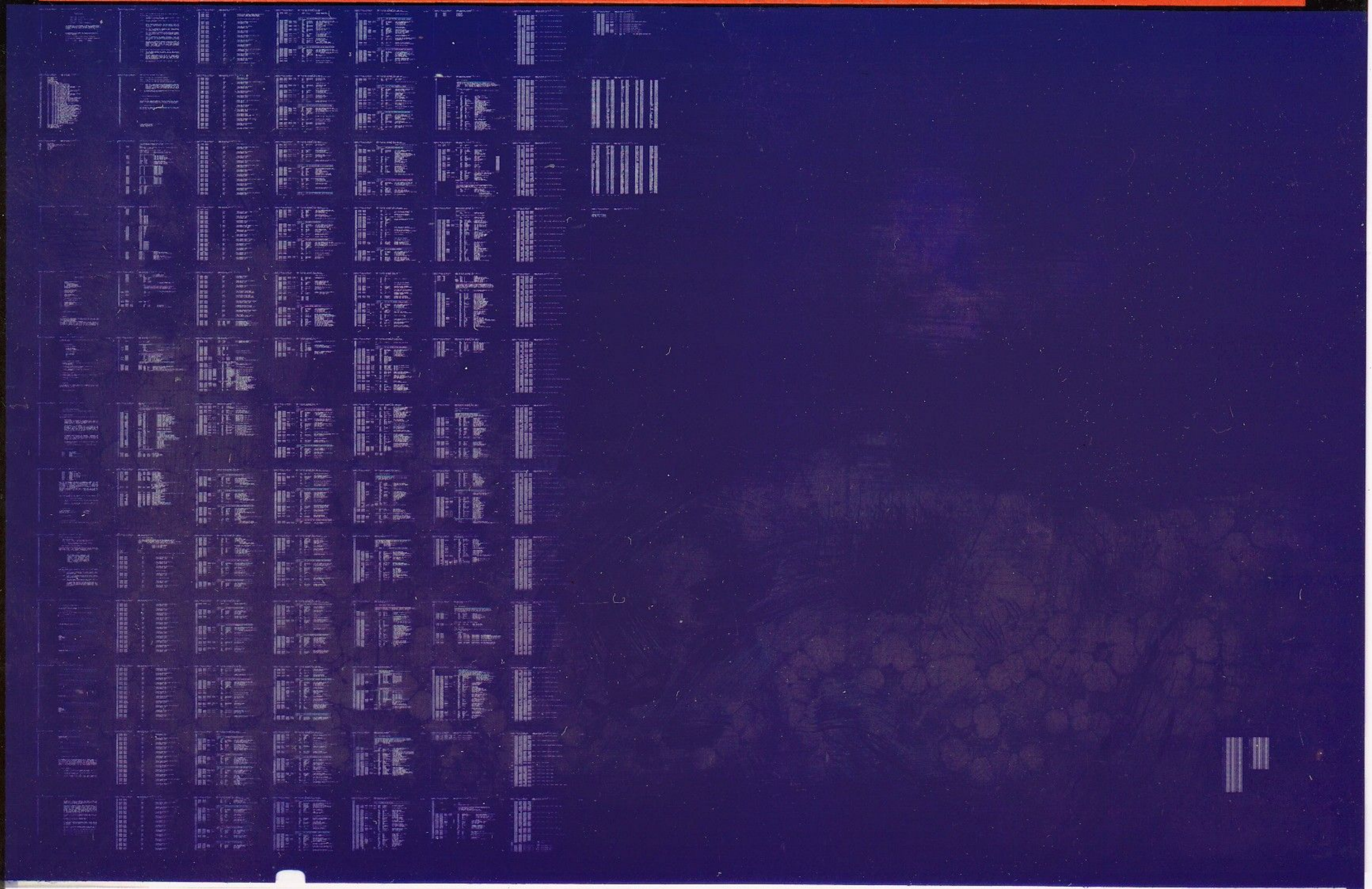
KDF11-B 11/23B SLU/LTC REPAIR AH-T054A-MC
CJKDIAO FICHE 1 OF 1



.REM %

IDENTIFICATION

PRODUCT CODE: AC-T052A-MC

PRODUCT NAME: CJKDIA0 11/23B SLU LTC REPAIR

PRODUCT DATE: SEPT-81

MAINTAINER: DIAGNOSTIC ENGINEERING

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HISTORY

REVISION A FIRST RELEASE OF DIAGNOSTIC

TABLE OF CONTENTS

1.0 GENERAL PROGRAM INFORMATION

1.1 ABSTRACT

THIS PROGRAM TESTS BOTH SERIAL LINE UNITS (SLU'S) AND THE LINE TIME CLOCK (LTC) ON THE M8189 MODULE. ITS MAIN PURPOSE IS TO PROVIDE SCOPE LOOPING FOR REPAIR PERSONNEL.
. ERROR TYPE-OUTS IDENTIFY A FUNCTION BEING DONE OR A FUNCTION THAT FAILED AND TO WHAT LOGICAL PORTION OF THE BOARD IT FAILED ON (I.E., TRIED TO SET BIT 6 ON CSR OF SLU1). THIS PROGRAM IS BASICALLY A REWRITE OF THE DL11-W DIAGNOSTIC AND THEREFORE IS WRITTEN IN MACRO-11 USING THE SYSMAC MACRO PACKAGE. IT

IS COMPATIBLE WITH ALL EXISTING MANUFACTURING AND FIELD SERVICE AUTO-
MATED TEST SYSTEMS.

1.2 SYSTEM REQUIREMENTS

A. HARDWARE REQUIREMENTS

- 11/23B CPU MODULE
- MINIMUM 8K OF MEMORY
- TURN AROUND JUMPER INSTALLED ON SLU2

B. SOFTWARE ENVIRONMENTS

- XXDP STAND-ALONE
- XXDP CHAIN MODE
- APT
- ACT
- SLIDE

1.3 RELATED DOCUMENTS AND STANDARDS

- DIAGNOSTIC ENGINEERING FUNCTIONAL SPECIFICATION FOR 11/24 ON BOARD OPTIONS TEST
  BGI-79-004-00-U

- STANDARD APT SYSTEM TO PDP-11 DIAGNOSTIC INTERFACE REV. 15
  16-FEBRUARY-76 APT SYSTEM GROUP

- DIAGNOSTIC ENGINEERING STANDARDS AND CONVENTIONS
  175-003-009-02

1.4 PREREQUISITE DIAGNOSTICS

THIS PROGRAM ASSUMES THE CORRECT OPERATION OF THE CPU INSTRUCTION SET.
THIS IS TO BE VERIFIED BY EITHER.

CJKDBXX DCF11-AA CPU DIAGNOSTIC
OR
CJKDEXX F11 QUICK TEST

1.5 ASSUMPTIONS

IT IS ASSUMED THAT THE CONSOLE DEVICE THAT IS CONNECTED TO SLU1 IS OP-
ERATING CORRECTLY. IF THE TERMINAL IS NOT OPERATING CORRECTLY FALSE
INDICATIONS CAN BE EXPECTED.

2.0 OPERATING INSTRUCTIONS

2.1 LOADING AND STARTING PROCEDURES

USE STANDARD PROCEDURE FOR PDP-11 ABSOLUTE BINARY FORMATTED TAPES.

2.1.1 STARTING PROCEDURE -

LOAD THE SWITCH REGISTER WITH SETTING (SOFTWARE SWITCH REGISTER LOCATION = 176)

A. START AT 200.
AFTER CHECKING THE TRANSMITTER, THE PROGRAM WILL PRINT ITS IDENTIFICATION AND REPORT THE NUMBER OF DEVICES UNDER TEST (NUMBER IS OCTAL). "END PASS" IS PRINTED AFTER A FULL PASS HAS BEEN MADE ON ALL DEVICES UNDER TEST.

B. START AT 204. ****NOTE****
THE "ECHO" TEST WILL BE EXECUTED. AN "*" IS PRINTED AT THE BEGINNING OF THE TEST. THE ECHO TEST READS A CHARACTER FROM THE TERMINAL, WRITES THAT CHARACTER TO THE TERMINAL, AND REPORTS ANY ERROR FLAGS SET IN THE RECEIVER BUFFER. A CONTROL-C (^C) HALTS THE TEST AND PRINTS "STOP" AT THE TERMINAL CONTINUING RESTARTS THE ECHO TEST.

C. START AT 210. ****NOTE****

THE TERMINAL OUTPUT TEST WILL BE EXECUTED. DEPRESSING ANY CHARACTER AT THE TERMINAL HALTS THE TEST. CONTINUING RESTARTS THE TEST. THE TEST OUTPUTS 32 CHARACTERS ON A LINE AND REPEATS THE PATTERN EVERY THREE LINES. THE PATTERN IS AS FOLLOWS (OCTAL CODE 040 --> 377):

THIS BOTTOM LINE COULD BE THE FOLLOWING IF THE TERMINAL DOES NOT HAVE LOWER CASE:

```
@ABCDEFGHIJKLMNOPQRSTUVWXYZ[     [UPPER CASE ALPHA]
```

2.2 PROGRAM OPTIONS

```
BIT15    - HALT ON ERROR
BIT14    - SCOPE LOOP
BIT13    - INHIBIT ERROR TYPEOUT
BIT12    - UNUSED
BIT11    - UNUSED
BIT10    - INHIBIT ERROR FLAGS TEST
```

```
BIT09      - LOOP ON ERROR
BIT08      - UNUSED
BIT07      - DISABLE SLU2 DATA TEST
BIT06      - INHIBIT LTC TESTS
BIT05      - INHIBIT ALL SLU TESTS (BOTH SLUS)
BIT04      - INHIBIT SLU1 TESTING
BIT03      - INHIBIT SLU2 TESTING
BIT02      - UNUSED
BIT01      - UNUSED
BIT00      - UNUSED
```

BUILT INTO THE PROGRAM IS THE ABILITY TO DYNAMICALLY CHANGE THE CONTENTS OF THE SOFTWARE SWITCH REGISTER DURING EXECUTION. TO DO THIS THE OPERATOR MUST TYPE A "CNTL G" (TYPING A "G" WITH THE "CTRL" KEY HELD DOWN AT THE SAME TIME). THIS IS PROCESSED AT KEY TIMES DURING THE PROGRAM (I.E. ON ERRORS, IN BETWEEN EACH TEST). A PROBLEM CAN OCCUR SINCE THE PROGRAM MAY BE TESTING THE SLU CONNECTED TO THE CONSOLE DEVICE . IF THIS HAPPENS IT SHOULD NOT CAUSE AN ERROR BUT THE "CNTL G" MAY BE LOST, SO IF THE PROGRAM DOES NOT RESPOND TO THE FIRST "CNTL G" TYPE A FEW MORE UNTIL THE RESPONSE IS RECEIVED. WHEN THE "CNTL G" IS RECEIVED THE PROGRAM WILL RESPOND WITH:

```
SWR = XXXXXX     NEW =
```

WHERE XXXXXX IS EQUAL TO THE PRESENT SWITCH REGISTER CONTENTS IN OCTAL. THE OPERATOR CAN THEN TYPE:

1. <CR> IF NO CHANGES ARE TO BE MADE.

2. 6 DIGITS <CR> TO REPRESENT IN OCTAL THE NEW SWITCH REGISTER SETTING.

3. CONTROL-U IF THE OPERATOR MAKES AN ERROR WHILE INPUTTING THE NEW SWITCH REGISTER SETTING.

2.3 EXECUTION TIMES

```
1ST PASS RUNTIME(WORST CASE).................15 SECONDS
LONGEST TEST TIME............................12.5 SECONDS
ADDITIONAL RUN TIME(EXTRA UNITS).............NONE
LONGEST PASS TIME............................15 SECONDS
```

3.0 ERROR INFORMATION

3.1 ERROR REPORTING PROCEDURES

IF A ROUTINE FAILS AND THE INHIBIT ERROR TYPEOUT (BIT13) OF THE SWR IS

NOT SET, A PRINTOUT RESULTS IN THE FORM:

```
"(SOME ASCII MESSAGE)"
TEST     ERR PC   RCSR     [ANY APPLICABLE DATA HEADINGS]
XXXXXX   XXXXXX   XXXXXX   [ANY APPLICABLE DATA]
```

NOTE: "RCSR" IS DEPENDENT ON THE FAILURE THEREFORE COULD BE TCSR, RBUF, TBUR, OR LKS

WHERE "XXXXXX" IS AN OCTAL NUMBER.

THIS ERROR PRINTOUT OCCURS PROVIDED THE ERROR THAT EXISTS WOULD NOT HINDER THE TYPEOUT. IN CASES WHERE IT IS NOT POSSIBLE TO PRINT AN ERROR MESSAGF (I.E. FATAL CONSOLE TRANSMITTER FAILURES), A HALT CCURS. (SEE SECTION 3.2 FOR ERROR HALT INFORMATION.)

NOTE

FOR SOFTWARE SWITCH OPERATION, THE SWITCH REGISTER CAN BE HANGED BY TYPING A CONTROL-G AT THE CONSOLE DURING ERROR PRITNOUTS. AFTER CONTINUING FROM THE ERROR HALT THE OLD SWR CONTENTS IS DISPLAYED AND THE NEW CONTENTS CAN BE ENTERED. IF ERROR HALTS ARE DISABLED, THE CONTROL-G RESPONSE OCCURS IMMEDIATELY FOLLOWING THE TYPEOUT.

3.2 ERROR HALTS

THERE ARE 4 ERRORS IN THIS PROGRAM THAT CAUSE A HALT. THESE ERRORS ARE IN TESTS 1, 2, AND 3.

TEST 1 ERROR - ACCESS TO SLU1 TRANSMITTER CSR CAUSE TIME-OUT TRAP. THIS PROBLEM WILL PROBABLY CAUSE AN INABILITY OF THE MICRO-ODT TO RUN.

TEST 2 ERROR - ACCESS TO SLU1 TRANSMITTER DATA BUFFER CAUSED TIME-OUT TRAP. THIS PROBLEM WILL PROBABLY CAUSE AN INABILITY OF THE MICRO-ODT TO RUN.

TEST 3 ERROR - THE FIRST ERROR IS THAT DONE DID NOT CLEAR WHEN THE TRANSMITTER BUFFER WAS FILLED AS IT SHOULD.

THE SECOND ERROR INDICATES THAT DONE DID NOT RESET IN A REASONABLE TIME AFTER THE DATA BUFFER WAS FILLED, INDICATING THAT THE CHARACTER WAS NEVER TRANSMITTED. THIS COULD CAUSE MICRO-ODT TO NOT RUN OR GARBLED OUTPUT FROM THE MICRO-ODT.

4.0 PERFORMANCE AND PROGRESS REPORTS

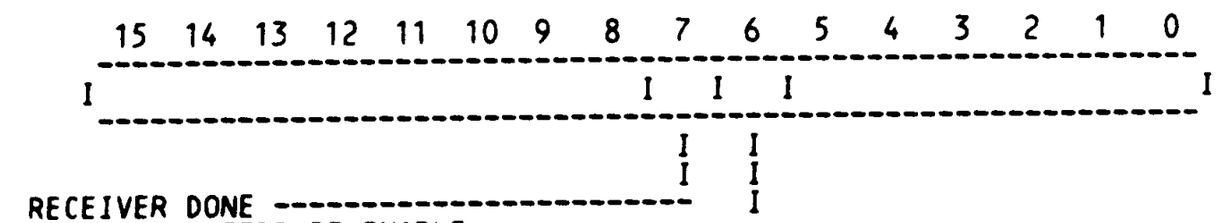
THE ONLY REPORT FROM THIS PROGRAM OTHER THAN ERROR REPORTS IS THE END PASS MESSAGE. IT IS IN THE FORM:

```
        END PASS #XXXXX
```

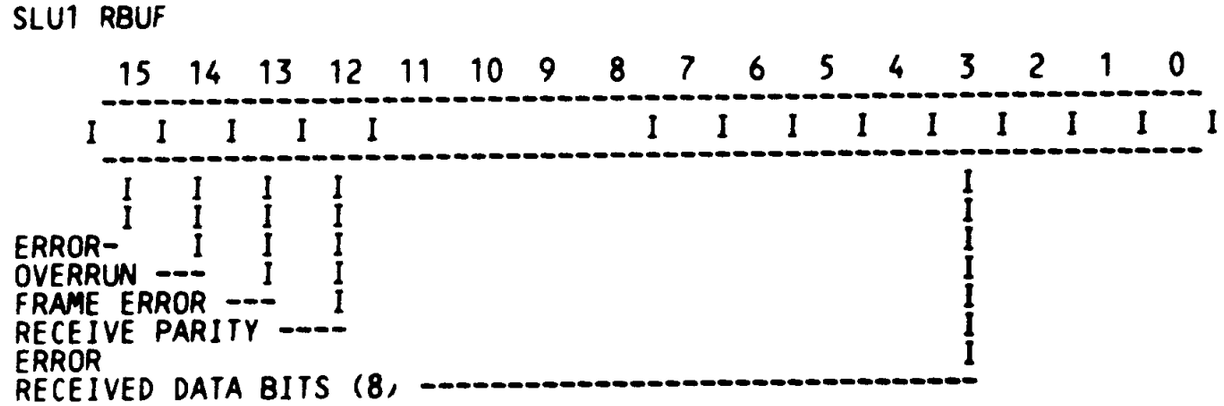
WHERE XXXXX IS THE DECIMAL NUMBER OF END OF PASSES COMPLETED.

5.0 DEVICE INFORMATION TABLES

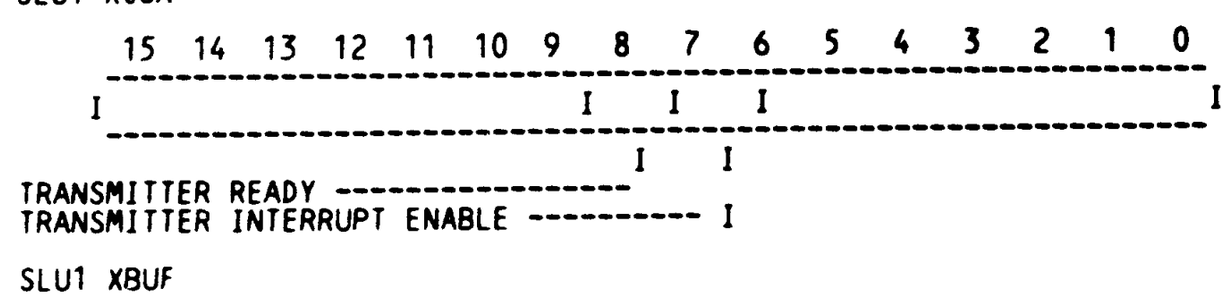
SLU1 RCSR



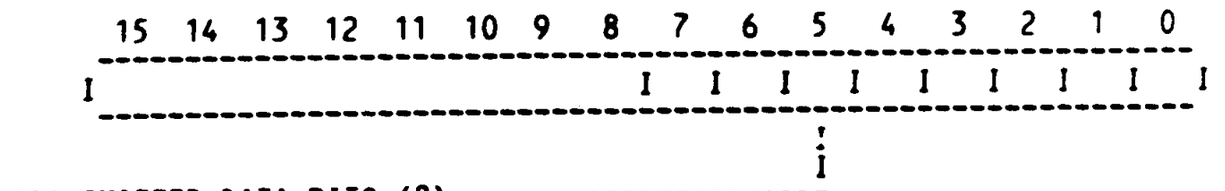
SLU1 RBUF



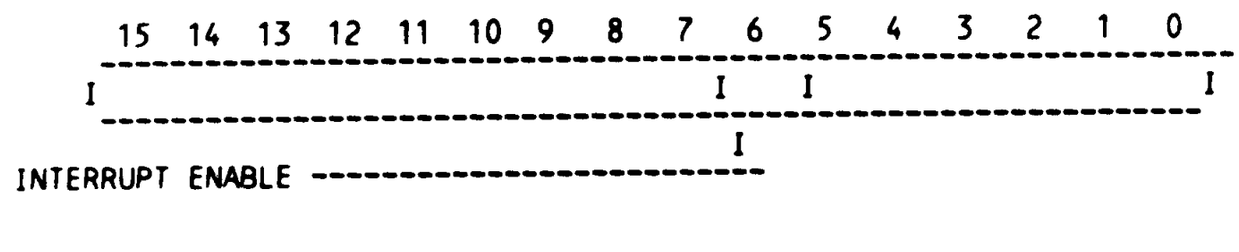
SLU1 XCSR



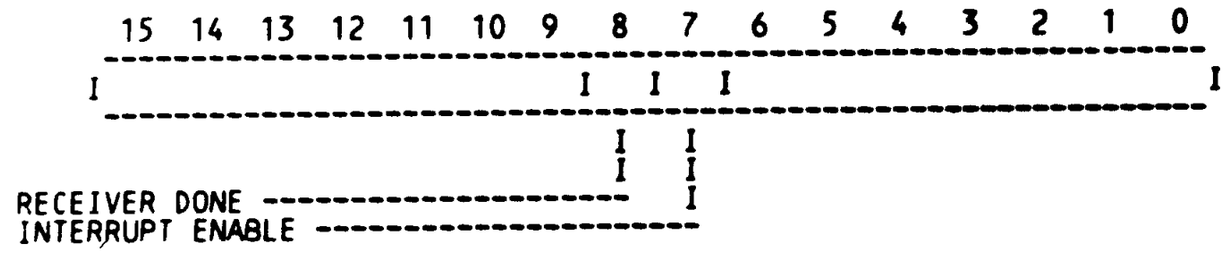
SLU1 XBUF



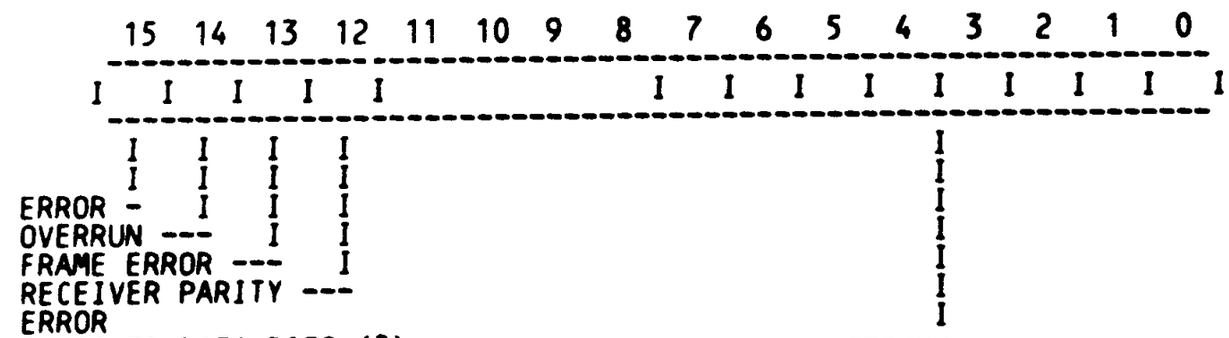
LTC CSR



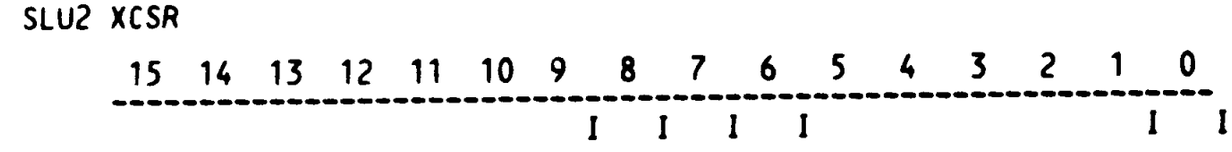
SLU2 RCSR

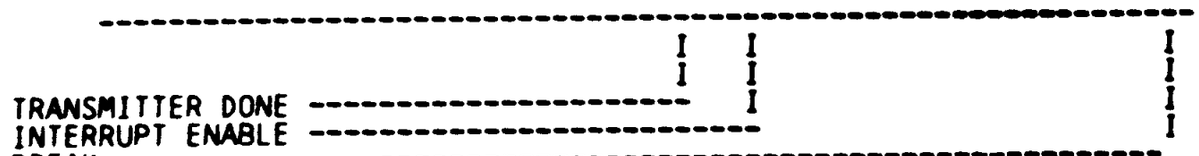


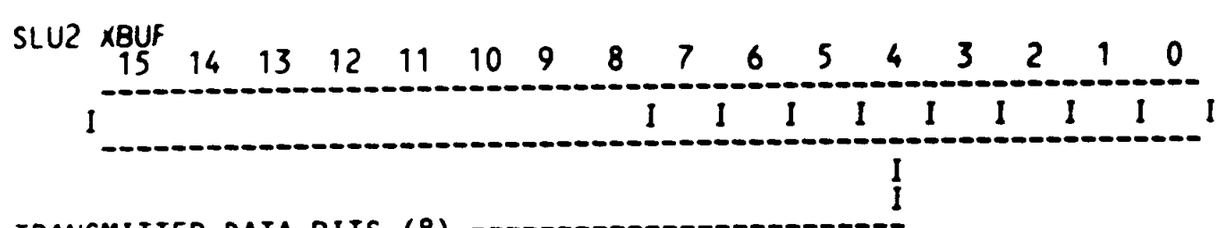
SLU2 RBUF



SLU2 XCSR







6.0 PROGRAM DESCRIPTION

6.1 PROGRAM EXECUTION CHARACTERISTICS

THIS PROGRAM TESTS ALL THE SELECTED DEVICES AS A SINGLE UNIT. IT FIRST VERIFIES THAT ALL REGISTERS CAN BE ACCESSED, THE WRITEABLE BITS ARE ABLE TO BE WRITTEN TO AND ARE UNIQUE ON ALL THREE DEVICES. IT THEN CHECKS EACH DEVICE FOR INTERRUPTS AND FOR DATA RELIABILITY. FINALLY IT SETS ALL SELECTED DEVICES UP TO GO AT THE SAME TIME ENABLES INTERRUPTS AND STARTS THEM OFF. THIS TEST CHECKS SYSTEM INTERACTION. WHEN ALL TESTS HAVE BEEN COMPLETED THE END OF PASS MESSAGE IS TYPED.

6.2 SUBTEST SUMMARIES

TEST1 TEST ABILITY TO ACCESS SLU1 TRANSMITTER CONTROL AND STATUS REGISTER. HALTS IF ACCESS CAUSES TIMEOUT TRAP.

TEST2 TEST ABILITY TO ACCESS SLU1 TRANSMITTER BUFFER. HALTS IF ACCESS CAUSES TIMEOUT TRAP.

TEST3 TEST SLU1 TRANSMITTER BIT7 (DONE) CLEARS WHEN TRANSMITTER BUFFER IS LOADED. THE BUFFER IS LOADED WHICH SHOULD CLEAR

THE DONE BIT. AFTER IT IS VERIFIED THAT "DONE" CLEARS THE PROGRAM WAITS TO RECEIVE DONE BACK AFTER THE DATA IS TRANSFERRED OUT OF THE BUFFER. IF DONE DOES NOT INITIALLY CLEAR OR FAILS TO RESET THE PROGRAM HALTS.

TEST4 TEST THAT SLU1 TRANSMITTER BIT7 (DONE) SETS WITH RESET. THE TRANSMITTER BUFFER IS LOADED WITH A CHARACTER, AS SOON AS "DONE" SETS A SECOND CHARACTER IS LOADED INTO THE BUFFER. BECAUSE THE FIRST CHARACTER IS STILL BEING SHIFTED OUT OF THE UART "DONE" WILL NOT NORMALLY SET FOR AT LEAST 1 MS (DEPENDING ON BAUD RATE). THE PROGRAM ISSUES A RESET BEFORE THF TIME IS UP AND IMMEDIATELY CHECKS FOR "DONE", IF IT IS SET THE PROGRAM ASSUMES IT WAS SET BY THE RESET INSTRUCTION. THIS ERROR DOES NOT CAUSE A HALT.

TEST5 TEST ABILITY TO ACCESS SLU1 RECEIVER CONTROL AND STATUS REGISTER. AN ERROR IS REPORTED IF ACCESS CAUSES A TIMEOUT TRAP.

TEST6 TEST ABILITY TO ACCESS SLU1 RECEIVER BUFFER. AN ERROR IS REPORTED IF ACCESS CAUSES A TIMEOUT TRAP.

TEST10 TEST THAT SLU1 TRANSMITTER INTERRUPT ENABLE (BIT6) CAN BE SET AND RESET. THIS TEST CHECKS THAT THE BIT CAN BE WRITTEN INTO AND READ, CLEARED BY WRITING A ZERO TO IT AND CLEARED BY A "RESET".

TEST11 TEST THAT SLU1 RECEIVER INTERRUPT ENABLE (BIT6) CAN BE SET AND RESET. SAME TEST AS FOR TRANSMITTER INTERRUPT ENABLE.

TEST14 SAME AS TEST1 BUT DONE ONSLU2 AND ERROR DOES NOT CAUSE HALT.

TEST15 SAME AS TEST2 BUT FOR SLU2 AND ERROR DOES NOT CAUSE HALT.

TEST16 SAME AS TEST3 BUT FOR SLU2 AND ERROR DOES NOT CAUSE HALT.

TEST17-21 SAME AS TEST4-6 BUT FOR SLU2.

TEST22 TEST SLU2 BREAK BIT (BIT0) CAN BE SET, CLEARED, AND RESET.

TEST23-26 SAME AS TEST 10-13 BUT FOR SLU2.

TEST27 TEST ABILITY TO ACCESS LINE CLOCK STATUS REGISTER. ERROR REPORTED IF ACCESS CAUSES TIMEOUT TRAP.

TEST30 TEST THAT LINE CLOCK INTERRUPT ENABLE (BIT6) CAN BE SET, CLEARED, AND "RESET".

TEST32 UNIQUE INTERNAL ADDRESS TEST. THIS TEST WRITES A BIT INTO ONE OF THE DEVICE REGISTERS AND THEN VERIFIES THAT BIT IS NOT SET IN OTHER REGISTERS. THE TEST IS REPEATED FOR OTHER REGISTERS.

TEST33 TEST THAT SLU1 TRANSMITTER INTERRUPTS ONLY WHEN ENABLED. THIS TEST CHECKS THAT THE TRANSMITTER ONLY INTERRUPTS WHEN ITS INTERRUPT ENABLE BIT IS SET.

TEST34 TEST SLU1 TRANSMITTER INTERRUPTS DO NOT OCCUR WHEN DISABLED. THIS TEST CHECKS THAT THE TRANSMITTER DOES NOT INTERRUPT WHEN THE PROCESSOR PRIORITY IS 7 OR THE INTERRUPT ENABLE BIT IS CLEARED.

TEST35 TEST SLU1 TRANSMITTER FOR DOUBLE INTERRUPTS. THIS TEST FIRST CHECKS THAT THE TRANSMITTER CAN INTERRUPT THEN MAKES SURE THAT ONLY ONE INTERRUPT IS REQUESTED FOR EACH SETTING OF "DONE".

TEST36 TEST THAT SLU1 TRANSMITTER INTERRUPT CLEARS WITH LOADING OF TRANSMITTER BUFFER. THIS TEST PUTS THE PROCESSOR AT 7, SETS TRANSMITTER INTERRUPT ENABLE AND FILLS THE TRANSMITTER BUFFER. WHEN "DONE" SETS THE SLU SHOULD HAVE AN INTERRUPT PENDING. THE PROGRAM THEN FILLS THE BUFFER AGAIN WHICH SHOULD CLEAR THE INTERRUPT.

TEST46-57 SAME AS TESTS 33-44 EXCEPT FOR SLU2 INSTEAD OF SLU1

TEST60 TEST THAT BREAK TRANSMITS ALL ZEROES. PUT ALL ONES INTO RECEIVER BUFFER THEN ISSUE A BREAK THE RECEIVER BUFFER SHOULD CONTAIN ZEROES.

TEST61 TEST THAT FRAMING ERROR (BIT13) CAN BE SET DURING BREAK. TRANSMIT A BREAK AND A CHARACTER JUST TO LET US KNOW WHEN TO LOOK FOR THE ERROR BIT. WHEN RECEIVER "DONE" SETS BOTH BREAK AND CHARACTER SHOULD BE THERE, CHECK FOR BIT 13 IN RECEIVER STATUS REGISTER.

TEST62 TEST SLU2 DATA PATH USING WRAP CABLE CONNECTOR. SAME AS TEST 45 ON SLU1.

TEST63 TEST LINE TIME CLOCK INTERRUPTS PROPERLY.

TEST64 TEST LINE TIME CLOCK FOR DOUBLE INTERRUPTS.

TEST65 TEST THAT LINE TIME CLOCK INTERRUPT CLEARS WITH RESET.

TEST70 BLAST TEST. THIS TEST RUNS ALL SELECTED DEVICES SIMULTANEOUSLY IN INTERRUPT MODE. AFTER 60 INTERRUPTS FROM THE LINE CLOCK OR 256 (10) BYTES HAVE BEEN TRANSFERRED BY THE SLU'S EVERYTHING IS SHUT DOWN. THE PROGRAM THEN VERIFIES THAT NO INTERRUPTS WERE LOST ON EITHER SLU AND THAT THE DATA TRANSFERRED WAS CORRECT.

NOTE: IF RUNNING UNDER THE APT ENVIRNOMENT MANY OF THE ABOVE TESTS ARE ONLY EXECUTED DURING FIRST PASS.

6.3 SPECIAL SUBROUTINE DESCRIPTIONS

6.3.1 ECHO TEST -

THIS ROUTINE WILL ECHO ANY CHARACTER TYPED ON EITHER SLU1 OR SLU2. DEFAULT IS TO THE CONSOLE DEVICE SLU1. THE TEST IS HALTED BY TYPING A CONTROL-C. TEST CAN BE RESTARTED AFTER HALTING BY JUST CONTINUING.

6.3.2 TERMINAL OUTPUT TEST -

THIS ROUTINE WILL OUTPUT ALL WRITEABLE CHARACTERS FOR THE OCTAL CODE 040 --> 377. 32 CHARACTERS ARE PRINTED ON EACH LINE. THE PATTERN IS REPEATED EVERY THREE LINES.

