

Micro Fiche Scan

Name of device(s) tested:

KDF11-B

Test description:

11/23B SLU/RTC REPAIR

MAINDEC Number or Package Identifier (after SEP 1977):

CJKDIB0

Fiche Document Part Number:

AH-T054B-MC

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1986

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IDENTIFICATION  
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PRODUCT CODE: AC-T052B-MC  
PRODUCT NAME: CJKDIBO 11/23B SLU LTC REPAIR  
PRODUCT DATE: MARCH-86  
MAINTAINER: MSD DIAGNOSTIC ENGINEERING

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HISTORY

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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. 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 AUTOMATED TEST SYSTEMS.

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## 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

## 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 OPERATING 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.

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## 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:

@ABCDEFGHIJKLMN0PQRSTUVWXYZ[ [UPPER CASE ALPHA]

## 2.2 PROGRAM OPTIONS

BIT15	- HALT ON ERROR
BIT14	- SCOPE LOOP
BIT13	- INHIBIT ERROR TIMEOUT
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

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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 INPUTING 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, TBUF, 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 MESSAGE (I.E. FATAL CONSOLE TRANSMITTER FAILURES), A HALT OCCURS. (SEE SECTION 3.2 FOR ERROR HALT INFORMATION.)

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## NOTE

FOR SOFTWARE SWITCH OPERATION, THE SWITCH REGISTER CAN BE HANGED BY TYPING A CONTROL-G AT THE CONSOLE DURING ERROR PRINTOUTS. 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 XXXXXX

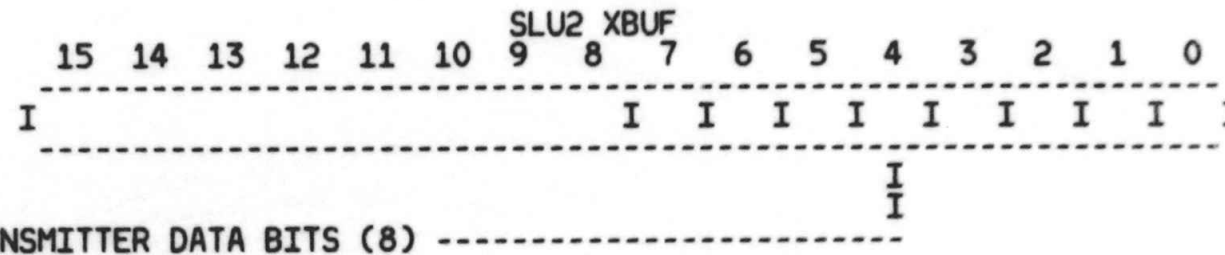
WHERE XXXXXX IS THE DECIMAL NUMBER OF END OF PASSES COMPLETED.







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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 TIME-OUT TRAP.
- TEST2 TEST ABILITY TO ACCESS SLU1 TRANSMITTER BUFFER. HALTS IF ACCESS CAUSES TIME-OUT 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 THE 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 TIME-OUT

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TRAP.

TEST6 TEST ABILITY TO ACCESS SLU1 RECEIVER BUFFER. AN ERROR IS REPORTED IF ACCESS CAUSES A TIME-OUT 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".

TEST7 TEST THAT SLU1 RECEIVER INTERRUPT ENABLE (BIT6) CAN BE SET AND RESET. SAME TEST AS FOR TRANSMITTER INTERRUPT ENABLE.

TEST10 TEST THAT SLU1 BIT6 OF RECEIVER CSR CAN BE SET AND RESET. PERFORM BIS (BIT SET) AND BIC (BIT CLEAR) ON THE RCSR. AN ERROR HERE CAUSES AN ERROR PRINT OUT TO TERMINAL.

TEST11 SAME AS TEST1 BUT DONE ON SLU2 AND ERROR DOES NOT CAUSE HALT.

TEST12 SAME AS TEST2 BUT FOR SLU2 AND ERROR DOES NOT CAUSE HALT.

TEST13 SAME AS TEST3 BUT FOR SLU2 AND ERROR DOES NOT CAUSE HALT.

TEST14-16 SAME AS TEST4-6 BUT FOR SLU2.

TEST17 TEST SLU2 BREAK BIT (BIT0) CAN BE SET, CLEARED, AND RESET. PERFORM BIS, BIC AND BIT ON SLU2 TCSR.

TEST20-21 SAME AS TEST 7-10 BUT FOR SLU2.

TEST22 TEST THAT SLU2 RCVR DONE BIT (BIT7) SET AND CLEAR PROPERLY. WITH A LOOP BACK CONNECTOR PLACED ON SLU2, THE CODE WILL LOAD THE TRANSMIT BUFFER AND EXPECT TO RECEIVE DATA IN THE RECEIVER BUFFER. A CORRECT RESULT WILL CAUSE THE RCSR DONE BIT TO BE SET. THE TEST WILL ALSO PERFORM A RESET INSTRUCTION AND TEST THAT THE RCSR DONE BIT 7 IS CLEARED.

TEST23 TEST SLU2 THAT READING THE RBUF CLEARS THE RECEIVER DONE BIT 7.

TEST24 TEST ABILITY TO ACCESS LINE CLOCK STATUS REGISTER. ERROR REPORTED IF ACCESS CAUSES TIME-OUT TRAP.

TEST25 TEST THAT LINE CLOCK INTERRUPT ENABLE (BIT6) CAN BE SET, CLEARED, AND "RESET". THIS TEST PERFORMS THE BIT, BIC AND BIS INSTRUCTIONS ON BIT 6 OF THE LKS.

TEST26 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.

TEST27 TEST THAT SLU1 TRANSMITTER INTERRUPTS ONLY WHEN ENABLED. THIS TEST CHECKS THAT THE TRANSMITTER ONLY INTERRUPTS WHEN ITS INTERRUPT ENABLE BIT IS SET.

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- TEST30 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.
- TEST31 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".
- TEST32 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.
- TEST33-36 SAME AS TESTS 27-32 EXCEPT FOR SLU2 INSTEAD OF SLU1.
- TEST37-41 SAME AS TESTS 27-31 EXCEPT FOR SLU2 RECEIVER INSTEAD OF SLU1 TRANSMITTER.
- TEST42 TEST THAT SLU2 RECEIVER INTERRUPT CLEARS BY READING RBUF. THIS TEST SETS THE PRIORITY AT 7, SETS RCVR INTERRUPT ENABLE AND FILL THE TBUF. WHEN "DONE" SETS, RBUF WILL ATTEMPT TO CLEAR THE INTERRUPT BY READING THE BUFFER.
- TEST43 TEST SLU2 THAT RESET CLEARS RECEIVE INTERRUPT. THIS TEST SETS THE PRIORITY TO 7, SETS RCVR INT ENABLE AND THEN WAITS FOR RCV DONE. WHEN "DONE" SETS, A RESET INSTRUCTION IS EXECUTED. AN ERROR IS REPORTED IF THE RECEIVER INTERRUPT IS NOT CLEARED.
- TEST44 TEST SLU2 THAT "OVERRUN & ERROR" BITS CAN BE SET. THIS TEST SENDS THREE CHARACTERS TO THE RCVR ONE AT A TIME. BIT14 OF THE RBUF IS CHECKED FOR OVERRUN. IF IT IS NOT SET AN ERROR IS SET. BIT15 (ERROR BIT) IS THEN CHECKED TO VERIFY THAT AN ERROR HAS OCCURRED.
- TEST45 TEST THAT BREAK TRANSMITS ALL ZEROS. PUT ALL ONES INTO RECEIVER BUFFER THEN ISSUE A BREAK THE RECEIVER BUFFER SHOULD CONTAIN ZEROS.
- TEST46 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.
- TEST47 TEST SLU2 DATA PATH USING WRAP CABLE CONNECTOR. THIS TEST TRANSMITS A BINARY COUNT PATTERN ONE BIT AT A TIME. THE TEST THEN VERIFIES THE DATA AGAINST WHAT IT EXPECTED TO RECEIVE. ERRORS ARE REPORTED TO THE TERMINAL.
- TEST50 TEST LINE TIME CLOCK INTERRUPTS PROPERLY.
- TEST51 TEST LINE TIME CLOCK FOR DOUBLE INTERRUPTS.

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TEST52 TEST THAT LINE TIME CLOCK INTERRUPT CLEARS WITH RESET.

TEST53 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 ENVIRONMENT 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

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;*MAYNARD, MASS. 01754
;*
;*
;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
;*PACKAGE (MAINDEC-11-DZQAC-C5), JAN, 1981.
;*
.ENABLE ABS,AMA
```

104401  
104402  
104403  
104404  
104405  
104406  
104407

TYPE=104401  
TYPOC=104402  
TYPOS=104403  
TYPON=104404  
TYPDS=104405  
GTSWR=104406  
CKSWR=104407

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```

658      104410      RDCHR=104410
659      104411      RDLIN=104411
660      000021      $XON=000021
661      000023      $XOFF=000023
662      000001      $TN=1
663      160000      $SWR=160000      ;;HALT ON ERROR, LOOP ON TEST, INHIBIT ERROR TYP
664      000000      $SWMRK=000000
665      000001      $TN=1
666
667      .SBTTL BASIC DEFINITIONS
668
669      ;*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
670      001100      STACK= 1100
671      .EQUIV ER,ERROR      ;;BASIC DEFINITION OF ERROR CALL
672      .EQUIV IOT,SCOPE      ;;BASIC DEFINITION OF SCOPE CALL
673
674      ;*MISCELLANEOUS DEFINITIONS
675      000011      HT= 11      ;;CODE FOR HORIZONTAL TAB
676      000012      LF= 12      ;;CODE FOR LINE FEED
677      000015      CR= 15      ;;CODE FOR CARRIAGE RETURN
678      000200      CRLF= 200      ;;CODE FOR CARRIAGE RETURN-LINE FEED
679      177776      PS= 177776      ;;PROCESSOR STATUS WORD
680      .EQUIV PS,PSW
681      177774      STKLMT= 177774      ;;STACK LIMIT REGISTER
682      177772      PIRQ= 177772      ;;PROGRAM INTERRUPT REQUEST REGISTER
683      177570      DSWR= 177570      ;;HARDWARE SWITCH REGISTER
684      177570      DDISP= 177570      ;;HARDWARE DISPLAY REGISTER
685
686      ;*GENERAL PURPOSE REGISTER DEFINITIONS
687      000000      R0= %0      ;;GENERAL REGISTER
688      000001      R1= %1      ;;GENERAL REGISTER
689      000002      R2= %2      ;;GENERAL REGISTER
690      000003      R3= %3      ;;GENERAL REGISTER
691      000004      R4= %4      ;;GENERAL REGISTER
692      000005      R5= %5      ;;GENERAL REGISTER
693      000006      R6= %6      ;;GENERAL REGISTER
694      000007      R7= %7      ;;GENERAL REGISTER
695      000006      SP= %6      ;;STACK POINTER
696      000007      PC= %7      ;;PROGRAM COUNTER
697
698      ;*PRIORITY LEVEL DEFINITIONS
699      000000      PR0= 0      ;;PRIORITY LEVEL 0
700      000040      PR1= 40      ;;PRIORITY LEVEL 1
701      000100      PR2= 100      ;;PRIORITY LEVEL 2
702      000140      PR3= 140      ;;PRIORITY LEVEL 3
703      000200      PR4= 200      ;;PRIORITY LEVEL 4
704      000240      PR5= 240      ;;PRIORITY LEVEL 5
705      000300      PR6= 300      ;;PRIORITY LEVEL 6
706      000340      PR7= 340      ;;PRIORITY LEVEL 7
707
708      ;*"SWITCH REGISTER" SWITCH DEFINITIONS
709      100000      SW15= 100000
710      040000      SW14= 40000
711      020000      SW13= 20000
712      010000      SW12= 10000
713      004000      SW11= 4000

```

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BASIC DEFINITIONS

714 002000  
715 001000  
716 000400  
717 000200  
718 000100  
719 000040  
720 000020  
721 000010  
722 000004  
723 000002  
724 000001  
725  
726  
727  
728  
729  
730  
731  
732  
733  
734  
735  
736  
737 100000  
738 040000  
739 020000  
740 010000  
741 004000  
742 002000  
743 001000  
744 000400  
745 000200  
746 000100  
747 000040  
748 000020  
749 000010  
750 000004  
751 000002  
752 000001  
753  
754  
755  
756  
757  
758  
759  
760  
761  
762  
763  
764  
765 000004  
766 000010  
767 000014  
768 000014  
769 000014

SW10= 2000  
SW09= 1000  
SW08= 400  
SW07= 200  
SW06= 100  
SW05= 40  
SW04= 20  
SW03= 10  
SW02= 4  
SW01= 2  
SW00= 1  
.EQUIV SW09,SW9  
.EQUIV SW08,SW8  
.EQUIV SW07,SW7  
.EQUIV SW06,SW6  
.EQUIV SW05,SW5  
.EQUIV SW04,SW4  
.EQUIV SW03,SW3  
.EQUIV SW02,SW2  
.EQUIV SW01,SW1  
.EQUIV SW00,SW0

;\*DATA BIT DEFINITIONS (BIT00 TO BIT15)

BIT15= 100000  
BIT14= 40000  
BIT13= 20000  
BIT12= 10000  
BIT11= 4000  
BIT10= 2000  
BIT09= 1000  
BIT08= 400  
BIT07= 200  
BIT06= 100  
BIT05= 40  
BIT04= 20  
BIT03= 10  
BIT02= 4  
BIT01= 2  
BIT00= 1  
.EQUIV BIT09,BIT9  
.EQUIV BIT08,BIT8  
.EQUIV BIT07,BIT7  
.EQUIV BIT06,BIT6  
.EQUIV BIT05,BIT5  
.EQUIV BIT04,BIT4  
.EQUIV BIT03,BIT3  
.EQUIV BIT02,BIT2  
.EQUIV BIT01,BIT1  
.EQUIV BIT00,BIT0

;\*BASIC "CPU" TRAP VECTOR ADDRESSES

ERRVEC= 4 ;; TIME OUT AND OTHER ERRORS  
RESVEC= 10 ;; RESERVED AND ILLEGAL INSTRUCTIONS  
TBITVEC= 14 ;; "T" BIT  
TRTVEC= 14 ;; TRACE TRAP  
BPTVEC= 14 ;; BREAKPOINT TRAP (BPT)



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770 000020  
771 000024  
772 000030  
773 000034  
774 000060  
775 000064  
776 000240  
777 176500  
778 000300  
779 000400  
780 000001  
781 161000  
782 000003  
783  
784 000000  
785 000000  
786 000000  
787 000000  
788 000000  
789 000000  
790 000000  
791 000000  
792 000000  
793 000000  
794 000000  
795 000000  
796 000000  
797 000000  
798 000000  
799 000000  
800 000000  
801 000000  
802 000000  
803 000000  
804 000000  
805 000000  
806 000000  
807 000000  
808 000000  
809 000000  
810  
811  
812 000000  
813 000000  
814  
815  
816  
817  
818  
819  
820 000014  
821 000014 012370  
822 000016 000340  
823  
824 000042 000042  
825 000042 000000

