS SENT (THE DNA BIT IS
 8335                                        ;ALREADY UP)
 8336
 8337  007704  012767  000010  171210  4$:   MOV     #8.,SHIFT       ;# OF SHIFTS
 8338
 8339  007712                          3$:
  (1)  007712  052777  020000  172006        BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  007720  042777  020000  172000        BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 8340  007726  005367  171170                DEC     SHIFT
 8341  007732  001367                        BNE     3$
 8342  007734  005367  171164                DEC     COUNT
 8343  007740  001361                        BNE     4$
 8344  007742  105777  171744                TSTB    @RXCSR  ;RXDONE = 1 ?
 8345  007746  100401                        BMI     .+4
 8346  007750  104004                        ERROR   4       ;RXDONE SHOULD BE SET
 8347  007752  012700  140026                MOV     #RXERR!OVRRUN!26,R0 ;EXPECTED
 8348  007756  017701  171734                MOV     @RXDBUF,R1      ;ACTUAL
 8349  007762  020001                        CMP     R0,R1
 8350  007764  001401                        BEQ     .+4
 8351  007766  104002                        ERROR   2               ;NOTE THAT OVRRUN SHOULD OCCUR,
 8352                                                                ;ALSO SECOND SYNC CHARACTER CAME
 8353                                                                ;FROM SYNC HOLDING REGISTER
 8354                                                                ;SUMMARY:  THE OVRRUN STOPPED
 8355                                                                ;THE AUTOMATIC RESETTING OF
 8356                                                                ;RXDONE & ERROR FLAGS.....CHECK THIS
 8357
 8358                                ;;THIS TEST VERIFYS THAT EITHER SEQUENCE OF
 8359                                ;;LOADING TXDBUF AND SETTING SEND
 8360                                ;;DOES CAUSE TRANSMISSION
 8361                                ;;MODE:  SYNC EXT
 8362                                ;;LENGTH:  EIGHT
 8363                                ;;
 8364  007770                        $TSTNO
  (1)  007770                        NEWTST
  (2)          000000                $NWTST=0
  (2)             001                .IF B <>
  (2)  007770                                $$NEWTEST       \$TN,<>,SCOPE
  (3)                             .IRP    ASCI,<>
  (3)                             .IF EQ $NWTST
  (3)                             .NLIST
  (3)                             $NWTST=1
  (3)                             .SBTTL  T21     ASCI
  (3)                             .LIST
  (3)                             STARS
```

```
(3)                             ;*TEST 21       ASCI
(3)                             .IFF
(3)                                     ASCI
(3)                             .ENDC
(3)                             .ENDM
(3)  007770                     STARS
(4)            002              .IF B
(4)                             ;;**********************************************************************
(4)                             .IFF
(4)                             .NLIST
(4)                             .REPT
(4)                             .LIST
(4)                             ;;**********************************************************************
(4)                             .NLIST
(4)                             .ENDR
(4)                             .LIST
(4)              001            .ENDC
(3)  007770  000004             TST21:  SCOPE
(3)
(3)          000022             $TN=$TN+1
(2)                             .IFF
(2)                                     $$NEWTEST       \$TN,<>,<>
(2)              000            .ENDC
(2)              001            .IF NE 4000&$SWR
(2)              002            .IF NB
(2)              003            .IF LE <-1>
(2)                                     MOV     #1,$TIMES       ;;DO 1 ITERATION
(2)                             .IFF
(2)                                     MOV     #,$TIMES        ;;DO  ITERATIONS
(2)              002            .ENDC
(2)              001            .ENDC
(2)              002            .IF NB
(2)                                     MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(2)              001            .ENDC
(2)              000            .ENDC
(2)              001            .IF NB
(2)              002            .IF DF $MAIL
(2)                             .IRP    TNM,<\$TN-1>
(2)                                     MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                             .ENDM
(2)              001            .ENDC
(2)              000            .ENDC
(1)            000000           .REPT 0
(1)                             .NLIST
(1)                             .RADIX  10
(1)                             .LIST
(1)                             .IRP    $DN,<\$N>
(1)                             NEWTST
(1)                             ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                             .ENDM
(1)                             .NLIST
(1)                             .RADIX  8
(1)                             .LIST
(1)                             ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(1)                             ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(1)                             ;.IF NB <>
```

```
  (1)                                   ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
  (1)                                   .IFF
  (1)                                   .NLIST
  (1)                                   .RADIX  10
  (1)                                   .LIST
  (1)                                   .IRP    $DE,<\$E>
  (1)                                   .IF DF  TST'$DE
  (1)                                   ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
  (1)                                   .ENDM
  (1)                                   .NLIST
  (1)                                   .RADIX  8
  (1)                                   .LIST
  (1)                                   .IFF
  (1)                                   ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
  (1)                                   .ENDC
  (1)                                   .ENDC
  (1)                                   ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
  (1)                                   .NLIST
  (1)                                   .RADIX  10
  (1)                                   $N=$N+1
  (1)                                   $E=$E+1
  (1)                                   .RADIX  8
  (1)                                   .LIST
  (1)                                   .ENDR
8365
8366  007772                            TSETUP  MINT,SYNEXT,EIGHT,NOPAR,26
  (1) 007772                            $RESET
  (2) 007772  052777  000400  171726            BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1) 010000  012777  020000  171714            MOV     #SYNEXT,@PARCSR ;SET THE MODE
  (1) 010006                            $RESET
  (2) 010006  052777  000400  171712            BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1)
  (1)                                   ;SET MAINTENANCE MODE & SEND
  (1)                                           ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
  (1) 010014  012777  004020  171704            MOV     #MINT!SEND,@TXCSR
  (1)
  (1)                                   ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
  (1) 010022  012777  026026  171672            MOV     #SYNEXT!EIGHT!NOPAR!26,@PARCSR
8367  010030  016703  171672                    MOV     TXCSR,R3        ;SET UP FOR ERROR MESSAGE
8368  010034  042777  000020  171664          BIC     #SEND,@TXCSR    ;DROP SEND
8369  010042  012767  000025  171430          MOV     #25.,$TMP1
8370  010050  112777  000025  171654          MOVB    #25.,@TXDBUF    ;LOAD CHARACTER
8371  010056  052777  000020  171642          BIS     #SEND,@TXCSR    ;SET SEND
8372                                  ;GET INTO SYNCRONIZATION
8373  010064                          $POKE
  (1) 010064  052777  020000  171634            BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1) 010072  042777  020000  171626            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
8374  010100  012767  000010  171014          MOV     #8.,SHIFT       ;# OF SHIFTS
8375  010106  005000                  1$:     CLR     R0
8376  010110  006067  171364                  ROR     $TMP1
8377  010114  103002                          BCC     2$
8378  010116  052700  002000                  BIS     #BITW,R0        ;EQUIV OF BIT WINDOW
8379
8380  010122                          2$:
  (1) 010122  052777  020000  171576            BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1) 010130  042777  020000  171570            BIC     #CLK,@TXCSR     ;POKE CLK DOWN
```

```
 8381  010136  017701  171564                  MOV     @TXCSR,R1       ;ACTUAL
 8382  010142  042701  075777                  BIC     #075777,R1      ;SAVE BIT WINDOW & DNA
 8383  010146  020001                          CMP     R0,R1
 8384  010150  001401                          BEQ     .+4
 8385  010152  104003                          ERROR   3               ;BIT WINDOW DID NOT MATCH ACTUAL DATA BIT
 8386                                                                  ;ALSO CHECK DNA
 8387  010154  005367  170742                  DEC     SHIFT
 8388  010160  001352                          BNE     1$
 8389
 8390
 8391
 8392                                  ;THIS TEST VERIFYS THAT DROPPING OF SEND IN THE
 8393                                  ;;MIDDLE OF TRANSMITTING A CHARACTER DOES INDEED
 8394                                  ;;FINISH TRANSMITTING THAT CHARACTER
 8395                                  ;;MODE:  SYNC EXT
 8396                                  ;;LENGTH:  EIGHT
 8397                                  ;;
 8398
 8399  010162                          $TSTNO
   (1) 010162                          NEWTST
   (2)         000000                  $NWTST=0
   (2)           001                   .IF B <>
   (2) 010162                                  $$NEWTEST       \$TN,<>,SCOPE
   (3)                                 .IRP    ASCI,<>
   (3)                                 .IF EQ $NWTST
   (3)                                 .NLIST
   (3)                                 $NWTST=1
   (3)                                 .SBTTL  T22     ASCI
   (3)                                 .LIST
   (3)                                 STARS
   (3)                                 ;*TEST 22       ASCI
   (3)                                 .IFF
   (3)                                         ASCI
   (3)                                 .ENDC
   (3)                                 .ENDM
   (3) 010162                          STARS
   (4)             002                 .IF B
   (4)                                 ;;**********************************************************************
   (4)                                 .IFF
   (4)                                 .NLIST
   (4)                                 .REPT
   (4)                                 .LIST
   (4)                                 ;;**********************************************************************
   (4)                                 .NLIST
   (4)                                 .ENDR
   (4)                                 .LIST
   (4)             001                 .ENDC
   (3) 010162  000004                  TST22:  SCOPE
   (3)
   (3)         000023                  $TN=$TN+1
   (2)                                 .IFF
   (2)                                         $$NEWTEST       \$TN,<>,<>
   (2)             000                 .ENDC
   (2)             001                 .IF NE 4000&$SWR
   (2)             002                 .IF NB
   (2)             003                 .IF LE <-1>
```

```
(2)                                             MOV     #1,$TIMES       ;;DO 1 ITERATION
(2)                                     .IFF
(2)                                             MOV     #,$TIMES        ;;DO  ITERATIONS
(2)             002                     .ENDC
(2)             001                     .ENDC
(2)             002                     .IF NB
(2)                                             MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(2)             001                     .ENDC
(2)             000                     .ENDC
(2)             001                     .IF NB
(2)             002                     .IF DF $MAIL
(2)                                     .IRP    TNM,<\$TN-1>
(2)                                             MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                                     .ENDM
(2)             001                     .ENDC
(2)             000                     .ENDC
(1)          000000                     .REPT 0
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     .LIST
(1)                                     .IRP    $DN,<\$N>
(1)                                     NEWTST
(1)                                     ;               MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                                     .ENDM
(1)                                     .NLIST
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(1)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(1)                                     ;.IF NB <>
(1)                                     ;               MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(1)                                     .IFF
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     .LIST
(1)                                     .IRP    $DE,<\$E>
(1)                                     .IF DF  TST'$DE
(1)                                     ;               MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(1)                                     .ENDM
(1)                                     .NLIST
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     .IFF
(1)                                     ;               MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(1)                                     .ENDC
(1)                                     .ENDC
(1)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     $N=$N+1
(1)                                     $E=$E+1
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     .ENDR
8400
8401    010164                          TSETUP  MINT,SYNEXT,EIGHT,NOPAR,26
```

```
  (1)  010164                          $RESET
  (2)  010164  052777  000400  171534          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1)  010172  012777  020000  171522          MOV     #SYNEXT,@PARCSR ;SET THE MODE
  (1)  010200                          $RESET
  (2)  010200  052777  000400  171520          BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1)
  (1)                                  ;SET MAINTENANCE MODE & SEND
  (1)                                        ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
  (1)  010206  012777  004020  171512        MOV     #MINT!SEND,@TXCSR
  (1)
  (1)                                  ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
  (1)  010214  012777  026026  171500        MOV     #SYNEXT!EIGHT!NOPAR!26,@PARCSR
8402   010222  016703  171500                MOV     TXCSR,R3        ;SETUP FOR ERROR MESSAGE
8403   010226  112777  000252  171476        MOVB    #252,@TXDBUF    ;LOAD DATA CHAR.
8404   010234  012767  000252  171236        MOV     #252,$TMP1      ;SHIFTED CHAR
8405   010242  012767  000010  170652        MOV     #8.,SHIFT       ;# OF SHIFTS
8406                                        ;GET INTO SYNCRONIZATION
8407   010250                          $POKE
  (1)  010250  052777  020000  171450        BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  010256  042777  020000  171442        BIC     #CLK,@TXCSR     ;POKE CLK DOWN
8408
8409   010264  005000                  1$:     CLR     R0
8410   010266  006067  171206                ROR     $TMP1           ;FORCE CARRY
8411   010272  103002                        BCC     2$
8412   010274  052700  002000                BIS     #BITW,R0        ;EQUIV OF BIT WINDOW
8413
8414   010300                          2$:
  (1)  010300  052777  020000  171420        BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  010306  042777  020000  171412        BIC     #CLK,@TXCSR     ;POKE CLK DOWN
8415   010314  017701  171406                MOV     @TXCSR,R1       ;ACTUAL
8416   010320  042701  075777                BIC     #075777,R1      ;SAVE ONLY BIT WINDOW & DNA
8417   010324  020001                        CMP     R0,R1
8418   010326  001401                        BEQ     .+4
8419   010330  104003                        ERROR   3               ;BIT WINDOW DID NOT MATCH
8420                                                                  ;ACTUAL DATA BIT
8421   010332  005367  170564                DEC     SHIFT
8422   010336  022767  000003  170556        CMP     #3,SHIFT
8423   010344  001003                        BNE     3$
8424   010346  042777  000020  171352        BIC     #SEND,@TXCSR    ;DROP SEND
8425   010354  005767  170542          3$:   TST     SHIFT
8426   010360  001341                        BNE     1$              ;DO IT AGAIN?
8427
8428
8429
8430                                  ;;THIS TEST VERIFYS THAT RXDONE ASSERTS WHEN STRIP SYNC IS SET
8431                                  ;;MODE: SYNC INTERNAL
8432                                  ;;LENGTH: EIGHT
8433                                  ;;
8434   010362                         $TSTNO
  (1)  010362                         NEWTST
  (2)          000000                 $NWTST=0
  (2)             001                 .IF B <>
  (2)  010362                                 $$NEWTEST       \$TN,<>,SCOPE
  (3)                                 .IRP    ASCI,<>
  (3)                                 .IF EQ $NWTST
  (3)                                 .NLIST
```

```
(3)                                 $NWTST=1
(3)                                 .SBTTL  T23     ASCI
(3)                                 .LIST
(3)                                 STARS
(3)                                 ;*TEST 23       ASCI
(3)                                 .IFF
(3)                                         ASCI
(3)                                 .ENDC
(3)                                 .ENDM
(3)  010362                         STARS
(4)            002                  .IF B
(4)                                 ;;*****************************************************************
(4)                                 .IFF
(4)                                 .NLIST
(4)                                 .REPT
(4)                                 .LIST
(4)                                 ;;*****************************************************************
(4)                                 .NLIST
(4)                                 .ENDR
(4)                                 .LIST
(4)            001                  .ENDC
(3)  010362  000004                 TST23:  SCOPE
(3)
(3)          000024                 $TN=$TN+1
(2)                                 .IFF
(2)                                         $$NEWTEST       \$TN,<>,<>
(2)            000                  .ENDC
(2)            001                  .IF NE 4000&$SWR
(2)            002                  .IF NB
(2)            003                  .IF LE <-1>
(2)                                         MOV     #1,$TIMES       ;;DO 1 ITERATION
(2)                                 .IFF
(2)                                         MOV     #,$TIMES        ;;DO  ITERATIONS
(2)            002                  .ENDC
(2)            001                  .ENDC
(2)            002                  .IF NB
(2)                                         MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(2)            001                  .ENDC
(2)            000                  .ENDC
(2)            001                  .IF NB
(2)            002                  .IF DF $MAIL
(2)                                 .IRP    TNM,<\$TN-1>
(2)                                         MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                                 .ENDM
(2)            001                  .ENDC
(2)            000                  .ENDC
(1)          000000                 .REPT 0
(1)                                 .NLIST
(1)                                 .RADIX  10
(1)                                 .LIST
(1)                                 .IRP    $DN,<\$N>
(1)                                 NEWTST
(1)                                 ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                                 .ENDM
(1)                                 .NLIST
(1)                                 .RADIX  8
```

```
(1)                                     .LIST
(1)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(1)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(1)                                     ;.IF NB <>
(1)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(1)                                     .IFF
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     .LIST
(1)                                     .IRP    $DE,<\$E>
(1)                                     .IF DF  TST'$DE
(1)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
(1)                                     .ENDM
(1)                                     .NLIST
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     .IFF
(1)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
(1)                                     .ENDC
(1)                                     .ENDC
(1)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
(1)                                     .NLIST
(1)                                     .RADIX  10
(1)                                     $N=$N+1
(1)                                     $E=$E+1
(1)                                     .RADIX  8
(1)                                     .LIST
(1)                                     .ENDR
8435  010364                           RSETUP  MINT,SYNINT,EIGHT,NOPAR,26
 (1)  010364                           $RESET
 (2)  010364  052777  000400  171334           BIS     #MRESET,@TXCSR  ;MASTER RESET
 (1)  010372  012777  030000  171322           MOV     #SYNINT,@PARCSR ;SET THE MODE
 (1)  010400                           $RESET
 (2)  010400  052777  000400  171320           BIS     #MRESET,@TXCSR  ;MASTER RESET
 (1)
 (1)                                   ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
 (1)  010406  012777  064001  171312           MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
 (1)
 (1)                                   ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
 (1)  010414  012777  036026  171300           MOV     #SYNINT!EIGHT!NOPAR!26,@PARCSR
8436
8437  010422  052777  000420  171262           BIS     #SYNSCH!STPSYN,@RXCSR   ;SET SYNC SEARCH &
8438                                                                           ;STRIP SYNC
8439                                           ;POKE CLK TO GET RECEIVER INTO SYNCRONIZATION.....
8440  010430  042777  020000  171270           BIC     #CLK,@TXCSR     ;POKE CLK
8441  010436  052777  020000  171262           BIS     #CLK,@TXCSR     ;
8442  010444                           $POKER
 (1)                                   ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
 (1)  010444  042777  020000  171254           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 (1)  010452  052777  020000  171246           BIS     #CLK,@TXCSR     ;POKE CLK UP
8443  010460  016703  171232                   MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
8444  010464  012767  000002  170432           MOV     #2,COUNT        ;# OF TIMES OF SYNC CHARS.
8445                                           ;TEST TO SEE HOW MANY SYNC CHARS  NEEDED
8446  010472  105767  170450                   TSTB    SYNCNO
8447  010476  100402                           BMI     3$      ;WILL IT BE ONE OR TWO ?
8448  010500  005367  170420                   DEC     COUNT   ;MAKE IT ONE LESS
```

```
8449  010504  012767  000010  170410  3$:     MOV     #8.,SHIFT       ;#OF SHIFTS
8450  010512  012767  000026  170760          MOV     #26,$TMP1       ;SYNC CHAR
8451  010520  004767  006446                  JSR     PC,RPOKE
8452  010524  005367  170374                  DEC     COUNT   ;IS IT THE LAST SYNC CHAR ?
8453  010530  001365                          BNE     3$      ;GO AGAIN AND SHIFT IN ANOTHER SYNC CHAR
8454  010532  032777  004000  171152          BIT     #RECACT,@RXCSR  ;RECACT=1?
8455  010540  001001                          BNE     .+4
8456  010542  104004                          ERROR   4       ;RECACT SHOULD BE ASSERTED
8457  010544  105777  171142                  TSTB    @RXCSR          ;RXDONE=0?
8458  010550  100001                          BPL     .+4
8459  010552  104004                          ERROR   4                       ;RXDONE SHOULD NOT BE ASSERTED
8460  010554  012767  000010  170340          MOV     #8.,SHIFT       ;#OF SHIFTS
8461  010562  012767  000025  170710          MOV     #25,$TMP1       ;ANY CHARACTER
8462  010570  004767  006376                  JSR     PC,RPOKE
8463  010574  105777  171112                  TSTB    @RXCSR          ;RXDONE=1?
8464  010600  100401                          BMI     .+4
8465  010602  104004                          ERROR   4                       ;RXDONE SHOULD NOW BE ASSERTED
8466  010604  012700  000025                  MOV     #25,R0          ;EXPECTED
8467  010610  017701  171102                  MOV     @RXDBUF,R1      ;ACTUAL
8468  010614  020001                          CMP     R0,R1
8469  010616  001401                          BEQ     .+4
8470  010620  104002                          ERROR   2               ;CHARACTERS SHOULD BE MATCHED
8471
8472
8473
8474                                  ;;THIS TEST VERIFYS THAT BY DROPPING SYNSCH
8475                                  ;;IN THE MIDDLE OF A CHARACTER, SYNC CHARACTER SEQUENCE
8476                                  ;;IS NEEDED BEFORE RECACT, RXDONE ASSERT AGAIN.
8477                                  ;;ALSO NOTE:  SINCE RECACT IS DEPENDENT ON MATCH DETECT,
8478                                  ;;AND IF SYNSCH IS DROPPED IN THE MIDDLE OF
8479                                  ;;A SYNC CHARACTER AND THEN RAISED AGAIN ;RXDONE SHOULD
8480                                  ;;NOT ASSERT UNTIL NEW SYNC CHARACTER SEQUENCE.....HOWEVER
8481                                  ;;ONE "PAD" CHARACTER MUST PRECEED THIS JUGGLING OF SEARCH SYNC (SYNSCH)
8482                                  ;;MODE:  SYNC INTERNAL (SYNINT)
8483                                  ;;LENGTH:  EIGHT
8484                                  ;;
8485
8486  010622                          $TSTNO
 (1)  010622                          NEWTST
 (2)          000000                  $NWTST=0
 (2)            001                   .IF B <>
 (2)  010622                                  $$NEWTEST       \$TN,<>,SCOPE
 (3)                                  .IRP    ASCI,<>
 (3)                                  .IF EQ $NWTST
 (3)                                  .NLIST
 (3)                                  $NWTST=1
 (3)                                  .SBTTL  T24     ASCI
 (3)                                  .LIST
 (3)                                  STARS
 (3)                                  ;*TEST 24       ASCI
 (3)                                  .IFF
 (3)                                          ASCI
 (3)                                  .ENDC
 (3)                                  .ENDM
 (3)  010622                          STARS
 (4)            002                   .IF B
```