7.0 LISTING

%

```
.TITLE  CJKDIA0 11/23B SLU LTC REPR DIAG
;*COPYRIGHT (C) SEPT-81
;*DIGITAL EQUIPMENT CORP.
;*MAYNARD, MASS. 01754
;*
;*
```

```
                                ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
                                ;*PACKAGE (MAINDEC-11-DZQAC-C5), JAN, 1981.
                                ;*
                                $TN=1
000001                          $SWR=160000     ;;HALT ON ERROR, LOOP ON TEST, INHIBIT ERROR TYPOUT
160000                          .SBTTL  BASIC DEFINITIONS

                                ;*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
001100                          STACK=  1100
                                .EQUIV  EMT,ERROR       ;;BASIC DEFINITION OF ERROR CALL
                                .EQUIV  IOT,SCOPE       ;;BASIC DEFINITION OF SCOPE CALL

                                ;*MISCELLANEOUS DEFINITIONS
000011                          HT=     11              ;;CODE FOR HORIZONTAL TAB
000012                          LF=     12              ;;CODE FOR LINE FEED
000015                          CR=     15              ;;CODE FOR CARRIAGE RETURN
000200                          CRLF=   200             ;;CODE FOR CARRIAGE RETURN-LINE FEED
177776                          PS=     177776          ;;PROCESSOR STATUS WORD
                                .EQUIV  PS,PSW
177774                          STKLMT= 177774          ;;STACK LIMIT REGISTER
177772                          PIRQ=   177772          ;;PROGRAM INTERRUPT REQUEST REGISTER
177570                          DSWR=   177570          ;;HARDWARE SWITCH REGISTER
177570                          DDISP=  177570          ;;HARDWARE DISPLAY REGISTER

                                ;*GENERAL PURPOSE REGISTER DEFINITIONS
000000                          R0=     %0              ;;GENERAL REGISTER
000001                          R1=     %1              ;;GENERAL REGISTER
000002                          R2=     %2              ;;GENERAL REGISTER
000003                          R3=     %3              ;;GENERAL REGISTER
000004                          R4=     %4              ;;GENERAL REGISTER
000005                          R5=     %5              ;;GENERAL REGISTER
000006                          R6=     %6              ;;GENERAL REGISTER
000007                          R7=     %7              ;;GENERAL REGISTER
000006                          SP=     %6              ;;STACK POINTER
000007                          PC=     %7              ;;PROGRAM COUNTER

                                ;*PRIORITY LEVEL DEFINITIONS
000000                          PR0=    0               ;;PRIORITY LEVEL 0
000040                          PR1=    40              ;;PRIORITY LEVEL 1
000100                          PR2=    100             ;;PRIORITY LEVEL 2
000140                          PR3=    140             ;;PRIORITY LEVEL 3
000200                          PR4=    200             ;;PRIORITY LEVEL 4
000240                          PR5=    240             ;;PRIORITY LEVEL 5
000300                          PR6=    300             ;;PRIORITY LEVEL 6
000340                          PR7=    340             ;;PRIORITY LEVEL 7

                                ;*"SWITCH REGISTER" SWITCH DEFINITIONS
100000                          SW15=   100000
040000                          SW14=   40000
020000                          SW13=   20000
010000                          SW12=   10000
004000                          SW11=   4000
002000                          SW10=   2000
001000                          SW09=   1000
000400                          SW08=   400
000200                          SW07=   200
```

```
(1)  000100          SW06=   100
(1)  000040          SW05=   40
(1)  000020          SW04=   20
(1)  000010          SW03=   10
(1)  000004          SW02=   4
(1)  000002          SW01=   2
(1)  000001          SW00=   1
(1)                  .EQUIV  SW09,SW9
(1)                  .EQUIV  SW08,SW8
(1)                  .EQUIV  SW07,SW7
(1)                  .EQUIV  SW06,SW6
(1)                  .EQUIV  SW05,SW5
(1)                  .EQUIV  SW04,SW4
(1)                  .EQUIV  SW03,SW3
(1)                  .EQUIV  SW02,SW2
(1)                  .EQUIV  SW01,SW1
(1)                  .EQUIV  SW00,SW0
(1)
(1)                  ;*DATA BIT DEFINITIONS (BIT00 TO BIT15)
(1)  100000          BIT15=  100000
(1)  040000          BIT14=  40000
(1)  020000          BIT13=  20000
(1)  010000          BIT12=  10000
(1)  004000          BIT11=  4000
(1)  002000          BIT10=  2000
(1)  001000          BIT09=  1000
(1)  000400          BIT08=  400
(1)  000200          BIT07=  200
(1)  000100          BIT06=  100
(1)  000040          BIT05=  40
(1)  000020          BIT04=  20
(1)  000010          BIT03=  10
(1)  000004          BIT02=  4
(1)  000002          BIT01=  2
(1)  000001          BIT00=  1
(1)                  .EQUIV  BIT09,BIT9
(1)                  .EQUIV  BIT08,BIT8
(1)                  .EQUIV  BIT07,BIT7
(1)                  .EQUIV  BIT06,BIT6
(1)                  .EQUIV  BIT05,BIT5
(1)                  .EQUIV  BIT04,BIT4
(1)                  .EQUIV  BIT03,BIT3
(1)                  .EQUIV  BIT02,BIT2
(1)                  .EQUIV  BIT01,BIT1
(1)                  .EQUIV  BIT00,BIT0
(1)
(1)                  ;*BASIC "CPU" TRAP VECTOR ADDRESSES
(1)  000004          ERRVEC= 4               ;;TIME OUT AND OTHER ERRORS
(1)  000010          RESVEC= 10              ;;RESERVED AND ILLEGAL INSTRUCTIONS
(1)  000014          TBITVEC=14              ;;"T" BIT
(1)  000014          TRTVEC= 14              ;;TRACE TRAP
(1)  000014          BPTVEC= 14              ;;BREAKPOINT TRAP (BPT)
(1)  000020          IOTVEC= 20              ;;INPUT/OUTPUT TRAP (IOT) **SCOPE**
(1)  000024          PWRVEC= 24              ;;POWER FAIL
(1)  000030          EMTVEC= 30              ;;EMULATOR TRAP (EMT) **ERROR**
(1)  000034          TRAPVEC=34              ;;"TRAP" TRAP
```

```
(1)             000060                  TKVEC=  60              ;;TTY KEYBOARD VECTOR
(1)             000064                  TPVEC=  64              ;;TTY PRINTER VECTOR
(1)             000240                  PIRQVEC=240             ;;PROGRAM INTERRUPT REQUEST VECTOR
671             176500                          ABASE=  176500
672             000300                          AVECT1= 300
673             000400                          AUSWR=  400
674             000001                          $TN=    1
675             161000                          $SWR=   161000
676             000003                          BPT=    000003          ;THIS IS THE COMMAND FOR A TRAP
677                                                                     ;   THROUGH 14 (BPT TRAP)
678
679             000000                          .=0
680                                     ;;**************************************************************
681                                             ;*ALL UNUSED LOCATIONS FROM 4-776 CONTAIN A ".+2,BPT"
682                                             ;*SEQUENCE TO CATCH ILLEGAL TRAPS & INTERRUPTS
683                                             ;*LOCATION 0 CONTAINS 0 TO CATCH IMPROPERLY LOADED VECTORS
684
692
693             000014                          .=14                    ;THE BPT TRAP VECTOR POINTS TO THE
694  000014     012370                          .WORD   CATCH           ;   ILLEGAL TRAP HANDLER "CATCH"
695  000016     000340                          .WORD   340
696
697             000042                          .=      42
698  000042     000000                          .WORD   0
699
700
702
703
704             000174                          .=      174
705  000174     000000                 DISPREG: .WORD   0
706  000176     000000                 SWREG:   .WORD   0
707
708             000200                          .-200
709  000200     000137  003016                 JMP     START           ;DO INTERFACE TEST
710  000204     000137  015406                 JMP     ECHO            ;DO ECHO TEST
711  000210     000137  015664                 JMP     OUTTST          ;DO OUTPUT TEST TO TERMINAL
```

```
                                .=      500
                        .SBTTL  ACT11 HOOKS

                        ;;******************************************************************
                        ;HOOKS REQUIRED BY ACT11
                                $SVPC=.                 ;SAVE PC
                                .=46
                                $ENDAD                  ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
                                .=52
                                .WORD   0               ;;2)SET LOC.52 TO ZERO
                                .=$SVPC                 ;; RESTORE PC
                        .SBTTL  APT PARAMETER BLOCK

                        ;;******************************************************************
                        ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
                        ;;******************************************************************
                                .$X=.   ;;SAVE CURRENT LOCATION
                                .=24    ;;SET POWER FAIL TO POINT TO START OF PROGRAM
                                200     ;;FOR APT START UP
                                .=44    ;;POINT TO APT INDIRECT ADDRESS PNTR.
                                $APTHDR ;;POINT TO APT HEADER BLOCK
                                .=.$X   ;;RESET LOCATION COUNTER
                        ;;******************************************************************
                        ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
                        ;INTERFACE SPEC.

                        $APTHD:
000500                  $HIBTS: .WORD   0       ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
000500  000000          $MBADR: .WORD   $MAIL   ;;ADDRESS OF APT MAILBOX (BITS 0-15)
000502  001100          $TSTM:  .WORD   50      ;;RUN TIM OF LONGEST TEST
000504  000050          $PASTM: .WORD   60      ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
000506  000060          $UNITM: .WORD   55      ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
000510  000055                  .WORD   $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)
000512  000030
```

```
719
(1)
(2)
(1)
(1)
(1)
(1)                 001000
(1)   001000
(1)   001000   000000          .=1000
(1)   001002      000   $CMTAG:                    ;;START OF COMMON TAGS
(1)   001003      000           .WORD   0
(1)   001004   000000   $TSTNM: .BYTE   0         ;;CONTAINS THE TEST NUMBER
(1)   001006   000000   $ERFLG: .BYTE   0         ;;CONTAINS ERROR FLAG
(1)   001010   000000   $ICNT:  .WORD   0         ;;CONTAINS SUBTEST ITERATION COUNT
(1)   001012   000000   $LPADR: .WORD   0         ;;CONTAINS SCOPE LOOP ADDRESS
(1)   001014      000   $LPERR: .WORD   0         ;;CONTAINS SCOPE RETURN FOR ERRORS
(1)   001015      001   $ERTTL: .WORD   0         ;;CONTAINS TOTAL ERRORS DETECTED
(1)   001016   000000   $ITEMB: .BYTE   0         ;;CONTAINS ITEM CONTROL BYTE
(1)   001020   000000   $ERMAX: .BYTE   1         ;;CONTAINS MAX. ERRORS PER TEST
(1)   001022   000000   $ERRPC: .WORD   0         ;;CONTAINS PC OF LAST ERROR INSTRUCTION
(1)   001024   000000   $GDADR: .WORD   0         ;;CONTAINS ADDRESS OF 'GOOD' DATA
(1)   001026   000000   $BDADR: .WORD   0         ;;CONTAINS ADDRESS OF 'BAD' DATA
(1)   001030   000000   $GDDAT: .WORD   0         ;;CONTAINS 'GOOD' DATA
(1)   001032   000000   $BDDAT: .WORD   0         ;;CONTAINS 'BAD' DATA
(1)   001034      000           .WORD   0         ;;RESERVED--NOT TO BE USED
(1)   001035      000           .WORD   0
(1)   001036   000000   $AUTOB: .BYTE   0         ;;AUTOMATIC MODE INDICATOR
(1)   001040   177570   $INTAG: .BYTE   0         ;;INTERRUPT MODE INDICATOR
(1)   001042   177570           .WORD   0
(1)   001044   177560   SWR:    .WORD   DSWR      ;;ADDRESS OF SWITCH REGISTER
(1)   001046   177562   DISPLAY: .WORD  DDISP     ;;ADDRESS OF DISPLAY REGISTER
(1)   001050   177564   $TKS:   177560           ;;TTY KBD STATUS
(1)   001052   177566   $TKB:   177562           ;;TTY KBD BUFFER
(1)   001054      000   $TPS:   177564           ;;TTY PRINTER STATUS REG. ADDRESS
(1)   001055      002   $TPB:   177566           ;;TTY PRINTER BUFFER REG. ADDRESS
(1)   001056      012   $NULL:  .BYTE   0         ;;CONTAINS NULL CHARACTER FOR FILLS
(1)   001057      000   $FILLS: .BYTE   2         ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
(3)   001060   000000   $FILLC: .BYTE   12        ;;INSERT FILL CHARS. AFTER A 'LINE FEED"
(3)   001062   000000   $TPFLG: .BYTE   0         ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
(3)   001064   000000   $TMP0:  .WORD   0         ;;USER DEFINED
(3)   001066   000000   $TMP1:  .WORD   0         ;;USER DEFINED
(3)   001070   000000   $TMP2:  .WORD   0         ;;USER DEFINED
(1)   001072   000000   $TMP3:  .WORD   0         ;;USER DEFINED
(1)   001074      077   $TMP4:  .WORD   0         ;;USER DEFINED
(1)   001075      015   $ESCAPE:0                 ;;ESCAPE ON ERROR ADDRESS
(1)   001076   000012   $QUES:   'SCII  /?/       ;;QUESTION MARK
(2)                     $CRLF:  .ASCII  <15>      ;;CARRIAGE RETURN
(2)                     $LF:    .ASCIZ  <12>      ;;LINE FEED
(2)                     ;;*****************************************************************
(2)                     .SBTTL  APT MAILBOX-ETABLE
(3)
(2)                     ;;*****************************************************************
(2)                     .EVEN
(2)   001100   $MAIL:                     ;;APT MAILBOX
(2)   001100   000000   $MSGTY: .WORD   AMSGTY   ;;MESSAGE TYPE CODE
(2)   001102   000000   $FATAL: .WORD   AFATAL   ;;FATAL ERROR NUMBER
(2)   001104   000000   $TESTN: .WORD   ATESTN   ;;TEST NUMBER
(2)   001106   000000   $PASS:  .WORD   APASS    ;;PASS COUNT
```

```
(2)  001110  000000  $DEVCT: .WORD   ADEVCT  ;;DEVICE COUNT
(2)  001112  000000  $UNIT:  .WORD   AUNIT   ;;I/O UNIT NUMBER
(2)  001114  000000  $MSGAD: .WORD   AMSGAD  ;;MESSAGE ADDRESS
(2)  001116  000000  $MSGLG: .WORD   AMSGLG  ;;MESSAGE LENGTH
(2)  001120          $ETABLE:                ;;APT ENVIRONMENT TABLE
(2)  001120     000  $ENV:   .BYTE   AENV    ;;ENVIRONMENT BYTE
(2)  001121     000  $ENVM:  .BYTE   AENVM   ;;ENVIRONMENT MODE BITS
(2)  001122  000000  $SWREG: .WORD   ASWREG  ;;APT SWITCH REGISTER
(2)  001124  000400  $USWR:  .WORD   AUSWR   ;;USER SWITCHES
(2)  001126  000000  $CPUOP: .WORD   ACPUOP  ;;CPU TYPE,OPTIONS
(2)                  ;*                     BITS 15-11=CPU TYPE
(2)                  ;*                             11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
(2)                  ;*                             11/70=06,PDQ=07,Q=10
(2)                  ;*                     BIT 10=REAL TIME CLOCK
(2)                  ;*                     BIT  9=FLOATING POINT PROCESSOR
(2)                  ;*                     BIT  8=MEMORY MANAGEMENT
(2)  001130     000  $MAMS1: .BYTE   AMAMS1  ;;HIGH ADDRESS,M.S. BYTE
(2)  001131     000  $MTYP1: .BYTE   AMTYP1  ;;MEM. TYPE,BLK#1
(2)                  ;*                     MEM.TYPE BYTE   --  (HIGH BYTE)
(2)                  ;*                             900 NSEC CORE=001
(2)                  ;*                             300 NSEC BIPOLAR=002
(2)                  ;*                             500 NSEC MOS=003
(2)  001132  000000  $MADR1: .WORD   AMADR1  ;;HIGH ADDRESS,BLK#1
(2)                  ;*                       MEM.LAST ADDR.=3 BYTES,THIS WORD AND LOW OF ''TYPE'' ABOVE
(2)  001134     000  $MAMS2: .BYTE   AMAMS2  ;;HIGH ADDRESS,M.S. BYTE
(2)  001135     000  $MTYP2: .BYTE   AMTYP2  ;;MEM.TYPE,BLK#2
(2)  001136  000000  $MADR2: .WORD   AMADR2  ;;MEM.LAST ADDRESS,BLK#2
(2)  001140     000  $MAMS3: .BYTE   AMAMS3  ;;HIGH ADDRESS,M.S.BYTE
(2)  001141     000  $MTYP3: .BYTE   AMTYP3  ;;MEM.TYPE,BLK#3
(2)  001142  000000  $MADR3: .WORD   AMADR3  ;;MEM.LAST ADDRESS,BLK#3
(2)  001144     000  $MAMS4: .BYTE   AMAMS4  ;;HIGH ADDRESS,M.S.BYTE
(2)  001145     000  $MTYP4: .BYTE   AMTYP4  ;;MEM.TYPE,BLK#4
(2)  001146  000000  $MADR4: .WORD   AMADR4  ;;MEM.LAST ADDRESS,BLK#4
(2)  001150  000300  $VECT1: .WORD   AVECT1  ;;INTERRUPT VECTOR#1,BUS PRIORITY#1
(2)  001152  000000  $VECT2: .WORD   AVECT2  ;;INTERRUPT VECTOR#2BUS PRIORITY#2
(2)  001154  176500  $BASE:  .WORD   ABASE   ;;BASE ADDRESS OF EQUIPMENT UNDER TEST
(2)  001156  000000  $DEVM:  .WORD   ADEVM   ;;DEVICE MAP
(2)  001160          $ETEND:
(2)                  .MEXIT
```

```
(1)
(1)
(1)
(1)
(1)
(1)
(1)
(1)
(1)
(1)
(1)
(1)
(1)
(1)
(1)  001160
720
721  001160
722  001160  000020
723
724
725
726  001220  016010
727  001222  024731
728  001224  025512
729  001226  000000
730
731  001230  016052
732  001232  024756
733  001234  025522
734  001236  000000
735
736  001240  016111
737  001242  025003
738  001244  025532
739  001246  000000
740
741  001250  000004
742
743
744  001260  016150
745  001262  024731
746  001264  025512
747  001266  000000
748
749  001270  000004
750
751
752  001300  016206
753  001302  024731
754  001304  025512
755  001306  000000
756
757  001310  016254
758  001312  024731
759  001314  025512
760  001316  000000
```

```
.SBTTL  ERROR POINTER TABLE

;*THIS TABLE CONTAINS THE INFORMATION FOR EACH ERROR THAT CAN OCCUR.
;*THE INFORMATION IS OBTAINED BY USING THE INDEX NUMBER FOUND IN
;*LOCATION $ITEMB. THIS NUMBER INDICATES WHICH ITEM IN THE TABLE IS PERTINENT.
;*NOTE1:         IF $ITEMB IS 0 THE ONLY PERTINENT DATA IS ($ERRPC).
;*NOTE2:         EACH ITEM IN THE TABLE CONTAINS 4 POINTERS EXPLAINED AS FOLLOWS:

;*      EM              ;;POINTS TO THE ERROR MESSAGE
;*      DH              ;;POINTS TO THE DATA HEADER
;*      DT              ;;POINTS TO THE DATA
;*      DF              ;;POINTS TO THE DATA FORMAT


$ERRTB:

.$ERRTB:
        .BLKW   20              ;THIS BLOCK OF 16 LOCATIONS IS HERE TO PACIFY SYSMAC


        EM5                     ;SLU1 TCSR DONE NOT SET WITH RESET
        DH5                     ;"TEST# ERR PC  TCSR"
        DT5                     ;$TESTN,$ERRPC,CTCSR
        0

        EM6                     ;SLU1 RCSR DID NOT RETURN SSYNC
        DH6                     ;"TEST# ERR PC  RCSR"
        DT6                     ;$TESTN,$ERRPC,CRCSR
        0

        EM7                     ;SLU1 RBUF DID NOT RETURN SSYNC
        DH7                     ;"TEST# ERR PC  RBUF"
        DT7                     ;$TESTN,$ERRPC,CRBUF
        0

        .BLKW   4               ;MORE PACIFICATION


        EM11                    ;"CAN NOT SET BIT2 OF SLU1 TCSR"
        DH5                     ;"TEST# ERR PC  TCSR"
        DT5                     ;$TESTN,$ERRPC,CTCSR
        0

        .BLKW   4               ;STILL MORE PACIFICATION


        EM13                    ;"RESET DID NOT CLEAR BIT2 OF SLU1 TCSR"
        DH5                     ;"TEST# ERR PC  TCSR"
        DT5                     ;$TESTN,$ERRPC,CTCSR
        0

        EM14                    ;"BIT6 OF SLU1 TCSR NOT CLEAR AFTER RESET2
        DH5                     ;"TEST# ERR PC  TCSR"
        DT5                     ;$TESTN,$ERRPC,CTCSR
        0
```

```
                                                    ;'SLU1 XMIT INTERRUPTED WITH PRIORITY 7''
001320  016324          EM15                      ;''TEST# ERR PC  TCSR''
001322  024731          DH5                       ;$TESTN,$ERRPC,CTCSR
001324  025512          DT5
001326  000000          0

                                                    ;''CAN NOT SET BIT6 OF SLU1 TCSR''
001330  016372          EM16                      ;''TEST# ERR PC  TCSR''
001332  024731          DH5                       ;$TESTN,$ERRPC,CTCSR
001334  025512          DT5
001336  000000          0

                                                    ;''CAN NOT CLEAR BIT6 OF SLU1 TCSR''
001340  016430          EM17                      ;''TEST# ERR PC  TCSR''
001342  024731          DH5                       ;$TESTN,$ERRPC,CTCSR
001344  025512          DT5
001346  000000          0

                                                    ;''RESET DID NOT CLEAR BIT6 OF SLU1 TCSR''
001350  016470          EM20                      ;''TEST# ERR PC  TCSR''
001352  024731          DH5                       ;$TESTN,$ERRPC,CTCSR
001354  025512          DT5
001356  000000          0

                                                    ;'BIT6 OF SLU1 RCSR NOT CLEAR AFTER RESET''
001360  016536          EM21                      ;''TEST# ERR PC  RCSR''
001362  024756          DH6                       ;$TESTN,$ERRPC,CRCSR
001364  025522          DT6
001366  000000          0

                                                    ;''SLU1 RCVR INTERRUPT WITH PRIORITY 7''
001370  016606          EM22                      ;''TEST# ERR PC  RCSR''
001372  024756          DH6                       ;$TESTN,$ERRPC,CRCSR
001374  025522          DT6
001376  000000          0

                                                    ;''CAN NOT SET BIT6 OF SLU1 RCSR''
001400  016652          EM23                      ;''TEST# ERR PC  RCSR''
001402  024756          DH6                       ;$TESTN,$ERRPC,CRCSR
001404  025522          DT6
001406  000000          0

                                                    ;''CAN NOT CLEAR BIT6 OF SLU1 RCSR''
001410  016710          EM24                      ;''TEST# ERR PC  RCSR''
001412  024756          DH6                       ;$TESTN,$ERRPC,CRCSR
001414  025522          DT6
001416  000000          0

                                                    ;''CAN NOT CLEAR BIT6 OF SLU1 RCSR WITH RESET2
001420  016750          EM25                      ;''TEST# ERR PC  RCSR''
001422  024756          DH6                       ;$TESTN,$ERRPC,CRCSR
001424  025522          DT6
001426  000000          0

001430  017023          EM26                      ;''SLU1 RECEIVER DONE NEVER SET''
001432  024756          DH6                       ;''TEST# ERR PC  RCSR''
001434  025522          DT6                       ;$TESTN,$ERRPC,CRCSR
001436  000000          0

001440  017060          EM27                      ;''RESET DID NOT CLEAR SLU1 RCVR DONE''
001442  024756          DH6                       ;''TEST# ERR PC  RCSR''
001444  025522          DT6                       ;$TESTN,$ERRPC,CRCSR
001446  000000          0
```

```
817  001450  017123                EM30            ;''READING SLU1 RBUF DID NOT CLEAR RCVR DONE''
818  001452  024756                DH6             ;' TEST# ERR PC  RCSR''
819  001454  025522                DT6             ;$TESTN,$ERRPC,CRCSR
820  001456  000000                0
821
822  001460  017175                EM31            ;SLU2 TCSR DID NOT RETURN SSYNC
823  001462  024731                DH5             ;''TEST# ERR PC  TCSR''
824  001464  025542                DT31            ;$TESTN,$ERRPC,TCSR
825  001466  000000                0
826
827  001470  017234                EM32            ;SLU2 TBUF DID NOT RETURN SSYNC
828  001472  025030                DH32            ;''TEST# ERR PC  TBUF''
829  001474  025552                DT32            ;$TESTN,$ERRPC,TBUF
830  001476  000000                0
831
832  001500  017273                EM33            ;''SLU2 TCSR DONE NOT CLEARED WITH TBUF FULL''
833  001502  024731                DH5             ;''TEST# ERR PC  TCSR''
834  001504  025542                DT31            ;$TESTN,$ERRPC,TCSR
835  001506  000000                0
836
837  001510  017345                EM34            ;''SLU2 TCSR DONE NOT SET AFTER TRANSMIT''
838  001512  024731                DH5             ;''TEST# ERR PC  TCSR''
839  001514  025542                DT31            ;$TESTN,$ERRPC,TCSR
840  001516  000000                0
841
842  001520  017413                EM35            ;''SLU2 TCSR DONE NOT SET WITH RESET''
843  001522  024731                DH5             ;''TEST#  ERR PC  TCSR''
844  001524  025542                DT31            ;$TESTN,ERRPC,TCSR
845  001526  000000                0
846
847  001530  017455                EM36            ;''SLU2 RCSR DID NOT RETURN SSYNC''
848  001532  024756                DH6             ;''TEST#  ERR PC  RCSR''
849  001534  025562                DT36            ;$TESTN,ERRPC,RCSR
850  001536  000000                0
851
852  001540  017514                EM37            ;SLU2 RBUF DID NOT RETURN SSYNC''
853  001542  025003                DH7             ;''TEST#  ERR PC  RBUF''
854  001544  025572                DT37            ;$TESTN,ERRPC,RBUF
855  001546  000000                0
856
857  001550  017553                EM40            ;''BIT0 OF SLU2 TCSR NOT CLEAR AFTER RESET''
858  001552  024731                DH5             ;''TEST# ERR PC  TCSR
859  001554  025542                DT31            ;$TESTN,$ERRPC,TCSR
860  001556  000000                0
861
862  001560  017623                EM41            ;''CAN NOT SET BIT0 OF SLU2 TCSR''
863  001562  024731                DH5             ;''TEST# ERR PC  TCSR
864  001564  025542                DT31            ;$TESTN,$ERRPC,TCSR
865  001566  000000                0
866
867  001570  017661                EM42            ;''CAN NOT CLEAR BIT0 OF SLU2 TCSR''
868  001572  024731                DH5             ;''TEST# ERR PC  TCSR
869  001574  025542                DT31            ;$TESTN,$ERRPC,TCSR
870  001576  000000                0
871
872  001600  017721                EM43            ;''RESET DID NOT CLEAR BIT0 OF SLU2 TCSR''
```

```
873  001602  024731                DH5                     ;''TEST# ERR PC  TCSR
874  001604  025542                DT31                    ;$TESTN,$ERRPC,TCSR
875  001606  000000                0
876
877  001610  017767                EM44                    ;''BIT6 OF SLU2 TCSR NOT CLEAR AFTER RESET2
878  001612  024731                DH5                     ;''TEST# ERR PC  TCSR
879  001614  025542                DT31                    ;$TESTN,$ERRPC,TCSR
880  001616  000000                0
881
882  001620  020037                EM45                    ;''SLU2 XMIT INTERRUPTED WITH PRIORITY 7''
883  001622  024731                DH5                     ;''TEST# ERR PC  TCSR
884  001624  025542                DT31                    ;$TESTN,$ERRPC,TCSR
885  001626  000000                0
886
887  001630  020105                EM46                    ;''CAN NOT SET BIT6 OF SLU2 TCSR''
888  001632  024731                DH5                     ;''TEST# ERR PC  TCSR
889  001634  025542                DT31                    ;$TESTN,$ERRPC,TCSR
890  001636  000000                0
891
892  001640  020143                EM47                    ;''CAN NOT CLEAR BIT6 OF SLU2 TCSR''
893  001642  024731                DH5                     ;''TEST# ERR PC  TCSR
894  001644  025542                DT31                    ;$TESTN,$ERRPC,TCSR
895  001646  000000                0
896
897  001650  020203                EM50                    ;''RESET DID NOT CLEAR BIT6 OF SLU2 TCSR''
898  001652  024731                DH5                     ;''TEST# ERR PC  TCSR
899  001654  025542                DT31                    ;$TESTN,$ERRPC,TCSR
900  001656  000000                0
901
902  001660  020251                EM51                    ;''BIT6 OF SLU2 RCSR NOT CLEAR AFTER RESET''
903  001662  024756                DH6                     ;''TEST#  ERR PC  RCSR''
904  001664  025562                DT36                    ;$TESTN,ERRPC,RCSR
905  001666  000000                0
906
907  001670  020321                EM52                    ;''SLU2 RCVR INTERRUPT WITH PRIORITY 7''
908  001672  024756                DH6                     ;''TEST#  ERR PC  RCSR''
909  001674  025562                DT36                    ;$TESTN,ERRPC,RCSR
910  001676  000000                0
911
912  001700  020365                EM53                    ;''CAN NOT SET BIT6 OF SLU2 RCSR''
913  001702  024756                DH6                     ;''TEST#  ERR PC  RCSR''
914  001704  025562                DT36                    ;$TESTN,ERRPC,RCSR
915  001706  000000                0
916
917  001710  020423                EM54                    ;''CAN NOT CLEAR BIT6 OF SLU2 RCSR''
918  001712  024756                DH6                     ;''TEST#  ERR PC  RCSR''
919  001714  025562                DT36                    ;$TESTN,ERRPC,RCSR
920  001716  000000                0
921
922  001720  020463                EM55                    ;''CAN NOT CLEAR BIT6 OF SLU2 RCSR WITH RESET2
923  001722  024756                DH6                     ;''TEST#  ERR PC  RCSR''
924  001724  025562                DT36                    ;$TESTN,ERRPC,RCSR
925  001726  000000                0
926
927  001730  020536                EM56                    ;''SLU2 RECEIVER DONE NEVER SET''
928  001732  024756                DH5                     ;''TEST#  ERR PC  RCSR''
```

```
001734  025562          DT36                    ;$TESTN,ERRPC,RCSR
001736  000000          0
001740  020573          EM57                    ;''RESET DID NOT CLEAR SLU2 RCVR DONE''
001742  024756          DH6                     ;''TEST#  ERR PC  RCSR''
001744  025562          DT36                    ;$TESTN,ERRPC,RCSR
001746  000000          0
001750  020636          EM60                    ;''READING SLU2 RBUF DID NOT CLEAR RCVR DONE''
001752  024756          DH6                     ;''TEST#  ERR PC  RCSR''
001754  025562          DT36                    ;$TESTN,ERRPC,RCSR
001756  000000          0
001760  020710          EM61                    ;LKS DID NOT RETURN SSYNC
001762  025055          DH61                    ;''TEST#  ERR PC  LKS''
001764  025602          DT61                    ;$TESTN,ERRPC,LKS
001766  000000          0
001770  020741          EM62                    ;''BIT6 OF LKS NOT CLEAR AFTER RESET''
001772  025055          DH61                    ;''TEST# ERR PC  LKS''
001774  025602          DT61                    ;$TESTN,$ERRPC,LKS
001776  000000          0
002000  021003          EM63                    ;''LKS INTERRUPT WITH PRIORITY 7''
002002  025055          DH61                    ;''TEST# ERR PC  LKS''
002004  025602          DT61                    ;$TESTN,$ERRPC,LKS
002006  000000          0
002010  021041          EM64                    ;''CAN NOT SET BIT6 OF LKS''
002012  025055          DH61                    ;''TEST# ERR PC  LKS''
002014  025602          DT61                    ;$TESTN,$ERRPC,LKS
002016  000000          0
002020  021071          EM65                    ;''CAN NOT CLEAR BIT6 OF LKS''
002022  025055          DH61                    ;''TEST# ERR PC  LKS''
002024  025602          DT61                    ;$TESTN,$ERRPC,LKS
002026  000000          0
002030  021123          EM66                    ;''RESET DID NOT CLEAR BIT6 OF LKS''
002032  025055          DH61                    ;''TEST# ERR PC  LKS''
002034  025602          DT61                    ;$TESTN,$ERRPC,LKS
002036  000000          0
002040  021163          EM67                    ;''BIT7 OF LKS NOT SET AFTER RESET2
002042  025055          DH61                    ;''TEST# ERR PC  LKS''
002044  025602          DT61                    ;$TESTN,$ERRPC,LKS
002046  000000          0
002050  021223          EM70                    ;''CAN NOT CLEAR BIT7 OF LKS''
002052  025055          DH61                    ;''TEST# ERR PC  LKS''
002054  025602          DT61                    ;$TESTN,$ERRPC,LKS
002056  000000          0
002060  021255          EM71                    ;''BIT7 OF LKS DOES NOT SET''
002062  025055          DH61                    ;''TEST# ERR PC  LKS''
002064  025602          DT61                    ;$TESTN,$ERRPC,LKS
```

```
 985  002066  000000                    0
 986
 987  002070  021306                    EM72                    ;WRITING TO ONE INTERNAL ADDRESS MODIFIED ANOTHER
 988  002072  025101                    DH72                    ;''TEST# ERR PC  GOOD  BAD  GDDATA BDDATA
 989  002074  025612                    DT72                    ;$TESTN,$ERRPC,$GDADR,$BDADR,$GDDAT,$BDDAT
 990  002076  000000                    0
 991
 992  002100  000004                    .BLKW   4               ;THE LAST IN A LONG LINE OF PACIFICATION
 993
 994
 995  002110  021367                    EM74                    ;''SLU1 XMIT INTERRUPTS WHEN DISABLED''
 996  002112  024731                    DH5                     ;''TEST# ERR PC  TCSR''
 997  002114  025512                    DT5                     ;$TESTN,$ERRPC,CTCSR
 998  002116  000000                    0
 999
1000  002120  021432                    EM75                    ;''SLU1 XMIT DID NOT INTERRUPT''
1001  002122  024731                    DH5                     ;''TEST# ERR PC  TCSR''
1002  002124  025512                    DT5                     ;$TESTN,$ERRPC,CTCSR
1003  002126  000000                    0
1004
1005  002130  021466                    EM76                    ;''SLU1 XMIT INTERRUPT AT PRIORITY 7''
1006  002132  024731                    DH5                     ;''TEST# ERR PC  TCSR''
1007  002134  025512                    DT5                     ;$TESTN,$ERRPC,CTCSR
1008  002136  000000                    0
1009
1010  002140  021530                    EM77                    ;''SLU1 XMIT INTERRUPTS WITH ENABLE CLEAR''
1011  002142  024731                    DH5                     ;''TEST# ERR PC  TCSR''
1012  002144  025512                    DT5                     ;$TESTN,$ERRPC,CTCSR
1013  002146  000000                    0
1014
1015  002150  021577                    EM100                   ;''SLU1 XMIT DID NOT INTERRUPT''
1016  002152  024731                    DH5                     ;''TEST# ERR PC  TCSR''
1017  002154  025512                    DT5                     ;$TESTN,$ERRPC,CTCSR
1018  002156  000000                    0
1019
1020  002160  021633                    EM101                   ;''SLU1 XMIT RE-INTERRUPTED''
1021  002162  024731                    DH5                     ;''TEST# ERR PC  TCSR''
1022  002164  025512                    DT5                     ;$TESTN,$ERRPC,CTCSR
1023  002166  000000                    0
1024
1025  002170  021664                    EM102                   ;''LOADING SLU1 TBUF DID NOT CLEAR INTERRUPT''
1026  002172  024731                    DH5                     ;''TEST# ERR PC  TCSR''
1027  002174  025512                    DT5                     ;$TESTN,$ERRPC,CTCSR
1028  002176  000000                    0
1029
1030  002200  021736                    EM103                   ;''SLU1 RCVR INTERRUPTS WITH ENABLE CLEAR''
1031  002202  024756                    DH6                     ;''TEST# ERR PC  RCSR''
1032  002204  025522                    DT6                     ;$TESTN,$ERRPC,CRCSR
1033  002206  000000                    0
1034
1035  002210  022005                    EM104                   ;''SLU1 RCVR DID NOT INTERRUPT''
1036  002212  024756                    DH6                     ;''TEST# ERR PC  RCSR''
1037  002214  025522                    DT6                     ;$TESTN,$ERRPC,CRCSR
1038  002216  000000                    0
1039
1040  002220  022041                    EM105                   ;''SLU1 RCVR INTERRUPTS AT PRIORITY 7''
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```
1041  002222  024756          DH6                     ;''TEST# ERR PC  RCSR''
1042  002224  025522          DT6                     ;$TESTN,$ERRPC,CRCSR
1043  002226  000000          0
1044
1045  002230  022104          EM106                   ;''SLU1 RCVR INTERRUPTS WITH INTERRUPT ENABLE CLEAR''
1046  002232  024756          DH6                     ;''TEST# ERR PC  RCSR''
1047  002234  025522          DT6                     ;$TESTN,$ERRPC,CRCSR
1048  002236  000000          0
1049
1050  002240  022165          EM107                   ;''SLU1 RCVR DID NOT INTERRUPT''
1051  002242  024756          DH6                     ;''TEST# ERR PC  RCSR''
1052  002244  025522          DT6                     ;$TESTN,$ERRPC,CRCSR
1053  002246  000000          0
1054
1055  002250  022221          EM110                   ;''SLU1 RECEIVER RE-INTERRUPTED''
1056  002252  024756          DH6                     ;''TEST# ERR PC  RCSR''
1057  002254  025522          DT6                     ;$TESTN,$ERRPC,CRCSR
1058  002256  000000          0
1059
1060  002260  022256          EM111                   ;''SLU1 READING RBUF DID NOT CLEAR INTERRUPT''
1061  002262  024756          DH6                     ;''TEST# ERR PC  RCSR''
1062  002264  025522          DT6                     ;$TESTN,$ERRPC,CRCSR
1063  002266  000000          0
1064
1065  002270  022330          EM112                   ;''RESET DID NOT CLEAR SLU1 RCVR INTERRUPT''
1066  002272  024756          DH6                     ;''TEST# ERR PC  RCSR''
1067  002274  025522          DT6                     ;$TESTN,$ERRPC,CRCSR
1068  002276  000000          0
1069
1070  002300  022400          EM113                   ;''SLU1 'OR' FLAG DID NOT SET''
1071  002302  024756          DH6                     ;''TEST# ERR PC  RCSR''
1072  002304  025522          DT6                     ;$TESTN,$ERRPC,CRCSR
1073  002306  000000          0
1074
1075  002310  022433          EM114                   ;''SLU1 'ERROR' NOT SET WITH 'OR' FLAG''
1076  002312  024756          DH6                     ;''TEST# ERR PC  RCSR''
1077  002314  025522          DT6                     ;$TESTN,$ERRPC,CRCSR
1078  002316  000000          0
1079
1080  002320  022477          EM115                   ;''DATA COMPARE ERROR''
1081  002322  025157          DH115                   ;''TEST# ERR PC  CRCSR  GOOD  BAD''
1082  002324  025630          DT115                   ;$TESTN,$ERRPC,CRCSR,GD,BD
1083  002326  000000          0
1084
1085  002330  022522          EM116                   ;''SLU2 XMIT INTERRUPTS WHEN DISABLED''
1086  002332  024731          DH5                     ;''TEST# ERR PC  TCSR''
1087  002334  025542          DT31                    ;$TESTN,$ERRPC,TCSR
1088  002336  000000          0
1089
1090  002340  022565          EM117                   ;''SLU2 XMIT DID NOT INTERRUPT''
1091  002342  024731          DH5                     ;''TEST# ERR PC  TCSR''
1092  002344  025542          DT31                    ;$TESTN,$ERRPC,TCSR
1093  002346  000000          0
1094
1095  002350  022621          EM120                   ;''SLU2 XMIT INTERRUPT AT PRIORITY 7''
1096  002352  024731          DH5                     ;''TEST# ERR PC  TCSR''
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```
1097  002354  025542                DT31                    ;$TESTN,$ERRPC,TCSR
1098  002356  000000                0
1099
1100  002360  022663                EM121                   ;''SLU2 XMIT INTERRUPTS WITH ENABLE CLEAR''
1101  002362  024731                DH5                     ;''TEST# ERR PC  TCSR''
1102  002364  025542                DT31                    ;$TESTN,$ERRPC,TCSR
1103  002366  000000                0
1104
1105  002370  022732                EM122                   ;''SLU2 XMIT DID NOT INTERRUPT''
1106  002372  024731                DH5                     ;''TEST# ERR PC  TCSR''
1107  002374  025542                DT31                    ;$TESTN,$ERRPC,TCSR
1108  002376  000000                0
1109
1110  002400  022766                EM123                   ;''SLU2 XMIT RE-INTERRUPTED''
1111  002402  024731                DH5                     ;''TEST# ERR PC  TCSR''
1112  002404  025542                DT31                    ;$TESTN,$ERRPC,TCSR
1113  002406  000000                0
1114
1115  002410  023017                EM124                   ;''LOADING SLU2 TBUF DID NOT CLEAR INTERRUPT''
1116  002412  024731                DH5                     ;''TEST# ERR PC  TCSR''
1117  002414  025542                DT31                    ;$TESTN,$ERRPC,TCSR
1118  002416  000000                0
1119
1120  002420  023071                EM125                   ;''SLU2 RCVR INTERRUPTS WITH ENABLE CLEAR''
1121  002422  024756                DH6                     ;''TEST# ERR PC  RCSR''
1122  002424  025562                DT36                    ;$TESTN,$ERRPC,RCSR
1123  002426  000000                0
1124
1125  002430  023140                EM126                   ;''SLU2 RCVR DID NOT INTERRUPT''
1126  002432  024756                DH6                     ;''TEST# ERR PC  RCSR''
1127  002434  025562                DT36                    ;$TESTN,$ERRPC,RCSR
1128  002436  000000                0
1129
1130  002440  023174                EM127                   ;''SLU2 RCVR INTERRUPTS AT PRIORITY 7''
1131  002442  024756                DH6                     ;''TEST# ERR PC  RCSR''
1132  002444  025562                DT36                    ;$TESTN,$ERRPC,RCSR
1133  002446  000000                0
1134
1135  002450  023237                EM130                   ;''SLU2 RCVR INTERRUPTS WITH INTERRUPT ENABLE CLEAR''
1136  002452  024756                DH6                     ;''TEST# ERR PC  RCSR''
1137  002454  025562                DT36                    ;$TESTN,$ERRPC,RCSR
1138  002456  000000                0
1139
1140  002460  023320                EM131                   ;''SLU2 RCVR DID NOT INTERRUPT''
1141  002462  024756                DH6                     ;''TEST# ERR PC  RCSR''
1142  002464  025562                DT36                    ;$TESTN,$ERRPC,RCSR
1143  002466  000000                0
1144
1145  002470  023354                EM132                   ;''SLU2 RECEIVER RE-INTERRUPTED''
1146  002472  024756                DH6                     ;''TEST# ERR PC  RCSR''
1147  002474  025562                DT36                    ;$TESTN,$ERRPC,RCSR
1148  002476  000000                0
1149
1150  002500  023411                EM133                   ;''SLU2 READING RBUF DID NOT CLEAR INTERRUPT''
1151  002502  024756                DH6                     ;''TEST# ERR PC  RCSR''
1152  002504  025562                DT36                    ;$TESTN,$ERRPC,RCSR
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```
1153  002506  000000                    0
1154
1155  002510  023463                    EM134           ;''RESET DID NOT CLEAR SLU2 RCVR INTERRUPT''
1156  002512  024756                    DH6             ;''TEST# ERR PC  RCSR''
1157  002514  025562                    DT36            ;$TESTN,$ERRPC,RCSR
1158  002516  000000                    0
1159
1160  002520  023533                    EM135           ;''SLU2 'OR' FLAG DID NOT SET''
1161  002522  024756                    DH6             ;''TEST# ERR PC  RCSR''
1162  002524  025562                    DT36            ;$TESTN,$ERRPC,RCSR
1163  002526  000000                    0
1164
1165  002530  023566                    EM136           ;''SLU2 'ERROR' NOT SET WITH 'OR' FLAG''
1166  002532  024756                    DH6             ;''TEST# ERR PC  RCSR''
1167  002534  025562                    DT36            ;$TESTN,$ERRPC,RCSR
1168  002536  000000                    0
1169
1170  002540  023632                    EM137           ;''SLU2 BREAK DID NOT TRANSMIT ALL ZEROES''
1171  002542  025223                    DH137           ;''TEST# ERR PC  RCSR  DATA''
1172  002544  025644                    DT137           ;$TESTN,$ERRPC,RCSR,$BDDAT
1173  002546  000000                    0
1174
1175  002550  023701                    EM140           ;''BREAK DID NOT SET FRAMING ERROR''
1176  002552  024756                    DH6             ;''TEST# ERR PC  RCSR''
1177  002554  025522                    DT6             ;$TESTN,$ERRPC,RCSR
1178  002556  000000                    0
1179
1180  002560  023741                    EM141           ;''SLU2 'ERROR' NOT SET WITH 'FR' FLAG''
1181  002562  024756                    DH6             ;''TEST# ERR PC  RCSR''
1182  002564  025562                    DT36            ;$TESTN,$ERRPC,RCSR
1183  002566  000000                    0
1184
1185  002570  024005                    EM142           ;''DATA COMPARE ERROR WITH CABLE''
1186  002572  025260                    DH142           ;''TEST# ERR PC  RCSR    GOOD    BAD''
1187  002574  025656                    DT142           ;$TESTN,$ERRPC,RCSR,GD,BD
1188  002576  000000                    0
1189
1190  002600  024043                    EM143           ;''RTC INTERRUPT AT PRIORITY 7''
1191  002602  025055                    DH61            ;''TEST# ERR PC  LKS''
1192  002604  025602                    DT61            ;$TESTN,$ERRPC,LKS
1193  002606  000000                    0
1194
1195  002610  024077                    EM144           ;''RTC INTERRUPTS WHEN DISABLED''
1196  002612  025055                    DH61            ;''TEST# ERR PC  LKS''
1197  002614  025602                    DT61            ;$TESTN,$ERRPC,LKS
1198  002616  000000                    0
1199
1200  002620  024134                    EM145           ;''RTC INTERRUPT DID NOT OCCUR''
1201  002622  025055                    DH61            ;''TEST# ERR PC  LKS''
1202  002624  025602                    DT61            ;$TESTN,$ERRPC,LKS
1203  002626  000000                    0
1204
1205  002630  024170                    EM146           ;''RTC INTERRUPT DID NOT OCCUR''
1206  002632  025055                    DH61            ;''TEST# ERR PC  LKS''
1207  002634  025602                    DT61            ;$TESTN,$ERRPC,LKS
1208  002636  000000                    0
```