IOTVEC= 20 ;:INPUT/OUTPUT TRAP (IOT) \*\*SCOPE\*\*  
PWRVEC= 24 ;:POWER FAIL  
EMTVEC= 30 ;:EMULATOR TRAP (EMT) \*\*ERROR\*\*  
TRAPVEC=34 ;:"TRAP" TRAP  
TKVEC= 60 ;:TTY KEYBOARD VECTOR  
TPVEC= 64 ;:TTY PRINTER VECTOR  
PIRQVEC=240 ;:PROGRAM INTERRUPT REQUEST VECTOR  
ABASE= 176500  
AVECT1= 300  
AUSWR= 400  
\$TN= 1  
\$SWR= 161000  
BPT= 000003

;THIS IS THE COMMAND FOR A TRAP  
; THROUGH 14 (BPT TRAP)

AMSGTY=0  
AFATAL=0  
ATESTN=0  
APASS=0  
ADEVCT=0  
AUNIT=0  
AMSGAD=0  
AMSGLG=0  
AENV=0  
AENVM=0  
ASWREG=0  
ACPUOP=0  
AMAMS1=0  
AMTYP1=0  
AMADR1=0  
AMAMS2=0  
AMTYP2=0  
AMADR2=0  
AMAMS3=0  
AMTYP3=0  
AMADR3=0  
AMAMS4=0  
AMTYP4=0  
AMADR4=0  
AVECT2=0  
ADEVM=0

.ASECT

. =0

;:\*\*\*\*\*  
; \*ALL UNUSED LOCATIONS FROM 4-776 CONTAIN A ".+2,BPT"  
; \*SEQUENCE TO CATCH ILLEGAL TRAPS & INTERRUPTS  
; \*LOCATION 0 CONTAINS 0 TO CATCH IMPROPERLY LOADED VECTORS

. =14

.WORD CATCH  
.WORD 340

;THE BPT TRAP VECTOR POINTS TO THE  
; ILLEGAL TRAP HANDLER "CATCH"

. = 42  
.WORD 0

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BASIC DEFINITIONS

```

826
827
828
829
830          000174
831 000174 000000
832 000176 000000
833
834          000200
835 000200 000137 003016
836 000204 000137 015406
837 000210 000137 015664
838
839          000500
840
841
842
843
844          000500
845          000046
846 000046 012322
847          000052
848 000052 000000
849          000500
850
851
852
853
854
855          000500
856          000024
857 000024 000200
858          000044
859 000044 000500
860          000500
861
862
863
864
865 000500
866 000500 000000
867 000502 001100
868 000504 000050
869 000506 000060
870 000510 000055
871 000512 000030
872
873
874
875
876
877
878
879          001000
880 001000 000000
881          000000

```

```

          . = 174
DISPREG: .WORD 0
SWREG:   .WORD 0

          . = 200
JMP      START      ;DO INTERFACE TEST
JMP      ECHO        ;DO ECHO TEST
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:
$HIBTS: .WORD 0          ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
$MBADR: .WORD $MAIL      ;;ADDRESS OF APT MAILBOX (BITS 0-15)
$TSTM:  .WORD 50          ;;RUN TIM OF LONGEST TEST
$PASTM: .WORD 60          ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
$UNITM: .WORD 55          ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
          .WORD $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)

.SBTTL   COMMON TAGS

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

$CMTAG: . = 1000          ;;START OF COMMON TAGS
          .WORD 0

```

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COMMON TAGS

882	001002	000	\$TSTNM:	.BYTE	0	::CONTAINS THE TEST NUMBER
883	001003	000	\$ERFLG:	.BYTE	0	::CONTAINS ERROR FLAG
884	001004	000000	\$ICNT:	.WORD	0	::CONTAINS SUBTEST ITERATION COUNT
885	001006	000000	\$LPADR:	.WORD	0	::CONTAINS SCOPE LOOP ADDRESS
886	001010	000000	\$LPERR:	.WORD	0	::CONTAINS SCOPE RETURN FOR ERRORS
887	001012	000000	\$ERTTL:	.WORD	0	::CONTAINS TOTAL ERRORS DETECTED
888	001014	000	\$ITEMB:	.BYTE	0	::CONTAINS ITEM CONTROL BYTE
889	001015	001	\$ERMAX:	.BYTE	1	::CONTAINS MAX. ERRORS PER TEST
890	001016	000000	\$ERRPC:	.WORD	0	::CONTAINS PC OF LAST ERROR INSTRUCTION
891	001020	000000	\$GDADR:	.WORD	0	::CONTAINS ADDRESS OF 'GOOD' DATA
892	001022	000000	\$BDADR:	.WORD	0	::CONTAINS ADDRESS OF 'BAD' DATA
893	001024	000000	\$GDDAT:	.WORD	0	::CONTAINS 'GOOD' DATA
894	001026	000000	\$BDDAT:	.WORD	0	::CONTAINS 'BAD' DATA
895	001030	000000		.WORD	0	::RESERVED--NOT TO BE USED
896	001032	000000		.WORD	0	
897	001034	000	\$AUTOB:	.BYTE	0	::AUTOMATIC MODE INDICATOR
898	001035	000	\$INTAG:	.BYTE	0	::INTERRUPT MODE INDICATOR
899	001036	000000		.WORD	0	
900	001040	177570	SWR:	.WORD	DSWR	::ADDRESS OF SWITCH REGISTER
901	001042	177570	DISPLAY:	.WORD	DDISP	::ADDRESS OF DISPLAY REGISTER
902	001044	177560	\$TKS:	177560		::TTY KBD STATUS
903	001046	177562	\$TKB:	177562		::TTY KBD BUFFER
904	001050	177564	\$TPS:	177564		::TTY PRINTER STATUS REG. ADDRESS
905	001052	177566	\$TPB:	177566		::TTY PRINTER BUFFER REG. ADDRESS
906	001054	000	\$NULL:	.BYTE	0	::CONTAINS NULL CHARACTER FOR FILLS
907	001055	002	\$FILLS:	.BYTE	2	::CONTAINS # OF FILLER CHARACTERS REQUIRED
908	001056	012	\$FILLC:	.BYTE	12	::INSERT FILL CHARS. AFTER A "LINE FEED"
909	001057	000	\$TPFLG:	.BYTE	0	::"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
910	001060	000000	\$TMP0:	.WORD	0	::USER DEFINED
911	001062	000000	\$TMP1:	.WORD	0	::USER DEFINED
912	001064	000000	\$TMP2:	.WORD	0	::USER DEFINED
913	001066	000000	\$TMP3:	.WORD	0	::USER DEFINED
914	001070	000000	\$TMP4:	.WORD	0	::USER DEFINED
915	001072	000000	\$ESCAPE:	0		::ESCAPE ON ERROR ADDRESS
916	001074	077	\$QUES:	.ASCII	/?/	::QUESTION MARK
917	001075	015	\$CRLF:	.ASCII	<15>	::CARRIAGE RETURN
918	001076	000012	\$LF:	.ASCIZ	<12>	::LINE FEED
919						::*****
920			.SBTTL	APT MAILBOX-ETABLE		
921						::*****
922						
923			.EVEN			
924	001100		\$MAIL:			::APT MAILBOX
925	001100	000000	\$MSGTY:	.WORD	AMSGTY	::MESSAGE TYPE CODE
926	001102	000000	\$FATAL:	.WORD	AFATAL	::FATAL ERROR NUMBER
927	001104	000000	\$TESTN:	.WORD	ATESTN	::TEST NUMBER
928	001106	000000	\$PASS:	.WORD	APASS	::PASS COUNT
929	001110	000000	\$DEVCT:	.WORD	ADEVCT	::DEVICE COUNT
930	001112	000000	\$UNIT:	.WORD	AUNIT	::I/O UNIT NUMBER
931	001114	000000	\$MSGAD:	.WORD	AMSGAD	::MESSAGE ADDRESS
932	001116	000000	\$MSGLG:	.WORD	AMSGLG	::MESSAGE LENGTH
933	001120		\$ETABLE:			::APT ENVIRONMENT TABLE
934	001120	000	\$ENV:	.BYTE	AENV	::ENVIRONMENT BYTE
935	001121	000	\$ENVM:	.BYTE	AENVM	::ENVIRONMENT MODE BITS
936	001122	000000	\$SWREG:	.WORD	ASWREG	::APT SWITCH REGISTER
937	001124	000400	\$USWR:	.WORD	AUSWR	::USER SWITCHES