```
(4)                             ;;*****************************************************************
(4)                             .IFF
(4)                             .NLIST
(4)                             .REPT
(4)                             .LIST
(4)                             ;;*****************************************************************
(4)                             .NLIST
(4)                             .ENDR
(4)                             .LIST
(4)       001                   .ENDC
(3)  010622  000004             TST24:  SCOPE
(3)
(3)       000025                $TN=$TN+1
(2)                             .IFF
(2)                                     $$NEWTEST       \$TN,<>,<>
(2)       000                   .ENDC
(2)       001                   .IF NE 4000&$SWR
(2)       002                   .IF NB
(2)       003                   .IF LE <-1>
(2)                                     MOV     #1,$TIMES       ;;DO 1 ITERATION
(2)                             .IFF
(2)                                     MOV     #,$TIMES        ;;DO  ITERATIONS
(2)       002                   .ENDC
(2)       001                   .ENDC
(2)       002                   .IF NB
(2)                                     MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(2)       001                   .ENDC
(2)       000                   .ENDC
(2)       001                   .IF NB
(2)       002                   .IF DF $MAIL
(2)                             .IRP    TNM,<\$TN-1>
(2)                                     MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                             .ENDM
(2)       001                   .ENDC
(2)       000                   .ENDC
(1)  000000                     .REPT 0
(1)                             .NLIST
(1)                             .RADIX  10
(1)                             .LIST
(1)                             .IRP    $DN,<\$N>
(1)                             NEWTST
(1)                             ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                             .ENDM
(1)                             .NLIST
(1)                             .RADIX  8
(1)                             .LIST
(1)                             ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(1)                             ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(1)                             ;.IF NB <>
(1)                             ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(1)                             .IFF
(1)                             .NLIST
(1)                             .RADIX  10
(1)                             .LIST
(1)                             .IRP    $DE,<\$E>
(1)                             .IF DF  TST'$DE
```

```
86                                      INITIALIZE THE COMMON TAGS                                              SEQ 0099

   (1)                                  ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
   (1)                                  .ENDM
   (1)                                  .NLIST
   (1)                                  .RADIX  8
   (1)                                  .LIST
   (1)                                  .IFF
   (1)                                  ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
   (1)                                  .ENDC
   (1)                                  .ENDC
   (1)                                  ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
   (1)                                  .NLIST
   (1)                                  .RADIX  10
   (1)                                  $N=$N+1
   (1)                                  $E=$E+1
   (1)                                  .RADIX  8
   (1)                                  .LIST
   (1)                                  .ENDR
  8487
  8488  010624                          SETUP   MINT,SYNINT,EIGHT,NOPAR,26
   (1)  010624                          $RESET
   (2)  010624  052777  000400  171074          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (1)  010632  012777  030000  171062          MOV     #SYNINT,@PARCSR ;SET THE MODE
   (1)  010640                          $RESET
   (2)  010640  052777  000400  171060          BIS     #MRESET,@TXCSR  ;MASTER RESET
   (1)
   (1)                                  ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
   (1)  010646  012777  064001  171052          MOV     #MTDATA!CLK!MINT!BREAK,@TXCSR
   (1)
   (1)                                  ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
   (1)  010654  012777  036026  171040          MOV     #SYNINT!EIGHT!NOPAR!26,@PARCSR
  8489
  8490  010662                          $SYNCR
   (1)  010662  052777  000020  171022          BIS     #SYNSCH,@RXCSR  ;SET SYNC SEARCH
   (1)                                          ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
   (1)  010670  042777  020000  171030          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (1)  010676  052777  020000  171022          BIS     #CLK,@TXCSR     ;POKE CLK UP
  8491  010704                          $POKER
   (1)                                  ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
   (1)  010704  042777  020000  171014          BIC     #CLK,@TXCSR     ;POKE CLK DOWN
   (1)  010712  052777  020000  171006          BIS     #CLK,@TXCSR     ;POKE CLK UP
  8492  010720  012767  000002  170176          MOV     #2,COUNT        ;# OF TIMES
  8493  010726  016703  170764                  MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
  8494  010732  012767  000010  170162  1$:     MOV     #8.,SHIFT       ;# OF SHIFTS
  8495  010740  012767  000026  170532          MOV     #26,$TMP1       ;SYNC CHAR.
  8496  010746  004767  006220                  JSR     PC,RPOKE
  8497  010752  005367  170146                  DEC     COUNT
  8498  010756  001403                          BEQ     2$
  8499                                  ;TEST TO SEE HOW MANY SYNC CHARACTERS NEEDED
  8500  010760  105767  170162                  TSTB    SYNCNO
  8501  010764  100762                          BMI     1$
  8502
  8503  010766  032777  004000  170716  2$:     BIT     #RECACT,@RXCSR  ;RECACT=1?
  8504  010774  001001                          BNE     .+4
  8505  010776  104004                          ERROR   4                       ;RECACT SHOULD BE SET
  8506  011000  105777  170706                  TSTB    @RXCSR  ;RXDONE = 0?
  8507  011004  100001                          BPL     .+4
```

```
8508  011006  104004                          ERROR   4       ;RXDONE SHOULD = 0
8509                                  ;THE FOLLOWING ALLOWS THE RECEIVER "CHIP" TO RECOGNIZE THE DROPPING OF SYNSCH
8510                                  ;...BASICALLY IT SIMULATES THE "PAD" CHARACTER REQUIREMENT AT THE END
8511                                  ;OF DATA TRANSFER.
8512                                  ;ONE "PAD" CHARACTER  IS REQUIRED TO FLUSH OUT SYNC CHARACTER
8513                                  ;AND ...YOU HAVE TO DROP SYNSCH ON THE NEXT OR FOLLOWING CHARACTER
8514                                  ;FOR A "CLEAN" RESTART
8515  011010  012767  000010  170104          MOV     #8.,SHIFT       ;# OF SHIFTS
8516  011016  012767  000025  170454          MOV     #25,$TMP1       ;"PAD" CHARACTER
8517  011024  004767  006142                  JSR     PC,RPOKE        ;SHIFT IN "PAD" CHARACTER
8518  011030  105777  170656                  TSTB    @RXCSR  ;RXDONE = 1 ?
8519  011034  100401                          BMI     .+4
8520  011036  104004                          ERROR   4       ;RXDONE SHOULD = 1
8521  011040  017701  170652                  MOV     @RXDBUF,R1      ;STORE ACTUAL & CLEAR RXDONE
8522  011044  012700  000025                  MOV     #25,R0  ;EXPECTED
8523  011050  020001                          CMP     R0,R1   ;COMPARE EXPECTED DATA VS ACTUAL DATA
8524  011052  001401                          BEQ     .+4
8525  011054  104002                          ERROR   2       ;DATA SHOULD COMPARE WITHOUT ERROR FLAGS
8526                                  ;THE FOLLOWING IS THE SYNC CHARACTER AFTER THE "PAD" CHARACTER
8527                                  ;IN WHICH SEARCH SYNC (SYNSCH) IS JUGGLED TO CREATE AN ABORT SITUATION
8528                                  ;AT THE END OF A DATA TRANSFER SEQUENCE
8529  011056  012767  000004  170036          MOV     #4,SHIFT        ;# OF SHIFTS
8530  011064  012767  000026  170406          MOV     #26,$TMP1       ;SYNC CHAR.
8531  011072  004767  006074                  JSR     PC,RPOKE
8532  011076  032777  004000  170606          BIT     #RECACT,@RXCSR  ;RECACT=1?
8533  011104  001001                          BNE     .+4
8534  011106  104004                          ERROR   4                       ;RECACT SHOULD  STILL BE SET
8535  011110  105777  170576                  TSTB    @RXCSR  ;RXDONE = 0 ?
8536  011114  100001                          BPL     .+4
8537  011116  104004                          ERROR   4       ;RXDONE SHOULD = 0 FROM PREVIOUS READING OF RXDBUF
8538  011120  042777  000020  170564          BIC     #SYNSCH,@RXCSR  ;DROP SEARCH SYNC
8539  011126  032777  004000  170556          BIT     #RECACT,@RXCSR  ;RECACT=0?
8540  011134  001401                          BEQ     .+4
8541  011136  104004                          ERROR   4                       ;RECACT SHOULD NOT BE SET
8542                                  ;NOW SHIFT TWO BITS TO ALLOW SEARCH SYNC =0 TO TAKE
8543                                  ;EFFECT IN THE LOGIC(THIS ALLOWS THE RECEIVER CHIP TO SEE
8544                                  ;THE DROPPING OF SEARCH SYNC)
8545  011140  012767  000002  167754          MOV     #2,SHIFT        ;# OF SHIFTS
8546  011146  004767  006020                  JSR     PC,RPOKE
8547  011152  052777  000020  170532          BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
8548  011160  032777  004000  170524          BIT     #RECACT,@RXCSR
8549  011166  001401                          BEQ     .+4
8550  011170  104004                          ERROR   4       ;RECACT =0 ?
8551  011172  105777  170514                  TSTB    @RXCSR  ;RXDONE = 0 ?
8552  011176  100001                          BPL     .+4
8553  011200  104004                          ERROR   4       ;RXDONE = 0 ?
8554  011202  012767  000002  167712          MOV     #2,SHIFT        ;# OF SHIFTS TO FINISH UP THE SYNC CHARACTER
8555  011210  004767  005756                  JSR     PC,RPOKE
8556  011214  032777  004000  170470          BIT     #RECACT,@RXCSR  ;RECACT=0?
8557  011222  001401                          BEQ     .+4
8558  011224  104004                          ERROR   4                       ;RECACT SHOULD NOT BE SET
8559  011226  105777  170460                  TSTB    @RXCSR          ;RXDONE=0?
8560  011232  100001                          BPL     .+4
8561  011234  104004                          ERROR   4                       ;RXDONE SHOULD NOT BE ASSERTED
8562  011236  012700  000025                  MOV     #25,R0          ;EXPECTED
8563  011242  017701  170450                  MOV     @RXDBUF,R1      ;ACTUAL
```

```
8564  011246  020001                          CMP     R0,R1   ;COMPARE EXPECTED VS ACTUAL
8565  011250  001401                          BEQ     .+4
8566  011252  104002                          ERROR   2               ;CHARACTERS SHOULD BE MATCHED.....
8567                                          ;REMBEMBER THAT THE " 25 " FROZE WHEN SYNSCH WAS DROPPED
8568                                          ;THEREFORE ....25 WILL BE READ AND NOT 26
8569                                  ;THE FOLLOWING VERIFYS THAT THE RE SYNCRONIZATION COMES UP "CLEAN"
8570  011254  012767  000002  167642          MOV     #2,COUNT        ;# OF TIMES OF SYNC CHARS.
8571                                          ;
8572                                          ;TEST TO SEE HOW MANY SYNC CHARS  NEEDED
8573  011262  105767  167660                  TSTB    SYNCNO  ;HOW MANY SYNCS ARE YOU STRAPPED FOR ?
8574  011266  100402                          BMI     3$      ;WILL IT BE ONE OR TWO ?
8575  011270  005367  167630                  DEC     COUNT   ;IT WAS ONLY ONE NEEDED
8576  011274  012767  000010  167620  3$:     MOV     #8.,SHIFT       ;#OF SHIFTS
8577  011302  012767  000026  170170          MOV     #26,$TMP1       ;SYNC CHAR
8578  011310  004767  005656                  JSR     PC,RPOKE
8579  011314  005367  167604                  DEC     COUNT   ;IS IT THE LAST SYNC CHAR ?
8580  011320  001365                          BNE     3$      ;GO AGAIN AND SHIFT IN ANOTHER SYNC CHAR
8581  011322  032777  004000  170362          BIT     #RECACT,@RXCSR  ;RECACT=1?
8582  011330  001001                          BNE     .+4
8583  011332  104004                          ERROR   4       ;RECACT SHOULD BE ASSERTED
8584  011334  105777  170352                  TSTB    @RXCSR          ;RXDONE=0?
8585  011340  100001                          BPL     .+4
8586  011342  104004                          ERROR   4                       ;RXDONE SHOULD NOT BE ASSERTED
8587  011344  012767  000010  167550          MOV     #8.,SHIFT       ;#OF SHIFTS
8588  011352  012767  000025  170120          MOV     #25,$TMP1       ;ANY CHARACTER
8589  011360  004767  005606                  JSR     PC,RPOKE
8590  011364  105777  170322                  TSTB    @RXCSR          ;RXDONE=1?
8591  011370  100401                          BMI     .+4
8592  011372  104004                          ERROR   4                       ;RXDONE SHOULD NOW BE ASSERTED
8593  011374  012700  000025                  MOV     #25,R0          ;EXPECTED
8594  011400  017701  170312                  MOV     @RXDBUF,R1      ;ACTUAL
8595  011404  020001                          CMP     R0,R1
8596  011406  001401                          BEQ     .+4
8597  011410  104002                          ERROR   2               ;CHARACTERS SHOULD BE MATCHED
8598
8599
8600
8601                                  ;;THIS TEST VERIFYS THAT HDX MODE DISQUALIFIES THE
8602                                  ;;RECEIVER WHEN SEND IS ASSERTED
8603                                  ;;MODE:  SYNC EXT
8604                                  ;;LENGTH:  EIGHT
8605                                  ;;NOTE:  THIS TEST WORKS ONLY IN MAINT. EXTERNAL MODE
8606                                  ;;THIS TEST USES BOTH RECEIVER & TRANSMITTER LOGIC
8607  011412                          $TSTNO
 (1)  011412                          NEWTST
 (2)          000000                  $NWTST=0
 (2)             001                  .IF B <>
 (2)  011412                                  $$NEWTEST       \$TN,<>,SCOPE
 (3)                                  .IRP    ASCI,<>
 (3)                                  .IF EQ $NWTST
 (3)                                  .NLIST
 (3)                                  $NWTST=1
 (3)                                  .SBTTL  T25     ASCI
 (3)                                  .LIST
 (3)                                  STARS
 (3)                                  ;*TEST 25       ASCI
```

```
(3)                             .IFF
(3)                                     ASCI
(3)                             .ENDC
(3)                             .ENDM
(3)  011412                     STARS
(4)            002              .IF B
(4)                             ;;*****************************************************************
(4)                             .IFF
(4)                             .NLIST
(4)                             .REPT
(4)                             .LIST
(4)                             ;;*****************************************************************
(4)                             .NLIST
(4)                             .ENDR
(4)                             .LIST
(4)              001            .ENDC
(3)  011412  000004             TST25:  SCOPE
(3)
(3)          000026             $TN=$TN+1
(2)                             .IFF
(2)                                     $$NEWTEST       \$TN,<>,<>
(2)              000            .ENDC
(2)              001            .IF NE 4000&$SWR
(2)              002            .IF NB
(2)              003            .IF LE <-1>
(2)                                     MOV     #1,$TIMES       ;;DO 1 ITERATION
(2)                             .IFF
(2)                                     MOV     #,$TIMES        ;;DO  ITERATIONS
(2)            002              .ENDC
(2)            001              .ENDC
(2)            002              .IF NB
(2)                                     MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(2)            001              .ENDC
(2)            000              .ENDC
(2)            001              .IF NB
(2)            002              .IF DF $MAIL
(2)                             .IRP    TNM,<\$TN-1>
(2)                                     MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                             .ENDM
(2)              001            .ENDC
(2)              000            .ENDC
(1)          000000             .REPT 0
(1)                             .NLIST
(1)                             .RADIX  10
(1)                             .LIST
(1)                             .IRP    $DN,<\$N>
(1)                             NEWTST
(1)                             ;       MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                             .ENDM
(1)                             .NLIST
(1)                             .RADIX  8
(1)                             .LIST
(1)                             ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(1)                             ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(1)                             ;.IF NB <>
(1)                             ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
```

```
  (1)                                .IFF
  (1)                                .NLIST
  (1)                                .RADIX  10
  (1)                                .LIST
  (1)                                .IRP    $DE,<\$E>
  (1)                                .IF DF  TST'$DE
  (1)                                ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
  (1)                                .ENDM
  (1)                                .NLIST
  (1)                                .RADIX  8
  (1)                                .LIST
  (1)                                .IFF
  (1)                                ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
  (1)                                .ENDC
  (1)                                .ENDC
  (1)                                ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
  (1)                                .NLIST
  (1)                                .RADIX  10
  (1)                                $N=$N+1
  (1)                                $E=$E+1
  (1)                                .RADIX  8
  (1)                                .LIST
  (1)                                .ENDR
8608  011414  105767  167533                   TSTB    JMRBY
8609  011420  100155                           BPL     1$              ;GET OUT OF THIS TEST IF ''NO''
8610  011422  016703  170270                   MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
8611  011426                             TSETUP  MEXT,SYNEXT,EIGHT,NOPAR,26
  (1) 011426                             $RESET
  (2) 011426  052777  000400  170272           BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1) 011434  012777  020000  170260           MOV     #SYNEXT,@PARCSR ;SET THE MODE
  (1) 011442                             $RESET
  (2) 011442  052777  000400  170256           BIS     #MRESET,@TXCSR  ;MASTER RESET
  (1)
  (1)                                ;SET MAINTENANCE MODE & SEND
  (1)                                        ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
  (1) 011450  012777  010020  170250           MOV     #MEXT!SEND,@TXCSR
  (1)
  (1)                                ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
  (1) 011456  012777  026026  170236           MOV     #SYNEXT!EIGHT!NOPAR!26,@PARCSR
8612  011464  052777  000020  170220           BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
8613  011472  112777  000025  170232           MOVB    #25,@TXDBUF     ;ANY CHARACTER
8614                                           ;POKE CLK FOR SYNCRONIZATION
8615  011500                             PUSSYFOOT
  (1) 011500  052777  020000  170220           BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)                                          ;WAIT FOR CABLE & DRIVER DELAYS
  (1) 011506  016702  167406                   MOV     HOLD,R2 ;WAIT THIS AMT
  (1) 011512  005302                           DEC     R2      ;WAIT
  (1) 011514  001376                           BNE     .-2
  (1)                                          ;EXIT...
  (1) 011516  042777  020000  170202           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
  (1)                                          ;WAIT FOR CABLE & DRIVER DELAYS
  (1) 011524  016702  167370                   MOV     HOLD,R2 ;WAIT THIS AMT
  (1) 011530  005302                           DEC     R2      ;WAIT
  (1) 011532  001376                           BNE     .-2
  (1)                                          ;EXIT...
8616  011534  012767  000010  167360           MOV     #8.,SHIFT       ;# OF SHIFTS
```

```
8617  011542                                2$:
 (1)  011542  052777  020000  170156              BIS     #CLK,@TXCSR     ;POKE CLK UP
 (1)                                              ;WAIT FOR CABLE & DRIVER DELAYS
 (1)  011550  016702  167344                      MOV     HOLD,R2 ;WAIT THIS AMT
 (1)  011554  005302                              DEC     R2      ;WAIT
 (1)  011556  001376                              BNE     .-2
 (1)                                              ;EXIT...
 (1)  011560  042777  020000  170140              BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 (1)                                              ;WAIT FOR CABLE & DRIVER DELAYS
 (1)  011566  016702  167326                      MOV     HOLD,R2 ;WAIT THIS AMT
 (1)  011572  005302                              DEC     R2      ;WAIT
 (1)  011574  001376                              BNE     .-2
 (1)                                              ;EXIT...
8618  011576  005367  167320                      DEC     SHIFT   ;# OF SHIFTS
8619  011602  022767  000003  167312              CMP     #3,SHIFT        ;IS IT TIME TO LOAD NEXT CHAR ?
8620  011610  001003                              BNE     3$
8621  011612  112777  000024  170112              MOVB    #24,@TXDBUF     ;LOAD NEXT CHAR.
8622  011620  005767  167276            3$:       TST     SHIFT
8623  011624  001346                              BNE     2$
8624  011626  105777  170060                      TSTB    @RXCSR          ;RXDONE=1?
8625  011632  100401                              BMI     .+4
8626  011634  104004                              ERROR   4                       ;RXDONE SHOULD BE SET
8627  011636  012700  000025                      MOV     #25,R0          ;EXPECTED
8628  011642  017701  170050                      MOV     @RXDBUF,R1      ;ACTUAL
8629  011646  020001                              CMP     R0,R1
8630  011650  001401                              BEQ     .+4
8631  011652  104002                              ERROR   2               ;CHARACTERS SHOULD COMPARE
8632  011654  052777  000010  170044              BIS     #HDXEN,@TXCSR   ;SET HALF DUPLEX HDX
8633  011662  012767  000010  167232              MOV     #8.,SHIFT       ;# OF SHIFT
8634  011670                            4$:
 (1)  011670  052777  020000  170030              BIS     #CLK,@TXCSR     ;POKE CLK UP
 (1)                                              ;WAIT FOR CABLE & DRIVER DELAYS
 (1)  011676  016702  167216                      MOV     HOLD,R2 ;WAIT THIS AMT
 (1)  011702  005302                              DEC     R2      ;WAIT
 (1)  011704  001376                              BNE     .-2
 (1)                                              ;EXIT...
 (1)  011706  042777  020000  170012              BIC     #CLK,@TXCSR     ;POKE CLK DOWN
 (1)                                              ;WAIT FOR CABLE & DRIVER DELAYS
 (1)  011714  016702  167200                      MOV     HOLD,R2 ;WAIT THIS AMT
 (1)  011720  005302                              DEC     R2      ;WAIT
 (1)  011722  001376                              BNE     .-2
 (1)                                              ;EXIT...
8635  011724  005367  167172                      DEC     SHIFT
8636  011730  001357                              BNE     4$
8637  011732  105777  167754                      TSTB    @RXCSR          ;RXDONE=0?
8638  011736  100001                              BPL     .+4
8639  011740  104004                              ERROR   4                       ;RXDONE SHOULD NOT BE ASSERTED
8640                                                                          ;CHECK OUT HDX LOGIC
8641  011742  017701  167750                      MOV     @RXDBUF,R1      ;ACTUAL
8642  011746  020001                              CMP     R0,R1
8643  011750  001401                              BEQ     .+4
8644  011752  104002                              ERROR   2               ;CHARACTERS SHOULD COMPARE
8645                                              ;NOTE THAT CHARACTER 25 WILL BE FROZEN
8646                                              ;IN THE RXDBUF EVEN THOUGH CHARACTER 24 WAS
8647                                              ;SENT TO THE RECEIVER
8648
```

```
 8649  011754                          1$:
 8650
 8651
 8652                                  ;;THIS TEST VERIFYS THAT BREAK FORCES A SPACE CONDITION
 8653                                  ;;ON THE LINE WHILE TRANSMITTING
 8654                                  ;;THIS TEST USES BOTH THE RECEIVER AND TRANSMITTER LOGIC
 8655                                  ;;MODE:  SYNC EXT (SYNEXT)
 8656                                  ;;LENGTH:  EIGHT
 8657                                  ;;
 8658
 8659  011754                          $TSTNO
  (1)  011754                          NEWTST
  (2)            000000                $NWTST=0
  (2)               001                .IF B <>
  (2)  011754                                $$NEWTEST       \$TN,<>,SCOPE
  (3)                                  .IRP    ASCI,<>
  (3)                                  .IF EQ $NWTST
  (3)                                  .NLIST
  (3)                                  $NWTST=1
  (3)                                  .SBTTL  T26     ASCI
  (3)                                  .LIST
  (3)                                  STARS
  (3)                                  ;*TEST 26       ASCI
  (3)                                  .IFF
  (3)                                        ASCI
  (3)                                  .ENDC
  (3)                                  .ENDM
  (3)  011754                          STARS
  (4)               002                .IF B
  (4)                                  ;;*****************************************************************
  (4)                                  .IFF
  (4)                                  .NLIST
  (4)                                  .REPT
  (4)                                  .LIST
  (4)                                  ;;*****************************************************************
  (4)                                  .NLIST
  (4)                                  .ENDR
  (4)                                  .LIST
  (4)               001                .ENDC
  (3)  011754  000004                  TST26:  SCOPE
  (3)
  (3)            000027                $TN=$TN+1
  (2)                                  .IFF
  (2)                                        $$NEWTEST       \$TN,<>,<>
  (2)               000                .ENDC
  (2)               001                .IF NE 4000&$SWR
  (2)               002                .IF NB
  (2)               003                .IF LE <-1>
  (2)                                        MOV     #1,$TIMES       ;;DO 1 ITERATION
  (2)                                  .IFF
  (2)                                        MOV     #,$TIMES        ;;DO  ITERATIONS
  (2)               002                .ENDC
  (2)               001                .ENDC
  (2)               002                .IF NB
  (2)                                        MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
  (2)               001                .ENDC
```