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1209
1210  002640  024224                  EM147                   ;''RTC DOUBLE INTERRUPT''
1211  002642  025055                  DH61                    ;''TEST# ERR PC  LKS''
1212  002644  025602                  DT61                    ;$TESTN,$ERRPC,LKS
1213  002646  000000                  0
1214
1215  002650  024251                  EM150                   ;''RESET DID NOT CLEAR RTC INTERRUPT''
1216  002652  025055                  DH61                    ;''TEST# ERR PC  LKS''
1217  002654  025602                  DT61                    ;$TESTN,$ERRPC,LKS
1218  002656  000000                  0
1219
1220  002660  024313                  EM151                   ;''RTC INTERRUPT DID NOT CLEAR WITH BIT7 OF LKS''
1221  002662  025055                  DH61                    ;''TEST# ERR PC  LKS''
1222  002664  025602                  DT61                    ;$TESTN,$ERRPC,LKS
1223  002666  000000                  0
1224
1225
1226  002670  024422                  EM153                   ;''SLU1 RECEIVER STATUS ERROR''
1227  002672  025157                  DH115                   ;''TEST#  ERR PC  CRCSR  GOOD  BAD''
1228  002674  025630                  DT115                   ;$TESTN,$ERRPC,CRCSR,$GDDTA,$BDDAT
1229  002676  000000                  0
1230
1231  002700  024455                  EM154                   ;SLU2 RECEIVER STATUS ERROR
1232  002702  025260                  DH142                   ;''TESTN  ERR PC  RCSR  GOOD  BAD''
1233  002704  025656                  DT142                   ;$TESTN,$ERRPC,RCSR,$GDDAT,$BDDAT
1234  002706  000000                  0
1235
1236
1237  002710  024545                  EM156                   ;''SLU1 DATA COMPARE ERROR IN EXERCISER''
1238  002712  025157                  DH115                   ;''TEST# ERR PC  CRCSR   GOOD    BAD''
1239  002714  025630                  DT115                   ;$TESTN,$ERRPC,CRCSR,GD,BD
1240  002716  000000                  0
1241
1242  002720  024612                  EM157                   ;''INCORRECT RECEIVE COUNT SLU2
1243  002722  025361                  DH155                   ;''TEST# ERR PC  RCSR    TRANS   RCV''
1244  002724  025670                  DT157                   ;$TESTN,$ERRPC,RCSR,XMTCT2,RCVCT2
1245  002726  000000                  0
1246
1247  002730  024647                  EM160                   ;''SLU2 DATA COMPARE ERROR IN EXERCISER''
1248  002732  025260                  DH142                   ;''TEST# ERR PC  RCSR    GOOD    BAD''
1249  002734  025656                  DT142                   ;$TESTN,$ERRPC,RCSR,GD,BD
1250  002736  000000                  0
1251
1252  002740  024714                  EM161                   ;''TRAP CATCHER''
1253  002742  025425                  DH161                   ;''TEST#   ERR PC  OLDPC  TRAP ADR''
1254  002744  025704                  DT161                   ;$TESTN,$ERRPC,OLDPC,BDVECT
1255  002746  000000                  0
1256
1257                          ;REGISTER ADDRESSES OF  INTERNAL ON BOARD OPTIONS
1258
1259  002750  176500          RCSR:   .WORD   176500          ;SLU2 COMMAND/STATUS REGISTER
1260  002752  176502          RBUF:   .WORD   176502          ;SLU2 RECEIVER BUFFER
1261  002754  176504          TCSR:   .WORD   176504          ;SLU2 TRANSMITTER COMMAND/STATUS REGISTER
1262  002756  176506          TBUF:   .WORD   176506          ;SLU2 TRANSMITTER BUFFER
1263  002760  177560          CRCSR:  177560                  ;SLU1 RECEIVER COMMAND/STATUS REGISTER
1264  002762  177562          CRBUF:  177562                  ;SLU1 RECEIVER BUFFER
```

```
1265  002764  177564                  CTCSR:  177564                  ;SLU1 TRANSMITTER COMMAND/STATUS REGISTER
1266  002766  177566                  CTBUF:  177566                  ;SLU1 TRANSMITTER BUFFER
1267  002770  177546                  LKS:    .WORD   177546          ;LTC COMMAND/STATUS REGISTER
1268
1269
1270                                  ;VECTOR ADDRESSES FOR ON BOARD OPTIONS
1271
1272  002772  000300                  RVECT:  .WORD   300
1273  002774  000302                  RPSW:   .WORD   302
1274  002776  000304                  TVECT:  .WORD   304
1275  003000  000306                  TPSW:   .WORD   306
1276  003002  000060                  CRVECT: 60                      ;RECEIVER INTERRUPT VECTOR
1277  003004  000062                  CRPSW:  62
1278  003006  000064                  CTVECT: 64                      ;TRANSMITTER INTERRUPT VECTOR
1279  003010  000066                  CTPSW:  66
1280  003012  000100                  RTCVT:  .WORD   100
1281  003014  000102                  RTCPSW: .WORD   102
1282
1283  003016  005037  001102          START:  CLR     $FATAL          ;CLEAR ERROR NO.
1284  003022  005037  001100                  CLR     $MSGTYP         ;CLEAR MESSAGE TYPE
1285  003026  005037  001104                  CLR     $TESTN          ;CLEAR TEST NO.
1286  003032  005037  001156                  CLR     $DEVM           ;CLEAR FLAGS INDICATING DEVICES UNDER TEST
1287  003036                          1$:
 (1)                                .SBTTL  INITIALIZE THE COMMON TAGS
 (1)                                ;;CLEAR THE COMMON TAGS ($CMTAG) AREA
 (1)  003036  012706  001000                  MOV     #$CMTAG,R6      ;;FIRST LOCATION TO BE CLEARED
 (1)  003042  005026                          CLR     (R6)+           ;;CLEAR MEMORY LOCATION
 (1)  003044  022706  001040                  CMP     #SWR,R6 ;;DONE?
 (1)  003050  001374                          BNE     .-6             ;;LOOP BACK IF NO
 (1)  003052  012706  001000                  MOV     #1000,SP                ;;SETUP THE STACK POINTER
 (1)                                ;;INITIALIZE A FEW VECTORS
 (1)  003056  012737  013114  000020          MOV     #$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
 (1)  003064  012737  000340  000022          MOV     #340,@#IOTVEC+2 ;;LEVEL 7
 (1)  003072  012737  012420  000030          MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
 (1)  003100  012737  000340  000032          MOV     #340,@#EMTVEC+2 ;;LEVEL 7
 (1)  003106  012737  015326  000034          MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
 (1)  003114  012737  000340  000036          MOV     #340,@#TRAPVEC+2;LEVEL 7
 (1)  003122  012737  012736  000024          MOV     #$PWRDN,@#PWRVEC ;;POWER FAILURE VECTOR
 (1)  003130  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;LEVEL 7
 (1)  003136  013737  012270  012262          MOV     $ENDCT,$EOPCT   ;;SETUP END-OF-PROGRAM COUNTER
 (1)  003144  005037  001072                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE ON ERROR ADDRESS
 (1)  003150  112737  000001  001015          MOVB    #1,$ERMAX       ;;ALLOW ONE ERROR PER TEST
 (1)  003156  012737  003156  001006          MOV     #.,$LPADR       ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
 (1)  003164  012737  003164  001010          MOV     #.,$LPERR       ;;SETUP THE ERROR LOOP ADDRESS
 (2)                                ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
 (2)                                ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
 (2)  003172  013746  000004                  MOV     @#ERRVEC,-(SP)  ;;SAVE ERROR VECTOR
 (2)  003176  012737  003232  000004          MOV     #64$,@#ERRVEC   ;;SET UP ERROR VECTOR
 (2)  003204  012737  177570  001040          MOV     #DSWR,SWR       ;;SETUP FOR A HARDWARE SWICH REGISTER
 (2)  003212  012737  177570  001042          MOV     #DDISP,DISPLAY  ;;AND A HARDWARE DISPLAY REGISTER
 (2)  003220  022777  177777  175612          CMP     #-1,@SWR        ;;TRY TO REFERENCE HARDWARE SWR
 (2)  003226  001012                          BNE     66$             ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
 (2)                                                                  ;;AND  THE HARDWARE SWR IS NOT = -1
 (2)  003230  000403                          BR      65$             ;;BRANCH IF NO TIMEOUT
 (2)  003232  012716  003240          64$:    MOV     #65$,(SP)       ;;SET UP FOR TRAP RETURN
 (2)  003236  000002                          RTI
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```
(2) 003240 012737 000176 001040 65$:    MOV     #SWREG,SWR          ;;POINT TO SOFTWARE SWR
(2) 003246 012737 000174 001042         MOV     #DISPREG,DISPLAY
(2) 003254 012637 000004        66$:    MOV     (SP)+,@#ERRVEC      ;;RESTORE ERROR VECTOR
(1)
(2) 003260 005037 001106                CLR     $PASS               ;;CLEAR PASS COUNT
(2) 003264 132737 000200 001121         BITB    #APTSIZE,$ENVM      ;;TEST USER SIZE UNDER APT
(2) 003272 001403                       BEQ     67$                 ;;YES,USE NON-APT SWITCH
(2) 003274 012737 001122 001040         MOV     #$SWREG,SWR         ;;NO,USE APT SWITCH REGISTER
(2) 003302                      67$:
1288                            .SBTTL  GET VALUE FOR SOFTWARE SWITCH REGISTER
(1) 003302 005737 000042                TST     @#42                ;;ARE WE RUNNING UNDER XXDP/ACT?
(1) 003306 001012                       BNE     68$                 ;;BRANCH IF YES
(1) 003310 123727 001120 000001         CMPB    $ENV,#1             ;;ARE WE RUNNING UNDER APT?
(1) 003316 001406                       BEQ     68$                 ;;BRANCH IF YES
(1) 003320 023727 001040 000176         CMP     SWR,#SWREG          ;;SOFTWARE SWITCH REG SELECTED?
(1) 003326 001005                       BNE     69$                 ;;BRANCH IF NO
(1) 003330 104406                       GTSWR                       ;;GET SOFT-SWR SETTINGS
(1) 003332 000403                       BR      69$
(1) 003334 112737 000001 001034 68$:    MOVB    #1,$AUTOB           ;;SET AUTO-MODE INDICATOR
(1) 003342                      69$:
1289 003342 032777 000060 175470        BIT     #BIT4!BIT5,@SWR     ;IS SLU1 TO BE TESTED
1290 003350 001003                      BNE     2$                  ;IF EITHER BIT IS SET THEN DON'T TEST IT
1291 003352 052737 000001 001156        BIS     #BIT0,$DEVM         ;SET DEVICE FLAG TO TEST SLU1
1292 003360 032777 000050 175452 2$:    BIT     #BIT3!BIT5,@SWR     ;IS SLU2 TO BE TESTED
1293 003366 001003                      BNE     3$                  ;IF EITHER BIT IS SET THEN DON'T TEST IT
1294 003370 052737 000002 001156        BIS     #BIT1,$DEVM         ;SET DEVICE FLAG TO TEST SLU2
1295 003376 032777 000100 175434 3$:    BIT     #BIT6,@SWR          ;IS LTC TO BE TESTED
1296 003404 001003                      BNE     4$                  ;IF BIT IS SET THEN DON'T TEST IT.
1297 003406 052737 000004 001156        BIS     #BIT2,$DEVM         ;SET DEVICE FLAG TO TEST LTC
1298 003414 032737 000001 001156 4$:    BIT     #BIT0,$DEVM         ;IS SLU1 UNDER TEST
1299 003422 001002                      BNE     TST1                ;IF YES TEST XMIT REG. BEFORE TYPING TITLE
1300 003424 000137 003660               JMP     ID                  ;IF NO SKIP TESTS AND TYPE IT NOW
```

```
                                ;;*****************************************************************
                                ;*TEST 1         TEST ABILITY TO ACCESS SLU1 TCSR
                                ;;*****************************************************************
                                ;
003430  000004                  TST1:   SCOPE
003432  012737  000001  001104          MOV     #1,$TESTN       ;;SET TEST NUMBER IN APT MAIL BOX
003440  013703  000004                  MOV     @#4,R3          ;SAVE TIMEOUT VECTOR
003444  012737  003460  000004          MOV     #1$,@#4         ;SET UP TIMEOUT VECTOR
003452  005777  177306                  TST     @CTCSR          ;REFERENCE THE XMIT COMMAND/STATUS REG.
003456  000405                          BR      2$              ; GO TO END OF TEST
003460  022626                  1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER TIMEOUT
003462  004737  013304                  JSR     PC,$ATY4                ;;ONLY REPORT A FATAL ERROR
003466  000001                          1                               ;;THE ERROR NUMBER (FROM APT LIST)
003470  000000                          HALT
003472  010337  000004          2$:     MOV     R3,@#4          ;RESTORE TIMEOUT VECTOR
                                ;
                                ;
                                ;;*****************************************************************
                                ;*TEST 2         TEST ABILITY TO ACCESS SLU1 TBUF
                                ;;*****************************************************************
                                ;
003476  000004                  TST2:   SCOPE
003500  012737  000002  001104          MOV     #2,$TESTN       ;;SET TEST NUMBER IN APT MAIL BOX
003506  013703  000004                  MOV     @#4,R3          ;SAVE TIMEOUT VECTOR
003512  012737  003526  000004          MOV     #1$,@#4         ;SET UP TIMEOUT VECTOR
003520  005777  177242                  TST     @CTBUF          ;REFERENCE THE XMIT BUFFER
003524  000405                          BR      2$              ;GO TO END OF  TEST
003526  022626                  1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER TIMEOUT
003530  004737  013304                  JSR     PC,$ATY4                ;;ONLY REPORT A FATAL ERROR
003534  000002                          2                               ;;THE ERROR NUMBER (FROM APT LIST)
003536  000000                          HALT
003540  010337  000004          2$:     MOV     R3,@#4          ;RESTORE TIMEOUT VECTOR
                                ;
                                ;
                                ;;*****************************************************************
                                ;*TEST 3         TEST SLU1 TCSR BIT7(DONE) CLEARS WHEN XBUF IS LOADED
                                ;;*****************************************************************
                                ;
003544  000004                  TST3:   SCOPE
003546  012737  000003  001104          MOV     #3,$TESTN       ;;SET TEST NUMBER IN APT MAIL BOX
003554  032737  000001  001120          BIT     #1,@#$ENV       ;ARE WE RUNNING UNDER APT
003562  001405                          BEQ     70$             ;IF NO THEN DO TEST
003564  005737  001106                  TST     @#$PASS         ;IS THIS FIRST PASS
003570  001402                          BEQ     70$             ;IF YES THEN DO THIS SERIES OF TESTS
003572  000137  004402                  JMP     SLU2RT          ;IF NO THEN SKIP THIS SERIES OF TESTS
003576  005077  177164          70$:    CLR     @CTBUF           LOAD XBUF
003602  105777  177156                  TSTB    @CTCSR          ;CHECK DONE
003606  100011                          BPL     1$              ;BR IF CLEAR
                                                                ;FILL SECOND BUFFER, BECAUSE REFRESH COULD CAUSE
                                                                ;   FIRST TEST TO FAIL
003610  005077  177152                  CLR     @CTBUF          ;FILL DOUBLE BUFFER
003614  105777  177144                  TSTB    @CTCSR          ;CHECK DONE
003620  100004                          BPL     1$              ;BR IF CLEAR
003622  004737  013304                  JSR     PC,$ATY4                ;;ONLY REPORT A FATAL ERROR
003626  000003                          3                               ;;THE ERROR NUMBER (FROM APT LIST)
003630  000000                          HALT                    ;TCSR "DONE" NOT CLEARED WITH TBUF FULL
```

```
                                1$:     CLR     R0              ;CLEAR TIMER
                                2$:     TSTB    @CTCSR          ;CHECK FOR XMIT DONE
                                        BMI     ID              ;IF DONE SETS, BR TO END OF TEST
                                        INC     R0              ;INCREMENT TIMER
                                        BNE     2$              ;BR IF TIMER NOT DONE
                                        JSR     PC,$ATY4                ;;ONLY REPORT A FATAL ERROR
                                        4                               ;;THE ERROR NUMBER (FROM APT LIST)
                                        HALT
                                        BR      TST4            ;BR TO NEXT TEST, AND SKIP THE TYPEOUT THAT FOLLOWS
                                                                ;  BECAUSE OF THIS FAILURE

003660  023737  000042  000046 ID:     CMP     @#42,@#46       ;UNDER ACT11?
003666  001412                         BEQ     6$              ;IF YES, SKIP IDENT. TYPEOUT
003670  005737  001106                 TST     $PASS           ;IS THIS THE FIRST PASS?
003674  001007                         BNE     6$              ;IF NOT BR TO NEXT TEST & SKIP THE IDENTIFICATION TYPEOU
003676  005737  001110                 TST     $DEVCT          ;IS THIS THE FIRST SUBPASS?
003702  001004                         BNE     6$              ;IF NOT, BRTO NEXT TEST
003704  104401                         TYPE                    ;TYPE PROGRAM INDENTIFICATION
003706  025476                         M1
003710  104401                         TYPE                    ;TYPE NUMBER OF DEVICES UNDER TEST
003712  025510                         M2
003714                          6$:

                                ;;*******************************************************************
                                ;*TEST 4         TEST THAT SLU1 TCSR "DONE" SETS WITH RESET
                                ;;*******************************************************************
003714  000004                 TST4:   SCOPE
003716  012737  000004  001104         MOV     #4,$TESTN       ;;SET TEST NUMBER IN APT MAIL BOX
003724  032737  000001  001156         BIT     #BIT0,@#$DEVM   ;DO THESE TESTS FOR THIS DEVICE?
003732  001002                         BNE     99$             ;F YES CONTINUE WITH TESTS
003734  000137  004402                 JMP     SLU2RT          ;IF NO GO TO START OF NEXT SET OF TESTS.
003740                          99$:
003740  005077  177022                 CLR     @CTBUF          ;LOAD TRANSMIT BUFFER
003744  105777  177014          1$:    TSTB    @CTCSR          ;WAIT FOR DONE
003750  100375                         BPL     1$
003752  005077  177010                 CLR     @CTBUF          ;LOAD SECOND BUFFER
003756  000240                         NOP
003760  000005                         RESET                   ;CLEAR DONE WITH RESET
003762  105777  176776                 TSTB    @CTCSR          ;CHECK FOR DONE SET
003766  100401                         BMI     TST5            ;BR TO NEXT TEST IF DONE SET

003770  104005                         ERROR   5               ;TCSR "DONE" DOES NOT SET WITH RESET

                                ;;*******************************************************************
                                ;*TEST 5         TEST ABILITY TO ACCESS SLU1 RCSR
                                ;;*******************************************************************
003772  000004                 TST5:   SCOPE
003774  012737  000005  001104         MOV     #5,$TESTN       ;;SET TEST NUMBER IN APT MAIL BOX
004002  013703  000004                 MOV     @#4,R3          ;SAVE TIMEOUT VECTOR
004006  012737  004022  000004         MOV     #1$,@#4         ;SET UP TIMEOUT VECTOR
004014  005777  176740                 TST     @RCSR           ;ACCESS RCSR
004020  000402                         BR      2$              ;BR TO END OF TEST

004022  022626          1$:    CMP     (SP)+,(SP)+     ;RESTORE SP AFTER TIMEOUT
```

```
                        T5      TEST ABILITY TO ACCESS SLU1 RCSR

1387  004024  104006                    ERROR   6               ;CAN NOT ACCESS RCSR
1388  004026  010337  000004    2$:     MOV     R3,@#4          ;RESTORE TIMEOUT VECTOR
1389
1390
1391                            ;;*******************************************************************
                                ;*TEST 6         TEST ABILITY TO ACCESS SLU1 RBUF
                                ;;*******************************************************************
 (3)                            TST6:   SCOPE
 (3)
 (2)  004032  000004
 (2)  004034  012737  000006  001104        MOV     #6,$TESTN       ;;SET TEST NUMBER IN APT MAIL BOX
1392  004042  013703  000004                MOV     @#4,R3          ;SAVE TIMEOUT VECTOR
1393  004046  012737  004062  000004        MOV     #1$,@#4         ;SET UP TIMEOUT VECTOR
1394  004054  005777  176702                TST     @CRBUF          ;ACCESS RBUF
1395  004060  000402                        BR      2$              ;BR TO END OF TEST
1396
1397  004062  022626            1$:         CMP     (SP)+,(SP)+     ;RESTORE SP AFTER TIMEOUT
1398  004064  104007                        ERROR   7               ;CAN NOT ACCESS RBUF
1399  004066  010337  000004    2$:         MOV     R3,@#4          ;RESTORE TIMEOUT VECTOR
1400
1401
1402
1403
1404
1405                            ;;*******************************************************************
                                ;*TEST 7         TEST THAT SLU1 BIT6(XMIT INT EN) CAN BE SET & RESET
                                ;;*******************************************************************
 (3)                            TST7:   SCOPE
 (3)
 (2)  004072  000004
 (2)  004074  012737  000007  001104        MOV     #7,$TESTN       ;;SET TEST NUMBER IN APT MAIL BOX
1406  004102  042777  000100  176654        BIC     #BIT6,@CTCSR    ;MAKE SURE BIT UNDER TEST IS INITIALIZED
1407  004110  017703  176672                MOV     @CTVECT,R3      ;SAVE XMIT VECTOR
1408  004114  012777  004144  176664        MOV     #1$,@CTVECT     ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
1409  004122  004737  012356                JSR     PC,WRPSW                ;SET PSW TO PRIORITY=7
1410  004126  000340                                .WORD   340
1411  004130  032777  000100  176626        BIT     #BIT6,@CTCSR    ;TEST BIT6 OF TCSR
1412  004136  001404                        BEQ     2$              ;BR IF ZERO
1413  004140  104014                        ERROR   14
                                                                    ;BIT6 IN TCSR NOT CLEAR AFTER RESET
1414
1415  004142  000402                        BR      2$
1416
1417  004144  022626            1$:         CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1418  004146  104015                        ERROR   15
                                                                    ;XMIT INTERRUPT OCCURRED  PRIO=7
1419
1420
1421  004150  052777  000100  176606  2$:   BIS     #BIT6,@CTCSR    ;SET BIT6 OF TCSR
1422  004156  032777  000100  176600        BIT     #BIT6,@CTCSR    ;TEST BIT6 OF TCSR
1423  004164  001001                        BNE     3$              ;BR, IF SET
1424
1425  004166  104016                        ERROR   16
                                                                    ;CANNOT SET BIT6 OF TCSR
1426
1427
1428  004170  042777  000100  176566  3$:   BIC     #BIT6,@CTCSR    ;CLEAR BIT6 OF TCSR
1429  004176  032777  000100  176560        BIT     #BIT6,@CTCSR    ;TEST BIT6 OF TCSR
1430  004204  001401                        BEQ     4$              ;BR IF CLEAR
1431  004206  104017                        ERROR   17
                                                                    ;CANNOT CLEAR BIT6 OF TCSR
1432
1433
1434  004210                    4$:
```

```
1435  004210  052777  000100  176546          BIS     #BIT6,@CTCSR    ;SET BIT6 OF TCSR
1436  004216  000005                          RESET                   ;CLEAR BIT6 WITH RESET
1437  004220  032777  000100  176536          BIT     #BIT6,@CTCSR    ;TEST BIT6 OF TCSR
1438  004226  001401                          BEQ     5$              ;BR IF CLEAR
1439
1440  004230  104020                          ERROR   20
1441                                                                  ;CANNOT CLEAR BIT6 OF TCSR WITH RESET
1442  004232  010377  176550          5$:     MOV     R3,@CTVECT      ;RESTORE XMIT VECTOR
1443
1444
1445                                  ;;*****************************************************************
                                      ;*TEST 10        TEST THAT SLU1 BIT6 OF RCSR CAN BE SET & RESET
                                      ;;*****************************************************************
 (3)                                  TST10:  SCOPE
 (3)
 (2)  004236  000004                          MOV     #10,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
 (2)  004240  012737  000010  001104          BIC     #BIT6,@CRCSR    ;MAKE SURE BIT UNDER TEST IS INITIALIZED
1446  004246  042777  000100  176504          MOV     @CRVECT,R3      ;SAVE RECEIVE VECTOR
1447  004254  017703  176522                  MOV     #1$,@CRVECT     ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
1448  004260  012777  004310  176514          JSR     PC,WRPSW        ;SET PSW TO PRIORITY=7
1449  004266  004737  012356                  .WORD   340
1450  004272  000340
1451  004274  032777  000100  176456          BIT     #BIT6,@CRCSR    ;TEST BIT6 OF RCSR
1452  004302  001404                          BEQ     2$
1453  004304  104021                          ERROR   21
1454                                                                  ;BIT6 OF RCSR NOT CLEAR AFTER RESET
1455  004306  000402                          BR      2$
1456
1457  004310  022626                  1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1458  004312  104022                          ERROR   22
1459                                                                  ;RCVR INTERRUPT WITH PRIORITY=7
1460
1461  004314  052777  000100  176436  2$:     BIS     #BIT6,@CRCSR    ;SET BIT6 OF RCSR
1462  004322  032777  000100  176430          BIT     #BIT6,@CRCSR    ;TEST BIT6 OF RCSR
1463  004330  001001                          BNE     3$              ;BR, IF SET
1464
1465  004332  104023                          ERROR   23
1466                                                                  ;CANNOT SET BIT6 OF RCSR
1467
1468  004334  042777  000100  176416  3$:     BIC     #BIT6,@CRCSR    ;CLEAR BIT6 OF RCSR
1469  004342  032777  000100  176410          BIT     #BIT6,@CRCSR    ;TEST BIT6 OF RCSR
1470  004350  001401                          BEQ     4$              ;BR, IF CLEAR
1471
1472  004352  104024                          ERROR   24
1473                                                                  ;CANNOT CLEAR BIT6 OF RCSR
1474
1475  004354                          4$:
1476  004354  052777  000100  176376          BIS     #BIT6,@CRCSR    ;SET BIT6 OF RCSR
1477  004362  000005                          RESET                   ;CLEAR BIT6OF RCSR WITH RESET
1478  004364  032777  000100  176366          BIT     #BIT6,@CRCSR    ;TEST BIT6 OF RCSR
1479  004372  001401                          BEQ     5$              ;BR, IF CLEAR
1480
1481  004374  104025                          ERROR   25
1482                                                                  ;CANNOT CLEAR BIT6 OF RCSR WITH RESET
1483  004376  010377  176400          5$:     MOV     R3,@CRVECT      ;RESTORE RECEIVE VECTOR
1484
1485
```

```
                                SLU2RT:

                                ;;*****************************************************************
                                ;*TEST 11        TEST ABILITY TO ACCESS SLU2 TCSR
                                ;;*****************************************************************
                                TST11:  SCOPE
004402  000004                         MOV     #11,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
004404  012737  000011  001104         BIT     #BIT1,@#$DEVM   ;DO THESE TESTS FOR THIS DEVICE?
1490    004412  032737  000002  001156 BNE     99$             ;F YES CONTINUE WITH TESTS
 (1)    004420  001002                 JMP     LTCRT           ;IF NO GO TO START OF NEXT SET OF TESTS.
 (1)    004422  000137  005626
 (1)    004426                 99$:
1491    004426  013703  000004         MOV     @#4,R3          ;SAVE TIMEOUT VECTOR
1492    004432  012737  004446  000004 MOV     #1$,@#4         ;SET UP TIMEOUT VECTOR
1493    004440  005777  176310         TST     @TCSR           ;REFERENCE THE XMIT COMMAND/STATUS REG.
1494    004444  000402                 BR      2$              ; GO TO END OF TEST
1495    004446  022626         1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER TIMEOUT
1496    004450  104031                 ERROR   31              ;XMIT CSR ADDRESS DOES NOT RETURN SSYNC
1497    004452  010337  000004         2$:     MOV     R3,@#4          ;RESTORE TIMEOUT VECTOR
1498
1499
1500
1501                                ;;*****************************************************************
                                ;*TEST 12        TEST ABILITY TO ACCESS SLU2 TBUF
                                ;;*****************************************************************
                                TST12:  SCOPE
004456  000004                         MOV     #12,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
004460  012737  000012  001104         MOV     @#4,R3          ;SAVE TIMEOUT VECTOR
1502    004466  013703  000004         MOV     #1$,@#4         ;SET UP TIMEOUT VECTOR
1503    004472  012737  004506  000004 TST     @TBUF           ;REFERENCE THE XMIT BUFFER
1504    004500  005777  176252         BR      2$              ;GO TO END OF  TEST
1505    004504  000402         1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER TIMEOUT
1506    004506  022626                 ERROR   32              ;XMIT BUFFER ADDRESS DOES NOT REUTRN SSYNC
1507    004510  104032         2$:     MOV     R3,@#4          ;RESTORE TIMEOUT VECTOR
1508    004512  010337  000004
1509
1510
1511                                ;;*****************************************************************
                                ;*TEST 13        TEST SLU2 TCSR BIT7(DONE) CLEARS WHEN XBUF IS LOADED
                                ;;*****************************************************************
                                TST13:  SCOPE
004516  000004                         MOV     #13,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
004520  012737  000013  001104         BIT     #1, @#$ENV      ;ARE WE RUNNING UNDER APT
1512    004526  032737  000001  001120 BEQ     70$             ;IF NO THEN DO TEST
 (1)    004534  001403                 TST     @#$PASS         ;IS THIS FIRST PASS
 (1)    004536  005737  001106         BNE     TST14           ;IF NO THEN SKIP TO NEXT TEST
 (2)    004542  001022
 (1)    004544                 70$:
1513    004544  005077  176206         CLR     @TBUF           ;LOAD XBUF
1514    004550  105777  176200         TSTB    @TCSR           ;CHECK DONE
1515    004554  100006                 BPL     1$              ;BR IF CLEAR
1516                                                            ;FILL SECOND BUFFER, BECAUSE REFRESH COULD CAUSE
1517                                                            ;   FIRST TEST TO FAIL
1518    004556  005077  176174         CLR     @TBUF           ;FILL DOUBLE BUFFER
1519    004562  105777  176166         TSTB    @TCSR           ;CHECK DONE
1520    004566  100001                 BPL     1$              ;BR IF CLEAR
1521    004570  104033                 ERROR   33              ;TCSR "DONE" NOT CLEARED WITH TBUF FULL
1522    004572  005000         1$:     CLR     R0              ;CLEAR TIMER
1523    004574  105777  176154         2$:     TSTB    @TCSR           ;CHECK FOR XMIT DONE
```