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APT MAILBOX-ETABLE

```

938 001126 000000 $CPUOP: .WORD ACPUOP ;;CPU TYPE,OPTIONS
939          ;*          BITS 15-11=CPU TYPE
940          ;*          11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
941          ;*          11/70=06,PDQ=07,Q=10
942          ;*          BIT 10=REAL TIME CLOCK
943          ;*          BIT 9=FLOATING POINT PROCESSOR
944          ;*          BIT 8=MEMORY MANAGEMENT
945 001130 000 $MAMS1: .BYTE AMAMS1 ;;HIGH ADDRESS,M.S. BYTE
946 001131 000 $MTYP1: .BYTE AMTYP1 ;;MEM. TYPE,BLK#1
947          ;*          MEM.TYPE BYTE -- (HIGH BYTE)
948          ;*          900 NSEC CORE=001
949          ;*          300 NSEC BIPOLAR=002
950          ;*          500 NSEC MOS=003
951 001132 000000 $MADR1: .WORD AMADR1 ;;HIGH ADDRESS,BLK#1
952          ;*          MEM.LAST ADDR.=3 BYTES,THIS WORD AND LOW OF "TYPE" ABOVE
953 001134 000 $MAMS2: .BYTE AMAMS2 ;;HIGH ADDRESS,M.S. BYTE
954 001135 000 $MTYP2: .BYTE AMTYP2 ;;MEM. TYPE,BLK#2
955 001136 000000 $MADR2: .WORD AMADR2 ;;MEM.LAST ADDRESS,BLK#2
956 001140 000 $MAMS3: .BYTE AMAMS3 ;;HIGH ADDRESS,M.S.BYTE
957 001141 000 $MTYP3: .BYTE AMTYP3 ;;MEM. TYPE,BLK#3
958 001142 000000 $MADR3: .WORD AMADR3 ;;MEM.LAST ADDRESS,BLK#3
959 001144 000 $MAMS4: .BYTE AMAMS4 ;;HIGH ADDRESS,M.S.BYTE
960 001145 000 $MTYP4: .BYTE AMTYP4 ;;MEM. TYPE,BLK#4
961 001146 000000 $MADR4: .WORD AMADR4 ;;MEM.LAST ADDRESS,BLK#4
962 001150 000300 $VECT1: .WORD AVECT1 ;;INTERRUPT VECTOR#1,BUS PRIORITY#1
963 001152 000000 $VECT2: .WORD AVECT2 ;;INTERRUPT VECTOR#2BUS PRIORITY#2
964 001154 176500 $BASE: .WORD ABASE ;;BASE ADDRESS OF EQUIPMENT UNDER TEST
965 001156 000000 $DEVM: .WORD ADEVM ;;DEVICE MAP
966 001160 $ETEND:
967
968 .SBTTL ERROR POINTER TABLE
969
970 ;*THIS TABLE CONTAINS THE INFORMATION FOR EACH ERROR THAT CAN OCCUR.
971 ;*THE INFORMATION IS OBTAINED BY USING THE INDEX NUMBER FOUND IN
972 ;*LOCATION $ITEMB. THIS NUMBER INDICATES WHICH ITEM IN THE TABLE IS PERTINENT.
973 ;*NOTE1: IF $ITEMB IS 0 THE ONLY PERTINENT DATA IS ($ERRPC).
974 ;*NOTE2: EACH ITEM IN THE TABLE CONTAINS 4 POINTERS EXPLAINED AS FOLLOWS:
975
976 ;* EM ;;POINTS TO THE ERROR MESSAGE
977 ;* DH ;;POINTS TO THE DATA HEADER
978 ;* DT ;;POINTS TO THE DATA
979 ;* DF ;;POINTS TO THE DATA FORMAT
980
981
982 001160 $ERRTB:
983
984 001160 . $ERRTB:
985 001160 000020 .BLKW 20 ;THIS BLOCK OF 16 LOCATIONS IS HERE TO PACIFY SYSMAC
986
987
988
989 001220 016010 EMS ;SLU1 TCSR DONE NOT SET WITH RESET
990 001222 024731 DH5 ;"TEST# ERR PC TCSR"
991 001224 025512 DT5 ;$TESTN,$ERRPC,CTCSR
992 001226 000000 0
993

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ERROR POINTER TABLE

994	001230	016052	EM6		;SLU1 RCSR DID NOT RETURN SSYNC
995	001232	024756	DH6		; "TEST# ERR PC RCSR"
996	001234	025522	DT6		;\$TESTN,\$ERRPC,CRCR
997	001236	000000	0		
998					
999	001240	016111	EM7		;SLU1 RBUF DID NOT RETURN SSYNC
1000	001242	025003	DH7		; "TEST# ERR PC RBUF"
1001	001244	025532	DT7		;\$TESTN,\$ERRPC,CRBUF
1002	001246	000000	0		
1003					
1004	001250	000004	.BLKW	4	;MORE PACIFICATION
1005					
1006					
1007	001260	016150	EM11		; "CAN NOT SET BIT2 OF SLU1 TCSR"
1008	001262	024731	DH5		; "TEST# ERR PC TCSR"
1009	001264	025512	DT5		;\$TESTN,\$ERRPC,CTCSR
1010	001266	000000	0		
1011					
1012	001270	000004	.BLKW	4	;STILL MORE PACIFICATION
1013					
1014					
1015	001300	016206	EM13		; "RESET DID NOT CLEAR BIT2 OF SLU1 TCSR"
1016	001302	024731	DH5		; "TEST# ERR PC TCSR"
1017	001304	025512	DT5		;\$TESTN,\$ERRPC,CTCSR
1018	001306	000000	0		
1019					
1020	001310	016254	EM14		; "BIT6 OF SLU1 TCSR NOT CLEAR AFTER RESET2"
1021	001312	024731	DH5		; "TEST# ERR PC TCSR"
1022	001314	025512	DT5		;\$TESTN,\$ERRPC,CTCSR
1023	001316	000000	0		
1024					
1025	001320	016324	EM15		; "SLU1 XMIT INTERRUPTED WITH PRIORITY 7"
1026	001322	024731	DH5		; "TEST# ERR PC TCSR"
1027	001324	025512	DT5		;\$TESTN,\$ERRPC,CTCSR
1028	001326	000000	0		
1029					
1030	001330	016372	EM16		; "CAN NOT SET BIT6 OF SLU1 TCSR"
1031	001332	024731	DH5		; "TEST# ERR PC TCSR"
1032	001334	025512	DT5		;\$TESTN,\$ERRPC,CTCSR
1033	001336	000000	0		
1034					
1035	001340	016430	EM17		; "CAN NOT CLEAR BIT6 OF SLU1 TCSR"
1036	001342	024731	DH5		; "TEST# ERR PC TCSR"
1037	001344	025512	DT5		;\$TESTN,\$ERRPC,CTCSR
1038	001346	000000	0		
1039					
1040	001350	016470	EM20		; "RESET DID NOT CLEAR BIT6 OF SLU1 TCSR"
1041	001352	024731	DH5		; "TEST# ERR PC TCSR"
1042	001354	025512	DT5		;\$TESTN,\$ERRPC,CTCSR
1043	001356	000000	0		
1044					
1045	001360	016536	EM21		; "BIT6 OF SLU1 RCSR NOT CLEAR AFTER RESET"
1046	001362	024756	DH6		; "TEST# ERR PC RCSR"
1047	001364	025522	DT6		;\$TESTN,\$ERRPC,CRCR
1048	001366	000000	0		
1049					

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ERROR POINTER TABLE

1050	001370	016606	EM22	;"SLU1 RCVR INTERRUPT WITH PRIORITY 7"
1051	001372	024756	DH6	;"TEST# ERR PC RCSR"
1052	001374	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1053	001376	000000	0	
1054				
1055	001400	016652	EM23	;"CAN NOT SET BIT6 OF SLU1 RCSR"
1056	001402	024756	DH6	;"TEST# ERR PC RCSR"
1057	001404	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1058	001406	000000	0	
1059				
1060	001410	016710	EM24	;"CAN NOT CLEAR BIT6 OF SLU1 RCSR"
1061	001412	024756	DH6	;"TEST# ERR PC RCSR"
1062	001414	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1063	001416	000000	0	
1064				
1065	001420	016750	EM25	;"CAN NOT CLEAR BIT6 OF SLU1 RCSR WITH RESET2"
1066	001422	024756	DH6	;"TEST# ERR PC RCSR"
1067	001424	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1068	001426	000000	0	
1069				
1070	001430	017023	EM26	;"SLU1 RECEIVER DONE NEVER SET"
1071	001432	024756	DH6	;"TEST# ERR PC RCSR"
1072	001434	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1073	001436	000000	0	
1074				
1075	001440	017060	EM27	;"RESET DID NOT CLEAR SLU1 RCVR DONE"
1076	001442	024756	DH6	;"TEST# ERR PC RCSR"
1077	001444	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1078	001446	000000	0	
1079				
1080	001450	017123	EM30	;"READING SLU1 RBUF DID NOT CLEAR RCVR DONE"
1081	001452	024756	DH6	;"TEST# ERR PC RCSR"
1082	001454	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1083	001456	000000	0	
1084				
1085	001460	017175	EM31	;"SLU2 TCSR DID NOT RETURN SSYNC"
1086	001462	024731	DH5	;"TEST# ERR PC TCSR"
1087	001464	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1088	001466	000000	0	
1089				
1090	001470	017234	EM32	;"SLU2 TBUF DID NOT RETURN SSYNC"
1091	001472	025030	DH32	;"TEST# ERR PC TBUF"
1092	001474	025552	DT32	;\$TESTN,\$ERRPC,TBUF
1093	001476	000000	0	
1094				
1095	001500	017273	EM33	;"SLU2 TCSR DONE NOT CLEARED WITH TBUF FULL"
1096	001502	024731	DH5	;"TEST# ERR PC TCSR"
1097	001504	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1098	001506	000000	0	
1099				
1100	001510	017345	EM34	;"SLU2 TCSR DONE NOT SET AFTER TRANSMIT"
1101	001512	024731	DH5	;"TEST# ERR PC TCSR"
1102	001514	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1103	001516	000000	0	
1104				
1105	001520	017413	EM35	;"SLU2 TCSR DONE NOT SET WITH RESET"

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1106	001522	024731	DH5	;"TEST# ERR PC TCSR"
1107	001524	025542	DT31	;\$TESTN,ERRPC,TCSR
1108	001526	000000	0	
1109				
1110	001530	017455	EM36	;"SLU2 RCSR DID NOT RETURN SSYNC"
1111	001532	024756	DH6	;"TEST# ERR PC RCSR"
1112	001534	025562	DT36	;\$TESTN,ERRPC,RCSR
1113	001536	000000	0	
1114				
1115	001540	017514	EM37	;"SLU2 RBUF DID NOT RETURN SSYNC"
1116	001542	025003	DH7	;"TEST# ERR PC RBUF"
1117	001544	025572	DT37	;\$TESTN,ERRPC,RBUF
1118	001546	000000	0	
1119				
1120	001550	017553	EM40	;"BIT0 OF SLU2 TCSR NOT CLEAR AFTER RESET"
1121	001552	024731	DH5	;"TEST# ERR PC TCSR"
1122	001554	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1123	001556	000000	0	
1124				
1125	001560	017623	EM41	;"CAN NOT SET BIT0 OF SLU2 TCSR"
1126	001562	024731	DH5	;"TEST# ERR PC TCSR"
1127	001564	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1128	001566	000000	0	
1129				
1130	001570	017661	EM42	;"CAN NOT CLEAR BIT0 OF SLU2 TCSR"
1131	001572	024731	DH5	;"TEST# ERR PC TCSR"
1132	001574	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1133	001576	000000	0	
1134				
1135	001600	017721	EM43	;"RESET DID NOT CLEAR BIT0 OF SLU2 TCSR"
1136	001602	024731	DH5	;"TEST# ERR PC TCSR"
1137	001604	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1138	001606	000000	0	
1139				
1140	001610	017767	EM44	;"BIT6 OF SLU2 TCSR NOT CLEAR AFTER RESET2"
1141	001612	024731	DH5	;"TEST# ERR PC TCSR"
1142	001614	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1143	001616	000000	0	
1144				
1145	001620	020037	EM45	;"SLU2 XMIT INTERRUPTED WITH PRIORITY 7"
1146	001622	024731	DH5	;"TEST# ERR PC TCSR"
1147	001624	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1148	001626	000000	0	
1149				
1150	001630	020105	EM46	;"CAN NOT SET BIT6 OF SLU2 TCSR"
1151	001632	024731	DH5	;"TEST# ERR PC TCSR"
1152	001634	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1153	001636	000000	0	
1154				
1155	001640	020143	EM47	;"CAN NOT CLEAR BIT6 OF SLU2 TCSR"
1156	001642	024731	DH5	;"TEST# ERR PC TCSR"
1157	001644	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1158	001646	000000	0	
1159				
1160	001650	020203	EM50	;"RESET DID NOT CLEAR BIT6 OF SLU2 TCSR"
1161	001652	024731	DH5	;"TEST# ERR PC TCSR"

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1162	001654	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1163	001656	000000	0	
1164				
1165	001660	020251	EM51	;"BIT6 OF SLU2 RCSR NOT CLEAR AFTER RESET"
1166	001662	024756	DH6	;"TEST# ERR PC RCSR"
1167	001664	025562	DT36	;\$TESTN,ERRPC,RCSR
1168	001666	000000	0	
1169				
1170	001670	020321	EM52	;"SLU2 RCVR INTERRUPT WITH PRIORITY 7"
1171	001672	024756	DH6	;"TEST# ERR PC RCSR"
1172	001674	025562	DT36	;\$TESTN,ERRPC,RCSR
1173	001676	000000	0	
1174				
1175	001700	020365	EM53	;"CAN NOT SET BIT6 OF SLU2 RCSR"
1176	001702	024756	DH6	;"TEST# ERR PC RCSR"
1177	001704	025562	DT36	;\$TESTN,ERRPC,RCSR
1178	001706	000000	0	
1179				
1180	001710	020423	EM54	;"CAN NOT CLEAR BIT6 OF SLU2 RCSR"
1181	001712	024756	DH6	;"TEST# ERR PC RCSR"
1182	001714	025562	DT36	;\$TESTN,ERRPC,RCSR
1183	001716	000000	0	
1184				
1185	001720	020463	EM55	;"CAN NOT CLEAR BIT6 OF SLU2 RCSR WITH RESET2"
1186	001722	024756	DH6	;"TEST# ERR PC RCSR"
1187	001724	025562	DT36	;\$TESTN,ERRPC,RCSR
1188	001726	000000	0	
1189				
1190	001730	020536	EM56	;"SLU2 RECEIVER DONE NEVER SET"
1191	001732	024756	DH6	;"TEST# ERR PC RCSR"
1192	001734	025562	DT36	;\$TESTN,ERRPC,RCSR
1193	001736	000000	0	
1194				
1195	001740	020573	EM57	;"RESET DID NOT CLEAR SLU2 RCVR DONE"
1196	001742	024756	DH6	;"TEST# ERR PC RCSR"
1197	001744	025562	DT36	;\$TESTN,ERRPC,RCSR
1198	001746	000000	0	
1199				
1200	001750	020636	EM60	;"READING SLU2 RBUF DID NOT CLEAR RCVR DONE"
1201	001752	024756	DH6	;"TEST# ERR PC RCSR"
1202	001754	025562	DT36	;\$TESTN,ERRPC,RCSR
1203	001756	000000	0	
1204				
1205	001760	020710	EM61	;"LKS DID NOT RETURN SSYNC"
1206	001762	025055	DH61	;"TEST# ERR PC LKS"
1207	001764	025602	DT61	;\$TESTN,ERRPC,LKS
1208	001766	000000	0	
1209				
1210	001770	020741	EM62	;"BIT6 OF LKS NOT CLEAR AFTER RESET"
1211	001772	025055	DH61	;"TEST# ERR PC LKS"
1212	001774	025602	DT61	;\$TESTN,\$ERRPC,LKS
1213	001776	000000	0	
1214				
1215	002000	021003	EM63	;"LKS INTERRUPT WITH PRIORITY 7"
1216	002002	025055	DH61	;"TEST# ERR PC LKS"
1217	002004	025602	DT61	;\$TESTN,\$ERRPC,LKS



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1218	002006	000000	0	
1219				
1220	002010	021041	EM64	;"CAN NOT SET BIT6 OF LKS"
1221	002012	025055	DH61	;"TEST# ERR PC LKS"
1222	002014	025602	DT61	;\$TESTN,\$ERRPC,LKS
1223	002016	000000	0	
1224				
1225	002020	021071	EM65	;"CAN NOT CLEAR BIT6 OF LKS"
1226	002022	025055	DH61	;"TEST# ERR PC LKS"
1227	002024	025602	DT61	;\$TESTN,\$ERRPC,LKS
1228	002026	000000	0	
1229				
1230	002030	021123	EM66	;"RESET DID NOT CLEAR BIT6 OF LKS"
1231	002032	025055	DH61	;"TEST# ERR PC LKS"
1232	002034	025602	DT61	;\$TESTN,\$ERRPC,LKS
1233	002036	000000	0	
1234				
1235	002040	021163	EM67	;"BIT7 OF LKS NOT SET AFTER RESET2"
1236	002042	025055	DH61	;"TEST# ERR PC LKS"
1237	002044	025602	DT61	;\$TESTN,\$ERRPC,LKS
1238	002046	000000	0	
1239				
1240	002050	021223	EM70	;"CAN NOT CLEAR BIT7 OF LKS"
1241	002052	025055	DH61	;"TEST# ERR PC LKS"
1242	002054	025602	DT61	;\$TESTN,\$ERRPC,LKS
1243	002056	000000	0	
1244				
1245	002060	021255	EM71	;"BIT7 OF LKS DOES NOT SET"
1246	002062	025055	DH61	;"TEST# ERR PC LKS"
1247	002064	025602	DT61	;\$TESTN,\$ERRPC,LKS
1248	002066	000000	0	
1249				
1250	002070	021306	EM72	;"WRITING TO ONE INTERNAL ADDRESS MODIFIED ANOTHER"