```
    (2)              000                    .ENDC
    (2)              001                    .IF NB
    (2)              002                    .IF DF $MAIL
    (2)                                     .IRP    TNM,<\$TN-1>
    (2)                                             MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOx
    (2)                                     .ENDM
    (2)              001                    .ENDC
    (2)              000                    .ENDC
    (1)           000000                    .REPT 0
    (1)                                     .NLIST
    (1)                                     .RADIX  10
    (1)                                     .LIST
    (1)                                     .IRP    $DN,<\$N>
    (1)                                     NEWTST
    (1)                                     ;       MOV     #$DN,$TSTNM     ;SAVE THIS
    (1)                                     .ENDM
    (1)                                     .NLIST
    (1)                                     .RADIX  8
    (1)                                     .LIST
    (1)                                     ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
    (1)                                     ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
    (1)                                     ;.IF NB <>
    (1)                                     ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
    (1)                                     .IFF
    (1)                                     .NLIST
    (1)                                     .RADIX  10
    (1)                                     .LIST
    (1)                                     .IRP    $DE,<\$E>
    (1)                                     .IF DF  TST'$DE
    (1)                                     ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
    (1)                                     .ENDM
    (1)                                     .NLIST
    (1)                                     .RADIX  8
    (1)                                     .LIST
    (1)                                     .IFF
    (1)                                     ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
    (1)                                     .ENDC
    (1)                                     .ENDC
    (1)                                     ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
    (1)                                     .NLIST
    (1)                                     .RADIX  10
    (1)                                     $N=$N+1
    (1)                                     $E=$E+1
    (1)                                     .RADIX  8
    (1)                                     .LIST
    (1)                                     .ENDR
 8660  011756                               TSETUP  MINT,SYNEXT,EIGHT,NOPAR,26
    (1)  011756                             $RESET
    (2)  011756  052777  000400  167742             BIS     #MRESET,@TXCSR  ;MASTER RESET
    (1)  011764  012777  020000  167730             MOV     #SYNEXT,@PARCSR ;SET THE MODE
    (1)  011772                             $RESET
    (2)  011772  052777  000400  167726             BIS     #MRESET,@TXCSR  ;MASTER RESET
    (1)
    (1)                                     ;SET MAINTENANCE MODE & SEND
    (1)                                             ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
    (1)  012000  012777  004020  167720             MOV     #MINT!SEND,@TXCSR
```

```
  (1)
  (1)                                   ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
  (1)  012006  012777  026026  167706           MOV     #SYNEXT!EIGHT!NOPAR!26,@PARCSR
8661   012014  052777  000020  167670           BIS     #SYNSCH,@RXCSR  ;SET SEARCH SYNC
8662   012022  016703  167670                   MOV     RXDBUF,R3       ;FOR ERROR MESSAGE
8663   012026  012767  000002  167070           MOV     #2,COUNT        ;# OF TIMES
8664   012034  112777  000025  167670           MOVB    #25,@TXDBUF     ;ANY CHARACTER
8665                                           ;POKE CLK FOR SYNCRONIZATION
8666   012042                                 $POKE
  (1)  012042  052777  020000  167656           BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  012050  042777  020000  167650           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
8667   012056  012700  000025                   MOV     #25,R0          ;EXPECTED
8668   012062  012767  000010  167032  1$:      MOV     #8.,SHIFT       ;# OF SHIFTS
8669
8670   012070                                 2$:
  (1)  012070  052777  020000  167630           BIS     #CLK,@TXCSR     ;POKE CLK UP
  (1)  012076  042777  020000  167622           BIC     #CLK,@TXCSR     ;POKE CLK DOWN
8671   012104  005367  167012                   DEC     SHIFT
8672   012110  022767  000003  167004           CMP     #3,SHIFT
8673   012116  001003                           BNE     3$
8674   012120  112777  000024  167604           MOVB    #24,@TXDBUF     ;LOAD NEXT CHAR
8675   012126  005767  166770           3$:     TST     SHIFT
8676   012132  001356                           BNE     2$
8677   012134  105777  167552                   TSTB    @RXCSR          ;RXDONE=1?
8678   012140  100401                           BMI     .+4
8679   012142  104004                           ERROR   4
8680   012144  017701  167546                   MOV     @RXDBUF,R1      ;ACTUAL
8681   012150  020001                           CMP     R0,R1
8682   012152  001401                           BEQ     .+4
8683   012154  104003                           ERROR   3
8684   012156  052777  000001  167542           BIS     #BREAK,@TXCSR   ;SET BREAK
8685   012164  012700  000000                   MOV     #0,R0           ;EXPECTED
8686   012170  005367  166730                   DEC     COUNT
8687   012174  001332                           BNE     1$
8688
8689
8690                                   ;;THIS TEST VERIFYS THAT DSC CAUSES AN INTERRUPT
8691                                   ;;THIS TEST ONLY WORKS IN MAINT EXTERNAL MODE
8692                                   ;;INTERRUPT VECTOR:  DURIV
8693  012176                           $TSTNO
  (1) 012176                           NEWTST
  (2)         000000                   $NWTST=0
  (2)            001                   .IF B <>
  (2) 012176                                   $$NEWTEST       \$TN,<>,SCOPE
  (3)                                  .IRP    ASCI,<>
  (3)                                  .IF EQ $NWTST
  (3)                                  .NLIST
  (3)                                  $NWTST=1
  (3)                                  .SBTTL  T27     ASCI
  (3)                                  .LIST
  (3)                                  STARS
  (3)                                  ;*TEST 27       ASCI
  (3)                                  .IFF
  (3)                                          ASCI
  (3)                                  .ENDC
  (3)                                  .ENDM
```

```
(3)  012176                  STARS
(4)            002           .IF B
(4)                          ;;*****************************************************************
(4)                          .IFF
(4)                          .NLIST
(4)                          .REPT
(4)                          .LIST
(4)                          ;;*****************************************************************
(4)                          .NLIST
(4)                          .ENDR
(4)                          .LIST
(4)            001           .ENDC
(3)  012176  000004          TST27:  SCOPE
(3)
(3)          000030          $TN=$TN+1
(2)                          .IFF
(2)                                  $$NEWTEST       \$TN,<>,<>
(2)            000           .ENDC
(2)            001           .IF NE 4000&$SWR
(2)            002           .IF NB
(2)            003           .IF LE <-1>
(2)                                  MOV     #1,$TIMES       ;;DO 1 ITERATION
(2)                          .IFF
(2)                                  MOV     #,$TIMES        ;;DO  ITERATIONS
(2)            002           .ENDC
(2)            001           .ENDC
(2)            002           .IF NB
(2)                                  MOV     #,$LPADR        ;;SET SCOPE LOOP ADDRESS
(2)            001           .ENDC
(2)            000           .ENDC
(2)            001           .IF NB
(2)            002           .IF DF $MAIL
(2)                          .IRP    TNM,<\$TN-1>
(2)                                  MOV     #'TNM,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
(2)                          .ENDM
(2)            001           .ENDC
(2)            000           .ENDC
(1)          000000          .REPT 0
(1)                          .NLIST
(1)                          .RADIX  10
(1)                          .LIST
(1)                          .IRP    $DN,<\$N>
(1)                          NEWTST
(1)                          :       MOV     #$DN,$TSTNM     ;SAVE THIS
(1)                          .ENDM
(1)                          .NLIST
(1)                          .RADIX  8
(1)                          .LIST
(1)                          ;.IIF NB        <>,     MOV     #,RETURN        ;SET UP THIS RETURN
(1)                          ;.IIF NB        <>,     MOV     #,ICOUNT        ;SET UP THIS ICOUNT
(1)                          ;.IF NB <>
(1)                          ;       MOV     #,NEXT  ;GO TO THIS TEST WHEN THRU
(1)                          .IFF
(1)                          .NLIST
(1)                          .RADIX  10
(1)                          .LIST
```

```
    (1)                                 .IRP    $DE,<\$E>
    (1)                                 .IF DF  TST'$DE
    (1)                                 ;       MOV     #TST'$DE,NEXT   ;GO TO THIS TEST WHEN THRU
    (1)                                 .ENDM
    (1)                                 .NLIST
    (1)                                 .RADIX  8
    (1)                                 .LIST
    (1)                                 .IFF
    (1)                                 ;       MOV     #.EOP,NEXT      ;GO TO THIS TEST WHEN THRU
    (1)                                 .ENDC
    (1)                                 .ENDC
    (1)                                 ;.IIF NB        <>,     MOV     #,LOCK  ;SET UP FOR SCOPE LOOP
    (1)                                 .NLIST
    (1)                                 .RADIX  10
    (1)                                 $N=$N+1
    (1)                                 $E=$E+1
    (1)                                 .RADIX  8
    (1)                                 .LIST
    (1)                                 .ENDR
 8694  012200  105767  166747                   TSTB    JMRBY           ;IN MAINT EXTERNAL?
 8695  012204  100073                           BPL     3$              ;IF ANSWER NO JUMP AROUND TEST
 8696  012206                             $RESET
  (1)  012206  052777  000400  167512           BIS     #MRESET,@TXCSR  ;MASTER RESET
 8697  012214  105767  166731                   TSTB    OPTCLR  ;IS THE OPTIONAL CLR JUMPER IN ?
 8698  012220  100405                           BMI     5$      ;YES
 8699  012222  012777  000000  167462           MOV     #0,@RXCSR       ;CLR THE UNRESETTABLE BITS
 8700  012230  005777  167456                   TST     @RXCSR  ;GET RID OF DSC BY READING RXCSR
 8701  012234  012777  012256  167474  5$:      MOV     #4$,@DURIV      ;SET UP TRAPCATCHER
 8702  012242  016777  004564  167470           MOV     DUPRT,@DURIS    ;
 8703  012250  106427  000000                   MTPS    #0      ;ALLOW INTERRUPTS
 8704  012254  000422                           BR      1$      ;JUMP AROUND INTERRUPT SVC ROUTINE
 8705                                 ;THE FOLLOWING IS THE INTERRUPT SVC ROUTINE
 8706  012256  106427  000300           4$:     MTPS    #300    ;DON'T ALLOW ANYMORE INTERRUPTS
 8707  012262  005777  167424                   TST     @RXCSR          ;DSC=1?
 8708  012266  100401                           BMI     .+4
 8709  012270  104004                           ERROR   4                       ;FALSE INTERRUPT
 8710  012272  042777  000040  167412           BIC     #DSINTE,@RXCSR  ;CLEAR INTERRUPT ENABLE
 8711  012300  012716  012370                   MOV     #2$,(SP)        ;SET UP RETURN LOCATION
 8712  012304  016777  167430  167424           MOV     DURIS,@DURIV    ;RESTORE TRAPCATCHER
 8713  012312  012777  000000  167420           MOV     #0,@DURIS       ;
 8714  012320  000002                           RTI
 8715
 8716  012322  052777  000040  167362  1$:      BIS     #DSINTE,@RXCSR  ;SET INTERRUPT ENABLE
 8717  012330  052777  000002  167354           BIS     #DTR,@RXCSR     ;TRY TO CAUSE INTERRUPT
 8718  012336  005000                           CLR     R0
 8719  012340  005200                           INC     R0              ;WAIT FOR INTERRUPT
 8720  012342  001376                           BNE     .-2
 8721  012344  016777  167370  167364           MOV     DURIS,@DURIV    ;RESTORE TRAPCATCHER
 8722  012352  012777  000000  167360           MOV     #0,@DURIS       ;
 8723
 8724  012360  042777  000040  167324           BIC     #DSINTE,@RXCSR  ;CLEAR INTERRUPT ENABLE
 8725  012366  104004                           ERROR   4                       ;INTERRUPT FAILED TO OCCUR
 8726  012370  106427  000300           2$:     MTPS    #300
 8727  012374                             3$:
 8728
 8729  012374                             PRGEND  <DUV11 CNDUU-A TAPE E>,<END OF PASS TAPE E>
```

```
(1)  012374                          $EOP    .BEGIN
(2)
(2)            000012                .RADIX  10
(2)            000000                $N=$N-1
(2)            000010                .RADIX  8
(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)  012374  000004                  .EOP:   SCOPE
(2)  012376  004767  000340                  JSR     PC,CKSWR
(2)  012402  104401                          TYPE                            ;TYPE NAME OF TEST
(2)  012404  015532                          MEPASS
(2)  012406  104413  012640                  CONVRT  ,OUTCRY
(2)  012412  104401  015351                  TYPE    ,DEVICE
(2)  012416  105767  166530                  TSTB    MULTD   ;ARE YOU RUNNING MULTIPLE DEVICES ?
(2)  012422  001511                          BEQ     CCC     ;NO,JUMP AROUND
(2)  012424  005767  166536                  TST     ACTREG  ;ARE ANY DEVICES ACTIVE ?
(2)  012430  001007                          BNE     RUNIT   ;YES
(2)  012432  104401  015363                  TYPE    ,MCOW   ;NO
(2)  012436  016700  166524                  MOV     ACTREG,R0       ;DISPLAY ACTREG
(2)  012442  000000                          HALT            ;SELECT SOMETHING TO RUN @ ACTREG:
(2)                                  ;SELECT SWITCHES & HIT CONTINUE (PUT SW00 =1)
(2)  012444  000167  167502                  JMP     .START  ;START OVER AGAIN.....YOU DESELECTED EVERYTHING
(2)  012450  062767  000010  166476  RUNIT: ADD     #10,BASEADD     ;NEXT BLOCK (ADDRESSES)
(2)  012456  062767  000010  166476  ZERO:  ADD     #10,BASEIV      ;NEXT BLOCK (VECTORS)
(2)  012464  000241                          CLC
(2)  012466  006167  166476                  ROL     ROTADD  ;UP DATE ROTATING POINTER
(2)  012472  103410                          BCS     2$      ;IS IT THE LAST DEVICE
(2)                                          ;TO BE TESTED IN THIS PASS ?
(2)  012474  036767  166470  166464          BIT     ROTADD,ACTREG   ;TEST THIS DEVICE FOR ACTIVE STATUS
(2)  012502  001762                          BEQ     RUNIT   ;IF NOT ACTIVE, TRY NEXT ADDRESS
(2)  012504  004767  000034                  JSR     PC,REPLAY       ;CALCULATE NEW PARAMETERS
(2)  012510  000167  000210                  JMP     RESTRT  ;YES IT WAS ACTIVE,TEST THIS DEVICE
(2)  012514  012767  000001  166446  2$:    MOV     #1,ROTADD       ;OK!,NOW SET UP  ROTATING
(2)                                          ;POINTER FOR NEXT MULTIPLE PASS
(2)  012522  016767  166430  166424          MOV     KEEPADD,BASEADD ;RESTORE BASE ADDRESS
(2)  012530  016767  166430  166424          MOV     KEEPIV,BASEIV   ;RESTORE BASE INTERRUPT VECTORS
(2)  012536  004767  000002                  JSR     PC,REPLAY       ;CALC NEW PARAMETERS
(2)  012542  000441                          BR      CCC     ;JUMP AROUND REPLAY
(2)  012544  016767  166404  004416  REPLAY: MOV     BASEADD,DUBASE  ;SET UP FOR NEW ADDRESSES
(2)  012552  004767  004260                  JSR     PC,DUADDR       ;CREATE NEW ADDRESSES
(2)  012556  016767  166400  167152          MOV     BASEIV,DURIV    ;CREATE DURIV
(2)  012564  062767  000002  166370          ADD     #2,BASEIV
(2)  012572  016767  166364  167140          MOV     BASEIV,DURIS    ;CREATE DURIS
(2)  012600  062767  000002  166354          ADD     #2,BASEIV
(2)  012606  016767  166350  167126          MOV     BASEIV,DUTIV    ;CREATE DUTIV
(2)  012614  062767  000002  166340          ADD     #2,BASEIV
(2)  012622  016767  166334  167114          MOV     BASEIV,DUTIS    ;CREATE DUTIS
(2)  012630  016767  167102  166324          MOV     DURIV,BASEIV    ;RESTORE
(2)  012636  000207                          RTS     PC
(2)
(2)  012640  000001                  OUTCRY: 1
(2)  012642     006     002                  .BYTE   6,2
```

```
(2)  012644  001712                        RXCSR
(2)
(2)  012646                          CCC:
(2)  012646  005067  166530                 CLR     $TSTNM                  ;CLEAR TEST NUMBER
(2)  012652  005067  166540                 CLR     $ERRPC                  ;CLEAR LAST ERROR PC
(2)  012656  005067  166521                 CLR     $ERFLG                  ;CLEAR ERROR FLAG
(2)  012662  005267  166224                 INC     PASCNT                  ;UPDATE PASS COUNT
(2)  012666  016767  166220  166206        MOV     PASCNT,LIGHTS           ;DISPLAY PASS COUNT
(2)  012674  016767  166212  166632        MOV     PASCNT,$PASS            ;PASS COUNT TO APT
(2)  012702  013701  000042                 MOV     @#42,R1                 ;CHECK FOR ACT-11 OR DDP
(2)  012706  001406                         BEQ     RESTRT          ;IF NO CONTINUE TESTING
(2)  012710  000005                         RESET
(2)  012712  000005                         RESET
(2)  012714  004711                  $ENDAD: JSR     PC,(R1)
(2)  012716  000240                         NOP
(2)  012720  000240                         NOP
(2)  012722  000240                         NOP
(2)  012724                          RESTRT:
(2)  012724  012767  003376  166454        MOV     #TST1+2,$LPADR  ;LOAD LAST ADDR
(2)  012732  004767  000004                 JSR     PC,CKSWR
(2)  012736  000167  170346                 JMP     .BEGIN
(1)  012742                          $CK
(2)
(2)                                         ;CHECK SWITCH REGISTER ROUTINE.
(2)                                         ;CHECKS TO ALLOW FOR <^G> TO ALLOW
(2)                                         ;THE CHANGING OF LOCATION 176
(2)
(2)  012742  005737  000042          CKSWR: TST     @#42
(2)  012746  001040                         BNE     OUT
(2)  012750  022767  000176  166462        CMP     #SWREG,SWR      ;SOFTWARE SWR PRESENT?
(2)  012756  001034                         BNE     OUT             ;NO--LEAVE
(2)  012760  105777  166460                 TSTB    @$TKS           ;CHECK TTY READY
(2)  012764  100031                         BPL     OUT             ;NO--LEAVE
(2)  012766  017767  166454  000422        MOV     @$TKB,.MSG      ;GET CHARACTER
(2)  012774  042767  177600  000414        BIC     #177600,.MSG    ;STRIP JUNK
(2)  013002  122767  000007  000406        CMPB    #7,.MSG         ;IS IT <^G> ?
(2)  013010  001017                         BNE     OUT             ;NO
(2)  013012  104401  016137                 TYPE    ,MCNTG
(2)  013016  005137  013056          CNTLU: COM     @#RDSW
(2)  013022  104401  016147                 TYPE    ,MMSWR
(2)  013026  104413                         CONVRT
(2)  013030  013060                         SWREGL
(2)  013032  104406  016160                 INSTR,MMNEW
(2)  013036  104410                         PARAM
(2)  013040  000000                         0
(2)  013042  177777                         177777
(2)  013044  000176                         SWREG
(2)  013046     000     001          .BYTE  0,1
(2)  013050  005037  013056          OUT:   CLR     @#RDSW
(2)  013054  000207                         RTS     PC
(2)  013056  000000                  RDSW:  .WORD   0
(2)  013060  000001                  SWREGL: 1
(2)  013062     006     002                 .BYTE   6,2
(2)  013064  000176                         SWREG
(2)
(1)  013066  000005                         5
```

```
(1)  013070                          $SCOP1
(2)
(2)                                          ;CHECK FOR FREEZE ON CURRENT DATA
(2)
(2)  013070  004767  177646          .SCOP1: JSR     PC,CKSWR
(2)  013074  032777  001000  166336          BIT     #SW09,@SWR
(2)  013102  001402                          BEQ     1$
(2)  013104  016716  166000                  MOV     LOCK,(SP)
(2)  013110  000002                  1$:     RTI
(1)  013112                          .$TYPE
(2)                                  .SBTTL  TYPE ROUTINE
(2)
(2)  013112                          STARS
(3)             001                  .IF B
(3)                                  ;;**********************************************************************
(3)                                  .IFF
(3)                                  .NLIST
(3)                                  .REPT
(3)                                  .LIST
(3)                                  ;;**********************************************************************
(3)                                  .NLIST
(3)                                  .ENDR
(3)                                  .LIST
(3)             000                  .ENDC
(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)  013112  105767  166341          $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
(2)  013116  100002                          BPL     1$              ;;BR IF YES
(2)  013120  000000                          HALT                    ;;HALT HERE IF NO TERMINAL
(2)  013122  000430                          BR      3$              ;;LEAVE
(2)  013124  010046                  1$:     MOV     R0,-(SP)        ;;SAVE R0
(2)  013126  017600  000002                  MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
(2)             001                  .IF DF $MAIL
(2)  013132  122767  000001  166406          CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
(2)  013140  001011                          BNE     62$             ;;NO,GO CHECK FOR APT CONSOLE
(2)  013142  132767  000100  166377          BITB    #APTSPOOL,$ENVM ;;SPOOL MESSAGE TO APT
(2)  013150  001405                          BEQ     62$             ;;NO,GO CHECK FOR CONSOLE
(2)  013152  010067  000004                  MOV     R0,61$          ;;SETUP MESSAGE ADDRESS FOR APT
(2)  013156  004767  164624                  JSR     PC,$ATY3        ;;SPOOL MESSAGE TO APT
(2)  013162  000000                  61$:    .WORD   0               ;;MESSAGE ADDRESS
(2)  013164  132767  000040  166355  62$:    BITB    #APTCSUP,$ENVM  ;;APT CONSOLE SUPPRESSED
(2)  013172  001003                          BNE     60$             ;;YES,SKIP TYPE OUT
(2)             000                  .ENDC
(2)  013174  112046                  2$:     MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
```