```
                        T13     TEST SLU2 TCSR BIT7(DONE) CLEARS WHEN XBUF IS LOADED

1524  004600  100473                        BMI     TST17           ;IF DONE SETS, BR TO NEXT TEST
1525  004602  005200                        INC     R0              ;INCREMENT TIMER
1526  004604  001373                        BNE     2$              ;BR IF TIMER NOT DONE
1527  004606  104034                        ERROR   34              ;XMIT DONE BIT DOES NOT RESET AFTER TRANSMIT
1528
1529
1530                            ;;**************************************************************
                                ;*TEST 14        TEST THAT SLU2 TCSR "DONE" SETS WITH RESET
                                ;;**************************************************************
                        TST14:  SCOPE
 (2)  004610  000004            MOV     #14,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
 (2)  004612  012737  000014  001104
1531  004620  032737  000001  001120  BIT     #1, @#$ENV      ;ARE WE RUNNING UNDER APT
 (1)  004626  001403                    BEQ     70$             ;IF NO THEN DO TEST
 (1)  004630  005737  001106            TST     @#$PASS         ;IS THIS FIRST PASS
 (2)  004634  001015                    BNE     TST15           ;IF NO THEN SKIP TO NEXT TEST
 (1)  004636                    70$:
1532  004636  005077  176114            CLR     @TBUF           ;LOAD TRANSMIT BUFFER
1533  004642  105777  176106    1$:     TSTB    @TCSR           ;WAIT FOR DONE
1534  004646  100375                    BPL     1$
1535  004650  005077  176102            CLR     @TBUF           ;LOAD SECOND BUFFER
1536  004654  000240                    NOP
1537  004656  000005                    RESET                   ;CLEAR DONE WITH RESET
1538  004660  105777  176070            TSTB    @TCSR           ;CHECK FOR DONE SET
1539  004664  100520                    BMI     TST20           ;BR TO NEXT TEST IF DONE SET
1540
1541  004666  104035                    ERROR   35              ;TCSR "DONE" DOES NOT SET WITH RESET
1542
1543
1544
1545                            ;;**************************************************************
                                ;*TEST 15        TEST ABILITY TO ACCESS SLU2 RCSR
                                ;;**************************************************************
                        TST15:  SCOPE
 (2)  004670  000004            MOV     #15,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
 (2)  004672  012737  000015  001104
1546  004700  013703  000004            MOV     @#4,R3          ;SAVE TIMEOUT VECTOR
1547  004704  012737  004720  000004    MOV     #1$,@#4         ;SET UP TIMEOUT VECTOR
1548  004712  005777  176032            TST     @RCSR           ;ACCESS RCSR
1549  004716  000402                    BR      2$              ;BR TO END OF TEST
1550
1551  004720  022626            1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER TIMEOUT
1552  004722  104036                    ERROR   36              ;CAN NOT ACCESS RCSR
1553  004724  010337  000004    2$:     MOV     R3,@#4          ;RESTORE TIMEOUT VECTOR
1554
1555
1556
1557                            ;;**************************************************************
                                ;*TEST 16        TEST ABILITY TO ACCESS SLU2 RBUF
                                ;;**************************************************************
                        TST16:  SCOPE
 (2)  004730  000004            MOV     #16,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
 (2)  004732  012737  000016  001104
1558  004740  013703  000004            MOV     @#4,R3          ;SAVE TIMEOUT VECTOR
1559  004744  012737  004760  000004    MOV     #1$,@#4         ;SET UP TIMEOUT VECTOR
1560  004752  005777  175774            TST     @RBUF           ;ACCESS RBUF
1561  004756  000402                    BR      2$              ;BR TO END OF TEST
1562
1563  004760  022626            1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER TIMEOUT
```

```
                                T16     TEST ABILITY TO ACCESS SLU2 RBUF

1564  004762  104037                            ERROR   37              ;CAN NOT ACCESS RBUF
1565  004764  010337  000004          2$:       MOV     R3,@#4          ;RESTORE TIMEOUT VECTOR
1566
1567
1568
1569                            ;;*****************************************************************
 (3)                            ;*TEST 17       TEST SLU2 BIT0(BREAK BIT) CAN BE SET & CLEARED & RESET
 (3)                            ;;*****************************************************************
 (2)  004770  000004            TST17:  SCOPE
 (2)  004772  012737  000017  001104           MOV     #17,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1570  005000  042777  000001  175746           BIC     #BIT0,@TCSR     ;MAKE SURE BIT UNDER TEST IS INITIALIZED
1571  005006  032777  000001  175740           BIT     #BIT0,@TCSR     ;CHECK BIT0 OF TCSR CLEAR
1572  005014  001401                           BEQ     1$              ;BR IF CLEAR
1573  005016  104040                           ERROR   40              ;BIT0 WAS NOT CLEAR AFTER RESET
1574  005020  052777  000001  175726  1$:      BIS     #BIT0,@TCSR     ;SET BIT0 IN TCSR
1575  005026  032777  000001  175720           BIT     #BIT0,@TCSR     ;TEST BIT0 OF TCSR
1576  005034  001001                           BNE     2$              ;BR IF SET
1577  005036  104041                           ERROR   41              ;BIT0 OF TCSR WILL NOT SET
1578  005040  042777  000001  175706  2$:      BIC     #BIT0,@TCSR     ;CLEAR BIT0 OF TCSR
1579  005046  032777  000001  175700           BIT     #BIT0,@TCSR     ;TEST BIT0 OF TCSR
1580  005054  001401                           BEQ     3$
1581  005056  104042                           ERROR   42              ;BIT0 OF TCSR WILL NOT CLEAR
1582  005060                         3$:
 (1)  005060  032737  000001  001120           BIT     #1, @#$ENV      ;ARE WE RUNNING UNDER APT
 (1)  005066  001403                           BEQ     70$             ;IF NO THEN DO TEST
 (1)  005070  005737  001106                   TST     @#$PASS         ;IS THIS FIRST PASS
 (2)  005074  001014                           BNE     TST20           ;IF NO THEN SKIP TO NEXT TEST
 (1)  005076                        70$:
1583  005076  052777  000001  175650           BIS     #BIT0,@TCSR     ;SET BIT0 IN TCSR
1584  005104  000005                           RESET                   ;CLEAR BIT0 WITH RESET
1585  005106  032777  000001  175640           BIT     #BIT0,@TCSR     ;TEST BIT0 CLEAR
1586  005114  001404                           BEQ     TST20                   ;BR IF CLEAR
1587  005116  042777  000001  175630           BIC     #BIT0,@TCSR     ;CLEAR BIT0, TO PRINT ERROR
1588  005124  104043                           ERROR   43              ;RESET DID NOT CLEAR BIT0 OF TCSR
1589
1590
1591                            ;;*****************************************************************
 (3)                            ;*TEST 20       TEST THAT SLU2 BIT6(XMIT INT EN) CAN BE SET & RESET
 (3)                            ;;*****************************************************************
 (2)  005126  000004            TST20:  SCOPE
 (2)  005130  012737  000020  001104           MOV     #20,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1592  005136  042777  000100  175610           BIC     #BIT6,@TCSR     ;MAKE SURE BIT UNDER TEST IS INITIALIZED
1593  005144  017703  175626                   MOV     @TVECT,R3       ;SAVE XMIT VECTOR
1594  005150  012777  005200  175620           MOV     #1$,@TVECT      ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
1595  005156  004737  012356                   JSR     PC,WRPSW                ;SET PSW TO PRIORITY=7
1596  005162  000340                                   .WORD   340
1597  005164  032777  000100  175562           BIT     #BIT6,@TCSR     ;TEST BIT6 OF TCSR
1598  005172  001404                           BEQ     2$              ;BR IF ZERO
1599  005174  104044                           ERROR   44
1600                                                                   ;BIT6 IN TCSR NOT CLEAR AFTER RESET
1601  005176  000402                           BR      2$
1602
1603  005200  022626                 1$:       CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1604  005202  104045                           ERROR   45
1605                                                                   ;XMIT INTERRUPT OCCURRED  PRIO=7
1606
```

```
1607  005204  052777  000100  175542  2$:     BIS     #BIT6,@TCSR     ;SET BIT6 OF TCSR
1608  005212  032777  000100  175534          BIT     #BIT6,@TCSR     ;TEST BIT6 OF TCSR
1609  005220  001001                          BNE     3$              ;BR, IF SET
1610
1611  005222  104046                          ERROR   46
                                                                      ;CANNOT SET BIT6 OF TCSR
1612
1613
1614  005224  042777  000100  175522  3$:     BIC     #BIT6,@TCSR     ;CLEAR BIT6 OF TCSR
1615  005232  032777  000100  175514          BIT     #BIT6,@TCSR     ;TEST BIT6 OF TCSR
1616  005240  001401                          BEQ     4$              ;BR IF CLEAR
1617  005242  104047                          ERROR   47
                                                                      ;CANNOT CLEAR BIT6 OF TCSR
1618
1619
1620  005244  032737  000001  001120  4$:     BIT     #1,@#$ENV       ;ARE WE RUNNING UNDER APT
1621  005252  001403                          BEQ     70$             ;IF NO THEN DO TEST
1622  005254  005737  001106                  TST     @#$PASS         ;IS THIS FIRST PASS
1623  005260  001011                          BNE     5$              ;IF NO THEN SKIP TO END OF TEST
1624  005262                          70$:
1625  005262  052777  000100  175464          BIS     #BIT6,@TCSR     ;SET BIT6 OF TCSR
1626  005270  000005                          RESET                   ;CLEAR BIT6 WITH RESET
1627  005272  032777  000100  175454          BIT     #BIT6,@TCSR     ;TEST BIT6 OF TCSR
1628  005300  001401                          BEQ     5$              ;BR IF CLEAR
1629
1630  005302  104050                          ERROR   50
                                                                      ;CANNOT CLEAR BIT6 OF TCSR WITH RESET
1631
1632  005304  010377  175466          5$:     MOV     R3,@TVECT       ;RESTORE XMIT VECTOR
1633
1634
1635                                  ;;**********************************************************************
 (3)                                ;*TEST 21        TEST THAT SLU2 BIT6 OF RCSR CAN BE SET & RESET
 (3)                                ;;**********************************************************************
 (2)  005310  000004          TST21:  SCOPE
 (2)  005312  012737  000021  001104          MOV     #21,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1636  005320  042777  000100  175422          BIC     #BIT6,@RCSR     ;MAKE SURE BIT UNDER TEST IS INITIALIZED
1637  005326  017703  175440                  MOV     @RVECT,R3       ;SAVE RECEIVE VECTOR
1638  005332  012777  005362  175432          MOV     #1$,@RVECT      ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
1639  005340  004737  012356                  JSR     PC,@RPSW        ;SET PSW TO PRIORITY=7
1640  005344  000340                                  .WORD   340
1641  005346  032777  000100  175374          BIT     #BIT6,@RCSR     ;TEST BIT6 OF RCSR
1642  005354  001404                          BEQ     2$
1643  005356  104051                          ERROR   51
                                                                      ;BIT6 OF RCSR NOT CLEAR AFTER RESET
1644
1645  005360  000402                          BR      2$
1646
1647  005362  022626                  1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1648  005364  104052                          ERROR   52
                                                                      ;RCVR INTERRUPT WITH PRIORITY=7
1649
1650
1651  005366  052777  000100  175354  2$:     BIS     #BIT6,@RCSR     ;SET BIT6 OF RCSR
1652  005374  032777  000100  175346          BIT     #BIT6,@RCSR     ;TEST BIT6 OF RCSR
1653  005402  001001                          BNE     3$              ;BR, IF SET
1654
1655  005404  104053                          ERROR   53
                                                                      ;CANNOT SET BIT6 OF RCSR
1656
1657
1658  005406  042777  000100  175334  3$:     BIC     #BIT6,@RCSR     ;CLEAR BIT6 OF RCSR
```

```
1659  005414  032777  000100  175326          BIT     #BIT6,@RCSR     ;TEST BIT6 OF RCSR
1660  005422  001401                          BEQ     4$              ;BR, IF CLEAR
1661
1662  005424  104054                          ERROR   54
1663                                                                  ;CANNOT CLEAR BIT6 OF RCSR
1664
1665  005426  032737  000001  001120  4$:     BIT     #1,@#$ENV       ;ARE WE RUNNING UNDER APT
1666  005434  001403                          BEQ     70$             ;IF NO THEN DO TEST
1667  005436  005737  001106                  TST     @#$PASS         ;IS THIS FIRST PASS
1668  005442  001011                          BNE     5$              ;IF NO THEN SKIP TO END OF TEST
1669  005444                          70$:
1670  005444  052777  000100  175276          BIS     #BIT6,@RCSR     ;SET BIT6 OF RCSR
1671  005452  000005                          RESET                   ;CLEAR BIT6OF RCSR WITH RESET
1672  005454  032777  000100  175266          BIT     #BIT6,@RCSR     ;TEST BIT6 OF RCSR
1673  005462  001401                          BEQ     5$              ;BR, IF CLEAR
1674
1675  005464  104055                          ERROR   55
1676                                                                  ;CANNOT CLEAR BIT6 OF RCSR WITH RESET
1677  005466  010377  175300          5$:     MOV     R3,@RVECT       ;RESTORE RECEIVE VECTOR
1678
1679
1680
1681                                  ;;*******************************************************************
  (3)                               ;*TEST 22       TEST THAT SLU2 RCVR DONE (7) SET & CLEAR PROPERLY
  (3)                               ;;*******************************************************************
  (2)  005472  000004                ;
  (2)  005474  012737  000022  001104  TST22:  SCOPE
1682  005502  005077  175244                  MOV     #22,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1683  005506  005000                          CLR     @RBUF           ;INITIALIZE REGISTER BEFORE TESTING
1684  005510  005077  175242                  CLR     R0              ;CLEAR TIMER
1685  005514  105777  175230          WDONE:  CLR     @TBUF           ;LOAD TRANSMIT BUFFER
1686  005520  100403                          TSTB    @RCSR           ;CHECK FOR RECEIVER DONE
1687  005522  005200                          BMI     1$              ;BR, IF DONE
1688  005524  001373                          INC     R0              ;INCREMENT TIMER, IF NOT DONE
1689  005526  104056                          BNE     WDONE           ;CONTINUE WAIT IF TIME REMAINS
1690                                          ERROR   56
1691                                                                  ;RECEIVER DONE NEVER SET
1692  005530  032737  000001  001120  1$:     BIT #1,@#$ENV   ;ARE WE RUNNING UNDER APT
1693  005536  001403                          BEQ     70$             ;IF NO THEN DO TEST
1694  005540  005737  001106                  TST     @#$PASS         ;IS THIS FIRST PASS
1695  005544  001005                          BNE     2$              ;IF NO THEN SKIP TO END OF TEST
1696  005546                          70$:
1697  005546  000005                          RESET                   ;CLEAR DONE WITH RESET
1698  005550  105777  175174                  TSTB    @RCSR           ;CHECK FOR DONE CLEAR
1699  005554  001401                          BEQ     2$
1700
1701  005556  104057                          ERROR   57
1702                                                                  ;RESET DID NOT CLEAR RCVR DONE
1703  005560  005777  175166          2$:     TST     @RBUF           ;CLEAR RECEIVER BUFFER
1704
1705
1706
1707                                  ;;*******************************************************************
  (3)                               ;*TEST 23       TEST SLU2 THAT READING RBUF CLEARS RECEIVER DONE
  (3)                               ;;*******************************************************************
  (2)  005564  000004                ;
                                    TST23:  SCOPE
```

```
  (2)  005566  012737  000023  001104          MOV     #23,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1708   005574  005077  175152                  CLR     @RBUF           ;INITIALIZE REGISTER BEFORE TESTING
1709   005600  005077  175152                  CLR     @TBUF           ;LOAD TRANSMITTER
1710   005604  105777  175140          1$:     TSTB    @RCSR           ;WAIT FOR RECEIVER DONE
1711   005610  100375                          BPL     1$
1712   005612  017700  175134                  MOV     @RBUF,R0        ;READ RECEIVE BUFFER
1713   005616  105777  175126                  TSTB    @RCSR           ;CHECK FOR RECEIVE DONE CLEAR
1714   005622  001401                          BEQ     TST24           ;BR, IF CLEAR TO NEXT TEST
1715   005624  104060                          ERROR   60
1716                                                                   ;READING RBUF DID NOT CLEAR RCVR DONE
1717   005626                          LTCRT:
1718
1719                                          ;;*************************************************************
  (3)                                     ;*TEST 24       TEST ABILITY TO ACCESS LKS
  (3)                                     ;;*************************************************************
  (2)  005626  000004                     TST24:  SCOPE
  (2)  005630  012737  000024  001104            MOV     #24,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1720   005636  032737  000004  001156            BIT     #BIT2,@#$DEVM   ;DO THESE TESTS FOR THIS DEVICE?
  (1)  005644  001002                          BNE     99$             ;F YES CONTINUE WITH TESTS
  (1)  005646  000137  006100                  JMP     UNIQUE          ;IF NO GO TO START OF NEXT SET OF TESTS.
  (1)  005652                             99$:
1721   005652  013703  000004                  MOV     @#4,R3          ;SAVE TIMEOUT VECTOR
1722   005656  012737  005672  000004          MOV     #1$,@#4         ;SET UP TIMEOUT VECTOR
1723   005664  005777  175100                  TST     @LKS            ;ACCESS LKS
1724   005670  000402                          BR      2$              ;NO TIMEOUT -  BR TO END OF TEST
1725
1726   005672  022626                  1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER TIMEOUT
1727   005674  104061                          ERROR   61              ;CAN NOT ACCESS LKS
1728
1729   005676  010337  000004          2$:     MOV     R3,@#4          ;RESTORE TIMEOUT VECTOR
1730
1731                                          ;;*************************************************************
  (3)                                     ;*TEST 25       TEST THAT BIT6 OF LKS CAN BE SET & RESET
  (3)                                     ;;*************************************************************
  (2)  005702  000004                     TST25:  SCOPE
  (2)  005704  012737  000025  001104            MOV     #25,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1732   005712  042777  000100  175050            BIC     #BIT6,@LKS      ;MAKE SURE BIT UNDER TEST IS INITIALIZED BEFORE TESTING
1733   005720  017703  175066                  MOV     @RTCVT,R3       ;SAVE LINE CLOCK VECTOR
1734   005724  012777  005754  175060          MOV     #1$,@RTCVT      ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
1735   005732  004737  012356                  JSR     PC,WRPSW        ;SET PSW TO PRIORITY 7
1736   005736  000340                                  .WORD   340
1737   005740  032777  000100  175022          BIT     #BIT6,@LKS      ;TEST BIT6 OF LKS
1738   005746  001404                          BEQ     2$
1739   005750  104062                          ERROR   62
1740                                                                   ;BIT6 OF LKS NOT CLEAR AFTER RESET
1741   005752  000402                          BR      2$
1742
1743   005754  022626                  1$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1744   005756  104063                          ERROR   63
1745                                                                   ;LKS INTERRUPT WITH PRIORITY=7
1746
1747   005760  052777  000100  175002  2$:     BIS     #BIT6,@LKS      ;SET BIT6 OF LKS
1748   005766  032777  000100  174774          BIT     #BIT6,@LKS      ;TEST BIT6 OF LKS
1749   005774  001001                          BNE     3$              ;BR IF SET
1750
1751   005776  104064                          ERROR   64
```

```
                                                        ;CANNOT SET BIT6 OF LKS

006000  042777  000100  174762  3$:     BIC     #BIT6,@LKS      ;CLEAR BIT6 OF LKS
006006  032777  000100  174754          BIT     #BIT6,@LKS      ;TEST BIT6 OF LK
006014  001401                          BEQ     4$
006016  104065                          ERROR   65
                                                        ;CANNOT CLEAR BIT6 OF LKS
006020  032737  000001  001120  4$:     BIT     #1,@#$ENV       ;ARE WE RUNNING UNDER APT
006026  001403                          BEQ     70$             ;IF NO THEN DO TEST
006030  005737  001106                  TST     @#$PASS         ;IS THIS FIRST PASS
006034  001011                          BNE     5$              ;IF NO THEN SKIP TO END OF TEST
006036                          70$:
006036  052777  000100  174724          BIS     #BIT6,@LKS      ;SET BIT6 OF LKS
006044  000005                          RESET                   ;CLEAR BIT6 OF LKS WITH RESET
006046  032777  000100  174714          BIT     #BIT6,@LKS      ;TEST BIT6 OF LKS
006054  001401                          BEQ     5$              ;BR IF CLEAR

006056  104066                          ERROR   66
                                                        ;CANNOT CLEAR BIT6 OF LKS WITH RESET
006060  010377  174726          5$:     MOV     R3,@RTCVT       ;RESTORE LINE CLOCK VECTOR
006064  000405                          BR      UNIQUE                  ;GO TO NEXT TEST


006066  177560          DADTBL: .WORD   177560
006070  177564                  .WORD   177564
006072  176500                  .WORD   176500
006074  176504                  .WORD   176504
006076  177564          TBLEND: .WORD   177564


006100                  UNIQUE:

                        ;;*******************************************************************
                        ;*TEST 26       UNIQUE INTERNAL ADDRESS TEST
                        ;;*******************************************************************
006100  000004          TST26:  SCOPE
006102  012737  000026  001104          MOV     #26,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
006110  032737  000001  001120          BIT     #1, @#$ENV      ;ARE WE RUNNING UNDER APT
006116  001403                          BEQ     70$             ;IF NO THEN DO TEST
006120  005737  001106                  TST     @#$PASS         ;IS THIS FIRST PASS
006124  001056                          BNE     TST27           ;IF NO THEN SKIP TO NEXT TEST
006126                          70$:
006126  012737  000340  177776          MOV     #340,PS         ;WE WILL BE PLAYING WITH BIT6
                                                        ;SO LOCK OUT EXTRAINEOUS INTERRUPTS
006134  012700  006066                  MOV     #DADTBL,R0      ;GET LOCATION OF FIRST REGISTER ADDRESS
006140  012703  006066          1$:     MOV     #DADTBL,R3      ;MAKE R3 POINT TO LOCATION OF FIRST
                                                        ;REGISTER ADDRESS
006144  012701  000005                  MOV     #5,R1           ;SET LOOP COUNTER TO CLEAR ALL REG.
006150  005033                  2$:     CLR     @(R3)+          ;CLEAR A REGISTER
006152  077102                          SOB     R1,2$           ;LOOP UNTIL ALL REGISTERS CLEARED
006154  012770  000100  000000          MOV     #BIT6,@(R0)     ;SET TEST BIT IN DEVICE REGISTERS
006162  012701  006066                  MOV     #DADTBL,R1      ;GET LOCATION OF FIRST REGISTER ADDRESS
006166  012702  000005                  MOV     #5,R2           ;SET UP TEST LOOP COUNTER
006172  032731  000100          3$:     BIT     #BIT6,@(R1)+    ;IS TEST BIT SET IN THIS REGISTER
006176  001006                          BNE     5$              ;IF YES GO SEE IF THERE IS AN ERROR
006200  077204                  4$:     SOB     R2,3$           ;LOOP UNTIL ALL REGISTER CHECKED
```

```
                                        CLR     @(R0)+          ;CLEAR REGISTER JUST TESTED AND POINT
                                                                ;TO NEXT ONE
1800  006202  005030
1801
                                        CMP     R0,#TBLEND
1802  006204  020027  006076
                                        BEQ     7$
1803  006210  001421
                                        BR      1$              ;CONTINUE TESTING
1804  006212  000752
                                5$:     CMP     (R0),-(R1)      ;DID WE COMPARE THE REGISTER TO ITSELF?
1805  006214  021041
                                        BEQ     6$              ;IF YES GET OVER ERROR CALL
1806  006216  001413
                                        MOV     (R0),$GDADR     ;IF NO SET UP ERROR INFORMATION
1807  006220  011037  001020
                                        MOV     (R1),$BDADR
1808  006224  011137  001022
                                        MOV     @(R0),$GDDAT
1809  006230  017037  000000  001024
                                        MOV     @(R1),$BDDAT
1810  006236  017137  000000  001026
                                        ERROR   72              ;WRITE TO 1 INTERNAL ADDRESS MODIFIED
1811  006244  104072                                           ;ANOTHER SO ADDRESS NOT UNIQUE
1812
                                6$:     ADD     #2,R1           ;RESTORE POINTER
1813  006246  062701  000002
                                        BR      4$              ;GET BACK IN TEST LOOP
1814  006252  000752
                                7$:     CLR     R0
1815  006254  005000
                                8$:     INC     R0
1816  006256  005200
                                        BNE     8$
1817  006260  001376
1818
```

```
1820  006262                                SLU1IT:
1821
1822                                        ;;*****************************************************************
 (3)                                        ;*TEST 27       TEST THAT SLU1 XMIT INTERRUPTS ONLY WHEN ENABLED
 (3)                                        ;;*****************************************************************
 (2)  006262  000004                TST27:  SCOPE
 (2)  006264  012737  000027  001104       MOV     #27,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1823  006272  032737  000001  001120       BIT     #1,@#$ENV       ;IF NOT UNDER APT
1824  006300  001405                       BEQ     70$             ;  THEN RUN THIS SERIES OF TESTS
1825  006302  005737  001106               TST     @#$PASS         ;  ELSE IF FIRST PASS
1826  006306  001402                       BEQ     70$             ;          THEN RUN THESE TESTS
1827  006310  000137  007016               JMP     SLU2IT          ;          ELSE DO NOT RUN THESE TESTS
1828  006314                             70$:
 (1)  006314  032737  000001  001156       BIT     #BIT0,@#$DEVM   ;DO THESE TESTS FOR THIS DEVICE?
 (1)  006322  001002                       BNE     99$             ;F YES CONTINUE WITH TESTS
 (1)  006324  000137  007016               JMP     SLU2IT          ;IF NO GO TO START OF NEXT SET OF TESTS.
 (1)  006330                             99$:
1829  006330  000005                       RESET                   ;CLEAR THE WORLD
1830  006332  042777  000100  174424       BIC     #BIT6,@CTCSR    ;CLEAR TRANSMIT INTERRUPT ENABLE
1831  006340  017703  174442               MOV     @CTVECT,R3      ;SAVE XMIT VECTOR
1832  006344  012777  006370  174434       MOV     #2$,@CTVECT     ;POINT XMIT VECTOR TO ERROR REPORT
1833  006352  105777  174406             1$:  TSTB    @CTCSR          ;WAIT FOR DONE
1834  006356  100375                       BPL     1$
1835  006360  004737  012356               JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
1836  006364  000140                               .WORD   140
1837  006366  000402                       BR      3$
1838
1839  006370  022626                     2$:  CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1840  006372  104074                       ERROR   74
1841                                                                 ;XMIT INTERRUPTS WITH INTERRUPT ENABLE CLEAR
1842  006374  012777  006414  174404     3$:  MOV     #4$,@CTVECT     ;SET XMIT VECTOR TO END OF TEST
1843  006402  052777  000100  174354       BIS     #BIT6,@CTCSR    ;ENABLE INTERRUPTS
1844  006410  000240                       NOP
1845
1846  006412  104075                       ERROR   75              ;XMIT DID NOT INTERRUPT
1847
1848  006414  042777  000100  174342     4$:  BIC     #BIT6,@CTCSR    ;DISABLE INTERRUPTS
1849  006422  022626                       CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1850  006424  010377  174356               MOV     R3,@CTVECT      ;RESTORE XMIT VECTOR
1851
1852
1853                                        ;;*****************************************************************
 (3)                                        ;*TEST 30       TEST SLU1 XMIT INTERRUPTS DO NOT OCCUR WHEN DISABLED
 (3)                                        ;;*****************************************************************
 (2)  006430  000004                TST30:  SCOPE
 (2)  006432  012737  000030  001104       MOV     #30,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1854  006440  042777  000100  174316       BIC     #BIT6,@CTCSR    ;DISABLE INTERRUPTS
1855  006446  004737  012356               JSR     PC,WRPSW        ;SET PSW TO PRIORITY 7
1856  006452  000340                               .WORD   340
1857  006454  017703  174326               MOV     @CTVECT,R3      ;SAVE XMIT VECTOR
1858  006460  012777  006506  174320       MOV     #2$,@CTVECT     ;POINT XMIT VECTOR TO ERROR REPORT
1859  006466  105777  174272             1$:  TSTB    @CTCSR          ;WAIT FOR DONE
1860  006472  100375                       BPL     1$
1861  006474  052777  000100  174262       BIS     #BIT6,@CTCSR    ;ENABLE INTERRUPT
1862  006502  000240                       NOP
1863  006504  000402                       BR      3$              ;CONTINUE TEST
```

```
1864
1865  006506  022626                    2$:   CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1866  006510  104076                          ERROR   76
1867                                                                   ;XMIT INTERRUPTS AT PRIORITY=7
1868  006512  042777  000100  174244    3$:   BIC     #BIT6,@CTCSR    ;CLEAR INTERRUPT ENABLE
1869  006520  012777  006540  174260          MOV     #4$,@CTVECT     ;POINT XMIT VECTOR TO ERROR REPORT
1870  006526  004737  012356                  JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
1871  006532  000140                          .WORD   140
1872  006534  000240                          NOP
1873  006536  000402                          BR      5$              ;BR TO END OF TEST-NO INTERRUPT
1874
1875  006540  022626                    4$:   CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1876  006542  104077                          ERROR   77
1877                                                                   ;XMIT INTERRUPT OCCURES WITH BIT6 CLEAR
1878  006544  010377  174236            5$:   MOV     R3,@CTVECT      ;RESTORE XMIT VECTOR
1879
1880
1881                                    ;;*****************************************************************
                                        ;*TEST 31        TEST SLU1 TRANSMITTER FOR DOUBLE INTERRUPTS
                                        ;;*****************************************************************
 (3)
 (3)
 (2)  006550  000004                    TST31:  SCOPE
 (2)  006552  012737  000031  001104            MOV     #31,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1882  006560  042777  000100  174176            BIC     #BIT6,@CTCSR    ;CLEAR INTERRUPT ENABLE
1883  006566  017703  174214                    MOV     @CTVECT,R3      ;SAVE XMIT VECTOR
1884  006572  017704  174212                    MOV     @CTPSW,R4       ;SAVE XMIT PSW VECTOR
1885  006576  012777  006640  174202          MOV     #2$,@CTVECT     ;SET UP XMIT VECTOR
1886  006604  012777  000340  174176          MOV     #340,@CTPSW     ;SET PIO 7 AFTER INTERRUPT
1887  006612  004737  012356                  JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
1888  006616  000140                          .WORD   140
1889  006620  105777  174140            1$:   TSTB    @CTCSR          ;WAIT FOR DONE
1890  006624  100375                          BPL     1$
1891  006626  052777  000100  174130          BIS     #BIT6,@CTCSR    ;ENABLE INTERRUPTS
1892  006634  000240                          NOP
1893
1894  006636  104100                          ERROR   100
1895                                                                   ;XMIT INTERRUPT DID NOT OCCUR
1896  006640  022626                    2$:   CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1897  006642  012777  006670  174136          MOV     #4$,@CTVECT     ;POINT XMIT VECTOR TO ERROR
1898  006650  004737  012356                  JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
1899  006654  000140                          .WORD   140
1900  006656  000240                          NOP                     ;GIVE TIME FOR ANY INTERRUPTS
1901  006660  042777  000100  174076          BIC     #BIT6,@CTCSR    ;DISABLE INTERRUPTS
1902  006666  000402                          BR      5$              ;BR TO END OF TEST
1903
1904  006670  022626                    4$:   CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1905  006672  104101                          ERROR   101
1906                                                                   ;XMIT RE-INTERRUPTED
1907  006674  010377  174106            5$:   MOV     R3,@CTVECT      ;RESTORE XMIT VECTOR
1908  006700  010477  174104                  MOV     R4,@CTPSW       ;RESTORE XMIT PSW VECTOR
1909
1910                                    ;;*****************************************************************
                                        ;*TEST 32        TEST THAT SLU1 XMIT INTERRUPT CLEARS WITH LOADING TBUF
                                        ;;*****************************************************************
 (3)
 (3)
 (2)  006704  000004                    TST32:  SCOPE
 (2)  006706  012737  000032  001104            MOV     #32,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1911  006714  042777  000100  174042            BIC     #BIT6,@CTCSR    ;DISABLE INTERRUPTS
```

```
                        T32     TEST THAT SLU1 XMIT INTERRUPT CLEARS WITH LOADING TBUF

1912  006722  004737  012356            JSR     PC,@WRPSW       ;SET PSW TO PRIORITY 7
1913  006726  000340                    .WORD   340
1914  006730  017703  174052            MOV     @CTVECT,R3      ;SAVE XMIT VECTOR
1915  006734  012777  007006  174044    MOV     #2$,@CTVECT     ;POINT XMIT VECTOR TO ERROR
1916  006742  052777  000100  174014    BIS     #BIT6,@CTCSR    ;ENABLE INTERRUPTS
1917  006750  005077  174012            CLR     @CTBUF          ;LOAD TBUF
1918  006754  105777  174004    1$:     TSTB    @CTCSR          ;WAIT FOR DONE (INTERRUPT)
1919  006760  100375                    BPL     1$
1920  006762  005077  174000            CLR     @CTBUF          ;FILL SECOND BUFFER TO RESET INT.
1921  006766  004737  012356            JSR     PC,@WRPSW       ;ALLOW INTERRUPTS
1922  006772  000140                    .WORD   140
1923  006774  000240                    NOP                     ;GIVE TIME FOR ANY INTERRUPTS
1924  006776  042777  000100  173760    BIC     #BIT6,@CTCSR    ;DISABLE INTERRUPTS
1925  007004  000402                    BR      3$              ;BR TO END OF TEST
1926
1927  007006  022626            2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1928  007010  104102                    ERROR   102
1929                                                            ;LOADING TBUF DID NOT CLEAR INTERRUPT.
1930  007012  010377  173770    3$:     MOV     R3,@CTVECT      ;RESTORE XMIT VECTOR
1931
1932
1933  007016                    SLU2IT:
1934
1935                            ;;**********************************************************************
 (3)                            ;*TEST 33       TEST THAT SLU2 XMIT INTERRUPTS ONLY WHEN ENABLED
 (3)                            ;;**********************************************************************
 (2)  007016  000004            TST33:  SCOPE
 (2)  007020  012737  000033  001104    MOV     #33,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1936  007026  032737  000002  001156    BIT     #BIT1,@#$DEVM   ;DO THESE TESTS FOR THIS DEVICE?
 (1)  007034  001002                    BNE     99$             ;F YES CONTINUE WITH TESTS
 (1)  007036  000137  010762            JMP     LTCIT           ;IF NO GO TO START OF NEXT SET OF TESTS.
 (1)  007042                    99$:
1937  007042  042777  000100  173704    BIC     #BIT6,@TCSR     ;CLEAR TRANSMIT INTERRUPT ENABLE
1938  007050  017703  173722            MOV     @TVECT,R3       ;SAVE XMIT VECTOR
1939  007054  012777  007100  173714    MOV     #2$,@TVECT      ;POINT XMIT VECTOR TO ERROR REPORT
1940  007062  105777  173666    1$:     TSTB    @TCSR           ;WAIT FOR DONE
1941  007066  100375                    BPL     1$
1942  007070  004737  012356            JSR     PC,@WRPSW       ;SET PSW TO PRIORITY 3
1943  007074  000140                    .WORD   140
1944  007076  000402                    BR      3$
1945
1946  007100  022626            2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1947  007102  104116                    ERROR   116
1948                                                            ;XMIT INTERRUPTS WITH INTERRUPT ENABLE CLEAR
1949  007104  012777  007124  173664    MOV     #4$,@TVECT      ;SET XMIT VECTOR TO END OF TEST
1950  007112  052777  000100  173634    BIS     #BIT6,@TCSR     ;ENABLE INTERRUPTS
1951  007120  000240                    NOP
1952
1953  007122  104117                    ERROR   117             ;XMIT DID NOT INTERRUPT
1954
1955  007124  042777  000100  173622    BIC     #BIT6,@TCSR     ;DISABLE INTERRUPTS
1956  007132  022626                    CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1957  007134  010377  173636            MOV     R3,@TVECT       ;RESTORE XMIT VECTOR
1958
1959
1960                            ;;**********************************************************************
```