1251	002072	025101	DH72	;"TEST# ERR PC GOOD BAD GDDATA BDDATA"
1252	002074	025612	DT72	;\$TESTN,\$ERRPC,\$GDADR,\$BDADR,\$GDDAT,\$BDDAT
1253	002076	000000	0	
1254				
1255	002100	000004	.BLKW 4	;"THE LAST IN A LONG LINE OF PACIFICATION"
1256				
1257				
1258	002110	021367	EM74	;"SLU1 XMIT INTERRUPTS WHEN DISABLED"
1259	002112	024731	DH5	;"TEST# ERR PC TCSR"
1260	002114	025512	DT5	;\$TESTN,\$ERRPC,CTCSR
1261	002116	000000	0	
1262				
1263	002120	021432	EM75	;"SLU1 XMIT DID NOT INTERRUPT"
1264	002122	024731	DH5	;"TEST# ERR PC TCSR"
1265	002124	025512	DT5	;\$TESTN,\$ERRPC,CTCSR
1266	002126	000000	0	
1267				
1268	002130	021466	EM76	;"SLU1 XMIT INTERRUPT AT PRIORITY 7"
1269	002132	024731	DH5	;"TEST# ERR PC TCSR"
1270	002134	025512	DT5	;\$TESTN,\$ERRPC,CTCSR
1271	002136	000000	0	
1272				
1273	002140	021530	EM77	;"SLU1 XMIT INTERRUPTS WITH ENABLE CLEAR"

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1274	002142	024731	DH5	;"TEST# ERR PC TCSR"
1275	002144	025512	DT5	;\$TESTN,\$ERRPC,CTCSR
1276	002146	000000	0	
1277				
1278	002150	021577	EM100	;"SLU1 XMIT DID NOT INTERRUPT"
1279	002152	024731	DH5	;"TEST# ERR PC TCSR"
1280	002154	025512	DT5	;\$TESTN,\$ERRPC,CTCSR
1281	002156	000000	0	
1282				
1283	002160	021633	EM101	;"SLU1 XMIT RE-INTERRUPTED"
1284	002162	024731	DH5	;"TEST# ERR PC TCSR"
1285	002164	025512	DT5	;\$TESTN,\$ERRPC,CTCSR
1286	002166	000000	0	
1287				
1288	002170	021664	EM102	;"LOADING SLU1 TBUF DID NOT CLEAR INTERRUPT"
1289	002172	024731	DH5	;"TEST# ERR PC TCSR"
1290	002174	025512	DT5	;\$TESTN,\$ERRPC,CTCSR
1291	002176	000000	0	
1292				
1293	002200	021736	EM103	;"SLU1 RCVR INTERRUPTS WITH ENABLE CLEAR"
1294	002202	024756	DH6	;"TEST# ERR PC RCSR"
1295	002204	025522	DT6	;\$TESTN,\$ERRPC,CRCSR
1296	002206	000000	0	
1297				
1298	002210	022005	EM104	;"SLU1 RCVR DID NOT INTERRUPT"
1299	002212	024756	DH6	;"TEST# ERR PC RCSR"
1300	002214	025522	DT6	;\$TESTN,\$ERRPC,CRCSR
1301	002216	000000	0	
1302				
1303	002220	022041	EM105	;"SLU1 RCVR INTERRUPTS AT PRIORITY 7"
1304	002222	024756	DH6	;"TEST# ERR PC RCSR"
1305	002224	025522	DT6	;\$TESTN,\$ERRPC,CRCSR
1306	002226	000000	0	
1307				
1308	002230	022104	EM106	;"SLU1 RCVR INTERRUPTS WITH INTERRUPT ENABLE CLEAR"
1309	002232	024756	DH6	;"TEST# ERR PC RCSR"
1310	002234	025522	DT6	;\$TESTN,\$ERRPC,CRCSR
1311	002236	000000	0	
1312				
1313	002240	022165	EM107	;"SLU1 RCVR DID NOT INTERRUPT"
1314	002242	024756	DH6	;"TEST# ERR PC RCSR"
1315	002244	025522	DT6	;\$TESTN,\$ERRPC,CRCSR
1316	002246	000000	0	
1317				
1318	002250	022221	EM110	;"SLU1 RECEIVER RE-INTERRUPTED"
1319	002252	024756	DH6	;"TEST# ERR PC RCSR"
1320	002254	025522	DT6	;\$TESTN,\$ERRPC,CRCSR
1321	002256	000000	0	
1322				
1323	002260	022256	EM111	;"SLU1 READING RBUF DID NOT CLEAR INTERRUPT"
1324	002262	024756	DH6	;"TEST# ERR PC RCSR"
1325	002264	025522	DT6	;\$TESTN,\$ERRPC,CRCSR
1326	002266	000000	0	
1327				
1328	002270	022330	EM112	;"RESET DID NOT CLEAR SLU1 RCVR INTERRUPT"
1329	002272	024756	DH6	;"TEST# ERR PC RCSR"

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1330	002274	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1331	002276	000000	0	
1332				
1333	002300	022400	EM113	;"SLU1 'OR' FLAG DID NOT SET"
1334	002302	024756	DH6	;"TEST# ERR PC RCSR"
1335	002304	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1336	002306	000000	0	
1337				
1338	002310	022433	EM114	;"SLU1 'ERROR' NOT SET WITH 'OR' FLAG"
1339	002312	024756	DH6	;"TEST# ERR PC RCSR"
1340	002314	025522	DT6	;\$TESTN,\$ERRPC,CRCR
1341	002316	000000	0	
1342				
1343	002320	022477	EM115	;"DATA COMPARE ERROR"
1344	002322	025157	DH115	;"TEST# ERR PC CRCR GOOD BAD"
1345	002324	025630	DT115	;\$TESTN,\$ERRPC,CRCR,GD,BD
1346	002326	000000	0	
1347				
1348	002330	022522	EM116	;"SLU2 XMIT INTERRUPTS WHEN DISABLED"
1349	002332	024731	DH5	;"TEST# ERR PC TCSR"
1350	002334	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1351	002336	000000	0	
1352				
1353	002340	022565	EM117	;"SLU2 XMIT DID NOT INTERRUPT"
1354	002342	024731	DH5	;"TEST# ERR PC TCSR"
1355	002344	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1356	002346	000000	0	
1357				
1358	002350	022621	EM120	;"SLU2 XMIT INTERRUPT AT PRIORITY 7"
1359	002352	024731	DH5	;"TEST# ERR PC TCSR"
1360	002354	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1361	002356	000000	0	
1362				
1363	002360	022663	EM121	;"SLU2 XMIT INTERRUPTS WITH ENABLE CLEAR"
1364	002362	024731	DH5	;"TEST# ERR PC TCSR"
1365	002364	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1366	002366	000000	0	
1367				
1368	002370	022732	EM122	;"SLU2 XMIT DID NOT INTERRUPT"
1369	002372	024731	DH5	;"TEST# ERR PC TCSR"
1370	002374	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1371	002376	000000	0	
1372				
1373	002400	022766	EM123	;"SLU2 XMIT RE-INTERRUPTED"
1374	002402	024731	DH5	;"TEST# ERR PC TCSR"
1375	002404	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1376	002406	000000	0	
1377				
1378	002410	023017	EM124	;"LOADING SLU2 TBUF DID NOT CLEAR INTERRUPT"
1379	002412	024731	DH5	;"TEST# ERR PC TCSR"
1380	002414	025542	DT31	;\$TESTN,\$ERRPC,TCSR
1381	002416	000000	0	
1382				
1383	002420	023071	EM125	;"SLU2 RCVR INTERRUPTS WITH ENABLE CLEAR"
1384	002422	024756	DH6	;"TEST# ERR PC RCSR"
1385	002424	025562	DT36	;\$TESTN,\$ERRPC,RCSR

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1386	002426	000000	0	
1387				
1388	002430	023140	EM126	;"SLU2 RCVR DID NOT INTERRUPT"
1389	002432	024756	DH6	;"TEST# ERR PC RCSR"
1390	002434	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1391	002436	000000	0	
1392				
1393	002440	023174	EM127	;"SLU2 RCVR INTERRUPTS AT PRIORITY 7"
1394	002442	024756	DH6	;"TEST# ERR PC RCSR"
1395	002444	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1396	002446	000000	0	
1397				
1398	002450	023237	EM130	;"SLU2 RCVR INTERRUPTS WITH INTERRUPT ENABLE CLEAR"
1399	002452	024756	DH6	;"TEST# ERR PC RCSR"
1400	002454	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1401	002456	000000	0	
1402				
1403	002460	023320	EM131	;"SLU2 RCVR DID NOT INTERRUPT"
1404	002462	024756	DH6	;"TEST# ERR PC RCSR"
1405	002464	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1406	002466	000000	0	
1407				
1408	002470	023354	EM132	;"SLU2 RECEIVER RE-INTERRUPTED"
1409	002472	024756	DH6	;"TEST# ERR PC RCSR"
1410	002474	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1411	002476	000000	0	
1412				
1413	002500	023411	EM133	;"SLU2 READING RBUF DID NOT CLEAR INTERRUPT"
1414	002502	024756	DH6	;"TEST# ERR PC RCSR"
1415	002504	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1416	002506	000000	0	
1417				
1418	002510	023463	EM134	;"RESET DID NOT CLEAR SLU2 RCVR INTERRUPT"
1419	002512	024756	DH6	;"TEST# ERR PC RCSR"
1420	002514	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1421	002516	000000	0	
1422				
1423	002520	023533	EM135	;"SLU2 'OR' FLAG DID NOT SET"
1424	002522	024756	DH6	;"TEST# ERR PC RCSR"
1425	002524	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1426	002526	000000	0	
1427				
1428	002530	023566	EM136	;"SLU2 'ERROR' NOT SET WITH 'OR' FLAG"
1429	002532	024756	DH6	;"TEST# ERR PC RCSR"
1430	002534	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1431	002536	000000	0	
1432				
1433	002540	023632	EM137	;"SLU2 BREAK DID NOT TRANSMIT ALL ZEROES"
1434	002542	025223	DH137	;"TEST# ERR PC RCSR DATA"
1435	002544	025644	DT137	;\$TESTN,\$ERRPC,RCSR,\$BDDAT
1436	002546	000000	0	
1437				
1438	002550	023701	EM140	;"BREAK DID NOT SET FRAMING ERROR"
1439	002552	024756	DH6	;"TEST# ERR PC RCSR"
1440	002554	025522	DT6	;\$TESTN,\$ERRPC,RCSR
1441	002556	000000	0	

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1442				
1443	002560	023741	EM141	;"SLU2 'ERROR' NOT SET WITH 'FR' FLAG"
1444	002562	024756	DH6	;"TEST# ERR PC RCSR"
1445	002564	025562	DT36	;\$TESTN,\$ERRPC,RCSR
1446	002566	000000	0	
1447				
1448	002570	024005	EM142	;"DATA COMPARE ERROR WITH CABLE"
1449	002572	025260	DH142	;"TEST# ERR PC RCSR GOOD BAD"
1450	002574	025656	DT142	;\$TESTN,\$ERRPC,RCSR,GD,BD
1451	002576	000000	0	
1452				
1453	002600	024043	EM143	;"RTC INTERRUPT AT PRIORITY 7"
1454	002602	025055	DH61	;"TEST# ERR PC LKS"
1455	002604	025602	DT61	;\$TESTN,\$ERRPC,LKS
1456	002606	000000	0	
1457				
1458	002610	024077	EM144	;"RTC INTERRUPTS WHEN DISABLED"
1459	002612	025055	DH61	;"TEST# ERR PC LKS"
1460	002614	025602	DT61	;\$TESTN,\$ERRPC,LKS
1461	002616	000000	0	
1462				
1463	002620	024134	EM145	;"RTC INTERRUPT DID NOT OCCUR"
1464	002622	025055	DH61	;"TEST# ERR PC LKS"
1465	002624	025602	DT61	;\$TESTN,\$ERRPC,LKS
1466	002626	000000	0	
1467				
1468	002630	024170	EM146	;"RTC INTERRUPT DID NOT OCCUR"
1469	002632	025055	DH61	;"TEST# ERR PC LKS"
1470	002634	025602	DT61	;\$TESTN,\$ERRPC,LKS
1471	002636	000000	0	
1472				
1473	002640	024224	EM147	;"RTC DOUBLE INTERRUPT"
1474	002642	025055	DH61	;"TEST# ERR PC LKS"
1475	002644	025602	DT61	;\$TESTN,\$ERRPC,LKS
1476	002646	000000	0	
1477				
1478	002650	024251	EM150	;"RESET DID NOT CLEAR RTC INTERRUPT"
1479	002652	025055	DH61	;"TEST# ERR PC LKS"
1480	002654	025602	DT61	;\$TESTN,\$ERRPC,LKS
1481	002656	000000	0	
1482				
1483	002660	024313	EM151	;"RTC INTERRUPT DID NOT CLEAR WITH BIT7 OF LKS"
1484	002662	025055	DH61	;"TEST# ERR PC LKS"
1485	002664	025602	DT61	;\$TESTN,\$ERRPC,LKS
1486	002666	000000	0	
1487				
1488				
1489	002670	024422	EM153	;"SLU1 RECEIVER STATUS ERROR"
1490	002672	025157	DH115	;"TEST# ERR PC CRCSR GOOD BAD"
1491	002674	025630	DT115	;\$TESTN,\$ERRPC,CRCSR,\$GDDTA,\$BDDAT
1492	002676	000000	0	
1493				
1494	002700	024455	EM154	;"SLU2 RECEIVER STATUS ERROR"
1495	002702	025260	DH142	;"TESTN ERR PC RCSR GOOD BAD"
1496	002704	025656	DT142	;\$TESTN,\$ERRPC,RCSR,\$GDDAT,\$BDDAT
1497	002706	000000	0	

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ERROR POINTER TABLE

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1498
1499
1500 002710 024545      EM156      ;"SLU1 DATA COMPARE ERROR IN EXERCISER"
1501 002712 025157      DH115      ;"TEST# ERR PC  CRCSR   GOOD   BAD"
1502 002714 025630      DT115      ;$TESTN,$ERRPC,CRCSR,GD,BD
1503 002716 000000      0
1504
1505 002720 024612      EM157      ;"INCORRECT RECEIVE COUNT SLU2
1506 002722 025361      DH155      ;"TEST# ERR PC  RCSR   TRANS  RCV"
1507 002724 025670      DT157      ;$TESTN,$ERRPC,RCSR,XMTCT2,RCVCT2
1508 002726 000000      0
1509
1510 002730 024647      EM160      ;"SLU2 DATA COMPARE ERROR IN EXERCISER"
1511 002732 025260      DH142      ;"TEST# ERR PC  RCSR   GOOD   BAD"
1512 002734 025656      DT142      ;$TESTN,$ERRPC,RCSR,GD,BD
1513 002736 000000      0
1514
1515 002740 024714      EM161      ;"TRAP CATCHER"
1516 002742 025425      DH161      ;"TEST#  ERR PC  OLDPC  TRAP  ADR"
1517 002744 025704      DT161      ;$TESTN,$ERRPC,OLDPC,BDVECT
1518 002746 000000      0
1519
1520      ;REGISTER ADDRESSES OF INTERNAL ON BOARD OPTIONS
1521
1522 002750 176500      RCSR:  .WORD 176500      ;SLU2 COMMAND/STATUS REGISTER
1523 002752 176502      RBUF:  .WORD 176502      ;SLU2 RECEIVER BUFFER
1524 002754 176504      TCSR:  .WORD 176504      ;SLU2 TRANSMITTER COMMAND/STATUS REGISTER
1525 002756 176506      TBUF:  .WORD 176506      ;SLU2 TRANSMITTER BUFFER
1526 002760 177560      CRCSR: 177560      ;SLU1 RECEIVER COMMAND/STATUS REGISTER
1527 002762 177562      CRBUF: 177562      ;SLU1 RECEIVER BUFFER
1528 002764 177564      CTCSR: 177564      ;SLU1 TRANSMITTER COMMAND/STATUS REGISTER
1529 002766 177566      CTBUF: 177566      ;SLU1 TRANSMITTER BUFFER
1530 002770 177546      LKS:   .WORD 177546      ;LTC COMMAND/STATUS REGISTER
1531
1532
1533      ;VECTOR ADDRESSES FOR ON BOARD OPTIONS
1534
1535 002772 000300      RVECT: .WORD 300
1536 002774 000302      RPSW:  .WORD 302
1537 002776 000304      TVECT: .WORD 304
1538 003000 000306      TPSW:  .WORD 306
1539 003002 000060      CRVECT: 60      ;RECEIVER INTERRUPT VECTOR
1540 003004 000062      CRPSW: 62
1541 003006 000064      CTVECT: 64      ;TRANSMITTER INTERRUPT VECTOR
1542 003010 000066      CTPSW: 66
1543 003012 000100      RTCVT: .WORD 100
1544 003014 000102      RTCPSW: .WORD 102
1545
1546 003016 005037 001102      START: CLR  $FATAL      ;CLEAR ERROR NO.
1547 003022 005037 001100      CLR  $MSGTYP      ;CLEAR MESSAGE TYPE
1548 003026 005037 001104      CLR  $TESTN      ;CLEAR TEST NO.
1549 003032 005037 001156      CLR  $DEVM      ;CLEAR FLAGS INDICATING DEVICES UNDER TEST
1550 003036
1551
1552      1$:
      .SBTTL INITIALIZE THE COMMON TAGS
      ;;CLEAR THE COMMON TAGS ($CMTAG) AREA
1553 003036 012706 001000      MOV  #$CMTAG,R6      ;;FIRST LOCATION TO BE CLEARED

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INITIALIZE THE COMMON TAGS