```
(2)  013176  001005                        BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
(2)  013200  005726                        TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
(2)  013202  012600                60$:    MOV     (SP)+,R0        ;;RESTORE R0
(2)  013204  062716  000002        3$:     ADD     #2,(SP)         ;;ADJUST RETURN PC
(2)  013210  000002                        RTI                     ;;RETURN
(2)  013212  122716  000011        4$:     CMPB    #HT,(SP)        ;;BRANCH IF <HT>
(2)  013216  001430                        BEQ     8$
(2)  013220  122716  000200                CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
(2)  013224  001006                        BNE     5$
(2)  013226  005726                        TST     (SP)+           ;;POP  <CR><LF> EQUIV
(2)  013230  104401                        TYPE                    ;;TYPE A CR AND LF
(2)  013232  001523                        $CRLF
(2)  013234  105067  000130                CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
(2)  013240  000755                        BR      2$              ;;GET NEXT CHARACTER
(2)  013242  004767  000056        5$:     JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
(2)  013246  126726  166204        6$:     CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
(2)  013252  001350                        BNE     2$              ;;IF NO GO GET NEXT CHAR.
(2)  013254  016746  166174                MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
(2)                                                                ;;AND THE NULL CHAR.
(2)  013260  105366  000001        7$:     DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
(2)  013264  002770                        BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
(2)  013266  004767  000032                JSR     PC,$TYPEC       ;;GO TYPE A NULL
(2)  013272  105367  000072                DECB    $CHARCNT        ;;DO NOT COUNT AS A COUNT
(2)  013276  000770                        BR      7$              ;;LOOP
(2)
(2)                                ;HORIZONTAL TAB PROCESSOR
(2)
(2)  013300  112716  000040        8$:     MOVB    #' ,(SP)        ;;REPLACE TAB WITH SPACE
(2)  013304  004767  000014        9$:     JSR     PC,$TYPEC       ;;TYPE A SPACE
(2)  013310  132767  000007  000052        BITB    #7,$CHARCNT     ;;BRANCH IF NOT AT
(2)  013316  001372                        BNE     9$              ;;TAB STOP
(2)  013320  005726                        TST     (SP)+           ;;POP SPACE OFF STACK
(2)  013322  000724                        BR      2$              ;;GET NEXT CHARACTER
(2)  013324  105777  166120        $TYPEC: TSTB    @$TPS           ;;WAIT UNTIL PRINTER IS READY
(2)  013330  100375                        BPL     $TYPEC
(2)  013332  116677  000002  166112        MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
(2)
(2)  013340  122766  000015  000002  CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
(2)  013346  001003                        BNE     1$              ;;BRANCH IF NO
(2)  013350  105067  000014                CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
(2)  013354  000406                        BR      $TYPEX          ;;EXIT
(2)  013356  122766  000012  000002  1$:     CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
(2)  013364  001402                        BEQ     $TYPEX          ;;BRANCH IF YES
(2)  013366  105227                        INCB    (PC)+           ;;COUNT THE CHARACTER
(2)  013370  000000                $CHARCNT:.WORD  0               ;;CHARACTER COUNT STORAGE
(2)  013372  000207                $TYPEX: RTS     PC
(2)
(2)                                .IIF NDF HT,HT= 11                      ;;CODE FOR HORIZONTAL TAB
(2)                                .IIF NDF LF,LF= 12                      ;;CODE FOR LINE FEED
(2)                                .IIF NDF CR,CR= 15                      ;;CODE FOR CARRIAGE RETURN
(2)                                .IIF NDF CRLF,CRLF=     200                     ;;CODE FOR CARRIAGE RETURN-LINE FEED
(2)                                .IIF NDF $TPS,$TPS:
(2)                                .IIF EQ .-$TPS,$TPS:    .WORD   177564          ;;TTY PRINTER STATUS REG. ADDRESS
(2)                                .IIF NDF $TPB,$TPB:
(2)                                .IIF EQ .-$TPB,$TPB:    .WORD   177566          ;;TTY PRINTER BUFFER REG. ADDRESS
(2)                                .IIF NDF $NULL,$NULL:
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(2)                                     .IIF EQ .-$NULL,$NULL:  .BYTE   0               ;;CONTAINS NULL CHARACTER FOR FILLS
(2)                                     .IIF NDF $FILLS,$FILLS:
(2)                                     .IIF EQ .-$FILLS,$FILLS:        .BYTE   2               ;;CONTAINS # OF FILLER CHARACTER
(2)                                     .IIF NDF $FILLC,$FILLC:
(2)                                     .IIF EQ .-$FILLC,$FILLC:        .BYTE   12              ;;INSERT FILL CHARS. AFTER A "LI
(2)                                     .IIF NDF $TPFLG,$TPFLG:
(2)
(2)                                     .IIF EQ .-$TPFLG,$TPFLG:        .BYTE   0               ;;"TERMINAL AVAILABLE" FLAG (BIT
(2)                                     .IIF NDF $QUES,$QUES:
(2)                                     .IIF EQ .-$QUES,$QUES:  .ASCII  "?"             ;;QUESTION MARK
(2)                                     .IIF NDF $CRLF,$CRLF:
(2)                                     .IIF EQ .-$CRLF,$CRLF:  .ASCII  <15>            ;;CARRAIGE RETURN
(2)                                     .IIF NDF $LF,$LF:
(2)                                     .IIF EQ .-$LF,$LF:      .ASCIZ  <12>            ;;LINEFEED
(2)                                     .IIF NE 1&.,    .EVEN
(1)   013374                            $INSTR
(2)
(2)                                             ;ASCII STRING INPUT ROUTINE
(2)
(2)   013374  017667  000000  000014   .INSTR: MOV     @(SP),,MSG      ;PICK UP MESSAGE
(2)   013402  062716  000002                   ADD     #2,(SP)         ;JUMP AROUND MESSAGE FOR RTI
(2)   013406  105767  166134                   TSTB    $ENV            ;APT CONTROL
(2)   013412  001036                           BNE     INSTR2          ;YES NO TYPE
(2)   013414  104401                   .INST1: TYPE
(2)   013416  000000                   .MSG:   0
(2)   013420  012704  016172                   MOV     #INBUF,R4       ;GET STARTING LOC OF INBUF
(2)   013424  012703  000007                   MOV     #7,R3           ;MAX # OF CHARS
(2)   013430  105777  166010           1$:     TSTB    @$TKS   ;TTY FLAG
(2)   013434  100375                           BPL     1$
(2)   013436  117714  166004                   MOVB    @$TKB,(R4)      ;TAKE CHAR
(2)   013442  142714  000200                   BICB    #200,(R4)       ;STRIP
(2)   013446  121427  000025                   CMPB    (R4),#25        ;IS IT <^G>
(2)   013452  001760                           BEQ     .INST1
(2)   013454  122427  000015                   CMPB    (R4)+,#15       ;CHECK FOR CR
(2)   013460  001413                           BEQ     INSTR2
(2)   013462  105777  165762           2$:     TSTB    @$TPS   ;TEST FLAG
(2)   013466  100375                           BPL     2$
(2)   013470  117777  165752  165754         MOVB    @$TKB,@$TPB     ;ECHO CHARACTER
(2)   013476  005303                           DEC     R3      ;DID YOU TYPE TOO MANY CHARS ?
(2)   013500  001353                           BNE     1$
(2)   013502  104401                   .INSTE: TYPE
(2)   013504  015457                           MQM     ;?
(2)   013506  000742                           BR      .INST1  ;RETRY
(2)   013510  000002                   INSTR2: RTI
(1)   013512                           $PARAM
(2)
(2)                                             ;CONVERT ASCII STRING TO OCTAL
(2)
(2)   013512  011605                   .PARAM: MOV     (SP),R5 ;PUT CONTENTS OF SP INTO R5
(2)   013514  012567  000162                   MOV     (R5)+,LOLIM     ;PUT LOW LIMIT INTO LOLIM
(2)   013520  012567  000160                   MOV     (R5)+,HILIM     ;PUT HIGH LIMIT INTO HILIM
(2)   013524  012567  000156                   MOV     (R5)+,DEVADR    ;PUT STORE LOC INTO DEVADR
(2)   013530  112567  000154                   MOVB    (R5)+,LOBITS    ;PUT MASK INTO LOBITS
(2)   013534  112567  000151                   MOVB    (R5)+,ADRCNT    ;PUT COUNT INTO ADRCNT
(2)   013540  010516                           MOV     R5,(SP) ;RESTORE RETURN ADDR ON STACK FOR RTI
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(2)  013542  005005                  PARAM1: CLR     R5
(2)  013544  012704  016172                  MOV     #INBUF,R4
(2)  013550  122714  000015                  CMPB    #15,(R4)        ;CR ?
(2)  013554  001420                          BEQ     PARERR  ;YOU TYPED CR TOO SOON !
(2)  013556  121427  000060          1$:     CMPB    (R4),#60        ;LOW LIMIT ASCII 0
(2)  013562  002415                          BLT     PARERR
(2)  013564  121427  000067                  CMPB    (R4),#67        ;HIGH LIMIT ASCII 7
(2)  013570  003012                          BGT     PARERR
(2)  013572  142714  000060                  BICB    #60,(R4)        ;CONVERT TO OCTAL
(2)  013576  152405                          BISB    (R4)+,R5        ;STORE AWAY ITS AN OK CHAR
(2)  013600  122714  000015                  CMPB    #15,(R4)        ;CR ?
(2)  013604  001414                          BEQ     LIMITS  ;NOW CHECK FOR HIGH &LOW LIMIT CONDS
(2)  013606  006305                          ASL     R5      ;ALLOCATE ROOM FOR NEXT CHAR
(2)  013610  006305                          ASL     R5
(2)  013612  006305                          ASL     R5
(2)  013614  000760                          BR      1$
(2)  013616  122714  000015          PARERR: CMPB    #15,(R4)        ;CR?
(2)  013622  001003                          BNE     120$
(2)  013624  005737  013056                  TST     @#RDSW          ;CK SWR USED
(2)  013630  001023                          BNE     PARTI
(2)  013632  104407                  120$:   INSTER  ;RETRY
(2)  013634  000742                          BR      PARAM1
(2)
(2)                                          ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
(2)
(2)  013636  020567  000042          LIMITS: CMP     R5,HILIM
(2)  013642  101365                          BHI     PARERR  ;THE # IS TOO HIGH
(2)  013644  020567  000032                  CMP     R5,LOLIM
(2)  013650  103762                          BLO     PARERR  ;THE # IS TOO LOW
(2)  013652  136705  000032                  BITB    LOBITS,R5       ;TEST BY MASKINGTHE #
(2)  013656  001357                          BNE     PARERR
(2)
(2)                                          ;STORE NUMBER AT SPECIFIED ADDRESS
(2)
(2)  013660  016704  000022                  MOV     DEVADR,R4       ;GET STARTING ADDR OF
(2)  013664  010524                  1$:     MOV     R5,(R4)+        ;STORE AT THIS ADDR
(2)  013666  062705  000002                  ADD     #2,R5
(2)  013672  105367  000013                  DECB    ADRCNT  ;HOW MANY TIMES + 2 ?
(2)  013676  001372                          BNE     1$
(2)  013700  000002                  PARTI:  RTI
(2)  013702  000000                  LOLIM:  0
(2)  013704  000000                  HILIM:  0
(2)  013706  000000                  DEVADR: 0
(2)  013710  000000                  LOBITS: 0
(2)          013711                  ADRCNT=LOBITS+1
(1)  013712                          $REG
(2)
(2)                                          ;SAVE PC OF TEST THAT FAILED AND R0-R5
(2)
(2)  013712  016667  000004  165206  .SAV05: MOV     4(SP),SAVPC
(2)
(2)                                          ;SAVE R0-R5
(2)
(2)  013720  010567  165550          SV05:   MOV     R5,$REG5
(2)  013724  010467  165542                  MOV     R4,$REG4
(2)  013730  010367  165534                  MOV     R3,$REG3
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(2)  013734  010267  165526                MOV     R2,$REG2
(2)  013740  010167  165520                MOV     R1,$REG1
(2)  013744  010067  165512                MOV     R0,$REG0
(2)  013750  000002                        RTI
(2)
(2)                                        ;RESTORE R0-R5
(2)
(2)  013752  016700  165504        .RES05: MOV     $REG0,R0
(2)  013756  016701  165502                MOV     $REG1,R1
(2)  013762  016702  165500                MOV     $REG2,R2
(2)  013766  016703  165476                MOV     $REG3,R3
(2)  013772  016704  165474                MOV     $REG4,R4
(2)  013776  016705  165472                MOV     $REG5,R5
(2)  014002  000002                        RTI
(1)  014004                        $CONVRT
(2)
(2)                                        ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
(2)
(2)  014004  104401                .CONVR: TYPE
(2)  014006  015463                        MCRLF   ;CR  LF
(2)  014010  017601  000000                MOV     @(SP),R1        ;PICK UP DATA POINTER
(2)  014014  062716  000002                ADD     #2,(SP) ;SET UP SP FOR RTI
(2)  014020  012167  000130                MOV     (R1)+,WRDCNT    ;PICK UP # OF WORDS FROM TABLE
(2)  014024  112167  000126        1$:     MOVB    (R1)+,CHRCNT    ;PICK UP # OF CHARS FROM TABLE
(2)  014030  112167  000123                MOVB    (R1)+,SPACNT    ;PICK UP # OF SPACES FROM TABLE
(2)  014034  013167  000120                MOV     @(R1)+,BINWRD   ;PICK UP ADDRESS OF  MSG
(2)                                                                ;FROM TABLE
(2)  014040  016704  000114        2$:     MOV     BINWRD,R4       ;SAVE
(2)  014044  116705  000106                MOVB    CHRCNT,R5       ;SAVE
(2)  014050  012700  016234                MOV     #TEMP,R0        ;STARTING ADDRESS OF TEMP BLOCK
(2)  014054  010403                3$:     MOV     R4,R3           ;SAVE
(2)  014056  042703  177770                BIC     #177770,R3      ;CLR OUT UPPER BITS .. SAVE CHAR
(2)  014062  062703  000260                ADD     #260,R3 ;CONVERT TO ASCII
(2)  014066  110320                        MOVB    R3,(R0)+        ;STORE AWAY
(2)  014070  006204                        ASR     R4      ;SHIFT FOR NEXT #
(2)  014072  006204                        ASR     R4      ;DITTO
(2)  014074  006204                        ASR     R4      ;DITTO
(2)  014076  005305                        DEC     R5      ;DEC CHAR COUNT
(2)  014100  001365                        BNE     3$      ;DO IT AGAIN ?
(2)  014102  012703  016276                MOV     #MDATA,R3       ;STARTING ADDRESS OF MDATA BLOCK
(2)  014106  114023                4$:     MOVB    -(R0),(R3)+     ;REVERSE THE ORDER OF NUMBERS
(2)  014110  105367  000042                DECB    CHRCNT  ;DEC CHAR COUNT
(2)  014114  001374                        BNE     4$      ;DO IT AGAIN ?
(2)  014116  105767  000035                TSTB    SPACNT  ;HOW MANY SPACES ?
(2)  014122  001405                        BEQ     6$      ;TYPE # IF BR =0
(2)  014124  112723  000240        5$:     MOVB    #240,(R3)+      ;"SPACE" IN ASCII
(2)  014130  105367  000023                DECB    SPACNT  ;DEC # OF SPACE COUNT
(2)  014134  001373                        BNE     5$      ;DO IT AGAIN ?
(2)  014136  105013                6$:     CLRB    (R3)    ;INSERT "0" FOR TTY OUTPUT ROUTINE
(2)  014140  104401                        TYPE
(2)  014142  016276                        MDATA   ;THIS MESSAGE
(2)  014144  005367  000004                DEC     WRDCNT  ;HOW MANY #'S ?
(2)  014150  001325                        BNE     1$      ;DO THIS ROUTINE AGAIN IF NOT EQUAL TO 0
(2)  014152  000002                        RTI     ;RETURN TO PROGRAM
(2)  014154  000000                WRDCNT: 0
(2)  014156  000000                CHRCNT: 0
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(2)             014157                  SPACNT=CHRCNT+1
(2)   014160    000000                  BINWRD: 0
(1)   014162                            $SETFLG
(2)
(2)                                             ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
(2)                                             ;BUFFER TO THE CHARACTERS "N" AND "Y".
(2)                                             ;IF THE CHARACTER IS "N" CLEAR THE FLAG
(2)                                             ;IF THE CHARACTER IS "Y" SET THE FLAG
(2)
(2)   014162  017605  000000          .SETFLG:MOV     @(SP),R5
(2)   014166  122767  000116  001776            CMPB    #'N,INBUF       ;IS IT "N" ?
(2)   014174  001002                            BNE     1$
(2)   014176  105015                            CLRB    (R5)    ;000
(2)   014200  000406                            BR      2$
(2)   014202  122767  000131  001762  1$:       CMPB    #'Y,INBUF       ;IS IT "Y" ?
(2)   014210  001005                            BNE     3$
(2)   014212  112715  177777                    MOVB    #-1,(R5)        ;377
(2)   014216  062716  000002          2$:       ADD     #2,(SP)
(2)   014222  000002                            RTI
(2)   014224  104407                  3$:       INSTER  ;RETRY
(2)   014226  000755                            BR      .SETFLG
(1)   014230                          .$ERROR SAVIT
(2)                                   .SBTTL  ERROR HANDLER ROUTINE
(2)
(2)   014230                          STARS
(3)             001                   .IF B
(3)                                   ;;**********************************************************************
(3)                                   .IFF
(3)                                   .NLIST
(3)                                   .REPT
(3)                                   .LIST
(3)                                   ;;**********************************************************************
(3)                                   .NLIST
(3)                                   .ENDR
(3)                                   .LIST
(3)             000                   .ENDC
(2)                                   ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
(2)                                   ;*SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
(2)             001                   .IF B SAVIT
(2)                                   .IIF NE 20000&$SWR,;*AND TYPE OUT THE PC OF THE ERROR INSTRUCTION
(2)                                   .IFF
(2)                                   ;*AND GO TO SAVIT ON ERROR
(2)             000                   .ENDC
(2)                                   ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
                                      ;*SW15=1        HALT ON ERROR
                                      ;*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)   014230                          $ERROR:
(2)                                   .IIF NE $SETUP&100,     CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
(2)             001                   .IF NB <>
(2)                                   .IRP NEWINS,<>
(2)                                           NEWINS
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```
(2)                                     .ENDM
(2)                                     .ENDC
(2)  014230  105267  165147             7$:     INCB    $ERFLG          ;;SET THE ERROR FLAG
(2)  014234  001775                             BEQ     7$              ;;DON'T LET THE FLAG GO TO ZERO
(2)  014236  016777  165140  165176             MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER AND ERROR FLAG
(2)                                     .IF EQ  2000&$SWR       ;SW10
(2)                                             INC     $ERTTL          ;;INC THE ERROR COUNT
(2)                                     .IFF
(2)  014244  032777  002000  165166             BIT     #BIT10,@SWR     ;;BELL ON ERROR?
(2)  014252  001402                             BEQ     1$              ;;NO - SKIP
(2)  014254  104401  001516                     TYPE    ,$BELL          ;;RING BELL
(2)  014260  005267  165126             1$:     INC     $ERTTL          ;;COUNT THE NUMBER OF ERRORS
(2)                                     .ENDC
(2)  014264  011667  165126                     MOV     (SP),$ERRPC     ;;GET ADDRESS OF ERROR INSTRUCTION
(2)  014270  162767  000002  165120             SUB     #2,$ERRPC
(2)  014276  117767  165114  165110             MOVB    @$ERRPC,$ITEMB  ;;STRIP AND SAVE THE ERROR ITEM CODE
(2)                                     .IF NE  20000&$SWR      ;SW13
(2)  014304  032777  020000  165126             BIT     #BIT13,@SWR     ;;SKIP TYPEOUT IF SET
(2)  014312  001004                             BNE     20$             ;;SKIP TYPEOUTS
(2)                                     .IFTF
(2)                                     .IF DF $40CAT
(2)                                             CMP     (SP),#1002      ;;IF RETURN PC LESS THAN 1002
(2)                                             BHI     12$             ;;ERROR IS ILLEGAL TRAP
(2)                                     ;;PROCESS UNEXPECTED TRAP OR INTERRUPT
(2)                                             MOV     4(SP),$ERRPC    ;;GET PC AT TIME OF FALSE TRAP
(2)                                             SUB     #2,$ERRPC       ;;ADJUST PC
(2)                                             TYPE    ,10$            ;;TYPE HEADER
(2)                                             TYPOCT  $ERRPC          ;;TYPE PC AT TIME OF ERROR
(2)                                             TYPE    ,11$
(2)                                             SUB     #4,(SP)         ;;GET FALSE TRAP VECTOR ADDR
(2)                                             MOV     (SP),$ERRPC
(2)                                             TYPOCT  $ERRPC
(2)                                             TYPE    ,$CRLF
(2)                                             CMP     (SP)+,(SP)+     ;;POP FALSE TRAP VECTOR PC&ADDR
(2)                                             BR      20$
(2)                                     10$:    .ASCIZ  <200>'PC= '
(2)                                     11$:    .ASCIZ  '  UNEXPECTED TRAP TO '
(2)                                             .EVEN
(2)                                     12$:
(2)                                     .ENDC
(2)                                     .IF NB  SAVIT
(2)  014314  004767  000072                     JSR     PC,SAVIT        ;;GO TO USER ERROR ROUTINE
(2)                                     .ENDC
(2)                                     .IFT
(2)                                     .IF B SAVIT
(2)                                             TYPE    ,$CRLF
(2)                                             TYPOCT  $ERRPC,<ERROR ADDRESS>
(2)                                     .ENDC
(2)  014320  104401  001523                     TYPE    ,$CRLF
(2)                                     .ENDC
(2)  014324                             20$:
(2)                                     .IF DF $MAIL
(2)  014324  122767  000001  165214             CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
(2)  014332  001007                             BNE     2$              ;;NO,SKIP APT ERROR REPORT
(2)  014334  116767  165054  000004             MOVB    $ITEMB,21$      ;;SET ITEM NUMBER AS ERROR NUMBER
(2)  014342  004767  163450                     JSR     PC,$ATY4        ;;REPORT FATAL ERROR TO APT
```