```
  (3)
  (3)
  (2)  007140  000004                    ;*TEST 34       TEST SLU2 XMIT INTERRUPTS DO NOT OCCUR WHEN DISABLED
  (2)  007142  012737  000034  001104    ;:**************************************************************
1961   007150  042777  000100  173576    TST34:  SCOPE
1962   007156  004737  012356                    MOV     #34,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1963   007162  000340                            BIC     #BIT6,@TCSR     ;DISABLE INTERRUPTS
1964   007164  017703  173606                    JSR     PC,WRPSW        ;SET PSW TO PRIORITY 7
1965   007170  012777  007216  173600                    .WORD   340
1966   007176  105777  173552            1$:     MOV     @TVECT,R3       ;SAVE XMIT VECTOR
1967   007202  100375                            MOV     #2$,@TVECT      ;POINT XMIT VECTOR TO ERROR REPORT
1968   007204  052777  000100  173542            TSTB    @TCSR           ;WAIT FOR DONE
1969   007212  000240                            BPL     1$
1970   007214  000402                            BIS     #BIT6,@TCSR     ;ENABLE INTERRUPT
1971                                            NOP
1972   007216  022626                            BR      3$              ;CONTINUE TEST
1973   007220  104120                    2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1974                                            ERROR   120
1975   007222  042777  000100  173524                                    ;XMIT INTERRUPTS AT PRIORITY=7
1976   007230  012777  007250  173540    3$:     BIC     #BIT6,@TCSR     ;CLEAR INTERRUPT ENABLE
1977   007236  004737  012356                    MOV     #4$,@TVECT      ;POINT XMIT VECTOR TO ERROR REPORT
1978   007242  000140                            JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
1979   007244  000240                                    .WORD   140
1980   007246  000402                            NOP
1981                                            BR      5$              ;BR TO END OF TEST-NO INTERRUPT
1982   007250  022626                    4$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1983   007252  104121                            ERROR   121
1984                                                                    ;XMIT INTERRUPT OCCURES WITh BIT6 CLEAR
1985   007254  010377  173516            5$:     MOV     R3,@TVECT       ;RESTORE XMIT VECTOR
1986
1987
1988
1989
1990                                    ;:**************************************************************************
  (3)                                   ;*TEST 35       TEST SLU2 TRANSMITTER FOR DOUBLE INTERRUPTS
  (3)                                   ;:**************************************************************************
  (2)  007260  000004                    TST35:  SCOPE
  (2)  007262  012737  000035  001104            MOV     #35,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1991   007270  042777  000100  173456            BIC     #BIT6,@TCSR     ;CLEAR INTERRUPT ENABLE
1992   007276  017703  173474                    MOV     @TVECT,R3       ;SAVE XMIT VECTOR
1993   007302  017704  173472                    MOV     @TPSW,R4        ;SAVE XMIT PSW VECTOR
1994   007306  012777  007350  173462            MOV     #2$,@TVECT      ;SET UP XMIT VECTOR
1995   007314  012777  000340  173456            MOV     #340,@TPSW      ;SET PIO 7 AFTER INTERRUPT
1996   007322  004737  012356                    JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
1997   007326  000140                                    .WORD   140
1998   007330  105777  173420            1$:     TSTB    @TCSR           ;WAIT FOR DONE
1999   007334  100375                            BPL     1$
2000   007336  052777  000100  173410            BIS     #BIT6,@TCSR     ;ENABLE INTERRUPTS
2001   007344  000240                            NOP
2002
2003   007346  104122                            ERROR   122
2004                                                                    ;XMIT INTERRUPT DID NOT OCCUR
2005   007350  022626                    2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2006   007352  012777  007400  173416            MOV     #4$,@TVECT      ;POINT XMIT VECTOR TO ERROR
2007   007360  004737  012356                    JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
2008   007364  000140                            .WORD   140
```

```
                                        NOP                     ;GIVE TIME FOR ANY INTERRUPTS
2009  007366  000240
2010  007370  042777  000100  173356    BIC     #BIT6,@TCSR     ;DISABLE INTERRUPTS
2011  007376  000402                    BR      5$              ;BR TO END OF TEST
2012
2013  007400  022626                4$: CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2014  007402  104123                    ERROR   123
2015                                                            ;XMIT RE-INTERRUPTED
2016  007404  010377  173366        5$: MOV     R3,@TVECT       ;RESTORE XMIT VECTOR
2017  007410  010477  173364            MOV     R4,@TPSW        ;RESTORE XMIT PSW VECTOR
2018
2019                                    ;;**********************************************************************
 (3)                                    ;*TEST 36        TEST THAT SLU2 XMIT INTERRUPT CLEARS WITH LOADING TBUF
 (3)                                    ;;**********************************************************************
 (2)  007414  000004            TST36:  SCOPE
 (2)  007416  012737  000036  001104    MOV     #36,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2020  007424  032737  000001  001120    BIT     #1, @#$ENV      ;ARE WE RUNNING UNDER APT
 (1)  007432  001403                    BEQ     70$             ;IF NO THEN DO TEST
 (1)  007434  005737  001106            TST     @#$PASS         ;IS THIS FIRST PASS
 (2)  007440  001046                    BNE     TST37           ;IF NO THEN SKIP TO NEXT TEST
 (1)  007442                    70$:
2021  007442  042777  000100  173304    BIC     #BIT6,@TCSR     ;DISABLE INTERRUPTS
2022  007450  004737  012356            JSR     PC,WRPSW        ;SET PSW TO PRIORITY 7
2023  007454  000340                    .WORD   340
2024  007456  017703  173314            MOV     @TVECT,R3       ;SAVE XMIT VECTOR
2025  007462  012777  007534  173306    MOV     #2$,@TVECT      ;POINT XMIT VECTOR TO ERROR
2026  007470  052777  000100  173256    BIS     #BIT6,@TCSR     ;ENABLE INTERRUPTS
2027  007476  005077  173254            CLR     @TBUF           ;LOAD TBUF
2028  007502  105777  173246        1$: TSTB    @TCSR           ;WAIT FOR DONE (INTERRUPT)
2029  007506  100375                    BPL     1$
2030  007510  005077  173242            CLR     @TBUF           ;FILL SECOND BUFFER TO RESET INT.
2031  007514  004737  012356            JSR     PC,WRPSW        ;ALLOW INTERRUPTS
2032  007520  000140                    .WORD   140
2033  007522  000240                    NOP                     ;GIVE TIME FOR ANY INTERRUPTS
2034  007524  042777  000100  173222    BIC     #BIT6,@TCSR     ;DISABLE INTERRUPTS
2035  007532  000402                    BR      3$              ;BR TO END OF TEST
2036
2037  007534  022626                2$: CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2038  007536  104124                    ERROR   124
2039                                                            ;LOADING TBUF DID NOT CLEAR INTERRUPT.
2040  007540  005001                3$: CLR     R1              ;INITIALIZE LOOP COUNTER
2041  007542  005201                4$: INC     R1              ;INCREMENT LOOP COUNTER
2042  007544  001376                    BNE     4$              ;UNTIL LOOP COUNTER EQUALS 0
2043  007546  005777  173200            TST     @RBUF           ;CLEAR RECEIVER BUFFER
2044  007552  010377  173220            MOV     R3,@TVECT       ;RESTORE XMIT VECTOR
2045
2046
2047
2048
2049                                    ;;**********************************************************************
 (3)                                    ;*TEST 37        TEST THAT RCVR INTERRUPTS ONLY WHEN ENABLED
 (3)                                    ;;**********************************************************************
 (2)  007556  000004            TST37:  SCOPE
 (2)  007560  012737  000037  001104    MOV     #37,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2050  007566  042777  000100  173160    BIC     #BIT6,@TCSR     ;DISABLE TRANSMIT INTERRUPTS
2051  007574  042777  000100  173146    BIC     #BIT6,@RCSR     ;DISABLE RECEIVER INTERRUPTS
2052  007602  017703  173164            MOV     @RVECT,R3       ;SAVE RECEIVE VECTOR
```

```
2053  007606  012777  007636  173156          MOV     #2$,@RVECT      ;POINT RCV VECTOR TO ERROR REPORT
2054  007614  004737  012356                  JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
2055  007620  000140                          .WORD   140
2056  007622  005077  173130                  CLR     @TBUF           ;SEND A CHARACTER
2057  007626  105777  173116          1$:     TSTB    @RCSR           ;WAIT FOR RECEIVER DONE
2058  007632  100375                          BPL     1$
2059  007634  000402                          BR      3$              ;CONTINUE TEST
2060
2061  007636  022626                  2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2062  007640  104125                          ERROR   125
2063                                                                  ;RECEIVER INTERRPUTS WITH INT. ENABLE CLEAR
2064
2065  007642  012777  007662  173122  3$:     MOV     #4$,@RVECT      ;POINT RCV VECTOR TO END OF TEST
2066  007650  052777  000100  173072          BIS     #BIT6,@RCSR     ;ENABLE RCV INTERRUPTS
2067  007656  000240                          NOP                     ;GIVE ANY INTERRUPTS TIME
2068  007660  104126                          ERROR   126
2069                                                                  ;RCVR DID NOT INTERRUPT
2070
2071  007662  042777  000100  173060  4$:     BIC     #BIT6,@RCSR     ;DISABLE INTERRUPTS
2072  007670  022626                          CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2073  007672  010377  173074                  MOV     R3,@RVECT       ;RESTORE RECEIVE VECTOR
2074
2075
2076                                  ;;**********************************************************************
 (3)                                ;*TEST 40        TEST THAT RCVR INTERRUPTS DO NOT OCCUR WHEN DISABLED
 (3)                                ;;**********************************************************************
 (2)  007676  000004                TST40:  SCOPE
 (2)  007700  012737  000040  001104          MOV     #40,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2077  007706  004737  012356                  JSR     PC,WRPSW        ;SET PSW TO PRIORITY 7
2078  007712  000340                          .WORD   340
2079  007714  017703  173052                  MOV     @RVECT,R3       ;SAVE RECEIVE VECTOR
2080  007720  012777  007752  173044          MOV     #2$,@RVECT      ;POINT RCVR VECTOR TO ERROR REPORT
2081  007726  005077  173024                  CLR     @TBUF           ;SEND A CHARACTER
2082  007732  105777  173012          1$:     TSTB    @RCSR           ;WAIT FOR RECEIVER DONE
2083  007736  100375                          BPL     1$
2084  007740  052777  000100  173002          BIS     #BIT6,@RCSR     ;ENABLE INTERRUPTS
2085  007746  000240                          NOP                     ;GIVE TIME FOR INTERRUPT
2086  007750  000402                          BR      3$              ;CONTINUE TEST
2087  007752  022626                  2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2088  007754  104127                          ERROR   127
2089                                                                  ;RCVR INTERRUPTS AT PRIORITY 7
2090
2091  007756  042777  000100  172764  3$:     BIC     #BIT6,@RCSR     ;CLEAR INTERRUPT ENABLE
2092  007764  012777  010004  173000          MOV     #4$,@RVECT      ;POINT RCVR VECTOR TO ERROR REPORT
2093  007772  004737  012356                  JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
2094  007776  000140                          .WORD   140
2095  010000  000240                          NOP                     ;GIVE TIME FOR ANY INTERRUPT
2096  010002  000402                          BR      5$              ;BR TO END OF TEST, IF NO INTERRUPT
2097
2098  010004  022626                  4$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2099  010006  104130                          ERROR   130
2100                                                                  ;RCVR INTERRUPT REQUEST PASSED WITH BIT6 CLEAR
2101  010010  010377  172756          5$:     MOV     R3,@RVECT       ;RESTORE RECEIVE VECTOR
2102
2103
2104                                  ;;**********************************************************************
```

```
                                ;*TEST 41       TEST SLU2 RECEIVER FOR DOUBLE INTERRUPTS
                                ;;**************************************************************
                                TST41:  SCOPE
                                        MOV     #41,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
                                        MOV     @RVECT,R3       ;SAVE RECEIVE VECTOR
                                        MOV     @RPSW,R4        ;SAVE RECEIVE PSW VECTOR
                                        MOV     #2$,@RVECT      ;POINT RCV VECTOR TO CONTINUE TEST
                                        MOV     #340,@RPSW      ;SET PRIORITY TO 7 AFTER INTERRUPT
                                        JSR     PC,@WRPSW       ;SET PSW TO PRIORITY 3
                                                .WORD   140
                                        CLR     @TBUF           ;SEND A CHARACTER
                                1$:     TSTB    @RCSR           ;WAIT FOR RCVR DONE
                                        BPL     1$
                                        BIS     #BIT6,@RCSR     ;ENABLE RCV INTERRUPTS
                                        NOP                     ;GIVE SOME TIME

                                        ERROR   131
                                                                ;RCVR INTERRUPT DID NOT OCCUR

                                2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
                                        MOV     #3$,@RVECT      ;POINT RCV VECTOR TO ERROR REPORT
                                        JSR     PC,@WRPSW       ;RESET PSW TO PRIORITY 3
                                        .WORD   140
                                        NOP                     ;GIVE SOME TIME
                                        BIC     #BIT6,@RCSR     ;CLEAR INTERRUPT ENABLE
                                        MOV     R4,@RPSW        ;RESTORE RECEIVE PSW VECTOR
                                        BR      4$              ;BR TO END OF TEST

                                3$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
                                        ERROR   132
                                                                ;RECEIVER RE-INTERRUPTED
                                4$:     MOV     R3,@RVECT       ;RESTORE RECEIVE VECTOR


                                ;;**************************************************************
                                ;*TEST 42       TEST THAT RCVR INTERRUPT CLEARS BY READING RBUF
                                ;;**************************************************************
                                TST42:  SCOPE
                                        MOV     #42,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
                                        JSR     PC,@WRPSW       ;SET PSW PRIORITY TO 7
                                        .WORD   340
                                        MOV     @RVECT,R3       ;SAVE RECEIVE VECTOR
                                        MOV     #2$,@RVECT      ;POINT RCV VECTOR TO ERROR REPORT
                                        BIS     #BIT6,@RCSR     ;SET RCVR INTERRUPT ENABLE
                                        CLR     @TBUF           ;SEND A CHARACTER
                                1$:     TSTB    @RCSR           ;WAIT FOR DONE (INTERRUPT)
                                        BPL     1$
                                        TST     @RBUF           ;READ RBUF TO CLEAR PENDING INTERRPUT
                                        JSR     PC,@WRPSW       ;SET PSW TO PRIORITY 3
                                        .WORD   140
                                        NOP                     ;ALLOW TIME FOR ANY ERRONEOUS INTERRUPT
                                        BIC     #BIT6,@RCSR     ;NO INTERRUPT-CLEAR INT. ENABLE
                                        BR      3$

                                2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
                                        ERROR   133             ;READING RBUF DID NOT CLEAR INTERRUPT
```

```
 2153
 2154  010246  010377  172520          3$:     MOV     R3,@RVECT       ;RESTORE RECEIVE VECTOR
 2155
 2156
 2157
 2158                                  ;;*********************************************************************
   (3)                                 ;*TEST 43       TEST SLU2 THAT RESET CLEARS RECEIVE INTERRUPT
   (3)                                 ;;*********************************************************************
   (2)  010252  000004                 TST43:  SCOPE
   (2)  010254  012737  000043  001104         MOV     #43,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
 2159   010262  032737  000001  001120         BIT     #1, @#$ENV      ;ARE WE RUNNING UNDER APT
   (1)  010270  001403                         BEQ     70$             ;IF NO THEN DO TEST
   (1)  010272  005737  001106                 TST     @#$PASS         ;IS THIS FIRST PASS
   (2)  010276  001037                         BNE     TST44           ;IF NO THEN SKIP TO NEXT TEST
   (1)  010300                         70$:
 2160   010300  000005                         RESET                   ;CLEAR EVERYTHING
 2161   010302  004737  012356                 JSR     PC,WRPSW        ;SET PSW TO PRIORITY 7
 2162   010306  000340                         .WORD   340
 2163   010310  017703  172456                 MOV     @RVECT,R3       ;SAVE RECEIVE VECTOR
 2164   010314  012777  010366  172450         MOV     #2$,@RVECT      ;POINT RCV VECTOR TO ERROR REPORT
 2165   010322  052777  000100  172420         BIS     #BIT6,@RCSR     ;SET RCV INTERRUPT ENABLE
 2166   010330  012777  000377  172420         MOV     #377,@TBUF      ;SEND AN ALL 1'S CHARACTER
 2167   010336  105777  172406          1$:     TSTB    @RCSR           ;WAIT FOR RCV DONE
 2168   010342  100375                         BPL     1$
 2169   010344  000005                         RESET                   ;CLEAR RCV INTERRUPT & RBUF
 2170   010346  004737  012356                 JSR     PC,WRPSW        ;SET PSW TO PRIORITY 3
 2171   010352  000140                         .WORD   140
 2172   010354  000240                         NOP                     ;ALLOW TIME FOR AN ERRONEOUS INTERRUPT
 2173   010356  042777  000100  172364         BIC     #BIT6,@RCSR     ;NO INTERRUPT-CLEAR INT. ENABLE
 2174   010364  000402                         BR      3$              ;CONTINUE TEST
 2175
 2176
 2177   010366  022626          2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
 2178   010370  104134                  ERROR   134             ;RESET DID NOT CLEAR RCVR INTERRUPT
 2179
 2180   010372  010377  172374          3$:     MOV     R3,@RVECT       ;RESTORE RECEIVE VECTOR
 2181
 2182
 2183                                  ;;*********************************************************************
   (3)                                 ;*TEST 44       TEST SLU2 THAT "OVERRUN & ERROR" BITS CAN BE SET
   (3)                                 ;;*********************************************************************
   (2)  010376  000004                 TST44:  SCOPE
   (2)  010400  012737  000044  001104         MOV     #44,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
 2184   010406  032777  002000  170424         BIT     #BIT10,@SWR     ;IS THIS TEST DISABLED
 2185   010414  001023                         BNE     TST45           ;IF NOT ENABLED, BR TO NEXT TEST
 2186   010416  012700  000003                 MOV     #3,R0           ;SET CHARACTER COUNT TO SEND 3 CHAR.
 2187   010422  005077  172330          1$:     CLR     @TBUF           ;LOAD TRANSMIT BUFFER
 2188   010426  105777  172322          2$:     TSTB    @TCSR           ;WAIT FOR TRANSMIT DONE
 2189   010432  100375                         BPL     2$
 2190   010434  005300                         DEC     R0              ;DECREMENT CHARACTER COUNT
 2191   010436  001371                         BNE     1$              ;BR IF ALL CHARACTERS NOT TRANSMITTED
 2192   010440  032777  040000  172304         BIT     #BIT14,@RBUF    ;TEST FOR "OR" ERROR FLAG
 2193   010446  001001                         BNE     3$              ;BR, IF SET
 2194   010450  104135                  ERROR   135
 2195                                                                  ;"OR" ERROR FLAG DID NOT SET
 2196
```

```
2197  010452  032777  100000  172272  3$:     BIT     #BIT15,@RBUF    ;TEST "ERROR" FLAG
2198  010460  001001                          BNE     4$              ;BR, IF SET
2199  010462  104136                          ERROR   136
2200                                                                  ;"ERROR" FLAG DID NOT SET WITH "OR" FLAG
2201  010464                                4$:
2202
2203
2204                                        ;;*********************************************************************
  (3)                                       ;*TEST 45       TEST THAT BREAK TRANSMITS ALL ZEROES
  (3)                                       ;;*********************************************************************
  (2)  010464  000004                       TST45:  SCOPE
  (2)  010466  012737  000045  001104               MOV     #45,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2205   010474  012777  177777  172254               MOV     #-1,@TBUF       ;TRANSMIT ALL ONES TO RCVR
2206   010502  105777  172242              1$:      TSTB    @RCSR           ;WAIT FOR RCVR DONE
2207   010506  100375                          BPL     1$
2208   010510  005777  172236                  TST     @RBUF           ;CLEAR DONE (LEAVING ALL ONES IN RBUF)
2209   010514  052777  000001  172232          BIS     #BIT0,@TCSR     ;TRANSMIT BREAK
2210   010522  005000                          CLR     R0              ;CLEAR A TIMER
2211   010524  105777  172220              2$:      TSTB    @RCSR           ;WAIT FOR RCVR DONE
2212   010530  100406                          BMI     CONT41          ;BR IF DONE
2213   010532  005200                          INC     R0              ;IF NOT, INCREMENT TIMER
2214   010534  001373                          BNE     2$              ;BR IF TIME REMAINS
2215
2216   010536  042777  000001  172210          BIC     #BIT0,@TCSR       ;CLEAR BREAK BITS
2217   010544  104137                          ERROR   137             ;BREAK DID NOT TRANSMIT ANYTHING
2218
2219   010546  105777  172200              CONT41: TSTB    @RBUF           ;CHECK RECEIVE BUFFER FOR ZERO
2220   010552  001404                          BEQ     3$              ;BR, IF ZERO
2221   010554  042777  000001  172172          BIC     #BIT0,@TCSR       ;CLEAR BREAK BITS
2222
2223   010562  104137                          ERROR   137             ;BREAK DID NOT TRANSMIT ALL ZEROES
2224
2225   010564  042777  000001  172162  3$:     BIC     #BIT0,@TCSR       ;CLEAR BREAK BITS
2226
2227
2228                                        ;;*********************************************************************
  (3)                                       ;*TEST 46       TEST THAT "FR" ERROR CAN BE SET DURING BREAK
  (3)                                       ;;*********************************************************************
  (2)  010572  000004                       TST46:  SCOPE
  (2)  010574  012737  000046  001104               MOV     #46,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2229   010602  032777  002000  170230               BIT     #BIT10,@SWR     ;IS THIS TEST DISABLED
2230   010610  001025                          BNE     TST47           ;BR TO NEXT TEST, IF DISABLED
2231   010612  052777  000001  172134          BIS     #BIT0,@TCSR     ;SEND BREAK
2232   010620  005077  172132                  CLR     @TBUF           ;TRANSMIT A CHARACTER TO TIME BREAK
2233   010624  105777  172120              1$:      TSTB    @RCSR           ;WAIT FOR RCVR DONE
2234   010630  100375                          BPL     1$
2235   010632  042777  000001  172114          BIC     #BIT0,@TCSR       ;CLEAR BREAK BITS
2236   010640  032777  020000  172104          BIT     #BIT13,@RBUF    ;CHECK FOR FRAMING ERROR FLAG
2237   010646  001001                          BNE     2$              ;BR, IF SET
2238
2239   010650  104140                          ERROR   140
2240                                                                  ;BREAK DID NOT SET FRAMING ERROR
2241   010652  032777  100000  172072  2$:     BIT     #BIT15,@RBUF    ;TEST "ERROR"FLAG
2242   010660  001001                          BNE     3$              ;BR, IF SET
2243
2244   010662  104141                          ERROR   141
```

```
                                        ;"ERROR" FLAG DID NOT SET WITH "DR" FLAG
                                3$:
                                ;;*****************************************************************
                                ;*TEST 47        TEST DATA PATHS USING WRAP CABLE
                                ;;*****************************************************************
                                TST47:  SCOPE
010664  000004                          MOV     #47,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
010666  012737  000047  001104          BIT     #BIT7,@SWR      ;IS THIS TEST ENABLED
010674  032777  000200  170136          BNE     TST50           ;BR, IF NOT
010702  001027                          CLR     R1              ;CLEAR REGISTER FOR TEST DATA
010704  005001                                                  ;TRANSMIT A BINARY COUNT PATTERN - UP
                                                                ;TO THE BIT POSITION INDICATED BY THE
                                                                ;CONTENTS OF LOCATION "$USWR"
                                1$:     INCB    R1              ;INCREMENT THE TEST DATA
010706  105201                          MOV     R1,@TBUF        ;XMIT A CHARACTER
010710  010177  172042                  CLR     R0              ;CLEAR A TIMER
010714  005000                  2$:     TSTB    @RCSR           ;WAIT FOR RECEIVER DONE
010716  105777  172026                  BMI     3$              ;BR IF DONE
010722  100403                          INC     R0              ;INCREMENT TIMER IF NOT
010724  005200                          BNE     2$              ;BR IF TIME REMAINS
010726  001373
                                        ERROR   56              ;RECEIVER DONE NOT SET
010730  104056
                                3$:     MOV     @RBUF,R2        ;GET RECEIVED CHARACTER
010732  017702  172014                  CMP     R1,R2           ;COMPARE DATA
010736  020102                          BNE     4$              ;BR, IF NON-COMPARE
010740  001003                          TSTB    R1              ;TEST XMIT DATA FOR ZERO
010742  105701                          BEQ     TST50           ;BR, IF FINISHED
010744  001406                          BR      1$              ;CONTINUE IF NOT
010746  000757
010750  010137  001024          4$:     MOV     R1,$GDDAT       ;STORE EXPECTED DATA
010754  010237  001026                  MOV     R2,$BDDAT       ;STORE RECEIVED DATA
                                        ERROR   142             ;DATA COMPARE ERROR WITH WRAP CABLE
010760  104142
                                LTCIT:
010762
                                ;;*****************************************************************
                                ;*TEST 50        TEST THAT THE REAL TIME CLOCK INTERRUPTS PROPERLY
                                ;;*****************************************************************
010762  000004                  TST50:  SCOPE
010764  012737  000050  001104          MOV     #50,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
010772  032737  000004  001156          BIT     #BIT2,@#$DEVM   ;DO THESE TESTS FOR THIS DEVICE?
011000  001002                          BNE     99$             ;F YES CONTINUE WITH TESTS
011002  000137  011474                  JMP     BLAST           ;IF NO GO TO START OF NEXT SET OF TESTS.
011006                          99$:
011006  005000                          CLR     R0
011010  004737  012356                  JSR     PC,WRPSW        ;SET PSW TO PRIORITY 7
011014  000340                                  .WORD   340
011016  017703  171770                  MOV     @RTCVT,R3       ;SAVE LINE CLOCK VECTOR
011022  017704  171766                  MOV     @RTCPSW,R4      ;SAVE LINE CLOCK PSW VECTOR
011026  012777  011060  171756          MOV     #2$,@RTCVT      ;SET RTC INTERRUPT VECTOR TO ERROR REPORT
011034  012777  000340  171752          MOV     #340,@RTCPSW    ;KEEP PRIORITY AT 7

011042  052777  000100  171720          BIS     #BIT6,@LKS      ;SET INTERRUPT ENABLE
011050  005200                  1$:     INC     R0
```

```
2290  011052  001376                        BNE     1$
2291  011054  000240                        NOP                     ;GIVE TIME FOR ANY INTERRUPTS
2292  011056  000402                        BR      3$              ;BR, IF NO INTERRUPT OCCURS
2293
2294  011060  022626                2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2295  011062  104143                        ERROR   143             ;RTC INTERRUPTS AT PRIORITY 7
2296
2297  011064  005077  171700        3$:     CLR     @LKS    ;DISABLE RTC INTERRUPTS
2298  011070  005000                        CLR     R0
2299  011072  012777  011110  171712        MOV     #XXX,@RTCVT     ;SET RTC INTERRUPT VECTOR FOR ERROR
2300  011100  004737  012356                JSR     PC,WRPSW        ;CHANGE PSW TO PRIORITY 5
2301  011104  000240                        .WORD   240
2302  011106  104146                        ERROR   146
2303  011110  012777  011134  171674  XXX:  MOV     #4$,@RTCVT
2304  011116  106427  000240                MTPS    #240
2305  011122  005200                20$:    INC     R0
2306  011124  005700                        TST     R0
2307  011126  100375                        BPL     20$
2308  011130  000240                        NOP                     ;GIVE TIME FOR ANY INTERRUPT
2309  011132  000402                        BR      5$              ;IF NO INTERRUPT - BR TO CONTINUE TEST
2310
2311  011134  022626                4$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2312  011136  104144                        ERROR   144             ;RTC INTERRUPTS WITH INTERRUPTS DISABLED
2313
2314  011140  012777  011170  171644  5$:     MOV     #7$,@RTCVT      ;POINT RTC VECTOR TO END OF TEST
2315  011146  005000                        CLR     R0
2316  011150  052777  000100  171612        BIS     #BIT6,@LKS      ;ALLOW INTERRUPTS
2317  011156  005200                6$:     INC     R0
2318  011160  005700                        TST     R0
2319  011162  100375                        BPL     6$
2320  011164  000240                        NOP                     ;GIVE TIME FOR INTERRUPT
2321
2322  011166  104145                        ERROR   145             ;RTC INTERRUPT DID NOT OCCUR
2323
2324  011170  022626                7$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
2325  011172  042777  000100  171570        BIC     #BIT6,@LKS      ;DISABLE INTERRUPTS
2326  011200  010377  171606                MOV     R3,@RTCVT       ;RESTORE LINE CLOCK VECTOR
2327  011204  010477  171604                MOV     R4,@RTCPSW      ;RESTORE LINE CLOCK PSW VECTOR
2328
2329
2330
2331                                ;;*****************************************************************
  (3)                               ;*TEST 51        TEST RTC FOR DOUBLE INTERRUPTS
  (3)                               ;;*****************************************************************
  (2)  011210  000004               TST51:  SCOPE
  (2)  011212  012737  000051  001104        MOV     #51,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2332  011220  032737  000001  001120        BIT     #1, @#$ENV      ;ARE WE RUNNING UNDER APT
  (1)  011226  001403                       BEQ     70$             ;IF NO THEN DO TEST
  (1)  011230  005737  001106               TST     @#$PASS         ;IS THIS FIRST PASS
  (2)  011234  001050                       BNE     TST52           ;IF NO THEN SKIP TO NEXT TEST
  (1)  011236                       70$:
2333  011236  017703  171550               MOV     @RTCVT,R3       ;SAVE LINE CLOCK VECTOR
2334  011242  017704  171546               MOV     @RTCPSW,R4      ;SAVE LINE CLOCK PSW VECTOR
2335  011246  012777  011312  171536        MOV     #2$,@RTCVT      ;SET UP RTC INTERRUPT VECTOR
2336  011254  012777  000340  171532        MOV     #340,@RTCPSW    ;DISALLOW INTERRUPTS AFTER THE INTERRUPT
2337  011262  004737  012356               JSR     PC,WRPSW        ;SET PRIORITY TO 5
```

```
                                        .WORD   240

                        CLR     R0
                        BIS     #BIT6,@LKS      ;ENABLE CLOCK INTERRUPTS
                1$:     INC     R0
                        TST     R0
                        BPL     1$
                        NOP                     ;GIVE TIME FOR ANY INTERRUPT

                        ERROR   146             ;RTC INTERRUPT DID NOT OCCUR

                2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
                        MOV     #3$,@RTCVT      ;POINT RTC VECTOR TO ERROR REPORT
                        JSR     PC,WRPSW        ;SET PSW TO PRIORITY 5
                                .WORD   240
                        NOP                     ;GIVE SOME TIME FOR AN INTERRUPT
                        BR      4$              ;NO INTERRUPT - BR TO END OF TEST

                3$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
                        ERROR   147             ;INTERRUPT SEQUENCE DID NOT CLEAR
                                                ;INTERRUPT REQUEST

                4$:     BIC     #BIT6,@LKS      ;DISABLE CLOCK INTERRUPTS
                        MOV     R3,@RTCVT       ;RESTORE LINE CLOCK VECTOR
                        MOV     R4,@RTCPSW      ;RESTORE LINE CLOCK PSW VECTOR


                ;;*******************************************************************
                ;*TEST 52        TEST THAT RTC INTERRUPT CLEARS WITH RESET
                ;;*******************************************************************
                TST52:  SCOPE
                        MOV     #52,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
                        BIT     #1, @#$ENV      ;ARE WE RUNNING UNDER APT
                        BEQ     70$             ;IF NO THEN DO TEST
                        TST     @#$PASS         ;IS THIS FIRST PASS
                        BNE     TST53           ;IF NO THEN SKIP TO NEXT TEST
                70$:
                        JSR     PC,WRPSW        ;SET PRIORITY TO 7
                                .WORD   340
                        MOV     @RTCVT,R3       ;SAVE LINE CLOCK VECTOR
                        MOV     #2$,@RTCVT      ;POINT RTC VECTOR TO ERROR REPORT

                        CLR     R0
                        BIS     #BIT6,@LKS      ;ENABLE CLOCK INTERRUPTS
                1$:     INC     R0
                        TST     R0
                        BPL     1$
                        RESET                   ;CLEAR PENDING INTERRUPT WITH RESET
                        JSR     PC,WRPSW        ;SET PRIORITY TO 5
                                .WORD   240
                        NOP                     ;GIVE TIME FOR ANY INTERRUPT
                        BIC     #BIT6,@LKS      ;DISALLOW INTERRUPTS
                        BR      3$              ;BR TO END OF TEST

                2$:     CMP     (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
                        ERROR   150             ;RESET DID NOT CLEAR INTERRUPT
```

```
                                3$:     MOV     R3,@RTCVT       ;RESTORE LINE CLOCK VECTOR

                                BLAST:

                                ;;*****************************************************************
                                ;*TEST 53        TEST ALL INTERNAL OPTIONS SIMULTANEOUSLY
                                ;;*****************************************************************
                                TST53:  SCOPE
                                        MOV     #53,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
                                        BIT     #BIT0,@#$ENV    ;ARE WE RUNNING UNDER APT
                                        BEQ     70$             ;IF NO DO TEST
                                        TST     @#$PASS         ;IS THIS FIRST PASS
                                        BEQ     70$             ;IF YES DO TEST
                                        JMP     $EOP            ;IF NO DO NOT DO TEST
                                70$:    RESET                   ;CLEAR EVERY BODY
                                        MOV     #340,PS         ;SET PROCESSOR PRIORITY TO 7
                                        MOV     @TVECT,$TMP0
                                        MOV     @RVECT,$TMP1
                                        MOV     @CTVECT,$TMP2
                                        MOV     @CRVECT,$TMP3
                                        MOV     @RTCVT,$TMP4
                                        CLR     XMTCT2
                                        CLR     RECCT2
                                        CLR     COUNT

                                        MOV     #XMIT2, @TVECT  ;SET UP SLU2 TRANSMIT VECTOR
                                        MOV     #340, @TPSW     ;AND PSW
                                        MOV     #REC2, @RVECT   ;SET UP SLU2 RECEIVER VECTOR
                                        MOV     #340, @RPSW     ;AND PSW
                                        MOV     #TICKER, @RTCVT ;SET UP RTC VECTOR
                                        MOV     #340, @RTCPSW   ;AND PSW

                                        BIS     #BIT6, @TCSR    ;ENABLE SLU2 XMIT INTERRUPT
                                        BIS     #BIT6, @RCSR    ;ENABLE SLU2 RECEIVER INTERRUPT
                                        MOV     #BUF2, R3       ;SET UP RECEIVER BUFFER

                                        BIS     #BIT6, @LKS     ;ENABLE RTC INTERRUPTS
                                3$:     MOV     #-1, R1         ;INITIALIZE DATA FOR SLU2(1ST CHR. 0)
                                        CLR     PS              ;DROP PROCESSOR PRIORITY TO ZERO
                                WAITIO: WAIT                    ;WAIT FOR INTERRUPT
                                        BR      WAITIO

                                TICKER: INC     COUNT           ;UPDATE COUNT
                                        JMP     IOHAND          ;GO TO INTERRUPT HANDLER


                                XMIT2:  INC     XMTCT2          ;UPDATE XMIT INTERRUPT COUNT
                                        INC     R1              ;UPDATE XMIT DATA
                                        MOV     R1, @TBUF       ;SEND NEXT CHARACTER
                                        CMP     XMTCT2, #400    ;IF 256 CHARACTERS HAVE NOT
                                        BLT     1$              ;BEEN TRANSFERRED CONTINUE
                                        BIC     #BIT6, @TCSR    ;ELSE NO MORE XMIT INTERRUPTS
                                1$:     JMP     IOHAND          ;GO TO INTERRUPT HANDLER