```

1554 003042 005026          CLR      (R6)+          ;;CLEAR MEMORY LOCATION
1555 003044 022706 001040  CMP      #SWR,R6 ;;DONE?
1556 003050 001374          BNE      #-6           ;;LOOP BACK IF NO
1557 003052 012706 001000  MOV      #1000,SP      ;;SETUP THE STACK POINTER
1558                                     ;;INITIALIZE A FEW VECTORS
1559 003056 012737 013114 000020  MOV      $$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
1560 003064 012737 000340 000022  MOV      #340,@#IOTVEC+2 ;;LEVEL 7
1561 003072 012737 012420 000030  MOV      $$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
1562 003100 012737 000340 000032  MOV      #340,@#EMTVEC+2 ;;LEVEL 7
1563 003106 012737 015326 000034  MOV      $$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
1564 003114 012737 000340 000036  MOV      #340,@#TRAPVEC+2;LEVEL 7
1565 003122 012737 012736 000024  MOV      $$PWRDN,@#PWRVEC ;;POWER FAILURE VECTOR
1566 003130 012737 000340 000026  MOV      #340,@#PWRVEC+2 ;;LEVEL 7
1567 003136 013737 012270 012262  MOV      $ENDCT,$EOPCT  ;;SETUP END-OF-PROGRAM COUNTER
1568 003144 005037 001072          CLR      $ESCAPE       ;;CLEAR THE ESCAPE ON ERROR ADDRESS
1569 003150 112737 000001 001015  MOVB    #1,$ERMAX      ;;ALLOW ONE ERROR PER TEST
1570 003156 012737 003156 001006  MOV      #.,$LPADR     ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
1571 003164 012737 003164 001010  MOV      #.,$LPERR     ;;SETUP THE ERROR LOOP ADDRESS
1572                                     ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
1573                                     ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
1574 003172 013746 000004          MOV      @#ERRVEC,-(SP) ;;SAVE ERROR VECTOR
1575 003176 012737 003232 000004  MOV      #64,$@#ERRVEC ;;SET UP ERROR VECTOR
1576 003204 012737 177570 001040  MOV      #DSWR,SWR     ;;SETUP FOR A HARDWARE SWICH REGISTER
1577 003212 012737 177570 001042  MOV      #DDISP,DISPLAY ;;AND A HARDWARE DISPLAY REGISTER
1578 003220 022777 177777 175612  CMP      #-1,@SWR     ;;TRY TO REFERENCE HARDWARE SWR
1579 003226 001012          BNE      66$          ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
1580                                     ;;AND THE HARDWARE SWR IS NOT = -1
1581 003230 000403          BR       65$          ;;BRANCH IF NO TIMEOUT
1582 003232 012716 003240 64$:  MOV      #65$,(SP)   ;;SET UP FOR TRAP RETURN
1583 003236 000002          RTI                                     ;;RETURN
1584 003240 012737 000176 001040 65$:  MOV      #SWREG,SWR   ;;POINT TO SOFTWARE SWR
1585 003246 012737 000174 001042  MOV      #DISPREG,DISPLAY
1586 003254 012637 000004 66$:  MOV      (SP)+,@#ERRVEC ;;RESTORE ERROR VECTOR
1587
1588 003260 005037 001106          CLR      $PASS        ;;CLEAR PASS COUNT
1589 003264 132737 000200 001121  BITB    #APTSIZE,$ENVM ;;TEST USER SIZE UNDER APT
1590 003272 001403          BEQ     67$          ;;YES,USE NON-APT SWITCH
1591 003274 012737 001122 001040  MOV     #SWREG,SWR   ;;NO,USE APT SWITCH REGISTER
1592 003302 67$:
1593 .SBTTL GET VALUE FOR SOFTWARE SWITCH REGISTER
1594 003302 005737 000042          TST     @#42         ;;ARE WE RUNNING UNDER XXDP/ACT?
1595 003306 001012          BNE     68$         ;;BRANCH IF YES
1596 003310 123727 001120 000001  CMPB   $ENV,#1      ;;ARE WE RUNNING UNDER APT?
1597 003316 001406          BEQ     68$         ;;BRANCH IF YES
1598 003320 023727 001040 000176  CMP     SWR,#SWREG  ;;SOFTWARE SWITCH REG SELECTED?
1599 003326 001005          BNE     69$         ;;BRANCH IF NO
1600 003330 104406          GTSWR          ;;GET SOFT-SWR SETTINGS
1601 003332 000403          BR     69$
1602 003334 112737 000001 001034 68$:  MOVB   #1,$AUTOB   ;;SET AUTO-MODE INDICATOR
1603 003342 69$:
1604 003342 032777 000060 175470  BIT     #BIT4!BIT5,@SWR ;;IS SLU1 TO BE TESTED
1605 003350 001003          BNE     2$         ;;IF EITHER BIT IS SET THEN DON'T TEST IT
1606 003352 052737 000001 001156  BIS    #BIT0,$DEVM  ;;SET DEVICE FLAG TO TEST SLU1
1607 003360 032777 000050 175452 2$:  BIT     #BIT3!BIT5,@SWR ;;IS SLU2 TO BE TESTED
1608 003366 001003          BNE     3$         ;;IF EITHER BIT IS SET THEN DON'T TEST IT
1609 003370 052737 000002 001156  BIS    #BIT1,$DEVM  ;;SET DEVICE FLAG TO TEST SLU2

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GET VALUE FOR SOFTWARE SWITCH REGISTER

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1610 003376 032777 000100 175434 3$: BIT #BIT6,@SWR ;IS LTC TO BE TESTED
1611 003404 001003 BNE 4$ ;IF BIT IS SET THEN DON'T TEST IT.
1612 003406 052737 000004 001156 BIS #BIT2,$DEVM ;SET DEVICE FLAG TO TEST LTC
1613 003414 032737 000001 001156 4$: BIT #BIT0,$DEVM ;IS SLU1 UNDER TEST
1614 003422 001002 BNE TST1 ;IF YES TEST XMIT REG. BEFORE TYPING TITLE
1615 003424 000137 003660 JMP ID ;IF NO SKIP TESTS AND TYPE IT NOW
1616
1617
1618 ;:*****
1619 ;*TEST 1 TEST ABILITY TO ACCESS SLU1 TCSR
1620 ;:*****
1621 003430 000004 TST1: SCOPE
1622 003432 012737 000001 001104 MOV #1,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
1623 003440 013703 000004 MOV @#4,R3 ;SAVE TIMEOUT VECTOR
1624 003444 012737 003460 000004 MOV #1,$@#4 ;SET UP TIMEOUT VECTOR
1625 003452 005777 177306 TST @CTCSR ;REFERENCE THE XMIT COMMAND/STATUS REG.
1626 003456 000405 BR 2$ ;GO TO END OF TEST
1627 003460 022626 1$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER TIMEOUT
1628 003462 004737 013304 JSR PC,$ATY4 ;;ONLY REPORT A FATAL ERROR
1629 003466 000001 1 ;:THE ERROR NUMBER (FROM APT LIST)
1630 003470 000000 HALT
1631 003472 010337 000004 2$: MOV R3,@#4 ;RESTORE TIMEOUT VECTOR
1632
1633
1634 ;:*****
1635 ;*TEST 2 TEST ABILITY TO ACCESS SLU1 TBUF
1636 ;:*****
1637
1638 003476 000004 TST2: SCOPE
1639 003500 012737 000002 001104 MOV #2,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
1640 003506 013703 000004 MOV @#4,R3 ;SAVE TIMEOUT VECTOR
1641 003512 012737 003526 000004 MOV #1,$@#4 ;SET UP TIMEOUT VECTOR
1642 003520 005777 177242 TST @CTBUF ;REFERENCE THE XMIT BUFFER
1643 003524 000405 BR 2$ ;GO TO END OF TEST
1644 003526 022626 1$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER TIMEOUT
1645 003530 004737 013304 JSR PC,$ATY4 ;;ONLY REPORT A FATAL ERROR
1646 003534 000002 2 ;:THE ERROR NUMBER (FROM APT LIST)
1647 003536 000000 HALT
1648 003540 010337 000004 2$: MOV R3,@#4 ;RESTORE TIMEOUT VECTOR
1649
1650 ;:*****
1651 ;*TEST 3 TEST SLU1 TCSR BIT7(DONE) CLEARS WHEN XBUF IS LOADED
1652 ;:*****
1653
1654 003544 000004 TST3: SCOPE
1655 003546 012737 000003 001104 MOV #3,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
1656 003554 032737 000001 001120 BIT #1,@#ENV ;ARE WE RUNNING UNDER APT
1657 003562 001405 BEQ 70$ ;IF NO THEN DO TEST
1658 003564 005737 001106 TST @#PASS ;IS THIS FIRST PASS
1659 003570 001402 BEQ 70$ ;IF YES THEN DO THIS SERIES OF TESTS
1660 003572 000137 004402 JMP SLU2RT ;IF NO THEN SKIP THIS SERIES OF TESTS
1661 003576 005077 177164 70$: CLR @CTBUF ;LOAD XBUF
1662 003602 105777 177156 TSTB @CTCSR ;CHECK DONE
1663 003606 100011 BPL 1$ ;BR IF CLEAR
1664 ;FILL SECOND BUFFER, BECAUSE REFRESH COULD CAUSE
1665 ; FIRST TEST TO FAIL

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```

1666 003610 005077 177152          CLR      @CTBUF      ;FILL DOUBLE BUFFER
1667 003614 105777 177144          TSTB    @CTCSR      ;CHECK DONE
1668 003620 100004                    BPL     1$           ;BR IF CLEAR
1669 003622 004737 013304          JSR     PC,$ATY4    ;; ONLY REPORT A FATAL ERROR
1670 003626 000003                    3              ;; THE ERROR NUMBER (FROM APT LIST)
1671 003630 000000                    HALT                    ;TCSR "DONE" NOT CLEARED WITH TBUF FULL
1672 003632 005000          1$:    CLR      R0      ;CLEAR TIMER
1673 003634 105777 177124          2$:    TSTB    @CTCSR  ;CHECK FOR XMIT DONE
1674 003640 100407                    BMI     ID           ;IF DONE SETS, BR TO END OF TEST
1675 003642 005200                    INC     R0           ;INCREMENT TIMER
1676 003644 001373                    BNE     2$           ;BR IF TIMER NOT DONE
1677 003646 004737 013304          JSR     PC,$ATY4    ;; ONLY REPORT A FATAL ERROR
1678 003652 000004                    4              ;; THE ERROR NUMBER (FROM APT LIST)
1679 003654 000000                    HALT                    ;BR TO NEXT TEST, AND SKIP THE TYPEOUT THAT FOLLOWS
1680 003656 000416                    BR      TST4         ; BECAUSE OF THIS FAILURE
1681
1682
1683 003660 023737 000042 000046 ID:  CMP     @#42,@#46   ;UNDER ACT11?
1684 003666 001412                    BEQ     6$           ;IF YES, SKIP IDENT. TYPEOUT
1685 003670 005737 001106          TST     $PASS       ;IS THIS THE FIRST PASS?
1686 003674 001007                    BNE     6$           ;IF NOT BR TO NEXT TEST & SKIP THE IDENTIFICATION TYPEOU
1687 003676 005737 001110          TST     $DEVCT      ;IS THIS THE FIRST SUBPASS?
1688 003702 001004                    BNE     6$           ;IF NOT, BR TO NEXT TEST
1689 003704 104401                    TYPE                    ;TYPE PROGRAM IDENTIFICATION
1690 003706 025476                    M1
1691 003710 104401                    TYPE                    ;TYPE NUMBER OF DEVICES UNDER TEST
1692 003712 025510                    M2
1693 003714          6$:
1694
1695          ;;*****
1696          ;*TEST 4      TEST THAT SLU1 TCSR "DONE" SETS WITH RESET
1697          ;;*****
1698 003714 000004          TST4:  SCOPE
1699 003716 012737 000004 001104    MOV     #4,$TESTN   ;; SET TEST NUMBER IN APT MAIL BOX
1700 003724 032737 000001 001156    BIT     @BIT0,@$DEVM ;DO THESE TESTS FOR THIS DEVICE?
1701 003732 001002                    BNE     99$         ;F YES CONTINUE WITH TESTS
1702 003734 000137 004402          JMP     SLU2RT      ;IF NO GO TO START OF NEXT SET OF TESTS.
1703 003740          99$:
1704 003740 005077 177022          CLR     @CTBUF      ;LOAD TRANSMIT BUFFER
1705 003744 105777 177014          TSTB   @CTCSR      ;WAIT FOR DONE
1706 003750 100375                    BPL     1$           ;LOAD SECOND BUFFER
1707 003752 005077 177010          CLR     @CTBUF
1708 003756 000240                    NOP
1709 003760 000005                    RESET              ;CLEAR DONE WITH RESET
1710 003762 105777 176776          TSTB   @CTCSR      ;CHECK FOR DONE SET
1711 003766 100401                    BMI     TST5        ;BR TO NEXT TEST IF DONE SET
1712
1713 003770 104005          ERROR  5          ;TCSR "DONE" DOES NOT SET WITH RESET
1714
1715
1716
1717          ;;*****
1718          ;*TEST 5      TEST ABILITY TO ACCESS SLU1 RCSR
1719          ;;*****
1720 003772 000004          TST5:  SCOPE
1721 003774 012737 000005 001104    MOV     #5,$TESTN   ;;SET TEST NUMBER IN APT MAIL BOX