```
(2) 014346  000                 21$:    .BYTE   0
(2) 014347  000                         .BYTE   0
(2) 014350  000777              22$:    BR      22$             ;;APT ERROR LOOP
(2)           000               .ENDC
(2)           001               .IF NE $SWR&100000      ;SW15
(2) 014352  005777  165062      2$:     TST     @SWR            ;;HALT ON ERROR
(2) 014356  100001              BPL     3$                      ;;SKIP IF CONTINUE
(2) 014360  000000              HALT                            ;;HALT ON ERROR!
(2)                             .IIF NE $SETUP&100,     CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
(2)           002               .IF NE $SWR&1000        ;SW09
(2) 014362  032777  001000  165050  3$:     BIT     #BIT09,@$WR     ;;LOOP ON ERROR SWITCH SET?
(2) 014370  001402              BEQ     4$                      ;;BR IF NO
(2) 014372  016716  165012      MOV     $LPERR,(SP)             ;;FUDGE RETURN FOR LOOPING
(2) 014376  005767  165112      4$:     TST     $ESCAPE         ;;CHECK FOR AN ESCAPE ADDRESS
(2) 014402  001402              BEQ     5$                      ;;BR IF NONE
(2) 014404  016716  165104      MOV     $ESCAPE,(SP)            ;;FUDGE RETURN ADDRESS FOR ESCAPE
(2) 014410                      5$:
(2)                             .IFF
(2)                             3$:
(2)           001               .ENDC
(2)                             .IFF
(2)           002               .IF NE $SWR&1000        ;SW09
(2)                             2$:     BIT     #BIT09,@$WR     ;;LOOP ON ERROR?
(2)                             BEQ     3$                      ;;BR IF NO
(2)                             MOV     $LPERR,(SP)             ;;FUDGE RETURN FOR LOOPING
(2)                             3$:     TST     $ESCAPE         ;;CHECK FOR AN ESCAPE ADDRESS
(2)                             BEQ     4$                      ;;BR IF NONE
(2)                             MOV     $ESCAPE,(SP)            ;;FUDGE RETURN ADDRESS FOR ESCAPE
(2)                             4$:
(2)                             .IFF
(2)                             2$:
(2)           001               .ENDC
(2)           000               .ENDC
(2)           001               .IF NE $SETUP&20        ;BIT04--(.$EOP)
(2)                             CMP     #$ENDAD,@#42            ;;ACT-11 AUTO-ACCEPT?
(2)                             BNE     6$                      ;;BRANCH IF NO
(2)                             HALT                            ;;YES
(2)                             6$:
(2)           000               .ENDC
(2)           001               .IF B <>
(2) 014410  000002              RTI                             ;;RETURN
(2)                             .IFF
(2)                             .IRP LASTIN,<>
(2)                             LASTIN
(2)                             .ENDM
(2)           000               .ENDC
(2)                             .IIF NDF $ERTTL,$ERTTL:
(2)                             .IIF EQ .-$ERTTL,$ERTTL:        .WORD   0               ;;ERROR COUNT
(2)                             .IIF NDF $TSTNM,$TSTNM:
(2)                             .IIF EQ .-$TSTNM,$TSTNM:        .BYTE   0               ;;TEST NUMBER
(2)                             .IIF NDF $ERFLG,$ERFLG:
(2)                             .IIF EQ .-$ERFLG,$ERFLG:        .BYTE   0               ;;ERROR FLAG
(2)                             .IIF NE .&1,.EVEN
(2)           001               .IF NE $SWR&1000;SW09
(2)                             .IIF NDF $ESCAPE,$ESCAPE:
(2)                             .IIF EQ .-$ESCAPE,$ESCAPE: .WORD        0               ;;ESCAPE ON ERROR ADDRESS
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(2)             000                     .ENDC
(2)                                     .IIF NDF $ERRPC,$ERRPC:
(2)                                     .IIF EQ .-$ERRPC,$ERRPC:        .WORD   0               ;;LAST ERROR INSTRUCTION EXECUTE
(2)             001                     .IF NE $SWR&2000;SW10
(2)                                     .IIF NDF $BELL,$BELL:
(2)                                     .IIF EQ .-$BELL,$BELL:  .ASCIZ  <207><377><377> ;;ASCII CODE FOR BELL
(2)             000                     .ENDC
(2)                                     .IIF NDF $ITEMB,$ITEMB:
(2)                                     .IIF EQ .-$ITEMB,$ITEMB:        .WORD   0               ;;ITEM BYTE
(2)                                     .IIF NDF $QUES,$QUES:
(2)                                     .IIF EQ .-$QUES,$QUES:  .ASCII  "?"             ;;QUESTION MARK
(2)                                     .IIF NDF $CRLF,$CRLF:
(2)                                     .IIF EQ .-$CRLF,$CRLF:  .ASCII  <15>            ;;CARRAIGE RETURN
(2)                                     .IIF NDF $LF,$LF:
(2)                                     .IIF EQ .-$LF,$LF:      .ASCIZ  <12>            ;;LINEFEED
(2)                                     .IIF NE 1&.,    .EVEN
(1) 014412                              $NEED
(2) 014412  010067  164512              SAVIT:  MOV     R0,HLD0
(2) 014416  010167  164510                      MOV     R1,HLD1
(2) 014422  010267  164506                      MOV     R2,HLD2
(2) 014426  010367  164504                      MOV     R3,HLD3
(2) 014432  010467  164502                      MOV     R4,HLD4
(2) 014436  010567  164500                      MOV     R5,HLD5
(2) 014442  016767  164734  164474            MOV     $TSTNM,HLD6
(2)
(2) 014450                              .$ERRTYP
(3)                                     .SBTTL  ERROR MESSAGE TYPEOUT ROUTINE
(3)
(3) 014450                              STARS
(4)             001                     .IF B
(4)                                     ;;**********************************************************************
(4)                                     .IFF
(4)                                     .NLIST
(4)                                     .REPT
(4)                                     .LIST
(4)                                     ;;**********************************************************************
(4)                                     .NLIST
(4)                                     .ENDR
(4)                                     .LIST
(4)             000                     .ENDC
(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) 014450                              $ERRTYP:
(3) 014450  104401  001523                      TYPE    ,$CRLF                  ;;"CARRIAGE RETURN" & "LINE FEED"
(3) 014454  010046                              MOV     R0,-(SP)                ;;SAVE R0
(3) 014456  005000                              CLR     R0                      ;;PICKUP THE ITEM INDEX
(3) 014460  153700  001414                      BISB    @#$ITEMB,R0
(3) 014464  001004                              BNE     1$                      ;;IF ITEM NUMBER IS ZERO, JUST
(3)                                                                             ;;TYPE THE PC OF THE ERROR
(3) 014466                                      TYPOCT  $ERRPC,<ERROR ADDRESS>
(4) 014466  016746  164724                      MOV     $ERRPC,-(SP)            ;;SAVE $ERRPC FOR TYPEOUT
(4)                                                                             ;;ERROR ADDRESS
(4) 014472  104402                              TYPOC                           ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
(3)             001                     .IF B
```

```
(3)  014474  000426                        BR      6$              ;;GET OUT
(3)                                  .IFF
(3)                                          BR      10$             ;;GET OUT
(3)                 000              .ENDC
(3)  014476  005300                  1$:     DEC     R0              ;;ADJUST THE INDEX SO THAT IT WILL
(3)  014500  006300                          ASL     R0              ;;      WORK FOR THE ERROR TABLE
(3)  014502  006300                          ASL     R0
(3)  014504  006300                          ASL     R0
(3)  014506  062700  001652                  ADD     #$ERRTB,R0      ;;FORM TABLE POINTER
(3)  014512  012067  000004                  MOV     (R0)+,2$        ;;PICKUP "ERROR MESSAGE" POINTER
(3)  014516  001404                          BEQ     3$              ;;SKIP TYPEOUT IF NO POINTER
(3)  014520  104401                          TYPE                    ;;TYPE THE "ERROR MESSAGE"
(3)  014522  000000                  2$:     .WORD   0               ;;"ERROR MESSAGE" POINTER GOES HERE
(3)  014524  104401  001523                  TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
(3)  014530  012067  000004          3$:     MOV     (R0)+,4$        ;;PICKUP "DATA HEADER" POINTER
(3)  014534  001404                          BEQ     5$              ;;SKIP TYPEOUT IF 0
(3)  014536  104401                          TYPE                    ;;TYPE THE "DATA HEADER"
(3)  014540  000000                  4$:     .WORD   0               ;;"DATA HEADER" POINTER GOES HERE
(3)  014542  104401  001523                  TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
(3)                 001              .IF B
(3)  014546  011000                  5$:     MOV     (R0),R0         ;;PICKUP "DATA TABLE" POINTER
(3)  014550  001004                          BNE     7$              ;;GO TYPE THE DATA
(3)  014552  012600                  6$:     MOV     (SP)+,R0        ;;RESTORE R0
(3)
(3)  014554  104401  001523                  TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
(3)  014560  000207                          RTS     PC              ;;RETURN
(3)  014562                          7$:
(4)  014562  013046                          MOV     @(R0)+,-(SP)    ;;SAVE @(R0)+ FOR TYPEOUT
(4)                                  .IIF NB <>,                     ;;
(4)  014564  104402                          TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
(3)  014566  005710                          TST     (R0)            ;;IS THERE ANOTHER NUMBER?
(3)  014570  001770                          BEQ     6$              ;;BR IF NO
(3)  014572  104401  014600                  TYPE    ,8$             ;;TYPE TWO(2) SPACES
(3)  014576  000771                          BR      7$              ;;LOOP
(3)  014600  020040      000         8$:     .ASCIZ  /  /            ;;TWO(2) SPACES
(3)          014604                          .EVEN
(3)                                  .IFF
(3)                                  5$:     MOV     R1,-(SP)        ;;SAVE R1
(3)                                          MOV     (R0)+,R1        ;;PICKUP "DATA TABLE" POINTER
(3)                                          BEQ     9$              ;;BR IF NO DATA TO BE TYPED
(3)                                          MOV     (R0)+,R0        ;;PICKUP "DATA FORMAT" POINTER
(3)                                  6$:     TSTB    (R0)+           ;;"OCTAL" OR "DECIMAL"
(3)                                          BNE     7$              ;;BR IF DECIMAL
(3)                                          TYPOCT  @(R1)+          ;;TYPE AN OCTAL NUMBER
(3)                                          BR      8$
(3)                                  7$:     TYPDEC  @(R1)+          ;;TYPE  DECIMAL NUMBER
(3)                                  8$:     TST     (R1)            ;;IS THERE ANOTHER NUMBER?
(3)                                          BEQ     9$              ;;BR IF NO
(3)                                          TYPE    ,11$            ;;TYPE TWO(2) SPACES
(3)                                          BR      6$              ;;LOOP
(3)
(3)                                  9$:     MOV     (SP)+,R1        ;;RESTORE R1
(3)                                  10$:    MOV     (SP)+,R0        ;;RESTORE R0
(3)                                          TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
(3)                                          RTS     PC              ;;RETURN
(3)                                  11$:    .ASCIZ  /  /            ;;TWO(2) SPACES
```

```
(3)                                     .EVEN
(3)             000                     .ENDC
(1)  014604                             .$TYPOCT
(2)                                     .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE
(2)
(2)  014604                             STARS
(3)             001                     .IF B
(3)                                     ;;**********************************************************************
(3)                                     .IFF
(3)                                     .NLIST
(3)                                     .REPT
(3)                                     .LIST
(3)                                     ;;**********************************************************************
(3)                                     .NLIST
(3)                                     .ENDR
(3)                                     .LIST
(3)             000                     .ENDC
(2)                                     ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
(2)                                     ;*OCTAL (ASCII) NUMBER AND TYPE IT.
(2)                                     ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
(2)                                     ;*CALL:
(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)  014604  017646  000000             $TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
(2)  014610  116667  000001  000211             MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
(2)  014616  112667  000207                      MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
(2)  014622  062716  000002                      ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
(2)  014626  000406                              BR      $TYPON
(2)  014630  112767  000001  000171     $TYPOC: MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
(2)  014636  112767  000006  000165             MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
(2)  014644  112767  000005  000154     $TYPON: MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
(2)  014652  010346                              MOV     R3,-(SP)        ;;SAVE R3
(2)  014654  010446                              MOV     R4,-(SP)        ;;SAVE R4
(2)  014656  010546                              MOV     R5,-(SP)        ;;SAVE R5
(2)  014660  116704  000145                      MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
(2)  014664  005404                              NEG     R4
(2)  014666  062704  000006                      ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
(2)  014672  110467  000132                      MOVB    R4,$OMODE       ;;SAVE IT FOR USE
(2)  014676  116704  000125                      MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
(2)  014702  016605  000012                      MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
```

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(2)  014706  005003                    CLR     R3              ;;CLEAR THE OUTPUT WORD
(2)  014710  006105                1$:  ROL     R5              ;;ROTATE MSB INTO "C"
(2)  014712  000404                     BR      3$              ;;GO DO MSB
(2)  014714  006105                2$:  ROL     R5              ;;FORM THIS DIGIT
(2)  014716  006105                     ROL     R5
(2)  014720  006105                     ROL     R5
(2)  014722  010503                     MOV     R5,R3
(2)  014724  006103                3$:  ROL     R3              ;;GET LSB OF THIS DIGIT
(2)  014726  105367  000076              DECB    $OMODE          ;;TYPE THIS DIGIT?
(2)  014732  100016                      BPL     7$              ;;BR IF NO
(2)  014734  042703  177770              BIC     #177770,R3      ;;GET RID OF JUNK
(2)  014740  001002                      BNE     4$              ;;TEST FOR 0
(2)  014742  005704                      TST     R4              ;;SUPPRESS THIS 0?
(2)  014744  001403                      BEQ     5$              ;;BR IF YES
(2)  014746  005204                4$:   INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
(2)  014750  052703  000060              BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
(2)  014754  052703  000040        5$:   BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
(2)  014760  110367  000040              MOVB    R3,8$           ;;SAVE FOR TYPING
(2)  014764  104401  015024              TYPE    ,8$             ;;GO TYPE THIS DIGIT
(2)  014770  105367  000032        7$:   DECB    $OCNT           ;;COUNT BY 1
(2)  014774  003347                      BGT     2$              ;;BR IF MORE TO DO
(2)  014776  002402                      BLT     6$              ;;BR IF DONE
(2)  015000  005204                      INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
(2)  015002  000744                      BR      2$              ;;GO DO THE LAST DIGIT
(2)  015004  012605                6$:   MOV     (SP)+,R5        ;;RESTORE R5
(2)  015006  012604                      MOV     (SP)+,R4        ;;RESTORE R4
(2)  015010  012603                      MOV     (SP)+,R3        ;;RESTORE R3
(2)  015012  016666  000002  000004      MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
(2)  015020  012616                      MOV     (SP)+,(SP)
(2)  015022  000002                      RTI                     ;;RETURN
(2)  015024     000                8$:   .BYTE   0               ;;STORAGE FOR ASCII DIGIT
(2)  015025     000                      .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
(2)  015026     000                $OCNT:.BYTE   0               ;;OCTAL DIGIT COUNTER
(2)  015027     000                $OFILL:.BYTE  0               ;;ZERO FILL SWITCH
(2)  015030  000000                $OMODE:.WORD  0               ;;NUMBER OF DIGITS TO TYPE
(1)  015032                        $PFAIL
(2)                                ;ENTER HERE ON POWER FAILURE
(2)
(2)
(2)  015032                        $PWRDN:
(2)  015032  010046                .PFAIL: MOV     R0,-(SP)              ;SAVE R0-R5 ON PROCESSOR STACK
(2)  015034  010146                        MOV     R1,-(SP)
(2)  015036  010246                        MOV     R2,-(SP)
(2)  015040  010346                        MOV     R3,-(SP)
(2)  015042  010446                        MOV     R4,-(SP)
(2)  015044  010546                        MOV     R5,-(SP)
(2)  015046  016746  162752               MOV     24,-(SP)
(2)  015052  010667  164040               MOV     SP,SAVSP              ;SAVE STACK POINTER
(2)  015056  012767  015070  162740       MOV     #RESTART,24           ;SET UP FOR POWER UP TRAP
(2)  015064  000000                       HALT                          ;HALT ON POWER DOWN NORMAL
(2)  015066  000777                       BR      .
(2)
(2)                                ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
(2)
(2)  015070  016706  164022        RESTAR: MOV     SAVSP,SP              ;RESTORE STACK POINTER
(2)  015074  012605                        MOV     (SP)+,R5              ;RESTORE R0-R5
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(2)  015076  012604                        MOV     (SP)+,R4
(2)  015100  012603                        MOV     (SP)+,R3
(2)  015102  012602                        MOV     (SP)+,R2
(2)  015104  012601                        MOV     (SP)+,R1
(2)  015106  012600                        MOV     (SP)+,R0
(2)  015110  012767  015032  162706        MOV     #.PFAIL,24              ;SET UP FOR POWER FAILURE
(2)  015116  106427  000300                MTPS    #300
(2)  015122  012706  001100                MOV     #STACK,SP
(2)  015126  005067  001102                CLR     TEMP
(2)  015132  005267  001076                INC     TEMP
(2)  015136  001375                        BNE     .-4
(2)  015140  104413                        CONVRT
(2)  015142  015164                        PFTAB
(2)  015144  104401                        TYPE
(2)  015146  015466                        MPFAIL
(2)  015150  005067  164227                CLR     $ERFLG
(2)  015154  005067  164236                CLR     $ERRPC
(2)  015160  000177  163720                JMP     @RETURN
(2)  015164  000001                PFTAB:  1
(2)  015166     006     002                .BYTE   6,2
(2)  015170  000207                        RETURN
(1)  015172                        $MSG    <DUV11 CNDUU-A TAPE E>,<END OF PASS TAPE E>
(2)  015172  005015  042012  053125 MTITLE: .ASCIZ  <15><12><12>/DUV11 CNDUU-A TAPE E /<15><12>
(2)  015200  030461  041440  042116
(2)  015206  052525  040455  052040
(2)  015214  050101  020105  020105
(2)  015222  005015     000
(2)  015225     015  053012  041505 MVECTO: .ASCIZ  <15><12>/VEC ADD-/
(2)  015232  040440  042104  000055
(2)  015240  005015  051461  020124 MREGAD: .ASCIZ  <15><12>/1ST DEV: REC CSR ADD-/
(2)  015246  042504  035126  051040
(2)  015254  041505  041440  051123
(2)  015262  040440  042104  000055
(2)  015270  005015  052515  052114 MMULT:  .ASCIZ  <15><12>/MULT DEV ? (Y OR N)-/
(2)  015276  042040  053105  037440
(2)  015304  024040  020131  051117
(2)  015312  047040  026451     000
(2)  015317     015  046012  051501 MLASTD: .ASCIZ  <15><12>/LAST DEV: REC CSR ADDR-/
(2)  015324  020124  042504  035126
(2)  015332  051040  041505  041440
(2)  015340  051123  040440  042104
(2)  015346  026522     000
(2)  015351     075  042504  044526 DEVICE: .ASCIZ  /=DEVICE  /
(2)  015356  042503  020040     000
(2)  015363     015  051412  046105 MCOW:   .ASCIZ  <15><12>/SELECT TO RUN @ACTREG/
(2)  015370  041505  020124  047524
(2)  015376  051040  047125  040040
(2)  015404  041501  051124  043505
(2)  015412     000
(2)  015413     015  047412  043126 MRANGE: .ASCIZ  <15><12>/OVFLO:RETYPE LAST DEV RXCSR ADDS-/
(2)  015420  047514  051072  052105
(2)  015426  050131  020105  040514
(2)  015434  052123  042040  053105
(2)  015442  051040  041530  051123
(2)  015450  040440  042104  026523
(2)  015456     000
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(2)  015457     040  037440     000  MQM:     .ASCIZ  /  ?/
(2)  015463     015  000012          MCRLF:   .ASCIZ   <15><12>
(2)  015466  043120  044501  026114  MPFAIL:  .ASCIZ  /PFAIL,  RESTART AT TEST IN PROGRESS/
(2)  015474  020040  042522  052123
(2)  015502  051101  020124  052101
(2)  015510  052040  051505  020124
(2)  015516  047111  050040  047522
(2)  015524  051107  051505  000123
(2)  015532  005015  047105  020104  MEPASS:  .ASCIZ  <15><12>/END OF PASS TAPE E/
(2)  015540  043117  050040  051501
(2)  015546  020123  040524  042520
(2)  015554  042440     000
(2)  015557     015  051012     000  MR:      .ASCIZ  <15><12>/R/
(2)  015563     015  052012  051505  MTSTPC:  .ASCIZ  <15><12>/TEST PC-/
(2)  015570  020124  041520  000055
(2)  015576  005015  047514  045503  MLOCK:   .ASCIZ  <15><12>/LOCK ON  TEST? (Y OR N)-/
(2)  015604  047440  020116  052040
(2)  015612  051505  037524  024040
(2)  015620  020131  051117  047040
(2)  015626  026451     000
(2)  015631     015  021412  047440  MSYNC:   .ASCIZ  <15><12>/# OF SYNC CHARS SELECTED ( 1 OR 2)-/
(2)  015636  020106  054523  041516
(2)  015644  041440  040510  051522
(2)  015652  051440  046105  041505
(2)  015660  042524  020104  020050
(2)  015666  020061  051117  031040
(2)  015674  026451     000
(2)  015677     015  044412  020123  MWIRE6:  .ASCIZ  <15><12>/IS SEC XMIT SWITCH E55-2 IN? (Y OR N)-/
(2)  015704  042523  020103  046530
(2)  015712  052111  051440  044527
(2)  015720  041524  020110  032505
(2)  015726  026465  020062  047111
(2)  015734  020077  054450  047440
(2)  015742  020122  024516  000055
(2)  015750  005015  051511  051440  MWIRE5:  .ASCIZ  <15><12>/IS SEC REC SWITCH E55-3 IN? (Y OR N)-/
(2)  015756  041505  051040  041505
(2)  015764  051440  044527  041524
(2)  015772  020110  032505  026465
(2)  016000  020063  047111  020077
(2)  016006  054450  047440  020122
(2)  016014  024516  000055
(2)  016020  005015  051511  047440  MWIRE4:  .ASCIZ  <15><12>/IS OPT CLR ENABLE SWITCH E55-1 IN? (Y OR N)-/
(2)  016026  052120  041440  051114
(2)  016034  042440  040516  046102
(2)  016042  020105  053523  052111
(2)  016050  044103  042440  032465
(2)  016056  030455  044440  037516
(2)  016064  024040  020131  051117
(2)  016072  047040  026451     000
(2)  016077     015  005012  031510  MEXTJ:   .ASCIZ  <15><12><12>/H315 CONNECTOR ON ?(Y OR N)-/
(2)  016104  032461  041440  047117
(2)  016112  042516  052103  051117
(2)  016120  047440  020116  024077
(2)  016126  020131  051117  047040
(2)  016134  026451     000
(2)  016137     015  020012  043536  MCNTG:   .ASCIZ  <15><12>/ ^G  /
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(2)  016144  020040  000          
(2)  016147  000040  053523  036522  MMSWR:  .ASCIZ  / SWR=   /
(2)  016154  020040  000040
(2)  016160  020040  047040  053505  MMNEW:  .ASCIZ  /   NEW= /
(2)  016166  020075  000040
(2)                                  .EVEN
(1)  016172                          $BUFFER
(2)
(2)                                          ;BUFFERS FOR INPUT-OUTPUT
(2)
(2)  016172  000000                  INBUF:  0
(2)          016234                  .=.+40
(2)  016234  000000                  TEMP:   0
(2)          016276                  .=.+40
(2)  016276  000000                  MDATA:  0
(2)          016340                  .=.+40
(1)  016340                          $SCOPE
(2)  016340                          .$SCOPE 5,SC,,SC1
(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)              001                 .IF EQ $TSTNM+1-$ERFLG
(3)                                  ;*AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
(3)              000                 .ENDC
(3)                                  ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
(3)                                  ;*SW14=1         LOOP ON TEST
(3)                                  ;*SW11=1         INHIBIT ITERATIONS
(3)                                  ;*SW09=1         LOOP ON ERROR
(3)              001                 .IF NE 400&$SWR
(3)                                  ;*SW08=1         LOOP ON TEST IN SWR<7:0>
(3)                                  .IIF EQ <$SWRMK&377>-200,;*SW08=1        LOOP ON TEST IN SWR<6:0>
(3)                                  .IIF EQ <$SWRMK&377>-300,;*SW08=1        LOOP ON TEST IN SWR<5:0>
(3)                                  .IIF EQ <$SWRMK&377>-340,;*SW08=1        LOOP ON TEST IN SWR<4:0>
(3)                                  .IIF EQ <$SWRMK&377>-360,;*SW08=1        LOOP ON TEST IN SWR<3:0>
(3)                                  .IIF EQ <$SWRMK&377>-370,;*SW08=1        LOOP ON TEST IN SWR<2:0>
(3)                                  .IIF EQ <$SWRMK&377>-374,;*SW08=1        LOOP ON TEST IN SWR<1:0>
(3)                                  .IIF EQ <$SWRMK&377>-376;*SW08=1         LOOP ON TEST IN SWR<0>
(3)              000                 .ENDC
(3)                                  ;*CALL
(3)                                  ;*      SCOPE           ;;SCOPE=IOT
(3)
(3)  016340                          $SCOPE:
(3)                                  .IIF NE $SETUP&100,     CKSWR                    ;;TEST  FOR CHANGE IN SOFT-SWR
(3)              001                 .IF NB <SC>
(3)                                  .IRP NEWINS,<SC>
(3)                                          NEWINS
(4)                                  .ENDM
(4)  016340                                  SC
(5)
(5)                                          ;SCOPE LOOP AND INTERATION HANDLER
(5)
(5)  016340                          .SCOPE:
(5)  016340  004767  174376                  JSR     PC,CKSWR
(5)  016344  005067  163046                  CLR     $ERRPC          ;CLEAR LAST ERROR PC
(5)  016350  022716  003376                  CMP     #TST1+2,(SP)    ;IS SCOPE AT BEGINING OF TEST 1?
(5)  016354  001422                          BEQ     $XTSTR          ;YES NO LOOP.
```