                                REC2:   INC     RECCT2          ;UPDATE RECEIVER INTERRUPT COUNT
```

```
2438  011766  005777  170760                TST     @RBUF           ;BIT 15 SETS IF ANY ERRORS OCCURRED
2439  011772  100017                        BPL     3$              ;IF BIT IS CLEAR NO ERRORS
2440  011774  017737  170752  001026        MOV     @RBUF, $BDDAT   ;GET ERROR INFORMATION
2441  012002  000005                        RESET                   ;CLEAR THE WORLD - STOP ALL
2442                                                                ;INTERRUPTS
2443  012004  020327  026320                CMP     R3, #BUF2       ;WAS MORE THAN 1 WORD TRANSFERRED
2444  012010  003004                        BGT     1$              ;IF YES GET LAST GOOD DATA
2445  012012  012737  177777  00102'        MOV     #-1, $GDDAT     ;IF NO MAKE GOOD DATA -1
2446  012020  000403                        BR      2$              ;AND GET TO ERROR REPORT
2447  012022  116337  177777  001024  1$:   MOVB    -1(R3), $GDDAT  ;GET LAST GOOD DATA RECEIVED
2448  012030  104154                2$:     ERROR   154             ;RECEIVER STATUS ERROR
2449  012032  117723  170714        3$:     MOVB    @RBUF, (R3)+    ;GET DATA AND STORE IT
2450
2451  012036  023727  012236  000074  IOHAND: CMP    COUNT, #74      ;HAS 1 SEC ELAPSED
2452  012044  002412                        BLT     3$              ;IF NO CONTINUE TEST
2453  012046  042777  000100  170710        BIC     #BIT6, @CTCSR   ;IF YES STOP TRANSMISSIONS
2454  012054  042777  000100  170672        BIC     #BIT6, @TCSR    ;
2455  012062  042777  000100  170700        BIC     #BIT6,  @LKS    ;TURN OFF LINE CLOCK
2456  012070  000401                        BR      WAITER
2457  012072  000002                3$:     RTI                     ;RETURN FROM INTERRUPT TO AWAIT NEXT
2458
2459  012074  005037  177776        WAITER: CLR     PS              ;MAKE PROCESSOR PRIORITY 0
2460  012100  012705  140000                MOV     #-40000, R5     ;SET UP LOOP COUNTER
2461  012104  062705  000001        1$:     ADD     #1, R5          ;DO LOOP UNTIL R5 = 0
2462  012110  001375                        BNE     1$
2463  012112  000005                        RESET                   ;STOP EVERYONE SHOULD BE DONE
2464  012114  012706  001000                MOV     #1000,SP        ;RESET STACK AFTER LAST INTERRUPT
2465
2466
2467  012120  023737  012232  012234  CHECK2: CMP    XMTCT2, RECCT2  ;#OF XMIT INTERRUPTS = REC INTERRUPTS
2468  012126  001401                        BEQ     1$              ;IF YES CHECK DATA
2469  012130  104157                        ERROR   157             ;INTERRUPT COMPARISON ERROR
2470  012132  012703  026320        1$:     MOV     #BUF2, R3       ;INITIALIZE TO FIRST RECEIVED DATA
2471  012136  005001                        CLR     R1              ;INITIALIZE TO FIRST XMIT DATA
2472  012140  013704  012232                MOV     XMTCT2, R4      ;GET # OF BYTES TRANSFERRED
2473  012144  122301                2$:     CMPB    (R3)+, R1       ;IS RECEIVED DATA = EXPECTED DATA
2474  012146  001406                        BEQ     3$              ;IF YES CONTINUE TESTING
2475  012150  114337  001026                MOVB    -(R3), $BDDAT   ;IF NO GET ERROR INFORMATION
2476  012154  010137  001024                MOV     R1, $GDDAT
2477  012160  104160                        ERROR   160             ;SLU2 DATA COMPARISON ERROR
2478  012162  005203                        INC     R3              ;IF COONTINUE ON ERROR RESET POINTER
2479  012164  005201                3$:     INC     R1              ;UPDATE TO NEXT GOOD DATA
2480  012166  077412                        SOB     R4,2$           ;LOOP UNTIL ALL DATA CHECKED
2481  012170  013777  001060  170600  FINIE:  MOV     $TMP0, @TVECT   ;RESTORE VECTORS
2482  012176  013777  001062  170566          MOV     $TMP1, @RVECT
2483  012204  013777  001064  170574          MOV     $TMP2, @CTVECT
2484  012212  013777  001066  170562          MOV     $TMP3, @CRVECT
2485  012220  013777  001070  170564          MOV     $TMP4, @RTCVT
2486  012226  000137  012240                JMP     $EOP            ;FINISHED TESTING GO TO END OF PASS
2487
2488  012232  000000                XMTCT2: .WORD   0
2489  012234  000000                RECCT2: .WORD   0
2490  012236  000000                COUNT:  .WORD   0
2491
```

```
                                .SBTTL  END OF PASS ROUTINE

                                ;;*****************************************************************
                                ;*INCREMENT THE PASS NUMBER ($PASS)
                                ;*TYPE "END PASS #XXXXX" (WHERE XXXXX IS A DECIMAL NUMBER)
                                ;*IF THERES A MONITOR GO TO IT
                                ;*IF THERE ISN'T JUMP TO TST1

012240                          $EOP:
012240  000004                          SCOPE
012242  005037  001002                  CLR     $TSTNM          ;;ZERO THE TEST NUMBER
012246  005237  001106                  INC     $PASS           ;;INCREMENT THE PASS NUMBER
012252  042737  100000  001106          BIC     #100000,$PASS   ;;DON'T ALLOW A NEG. NUMBER
012260  005327                          DEC     (PC)+           ;;LOOP?
012262  000001          $EOPCT: .WORD   1
012264  003022                  BGT     $DOAGN          ;;YES
012266  012737                  MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
012270  000001          $ENDCT: .WORD   1
012272  012262                  $EOPCT
012274  104401  012341          TYPE    ,$ENDMG         ;;TYPE "END PASS #"
012300  013746  001106          MOV     $PASS,-(SP)     ;;SAVE $PASS FOR TYPEOUT
012304  104405                  TYPDS                   ;;GO TYPE--DECIMAL ASCII WITH SIGN
012306  104401  012336          TYPE    ,$ENULL         ;;TYPE A NULL CHARACTER
012312  013700  000042  $GET42: MOV     @#42,R0         ;;GET MONITOR ADDRESS
012316  001405                  BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
012320  000005                  RESET                   ;;CLEAR THE WORLD
012322  004710          $ENDAD: JSR     PC,(R0)         ;;GO TO MONITOR
012324  000240                  NOP                     ;;SAVE ROOM
012326  000240                  NOP                     ;;FOR
012330  000240                  NOP                     ;;ACT11
012332                          $DOAGN:
012332  000137                  JMP     @(PC)+          ;;RETURN
012334  003430          $RTNAD: .WORD   TST1
012336     377     377     000  $ENULL: .BYTE   -1,-1,0         ;;NULL CHARACTER STRING
012341     015  042412  042116  $ENDMG: .ASCIZ  <15><12>/END PASS #/
012346  050040  051501  020123
012354  000043

012356  011646          WRPSW:  MOV(SP),-(SP)           ;COPY RETUN PC
012360  013616                  MOV     @(SP)+,(SP)     ;MOVE NEW PSW TO STACK
012362  062746  000002          ADD     #2,-(SP)        ;ADJUST JSR RETURN
012366  000002                  RTI                     ;POP RETURN PC & NEW PSW

                                ;SUBROUTINE TO REPORT UNEXPECTED OR ERRONEOUS TRAPS OR INTERRUPTS

012370  012600          CATCH:  MOV     (SP)+,R0        ;GET ADDRESS OF TRAP VECTOR + 4
012372  162700  000004          SUB     #4,R0           ;ADJUST TO POINT TO TRAP ADDRESS
012376  010037  012416          MOV     R0,BDVECT       ;STORE TRAP OR INTERRUPT ADDRESS
012402  016637  000002  012414  MOV     2(SP),OLDPC     ;GET PC WHERE TRAP OR INTERRUPT OCCURRED
012410  104161                  ERROR   161             ;REPORT ERROR

012412  000000                  HALT                    ;PROGRAM MUST BE RESTARTED AT THIS POINT
012414  000000          OLDPC:  .WORD   0
012416  000000          BDVECT: .WORD   0
```

```
2513
2514
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2520
2521
2522
2523
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2525
2526  012420
2527  012420  105237  001003                ;;*********************************************************************
2528  012424  001775                        ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
2529  012426  013777  001002  166406        ;*SAVE THE ERROR ITEM NUMBER AND ADDRESS OF THE ERROR CALL
2530  012434  005237  001012                ;*AND GO TO $ERRTYP ON ERROR
2531  012440  011637  001016                ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
2532  012444  162737  000002  001016        ;*SW15=1        HALT ON ERROR
2533  012452  117737  166340  001014        ;*SW13=1        INHIBIT ERROR TYPEOUTS
2534  012460  032777  020000  166352        ;*SW09=1        LOOP IN ERROR
2535  012466  001004                        ;*CALL
2536  012470  004737  012602                ;*      ERROR   N       ;;ERROR=EMT AND N=ERROR ITEM NUMBER
2537  012474  104401  001075                ;;*********************************************************************
2538  012500
2539  012500  122737  000001  001120        $ERROR:
2540  012506  001007                7$:     INCB    $ERFLG          ;SET THE ERROR FLAG
2541  012510  113737  001014  012522        BEQ     7$              ;DON'T LET FLAG GO TO ZERO
2542  012516  004737  013304                MOV     $TSTNM,@DISPLAY ;DISPLAY TEST NUMBER AND ERROR FLAG
2543  012522     000                       INC     $ERTTL          ;INCREMENT ERROR COUNT
2544  012523     000                       MOV     (SP),$ERRPC     ;GET ADDRESS OF ERROR INSTRUCTION
2545  012524  000777                      SUB     #2,$ERRPC
2546  012526  005777  166306              MOVB    @$ERRPC,$ITEMB  ;STRIP AND SAVE THE ERROR ITEM CODE
2547  012532  100001                      BIT     #BIT13,@SWR     ;SKIP TYPEOUT IF SET
2548  012534  000000                      BNE     20$             ;SKIP TYPEOUTS
2549  012536  104407                      JSR     PC,$ERRTYP      ;GO TO USER ERROR ROUTINE
2550  012540  032777  001000  166272      TYPE    ,$CRLF
2551  012546  001402                20$:
2552  012550  013716  001010              CMPB    #APTENV,$ENV    ;RUNNING IN APT MODE
2553  012554  005737  001072              BNE     2$              ;NO, SKIP APT ERROR REPORT
2554  012560  001402                      MOVB    $ITEMB,21$      ;SET ITEM NUMBER AS ERROR NUMBER
2555  012562  013716  001072              JSR     PC,$ATY4        ;REPORT FATAL ERROR TO APT
2556  012566                        21$:  .BYTE   0
2557  012566  022737  012322  000042      .BYTE   0
2558  012574  001001                22$:  BR      22$             ;APT ERROR LOOP
2559  012576  000000                2$:   TST     @SWR            ;HALT ON ERROR
2560  012600                              BPL     3$              ;SKIP IF CONTINUE
2561  012600  000002                      HALT                    ;HALT ON ERROR!
2562                                3$:   CKSWR                   ;TEST FOR CHANGE IN SOFT-SWR
                                          BIT     #BIT09,@SWR     ;LOOP ON ERROR SWITCH SET?
                                          BEQ     4$              ;BR IF NO
                                          MOV     $LPERR,(SP)     ;FUDGE RETURN FOR LOOPING
                                    4$:   TST     $ESCAPE         ;CHECK FOR AN ESCAPE ADDRESS
                                          BEQ     5$              ;BR IF NONE
                                          MOV     $ESCAPE,(SP)    ;FUDGE RETURN ADDRESS FOR ESCAPE
                                    5$:
                                          CMP     #$ENDAD,@#42    ;ACT-11 AUTO-ACCEPT?
                                          BNE     6$              ;BR IF NO
                                          HALT                    ;YES
                                    6$:
                                          RTI                     ;RETURN
```

```
 2564
 2565
  (1)
  (2)
  (1)
  (1)
  (1)
  (1)
  (1)  012602
  (1)  012602  104401  001075          .SBTTL  ERROR MESSAGE TYPEOUT ROUTINE
  (1)  012606  010046
  (1)  012610  005000          ;;*****************************************************************
  (1)  012612  153700  001014  ;;*THIS ROUTINE USES THE "ITEM CONTROL BYTE" ($ITEMB) TO DETERMINE WHICH
  (1)  012616  001004          ;;*ERROR IS TO BE REPORTED. IT THEN OBTAINS, FROM THE "ERROR TABLE" ($ERRTB),
  (1)                          ;;*AND REPORTS THE APPROPRIATE INFORMATION CONCERNING THE ERROR.
  (2)  012620  013746  001016  $ERRTYP: MOV     $ERRPC,-(SP)    ;;SAVE $ERRPC FOR TYPEOUT
  (2)                                                          ;;ERROR ADDRESS
  (2)  012624  104402                  TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
  (1)  012626  000426                  BR      6$              ;;GET OUT
  (1)  012630  005300          1$:     DEC     R0              ;;ADJUST THE INDEX SO THAT IT WILL
  (1)  012632  006300                  ASL     R0              ;;       WORK FOR THE ERROR TABLE
  (1)  012634  006300                  ASL     R0
  (1)  012636  006300                  ASL     R0
  (1)  012640  062700  001160          ADD     #$ERRTB,R0      ;;FORM TABLE POINTER
  (1)  012644  012037  012654          MOV     (R0)+,2$        ;;PICKUP "ERROR MESSAGE" POINTER
  (1)  012650  001404                  BEQ     3$              ;;SKIP TYPEOUT IF NO POINTER
  (1)  012652  104401                  TYPE                    ;;TYPE THE "ERROR MESSAGE"
  (1)  012654  000000          2$:     .WORD   0               ;;"ERROR MESSAGE" POINTER GOES HERE
  (1)  012656  104401  001075          TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
  (1)  012662  012037  012672  3$:     MOV     (R0)+,4$        ;;PICKUP "DATA HEADER" POINTER
  (1)  012666  001404                  BEQ     5$              ;;SKIP TYPEOUT IF 0
  (1)  012670  104401                  TYPE                    ;;TYPE THE "DATA HEADER"
  (1)  012672  000000          4$:     .WORD   0               ;;"DATA HEADER" POINTER GOES HERE
  (1)  012674  104401  001075          TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
  (1)  012700  011000          5$:     MOV     (R0),R0         ;;PICKUP "DATA TABLE" POINTER
  (1)  012702  001004                  BNE     7$              ;;GO TYPE THE DATA
  (1)  012704  012600          6$:     MOV     (SP)+,R0        ;;RESTORF R0
  (1)  012706  104401  001075          TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
  (1)  012712  000207                  RTS     PC              ;;RETURN
  (1)  012714                  7$:
  (2)  012714  013046                  MOV     @(R0)+,-(SP)    ;;SAVE @(R0)+ FOR TYPEOUT
  (2)  012716  104402                  TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
  (1)  012720  005710                  TST     (R0)            ;;IS THERE ANOTHER NUMBER?
  (1)  012722  001770                  BEQ     6$              ;;BR IF NO
  (1)  012724  104401  012732          TYPE    ,8$             ;;TYPE TWO(2) SPACES
  (1)  012730  000771                  BR      7$              ;;LOOP
  (1)  012732  020040      000 8$:     .ASCIZ  /  /            ;;TWO(2) SPACES
  (1)          012736                  .EVEN
 2566
```

```
2568
2569                                    .SBTTL  POWER DOWN AND UP ROUTINES
2570                                    ;;*****************************************************************
2571                                            ;*POWER DOWN ROUTINE
2572                                    ;;*****************************************************************
2573   012736  012737  013076  000024  $PWRDN: MOV     #$ILLUP,@#PWRVEC ;SET FOR FAST UP
2574   012744  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;PRIO:7
2575   012752  010046                          MOV     R0,-(SP)        ;PUSH R0 ON STACK
2576   012754  010146                          MOV     R1,-(SP)        ;PUSH R1 ON STACK
2577   012756  010246                          MOV     R2,-(SP)        ;PUSH R2 ON STACK
2578   012760  010346                          MOV     R3,-(SP)        ;PUSH R3 ON STACK
2579   012762  010446                          MOV     R4,-(SP)        ;PUSH R4 ON STACK
2580   012764  010546                          MOV     R5,-(SP)        ;PUSH R5 ON STACK
2581   012766  017746  166046                  MOV     @SWR,-(SP)      ;PUSH @SWR ON STACK
2582   012772  010637  013102                  MOV     SP,$SAVR6       ;SAVE SP
2583   012776  012737  013010  000024          MOV     #$PWRUP,@#PWRVEC ;SET UP VECTOR
2584   013004  000000                          HALT
2585   013006  000776                          BR      .-2             ;HANG UP
2586
2587
2588                                    ;;*****************************************************************
2589                                            ;*POWER UP ROUTINE
2590                                    ;;*****************************************************************
2591   013010  012737  013076  000024  $PWRUP: MOV     #$ILLUP,@#PWRVEC ;SET FOR FAST DOWN
2592   013016  013706  013102                  MOV     $SAVR6,SP       ;GET SP
2593   013022  012677  166012                  MOV     (SP)+,@SWR      ;POP STACK INTO @SWR
2594   013026  012605                          MOV     (SP)+,R5
2595   013030  012604                          MOV     (SP)+,R4        ;POP STACK INTO R4
2596   013032  012603                          MOV     (SP)+,R3        ;POP STACK INTO R3
2597   013034  012602                          MOV     (SP)+,R2        ;POP STACK INTO R2
2598   013036  012601                          MOV     (SP)+,R1        ;POP STACK INTO R1
2599   013040  012600                          MOV     (SP)+,R0        ;POP STACK INTO R0
2600   013042  012737  012736  000024          MOV     #$PWRDN,@#PWRVEC ;SET UP THE POWER DOWN VECTOR
2601   013050  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;PRIO:7
2602   013056  005037  013102                  CLR     $SAVR6          ;WAIT LOOP FOR THE TTY
2603   013062  005237  013102          1$:     INC     $SAVR6          ;WAIT FOR THE INC
2604   013066  001375                          BNE     1$              ;OF WORD
2605   013070  104401                          TYPE                    ;REPORT THE POWER FAILURE
2606   013072  013104                  $PWRMG: .WORD   $POWER          ;POWER FAIL MESSAGE POINTER
2607   013074  000002                          RTI
2608   013076  000000                  $ILLUP: HALT                    ;THE POWER UP SEQUENCE WAS STARTED
2609   013100  000776                          BR      .-2             ; BEFORE THE POWER DOWN WAS COMPLETE
2610   013102  000000                  $SAVR6: 0                       ;PUT THE SP HERE
2611   013104  005015  047520  042527  $POWER: .ASCIZ  <15><12>''POWER''
       013112  000122
2612
```

```
 2614
 2615                                   .SBTTL  SCOPE HANDLER ROUTINE
  (1)
  (2)                                   ;;*********************************************************************
  (1)                                   ;*THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
  (1)                                   ;*AND LOAD THE TEST NUMBER($TSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
  (1)                                   ;*AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
  (1)                                   ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
  (1)                                   ;*SW14=1         LOOP ON TEST
  (1)                                   ;*SW09=1         LOOP ON ERROR
  (1)                                   ;*CALL
  (1)                                   ;*       SCOPE            ;;SCOPE=IOT
  (1)
  (1)  013114                           $SCOPE:
  (1)  013114  104407                           CKSWR                           ;;TEST  FOR CHANGE IN SOFT-SWR
  (1)  013116  032777  040000  165714   1$:     BIT     #BIT14,@SWR             ;;LOOP ON PRESENT TEST?
  (1)  013124  001052                           BNE     $OVER                   ;;YES IF SW14=1
  (1)                                   ;#####START OF CODE FOR THE XOR TESTER#####
  (1)  013126  000416                   $XTSTR: BR      6$                      ;;IF RUNNING ON THE ''XOR'' TESTER CHANGE
  (1)                                                                           ;;THIS INSTRUCTION TO A ''NOP'' (NOP=240)
  (1)  013130  013746  000004                   MOV     @#ERRVEC,-(SP)          ;;SAVE THE CONTENTS OF THE ERROR VECTOR
  (1)  013134  012737  013154  000004           MOV     #5$,@#ERRVEC            ;;SET FOR TIMEOUT
  (1)  013142  005737  177060                   TST     @#177060                ;;TIME OUT ON XOR?
  (1)  013146  012637  000004                   MOV     (SP)+,@#ERRVEC          ;;RESTORE THE ERROR VECTOR
  (1)  013152  000421                           BR      $SVLAD                  ;;GO TO THE NEXT TEST
  (1)  013154  022626                   5$:     CMP     (SP)+,(SP)+             ;;CLEAR THE STACK AFTER A TIME OUT
  (1)  013156  012637  000004                   MOV     (SP)+,@#ERRVEC          ;;RESTORE THE ERROR VECTOR
  (1)  013162  000407                           BR      7$                      ;;LOOP ON THE PRESENT TEST
  (1)  013164                           6$:;#####END OF CODE FOR THE XOR TESTER#####
  (1)  013164  105737  001003           2$:     TSTB    $ERFLG                  ;;HAS AN ERROR OCCURRED?
  (1)  013170  001412                           BEQ     $SVLAD                  ;;BR IF NO
  (1)  013172  032777  001000  165640           BIT     #BIT09,@SWR             ;;LOOP ON ERROR?
  (1)  013200  001404                           BEQ     4$                      ;;BR IF NO
  (1)  013202  013737  001010  001006   7$:     MOV     $LPERR,$LPADR           ;;SET LOOP ADDRESS TO LAST SCOPE
  (1)  013210  000420                           BR      $OVER
  (1)  013212  105037  001003           4$:     CLRB    $ERFLG                  ;;ZERO THE ERROR FLAG
  (1)  013216  105237  001002           $SVLAD: INCB    $TSTNM                  ;;COUNT TEST NUMBERS
  (1)  013222  113737  001002  001104           MOVB    $TSTNM,$TESTN           ;;SET TEST NUMBER IN APT MAILBOX
  (1)  013230  011637  001006                   MOV     (SP),$LPADR             ;;SAVE SCOPE LOOP ADDRESS
  (1)  013234  011637  001010                   MOV     (SP),$LPERR             ;;SAVE ERROR LOOP ADDRESS
  (1)  013240  005037  001072                   CLR     $ESCAPE                 ;;CLEAR THE ESCAPE FROM ERROR ADDRESS
  (1)  013244  112737  000001  001015           MOVB    #1,$ERMAX               ;;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
  (1)  013252  013777  001002  165562   $OVER:  MOV     $TSTNM,@DISPLAY         ;;DISPLAY TEST NUMBER
  (1)  013260  013716  001006                   MOV     $LPADR,(SP)             ;;FUDGE RETURN ADDRESS
  (1)  013264  000002                           RTI                             ;;FIXES PS
 2616
```

```
                                        ;;*****************************************************************
                                        .SBTTL  APT COMMUNICATIONS ROUTINE
                                        ;;*****************************************************************
013266  112737  000001  013532  $ATY1:  MOVB    #1,$FFLG        ;TO REPORT FATAL ERROR
013274  112737  000001  013530  $ATY3:  MOVB    #1,$MFLG        ;TO TYPE A MESSAGE
013302  000403                        BR      $ATYC
013304  112737  000001  013532  $ATY4:  MOVB    #1,$FFLG        ;TO ONLY REPORT FATAL ERROR
013312                          $ATYC:
013312  010046                        MOV     R0,-(SP)        ;PUSH R0 ON STACK
013314  010146                        MOV     R1,-(SP)        ;PUSH R1 ON STACK
013316  105737  013530                TSTB    $MFLG           ;SHOULD TYPE A MESSAGE?
013322  001450                        BEQ     5$              ;IF NOT: BR
013324  122737  000001  001120        CMPB    #APTENV,$ENV    ;OPERATING UNDER APT?
013332  001031                        BNE     3$              ;IF NOT: BR
013334  132737  000100  001121        BITB    #APTSPOOL,$ENVM ;SHOULD SPOOL MESSAGE?
013342  001425                        BEQ     3$              ;IF NOT: BR
013344  017600  000004                MOV     @4(SP),R0       ;GET MESSAGE ADDRESS
013350  062766  000002  000004        ADD     #2,4(SP)        ;BUMP RETURN ADDRESS
013356  005737  001100          1$:   TST     $MSGTYPE                ;SEE IF DONE W/ LAST XMISSION?
013362  001375                        BNE     1$              ;IF NOT: WAIT
013364  010037  001114                MOV     R0,$MSGAD       ;PUT ADDRESS IN MAILBOX
013370  105720                  2$:   TSTB    (R0)+           ;FIND END OF MESSAGE
013372  001376                        BNE     2$
013374  163700  001114                SUB     $MSGAD,R0       ;SUB START OF MESSAGE
013400  006200                        ASR     R0              ;GET MESSAGE LENGTH IN WORDS
013402  010037  001116                MOV     R0,$MSGLGT      ;PUT LENGTH IN MAILBOX
013406  012737  000004  001100        MOV     #4,$MSGTYPE     ;TELL APT TO TAKE MESSAGE
013414  000413                        BR      5$
013416  017637  000004  013442  3$:   MOV     @4(SP),4$       ;PUT MSG ADDR IN JSR LINKAGE
013424  062766  000002  000004        ADD     #2,4(SP)        ;BUMP RETURN ADDRESS
013432  013746  177776                MOV     177776,-(SP)    ;PUSH 177776 ON STACK
013436  004737  013534                JSR     PC,$TYPE        ;CALL TYPE MACRO
013442  000000                  4$:   .WORD   0
013444                          5$:
013444  105737  013532          10$:  TSTB    $FFLG           ;SHOULD REPORT FATAL ERROR?
013450  001413                        BEQ     12$             ;IF NOT: BR
013452  005737  001120                TST     $ENV            ;RUNNING UNDER APT?
013456  001410                        BEQ     12$             ;IF NOT: BR
013460  005737  001100          11$:  TST     $MSGTYPE        ;FINISHED LAST MESSAGE?
013464  001375                        BNE     11$             ;IF NOT: WAIT
013466  017637  000004  001102        MOV     @4(SP),$FATAL   ;GET ERROR #
013474  005237  001100                INC     $MSGTYPE        ;TELL APT TO TAKE ERROR
013500  062766  000002  000004  12$:  ADD     #2,4(SP)        ;BUMP RETURN ADDRESS
013506  105037  013532                CLRB    $FFLG           ;CLEAR FATAL FLAG
013512  105037  013531                CLRB    $LFLG           ;CLEAR LOG FLAG
013516  105037  013530                CLRB    $MFLG           ;CLEAR MESSAGE FLAG
013522  012601                        MOV     (SP)+,R1        ;POP STACK INTO R1
013524  012600                        MOV     (SP)+,R0        ;POP STACK INTO R1
013526  000207                        RTS     PC              ;RETURN
013530     000                $MFLG:  .BYTE   0
013531     000                $LFLG:  .BYTE   0               ;LOG FLAG
013532     000                $FFLG:  .BYTE   0               ;FATAL FLAG

        013534                          .EVEN
```

```
2674            000200          APTSIZE=200
2675            000001          APTENV=001
2676            000100          APTSPOOL=100
2677            000040          APTCSUP=040
2678
```

```
 2680
 2681                                   .SBTTL  TYPE ROUTINE
  (1)
  (2)                                   ;;*********************************************************************
  (1)                                   ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
  (1)                                   ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
  (1)                                   ;*NOTE1:        $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
  (1)                                   ;*NOTE2:        $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
  (1)                                   ;*NOTE3:        $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
  (1)                                   ;*
  (1)                                   ;*CALL:
  (1)                                   ;*1) USING A TRAP INSTRUCTION
  (1)                                   ;*      TYPE    ,MESADR         ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
  (1)                                   ;*OR
  (1)                                   ;*      TYPE
  (1)                                   ;*      MESADR
  (1)                                   ;*
  (1)
  (1)  013534  105737  001057           $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
  (1)  013540  100002                           BPL     1$              ;;BR IF YES
  (1)  013542  000000                           HALT                    ;;HALT HERE IF NO TERMINAL
  (1)  013544  000430                           BR      3$              ;;LEAVE
  (1)  013546  010046                   1$:     MOV     R0,-(SP)        ;;SAVE R0
  (1)  013550  017600  000002                   MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
  (1)  013554  122737  000001  001120           CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
  (1)  013562  001011                           BNE     62$             ;;NO,GO CHECK FOR APT CONSOLE
  (1)  013564  132737  000100  001121           BITB    #APTSPOOL,$ENVM ;;SPOOL MESSAGE TO APT
  (1)  013572  001405                           BEQ     62$             ;;NO,GO CHECK FOR CONSOLE
  (1)  013574  010037  013604                   MOV     R0,61$          ;;SETUP MESSAGE ADDRESS FOR APT
  (1)  013600  004737  013274                   JSR     PC,$ATY3        ;;SPOOL MESSAGE TO APT
  (1)  013604  000000                   61$:    .WORD   0               ;;MESSAGE ADDRESS
  (1)  013606  132737  000040  001121   62$:    BITB    #APTCSUP,$ENVM  ;;APT CONSOLE SUPPRESSED
  (1)  013614  001003                           BNE     60$             ;;YES,SKIP TYPE OUT
  (1)  013616  112046                   2$:     MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
  (1)  013620  001005                           BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
  (1)  013622  005726                           TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
  (1)  013624  012600                   60$:    MOV     (SP)+,R0        ;;RESTORE R0
  (1)  013626  062716  000002           3$:     ADD     #2,(SP)         ;;ADJUST RETURN PC
  (1)  013632  000002                           RTI                     ;;RETURN
  (1)  013634  122716  000011           4$:     CMPB    #HT,(SP)        ;;BRANCH IF <HT>
  (1)  013640  001430                           BEQ     8$
  (1)  013642  122716  000200                   CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
  (1)  013646  001006                           BNE     5$
  (1)  013650  005726                           TST     (SP)+           ;;POP  <CR><LF> EQUIV
  (1)  013652  104401                           TYPE                    ;;TYPE A CR AND LF
  (1)  013654  001075                           $CRLF
  (1)  013656  105037  014064                   CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
  (1)  013662  000755                           BR      2$              ;;GET NEXT CHARACTER
  (1)  013664  004737  013746           5$:     JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
  (1)  013670  123726  001056           6$:     CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
  (1)  013674  001350                           BNE     2$              ;;IF NO GO GET NEXT CHAR.
  (1)  013676  013746  001054                   MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
  (1)                                           ;;AND THE NULL CHAR.
  (1)  013702  105366  000001           7$:     DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
  (1)  013706  002770                           BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
  (1)  013710  004737  013746                   JSR     PC,$TYPEC       ;;GO TYPE A NULL
```

```
(1)  013714  105337  014064          DECB    $CHARCNT          ;;DO NOT COUNT AS A COUNT
(1)  013720  000770                  BR      7$                ;;LOOP
(1)
(1)                          ;HORIZONTAL TAB PROCESSOR
(1)
(1)  013722  112716  000040      8$:     MOVB    #' ,(SP)          ;;REPLACE TAB WITH SPACE
(1)  013726  004737  013746      9$:     JSR     PC,$TYPEC         ;;TYPE A SPACE
(1)  013732  132737  000007  014064      BITB    #7,$CHARCNT       ;;BRANCH IF NOT AT
(1)  013740  001372                  BNE     9$                ;;TAB STOP
(1)  013742  005726                  TST     (SP)+             ;;POP SPACE OFF STACK
(1)  013744  000724                  BR      2$                ;;GET NEXT CHARACTER
(1)  013746                      $TYPEC:
(1)  013746  105777  165072          TSTB    @$TKS             ;;CHAR IN KYBD BUFFER?         ;MJD001
(1)  013752  100022                  BPL     10$               ;;BR IF NOT                    ;MJD001
(1)  013754  017746  165066          MOV     @$TKB,-(SP)       ;;GET CHAR                     ;MJD001
(1)  013760  042716  177600          BIC     #177600,(SP)      ;;STRIP EXTRANEOUS BITS        ;MJD001
(1)  013764  122716  000023          CMPB    #$XOFF,(SP)       ;;WAS CHAR XOFF                ;MJD001
(1)  013770  001012                  BNE     102$              ;;BR IF NOT                    ;MJD001
(1)  013772                      101$:                                                        ;MJD001
(1)  013772  105777  165046          TSTB    @$TKS             ;;WAIT FOR CHAR                ;MJD001
(1)  013776  100375                  BPL     101$                                             ;MJD001
(1)  014000  117716  165042          MOVB    @$TKB,(SP)        ;;GET CHAR                     ;MJD001
(1)  014004  042716  177600          BIC     #177600,(SP)      ;;STRIP IT                     ;MJD001
(1)  014010  122716  000021          CMPB    #$XON,(SP)        ;;WAS IT XON?                  ;MJD001
(1)  014014  001366                  BNE     101$              ;;BR IF NOT                    ;MJD001
(1)  014016                      102$:                                                        ;MJD001
(1)  014016  005726                  TST     (SP)+             ;;FIX STACK                    ;MJD001
(1)  014020                      10$:                                                         ;MJD001
(1)  014020  105777  165024          TSTB    @$TPS             ;;WAIT UNTIL PRINTER IS READY
(1)  014024  100375                  BPL     10$                                              ;MJD001
(1)  014026  116677  000002  165016      MOVB    2(SP),@$TPB       ;;LOAD CHAR TO BE TYPED INTO DATA REG.
(1)  014034  122766  000015  000002      CMPB    #CR,2(SP)         ;;IS CHARACTER A CARRIAGE RETURN?
(1)  014042  001003                  BNE     1$                ;;BRANCH IF NO
(1)  014044  105037  014064          CLRB    $CHARCNT          ;;YES--CLEAR CHARACTER COUNT
(1)  014050  000406                  BR      $TYPEX            ;;EXIT
(1)  014052  122766  000012  000002  1$:     CMPB    #LF,2(SP)         ;;IS CHARACTER A LINE FEED?
(1)  014060  001402                  BEQ     $TYPEX            ;;BRANCH IF YES
(1)  014062  105227                  INCB    (PC)+             ;;COUNT THE CHARACTER
(1)  014064  000000              $CHARCNT:.WORD  0                 ;;CHARACTER COUNT STORAGE
(1)  014066  000207              $TYPEX: RTS     PC
(1)
2682                             .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE
(1)
(2)                          ;;*******************************************************************
(1)                          ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
(1)                          ;*OCTAL (ASCII) NUMBER AND TYPE IT.
(1)                          ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
(1)                          ;*CALL:
(1)                          ;*      MOV     NUM,-(SP)         ;;NUMBER TO BE TYPED
(1)                          ;*      TYPOS                     ;;CALL FOR TYPEOUT
(1)                          ;*      .BYTE   N                 ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
(1)                          ;*      .BYTE   M                 ;;M=1 OR 0
(1)                          ;*                                        ;;1=TYPE LEADING ZEROS
(1)                          ;*                                        ;;0=SUPPRESS LEADING ZEROS
(1)                          ;*
(1)                          ;*$TYPON----ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
```