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GET VALUE FOR SOFTWARE SWITCH REGISTER

```

1722 004002 013703 000004          MOV    @#4,R3          ;SAVE TIMEOUT VECTOR
1723 004006 012737 004022 000004  MOV    #1$,@#4        ;SET UP TIMEOUT VECTOR
1724 004014 005777 176740          TST    @CRCSR         ;ACCESS RCSR
1725 004020 000402          BR     2$             ;BR TO END OF TEST
1726
1727 004022 022626          1$:   CMP    (SP)+,(SP)+ ;RESTORE SP AFTER TIMEOUT
1728 004024 104006          ERROR  6              ;CAN NOT ACCESS RCSR
1729 004026 010337 000004          2$:   MOV    R3,@#4    ;RESTORE TIMEOUT VECTOR
1730
1731
1732
1733 ;:*****
1734 ;*TEST 6 TEST ABILITY TO ACCESS SLU1 RBUF
1735 ;:*****
1735 004032 000004          TST6: SCOPE
1736 004034 012737 000006 001104  MOV    #6,$TESTN     ;;SET TEST NUMBER IN APT MAIL BOX
1737 004042 013703 000004          MOV    @#4,R3        ;SAVE TIMEOUT VECTOR
1738 004046 012737 004062 000004  MOV    #1$,@#4        ;SET UP TIMEOUT VECTOR
1739 004054 005777 176702          TST    @CRBUF        ;ACCESS RBUF
1740 004060 000402          BR     2$             ;BR TO END OF TEST
1741
1742 004062 022626          1$:   CMP    (SP)+,(SP)+ ;RESTORE SP AFTER TIMEOUT
1743 004064 104007          ERROR  7              ;CAN NOT ACCESS RBUF
1744 004066 010337 000004          2$:   MOV    R3,@#4    ;RESTORE TIMEOUT VECTOR
1745
1746
1747
1748
1749
1750 ;:*****
1751 ;*TEST 7 TEST THAT SLU1 BIT6(XMIT INT EN) CAN BE SET & RESET
1752 ;:*****
1753 004072 000004          TST7: SCOPE
1754 004074 012737 000007 001104  MOV    #7,$TESTN     ;;SET TEST NUMBER IN APT MAIL BOX
1755 004102 042777 000100 176654  BIC    #BIT6,@CTCSR  ;;MAKE SURE BIT UNDER TEST IS INITIALIZED
1756 004110 017703 176672          MOV    @CTVECT,R3    ;SAVE XMIT VECTOR
1757 004114 012777 004144 176664  MOV    #1$,@CTVECT   ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
1758 004122 004737 012356          JSR    PC,WRPSW      ;SET PSW TO PRIORITY=7
1759 004126 000340          .WORD  340
1760 004130 032777 000100 176626  BIT    #BIT6,@CTCSR  ;TEST BIT6 OF TCSR
1761 004136 001404          BEQ    2$             ;BR IF ZERO
1762 004140 104014          ERROR  14            ;BIT6 IN TCSR NOT CLEAR AFTER RESET
1763
1764 004142 000402          BR     2$
1765
1766 004144 022626          1$:   CMP    (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
1767 004146 104015          ERROR  15            ;XMIT INTERRUPT OCCURRED PRIO=7
1768
1769
1770 004150 052777 000100 176606  2$:   BIS    #BIT6,@CTCSR ;SET BIT6 OF TCSR
1771 004156 032777 000100 176600  BIT    #BIT6,@CTCSR  ;TEST BIT6 OF TCSR
1772 004164 001001          BNE    3$             ;BR, IF SET
1773
1774 004166 104016          ERROR  16            ;CANNOT SET BIT6 OF TCSR
1775
1776
1777 004170 042777 000100 176566  3$:   BIC    #BIT6,@CTCSR ;CLEAR BIT6 OF TCSR

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```

1778 004176 032777 000100 176560      BIT    #BIT6,@CTCSR    ;TEST BIT6 OF TCSR
1779 004204 001401                      BEQ    4$              ;BR IF CLEAR
1780 004206 104017                      ERROR  17              ;CANNOT CLEAR BIT6 OF TCSR
1781
1782
1783 004210                                4$:
1784 004210 052777 000100 176546      BIS    #BIT6,@CTCSR    ;SET BIT6 OF TCSR
1785 004216 000005                      RESET  ;CLEAR BIT6 WITH RESET
1786 004220 032777 000100 176536      BIT    #BIT6,@CTCSR    ;TEST BIT6 OF TCSR
1787 004226 001401                      BEQ    5$              ;BR IF CLEAR
1788
1789 004230 104020                      ERROR  20              ;CANNOT CLEAR BIT6 OF TCSR WITH RESET
1790
1791 004232 010377 176550      5$:  MOV    R3,@CTVECT    ;RESTORE XMIT VECTOR
1792
1793
1794
1795
1796
1797 004236 000004                      ;*****
1798 004240 012737 000010 001104      ;*TEST 10      TEST THAT SLU1 BIT6 OF RCSR CAN BE SET & RESET
1799 004246 042777 000100 176504      ;*****
1800 004254 017703 176522      TST10: SCOPE
1801 004260 012777 004310 176514      MOV    #10,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
1802 004266 004737 012356      BIC    #BIT6,@CRCSR    ;MAKE SURE BIT UNDER TEST IS INITIALIZED
1803 004272 000340                      MOV    @CRVECT,R3      ;SAVE RECEIVE VECTOR
1804 004274 032777 000100 176456      MOV    #1$,@CRVECT     ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
1805 004302 001404                      JSR    PC,WRPSW        ;SET PSW TO PRIORITY=7
1806 004304 104021                      .WORD  340
1807
1808 004306 000402                      BIT    #BIT6,@CRCSR    ;TEST BIT6 OF RCSR
1809
1810 004310 022626                      BEQ    2$              ;BIT6 OF RCSR NOT CLEAR AFTER RESET
1811 004312 104022                      ERROR  21
1812
1813
1814 004314 052777 000100 176436      1$:  BR    2$
1815 004322 032777 000100 176430      CMP    (SP)+,(SP)+     ;RESTORE SP AFTER INTERRUPT
1816 004330 001001                      ERROR  22              ;RCVR INTERRUPT WITH PRIORITY=7
1817
1818 004332 104023                      2$:  BIS    #BIT6,@CRCSR    ;SET BIT6 OF RCSR
1819
1820
1821 004334 042777 000100 176416      BIT    #BIT6,@CRCSR    ;TEST BIT6 OF RCSR
1822 004342 032777 000100 176410      BNE    3$              ;BR, IF SET
1823 004350 001401                      ERROR  23              ;CANNOT SET BIT6 OF RCSR
1824
1825 004352 104024                      3$:  BIC    #BIT6,@CRCSR    ;CLEAR BIT6 OF RCSR
1826
1827
1828 004354                                4$:  BIT    #BIT6,@CRCSR    ;TEST BIT6 OF RCSR
1829 004354 052777 000100 176376      BEQ    4$              ;BR, IF CLEAR
1830 004362 000005                      ERROR  24              ;CANNOT CLEAR BIT6 OF RCSR
1831 004364 032777 000100 176366      BIS    #BIT6,@CRCSR    ;SET BIT6 OF RCSR
1832 004372 001401                      RESET  ;CLEAR BIT6 OF RCSR WITH RESET
1833

```

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```

1834 004374 104025
1835
1836 004376 010377 176400
1837
1838
1839 004402
1840
1841
1842
1843
1844 004402 000004
1845 004404 012737 000011 001104
1846 004412 032737 000002 001156
1847 004420 001002
1848 004422 000137 005626
1849 004426
1850 004426 013703 000004
1851 004432 012737 004446 000004
1852 004440 005777 176310
1853 004444 000402
1854 004446 022626
1855 004450 104031
1856 004452 010337 000004
1857
1858
1859
1860
1861
1862
1863 004456 000004
1864 004460 012737 000012 001104
1865 004466 013703 000004
1866 004472 012737 004506 000004
1867 004500 005777 176252
1868 004504 000402
1869 004506 022626
1870 004510 104032
1871 004512 010337 000004
1872
1873
1874
1875
1876
1877 004516 000004
1878 004520 012737 000013 001104
1879 004526 032737 000001 001120
1880 004534 001403
1881 004536 005737 001106
1882 004542 001022
1883 004544
1884 004544 005077 176206
1885 004550 105777 176200
1886 004554 100006
1887
1888
1889 004556 005077 176174

```

```

ERROR 25
5$: MOV R3,@CRVECT ;CANNOT CLEAR BIT6 OF RCSR WITH RESET
;RESTORE RECEIVE VECTOR

SLU2RT:
;*****
;*TEST 11 TEST ABILITY TO ACCESS SLU2 TCSR
;*****
TST11: SCOPE
MOV #11,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
BIT #BIT1,@#$DEVM ;DO THESE TESTS FOR THIS DEVICE?
BNE 99$ ;F YES CONTINUE WITH TESTS
JMP LTCRT ;IF NO GO TO START OF NEXT SET OF TESTS.

99$: MOV @#4,R3 ;SAVE TIMEOUT VECTOR
MOV #1$,@#4 ;SET UP TIMEOUT VECTOR
TST @TCSR ;REFERENCE THE XMIT COMMAND/STATUS REG.
BR 2$ ;GO TO END OF TEST
1$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER TIMEOUT
ERROR 31 ;XMIT CSR ADDRESS DOES NOT RETURN SSYNC
2$: MOV R3,@#4 ;RESTORE TIMEOUT VECTOR

;*****
;*TEST 12 TEST ABILITY TO ACCESS SLU2 TBUF
;*****
TST12: SCOPE
MOV #12,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
MOV @#4,R3 ;SAVE TIMEOUT VECTOR
MOV #1$,@#4 ;SET UP TIMEOUT VECTOR
TST @TBUF ;REFERENCE THE XMIT BUFFER
BR 2$ ;GO TO END OF TEST
1$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER TIMEOUT
ERROR 32 ;XMIT BUFFER ADDRESS DOES NOT REUTRN SSYNC
2$: MOV R3,@#4 ;RESTORE TIMEOUT VECTOR

;*****
;*TEST 13 TEST SLU2 TCSR BIT7(DONE) CLEARS WHEN XBUF IS LOADED
;*****
TST13: SCOPE
MOV #13,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
BIT #1,@#$ENV ;ARE WE RUNNING UNDER APT
BEQ 70$ ;IF NO THEN DO TEST
TST @#$PASS ;IS THIS FIRST PASS
BNE TST14 ;IF NO THEN SKIP TO NEXT TEST

70$: CLR @TBUF ;LOAD XBUF
TSTB @TCSR ;CHECK DONE
BPL 1$ ;BR IF CLEAR
;FILL SECOND BUFFER, BECAUSE REFRESH COULD CAUSE
; FIRST TEST TO FAIL
CLR @TBUF ;FILL DOUBLE BUFFER

```

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1890 004562 105777 176166  
1891 004566 100001  
1892 004570 104033  
1893 004572 005000  
1894 004574 105777 176154  
1895 004600 100473  
1896 004602 005200  
1897 004604 001373  
1898 004606 104034  
1899  
1900  
1901  
1902  
1903

TSTB @TCSR ;CHECK DONE  
BPL 1\$ ;BR IF CLEAR  
ERROR 33 ;TCSR "DONE" NOT CLEARED WITH TBUF FULL  
1\$: CLR R0 ;CLEAR TIMER  
2\$: TSTB @TCSR ;CHECK FOR XMIT DONE  
BMI TST17 ;IF DONE SETS, BR TO NEXT TEST  
INC R0 ;INCREMENT TIMER  
BNE 2\$ ;BR IF TIMER NOT DONE  
ERROR 34 ;XMIT DONE BIT DOES NOT RESET AFTER TRANSMIT

1904 004610 000004  
1905 004612 012737 000014 001104  
1906 004620 032737 000001 001120  
1907 004626 001403  
1908 004630 005737 001106  
1909 004634 001015  
1910 004636  
1911 004636 005077 176114  
1912 004642 105777 176106  
1913 004646 100375  
1914 004650 005077 176102  
1915 004654 000240  
1916 004656 000005  
1917 004660 105777 176070  
1918 004664 100520  
1919  
1920 004666 104035  
1921  
1922  
1923  
1924  
1925  
1926

;;\*\*\*\*\*  
;\*TEST 14 TEST THAT SLU2 TCSR "DONE" SETS WITH RESET  
;;\*\*\*\*\*  
TST14: SCOPE  
MOV #14,\$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 TST15 ;IF NO THEN SKIP TO NEXT TEST  
70\$: CLR @TBUF ;LOAD TRANSMIT BUFFER  
1\$: TSTB @TCSR ;WAIT FOR DONE  
BPL 1\$  
CLR @TBUF ;LOAD SECOND BUFFER  
NOP  
RESET ;CLEAR DONE WITH RESET  
TSTB @TCSR ;CHECK FOR DONE SET  
BMI TST20 ;BR TO NEXT TEST IF DONE SET  
ERROR 35 ;TCSR "DONE" DOES NOT SET WITH RESET

1927 004670 000004  
1928 004672 012737 000015 001104  
1929 004700 013703 000004  
1930 004704 012737 004720 000004  
1931 004712 005777 176032  
1932 004716 000402  
1933  
1934 004720 022626  
1935 004722 104036  
1936 004724 010337 000004  
1937  
1938  
1939  
1940  
1941  
1942

;;\*\*\*\*\*  
;\*TEST 15 TEST ABILITY TO ACCESS SLU2 RCSR  
;;\*\*\*\*\*  
TST15: SCOPE  
MOV #15,\$TESTN ;;SET TEST NUMBER IN APT MAIL BOX  
MOV @#4,R3 ;SAVE TIMEOUT VECTOR  
MOV #1\$,@#4 ;SET UP TIMEOUT VECTOR  
TST @RCSR ;ACCESS RCSR  
BR 2\$ ;BR TO END OF TEST  
1\$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER TIMEOUT  
ERROR 36 ;CAN NOT ACCESS RCSR  
2\$: MOV R3,@#4 ;RESTORE TIMEOUT VECTOR

1943 004730 000004  
1944 004732 012737 000016 001104  
1945 004740 013703 000004

;;\*\*\*\*\*  
;\*TEST 16 TEST ABILITY TO ACCESS SLU2 RBUF  
;;\*\*\*\*\*  
TST16: SCOPE  
MOV #16,\$TESTN ;;SET TEST NUMBER IN APT MAIL BOX  
MOV @#4,R3 ;SAVE TIMEOUT VECTOR

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1946 004744 012737 004760 000004
1947 004752 005777 175774
1948 004756 000402
1949
1950 004760 022626
1951 004762 104037
1952 004764 010337 000004
1953
1954
1955
1956
1957
1958
1959 004770 000004
1960 004772 012737 000017 001104
1961 005000 042777 000001 175746
1962 005006 032777 000001 175740
1963 005014 001401
1964 005016 104040
1965 005020 052777 000001 175726
1966 005026 032777 000001 175720
1967 005034 001001
1968 005036 104041
1969 005040 042777 000001 175706
1970 005046 032777 000001 175700
1971 005054 001401
1972 005056 104042
1973 005060
1974 005060 032737 000001 001120
1975 005066 001403
1976 005070 005737 001106
1977 005074 001014
1978 005076
1979 005076 052777 000001 175650
1980 005104 000005
1981 005106 032777 000001 175640
1982 005114 001404
1983 005116 042777 000001 175630
1984 005124 104043
1985
1986
1987
1988
1989
1990 005126 000004
1991 005130 012737 000020 001104
1992 005136 042777 000100 175610
1993 005144 017703 175626
1994 005150 012777 005200 175620
1995 005156 004737 012356
1996 005162 000340
1997 005164 032777 000100 175562
1998 005172 001404
1999 005174 104044
2000
2001 005176 000402
    
```

```

MOV #1$,@#4 ;SET UP TIMEOUT VECTOR
TST @RBUF ;ACCESS RBUF
BR 2$ ;BR TO END OF TEST

1$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER TIMEOUT
ERROR 37 ;CAN NOT ACCESS RBUF
2$: MOV R3,@#4 ;RESTORE TIMEOUT VECTOR

;*****
;*TEST 17 TEST SLU2 BIT0(BREAK BIT) CAN BE SET & CLEARED & RESET
;*****
TST17: SCOPE
MOV #17,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
BIC #BIT0,@TCSR ;MAKE SURE BIT UNDER TEST IS INITIALIZED
BIT #BIT0,@TCSR ;CHECK BIT0 OF TCSR CLEAR
BEQ 1$ ;BR IF CLEAR
ERROR 40 ;BIT0 WAS NOT CLEAR AFTER RESET
1$: BIS #BIT0,@TCSR ;SET BIT0 IN TCSR
BIT #BIT0,@TCSR ;TEST BIT0 OF TCSR
BNE 2$ ;BR IF SET
ERROR 41 ;BIT0 OF TCSR WILL NOT SET
2$: BIC #BIT0,@TCSR ;CLEAR BIT0 OF TCSR
BIT #BIT0,@TCSR ;TEST BIT0 OF TCSR
BEQ 3$
ERROR 42 ;BIT0 OF TCSR WILL NOT CLEAR
3$: BIT #1,@#ENV ;ARE WE RUNNING UNDER APT
BEQ 70$ ;IF NO THEN DO TEST
TST @#$PASS ;IS THIS FIRST PASS
BNE TST20 ;IF NO THEN SKIP TO NEXT TEST
70$: BIS #BIT0,@TCSR ;SET BIT0 IN TCSR
RESET ;CLEAR BIT0 WITH RESET
BIT #BIT0,@TCSR ;TEST BIT0 CLEAR
BEQ TST20 ;BR IF CLEAR
BIC #BIT0,@TCSR ;CLEAR BIT0, TO PRINT ERROR
ERROR 43 ;RESET DID NOT CLEAR BIT0 OF TCSR

;*****
;*TEST 20 TEST THAT SLU2 BIT6(XMIT INT EN) CAN BE SET & RESET
;*****
TST20: SCOPE
MOV #20,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
BIC #BIT6,@TCSR ;MAKE SURE BIT UNDER TEST IS INITIALIZED
MOV @TVECT,R3 ;SAVE XMIT VECTOR
MOV #1$,@TVECT ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
JSR PC,WRPSW ;SET PSW TO PRIORITY=7
;WORD 340
BIT #BIT6,@TCSR ;TEST BIT6 OF TCSR
BEQ 2$ ;BR IF ZERO
ERROR 44 ;BIT6 IN TCSR NOT CLEAR AFTER RESET
BR 2$
    
```