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(5)
(5)  016356  032777  040000  163054  TTST:   BIT     #BIT14,@SWR     ;THIS CODE IS FOR TESTING FOR BIT 14
(5)  016364  001412                           BEQ     1$              ;ON LSI WHICH SYSMAC CANNOT HANDLE
(5)  016366  016767  163010  163012          MOV     $TSTNM,$LPADR
(5)  016374  000406                           BR      1$
(5)  016376  105777  163042                   TSTB    @$TKS           ;KEYBOARD DONE?
(5)  016402  100123                           BPL     $OVER           ;BR IF NO
(5)  016404  017766  163036  177776          MOV     @$TKB,-2(SP)    ;CLEAR DONE BIT
(3)             000                   .ENDC
(3)             001                   .IF NE $SWR&40000
(3)             002                   .IF DF $40CAT
(3)                                   ;;GO TO ERROR ROUTINE IF RETURN PC LESS THAN 1002
(3)                                   ;;OTHERWISE CONTINUE
(3)                                           CMP     (SP),#1002      ;;UNEXPECTED TRAP OR INTERRRUPT
(3)                                           BHI     1$              ;;ARE TRAPPED HERE VIA IOT
(3)                                           JMP     $ERROR          ;;GO PROCESS UNEXPECTED TRAP
(3)             001                   .ENDC
(3)  016412  032777  040000  163020  1$:     BIT     #BIT14,@SWR     ;;LOOP ON PRESENT TEST?
(3)  016420  001114                           BNE     $OVER           ;;YES IF SW14=1
(3)             000                   .ENDC
(3)                                   ;#####START OF CODE FOR THE XOR TESTER#####
(3)  016422  000416                   $XTSTR: BR      6$              ;;IF RUNNING ON THE ''XOR'' TESTER CHANGE
(3)                                                                   ;;THIS INSTRUCTION TO A ''NOP'' (NOP=240)
(3)  016424  013746  000004                   MOV     @#ERRVEC,-(SP)  ;;SAVE THE CONTENTS OF THE ERROR VECTOR
(3)  016430  012737  016450  000004           MOV     #5$,@#ERRVEC    ;;SET FOR TIMEOUT
(3)  016436  005737  177060                   TST     @#177060        ;;TIME OUT ON XOR?
(3)  016442  012637  000004                   MOV     (SP)+,@#ERRVEC  ;;RESTORE THE ERROR VECTOR
(3)  016446  000463                           BR      $SVLAD          ;;GO TO THE NEXT TEST
(3)  016450  022626                   5$:     CMP     (SP)+,(SP)+     ;;CLEAR THE STACK AFTER A TIME OUT
(3)  016452  012637  000004                   MOV     (SP)+,@#ERRVEC  ;;RESTORE THE ERROR VECTOR
(3)             001                   .IF NE $SWR&1000
(3)  016456  000423                           BR      7$              ;;LOOP ON THE PRESENT TEST
(3)                                   .IFF
(3)                                           BR      $OVER           ;;LOOP ON THE PRESENT TEST
(3)             000                   .ENDC
(3)  016460                           6$:;#####END OF CODE FOR THE XOR TESTER#####
(3)             001                   .IF NE $SWR&400
(3)  016460  032777  000400  162752           BIT     #BIT08,@SWR     ;;LOOP ON SPEC. TEST?
(3)             002                   .IF NE $SWR&5000;SW11 OR SW09
(3)  016466  001404                           BEQ     2$              ;;BR IF NO
(3)                                   .IFF
(3)                                           BEQ     $SVLAD          ;;BR IF NO
(3)             001                   .ENDC
(3)             002                   .IF NB
(3)             003                   .IF DIF <SW08TBL>,<>
(3)                                   .ERROR  ;ILLEGAL ARGUMENT IN .$SCOPE -
(3)                                   .IFF
(3)                                           CLR     -(SP)           ;;CLEAR A TEMP. LOCATION
(3)                                           MOVB    @SWR,(SP)       ;;PICKUP THE DESIRED TEST NUMBER
(3)                                   .IIF NE $SWRMK, BIC     #$SWRMK,(SP)    ;;MASK OUT UNDESIRED BITS
(3)                                           BEQ     8$              ;;BRANCH IF BAD TEST NUMBER IN SWR
(3)                                   .IRP    X,<\$TN-1>
(3)                                           CMP     #'X,(SP)        ;;CHECK THE NU
(3)                                   MBER IN THE SWR
(3)                                   .ENDM
(3)                                           BLT     8$              ;;BRANCH IF TEST NUMBER IS OUT OF RANGE
```

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(3)                                          MOV     (SP),$TSTNM     ;;UPDATE THE TEST NUMBER
(3)                                          DEC     (SP)            ;;BACKUP BY ONE
(3)                                          ASL     (SP)            ;;SCALE THE TEST NUMBER AS AN INDEX
(3)                                          ADD     #$SW08TBL,(SP)  ;;FORM THE ADDRESS OF TEST POINTER
(3)                                          MOV     @(SP)+,$LPADR   ;;SET LOOP ADDRESS TO DESIRED TEST
(3)                                          BR      $OVER           ;;GO LOOP ON THE TEST
(3)                                  8$:     TST     (SP)+           ;;CLEAN THE BAD TEST NUMBER OFF OF THE STACK
(3)              002                         .ENDC
(3)                                          .IFF
(3)              003                         .IF EQ $SWRMK
(3)  016470  127767  162744  162704          CMPB    @SWR,$TSTNM     ;;ON THE RIGHT TEST?    SWR<7:0>
(3)                                          .IFF
(3)                                          MOV     @SWR,-(SP)      ;;SET DESIRED TEST NUM. FROM SWR
(3)                                          BIC     #$SWRMK,(SP)    ;;STRIP AWAY UNDESIRED BITS
(3)                                          CMPB    (SP)+,$TSTNM    ;;ON THE RIGHT TEST?
(3)              002                         .ENDC
(3)  016476  001465                          BEQ     $OVER           ;;BR IF YES
(3)              001                         .ENDC
(3)              000                         .ENDC
(3)              001                         .IF NE $SWR&5000;SW11!SW09
(3)  016500  105767  162677          2$:     TSTB    $ERFLG          ;;HAS AN ERROR OCCURRED?
(3)              002                         .IF NE $SWR&4000;SW11
(3)  016504  001421                          BEQ     3$              ;;BR IF NO
(3)                                          .IFF
(3)                                          BEQ     $SVLAD          ;;BR IF NO
(3)              001                         .ENDC
(3)              002                         .IF NE $SWR&1000;SW09
(3)              003                         .IF NE $SWR&4000;SW11
(3)  016506  126767  162703  162667          CMPB    $ERMAX,$ERFLG   ;;MAX. ERRORS FOR THIS TEST OCCURRED?
(3)  016514  101015                          BHI     3$              ;;BR IF NO
(3)              002                         .ENDC
(3)  016516  032777  001000  162714          BIT     #BIT09,@SWR     ;;LOOP ON ERROR?
(3)  016524  001404                          BEQ     4$              ;;BR IF NO
(3)  016526  016767  162656  162652  7$:     MOV     $LPERR,$LPADR   ;;SET LOOP ADDRESS TO LAST SCOPE
(3)  016534  000446                          BR      $OVER
(3)                                          .IFTF
(3)  016536  105067  162641          4$:     CLRB    $ERFLG          ;;ZERO THE ERROR FLAG
(3)  016542  005067  162744                  CLR     $TIMES          ;;CLEAR THE NUMBER OF ITERATIONS TO MAKE
(3)                                          .IFT
(3)  016546  000415                          BR      1$              ;;ESCAPE TO THE NEXT TEST
(3)              001                         .ENDC
(3)              000                         .ENDC
(3)              001                         .IF NE $SWR&4000;SW11
(3)  016550  032777  004000  162662  3$:     BIT     #BIT11,@SWR     ;;INHIBIT ITERATIONS?
(3)  016556  001011                          BNE     1$              ;;BR IF YES
(3)              002                         .IF B
(3)  016560  005767  162750                  TST     $PASS           ;;IF FIRST PASS OF PROGRAM
(3)  016564  001406                          BEQ     1$              ;;      INHIBIT ITERATIONS
(3)              001                         .ENDC
(3)  016566  005267  162612                  INC     $ICNT           ;;INCREMENT ITERATION COUNT
(3)  016572  026767  162714  162604          CMP     $TIMES,$ICNT    ;;CHECK THE NUMBER OF ITERATIONS MADE
(3)  016600  002024                          BGE     $OVER           ;;BR IF MORE ITERATION REQUIRED
(3)  016602  012767  000001  162574  1$:     MOV     #1,$ICNT        ;;REINITIALIZE THE ITERATION COUNTER
(3)  016610  016767  000056  162674          MOV     $MXCNT,$TIMES   ;;SET NUMBER OF ITERATIONS TO DO
(3)              000                         .ENDC
(3)  016616  105267  162560          $SVLAD: INCB    $TSTNM          ;;COUNT TEST NUMBERS
```

```
(3)                001                     .IF DF $MAIL
(3)  016622  116767  162554  162702              MOVB    $TSTNM,$TESTN   ;;SET TEST NUMBER IN APT MAILBOX
(3)                000                     .ENDC
(3)  016630  011667  162552              MOV     (SP),$LPADR     ;;SAVE SCOPE LOOP ADDRESS
(3)                001                     .IF NE $SWR&1000;SW09
(3)  016634  011667  162550              MOV     (SP),$LPERR     ;;SAVE ERROR LOOP ADDRESS
(3)  016640  005067  162650              CLR     $ESCAPE         ;;CLEAR THE ESCAPE FROM ERROR ADDRESS
(3)  016644  112767  000001  162543      MOVB    #1,$ERMAX       ;;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
(3)                000                     .ENDC
(3)                                        .IIF EQ $SWR&5000,      CLRB    $ERFLG          ;;ZERO THE ERROR FLAG
(3)  016652  016777  162524  162562  $OVER:  MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER
(3)  016660  016716  162522              MOV     $LPADR,(SP)     ;;FUDGE RETURN ADDRESS
(3)                001                     .IF B <SC1>
(3)                                        RTI                     ;;FIXES PS
(3)                                        .IFF
(3)                                        .IRP LASTIN,<SC1>
(3)                                        LASTIN
(4)                                        .ENDM
(4)  016664                                SC1
(5)  016664  000002                        4$:     RTI
(5)  016666  001407                        BRW:    1407
(5)  016670  000432                        BRX:    432
(3)                000                     .ENDC
(3)                                        .IIF NDF $LPADR,$LPADR:
(3)                                        .IIF EQ .-$LPADR,$LPADR:        0                       ;;SCOPE LOOP ADDRESS
(3)                001                     .IF NE $SWR&1000;SW09
(3)                                        .IIF NDF $LPERR,$LPERR:
(3)                                        .IIF EQ .-$LPERR,$LPERR:        0                       ;;ERROR LOOP ADDRESS
(3)                000                     .ENDC
(3)                001                     .IF NE $SWR&4000;SW11
(3)                                        .IIF NDF $TIMES,$TIMES:
(3)                                        .IIF EQ .-$TIMES,$TIMES:        0                       ;;NUMBER OF ITERATIONS TO PERFOR
(3)                                        .IIF    NDF     $ICNT,$ICNT:
(3)                                        .IIF    EQ      .-$ICNT,$ICNT:  0
(3)                                        .IIF    NDF $MXCNT,$MXCNT:
(3)                002                     .IF     B 5
(3)                                        .IIF    EQ .-$MXCNT,$MXCNT:     2000.                   ;;MAX. NUMBER OF ITERATIONS
(3)                                        .IFF
(3)  016672  000005                        $MXCNT: 5                       ;;MAX. NUMBER OF ITERATIONS
(3)                001                     .ENDC
(3)                002                     .IF B
(3)                                        .IIF NDF $PASS,$PASS:
(3)                                        .IIF EQ .-$PASS,$PASS:  0                       ;;PASS COUNT
(3)                001                     .ENDC
(3)                000                     .ENDC
(3)                                        .IIF NDF $TSTNM,$TSTNM:
(3)                                        .IIF EQ .-$TSTNM,$TSTNM:        .BYTE   0               ;;TEST NUMBER
(3)                                        .IIF NDF $ERFLG,$ERFLG:
(3)                                        .IIF EQ .-$ERFLG,$ERFLG:        .BYTE   0               ;;ERROR FLAG
(3)                                        .IIF NE .&1,.EVEN
(3)                                        .IIF NDF $ERMAX,$ERMAX:
(3)                                        .IIF EQ .-$ERMAX,$ERMAX:        1                       ;;MAX. ERRORS PER TEST
(3)                001                     .IF NB
(3)                002                     .IF IDN SW08TBL,<>
(3)                                        .NLIST
(3)                                        $$SW08=1
```

```
(3)                                     .LIST
(3)                                     $SW08TBL:
(3)                                     .REPT   $TN-1
(3)                                     .IRP    X,<\$$SW08>
(3)                                             .WORD   TST'X+2         ;;STARTING ADDRESS OF TEST X
(3)                                     .ENDM
(3)                                     .NLIST
(3)                                     $$SW08=$$SW08+1
(3)                                     .LIST
(3)                                     .ENDR
(3)             001                     .ENDC
(3)             000                     .ENDC
(1)  016674                             .$TRAP
(2)                                     .SBTTL  TRAP DECODER
(2)
(2)  016674                             STARS
(3)             001                     .IF B
(3)                                     ;;**********************************************************************
(3)                                     .IFF
(3)                                     .NLIST
(3)                                     .REPT
(3)                                     .LIST
(3)                                     ;;**********************************************************************
(3)                                     .NLIST
(3)                                     .ENDR
(3)                                     .LIST
(3)                                     .ENDC
(2)             000                     ;*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)             001                     .IF B
(2)  016674  010046                     $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
(2)                                     .IFF
(2)                                     $TRAP:  MOV     2(SP),-(SP)     ;
(2)                                     ;ASSUME THE STATUS OF
(2)                                             BIC     #20,(SP)        ;; THE CALLER--DO NOT ALLOW
(2)                                             MOV     #1$,-(SP)       ;; T-BIT TRAPS
(2)                                             RTI                     ;;SET THE NEW STATUS
(2)                                     1$:     MOV     R0,-(SP)        ;;SAVE R0
(2)             000                     .ENDC
(2)  016676  016600  000002                     MOV     2(SP),R0        ;;GET TRAP ADDRESS
(2)  016702  005740                             TST     -(R0)           ;;BACKUP BY 2
(2)  016704  111000                             MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
(2)             001                     .IF NB
(2)                                             BPL     $TRAP1          ;;NON-USER TRAP,BELOW 200
(2)                                             BIC     #^C177,R0       ;;STRIP AWAY THE JUNK
(2)                                             JMP     (PC)            ;;USER TRAP,ABOVE 177, GO TO
(2)                                             .WORD                   ;; USER TRAP HANDLER-
(2)                                     $TRAP1:
(2)             000                     .ENDC
(2)             001                     .IF NB
(2)                                             CMP     #$TERM,R0       ;;CHECK FOR OUT OF BOUNDS
(2)                                             BGT     .+6             ;;BR IF OK
(2)                                             HALT                    ;;OUT OF BOUNDS
```