```
(1)                                     ;*$TYPOS OR $TYPOC
(1)                                     ;*CALL:
(1)                                     ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
(1)                                     ;*      TYPON                   ;;CALL FOR TYPEOUT
(1)                                     ;*
(1)                                     ;*$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
(1)                                     ;*CALL:
(1)                                     ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
(1)                                     ;*      TYPOC                   ;;CALL FOR TYPEOUT
(1)
(1)  014070  017646  000000             $TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
(1)  014074  116637  000001  014313             MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
(1)  014102  112637  014315             $TYPOC: MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
(1)  014106  062716  000002             $TYPON: ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
(1)  014112  000406                             BR      $TYPON
(1)  014114  112737  000001  014313             MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
(1)  014122  112737  000006  014315             MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
(1)  014130  112737  000005  014312             MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
(1)  014136  010346                             MOV     R3,-(SP)        ;;SAVE R3
(1)  014140  010446                             MOV     R4,-(SP)        ;;SAVE R4
(1)  014142  010546                             MOV     R5,-(SP)        ;;SAVE R5
(1)  014144  113704  014315                     MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
(1)  014150  005404                             NEG     R4
(1)  014152  062704  000006                     ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
(1)  014156  110437  014314                     MOVB    R4,$OMODE       ;;SAVE IT FOR USE
(1)  014162  113704  014313                     MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
(1)  014166  016605  000012                     MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
(1)  014172  005003                             CLR     R3              ;;CLEAR THE OUTPUT WORD
(1)  014174  006105                     1$:     ROL     R5              ;;ROTATE MSB INTO "C"
(1)  014176  000404                             BR      3$              ;;GO DO MSB
(1)  014200  006105                     2$:     ROL     R5              ;;FORM THIS DIGIT
(1)  014202  006105                             ROL     R5
(1)  014204  006105                             ROL     R5
(1)  014206  010503                             MOV     R5,R3
(1)  014210  006103                     3$:     ROL     R3              ;;GET LSB OF THIS DIGIT
(1)  014212  105337  014314                     DECB    $OMODE          ;;TYPE THIS DIGIT?
(1)  014216  100016                             BPL     7$              ;;BR IF NO
(1)  014220  042703  177770                     BIC     #177770,R3      ;;GET RID OF JUNK
(1)  014224  001002                             BNE     4$              ;;TEST FOR 0
(1)  014226  005704                             TST     R4              ;;SUPPRESS THIS 0?
(1)  014230  001403                             BEQ     5$              ;;BR IF YES
(1)  014232  005204                     4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
(1)  014234  052703  000060                     BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
(1)  014240  052703  000040             5$:     BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
(1)  014244  110337  014310                     MOVB    R3,8$           ;;SAVE FOR TYPING
(1)  014250  104401  014310                     TYPE    ,8$             ;;GO TYPE THIS DIGIT
(1)  014254  105337  014312             7$:     DECB    $OCNT           ;;COUNT BY 1
(1)  014260  003347                             BGT     2$              ;;BR IF MORE TO DO
(1)  014262  002402                             BLT     6$              ;;BR IF DONE
(1)  014264  005204                             INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
(1)  014266  000744                             BR      2$              ;;GO DO THE LAST DIGIT
(1)  014270  012605                     6$:     MOV     (SP)+,R5        ;;RESTORE R5
(1)  014272  012604                             MOV     (SP)+,R4        ;;RESTORE R4
(1)  014274  012603                             MOV     (SP)+,R3        ;;RESTORE R3
(1)  014276  016666  000002  000004             MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
(1)  014304  012616                             MOV     (SP)+,(SP)
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(1)  014306  000002                        RTI                     ;;RETURN
(1)  014310     000     8$:                 .BYTE   0               ;;STORAGE FOR ASCII DIGIT
(1)  014311     000                         .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
(1)  014312     000     $OCNT:              .BYTE   0               ;;OCTAL DIGIT COUNTER
(1)  014313     000     $OFILL:             .BYTE   0               ;;ZERO FILL SWITCH
(1)  014314  000000     $OMODE:             .WORD   0               ;;NUMBER OF DIGITS TO TYPE
2683                                        .SBTTL  CONVERT BINARY TO DECIMAL AND TYPE ROUTINE
(1)
(2)                                         ;;**************************************************************
(1)                                         ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT
(1)                                         ;*SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE
(1)                                         ;*NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED
(1)                                         ;*BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
(1)                                         ;*REPLACED WITH SPACES.
(1)                                         ;*CALL:
(1)                                         ;*      MOV     NUM,-(SP)       ;;PUT THE BINARY NUMBER ON THE STACK
(1)                                         ;*      TYPDS                   ;;GO TO THE ROUTINE
(1)
(1)  014316                                 $TYPDS:
(3)  014316  010046                                 MOV     R0,-(SP)        ;;PUSH R0 ON STACK
(3)  014320  010146                                 MOV     R1,-(SP)        ;;PUSH R1 ON STACK
(3)  014322  010246                                 MOV     R2,-(SP)        ;;PUSH R2 ON STACK
(3)  014324  010346                                 MOV     R3,-(SP)        ;;PUSH R3 ON STACK
(3)  014326  010546                                 MOV     R5,-(SP)        ;;PUSH R5 ON STACK
(1)  014330  012746  020200                         MOV     #20200,-(SP)    ;;SET BLANK SWITCH AND SIGN
(1)  014334  016605  000020                         MOV     20(SP),R5       ;;GET THE INPUT NUMBER
(1)  014340  100004                                 BPL     1$              ;;BR IF INPUT IS POS.
(1)  014342  005405                                 NEG     R5              ;;MAKE THE BINARY NUMBER POS.
(1)  014344  112766  000055  000001                 MOVB    #'-,1(SP)       ;;MAKE THE ASCII NUMBER NEG.
(1)  014352  005000                         1$:     CLR     R0              ;;ZERO THE CONSTANTS INDEX
(1)  014354  012703  014532                         MOV     #$DBLK,R3       ;;SETUP THE OUTPUT POINTER
(1)  014360  112723  000040                         MOVB    #' ,(R3)+       ;;SET THE FIRST CHARACTER TO A BLANK
(1)  014364  005002                         2$:     CLR     R2              ;;CLEAR THE BCD NUMBER
(1)  014366  016001  014522                         MOV     $DTBL(R0),R1    ;;GET THE CONSTANT
(1)  014372  160105                         3$:     SUB     R1,R5           ;;FORM THIS BCD DIGIT
(1)  014374  002402                                 BLT     4$              ;;BR IF DONE
(1)  014376  005202                                 INC     R2              ;;INCREASE THE BCD DIGIT BY 1
(1)  014400  000774                                 BR      3$
(1)  014402  060105                         4$:     ADD     R1,R5           ;;ADD BACK THE CONSTANT
(1)  014404  005702                                 TST     R2              ;;CHECK IF BCD DIGIT=0
(1)  014406  001002                                 BNE     5$              ;;FALL THROUGH IF 0
(1)  014410  105716                                 TSTB    (SP)            ;;STILL DOING LEADING 0'S?
(1)  014412  100407                                 BMI     7$              ;;BR IF YES
(1)  014414  106316                         5$:     ASLB    (SP)            ;;MSD?
(1)  014416  103003                                 BCC     6$              ;;BR IF NO
(1)  014420  116663  000001  177777                 MOVB    1(SP),-1(R3)    ;;YES--SET THE SIGN
(1)  014426  052702  000060                 6$:     BIS     #'0,R2          ;;MAKE THE BCD DIGIT ASCII
(1)  014432  052702  000040                 7$:     BIS     #' ,R2          ;;MAKE IT A SPACE IF NOT ALREADY A DIGIT
(1)  014436  110223                                 MOVB    R2,(R3)+        ;;PUT THIS CHARACTER IN THE OUTPUT BUFFER
(1)  014440  005720                                 TST     (R0)+           ;;JUST INCREMENTING
(1)  014442  020027  000010                         CMP     R0,#10          ;;CHECK THE TABLE INDEX
(1)  014446  002746                                 BLT     2$              ;;GO DO THE NEXT DIGIT
(1)  014450  003002                                 BGT     8$              ;;GO TO EXIT
(1)  014452  010502                                 MOV     R5,R2           ;;GET THE LSD
(1)  014454  000764                                 BR      6$              ;;GO CHANGE TO ASCII
(1)  014456  105726                         8$:     TSTB    (SP)+           ;;WAS THE LSD THE FIRST NON-ZERO?
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  (1)  014460  100003                        BPL     9$                ;;BR IF NO
  (1)  014462  116663  177777  177776       MOVB    -1(SP),-2(R3)     ;;YES--SET THE SIGN FOR TYPING
  (1)  014470  105013                  9$:   CLRB    (R3)              ;;SET THE TERMINATOR
  (3)  014472  012605                        MOV     (SP)+,R5          ;;POP STACK INTO R5
  (3)  014474  012603                        MOV     (SP)+,R3          ;;POP STACK INTO R3
  (3)  014476  012602                        MOV     (SP)+,R2          ;;POP STACK INTO R2
  (3)  014500  012601                        MOV     (SP)+,R1          ;;POP STACK INTO R1
  (3)  014502  012600                        MOV     (SP)+,R0          ;;POP STACK INTO R0
  (1)  014504  104401  014532                TYPE    ,$DBLK            ;;NOW TYPE THE NUMBER
  (1)  014510  016666  000002  000004        MOV     2(SP),4(SP)       ;;ADJUST THE STACK
  (1)  014516  012616                        MOV     (SP)+,(SP)
  (1)  014520  000002                        RTI                       ;;RETURN TO USER
  (1)  014522  023420                  $DTBL: 10000.
  (1)  014524  001750                         1000.
  (1)  014526  000144                         100.
  (1)  014530  000012                         10.
  (1)  014532  000004                  $DBLK: .BLKW   4
2684
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2686
2687
 (1)                                    .SBTTL  TTY INPUT ROUTINE
 (2)                                    ;;*****************************************************************
 (1)                                    .ENABL  LSB
 (1)
 (2)                                    ;;*****************************************************************
 (1)                                    ;*SOFTWARE SWITCH REGISTER CHANGE ROUTINE.
 (1)                                    ;*ROUTINE IS ENTERED FROM THE TRAP HANDLER, AND WILL
 (1)                                    ;*SERVICE THE TEST FOR CHANGE IN SOFTWARE SWITCH REGISTER TRAP CALL
 (1)                                    ;*WHEN OPERATING IN TTY FLAG MODE.
 (1)  014542  022737  000176  001040    $CKSWR: CMP     #SWREG,SWR      ;;IS THE SOFT-SWR SELECTED?
 (1)  014550  001074                            BNE     15$             ;;BRANCH IF NO
 (1)  014552  105777  164266                    TSTB    @$TKS           ;;CHAR THERE?
 (1)  014556  100071                            BPL     15$             ;;IF NO, DON'T WAIT AROUND
 (1)  014560  117746  164262                    MOVB    @$TKB,-(SP)     ;;SAVE THE CHAR
 (1)  014564  042716  177600                    BIC     #^C177,(SP)     ;;STRIP-OFF THE ASCII
 (1)  014570  022726  000007                    CMP     #7,(SP)+        ;;IS IT A CONTROL G?
 (1)  014574  001062                            BNE     15$             ;;NO, RETURN TO USER
 (1)  014576  123727  001034  000001            CMPB    $AUTOB,#1       ;;ARE WE RUNNING IN AUTO-MODE?
 (1)  014604  001456                            BEQ     15$             ;;BRANCH IF YES
 (1)
 (1)  014606  104401  015277                    TYPE    ,$CNTLG         ;;ECHO THE CONTROL-G (^G)
 (1)  014612  104401  015304            $GTSWR: TYPE    ,$MSWR          ;;TYPE CURRENT CONTENTS
 (2)  014616  013746  000176                    MOV     SWREG,-(SP)     ;;SAVE SWREG FOR TYPEOUT
 (2)  014622  104402                            TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
 (1)  014624  104401  015315                    TYPE    ,$MNEW          ;;PROMPT FOR NEW SWR
 (1)  014630  005046                    19$:    CLR     -(SP)           ;;CLEAR COUNTER
 (1)  014632  005046                            CLR     -(SP)           ;;THE NEW SWR
 (1)  014634  105777  164204            7$:     TSTB    @$TKS           ;;CHAR THERE?
 (1)  014640  100375                            BPL     7$              ;;IF NOT TRY AGAIN
 (1)
 (1)  014642  117746  164200                    MOVB    @$TKB,-(SP)     ;;PICK UP CHAR
 (1)  014646  042716  177600                    BIC     #^C177,(SP)     ;;MAKE IT 7-BIT ASCII
 (1)
 (1)
 (1)
 (1)  014652  021627  000025            9$:     CMP     (SP),#25        ;;IS IT A CONTROL-U?
 (1)  014656  001005                            BNE     10$             ;;BRANCH IF NOT
 (1)  014660  104401  015272                    TYPE    ,$CNTLU         ;;YES, ECHO CONTROL-U (^U)
 (1)  014664  062706  000006            20$:    ADD     #6,SP           ;;IGNORE PREVIOUS INPUT
 (1)  014670  000757                            BR      19$             ;;LET'S TRY IT AGAIN
 (1)
 (1)
 (1)  014672  021627  000015            10$:    CMP     (SP),#15        ;;IS IT A <CR>?
 (1)  014676  001022                            BNE     16$             ;;BRANCH IF NO
 (1)  014700  005766  000004                    TST     4(SP)           ;;YES, IS IT THE FIRST CHAR?
 (1)  014704  001403                            BEQ     11$             ;;BRANCH IF YES
 (1)  014706  016677  000002  164124            MOV     2(SP),@SWR      ;;SAVE NEW SWR
 (1)  014714  062706  000006            11$:    ADD     #6,SP           ;;CLEAR UP STACK
 (1)  014720  104401  001075            14$:    TYPE    ,$CRLF          ;;ECHO <CR> AND <LF>
 (1)  014724  123727  001035  000001            CMPB    $INTAG,#1       ;;RE-ENABLE TTY KBD INTERRUPTS?
 (1)  014732  001003                            BNE     15$             ;;BRANCH IF NOT
 (1)  014734  012777  000100  164102            MOV     #100,@$TKS      ;;RE-ENABLE TTY KBD INTERRUPTS
 (1)  014742  000002                    15$:    RTI                     ;;RETURN
 (1)  014744  004737  013746            16$:    JSR     PC,$TYPEC       ;;ECHO CHAR
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(1)  014750  021627  000060          CMP     (SP),#60        ;;CHAR < 0?
(1)  014754  002420                  BLT     18$             ;;BRANCH IF YES
(1)  014756  021627  000067          CMP     (SP),#67        ;;CHAR > 7?
(1)  014762  003015                  BGT     18$             ;;BRANCH IF YES
(1)  014764  042726  000060          BIC     #60,(SP)+       ;;STRIP-OFF ASCII
(1)  014770  005766  000002          TST     2(SP)           ;;IS THIS THE FIRST CHAR
(1)  014774  001403                  BEQ     17$             ;;BRANCH IF YES
(1)  014776  006316                  ASL     (SP)            ;;NO, SHIFT PRESENT
(1)  015000  006316                  ASL     (SP)            ;;   CHAR OVER TO MAKE
(1)  015002  006316                  ASL     (SP)            ;;   ROOM FOR NEW ONE.
(1)  015004  005266  000002  17$:    INC     2(SP)           ;;KEEP COUNT OF CHAR
(1)  015010  056616  177776          BIS     -2(SP),(SP)     ;;SET IN NEW CHAR
(1)  015014  000707                  BR      7$              ;;GET THE NEXT ONE
(1)  015016  104401  001074  18$:    TYPE    ,$QUES          ;;TYPE ?<CR><LF>
(1)  015022  000720                  BR      20$             ;;SIMULATE CONTROL-U
(1)                          .DSABL  _SB
(1)
(1)
(2)                          ;;**********************************************************************
(1)                          ;*THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TTY
(1)                          ;*CALL:
(1)                          ;*      RDCHR                   ;;INPUT A SINGLE CHARACTER FROM THE TTY
(1)                          ;*      RETURN HERE             ;;CHARACTER IS ON THE STACK
(1)                          ;*                              ;;WITH PARITY BIT STRIPPED OFF
(1)                          ;*
(1)
(1)  015024  011646  $RDCHR: MOV     (SP),-(SP)      ;;PUSH DOWN THE PC
(1)  015026  016666  000004  000002  MOV     4(SP),2(SP)     ;;SAVE THE PS
(1)  015034  105777  164004  1$:     TSTB    @$TKS           ;;WAIT FOR
(1)  015040  100375                  BPL     1$              ;;A CHARACTER
(1)  015042  117766  164000  000004  MOVB    @$TKB,4(SP)     ;;READ THE TTY
(1)  015050  042766  177600  000004  BIC     #^C<177>,4(SP)  ;;GET RID OF JUNK IF ANY
(1)  015056  026627  000004  000023  CMP     4(SP),#23       ;;IS IT A CONTROL-S?
(1)  015064  001013                  BNE     3$              ;;BRANCH IF NO
(1)  015066  105777  163752  2$:     TSTB    @$TKS           ;;WAIT FOR A CHARACTER
(1)  015072  100375                  BPL     2$              ;;LOOP UNTIL ITS THERE
(1)  015074  117746  163746          MOVB    @$TKB,-(SP)     ;;GET CHARACTER
(1)  015100  042716  177600          BIC     #^C177,(SP)     ;;MAKE IT 7-BIT ASCII
(1)  015104  022627  000021          CMP     (SP)+,#21       ;;IS IT A CONTROL-Q?
(1)  015110  001366                  BNE     2$              ;;IF NOT DISCARD IT
(1)  015112  000750                  BR      1$              ;;YES, RESUME
(1)  015114  026627  000004  000021  3$:     CMP     4(SP),#$XON     ;;IS IT A RANDOM XON?           ;RAN001
(1)  015122  001744                  BEQ     1$              ;;BRANCH IF YES                 ;RAN001
(1)  015124  026627  000004  000140          CMP     4(SP),#140      ;;IS IT UPPER CASE?
(1)  015132  002407                  BLT     4$              ;;BRANCH IF YES
(1)  015134  026627  000004  000175          CMP     4(SP),#175      ;;IS IT A SPECIAL CHAR?
(1)  015142  003003                  BGT     4$              ;;BRANCH IF YES
(1)  015144  042766  000040  000004          BIC     #40,4(SP)       ;;MAKE IT UPPER CASE
(1)  015152  000002          4$:     RTI                     ;;GO BACK TO USER
(2)                          ;;**********************************************************************
(1)                          ;*THIS ROUTINE WILL INPUT A STRING FROM THE TTY
(1)                          ;*CALL:
(1)                          ;*      RDLIN                   ;;INPUT A STRING FROM THE TTY
(1)                          ;*      RETURN HERE             ;;ADDRESS OF FIRST CHARACTER WILL BE ON THE STACK
(1)                          ;*                              ;;TERMINATOR WILL BE A BYTE OF ALL 0'S
(1)
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```
(1)  015154  010346                    $RDLIN: MOV     R3,-(SP)        ;;SAVE R3
(1)  015156  012703  015262            1$:     MOV     #$TTYIN,R3      ;;GET ADDRESS
(1)  015162  022703  015272            2$:     CMP     #$TTYIN+8.,R3   ;;BUFFER FULL?
(1)  015166  101405                            BLOS    4$              ;;BR IF YES
(1)  015170  104410                            RDCHR                   ;;GO READ ONE CHARACTER FROM THE TTY
(1)  015172  112613                            MOVB    (SP)+,(R3)      ;;GET CHARACTER
(1)  015174  122713  000177            10$:    CMPB    #177,(R3)       ;;IS IT A RUBOUT
(1)  015200  001003                            BNE     3$              ;;SKIP IF NOT
(1)  015202  104401  001074            4$:     TYPE    ,$QUES          ;;TYPE A '?'
(1)  015206  000763                            BR      1$              ;;CLEAR THE BUFFER AND LOOP
(1)  015210  111337  015260            3$:     MOVB    (R3),9$         ;;ECHO THE CHARACTER
(1)  015214  104401  015260                    TYPE    ,9$
(1)  015220  122723  000015                    CMPB    #15,(R3)+       ;;CHECK FOR RETURN
(1)  015224  001356                            BNE     2$              ;;LOOP IF NOT RETURN
(1)  015226  105063  177777                    CLRB    -1(R3)          ;;CLEAR RETURN (THE 15)
(1)  015232  104401  001076                    TYPE    ,$LF            ;;TYPE A LINE FEED
(1)  015236  012603                            MOV     (SP)+,R3        ;;RESTORE R3
(1)  015240  011646                            MOV     (SP),-(SP)      ;;ADJUST THE STACK AND PUT ADDRESS OF THE
(1)  015242  016666  000004  000002            MOV     4(SP),2(SP)     ;;      FIRST ASCII CHARACTER ON IT
(1)  015250  012766  015262  000004            MOV     #$TTYIN,4(SP)
(1)  015256  000002                            RTI                     ;;RETURN
(1)  015260     000            9$:     .BYTE   0                       ;;STORAGE FOR ASCII CHAR. TO TYPE
(1)  015261     000                    .BYTE   0                       ;;TERMINATOR
(1)  015262  000010            $TTYIN: .BLKB   8.                      ;;RESERVE 8 BYTES FOR TTY INPUT
(1)  015272  052536  005015  000  $CNTLU: .ASCIZ  /^U/<15><12>          ;;CONTROL "U"
(1)  015277     136  006507  000012 $CNTLG: .ASCIZ  /^G/<15><12>       ;;CONTROL "G"
(1)  015304  005015  053523  020122 $MSWR:  .ASCIZ  <15><12>/SWR = /
(1)  015312  020075     000
(1)  015315     040  047040  053505 $MNEW:  .ASCIZ  /  NEW = /
(1)  015322  036440  000040

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                                        .SBTTL  TRAP DECODER

                                        ;;**********************************************************************
                                        ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
                                        ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
                                        ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
                                        ;*GO TO THAT ROUTINE.

015326  010046                  $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
015330  016600  000002                  MOV     2(SP),R0        ;;GET TRAP ADDRESS
015334  005740                          TST     -(R0)           ;;BACKUP BY 2
015336  111000                          MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
015340  006300                          ASL     R0              ;;POSITION FOR INDEXING
015342  016000  015362                  MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
015346  000200                          RTS     R0              ;;GO TO ROUTINE

                                        ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO

015350  011646                  $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
015352  016666  000004  000002          MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
015360  000002                          RTI                     ;;RESTORE THE PSW

                                        .SBTTL  TRAP TABLE

                                        ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
                                        ;*BY THE "TRAP" INSTRUCTION.

                                        ;       ROUTINE
                                        ;       -------
015362  015350                  $TRPAD: .WORD   $TRAP2
015364  013534                          $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
015366  014114                          $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
015370  014070                          $TYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
015372  014130                          $TYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
015374  014316                          $TYPDS  ;;CALL=TYPDS    TRAP+5(104405)  TYPE DECIMAL NUMBER (WITH SIGN)

015376  014612                          $GTSWR  ;;CALL=GTSWR    TRAP+6(104406)  GET SOFT-SWR SETTING

015400  014542                          $CKSWR  ;;CALL=CKSWR    TRAP+7(104407)  TEST FOR CHANGE IN SOFT-SWR
015402  015024                          $RDCHR  ;;CALL=RDCHR    TRAP+10(104410) TTY TYPEIN CHARACTER ROUTINE
015404  015154                          $RDLIN  ;;CALL=RDLIN    TRAP+11(104411) TTY TYPEIN STRING ROUTINE
```

```
                        .SBTTL  ECHO TEST
                    ;;**********************************************************************
                    ;*THIS ROUTINE WILL ECHO ANY CHARACTER TYPED
                    ;*ON EITHER SLU1 OR SLU2. DEFAULT IS TO THE CONSOLE DEVICE SLU1.
                    ;*THE TEST IS HALTED BY TYPING A CONTROL-C
                    ;*TEST CAN BE RESTARTED AFTER HALTING BY JUST CONTINUING
                    ;;**********************************************************************
015406 012737 000176 001040 ECHO:   MOV     #SWREG,SWR              ;SET UP FOR SOFTWARE SWITCH REGISTER
015414 012737 000174 001042         MOV     #DISPREG,DISPLAY        ;AND DISPLAY REGISTER
015422 032777 000020 163410         BIT     #BIT4, @SWR             ;CHECK IF BIT4 SET IN SWITCH REG
015430 001403                       BEQ     1$                      ;IF NOT THEN SELECT SLU1
015432 012703 002750                MOV     #RCSR, R3               ;IF BIT4 SET THEN SELECT SLU2
015436 000402                       BR      2$
015440 012703 002760        1$:     MOV     #CRCSR, R3              ;SELECT SLU1 (THIS IS DEFAULT DEVICE)
015444 000005               2$:     RESET                   ;CLEAR EVERYTHING
015446 112773 000052 000006         MOVB    #'*,@6(R3)      ;TRANSMIT PROMPT ''*''
015454 105773 000000        3$:     TSTB    @(R3)           ;WAIT FOR INPUT
015460 100375                       BPL     3$
015462 117373 000002 000006         MOVB    @2(R3),@6(R3)   ;ECHO INPUT
015470 017300 000002                MOV     @2(R3),R0       ;STORE INPUT
015474 100023                       BPL     6$              ;BR IF 'ERROR'NOT SET
015476 052701 010000                BIS     #BIT12,R1       ;SET PARITY ERROR TEST MASK
015502 030100                       BIT     R1,R0           ;CHECK  FOR PARITY ERROR FLAG
015504 001403                       BEQ     4$              ;BR IF NOT SET
015506 004737 015570                JSR     PC,MSG          ;REPORT PARITY ERROR
015512 015616                       MPAR
015514 006301               4$:     ASL     R1              ;SHIFT MASK TO TEST ''FR'' FLAG
015516 030100                       BIT     R1,R0           ;TEST FOR FRAMING ERROR FLAG
015520 001403                       BEQ     5$              ;BR IF NOT SET
015522 004737 015570                JSR     PC,MSG          ;REPSORT FRAMING ERROR
015526 015627                       MFR
015530 006301               5$:     ASL     R1              ;SHIFT MASK TO TEST ''OR'' FLAG
015532 030100                       BIT     R1,R0           ;TEST FOR OVERFLOW ERROR
015534 001403                       BEQ     6$              ;BR IF NOT SET
015536 004737 015570                JSR     PC,MSG          ;REPORT OVERFLOW ERROR
015542 015641                       MOR
015544 042700 000200        6$:     BIC     #BIT7,R0        ;CLEAR ANY PARITY BIT
015550 022700 000003                CMP     #3,R0           ;WAS INPUT CONTROL-C
015554 001337                       BNE     3$              ;BR IF IS NOT
015556 004737 015570                JSR     PC,MSG          ;REPORT PROGRAM STOP
015562 015654                       MSTOP
015564 000000                       HALT                    ;END OF TEST HALT
015566 000707                       BR      ECHO            ;AFTER END OF TEST HALT
                                                            ;   PRESS CONTINUE TO RESTART ECHO TEST

015570 013600               MSG:    MOV     @(SP)+,R0       ;PICK UP MESSAGE POINTER
015572 062746 000002                ADD     #2,-(SP)        ;ADJUST RETURN PC
015576 105773 000004        WAIT:   TSTB    @4(R3)          ;WAIT FOR XMIT DONE
015602 100375                       BPL     WAIT
015604 112073 000006                MOVB    (R0)+,@6(R3)    ;SEND CHARACTER
015610 105710                       TSTB    (R0)            ;IS THIS END OF MESSAGE?
015612 001371                       BNE     WAIT            ;BR IF NOT
015614 000207                       RTS     PC              ;RETURN

015616 005015 040520 044522 MPAR:   .ASCIZ  <CR><LF>/PARITY/
015624 054524      000
```

```
 2750  015627  015  043012  040522  MFR:   .ASCIZ  <CR><LF>/FRAMING/
       015634  044515  043516  000
 2751  015641  015  047412  042526  MOR:   .ASCIZ  <CR><LF>/OVERFLOW/
       015646  043122  047514  000127
 2752  015654  005015  052123  050117  MSTOP: .ASCIZ  <CR><LF>/STOP/
       015662  000
```

```
        015664                                .EVEN

                                   .SBTTL  TERMINAL OUTPUT TEST

                                   ;;*******************************************************************
                                          ;*THIS ROUTINE WILL OUTPUT ALL WRITABLE CHARACTERS FOR THE
                                          ;*THE OCTAL CODE 040 --> 377
                                          ;*32 CHARACTERS ARE PRINTED ON EACH LINE
                                          ;*THE PATTERN IS REPEATED EVERY THREE LINES
                                          ;*
                                   ;;*******************************************************************

015664  012737  000176  001040  OUTTST: MOV     #SWREG,SWR              ;SET UP FOR SOFTWARE SWITCH REGISTER
015672  012737  000174  001042          MOV     #DISPREG,DISPLAY        ;AND DISPLAY REGISTER
015700  032777  000020  163132          BIT     #BIT4, @SWR             ;CHECK IF BIT4 SET IN SWITCH REG
015706  001403                          BEQ     1$                      ;IF NOT THEN SELECT SLU1
015710  012703  002750                  MOV     #RCSR, R3               ;IF BIT4 SET THEN SELECT SLU2
015714  000402                          BR      2$
015716  012703  002760          1$:     MOV     #CRCSR, R3              ;SELECT SLU1 (THIS IS DEFAULT DEVICE)
015722  000005                  2$:     RESET                   ;CLEAR THE WORLD
015724  012701  000040          3$:     MOV     #40,R1          ;LOAD FIRST WRITABLE CHARACTER
015730  012700  000040          4$:     MOV     #40,R0          ;LOAD CHAR COUNT PER LINE
015734  105773  000004          5$:     TSTB    @4(R3)          ;WAIT FOR DONE
015740  100375                          BPL     5$
015742  010173  000006                  MOV     R1,@6(R3)       ;TRANSMIT A CHARACTER
015746  105201                          INCB    R1              ;INCREMENT CHARACTER CODE
015750  005300                          DEC     R0              ;DECREMENT CHAR COUNT
015752  001370                          BNE     5$              ;BR IF LINE NOT COMPLETF
015754  004737  015570                  JSR     PC,MSG          ;SSUE CR,LINE FEED

015760  001075                          $CRLF
015762  105773  000000                  TSTB    @(R3)           ;ANY CHARACTER RECEIVED?
015766  100404                          BMI     6$              ;BR IF YES
015770  032701  000200                  BIT     #BIT7,R1        ;FINISHED ONE PASS OF WRITABLE CHARACTERS?
015774  001353                          BNE     3$              ;BR IF YES
015776  000754                          BR      4$              ;IF NOT WRITE NEXT LINE