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2002
2003 005200 022626      1$:  CMP      (SP)+,(SP)+      ;RESTORE SP AFTER INTERRUPT
2004 005202 104045      ERROR  45
2005                                     ;XMIT INTERRUPT OCCURRED  PRI0=7
2006
2007 005204 052777 000100 175542 2$:  BIS      #BIT6,@TCSR      ;SET BIT6 OF TCSR
2008 005212 032777 000100 175534  BIT      #BIT6,@TCSR      ;TEST BIT6 OF TCSR
2009 005220 001001      BNE      3$                ;BR, IF SET
2010
2011 005222 104046      ERROR  46
2012                                     ;CANNOT SET BIT6 OF TCSR
2013
2014 005224 042777 000100 175522 3$:  BIC      #BIT6,@TCSR      ;CLEAR BIT6 OF TCSR
2015 005232 032777 000100 175514  BIT      #BIT6,@TCSR      ;TEST BIT6 OF TCSR
2016 005240 001401      BEQ      4$                ;BR IF CLEAR
2017 005242 104047      ERROR  47
2018                                     ;CANNOT CLEAR BIT6 OF TCSR
2019
2020 005244 032737 000001 001120 4$:  BIT      #1,@#$ENV        ;ARE WE RUNNING UNDER APT
2021 005252 001403      BEQ      70$               ;IF NO THEN DO TEST
2022 005254 005737 001106      TST      @#$PASS          ;IS THIS FIRST PASS
2023 005260 001011      BNE      5$                ;IF NO THEN SKIP TO END OF TEST
2024 005262
2025 005262 052777 000100 175464 70$: BIS      #BIT6,@TCSR      ;SET BIT6 OF TCSR
2026 005270 000005      RESET
2027 005272 032777 000100 175454  BIT      #BIT6,@TCSR      ;CLEAR BIT6 WITH RESET
2028 005300 001401      BEQ      5$                ;TEST BIT6 OF TCSR
2029                                     ;BR IF CLEAR
2030 005302 104050      ERROR  50
2031                                     ;CANNOT CLEAR BIT6 OF TCSR WITH RESET
2032 005304 010377 175466 5$:  MOV      R3,@TVECT        ;RESTORE XMIT VECTOR
2033
2034
2035 ;:*****
2036 ;*TEST 21      TEST THAT SLU2 BIT6 OF RCSR CAN BE SET & RESET
2037 ;:*****
2038 005310 000004      TST21: SCOPE
2039 005312 012737 000021 001104  MOV      #21,$TESTN        ;;SET TEST NUMBER IN APT MAIL BOX
2040 005320 042777 000100 175422  BIC      #BIT6,@RCSR        ;MAKE SURE BIT UNDER TEST IS INITIALIZED
2041 005326 017703 175440      MOV      @RVECT,R3          ;SAVE RECEIVE VECTOR
2042 005332 012777 005362 175432  MOV      #1$,@RVECT        ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
2043 005340 004737 012356      JSR      PC,WRPSW          ;SET PSW TO PRIORITY=7
2044 005344 000340      .WORD   340
2045 005346 032777 000100 175374  BIT      #BIT6,@RCSR        ;TEST BIT6 OF RCSR
2046 005354 001404      BEQ      2$                ;BIT6 OF RCSR NOT CLEAR AFTER RESET
2047 005356 104051      ERROR  51
2048
2049 005360 000402      BR       2$
2050
2051 005362 022626      1$:  CMP      (SP)+,(SP)+      ;RESTORE SP AFTER INTERRUPT
2052 005364 104052      ERROR  52
2053                                     ;RCVR INTERRUPT WITH PRIORITY=7
2054
2055 005366 052777 000100 175354 2$:  BIS      #BIT6,@RCSR      ;SET BIT6 OF RCSR
2056 005374 032777 000100 175346  BIT      #BIT6,@RCSR      ;TEST BIT6 OF RCSR
2057 005402 001001      BNE      3$                ;BR, IF SET

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2058
2059 005404 104053          ERROR 53          ;CANNOT SET BIT6 OF RCSR
2060
2061
2062 005406 042777 000100 175334 3$:  BIC  #BIT6,@RCSR  ;CLEAR BIT6 OF RCSR
2063 005414 032777 000100 175326  BIT  #BIT6,@RCSR  ;TEST BIT6 OF RCSR
2064 005422 001401          BEQ  4$          ;BR, IF CLEAR
2065
2066 005424 104054          ERROR 54          ;CANNOT CLEAR BIT6 OF RCSR
2067
2068
2069 005426 032737 000001 001120 4$:  BIT  #1,@#$ENV    ;ARE WE RUNNING UNDER APT
2070 005434 001403          BEQ  70$         ;IF NO THEN DO TEST
2071 005436 005737 001106          TST  @#$PASS     ;IS THIS FIRST PASS
2072 005442 001011          BNE  5$          ;IF NO THEN SKIP TO END OF TEST
2073 005444
2074 005444 052777 000100 175276 70$:  BIS  #BIT6,@RCSR  ;SET BIT6 OF RCSR
2075 005452 000005          RESET ;CLEAR BIT6 OF RCSR WITH RESET
2076 005454 032777 000100 175266  BIT  #BIT6,@RCSR  ;TEST BIT6 OF RCSR
2077 005462 001401          BEQ  5$          ;BR, IF CLEAR
2078
2079 005464 104055          ERROR 55          ;CANNOT CLEAR BIT6 OF RCSR WITH RESET
2080
2081 005466 010377 175300          5$:  MOV  R3,@RVECT  ;RESTORE RECEIVE VECTOR
2082
2083
2084
2085
2086
2087
2088 005472 000004          ;:*****
2089 005474 012737 000022 001104  ;*TEST 22 TEST THAT SLU2 RCVR DONE (7) SET & CLEAR PROPERLY
2090 005502 005077 175244          ;:*****
2091 005506 005000          TST22: SCOPE
2092 005510 005077 175242          MOV  #22,$TESTN  ;;SET TEST NUMBER IN APT MAIL BOX
2093 005514 105777 175230          CLR  @RBUF       ;INITIALIZE REGISTER BEFORE TESTING
2094 005520 100403          CLR  R0          ;CLEAR TIMER
2095 005522 005200          CLR  @TBUF       ;LOAD TRANSMIT BUFFER
2096 005524 001373          WDONE: TSTB @RCSR  ;CHECK FOR RECEIVER DONE
2097 005526 104056          BMI  1$         ;BR, IF DONE
2098
2099
2100 005530 032737 000001 001120 1$:  BIT  #1,@#$ENV    ;ARE WE RUNNING UNDER APT
2101 005536 001403          BEQ  70$         ;IF NO THEN DO TEST
2102 005540 005737 001106          TST  @#$PASS     ;IS THIS FIRST PASS
2103 005544 001005          BNE  2$         ;IF NO THEN SKIP TO END OF TEST
2104 005546
2105 005546 000005          70$:  RESET ;CLEAR DONE WITH RESET
2106 005550 105777 175174          TSTB @RCSR       ;CHECK FOR DONE CLEAR
2107 005554 001401          BEQ  2$
2108
2109 005556 104057          ERROR 57
2110
2111 005560 005777 175166          2$:  TST  @RBUF
2112
2113

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2114
2115
2116
2117
2118 005564 000004
2119 005566 012737 000023 001104
2120 005574 005077 175152
2121 005600 005077 175152
2122 005604 105777 175140
2123 005610 100375
2124 005612 017700 175134
2125 005616 105777 175126
2126 005622 001401
2127 005624 104060
2128
2129 005626
2130
2131
2132
2133
2134 005626 000004
2135 005630 012737 000024 001104
2136 005636 032737 000004 001156
2137 005644 001002
2138 005646 000137 006100
2139 005652
2140 005652 013703 000004
2141 005656 012737 005672 000004
2142 005664 005777 175100
2143 005670 000402
2144
2145 005672 022626
2146 005674 104061
2147
2148 005676 010337 000004
2149
2150
2151
2152
2153 005702 000004
2154 005704 012737 000025 001104
2155 005712 042777 000100 175050
2156 005720 017703 175066
2157 005724 012777 005754 175060
2158 005732 004737 012356
2159 005736 000340
2160 005740 032777 000100 175022
2161 005746 001404
2162 005750 104062
2163
2164 005752 000402
2165
2166 005754 022626
2167 005756 104063
2168
2169

```

```

*****
*TEST 23 TEST SLU2 THAT READING RBUF CLEARS RECEIVER DONE
*****
TST23: SCOPE
MOV #23,$TESTN ;SET TEST NUMBER IN APT MAIL BOX
CLR @RBUF ;INITIALIZE REGISTER BEFORE TESTING
CLR @TBUF ;LOAD TRANSMITTER
1$: TSTB @RCSR ;WAIT FOR RECEIVER DONE
BPL 1$
MOV @RBUF,R0 ;READ RECEIVE BUFFER
TSTB @RCSR ;CHECK FOR RECEIVE DONE CLEAR
BEQ TST24 ;BR, IF CLEAR TO NEXT TEST
ERROR 60 ;READING RBUF DID NOT CLEAR RCVR DONE

LTCRT:
*****
*TEST 24 TEST ABILITY TO ACCESS LKS
*****
TST24: SCOPE
MOV #24,$TESTN ;SET TEST NUMBER IN APT MAIL BOX
BIT #BIT2,@#DEVN ;DO THESE TESTS FOR THIS DEVICE?
BNE 99$ ;F YES CONTINUE WITH TESTS
JMP UNIQUE ;IF NO GO TO START OF NEXT SET OF TESTS.

99$: MOV @#4,R3 ;SAVE TIMEOUT VECTOR
MOV #1$,@#4 ;SET UP TIMEOUT VECTOR
TST @LKS ;ACCESS LKS
BR 2$ ;NO TIMEOUT - BR TO END OF TEST

1$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER TIMEOUT
ERROR 61 ;CAN NOT ACCESS LKS

2$: MOV R3,@#4 ;RESTORE TIMEOUT VECTOR

*****
*TEST 25 TEST THAT BIT6 OF LKS CAN BE SET & RESET
*****
TST25: SCOPE
MOV #25,$TESTN ;SET TEST NUMBER IN APT MAIL BOX
BIC #BIT6,@LKS ;MAKE SURE BIT UNDER TEST IS INITIALIZED BEFORE TESTING
MOV @RTCVT,R3 ;SAVE LINE CLOCK VECTOR
MOV #1$,@RTCVT ;SET UP INTERRUPT VECTOR FOR ERROR REPORT
JSR PC,WRPSW ;SET PSW TO PRIORITY 7
.WORD 340
BIT #BIT6,@LKS ;TEST BIT6 OF LKS
BEQ 2$
ERROR 62 ;BIT6 OF LKS NOT CLEAR AFTER RESET