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(2)                                             BR      .-2             ;;HANGUP
(2)                 000                 .ENDC
(2)  016706  006300                             ASL     R0              ;;POSITION FOR INDEXING
(2)  016710  016000  016730                     MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
(2)  016714  000200                             RTS     R0              ;;GO TO ROUTINE
(2)
(2)
(2)                                 ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO
(2)
(2)  016716  011646                 $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
(2)  016720  016666  000004  000002         MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
(2)  016726  000002                         RTI                     ;;RESTORE THE PSW
(2)
(2)                                 .MACRO  SETTRAP A,B,MSG
(2)                                         $$SET   A,B,\<TRAP+$TRP>,\$TRP,<MSG>
(2)                                 .NLIST
(2)                                 $TRP=$TRP+1
(2)                                 .LIST
(2)                                 .ENDM   SETTRAP
(2)                                 .MACRO  $$SET   A,B,C,D,COMNT
(2)                                 .IF EQ $TRP-1
(2)                                 .SBTTL  TRAP TABLE
(2)
(2)                                 ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(2)                                 ;*BY THE "TRAP" INSTRUCTION.
(2)
(2)                                 ;       ROUTINE
(2)                                 ;       -------
(2)                                 $TRPAD: .WORD   $TRAP2
(2)                                 .ENDC
(2)                                 .IIF NDF GNS,.NLIST
(2)                                         A=      C
(2)                                 .IIF NDF GNS,.LIST
(2)                                         B       ;;CALL=A        TRAP+D(C)       COMNT
(2)                                 .ENDM   $$SET
(2)                                 .MACRO  TRMTRP
(2)                                 $TERM=.-$TRPAD
(2)                                 .ENDM   TRMTRP
(2)             000001              $TRP=1
(2)                001              .IF DF $TYPE
(2)  016730                                 SETTRAP TYPE,$TYPE,^/TTY TYPEOUT ROUTINE/
(3)  016730                                 $$SET   TYPE,$TYPE,\<TRAP+$TRP>,\$TRP,<TTY TYPEOUT ROUTINE>
(4)                002              .IF EQ $TRP-1
(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)  016730  016716                 $TRPAD: .WORD   $TRAP2
(4)                001              .ENDC
(4)             104401                      TYPE=   104401
(4)  016732  013112                         $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
(3)             000002              $TRP=$TRP+1
(2)                000              .ENDC
```

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(2)                 001                 .IF DF $TYPOC
(2)   016734                                    SETTRAP TYPOC,$TYPOC,^/TYPE OCTAL NUMBER (WITH LEADING ZEROS)/
(3)   016734                                    $$SET   TYPOC,$TYPOC,\<TRAP+$TRP>,\$TRP,<TYPE OCTAL NUMBER (WITH LEADING ZEROS)>
(4)                 002                 .IF EQ $TRP-1
(4)                                     .SBTTL  TRAP TABLE
(4)
(4)                                     ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(4)                                     ;*BY THE "TRAP" INSTRUCTION.
(4)
(4)                                     ;       ROUTINE
(4)                                     ;       -------
(4)                                     $TRPAD: .WORD   $TRAP2
(4)                 001                 .ENDC
(4)               104402                        TYPOC=  104402
(4)   016734    014630                          $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
(3)               000003            $TRP=$TRP+1
(2)   016736                                    SETTRAP TYPOS,$TYPOS,^/TYPE OCTAL NUMBER (NO LEADING ZEROS)/
(3)   016736                                    $$SET   TYPOS,$TYPOS,\<TRAP+$TRP>,\$TRP,<TYPE OCTAL NUMBER (NO LEADING ZEROS)>
(4)                 002                 .IF EQ $TRP-1
(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)                                     $TRPAD: .WORD   $TRAP2
(4)                 001                 .ENDC
(4)               104403                        TYPOS=  104403
(4)   016736    014604                          $TYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
(3)               000004            $TRP=$TRP+1
(2)   016740                                    SETTRAP TYPON,$TYPON,^/TYPE OCTAL NUMBER (AS PER LAST CALL)/
(3)   016740                                    $$SET   TYPON,$TYPON,\<TRAP+$TRP>,\$TRP,<TYPE OCTAL NUMBER (AS PER LAST CALL)>
(4)                 002                 .IF EQ $TRP-1
(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)                                     $TRPAD: .WORD   $TRAP2
(4)                 001                 .ENDC
(4)               104404                        TYPON=  104404
(4)   016740    014644                          $TYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
(3)               000005            $TRP=$TRP+1
(2)                 000                 .ENDC
(2)                 001                 .IF DF $TYPDS
(2)                                             SETTRAP TYPDS,$TYPDS,^/TYPE DECIMAL NUMBER (WITH SIGN)/
(2)                 000                 .ENDC
(2)                 001                 .IF DF $TYPBN
(2)                                             SETTRAP TYPBN,$TYPBN,^/TYPE BINARY (ASCII) NUMBER/
(2)                 000                 .ENDC
(2)
(2)                 001                 .IF DF $GTSWR
(2)                                             SETTRAP GTSWR,$GTSWR,^/GET SOFT-SWR SETTING/
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(2)             000                     .ENDC
(2)
(2)             001                     .IF DF $CKSWR
(2)                                             SETTRAP CKSWR,$CKSWR,^/TEST FOR CHANGE IN SOFT-SWR/
(2)             000                     .ENDC
(2)             001                     .IF DF $RDCHR
(2)                                             SETTRAP RDCHR,$RDCHR,^/TTY TYPEIN CHARACTER ROUTINE/
(2)             000                     .ENDC
(2)             001                     .IF DF $RDLIN
(2)                                             SETTRAP RDLIN,$RDLIN,^/TTY TYPEIN STRING ROUTINE/
(2)             000                     .ENDC
(2)             001                     .IF DF $RDOCT
(2)                                             SETTRAP RDOCT,$RDOCT,^/READ AN OCTAL NUMBER FROM TTY/
(2)             000                     .ENDC
(2)             001                     .IF DF $RDDEC
(2)                                             SETTRAP RDDEC,$RDDEC,^/READ A DECIMAL NUMBER FROM TTY/
(2)             000                     .ENDC
(2)             001                     .IF DF $SAVREG
(2)                                             SETTRAP SAVREG,$SAVREG,^/SAVE R0-R5 ROUTINE/
(2)                                             SETTRAP RESREG,$RESREG,^/RESTORE R0-R5 ROUTINE/
(2)             000                     .ENDC
(2)             001                     .IF DF  $R2A
(2)                                             SETTRAP R2AZ,$R2AZ
(2)                                             SETTRAP R2AZ.,$R2AZ.
(2)                                             SETTRAP R2AZQ,$R2AZQ
(2)             000                     .ENDC
(1)  016742                             SETTRAP SCOP1,.SCOP1    ;CALL TO LOOP ON CURRENT DATA HANDLER
(2)  016742                                     $$SET   SCOP1,.SCOP1,\<TRAP+$TRP>,\$TRP,<>
(3)             001                     .IF EQ $TRP-1
(3)                                     .SBTTL  TRAP TABLE
(3)
(3)                                     ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(3)                                     ;*BY THE "TRAP" INSTRUCTION.
(3)
(3)                                     ;       ROUTINE
(3)                                     ;       -------
(3)                                     $TRPAD: .WORD   $TRAP2
(3)               000                   .ENDC
(3)            104405                           SCOP1=  104405
(3)  016742    013070                           .SCOP1  ;;CALL=SCOP1    TRAP+5(104405)
(2)            000006                   $TRP=$TRP+1
(1)  016744                             SETTRAP INSTR,.INSTR    ;ACLL TO ASCII STRING OUTPUT ROUTINE
(2)  016744                                     $$SET   INSTR,.INSTR,\<TRAP+$TRP>,\$TRP,<>
(3)               001                   .IF EQ $TRP-1
(3)                                     .SBTTL  TRAP TABLE
(3)
(3)                                     ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(3)                                     ;*BY THE "TRAP" INSTRUCTION.
(3)
(3)                                     ;       ROUTINE
(3)                                     ;       -------
(3)                                     $TRPAD: .WORD   $TRAP2
(3)               000                   .ENDC
(3)            104406                           INSTR=  104406
(3)  016744    013374                           .INSTR  ;;CALL=INSTR    TRAP+6(104406)
(2)            000007                   $TRP=$TRP+1
```

```
(1)  016746                          SETTRAP INSTER,..INSTER  ;CALL TO INPUT ERROR    4 HANDLER
(2)  016746                                  $$SET   INSTER,..INSTER,\<TRAP+$TRP>,\$TRP,<>
(3)                001               .IF EQ $TRP-1
(3)                                  .SBTTL  TRAP TABLE
(3)
(3)                                  ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(3)                                  ;*BY THE "TRAP" INSTRUCTION.
(3)
(3)                                  ;       ROUTINE
(3)                                  ;       -------
(3)                                  $TRPAD: .WORD   $TRAP2
(3)                000               .ENDC
(3)              104407                      INSTER= 104407
(3)  016746      013502                      .INSTER ;;CALL=INSTER   TRAP+7(104407)
(2)              000010              $TRP=$TRP+1
(1)  016750                          SETTRAP PARAM,..PARAM    ;CALL TO NUMERICAL DATA INPUT ROUTINE
(2)  016750                                  $$SET   PARAM,..PARAM,\<TRAP+$TRP>,\$TRP,<>
(3)                001               .IF EQ $TRP-1
(3)                                  .SBTTL  TRAP TABLE
(3)
(3)                                  ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(3)                                  ;*BY THE "TRAP" INSTRUCTION.
(3)
(3)                                  ;       ROUTINE
(3)                                  ;       -------
(3)                                  $TRPAD: .WORD   $TRAP2
(3)                000               .ENDC
(3)              104410                      PARAM=  104410
(3)  016750      013512                      .PARAM  ;;CALL=PARAM    TRAP+10(104410)
(2)              000011              $TRP=$TRP+1
(1)  016752                          SETTRAP SAV05,..SAV05    ;CALL TO REGISTER SAVE ROUTINE
(2)  016752                                  $$SET   SAV05,..SAV05,\<TRAP+$TRP>,\$TRP,<>
(3)                001               .IF EQ $TRP-1
(3)                                  .SBTTL  TRAP TABLE
(3)
(3)                                  ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(3)                                  ;*BY THE "TRAP" INSTRUCTION.
(3)
(3)                                  ;       ROUTINE
(3)                                  ;       -------
(3)                                  $TRPAD: .WORD   $TRAP2
(3)                000               .ENDC
(3)              104411                      SAV05=  104411
(3)  016752      013712                      .SAV05  ;;CALL=SAV05    TRAP+11(104411)
(2)              000012              $TRP=$TRP+1
(1)  016754                          SETTRAP RES05,..RES05    ;CALL TO REGISTER RESTORE ROUTINE
(2)  016754                                  $$SET   RES05,..RES05,\<TRAP+$TRP>,\$TRP,<>
(3)                001               .IF EQ $TRP-1
(3)                                  .SBTTL  TRAP TABLE
(3)
(3)                                  ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(3)                                  ;*BY THE "TRAP" INSTRUCTION.
(3)
(3)                                  ;       ROUTINE
(3)                                  ;       -------
(3)                                  $TRPAD: .WORD   $TRAP2
```

```
(3)                 000                 .ENDC
(3)               104412                        RES05=  104412
(3)  016754       013752                        .RES05  ;;CALL=RES05    TRAP+12(104412)
(2)               000013            $TRP=$TRP+1
(1)  016756                         SETTRAP CONVRT,,CONVRT  ;CALL TO DATA OUTPUT ROUTINE
(2)  016756                                 $$SET   CONVRT,,CONVRT,\<TRAP+$TRP>,\$TRP,<>
(3)                 001             .IF EQ $TRP-1
(3)                                 .SBTTL  TRAP TABLE
(3)
(3)                                 ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(3)                                 ;*BY THE "TRAP" INSTRUCTION.
(3)
(3)                                 ;       ROUTINE
(3)                                 ;       -------
(3)                                 $TRPAD: .WORD   $TRAP2
(3)                 000             .ENDC
(3)               104413                        CONVRT= 104413
(3)  016756       014004                        .CONVRT ;;CALL=CONVRT   TRAP+13(104413)
(2)               000014            $TRP=$TRP+1
(1)  016760                         SETTRAP SETFLG,,SETFLG  ;CALL TO FLAG SET ROUTINE
(2)  016760                                 $$SET   SETFLG,,SETFLG,\<TRAP+$TRP>,\$TRP,<>
(3)                 001             .IF EQ $TRP-1
(3)                                 .SBTTL  TRAP TABLE
(3)
(3)                                 ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
(3)                                 ;*BY THE "TRAP" INSTRUCTION.
(3)
(3)                                 ;       ROUTINE
(3)                                 ;       -------
(3)                                 $TRPAD: .WORD   $TRAP2
(3)                 000             .ENDC
(3)               104414                        SETFLG= 104414
(3)  016760       014162                        .SETFLG ;;CALL=SETFLG   TRAP+14(104414)
(2)               000015            $TRP=$TRP+1
8730                                ;*************************************************************
8731                                ;       UTILITIES
8732                                ;*************************************************************
8733
8734                                ;THIS UTILITY CALCULATES PRIORITY LEVEL
8735  016762  006367  000044        DULEV:  ASL     DUPRT   ;SHIFT LEFT
8736  016766  006367  000040                ASL     DUPRT   ;
8737  016772  006367  000034                ASL     DUPRT   ;
8738  016776  006367  000030                ASL     DUPRT   ;
8739  017002  006367  000024                ASL     DUPRT   ;
8740  017006  016767  000020  000020        MOV     DUPRT,LESS1     ;MOVE THIS TO LESS1
8741  017014  162767  000001  000012        SUB     #1,LESS1        ;CREATE LESS1
8742  017022  042767  000037  000004        BIC     #37,LESS1       ;CLEAR TNZVC
8743  017030  000207                        RTS     PC
8744  017032  000240                DUPRT:  PR5
8745  017034  000200                LESS1:  PR4     ;LEVEL TO ALLOW INTERRUPTS
8746
8747                                ;NEW DU ADDRESSES
8748  017036  016767  000126  162646  DUADDR: MOV     DUBASE,RXCSR    ;XXX0
8749  017044  005267  000120                INC     DUBASE
8750  017050  016767  000114  162636        MOV     DUBASE,HRXCSR   ;XXX1
8751  017056  005267  000106                INC     DUBASE
```

```
 8752  017062  016767  000102  162626          MOV     DUBASE,RXDBUF   ;XXX2
 8753  017070  016767  000074  162624          MOV     DUBASE,PARCSR   ;XXX2
 8754  017076  005267  000066                  INC     DUBASE
 8755  017102  016767  000062  162610          MOV     DUBASE,HRXDBUF  ;XXX3
 8756  017110  016767  000054  162606          MOV     DUBASE,HPARCSR  ;XXX3
 8757  017116  005267  000046                  INC     DUBASE
 8758  017122  016767  000042  162576          MOV     DUBASE,TXCSR    ;XXX4
 8759  017130  005267  000034                  INC     DUBASE
 8760  017134  016767  000030  162566          MOV     DUBASE,HTXCSR   ;XXX5
 8761  017142  005267  000022                  INC     DUBASE
 8762  017146  016767  000016  162556          MOV     DUBASE,TXDBUF   ;XXX6
 8763  017154  005267  000010                  INC     DUBASE
 8764  017160  016767  000004  162546          MOV     DUBASE,HTXDBUF  ;XXX7
 8765  017166  000207                          RTS     PC
 8766  017170  000000                DUBASE:   0
 8767
 8768                                          ;THIS UTILITY POKES THE MAINT DATA BASED UPON THE
 8769                                          ;INFORMATION CONTAINED IN $TMP1 AND IT IS
 8770                                          ;SHIFTED IN BY THE CONTENTS OF SHIFT
 8771  017172  042777  040000  162526  RPOKE:  BIC     #MTDATA,@TXCSR
 8772  017200  005067  162276                  CLR     $TMP2
 8773  017204  006067  162270                  ROR     $TMP1   ;FORCE CARRY
 8774  017210  006067  162266                  ROR     $TMP2   ;PICK UP CARRY IN BIT 15
 8775  017214  006267  162262                  ASR     $TMP2   ;SHIFT INTO BIT 14
 8776  017220  042767  100000  162254          BIC     #BIT15,$TMP2    ;CLR BIT 15
 8777  017226  056777  162250  162472          BIS     $TMP2,@TXCSR    ;POKE MAINT DATA
 8778  017234  042777  020000  162464          BIC     #CLK,@TXCSR     ;POKE CLK
 8779  017242  052777  020000  162456          BIS     #CLK,@TXCSR     ;
 8780  017250  005367  161646                  DEC     SHIFT
 8781  017254  001346                          BNE     RPOKE
 8782  017256  000207                          RTS     PC
 8783
 8784                                          ;THIS ROUTINE CALCULATES ODD PARITY FOR AN 8 BIT CHAR
 8785  017260  016767  162214  162214  ODD8:   MOV     $TMP1,$TMP2     ;SAVE TEMP1
 8786  017266  005067  162212                  CLR     $TMP3
 8787  017272  012727  000010                  MOV     #8.,(PC)+
 8788  017276  000000                  4$:     0
 8789  017300  006067  162176          1$:     ROR     $TMP2
 8790  017304  005567  162174                  ADC     $TMP3
 8791  017310  005367  177762                  DEC     4$
 8792  017314  001371                          BNE     1$
 8793  017316  006067  162162                  ROR     $TMP3
 8794  017322  103404                          BCS     2$
 8795  017324  052767  000400  162146          BIS     #BIT8,$TMP1     ;SET ODD PARITY
 8796  017332  000403                          BR      3$
 8797  017334  042767  000400  162136  2$:     BIC     #BIT8,$TMP1     ;CLR EVEN PARITY
 8798                                          ;$TMP1 NOW HAS ODD PARITY CHARACTER
 8799  017342  000207                  3$:     RTS     PC
 8800
 8801                                          ;THIS ROUTINE CALCULATES EVEN PARITY FOR AN 8 BIT CHARACTER
 8802  017344  016767  162130  162130  EVEN8:  MOV     $TMP1,$TMP2     ;SAVE TEMP1
 8803  017352  005067  162126                  CLR     $TMP3
 8804  017356  012727  000010                  MOV     #8.,(PC)+
 8805  017362  000000                  4$:     0
 8806  017364  006067  162112          1$:     ROR     $TMP2
 8807  017370  005567  162110                  ADC     $TMP3
```

```
 8808  017374  005367  177762                  DEC     4$
 8809  017400  001371                          BNE     1$
 8810  017402  006067  162076                  ROR     $TMP3
 8811  017406  103004                          BCC     2$
 8812  017410  052767  000400  162062          BIS     #BIT8,$TMP1     ;SET EVEN PARITY
 8813  017416  000403                          BR      3$
 8814  017420  042767  000400  162052  2$:     BIC     #BIT8,$TMP1     ;CLR ODD PARITY
 8815                                          ;$TMP1 NOW HAS EVEN PARITY CHARACTER
 8816  017426  000207                  3$:     RTS     PC
 8817  017430  062716  000002          TRPREG: ADD     #2,(SP) ;ALLOW IT TO "CRUNCH" INTO HLT BACK
 8818                                                  ;IN MAIN PART OF THE PROGRAM
 8819  017434  000002                          RTI
 8820
 8821  017436                          ;INITIALIZE SBC 11/21 PROCESSOR ODT AND LKVEC
                                       .INIT
  (1)          017436                 POINT=.                 ;SAVE POINTER
  (1)          000100                 .=100
  (1)  000100  017436                 $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)          017436                 .=POINT                 ;RESTORE POINTER
  (1)  017436  104401  017444         $CLKVEC:        TYPE,CLKMES
  (1)  017442  000000                                 HALT
  (1)  017444  005015  045514  042526 CLKMES:  .ASCIZ <15><12>/LKVEC INTERRUPT - DISCONNECT LTC /
  (1)  017452  020103  047111  042524
  (1)  017460  051122  050125  020124
  (1)  017466  020055  044504  041523
  (1)  017474  047117  042516  052103
  (1)  017502  046040  041524  000040
 8822          000001                          .END
```

125

```
AAA     003200           8148#
ABASE = 000000           8148
ACDW1 = 000000           8148
ACDW2 = 000000           8148
ACPUOP= 000000           8148
ACTREG  001166           8148#*  8729
ADDW0 = 000000           8148
ADDW1 = 000000           8148
ADDW10= 000000           8148
ADDW11= 000000           8148
ADDW12= 000000           8148
ADDW13= 000000           8148
ADDW14= 000000           8148
ADDW15= 000000           8148
ADDW2 = 000000           8148
ADDW3 = 000000           8148
ADDW4 = 000000           8148
ADDW5 = 000000           8148
ADDW6 = 000000           8148
ADDW7 = 000000           8148
ADDW8 = 000000           8148
ADDW9 = 000000           8148
ADEVCT= 000000           8148
ADEVM = 000000           8148
ADRCNT= 013711           8729#*
AENV  = 000000           8148
AENVM = 000000           8148
AFATAL= 000000           8148
AMADR1= 000000           8148
AMADR2= 000000           8148
AMADR3= 000000           8148
AMADR4= 000000           8148
AMAMS1= 000000           8148
AMAMS2= 000000           8148
AMAMS3= 000000           8148
AMAMS4= 000000           8148
AMSGAD= 000000           8148
AMSGLG= 000000           8148
AMSGTY= 000000           8148
AMTYP1= 000000           8148
AMTYP2= 000000           8148
AMTYP3= 000000           8148
AMTYP4= 000000           8148
APASS = 000000           8148
APRIOR= 000000           8148
APTCSU= 000040           7008#   8729
APTENV= 000001           7008#   8729
APTSIZ= 000200           7008#   8148
APTSPO= 000100           7008#   8729
ASWREG= 000000           8148
ATESTN= 000000           8148
AUNIT = 000000           8148
AUSWR = 000000           8148
AVECT1= 000000           8148
AVECT2= 000000           8148
BASEAD  001154           8148#*  8729*
```

```
0126                                                                                                                                SEQ 0139

BASEIV  001162          8148#* 8729*
BBB     003026          8148#
BINWRD  014160          8729#*
BITW  = 002000          8148#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162
                        8378   8412
BIT0  = 000001          8148#
BIT00 = 000001          8148#
BIT01 = 000002          8148#
BIT02 = 000004          8148#
BIT03 = 000010          8148#
BIT04 = 000020          8148#
BIT05 = 000040          8148#
BIT06 = 000100          8148#
BIT07 = 000200          8148#
BIT08 = 000400          8148#  8729
BIT09 = 001000          8148#  8729
BIT1  = 000002          8148#
BIT10 = 002000          8148#  8729
BIT11 = 004000          8148#  8729
BIT12 = 010000          8148#
BIT13 = 020000          8148#  8729
BIT14 = 040000          8148#  8729
BIT15 = 100000          8148#  8776
BIT2  = 000004          8148#
BIT3  = 000010          8148#
BIT4  = 000020          8148#
BIT5  = 000040          8148#
BIT6  = 000100          8148#
BIT7  = 000200          8148#
BIT8  = 000400          8148#  8795  8797  8812  8814
BIT9  = 001000          8148#
BPTVEC= 000014          8148#
BREAK = 000001          8148#  8181  8220  8241  8435  8488  8684
BRKVEC= 000140          8148#
BRW     016666          8729#
BRX     016670          8729#
CARDET= 010000          8148#
CCC     012646          8729#
CHRCNT  014156          8729#*
CKSWR   012742          8729#
CLK   = 020000          8148#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162
                        8181   8182  8183  8195  8196  8220  8221  8222  8231  8232  8241  8242  8254
                        8255   8279  8284  8314  8316  8339  8373  8380  8407  8414  8435  8440  8441
                        8442   8488  8490  8491  8615  8617  8634  8666  8670  8778  8779
CLKMES  017444          8821#
CNTLU   013016          8148   8729#
CONVRT= 104413          8729#
COUNT   001124          8148#  8197* 8204* 8313* 8322* 8331* 8342* 8444* 8448* 8452* 8492* 8497* 8570*
                        8575*  8579* 8663* 8686*
CR    = 000015          8148#  8729
CRLF  = 000200          8148#  8729
CTS   = 020000          8148#
DDISP = 177570          8148#
DEVADR  013706          8729#*
DEVICE  015351          8729#
DF1     002132          8148#
```