016000  005073  000002          6$:     CLR     @2(R3)          ;CLEAR RECEIVER
016004  000000                          HALT                    ;STOP TEST
016006  000726                          BR      OUTTST          ;RESTART TEST IF CONTINUED
```

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2797
2798
2799  016010 046123 030525 052040  EM5:    .ASCIZ  /SLU1 TCSR DONE NOT SET WITH RESET/
      016016 051503 020122 047504
      016024 042516 047040 052117
      016032 051440 052105 053440
      016040 052111 020110 042522
      016046 042523 000124
2800  016052 046123 030525 051040  EM6:    .ASCIZ  /SLU1 RCSR DID NOT RETURN SSYNC/
      016060 051503 020122 044504
      016066 020104 047516 020124
      016074 042522 052524 047122
      016102 051440 054523 041516
      016110    000
2801  016111    123 052514 020061  EM7:    .ASCIZ  /SLU1 RBUF DID NOT RETURN SSYNC/
      016116 041122 043125 042040
      016124 042111 047040 052117
      016132 051040 052105 051125
      016140 020116 051523 047131
      016146 000103
2802  016150 040503 020116 047516  EM11:   .ASCIZ  /CAN NOT SET BIT2 OF SLU1 TCSR/
      016156 020124 042523 020124
      016164 044502 031124 047440
      016172 020106 046123 030525
      016200 052040 051503 000122
2803  016206 042522 042523 020124  EM13:   .ASCIZ  /RESET DID NOT CLEAR BIT2 OF SLU1 TCSR/
      016214 044504 020104 047516
      016222 020124 046103 040505
      016230 020122 044502 031124
      016236 047440 020106 046123
      016244 030525 052040 051503
      016252 000122
2804  016254 044502 033124 047440  EM14:   .ASCIZ  /BIT6 OF SLU1 TCSR NOT CLEAR AFTER RESET/
      016262 020106 046123 030525
      016270 052040 051503 020122
      016276 047516 020124 046103
      016304 040505 020122 043101
      016312 042524 020122 042522
      016320 042523 000124
2805  016324 046123 030525 054040  EM15:   .ASCIZ  /SLU1 XMIT INTERRUPTED WITH PRIORITY 7/
      016332 044515 020124 047111
      016340 042524 051122 050125
      016346 042524 020104 044527
      016354 044124 050040 044522
      016362 051117 052111 020131
      016370 000067
2806  016372 040503 020116 047516  EM16:   .ASCIZ  /CAN NOT SET BIT6 OF SLU1 TCSR/
      016400 020124 042523 020124
      016406 044502 033124 047440
      016414 020106 046123 030525
      016422 052040 051503 000122
2807  016430 040503 020116 047516  EM17:   .ASCIZ  /CAN NOT CLEAR BIT6 OF SLU1 TCSR/
      016436 020124 046103 040505
      016444 020122 044502 033124
      016452 047440 020106 046123
      016460 030525 052040 051503
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                016466  000122
2808            016470  042522  042523  020124  EM20:   .ASCIZ  /RESET DID NOT CLEAR BIT6 OF SLU1 TCSR/
                016476  044504  020104  047516
                016504  020124  046103  040505
                016512  020122  044502  033124
                016520  047440  020106  046123
                016526  030525  052040  051503
                016534  000122
2809            016536  044502  033124  047440  EM21:   .ASCIZ  /BIT6 OF SLU1 RCSR NOT CLEAR AFTER RESET/
                016544  020106  046123  030525
                016552  051040  051503  020122
                016560  047516  020124  046103
                016566  040505  020122  043101
                016574  042524  020122  042522
                016602  042523  000124
2810            016606  046123  030525  051040  EM22:   .ASCIZ  /SLU1 RCVR INTERRUPT WITH PRIORITY 7/
                016614  053103  020122  047111
                016622  042524  051122  050125
                016630  020124  044527  044124
                016636  050040  044522  051117
                016644  052111  020131  000067
2811            016652  040503  020116  047516  EM23:   .ASCIZ  /CAN NOT SET BIT6 OF SLU1 RCSR/
                016660  020124  042523  020124
                016666  044502  033124  047440
                016674  020106  046123  030525
                016702  051040  051503  000122
2812            016710  040503  020116  047516  EM24:   .ASCIZ  /CAN NOT CLEAR BIT6 OF SLU1 RCSR/
                016716  020124  046103  040505
                016724  020122  044502  033124
                016732  047440  020106  046123
                016740  030525  051040  051503
                016746  000122
2813            016750  040503  020116  047516  EM25:   .ASCIZ  /CAN NOT CLEAR BIT6 OF SLU1 RCSR WITH RESET/
                016756  020124  046103  040505
                016764  020122  044502  033124
                016772  047440  020106  046123
                017000  030525  051040  051503
                017006  020122  044527  044124
                017014  051040  051505  052105
                017022     000
2814            017023     123  052514  020061  EM26:   .ASCIZ  /SLU1 RECEIVER DONE NEVER SET/
                017030  042522  042503  053111
                017036  051105  042040  047117
                017044  020105  042516  042526
                017052  020122  042523  000124
2815            017060  042522  042523  020124  EM27:   .ASCIZ  /RESET DID NOT CLEAR SLU1 RCVR DONE/
                017066  044504  020104  047516
                017074  020124  046103  040505
                017102  020122  046123  030525
                017110  051040  053103  020122
                017116  047504  042516     000
2816            017123     122  040505  044504  EM30:   .ASCIZ  /READING SLU1 RBUF DID NOT CLEAR RCVR DONE/
                017130  043516  051440  052514
                017136  020061  041122  043125
                017144  042040  042111  047040
                017152  052117  041440  042514
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                017160  051101  051040  053103
                017166  020122  047504  042516
                017174     000
2817            017175     123  052514  020062  EM31:   .ASCIZ  /SLU2 TCSR DID NOT RETURN SSYNC/
                017202  041524  051123  042040
                017210  042111  047040  052117
                017216  051040  052105  051125
                017224  020116  051523  047131
                017232  000103
2818            017234  046123  031125  052040  EM32:   .ASCIZ  /SLU2 TBUF DID NOT RETURN SSYNC/
                017242  052502  020106  044504
                017250  020104  047516  020124
                017256  042522  052524  047122
                017264  051440  054523  041516
                017272     000
2819            017273     123  052514  020062  EM33:   .ASCIZ  /SLU2 TCSR DONE NOT CLEARED WITH TBUF FULL/
                017300  041524  051123  042040
                017306  047117  020105  047516
                017314  020124  046103  040505
                017322  042522  020104  044527
                017330  044124  052040  052502
                017336  020106  05250^  046114
                017344     000
2820            017345     123  052514  020062  EM34:   .ASCIZ  /SLU2 TCSR DONE NOT SET AFTER TRANSMIT/
                017352  041524  051123  042040
                017360  047117  020105  047516
                017366  020124  042523  020124
                017374  043101  042524  020122
                017402  051124  047101  046523
                017410  052111     000
2821            017413     123  052514  020062  EM35:   .ASCIZ  /SLU2 TCSR DONE NOT SET WITH RESET/
                017420  041524  051123  042040
                017426  047117  020105  047516
                017434  020124  042523  020124
                017442  044527  044124  051040
                017450  051505  052105     000
2822            017455     123  052514  020062  EM36:   .ASCIZ  /SLU2 RCSR DID NOT RETURN SSYNC/
                017462  041522  051123  042040
                017470  042111  047040  052117
                017476  051040  052105  051125
                017504  020116  051523  047131
                017512  000103
2823            017514  046123  031125  051040  EM37:   .ASCIZ  /SLU2 RBUF DID NOT RETURN SSYNC/
                017522  052502  020106  044504
                017530  020104  047516  020124
                017536  042522  052524  047122
                017544  051440  054523  041516
                017552     000
2824            017553     102  052111  020060  EM40:   .ASCIZ  /BIT0 OF SLU2 TCSR NOT CLEAR AFTER RESET/
                017560  043117  051440  052514
                017566  020062  041524  051123
                017574  047040  052117  041440
                017602  042514  051101  040440
                017610  052106  051105  051040
                017616  051505  052105     000
2825            017623     103  047101  047040  EM41:   .ASCIZ  /CAN NOT SET BIT0 OF SLU2 TCSR/
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                017630  052117  051440  052105
                017636  041040  052111  020060
                017644  043117  051440  052514
                017652  020062  041524  051123
                017660     000
2826            017661     103  047101  047040  EM42:   .ASCIZ  /CAN NOT CLEAR BIT0 OF SLU2 TCSR/
                017666  052117  041440  042514
                017674  051101  041040  052111
                017702  020060  043117  051440
                017710  052514  020062  041524
                017716  051123     000
2827            017721     122  051505  052105  EM43:   .ASCIZ  /RESET DID NOT CLEAR BIT0 OF SLU2 TCSR/
                017726  042040  042111  047040
                017734  052117  041440  042514
                017742  051101  041040  052111
                017750  020060  043117  051440
                017756  052514  020062  041524
                017764  051123     000
2828            017767     102  052111  020066  EM44:   .ASCIZ  /BIT6 OF SLU2 TCSR NOT CLEAR AFTER RESET/
                017774  043117  051440  052514
                020002  020062  041524  051123
                020010  047040  052117  041440
                020016  042514  051101  040440
                020024  052106  051105  051040
                020032  051505  052105     000
2829            020037     123  052514  020062  EM45:   .ASCIZ  /SLU2 XMIT INTERRUPTED WITH PRIORITY 7/
                020044  046530  052111  044440
                020052  052116  051105  052522
                020060  052120  042105  053440
                020066  052111  020110  051120
                020074  047511  044522  054524
                020102  033440     000
2830            020105     103  047101  047040  EM46:   .ASCIZ  /CAN NOT SET BIT6 OF SLU2 TCSR/
                020112  052117  051440  052105
                020120  041040  052111  020066
                020126  043117  051440  052514
                020134  020062  041524  051123
                020142     000
2831            020143     103  047101  047040  EM47:   .ASCIZ  /CAN NOT CLEAR BIT6 OF SLU2 TCSR/
                020150  052117  041440  042514
                020156  051101  041040  052111
                020164  020066  043117  051440
                020172  052514  020062  041524
                020200  051123     000
2832            020203     122  051505  052105  EM50:   .ASCIZ  /RESET DID NOT CLEAR BIT6 OF SLU2 TCSR/
                020210  042040  042111  047040
                020216  052117  041440  042514
                020224  051101  041040  052111
                020232  020066  043117  051440
                020240  052514  020062  041524
                020246  051123     000
2833            020251     102  052111  020066  EM51:   .ASCIZ  /BIT6 OF SLU2 RCSR NOT CLEAR AFTER RESET/
                020256  043117  051440  052514
                020264  020062  041522  051123
                020272  047040  052117  041440
                020300  042514  051101  040440
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                020306  052106  051105  051040
                020314  051505  052105     000
2834            020321     123  052514  020062  EM52:   .ASCIZ  /SLU2 RCVR INTERRUPT WITH PRIORITY 7/
                020326  041522  051126  044440
                020334  052116  051105  052522
                020342  052120  053440  052111
                020350  020110  051120  047511
                020356  044522  054524  033440
                020364     000
2835            020365     103  047101  047040  EM53:   .ASCIZ  /CAN NOT SET BIT6 OF SLU2 RCSR/
                020372  052117  051440  052105
                020400  041040  052111  020066
                020406  043117  051440  052514
                020414  020062  041522  051123
                020422     000
2836            020423     103  047101  047040  EM54:   .ASCIZ  /CAN NOT CLEAR BIT6 OF SLU2 RCSR/
                020430  052117  041440  042514
                020436  051101  041040  052111
                020444  020066  043117  051440
                020452  052514  020062  041522
                020460  051123     000
2837            020463     103  047101  047040  EM55:   .ASCIZ  /CAN NOT CLEAR BIT6 OF SLU2 RCSR WITH RESET/
                020470  052117  041440  042514
                020476  051101  041040  052111
                020504  020066  043117  051440
                020512  052514  020062  041522
                020520  051123  053440  052111
                020526  020110  042522  042523
                020534  000124
2838            020536  046123  031125  051040  EM56:   .ASCIZ  /SLU2 RECEIVER DONE NEVER SET/
                020544  041505  044505  042526
                020552  020122  047504  042516
                020560  047040  053105  051105
                020566  051440  052105     000
2839            020573     122  051505  052105  EM57:   .ASCIZ  /RESET DID NOT CLEAR SLU2 RCVR DONE/
                020600  042040  042111  047040
                020606  052117  041440  042514
                020614  051101  051440  052514
                020622  020062  041522  051126
                020630  042040  047117  000105
2840            020636  042522  042101  047111  EM60:   .ASCIZ  /READING SLU2 RBUF DID NOT CLEAR RCVR DONE/
                020644  020107  046123  031125
                020652  051040  052502  020106
                020660  044504  020104  047516
                020666  020124  046103  040505
                020674  020122  041522  051126
                020702  042040  047117  000105
2841            020710  045514  020123  044504  EM61:   .ASCIZ  /LKS DID NOT RETURN SSYNC/
                020716  020104  047516  020124
                020724  042522  052524  047122
                020732  051440  054523  041516
                020740     000
2842            020741     102  052111  020066  EM62:   .ASCIZ  /BIT6 OF LKS NOT CLEAR AFTER RESET/
                020746  043117  046040  051513
                020754  047040  052117  041440
                020762  042514  051101  040440
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                020770  052106  051105  051040
                020776  051505  052105     000
2843            021003     114  051513  044440  EM63:   .ASCIZ  /'KS INTERRUPT WITH PRIORITY 7/
                021010  052116  051105  052522
                021016  052120  053440  052111
                021024  020110  051120  047511
                021032  044522  054524  033440
                021040     000
2844            021041     103  047101  047040  EM64:   .ASCIZ  /CAN NOT SET BIT6 OF LKS/
                021046  052117  051440  052105
                021054  041040  052111  020066
                021062  043117  046040  051513
                021070     000
2845            021071     103  047101  047040  EM65:   .ASCIZ  /CAN NOT CLEAR BIT6 OF LKS/
                021076  052117  041440  042514
                021104  051101  041040  052111
                021112  020066  043117  046040
                021120  051513     000
2846            021123     122  051505  052105  EM66:   .ASCIZ  /RESET DID NOT CLEAR BIT6 OF LKS/
                021130  042040  042111  047040
                021136  052117  041440  042514
                021144  051101  041040  052111
                021152  020066  043117  046040
                021160  051513     000
2847            021163     102  052111  020067  EM67:   .ASCIZ  /BIT7 OF LKS NOT SET AFTER RESET/
                021170  043117  046040  051513
                021176  047040  052117  051440
                021204  052105  040440  052106
                021212  051105  051040  051505
                021220  052105     000
2848            021223     103  047101  047040  EM70:   .ASCIZ  /CAN NOT CLEAR BIT7 OF LKS/
                021230  052117  041440  042514
                021236  051101  041040  052111
                021244  020067  043117  046040
                021252  051513     000
2849            021255     102  052111  020067  EM71:   .ASCIZ  /BIT7 OF LKS DOES NOT SET/
                021262  043117  046040  051513
                021270  042040  042517  020123
                021276  047516  020124  042523
                021304  000124
2850            021306  051127  052111  047111  EM72:   .ASCIZ  /WRITING TO ONE INTERNAL ADDRESS MODIFIED ANOTHER/
                021314  020107  047524  047440
                021322  042516  044440  052116
                021330  051105  040516  020114
                021336  042101  051104  051505
                021344  020123  047515  044504
                021352  044506  042105  040440
                021360  047516  044124  051105
                021366     000
2851            021367     123  052514  020061  EM74:   .ASCIZ  /SLU1 XMIT INTERRUPTS WHEN DISABLED/
                021374  046530  052111  044440
                021402  052116  051105  052522
                021410  052120  020123  044127
                021416  047105  042040  051511
                021424  041101  042514  000104
2852            021432  046123  030525  054040  EM75:   .ASCIZ  /SLU1 XMIT DID NOT INTERRUPT/
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                021440  044515  020124  044504
                021446  020104  047516  020124
                021454  047111  042524  051122
                021462  050125  000124
2853            021466  046123  030525  054040  EM76:   .ASCIZ  /SLU1 XMIT INTERRUPT AT PRIORITY 7/
                021474  044515  020124  047111
                021502  042524  051122  050125
                021510  020124  052101  050040
                021516  044522  051117  052111
                021524  020131  000067
2854            021530  046123  030525  054040  EM77:   .ASCIZ  /SLU1 XMIT INTERRUPTS WITH ENABLE CLEAR/
                021536  044515  020124  047111
                021544  042524  051122  050125
                021552  051524  053440  052111
                021560  020110  047105  041101
                021566  042514  041440  042514
                021574  051101     000
2855            021577     123  052514  020061  EM100:  .ASCIZ  /SLU1 XMIT DID NOT INTERRUPT/
                021604  046530  052111  042040
                021612  042111  047040  052117
                021620  044440  052116  051105
                021626  052522  052120     000
2856            021633     123  052514  020061  EM101:  .ASCIZ  /SLU1 XMIT RE-INTERRUPTED/
                021640  046530  052111  051040
                021646  026505  047111  042524
                021654  051122  050125  042524
                021662  000104
2857            021664  047514  042101  047111  EM102:  .ASCIZ  /LOADING SLU1 TBUF DID NOT CLEAR INTERRUPT/
                021672  020107  046123  030525
                021700  052040  052502  020106
                021706  044504  020104  047516
                021714  020124  046103  040505
                021722  020122  047111  042524
                021730  051122  050125  000124
2858            021736  046123  030525  051040  EM103:  .ASCIZ  /SLU1 RCVR INTERRUPTS WITH ENABLE CLEAR/
                021744  053103  020122  047111
                021752  042524  051122  050125
                021760  051524  053440  052111
                021766  020110  047105  041101
                021774  042514  041440  042514
                022002  051101     000
2859            022005     123  052514  020061  EM104:  .ASCIZ  /SLU1 RCVR DID NOT INTERRUPT/
                022012  041522  051126  042040
                022020  042111  047040  052117
                022026  044440  052116  051105
                022034  052522  052120     000
2860            022041     123  052514  020061  EM105:  .ASCIZ  /SLU1 RCVR INTERRUPTS AT PRIORITY 7/
                022046  041522  051126  044440
                022054  052116  051105  052522
                022062  052120  020123  052101
                022070  050040  044522  051117
                022076  052111  020131  000067
2861            022104  046123  030525  051040  EM106:  .ASCIZ  /SLU1 RCVR INTERRUPTS WITH INTERRUPT ENABLE CLEAR/
                022112  053103  020122  047111
                022120  042524  051122  050125
                022126  051524  053440  052111
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                022134  020110  047111  042524
                022142  051122  050125  020124
                022150  047105  041101  042514
                022156  041440  042514  051101
                022164     000
2862            022165     123  052514  020061  EM107:  .ASCIZ  /SLU1 RCVR DID NOT INTERRUPT/
                022172  041522  051126  042040
                022200  042111  047040  052117
                022206  044440  052116  051105
                022214  052522  052120     000
2863            022221     123  052514  020061  EM110:  .ASCIZ  /SLU1 RECEIVER RE-INTERRUPTED/
                022226  042522  042503  053111
                022234  051105  051040  026505
                022242  047111  042524  051122
                022250  050125  042524  000104
2864            022256  046123  030525  051040  EM111:  .ASCIZ  /SLU1 READING RBUF DID NOT CLEAR INTERRUPT/
                022264  040505  044504  043516
                022272  051040  052502  020106
                022300  044504  020104  047516
                022306  020124  046103  040505
                022314  020122  047111  042524
                022322  051122  050125  000124
2865            022330  042522  042523  020124  EM112:  .ASCIZ  /RESET DID NOT CLEAR SLU1 RCVR INTERRUPT/
                022336  044504  020104  047516
                022344  020124  046103  040505
                022352  020122  046123  030525
                022360  051040  053103  020122
                022366  047111  042524  051122
                022374  050125  000124
2866            022400  046123  030525  023440  EM113:  .ASCIZ  /SLU1 'OR' FLAG DID NOT SET/
                022406  051117  020047  046106
                022414  043501  042040  042111
                022422  047040  052117  051440
                022430  052105     000
2867            022433     123  052514  020061  EM114:  .ASCIZ  /SLU1 'ERROR' NOT SET WITH 'OR' FLAG/
                022440  042447  051122  051117
                022446  020047  047516  020124
                022454  042523  020124  044527
                022462  044124  023440  051117
                022470  020047  046106  043501
                022476     000
2868            022477     104  052101  020101  EM115:  .ASCIZ  /DATA COMPARE ERROR/
                022504  047503  050115  051101
                022512  020105  051105  047522
                022520  000122
2869            022522  046123  031125  054040  EM116:  .ASCIZ  /SLU2 XMIT INTERRUPTS WHEN DISABLED/
                022530  044515  020124  047111
                022536  042524  051122  050125
                022544  051524  053440  042510
                022552  020116  044504  040523
                022560  046102  042105     000
2870            022565     123  052514  020062  EM117:  .ASCIZ  /SLU2 XMIT DID NOT INTERRUPT/
                022572  046530  052111  042040
                022600  042111  047040  052117
                022606  044440  052116  051105
                022614  052522  052120     000
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2871 022621    123 052514 020062  EM120:  .ASCIZ  /SLU2 XMIT INTERRUPT AT PRIORITY 7/
     022626 046530 052111 044440
     022634 052116 051105 052522
     022642 052120 040440 020124
     022650 051120 047511 044522
     022656 054524 033440    000
2872 022663    123 052514 020062  EM121:  .ASCIZ  /SLU2 XMIT INTERRUPTS WITH ENABLE CLEAR/
     022670 046530 052111 044440
     022676 052116 051105 052522
     022704 052120 020123 044527
     022712 044124 042440 040516
     022720 046102 020105 046103
     022726 040505 000122
2873 022732 046123 031125 054040  EM122:  .ASCIZ  /SLU2 XMIT DID NOT INTERRUPT/
     022740 044515 020124 044504
     022746 020104 047516 020124
     022754 047111 042524 051122
     022762 050125 000124
2874 022766 046123 031125 054040  EM123:  .ASCIZ  /SLU2 XMIT RE-INTERRUPTED/
     022774 044515 020124 042522
     023002 044455 052116 051105
     023010 052522 052120 042105
     023016    000
2875 023017    114 040517 044504  EM124:  .ASCIZ  /LOADING SLU2 TBUF DID NOT CLEAR INTERRUPT/
     023024 043516 051440 052514
     023032 020062 041124 043125
     023040 042040 042111 047040
     023046 052117 041440 042514
     023054 051101 044440 052116
     023062 051105 052522 052120
     023070    000
2876 023071    123 052514 020062  EM125:  .ASCIZ  /SLU2 RCVR INTERRUPTS WITH ENABLE CLEAR/
     023076 041522 051126 044440
     023104 052116 051105 052522
     023112 052120 020123 044527
     023120 044124 042440 040516
     023126 046102 020105 046103
     023134 040505 000122
2877 023140 046123 031125 051040  EM126:  .ASCIZ  /SLU2 RCVR DID NOT INTERRUPT/
     023146 053103 020122 044504
     023154 020104 047516 020124
     023162 047111 042524 051122
     023170 050125 000124
2878 023174 046123 031125 051040  EM127:  .ASCIZ  /SLU2 RCVR INTERRUPTS AT PRIORITY 7/
     023202 053103 020122 047111
     023210 042524 051122 050125
     023216 051524 040440 020124
     023224 051120 047511 044522
     023232 054524 033440    000
2879 023237    123 052514 020062  EM130:  .ASCIZ  /SLU2 RCVR INTERRUPTS WITH INTERRUPT ENABLE CLEAR/
     023244 041522 051126 044440
     023252 052116 051105 052522
     023260 052120 020123 044527
     023266 044124 044440 052116
     023274 051105 052522 052120
     023302 042440 040516 046102
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                023310  020105  046103  040505
                023316  000122
2880            023320  046123  031125  051040  EM131:  .ASCIZ  /SLU2 RCVR DID NOT INTERRUPT/
                023326  053103  020122  044504
                023334  020104  047516  020124
                023342  047111  042524  051122
                023350  050125  000124
2881            023354  046123  031125  051040  EM132:  .ASCIZ  /SLU2 RECEIVER RE-INTERRUPTED/
                023362  041505  044505  042526
                023370  020122  042522  044455
                023376  052116  051105  052522
                023404  052120  042105     000
2882            023411     123  052514  020062  EM133:  .ASCIZ  /SLU2 READING RBUF DID NOT CLEAR INTERRUPT/
                023416  042522  042101  047111
                023424  020107  041122  043125
                023432  042040  042111  047040
                023440  052117  041440  042514
                023446  051101  044440  052116
                023454  051105  052522  052120
                023462     000
2883            023463     122  051505  052105  EM134:  .ASCIZ  /RESET DID NOT CLEAR SLU2 RCVR INTERRUPT/
                023470  042040  042111  047040
                023476  052117  041440  042514
                023504  051101  051440  052514
                023512  020062  041522  051126
                023520  044440  052116  051105
                023526  052522  052120     000
2884            023533     123  052514  020062  EM135:  .ASCIZ  /SLU2 'OR' FLAG DID NOT SET/
                023540  047447  023522  043040
                023546  040514  020107  044504
                023554  020104  047516  020124
                023562  042523  000124
2885            023566  046123  031125  023440  EM136:  .ASCIZ  /SLU2 'ERROR' NOT SET WITH 'OR' FLAG/
                023574  051105  047522  023522
                023602  047040  052117  051440
                023610  052105  053440  052111
                023616  020110  047447  023522
                023624  043040  040514  000107
2886            023632  046123  031125  041040  EM137:  .ASCIZ  /SLU2 BREAK DID NOT TRANSMIT ALL ZEROES/
                023640  042522  045501  042040
                023646  042111  047040  052117
                023654  052040  040522  051516
                023662  044515  020124  046101
                023670  020114  042532  047522
                023676  051505     000
2887            023701     102  042522  045501  EM140:  .ASCIZ  /BREAK DID NOT SET FRAMING ERROR/
                023706  042040  042111  047040
                023714  052117  051440  052105
                023722  043040  040522  044515
                023730  043516  042440  051122
                023736  051117     000
2888            023741     123  052514  020062  EM141:  .ASCIZ  /SLU2 'ERROR' NOT SET WITH 'FR' FLAG/
                023746  042447  051122  051117
                023754  020047  047516  020124
                023762  042523  020124  044527
                023770  044124  023440  051106
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                023776  020047  046106  043501
                024004     000
2889            024005     104  052101  020101  EM142:  .ASCIZ  /DATA COMPARE ERROR WITH CABLE/
                024012  047503  050115  051101
                024020  020105  051105  047522
                024026  020122  044527  044124
                024034  041440  041101  042514
                024042     000
2890            024043     122  041524  044440  EM143:  .ASCIZ  /RTC INTERRUPT AT PRIORITY 7/
                024050  052116  051105  052522
                024056  052120  040440  020124
                024064  051120  047511  044522
                024072  054524  033440     000
2891            024077     122  041524  044440  EM144:  .ASCIZ  /RTC INTERRUPTS WHEN DISABLED/
                024104  052116  051105  052522
                024112  052120  020123  044127
                024120  047105  042040  051511
                024126  041101  042514  000104
2892            024134  052122  020103  047111  EM145:  .ASCIZ  /RTC INTERRUPT DID NOT OCCUR/
                024142  042524  051122  050125
                024150  020124  044504  020104
                024156  047516  020124  041517
                024164  052503  000122
2893            024170  052122  020103  047111  EM146:  .ASCIZ  /RTC INTERRUPT DID NOT OCCUR/
                024176  042524  051122  050125
                024204  020124  044504  020104
                024212  047516  020124  041517
                024220  052503  000122
2894            024224  052122  020103  047504  EM147:  .ASCIZ  /RTC DOUBLE INTERRUPT/
                024232  041125  042514  044440
                024240  052116  051105  052522
                024246  052120     000
2895            024251     122  051505  052105  EM150:  .ASCIZ  /RESET DID NOT CLEAR RTC INTERRUPT/
                024256  042040  042111  047040
                024264  052117  041440  042514
                024272  051101  051040  041524
                024300  044440  052116  051105
                024306  052522  052120     000
2896            024313     122  041524  044440  EM151:  .ASCIZ  /RTC INTERRUPT DID NOT CLEAR WITH BIT7 OF LKS/
                024320  052116  051105  052522
                024326  052120  042040  042111
                024334  047040  052117  041440
                024342  042514  051101  053440
                024350  052111  020110  044502
                024356  033524  047440  020106
                024364  045514  000123
2897            024370  046103  041517  020113  EM152:  .ASCIZ  /CLOCK REPEATABILITY ERROR/
                024376  042522  042520  052101
                024404  041101  046111  052111
                024412  020131  051105  047522
                024420  000122
2898            024422  046123  030525  051040  EM153:  .ASCIZ  /SLU1 RECEIVER STATUS ERROR/
                024430  041505  044505  042526
                024436  020122  052123  052101
                024444  051525  042440  051122
                024452  051117     000
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2899  024455  024462  024470  024476  024504      123  042522  051105  052524  047522  052514  042503  051440  020123  000122  020062  053111  040524  051105  EM154:  .ASCIZ  /SLU2 RECEIVER STATUS ERROR/
2900  024510  024516  024524  024532  024540      047111  041505  042503  047503  053111  047503  020124  020105  047125  030525  051122  042522  020124  000  EM155:  .ASCIZ  /INCORRECT RECEIVE COUNT SLU1/
2901  024545  024552  024560  024566  024574  024602  024610      123  040504  046517  042440  044440  051105  000122  052514  040524  040520  051122  020116  044503  020061  041440  042522  051117  054105  042523  EM156:  .ASCIZ  /SLU1 DATA COMPARE ERROR IN EXERCISER/
2902  024612  024620  024626  024634  024642      047111  041505  042503  047503  046123  047503  020124  053111  047125  031125  051122  042522  020105  020124  000  EM157:  .ASCIZ  /INCORRECT RECEIVE COUNT SLU2/
2903  024647  024654  024662  024670  024676  024704  024712      123  040504  046517  042440  044440  051105  000122  052514  040524  040520  051122  020116  044503  020062  041440  042522  051117  054105  042523  EM160:  .ASCIZ  /SLU2 DATA COMPARE ERROR IN EXERCISER/
2904  024714  024722  024730      051124  052101  000  050101  044103  041440  051105  EM161:  .ASCIZ  /TRAP CATCHER/
2905
2906  024731  024736  024744  024752      124  020040  050040  051503  051505  042440  020103  000122  021524  051122  052040  DH5:  .ASCIZ  /TEST#  ERR PC  TCSR/
2907  024756  024764  024772  025000      042524  020040  041520  051123  052123  051105  020040  000  020043  020122  041522  DH6:  .ASCIZ  /TEST#  ERR PC  RCSR/
2908  025003  025010  025016  025024      124  020040  050040  052502  051505  042440  020103  000106  021524  051122  051040  DH7:  .ASCIZ  /TEST#  ERR PC  RBUF/
2909  025030  025036  025044  025052      042524  020040  041520  043125  052123  051105  020040  000  020043  020122  041124  DH32:  .ASCIZ  /TEST#  ERR PC  TBUF/
2910  025055  025062  025070  025076      124  020040  050040  051513  051505  042440  020103  000  021524  051122  046040  DH61:  .ASCIZ  /TEST#  ERR PC  LKS/
2911  025101  025106  025114      124  020040  050040  051505  042440  020103  021524  051122  043440  DH72:  .ASCIZ  /TEST#  ERR PC  GDADR  BDADR  GDDAT  BDDAT/
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                025122  040504  051104  020040
                025130  041040  040504  051104
                025136  020040  043440  042104
                025144  052101  020040  041040
                025152  042104  052101    000
2912            025157    124   051505  021524  DH115:  .ASCIZ  /TEST#   ERR PC  RCSR    GOOD    BAD/
                025164  020040  042440  051122
                025172  050040  020103  051040
                025200  051503  020122  020040
                025206  043440  047517  020104
                025214  020040  041040  042101
                025222    000
2913            025223    124   051505  021524  DH137:  .ASCIZ  /TEST#   ERR PC  RCSR    DATA/
                025230  020040  042440  051122
                025236  050040  020103  051040
                025244  051503  020122  020040
                025252  042040  052101  000101
2914            025260  042524  052123  020043  DH142:  .ASCIZ  /TEST#   ERR PC  GOOD    BAD/
                025266  020040  051105  020122
                025274  041520  020040  047507
                025302  042117  020040  020040
                025310  040502  000104
2915            025314  042524  052123  020043  DH152:  .ASCIZ  /TEST#   ERR PC  LKS     CNT1    CNT2/
                025322  020040  051105  020122
                025330  041520  020040  045514
                025336  020123  020040  020040
                025344  047103  030524  020040
                025352  020040  047103  031124
                025360    000
2916            025361    124   051505  021524  DH155:  .ASCIZ  /TEST#   ERR PC  RCSR    TRANS   RCV/
                025366  020040  042440  051122
                025374  050040  020103  051040
                025402  051503  020122  020040
                025410  052040  040522  051516
                025416  020040  051040  053103
                025424    000
2917            025425    124   051505  021524  DH161:  .ASCIZ  /TEST#   ERR PC  RCSR    OLDPC   TRAP ADR/
                025432  020040  042440  051122
                025440  050040  020103  051040
                025446  051503  020122  020040
                025454  047440  042114  041520
                025462  020040  052040  040522
                025470  020120  042101  000122
2918            025476  005015  045103  042113  M1:     .ASCIZ  <CR><LF>/CJKDI-A/
                025504  026511  000101
2919            025510    200                   M2:     .ASCII  <CRLF>
2920
2921                    025512                          .EVEN
2922            025512  001104  001016  002764  DT5:    .WORD   $TESTN,$ERRPC,CTCSR,0
                025520  000000
2923            025522  001104  001016  002760  DT6:    .WORD   $TESTN,$ERRPC,CRCSR,0
                025530  000000
2924            025532  001104  001016  002762  DT7:    .WORD   $TESTN,$ERRPC,CRBUF,0
                025540  000000
2925            025542  001104  001016  002754  DT31:   .WORD   $TESTN,$ERRPC,TCSR,0
                025550  000000
```

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2926  025552 001104 001016 002756 DT32:   .WORD   $TESTN,$ERRPC,TBUF,0
      025560 000000
2927  025562 001104 001016 002750 DT36:   .WORD   $TESTN,$ERRPC,RCSR,0
      025570 000000
2928  025572 001104 001016 002752 DT37:   .WORD   $TESTN,$ERRPC,RBUF,0
      025600 000000
2929  025602 001104 001016 002770 DT61:   .WORD   $TESTN,$ERRPC,LKS,0
      025610 000000
2930  025612 001104 001016 001020 DT72:   .WORD   $TESTN,$ERRPC,$GDADR,$BDADR,$GDDAT,$BDDAT,0
      025620 001022 001024 001026
      025626 000000
2931  025630 001104 001016 002760 DT115:  .WORD   $TESTN,$ERRPC,CRCSR,$GDDAT,$BDDAT,0
      025636 001024 001026 000000
2932  025644 001104 001016 002750 DT137:  .WORD   $TESTN,$ERRPC,RCSR,$BDDAT,0
      025652 001026 000000
2933  025656 001104 001016 001024 DT142:  .WORD   $TESTN,$ERRPC,$GDDAT,$BDDAT,0
      025664 001026 000000
2934  025670 001104 001016 002750 DT157:  .WORD   $TESTN,$ERRPC,RCSR,XMTCT2,RECCT2,0
      025676 012232 012234 000000
2935  025704 001104 001016 002750 DT161:  .WORD   $TESTN,$ERRPC,RCSR,OLDPC,BDVECT,0
      025712 012414 012416 000000
2936  025720 000200               BUF1:   .BLKW   200             ;SLU1 INPUT BUFFER FOR BLAST TEST
2937  026320 000200               BUF2:   .BLKW   200             ;SLU2 INPIT BUFFER FOR BLAST TEST
2938         000001                       .END
```

```
ABASE = 176500
ACDW1 = 000000
ACDW2 = 000000
ACPUOP= 000000
ADDW0 = 000000
ADDW1 = 000000
ADDW10= 000000
ADDW11= 000000
ADDW12= 000000
ADDW13= 000000
ADDW14= 000000
ADDW15= 000000
ADDW2 = 000000
ADDW3 = 000000
ADDW4 = 000000
ADDW5 = 000000
ADDW6 = 000000
ADDW7 = 000000
ADDW8 = 000000
ADDW9 = 000000
ADEVCT= 000000
ADEVM = 000000
AENV  = 000000
AENVM = 000000
AFATAL= 000000
AMADR1= 000000
AMADR2= 000000
AMADR3= 000000
AMADR4= 000000
AMAMS1= 000000
AMAMS2= 000000
AMAMS3= 000000
AMAMS4= 000000
AMSGAD= 000000
AMSGLG= 000000
AMSGTY= 000000
AMTYP1= 000000
AMTYP2= 000000
AMTYP3= 000000
AMTYP4= 000000
APASS = 000000
APRIOR= 000000
APTCSU= 000040
APTENV= 000001
APTSIZ= 000200
APTSPC= 000100
ASWREG= 000000
ATESTN= 000000
AUNIT = 000000
AUSWR = 000400
AVECT1= 000300
AVECT2= 000000
BDVECT  012416
BIT0  = 000001
BIT00 = 000001
BIT01 = 000002
BIT02 = 000004
BIT03 = 000010
BIT04 = 000020
BIT05 = 000040
BIT06 = 000100
BIT07 = 000200
BIT08 = 000400
BIT09 = 001000
BIT1  = 000002
BIT10 = 002000
BIT11 = 004000
BIT12 = 010000
BIT13 = 020000
BIT14 = 040000
BIT15 = 100000
BIT2  = 000004
BIT3  = 000010
BIT4  = 000020
BIT5  = 000040
BIT6  = 000100
BIT7  = 000200
BIT8  = 000400
BIT9  = 001000
BLAST   011474
BPT   = 000003
BPTVEC= 000014
BUF1    025720
BUF2    026320
CATCH   012370
CHECK2  012120
CKSWR = 104407
CONT41  010546
COUNT   012236
CR    = 000015
CRBUF   002762
CRCSR   002760
CRLF  = 000200
CRPSW   003004
CRVECT  003002
CTBUF   002766
CTCSR   002764
CTPSW   003010
CTVECT  003006
DADTBL  006066
DDISP = 177570
DH115   025157
DH137   025223
DH142   025260
DH152   025314
DH155   025361
DH161   025425
DH32    025030
DH5     024731
DH6     024756
DH61    025055
DH7     025003
DH72    025101
DISPLA  001042
DISPRE  000174
DSWR  = 177570
DT115   025630
DT137   025644
DT142   025656
DT157   025670
DT161   025704
DT31    025542
DT32    025552
DT36    025562
DT37    025572
DT5     025512
DT6     025522
DT61    025602
DT7     025532
DT72    025612
ECHO    015406
EMTVEC= 000030
EM100   021577
EM101   021633
EM102   021664
EM103   021736
EM104   022005
EM105   022041
EM106   022104
EM107   022165
EM11    016150
EM110   022221
EM111   022256
EM112   022330
EM113   022400
EM114   022433
EM115   022477
EM116   022522
EM117   022565
EM120   022621
EM121   022663
EM122   022732
EM123   022766
EM124   023017
EM125   023071
EM126   023140
EM127   023174
EM13    016206
EM130   023237
EM131   023320
EM132   023354
EM133   023411
EM134   023463
EM135   023533
EM136   023566
EM137   023632
EM14    016254
EM140   023701
EM141   023741
EM142   024005
EM143   024043
EM144   024077
EM145   024134
EM146   024170
EM147   024224
EM15    016324
EM150   024251
EM151   024313
EM152   024370
EM153   024422
EM154   024455
EM155   024510
EM156   024545
EM157   024612
EM16    016372
EM160   024647
EM161   024714
EM17    016430
EM20    016470
EM21    016536
EM22    016606
EM23    016652
EM24    016710
EM25    016750
EM26    017023
EM27    017060
EM30    017123
EM31    017175
EM32    017234
EM33    017273
EM34    017345
EM35    017413
EM36    017455
EM37    017514
EM40    017553
EM41    017623
EM42    017661
EM43    017721
EM44    017767
EM45    020037
EM46    020105
EM47    020143
EM5     016010
EM50    020203
EM51    020251
EM52    020321
EM53    020365
EM54    020423
EM55    020463
EM56    020536
EM57    020573
EM6     016052
EM60    020636
EM61    020710
EM62    020741
EM63    021003
EM64    021041
EM65    021071
EM66    021123
EM67    021163
EM7     016111
EM70    021223
EM71    021255
EM72    021306
EM74    021367
EM75    021432
EM76    021466
EM77    021530
ERRVEC= 000004
FINIE   012170
GTSWR = 104406
HT    = 000011
ID      003660
IOHAND  012036
IOTVEC= 000020
LF    = 000012
LKS     002770
LTCIT   010762
LTCRT   005626
MFR     015627
MOR     015641
MPAR    015616
MSG     015570
MSTOP   015654
M1      025476
M2      025510
OLDPC   012414
OUTTST  015664
PIRQ  = 177772
PIRQVE= 000240
PR0   = 000000
PR1   = 000040
PR2   = 000100
PR3   = 000140
PR4   = 000200
```

```
PR5     = 000240
PR6     = 000300
PR7     = 000340
PS      = 177776
PSW     = 177776
PWRVEC= 000024
RBUF    002752
RCSR    002750
RDCHR = 104410
RDLIN = 104411
RECCT2  012234
REC2    011762
RESVEC= 000010
RPSW    002774
RTCPSW  003014
RTCVT   003012
RVECT   002772
R6      =%000006
R7      =%000007
SLU1IT  006262
SLU2IT  007016
SLU2RT  004402
STACK = 001100
START   003016
STKLMT= 177774
SWR     001040
SWREG   000176
SW0     = 000001
SW00    = 000001
SW01    = 000002
SW02    = 000004
SW03    = 000010
SW04    = 000020
SW05    = 000040
SW06    = 000100
SW07    = 000200
SW08    = 000400
SW09    = 001000
SW1     = 000002
SW10    = 002000
SW11    = 004000
SW12    = 010000
SW13    = 020000
SW14    = 040000
SW15    = 100000
SW2     = 000004
SW3     = 000010
SW4     = 000020
SW5     = 000040
SW6     = 000100
SW7     = 000200
SW8     = 000400
SW9     = 001000
TBITVE= 000014
TBLEND  006076
TBUF    002756
TCSR    002754
TICKER  011716
TKVEC = 000060
TPSW    003000
TPVEC = 000064
TRAPVE= 000034
TRTVEC= 000014
TST1    003430
TST10   004236
TST11   004402
TST12   004456
TST13   004516
TST14   004610
TST15   004670
TST16   004730
TST17   004770
TST2    003476
TST20   005126
TST21   005310
TST22   005472
TST23   005564
TST24   005626
TST25   005702
TST26   006100
TST27   006262
TST3    003544
TST30   006430
TST31   006550
TST32   006704
TST33   007016
TST34   007140
TST35   007260
TST36   007414
TST37   007556
TST4    003714
TST40   007676
TST41   010014
TST42   010146
TST43   010252
TST44   010376
TST45   010464
TST46   010572
TST47   010664
TST5    003772
TST50   010762
TST51   011210
TST52   011356
TST53   011474
TST6    004032
TST7    004072
TVECT   002776
TYPDS = 104405
TYPE  = 104401
TYPOC = 104402
TYPON = 104404
TYPOS = 104403
UNIQUE  006100
WAIT    015576
WAITER  012074
WAITIO  011712
WDONE   005514
WRPSW   012356
XMIT2   011726
XMTCT2  012232
XXX     011110
$APTHD  000500
$ATYC   013312
$ATY1   013266
$ATY3   013274
$ATY4   013304
$AUTOB  001034
$BASE   001154
$BDADR  001022
$BDDAT  001026
$CHARC  014064
$CKSWR  014542
$CMTAG  001000
$CM3  = 000000
$CM4  = 000005
$CNTLG  015277
$CNTLU  015272
$CPUOP  001126
$CRLF   001075
$DBLK   014532
$DEVCT  001110
$DEVM   001156
$DOAGN  012332
$DTBL   014522
$ENDAD  012322
$ENDCT  012270
$ENDMG  012341
$ENULL  012336
$ENV    001120
$ENVM   001121
$EOP    012240
$EOPCT  012262
$ERFLG  001003
$ERMAX  001015
$ERROR  012420
$ERRPC  001016
$ERRTB  001160
$ERRTY  012602
$ERTTL  001012
$ESCAP  001072
$ETABL  001120
$ETEND  001160
$FATAL  001102
$FFLG   013532
$FILLC  001056
$FILLS  001055
$GDADR  001020
$GDDAT  001024
$GET42  012312
$GTSWR  014612
$HD   = 000003
$HIBTS  000500
$ICNT   001004
$ILLUP  013076
$INTAG  001035
$ITEMB  001014
$LF     001076
$LFLG   013531
$LPADR  001006
$LPERR  001010
$MADR1  001132
$MADR2  001136
$MADR3  001142
$MADR4  001146
$MAIL   001100
$MAMS1  001130
$MAMS2  001134
$MAMS3  001140
$MAMS4  001144
$MBADR  000502
$MFLG   013530
$MNEW   015315
$MSGAD  001114
$MSGLG  001116
$MSGTY  001100
$MSWR   015304
$MTYP1  001131
$MTYP2  001135
$MTYP3  001141
$MTYP4  001145
$NULL   001054
$NWTST= 000001
$OCNT   014312
$OMODE  014314
$OVER   013252
$PASS   001106
$PASTM  000506
$POWER  013104
$PWRDN  012736
$PWRMG  013072
$PWRUP  013010
$QUES   001074
$RDCHR  015024
$RDLIN  015154
$RDSZ = 000010
$RTNAD  012334
$SAVR6  013102
$SCOPE  013114
$SETUP= 000137
$STUP = 177777
$SVLAD  013216
$SVPC = 000500
$SWR  = 161000
$SWREG  001122
$SWRMK= 000000
$TESTN  001104
$TKB    001046
$TKS    001044
$TMP0   001060
$TMP1   001062
$TMP2   001064
$TMP3   001066
$TMP4   001070
$TN   = 000054
$TPB    001052
$TPFLG  001057
$TPS    001050
$TRAP   015326
$TRAP2  015350
$TRP  = 000012
$TRPAD  015362
$TSTM   000504
$TSTNM  001002
$TTYIN  015262
$TYPDS  014316
$TYPE   013534
$TYPEC  013746
$TYPEX  014066
$TYPOC  014114
$TYPON  014130
$TYPOS  014070
$UNIT   001112
$UNITM  000510
$USWR   001124
$VECT1  001150
$VECT2  001152
$XOFF = 000023
$XON  = 000021
$XTSTR  013126
$$GET4= 000000
$OFILL  014313
.     = 026720
.$ERRT  001160
.$X   = 000500

. ABS.  026720    000      CON   RO   ABS   GBL   D
```

ERRORS DETECTED: 0

CJKDIA,CJKDIA=CJKDIA.P11
RUN-TIME: 20 12 .5 SECONDS
RUN-TIME RATIO: 66/33=1.9
CORE USED: 22K (43 PAGES)