7

```
DH1      002067  8148#
DISPLA   001442  8148#*  8729*
DISPRE   000174  8148#
DNA    = 100000  8148#
DNAINT = 000040  8148#
DSC    = 100000  8148#
DSINTE = 000040  8148#  8710  8716  8724
DSR    = 001000  8148#
DSWR   = 177570  8148#
DTR    = 000002  8148#  8717
DT1      002116  8148#
DT4      002126  8148#
DUADDR   017036  8148  8729  8748#
DUBASE   017170  8148  8729*  8748  8749*  8750  8751*  8752  8753  8754*  8755  8756  8757*  8758
                 8759*  8760  8761*  8762  8763*  8764  8766#
DULEV    016762  8148  8735#
DUPRT    017032  8148*  8702  8735*  8736*  8737*  8738*  8739*  8740  8744#
DURIS    001740  8148#  8702*  8712  8713*  8721  8722*  8729*
DURIV    001736  8148#  8701*  8712*  8721*  8729*
DUTIS    001744  8148#  8729*
DUTIV    001742  8148#  8729*
EIGHT  = 006000  8148#  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162  8181  8220
                 8241  8273  8309  8366  8401  8435  8488  8611  8660
EMTVEC = 000030  8148#*
EM1      001762  8148#
EM2      002022  8148#
EM3      002043  8148#
EM4      001746  8148#
ERRCNT   001114  8148#
ERRVEC = 000004  8148#*  8729*
EVEN8    017344  8802#
EVEPAR = 001400  8148#  8150  8152  8154  8157  8159  8161
EVPAR  = 000400  8148#
FIVE   = 000000  8148#
FRMERR = 020000  8148#
GNS    = ****** U  8729
HDXEN  = 000010  8148#  8632
HILIM    013704  8729#*
HLD0     001130  8148#  8729*
HLD1     001132  8148#  8729*
HLD2     001134  8148#  8729*
HLD3     001136  8148#  8729*
HLD4     001140  8148#  8729*
HLD5     001142  8148#  8729*
HLD6     001144  8148#  8729*
HOLD     001120  8148#  8615  8617  8634
HPARCS   001724  8148#  8756*
HRXCSR   001714  8148#  8750*
HRXDBU   001720  8148#  8755*
HT     = 000011  8148#  8729
HTXCSR   001730  8148#  8760*
HTXDBU   001734  8148#  8764*
INBUF    016172  8148  8729#
INIFLG   001172  8148#*
INSTER = 104407  8148  8729#
INSTR  = 104406  8148  8729#
```

```
INSTR2  013510          8729#
IOTVEC= 000020          8148#*
ISYMOD= 000000          8148#   8150    8151    8154    8155
JMRBY   001153          8148#*  8608    8694
KEEPAD  001156          8148#*  8729
KEEPIV  001164          8148#*  8729
LASTAD  001160          8148#
LESS1   017034          8740*   8741*   8742*   8745#
LF    = 000012          8148#   8729
LIGHTS  001102          8148#   8729*
LIMITS  013636          8729#
LKVEC = 000100          8148#
LOBITS  013710          8729#*
LOCK    001110          8148#   8729
LOKFLG  001174          8148#
LOLIM   013702          8729#*
MCNTG   016137          8729#
MCOW    015363          8729#
MCRLF   015463          8729#
MDATA   016276          8729#
MEPASS  015532          8729#
MEXT  = 010000          8148#   8611
MEXTJ   016077          8148    8729#
MINT  = 004000          8148#   8150    8151    8152    8153    8154    8155    8157    8158    8159    8160    8161    8162
                        8181    8220    8241    8273    8309    8366    8401    8435    8488    8660
MLASTD  015317          8148    8729#
MLOCK   015576          8729#
MMNEW   016160          8729#
MMSWR   016147          8729#
MMULT   015270          8148    8729#
MPFAIL  015466          8729#
MQM     015457          8729#
MR      015557          8148    8729#
MRANGE  015413          8148    8729#
MREGAD  015240          8148    8729#
MRESET= 000400          8148#   8150    8151    8152    8153    8154    8155    8157    8158    8159    8160    8161    8162
                        8181    8220    8241    8273    8309    8366    8401    8435    8488    8611    8660    8696
MSYNC   015631          8148    8729#
MTDATA= 040000          8148#   8181    8220    8226    8230    8241    8248    8252    8435    8488    8771
MTITLE  015172          8148    8729#
MTSTPC  015563          8148    8729#
MULTD   001152          8148#   8729
MVECTO  015225          8148    8729#
MWIRE4  016020          8148    8729#
MWIRE5  015750          8148    8729#
MWIRE6  015677          8148    8729#
NEXT    001106          8148#
NOPAR = 000000          8148#   8181    8220    8241    8273    8309    8366    8401    8435    8488    8611    8660
ODDPAR= 001000          8148#   8151    8153    8155    8158    8160    8162
ODD8    017260          8785#
ODTST = 170000          8148#
ONCE    002610          8148#
OPTCLR  001151          8148#   8697
OUT     013050          8729#
OUTCRY  012640          8729#
OUTMUL  003166          8148#
```

```
OVRRUN= 040000          8148#   8347
PARAM = 104410          8148    8729#
PARAM1  013542          8729#
PARCSR  001722          8148#   8150*  8151*  8152*  8153*  8154*  8155*  8157*  8158*  8159*  8160*  8161*  8162*
                        8181*   8220*  8241*  8273*  8309*  8366*  8401*  8435*  8488*  8611*  8660*  8753*
PAREN = 001000          8148#
PARER = 010000          8148#
PARERR  013616          8729#
PARTI   013700          8729#
PASCNT  001112          8148#*  8729*
PFTAB   015164          8729#
PIRQ  = 177772          8148#
PIRQVE= 000240          8148#
POINT = 017436          8821#
POPR0 = 012600          8148#
POP1SP= 005726          8148#
POP2SP= 022626          8148#
PR0   = 000000          8148#
PR1   = 000040          8148#
PR2   = 000100          8148#
PR3   = 000140          8148#
PR4   = 000200          8148#   8745
PR5   = 000240          8148#   8744
PR6   = 000300          8148#
PR7   = 000340          8148#
PS    = 177776          8148#
PSW   = 177776          8148#
PUSHR0= 010046          8148#
PUSH1S= 005746          8148#
PUSH2S= 024646          8148#
PWRVEC= 000024          8148#*
RDSW    013056          8729#*
RECACT= 004000          8148#   8187   8198   8206   8454   8503   8532   8539   8548   8556   8581
REPLAY  012544          8729#
RESTAR  015070          8729#
RESTRT  012724          8729#
RESVEC= 000010          8148#
RES05 = 104412          8729#
RETURN  001104          8148#*  8729
RING  = 040000          8148#
RINTEN= 000100          8148#
ROTADD  001170          8148#*  8729*
RPOKE   017172          8186    8192   8203   8451   8462   8496   8517   8531   8546   8555   8578   8589   8771#
                        8781
RTS   = 000004          8148#
RUNA  = ****** U        5678    5862   6003   6416
RUNB  = ****** U        5703    5871   6010   6425
RUNC  = ****** U        5728    5879   6017   6434
RUND  = ****** U        5753    5888   6024   6443
RUNE  = 000000          5676#   5778   5898   6031   6452
RUNF  = ****** U        5804    5908   6038   6461
RUNIT   012450          8729#
RXCSR   001712          8148#   8182*  8187   8198   8206   8311*  8319   8344   8437*  8454   8457   8463   8490*
                        8503    8506   8518   8532   8535   8538*  8539   8547*  8548   8551   8556   8559   8581
                        8584    8590   8612*  8624   8637   8661*  8677   8699*  8700   8707   8710*  8716*  8717*
                        8724*   8729   8748*
```

```
RXDBUF  001716          8148#   8225    8234    8257    8312    8325    8348    8443    8467    8493    8521    8563    8594
                        8610    8628    8641    8662    8680    8752*
RXDONE= 000200          8148#
RXERR = 100000          8148#   8347
SAVIT   014412          8729#
SAVPC   001126          8148#   8729*
SAVSP   001116          8148#   8729*
SAVO5 = 104411          8729#
SCOP1 = 104405          8729#
SEND  = 000020          8148#   8150    8151    8152    8153    8154    8155    8157    8158    8159    8160    8161    8162
                        8273    8309    8366    8368    8371    8401    8424    8611    8660
SEREC   001150          8148#
SETFLG= 104414          8148    8729#
SEVEN = 004000          8148#   8150    8151
SEXMIT  001147          8148#
SHIFT   001122          8148#   8150*   8151*   8152*   8153*   8154*   8155*   8157*   8158*   8159*   8160*   8161*   8162*
                        8184*   8190*   8201*   8223*   8239*   8243*   8263*   8315*   8317*   8337*   8340*   8374*   8387*
                        8405*   8421*   8422    8425    8449*   8460*   8494*   8515*   8529*   8545*   8554*   8576*   8587*
                        8616*   8618*   8619    8622    8633*   8635*   8668*   8671*   8672    8675    8780*
SIX   = 002000          8148#
SPACNT= 014157          8729#*
SRD   = 002000          8148#
STACK = 001100          8148#   8729
STD   = 000010          8148#
STFLG   001173          8148#*
STKLMT= 177774          8148#
STPSYN= 000400          8148#   8311    8437
SVO5    013720          8729#
SWR     001440          8148#*  8729
SWREG   000176          8148#   8729
SWREGL  013060          8729#
SW0   = 000001          8148#
SW00  = 000001          8148#
SW01  = 000002          8148#
SW02  = 000004          8148#
SW03  = 000010          8148#
SW04  = 000020          8148#
SW05  = 000040          8148#
SW06  = 000100          8148#
SW07  = 000200          8148#
SW08  = 000400          8148#
SW09  = 001000          8148#   8729
SW1   = 000002          8148#
SW10  = 002000          8148#
SW11  = 004000          8148#
SW12  = 010000          8148#
SW13  = 020000          8148#
SW14  = 040000          8148#
SW15  = 100000          8148#
SW2   = 000004          8148#
SW3   = 000010          8148#
SW4   = 000020          8148#
SW5   = 000040          8148#
SW6   = 000100          8148#
SW7   = 000200          8148#
SW8   = 000400          8148#
```

```
SW9    = 001000            8148#
SYNCNO  001146             8148#*  8179    8446    8500    8573
SYNEXT= 020000             8148#   8241    8309    8366    8401    8611    8660
SYNINT= 030000             8148#   8152    8153    8157    8158    8159    8160    8161    8162    8181    8220    8273    8435
                           8488
SYNSCH= 000020             8148#   8182    8311    8437    8490    8538    8547    8612    8661
SYSTST= 014000             8148#
TBITVE= 000014             8148#
TEMP    016234             8729#*
TKVEC  = 000060            8148#
TPVEC  = 000064            8148#
TRAPVE= 000034             8148#*
TRPREG  017430             8817#
TRTVEC= 000014             8148#
TST1    003374             8148    8150#   8729
TST10   005246             8158#
TST11   005454             8159#
TST12   005662             8160#
TST13   006070             8161#
TST14   006276             8162#
TST15   006504             8178#
TST16   006772             8219#
TST17   007354             8271#
TST2    003602             8151#
TST20   007502             8307#
TST21   007770             8364#
TST22   010162             8399#
TST23   010362             8434#
TST24   010622             8486#
TST25   011412             8607#
TST26   011754             8659#
TST27   012176             8693#
TST3    004010             8152#
TST4    004216             8153#
TST5    004424             8154#
TST6    004632             8155#
TST7    005040             8157#
TTST    016356             8729#
TXCSR   001726             8148#   8150*   8151*   8152*   8153*   8154*   8155*   8157*   8158*   8159*   8160*   8161*   8162*
                           8181*   8182*   8183*   8195*   8196*   8220*   8221*   8222*   8226*   8230*   8231*   8232*   8241*
                           8242*   8248*   8252*   8254*   8255*   8273*   8275    8279*   8280    8284*   8285    8309*   8314*
                           8316*   8339*   8366*   8367    8368*   8371*   8373*   8380*   8381    8401*   8402    8407*   8414*
                           8415    8424*   8435*   8440*   8441*   8442*   8488*   8490*   8491*   8611*   8615*   8617*   8632*
                           8634*   8660*   8666*   8670*   8684*   8696*   8758*   8771*   8777*   8778*   8779*
TXDBUF  001732             8148#   8150*   8151*   8152*   8153*   8154*   8155*   8157*   8158*   8159*   8160*   8161*   8162*
                           8278*   8310*   8332*   8370*   8403*   8613*   8621*   8664*   8674*   8762*
TXDONE= 000200             8148#
TXINTE= 000100             8148#
TYPE   = 104401            8148    8729#   8821
TYPOC  = 104402            8729#
TYPON  = 104404            8729#
TYPOS  = 104403            8729#
USER   = 000000            8148#
VOID   = 000001            8148#
WRDCNT  014154             8729#*
ZERO    012456             8729#
```

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$APTHD  002136          8148#
$ASTAT= ****** U        7008
$ATYC   000024          7008#
$ATY1   000000          7008#
$ATY3   000006          7008#   8729
$ATY4   000016          7008#   8729
$AUTOB  001434          8148#
$BASE   001602          8148#
$BDADR  001422          8148#
$BDDAT  001426          8148#
$BELL   001516          8148#   8729
$CDW1   001606          8148#
$CDW2   001610          8148#
$CHARC  013370          8729#*
$CKSWR= ****** U        8729
$CLKVE  017436          8821#
$CMTAG  001400          8148#
$CM1   = 000006         8148#
$CM2   = 000014         8148#
$CM3   = 000006         8148#
$CM4   = 000006         8148#
$CPUOP  001554          8148#
$CRLF   001523          8148#   8729
$DDW0   001612          8148#
$DDW1   001614          8148#
$DDW10  001636          8148#
$DDW11  001640          8148#
$DDW12  001642          8148#
$DDW13  001644          8148#
$DDW14  001646          8148#
$DDW15  001650          8148#
$DDW2   001616          8148#
$DDW3   001620          8148#
$DDW4   001622          8148#
$DDW5   001624          8148#
$DDW6   001626          8148#
$DDW7   001630          8148#
$DDW8   001632          8148#
$DDW9   001634          8148#
$DEVCT  001536          8148#
$DEVM   001604          8148#
$E     = 000002         6836#
$ENDAD  012714          8148    8729#
$ENV    001546          7008    8148#   8729
$ENVM   001547          7008    8148#   8729
$ERFLG  001403          8148#*  8729*
$ERMAX  001415          8148#*  8729*
$ERROR  014230          8148    8729#
$ERRPC  001416          8148#*  8729*
$ERRTB  001652          8148#   8729
$ERRTY  014450          8729#
$ERTTL  001412          8148#*  8729*
$ESCAP  001514          8148#*  8729*
$ETABL  001546          8148#
$ETEND  001652          8148#
$FATAL  001530          7008*   8148#
```

```
$FFLG   000244            7008#*
$FILLC  001456            8148#   8729
$FILLS  001455            8148#   8729
$GDADR  001420            8148#
$GDDAT  001424            8148#
$GTSWR= ****** U          8729
$HIBTS  002136            8148#
$ICNT   001404            8148#   8729*
$INTAG  001435            8148#
$ITEMB  001414            8148#   8729*
$LF     001524            8148#   8729
$LFLG   000243            7008#*
$LPADR  001406            8148#*  8729*
$LPERR  001410            8148#*  8729*
$MADR1  001560            8148#
$MADR2  001564            8148#
$MADR3  001570            8148#
$MADR4  001574            8148#
$MAIL   001526            8148#   8729
$MAMS1  001556            8148#
$MAMS2  001562            8148#
$MAMS3  001566            8148#
$MAMS4  001572            8148#
$MBADR  002140            8148#
$MFLG   000242            7008#*
$MSGAD  001542            7008*   8148#
$MSGLG  001544            7008*   8148#
$MSGTY  001526            7008*   8148#
$MTYP1  001557            8148#
$MTYP2  001563            8148#
$MTYP3  001567            8148#
$MTYP4  001573            8148#
$MXCNT  016672            8729#
$N    = 000000            6835#   8729#
$NULL   001454            8148#   8729
$NWTST= 000000            8150#   8151#   8152#   8153#   8154#   8155#   8157#   8158#   8159#   8160#   8161#   8162#   8178#
                          8219#   8271#   8307#   8364#   8399#   8434#   8486#   8607#   8659#   8693#
$OCNT   015026            8729#*
$OMODE  015030            8729#*
$OVER   016652            8729#
$PASS   001534            8148#*  8729*
$PASTM  002144            8148#
$PWRDN  015032            8148    8729#
$QUES   001522            8148#   8729
$RDCHR= ****** U          8729
$RDDEC= ****** U          8729
$RDLIN= ****** U          8729
$RDOCT= ****** U          8729
$REGAD  001460            8148#
$REG0   001462            8148#   8729*
$REG1   001464            8148#   8729*
$REG2   001466            8148#   8729*
$REG3   001470            8148#   8729*
$REG4   001472            8148#   8729*
$REG5   001474            8148#   8729*
$R2A  = ****** U          8729
```

```
$SAVRE= ****** U        8729
$SCOPE  016340          8148    8729#
$SETUP= 000017          8148#   8729
$STUP = 177777          8148#
$SVLAD  016616          8729#
$SVPC = 002136          8148#
$SWR  = 177400          6495#   8148    8150    8151    8152    8153    8154    8155    8157    8158    8159    8160    8161
                        8162    8178    8219    8271    8307    8364    8399    8434    8486    8607    8659    8693    8729
$SWREG  001550          8148#
$SWRMK= 000000          8729
$TESTN  001532          8148#   8729*
$TIMES  001512          8148#*  8729*
$TKB    001446          8148#   8729
$TKS    001444          8148#   8729
$TMP0   001476          8148#
$TMP1   001500          8148#   8150*   8151*   8152*   8153*   8154*   8155*   8157*   8158*   8159*   8160*   8161*   8162*
                        8185*   8191*   8202*   8224*   8228*   8244*   8250*   8369*   8376*   8404*   8410*   8450*   8461*
                        8495*   8516*   8530*   8577*   8588*   8773*   8785    8795*   8797*   8802    8812*   8814*
$TMP2   001502          8148#   8245*   8246*   8253*   8256    8772*   8774*   8775*   8776*   8777    8785*   8789*   8802*
                        8806*
$TMP3   001504          8148#   8786*   8790*   8793*   8803*   8807*   8810*
$TMP4   001506          8148#
$TMP5   001510          8148#
$TT   = 000030          7247#   8150#   8151#   8152#   8153#   8154#   8155#   8157#   8158#   8159#   8160#   8161#   8162#
                        8178#   8219#   8271#   8307#   8364#   8399#   8434#   8486#   8607#   8659#   8693#
$TPB    001452          8148#   8729*
$TPFLG  001457          8148#   8729
$TPS    001450          8148#   8729
$TRAP   016674          8148    8729#
$TRAP2  016716          8729#
$TRP  = 000015          8729#
$TRPAD  016730          8729#
$TSTM   002142          8148#
$TSTNM  001402          8148#*  8729*
$TYPBN= ****** U        8729
$TYPDS= ****** U        8729
$TYPE   013112          7008    8729#
$TYPEC  013324          8729#
$TYPEX  013372          8729#
$TYPOC  014630          8729#
$TYPON  014644          8729#
$TYPOS  014604          8729#
$UNIT   001540          8148#
$UNITM  002146          8148#
$USWR   001552          8148#
$VECT1  001576          8148#
$VECT2  001600          8148#
$XTSTR  016422          8729#
$OFILL  015027          8729#*
$40CAT= ****** U        8729
.     = 017510          7008#   8148#   8150    8151    8152    8153    8154    8155    8157    8158    8159    8160    8161
                        8162    8188    8199    8207    8236    8259    8276    8281    8286    8320    8327    8345    8350
                        8384    8418    8455    8458    8464    8469    8504    8507    8519    8524    8533    8536    8540
                        8549    8552    8557    8560    8565    8582    8585    8591    8596    8615    8617    8625    8630
                        8634    8638    8643    8678    8682    8708    8720    8729#   8821#
.BEGIN  003310          8148#   8729
```

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.CONVR  014004            8729#
.EOP    012374            8729#
.INSTE  013502            8729#
.INSTR  013374            8729#
.INST1  013414            8729#
.MSG    013416            8729#*
.PARAM  013512            8729#
.PFAIL  015032            8148    8729#
.RESO5  013752            8729#
.SAVO5  013712            8729#
.SCOPE  016340            8729#
.SCOP1  013070            8729#
.SETFL  014162            8729#
.START  002152            8148#   8729
.$ASTA= ****** U          7008
.$X   = 002136            8148#
```

```
COMMEN  1566#  8148#
ENDCOM  1578#  8148#
ERROR   8148#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162  8189  8200
        8208   8237  8260  8277  8282  8287  8321  8328  8346  8351  8385  8419  8456  8459  8465
        8470   8505  8508  8520  8525  8534  8537  8541  8550  8553  8558  8561  8566  8583  8586
        8592   8597  8626  8631  8639  8644  8679  8683  8709  8725
ESCAPE  1698#  8148#
GETPRI  1312#  8148#
GETSWR  1771#  8148#
MULT    4484#  8148#
NEWTST  1626#  8148#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162  8178
        8219   8271  8307  8364  8399  8434  8486  8607  8659  8693
POP     2153#  7008  8148#
PRGEND  8114#  8729
PRGFRT  7248#  8148
PUSH    2145#  7008  8148#
PUSSYF  7985#  8615  8617  8634
REPORT  5463#  6494#  8148#
RSETUP  7443#  8181  8220  8241  8435  8488
SC      6808#  8729
SCOPE   8148#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162  8178  8219
        8271   8307  8364  8399  8434  8486  8607  8659  8693  8729
SC1     6826#  8729
SETPRI  1279#  8148#
SETTRA  6493#  8729#
SETUP   1337#  8148#
SKIP    1733#  8148#
SLASH   1517#  8148#
SPACE   8148#
STARS   1485#  7008  8148#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162
        8178   8219  8271  8307  8364  8399  8434  8486  8607  8659  8693  8729
SWRSU   1453#  8148#
TRMTRP  8729#
TSETUP  7455#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162  8273  8309
        8366   8401  8611  8660
TYPBIN  2088#  8148#
TYPDEC  2058#  8148#
TYPNAM  1826#  8148#
TYPNUM  2025#  8148#
TYPOCS  1978#  8148#
TYPOCT  1941#  8148#  8729
TYPTXT  1894#  8148#
$BEGIN  6717#  8148
$BINAR  7932#
$BUFFE  7122#  8729
$CABLE  8000#
$CATCH  6586#  8148
$CK     6962#  8729
$CLRVE  6732#  8148
$CONVR  7133#  8729
$DNA    7833#
$EOP    6880#  8729
$GETFL  6762#  8148
$GETPA  6752#  8148
$GETSY  6768#  8148
$HEADE  6497#  8148
```

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$INSTR   7009#  8729
$ISOB    7761#
$MATCH   7570#
$MRR     7430#
$MRRW    7378#
$MRW     7413#
$MSG     7096#  8729
$NEED    8102#  8729
$PARAM   7039#  8729
$PFAIL   7178#  8729
$POKE    7553#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162  8279  8284
         8314   8316  8339  8373  8380  8407  8414  8666  8670
$POKER   7558#  8183  8195  8196  8221  8222  8242  8442  8491
$RCNET   8012#
$RECAC   7492#
$REG     7221#  8729
$RESET   7374#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162  8181  8220
         8241   8273  8309  8366  8401  8435  8488  8611  8660  8696
$RXACT   7468#
$SCOPE   6831#  8729
$SCOP1   6997#  8729
$SETFL   6788#  8729
$SETVE   6597#  8148
$START   6675#  8148
$STRIP   7802#
$SYMBO   6513#  8148
$SYNCR   7564#  8182  8490
$TRPAR   7884#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162
$TSTNO   6838#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162  8178  8219
         8271   8307  8364  8399  8434  8486  8607  8659  8693
$UNIBU   7357#
$VARIA   6613#  8148
$WORDF   7700#
$WORDO   7650#
$WORDP   7728#
$$CMRE   8148#
$$CMTM   8148#
$$ESCA   1711#  8148#
$$NEWT   1662#  8148#  8150  8151  8152  8153  8154  8155  8157  8158  8159  8160  8161  8162  8178
         8219   8271  8307  8364  8399  8434  8486  8607  8659  8693
$$SET    8729#
$$SETM   8148#
$$SKIP   1746#  8148#
.EQUAT    189#  6493#  8148
.HEADE     61#  6492#
.INIT    5658#  8148#  8821
.SETUP   1213#  6492#  8148
.SWRHI    104#
.$ACT1   5064#  6494#  8148
.$APTB   5109#  6494#  8148#
.$APTH   5370#  6494#  8148
.$APTY   5547#  6494#  7008
.$ASTA   5417#
.$CATC    932#  6492#
.$CMTA   1047#  6492#  8148
.$DB2D   4686#
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.$DB2O   4812#
.$DIV    4587#
.$EOP    2214#   6492#
.$ERRO   2700#   6493#   8729
.$ERRT   2896#   6493#   8729
.$MULT   4523#
.$POWE   4229#   6493#
.$RAND   4307#
.$RDDE   3891#
.$RDOC   3797#
.$READ   3395#
.$R2AZ   4958#
.$SAVE   3969#
.$SB2D   4771#
.$SB2O   4874#
.$SCOP   2454#   6493#   8729
.$SIZE   4361#
.$SUPR   4913#
.$TRAP   4073#   6493#   8729
.$TYPB   3287#
.$TYPD   3209#
.$TYPE   2985#   6492#   8729
.$TYPO   3112#   6493#   8729
.$40CA    972#


. ABS.  017510     000

ERRORS DETECTED:  0

CNDUUA,CNDUUA/CRF/NL:TOC=CNMAC2.SML,CNDUU1.M11,CNDUU2.M11,CNDUUA.M11
RUN-TIME: 17 18 1 SECONDS
RUN-TIME RATIO: 80/37=2.1
CORE USED:  43K  (86 PAGES)
```