BR 2$

1$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
ERROR 63 ;LKS INTERRUPT WITH PRIORITY=7

```

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2170 005760 052777 000100 175002 2$: BIS #BIT6,@LKS ;SET BIT6 OF LKS
2171 005766 032777 000100 174774 BIT #BIT6,@LKS ;TEST BIT6 OF LKS
2172 005774 001001 BNE 3$ ;BR IF SET
2173
2174 005776 104064 ERROR 64 ;CANNOT SET BIT6 OF LKS
2175
2176
2177 006000 042777 000100 174762 3$: BIC #BIT6,@LKS ;CLEAR BIT6 OF LKS
2178 006006 032777 000100 174754 BIT #BIT6,@LKS ;TEST BIT6 OF LK
2179 006014 001401 BEQ 4$
2180 006016 104065 ERROR 65 ;CANNOT CLEAR BIT6 OF LKS
2181 ;ARE WE RUNNING UNDER APT
2182 006020 032737 000001 001120 4$: BIT #1,@#ENV ;IF NO THEN DO TEST
2183 006026 001403 BEQ 70$ ;IS THIS FIRST PASS
2184 006030 005737 001106 TST @#PASS ;IF NO THEN SKIP TO END OF TEST
2185 006034 001011 BNE 5$
2186 006036
2187 006036 052777 000100 174724 70$: BIS #BIT6,@LKS ;SET BIT6 OF LKS
2188 006044 000005 RESET ;CLEAR BIT6 OF LKS WITH RESET
2189 006046 032777 000100 174714 BIT #BIT6,@LKS ;TEST BIT6 OF LKS
2190 006054 001401 BEQ 5$ ;BR IF CLEAR
2191
2192 006056 104066 ERROR 66 ;CANNOT CLEAR BIT6 OF LKS WITH RESET
2193 ;RESTORE LINE CLOCK VECTOR
2194 006060 010377 174726 5$: MOV R3,@RTCVT ;GO TO NEXT TEST
2195 006064 000405 BR UNIQUE
2196
2197
2198 006066 177560 DADTBL: .WORD 177560
2199 006070 177564 .WORD 177564
2200 006072 176500 .WORD 176500
2201 006074 176504 .WORD 176504
2202 006076 177564 TBLEND: .WORD 177564
2203
2204
2205 006100 UNIQUE:
2206
2207 ;*****
2208 ;*TEST 26 UNIQUE INTERNAL ADDRESS TEST
2209 ;*****
2210 006100 000004 TST26: SCOPE
2211 006102 012737 000026 001104 MOV #26,$TESTN ;SET TEST NUMBER IN APT MAIL BOX
2212 006110 032737 000001 001120 BIT #1,@#ENV ;ARE WE RUNNING UNDER APT
2213 006116 001403 BEQ 70$ ;IF NO THEN DO TEST
2214 006120 005737 001106 TST @#PASS ;IS THIS FIRST PASS
2215 006124 001056 BNE TST27 ;IF NO THEN SKIP TO NEXT TEST
2216 006126
2217 006126 012737 000340 177776 70$: MOV #340,PS ;WE WILL BE PLAYING WITH BIT6
2218 ;SO LOCK OUT EXTRANEIOUS INTERRUPTS
2219 006134 012700 006066 MOV #DADTBL,R0 ;GET LOCATION OF FIRST REGISTER ADDRESS
2220 006140 012703 006066 1$: MOV #DADTBL,R3 ;MAKE R3 POINT TO LOCATION OF FIRST
;REGISTER ADDRESS
2221 ;SET LOOP COUNTER TO CLEAR ALL REG.
2222 006144 012701 000005 MOV #5,R1 ;CLEAR A REGISTER
2223 006150 005033 2$: CLR @R3+ ;LOOP UNTIL ALL REGISTERS CLEARED
2224 006152 077102 SOB R1,2$ ;SET TEST BIT IN DEVICE REGISTERS
2225 006154 012770 000100 000000 MOV #BIT6,@R0

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2226 006162 012701 006066      MOV    #DADTBL,R1      ;GET LOCATION OF FIRST REGISTER ADDRESS
2227 006166 012702 000005      MOV    #5,R2          ;SET UP TEST LOOP COUNTER
2228 006172 032731 000100      3$:   BIT    #BIT6,@(R1)+ ;IS TEST BIT SET IN THIS REGISTER
2229 006176 001006              BNE    5$             ;IF YES GO SEE IF THERE IS AN ERROR
2230 006200 077204              4$:   SOB   R2,3$      ;LOOP UNTIL ALL REGISTER CHECKED
2231 006202 005030              CLR    @(R0)+        ;CLEAR REGISTER JUST TESTED AND POINT
2232                                ;TO NEXT ONE
2233 006204 020027 006076      CMP    R0,#TBLEND    ;
2234 006210 001421              BEQ    7$             ;
2235 006212 000752              BR     1$             ;CONTINUE TESTING
2236 006214 021041              5$:   CMP    (R0),-(R1) ;DID WE COMPARE THE REGISTER TO ITSELF?
2237 006216 001413              BEQ    6$             ;IF YES GET OVER ERROR CALL
2238 006220 011037 001020      MOV    (R0),#GDADR   ;IF NO SET UP ERROR INFORMATION
2239 006224 011137 001022      MOV    (R1),#BDADR
2240 006230 017037 000000 001024  MOV    @ (R0),#GDDAT
2241 006236 017137 000000 001026  MOV    @ (R1),#BDDAT
2242 006244 104072              ERROR  72            ;WRITE TO 1 INTERNAL ADDRESS MODIFIED
2243                                ;ANOTHER SO ADDRESS NOT UNIQUE
2244 006246 062701 000002      6$:   ADD    #2,R1     ;RESTORE POINTER
2245 006252 000752              BR     4$             ;GET BACK IN TEST LOOP
2246 006254 005000              7$:   CLR    R0
2247 006256 005200              8$:   INC    R0
2248 006260 001376              BNE    8$
2249
2250 006262      SLUIT:
2251
2252      ;:*****
2253      ;*TEST 27      TEST THAT SLU1 XMIT INTERRUPTS ONLY WHEN ENABLED
2254      ;:*****
2255 006262 000004      TST27: SCOPE
2256 006264 012737 000027 001104      MOV    #27,#TESTN   ;:SET TEST NUMBER IN APT MAIL BOX
2257 006272 032737 000001 001120      BIT    #1,@#ENV     ;:IF NOT UNDER APT
2258 006300 001405              BEQ    70$          ; THEN RUN THIS SERIES OF TESTS
2259 006302 005737 001106      TST    @#PASS       ; ELSE IF FIRST PASS
2260 006306 001402              BEQ    70$          ; THEN RUN THESE TESTS
2261 006310 000137 007016      JMP    SLU2IT       ; ELSE DO NOT RUN THESE TESTS
2262 006314
2263 006314 032737 000001 001156      70$:   BIT    #BIT0,@#DEVH ;DO THESE TESTS FOR THIS DEVICE?
2264 006322 001002              BNE    99$          ;F YES CONTINUE WITH TESTS
2265 006324 000137 007016      JMP    SLU2IT       ;IF NO GO TO START OF NEXT SET OF TESTS.
2266 006330
2267 006330 000005      99$:   RESET
2268 006332 042777 000100 174424      BIC    #BIT6,@CTCSR ;CLEAR THE WORLD
2269 006340 017703 174442              MOV    @CTVECT,R3   ;CLEAR TRANSMIT INTERRUPT ENABLE
2270 006344 012777 006370 174434      MOV    #2,@CTVECT   ;SAVE XMIT VECTOR
2271 006352 105777 174406      1$:   TSTB   @CTCSR     ;POINT XMIT VECTOR TO ERROR REPORT
2272 006356 100375              BPL    1$           ;WAIT FOR DONE
2273 006360 004737 012356      JSR    PC,WRPSW     ;SET PSW TO PRIORITY 3
2274 006364 000140              .WORD 140
2275 006366 000402              BR     3$
2276
2277 006370 022626      2$:   CMP    (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
2278 006372 104074              ERROR  74
2279
2280 006374 012777 006414 174404      3$:   MOV    #4,@CTVECT  ;XMIT INTERRUPTS WITH INTERRUPT ENABLE CLEAR
2281 006402 052777 000100 174354      BIS    #BIT6,@CTCSR ;SET XMIT VECTOR TO END OF TEST
                                ;ENABLE INTERRUPTS

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2282 006410 000240          NOP
2283
2284 006412 104075          ERROR 75          ;XMIT DID NOT INTERRUPT
2285
2286 006414 042777 000100 174342 4$: BIC  #BIT6,@CTCSR ;DISABLE INTERRUPTS
2287 006422 022626          CMP  (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
2288 006424 010377 174356          MOV  R3,@CTVECT ;RESTORE XMIT VECTOR
2289
2290
2291
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2293
2294 006430 000004          ;*****
2295 006432 012737 000030 001104 ;*TEST 30 TEST SLU1 XMIT INTERRUPTS DO NOT OCCUR WHEN DISABLED
2296 006440 042777 000100 174316 ;*****
2297 006446 004737 012356 TST30: SCOPE
2298 006452 000340          MOV  #30,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
2299 006454 017703 174326          BIC  #BIT6,@CTCSR ;DISABLE INTERRUPTS
2300 006460 012777 006506 174320          JSR  PC,WRPSW ;SET PSW TO PRIORITY 7
2301 006466 105777 174272          .WORD 340
2302 006472 100375          MOV  @CTVECT,R3 ;SAVE XMIT VECTOR
2303 006474 052777 000100 174262          MOV  #2,@CTVECT ;POINT XMIT VECTOR TO ERROR REPORT
2304 006502 000240          TSTB @CTCSR ;WAIT FOR DONE
2305 006504 000402          BPL  1$
2306
2307 006506 022626          BIS  #BIT6,@CTCSR ;ENABLE INTERRUPT
2308 006510 104076          NOP
2309
2310 006512 042777 000100 174244 3$: BR  3$ ;CONTINUE TEST
2311 006520 012777 006540 174260          CMP  (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
2312 006526 004737 012356          ERROR 76
2313 006532 000140          ;XMIT INTERRUPTS AT PRIORITY=7
2314 006534 000240          MOV  #4,@CTVECT ;CLEAR INTERRUPT ENABLE
2315 006536 000402          JSR  PC,WRPSW ;POINT XMIT VECTOR TO ERROR REPORT
2316
2317 006540 022626          .WORD 140 ;SET PSW TO PRIORITY 3
2318 006542 104077          NOP
2319
2320 006544 010377 174236          BR  5$ ;BR TO END OF TEST-NO INTERRUPT
2321
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2326 006550 000004          ;*****
2327 006552 012737 000031 001104 ;*TEST 31 TEST SLU1 TRANSMITTER FOR DOUBLE INTERRUPTS
2328 006560 042777 000100 174176 ;*****
2329 006566 017703 174214 TST31: SCOPE
2330 006572 017704 174212          MOV  #31,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
2331 006576 012777 006640 174202          BIC  #BIT6,@CTCSR ;CLEAR INTERRUPT ENABLE
2332 006604 012777 000340 174176          MOV  @CTVECT,R3 ;SAVE XMIT VECTOR
2333 006612 004737 012356          MOV  @CTPSW,R4 ;SAVE XMIT PSW VECTOR
2334 006616 000140          MOV  #2,@CTVECT ;SET UP XMIT VECTOR
2335 006620 105777 174140          MOV  #340,@CTPSW ;SET PIO 7 AFTER INTERRUPT
2336 006624 100375          JSR  PC,WRPSW ;SET PSW TO PRIORITY 3
2337 006626 052777 000100 174130          .WORD 140
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2338 006634 000240          NOP
2339
2340 006636 104100          ERROR    100
2341
2342 006640 022626          2$:  CMP    (SP)+,(SP)+    ;XMIT INTERRUPT DID NOT OCCUR
2343 006642 012777 006670 174136  MOV    #4$,@CTVECT    ;RESTORE SP AFTER INTERRUPT
2344 006650 004737 012356          JSR    PC,WRPSW      ;POINT XMIT VECTOR TO ERROR
2345 006654 000140          .WORD  140          ;SET PSW TO PRIORITY 3
2346 006656 000240          NOP
2347 006660 042777 000100 174076  BIC    #BIT6,@CTCSR  ;GIVE TIME FOR ANY INTERRUPTS
2348 006666 000402          BR     5$           ;DISABLE INTERRUPTS
2349
2350 006670 022626          4$:  CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2351 006672 104101          ERROR    101
2352
2353 006674 010377 174106          5$:  MOV    R3,@CTVECT    ;XMIT RE-INTERRUPTED
2354 006700 010477 174104          MOV    R4,@CTPSW    ;RESTORE XMIT VECTOR
2355
2356
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2359 006704 000004          ;:*****
2360 006706 012737 000032 001104  ;*TEST 32  TEST THAT SLU1 XMIT INTERRUPT CLEARS WITH LOADING TBUF
2361 006714 042777 000100 174042  ;:*****
2362 006722 004737 012356          TST32: SCOPE
2363 006726 000340          MOV    #32,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
2364 006730 017703 174052          BIC    #BIT6,@CTCSR  ;DISABLE INTERRUPTS
2365 006734 012777 007006 174044  JSR    PC,WRPSW      ;SET PSW TO PRIORITY 7
2366 006742 052777 000100 174014  .WORD  340
2367 006750 005077 174012          MOV    @CTVECT,R3    ;SAVE XMIT VECTOR
2368 006754 105777 174004          1$:  MOV    #2$,@CTVECT    ;POINT XMIT VECTOR TO ERROR
2369 006760 100375          BIS    #BIT6,@CTCSR  ;ENABLE INTERRUPTS
2370 006762 005077 174000          CLR    @CTBUF        ;LOAD TBUF
2371 006766 004737 012356          CLR    @CTCSR        ;WAIT FOR DONE (INTERRUPT)
2372 006772 000140          BPL    1$           ;FILL SECOND BUFFER TO RESET INT.
2373 006774 000240          CLR    @CTBUF        ;ALLOW INTERRUPTS
2374 006776 042777 000100 173760  JSR    PC,WRPSW      .WORD  140
2375 007004 000402          NOP
2376
2377 007006 022626          2$:  CMP    (SP)+,(SP)+    ;GIVE TIME FOR ANY INTERRUPTS
2378 007010 104102          ERROR    102          ;DISABLE INTERRUPTS
2379
2380 007012 010377 173770          3$:  BR     3$           ;BR TO END OF TEST
2381
2382
2383 007016          SLU2IT:
2384
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2388 007016 000004          ;:*****
2389 007020 012737 000033 001104  ;*TEST 33  TEST THAT SLU2 XMIT INTERRUPTS ONLY WHEN ENABLED
2390 007026 032737 000002 001156  ;:*****
2391 007034 001002          TST33: SCOPE
2392 007036 000137 010762          MOV    #33,$TESTN    ;;SET TEST NUMBER IN APT MAIL BOX
2393 007042          BIT    #BIT1,@$DEVN  ;DO THESE TESTS FOR THIS DEVICE?
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2394 007042 042777 000100 173704      BIC    #BIT6,@TCSR      ;CLEAR TRANSMIT INTERRUPT ENABLE
2395 007050 017703 173722              MOV    @TVECT,R3        ;SAVE XMIT VECTOR
2396 007054 012777 007100 173714      MOV    #2,@TVECT        ;POINT XMIT VECTOR TO ERROR REPORT
2397 007062 105777 173666      1$:   TSTB   @TCSR            ;WAIT FOR DONE
2398 007066 100375              BPL    1$
2399 007070 004737 012356      JSR    PC,WRPSW         ;SET PSW TO PRIORITY 3
2400 007074 000140              .WORD 140
2401 007076 000402              BR     3$
2402
2403 007100 022626      2$:   CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2404 007102 104116      ERROR 116
2405              ;XMIT INTERRUPTS WITH INTERRUPT ENABLE CLEAR
2406 007104 012777 007124 173664 3$:   MOV    #4,@TVECT        ;SET XMIT VECTOR TO END OF TEST
2407 007112 052777 000100 173634      BIS    #BIT6,@TCSR      ;ENABLE INTERRUPTS
2408 007120 000240      NOP
2409
2410 007122 104117      ERROR 117              ;XMIT DID NOT INTERRUPT
2411
2412 007124 042777 000100 173622 4$:   BIC    #BIT6,@TCSR      ;DISABLE INTERRUPTS
2413 007132 022626      CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2414 007134 010377 173636      MOV    R3,@TVECT       ;RESTORE XMIT VECTOR
2415
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2418              ;*****
2418              ;*TEST 34      TEST SLU2 XMIT INTERRUPTS DO NOT OCCUR WHEN DISABLED
2418              ;*****
2419
2420 007140 000004      TST34: SCOPE
2421 007142 012737 000034 001104      MOV    #34,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2422 007150 042777 000100 173576      BIC    #BIT6,@TCSR      ;DISABLE INTERRUPTS
2423 007156 004737 012356      JSR    PC,WRPSW         ;SET PSW TO PRIORITY 7
2424 007162 000340              .WORD 340
2425 007164 017703 173606      MOV    @TVECT,R3        ;SAVE XMIT VECTOR
2426 007170 012777 007216 173600      MOV    #2,@TVECT        ;POINT XMIT VECTOR TO ERROR REPORT
2427 007176 105777 173552      1$:   TSTB   @TCSR            ;WAIT FOR DONE
2428 007202 100375              BPL    1$
2429 007204 052777 000100 173542      BIS    #BIT6,@TCSR      ;ENABLE INTERRUPT
2430 007212 000240      NOP
2431 007214 000402      BR     3$              ;CONTINUE TEST
2432
2433 007216 022626      2$:   CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2434 007220 104120      ERROR 120
2435              ;XMIT INTERRUPTS AT PRIORITY=7
2436 007222 042777 000100 173524 3$:   BIC    #BIT6,@TCSR      ;CLEAR INTERRUPT ENABLE
2437 007230 012777 007250 173540      MOV    #4,@TVECT        ;POINT XMIT VECTOR TO ERROR REPORT
2438 007236 004737 012356      JSR    PC,WRPSW         ;SET PSW TO PRIORITY 3
2439 007242 000140              .WORD 140
2440 007244 000240      NOP
2441 007246 000402      BR     5$              ;BR TO END OF TEST-NO INTERRUPT
2442
2443 007250 022626      4$:   CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2444 007252 104121      ERROR 121
2445              ;XMIT INTERRUPT OCCURES WITH BIT6 CLEAR
2446 007254 010377 173516 5$:   MOV    R3,@TVECT       ;RESTORE XMIT VECTOR
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2454 007260 000004
2455 007262 012737 000035 001104
2456 007270 042777 000100 173456
2457 007276 017703 173474
2458 007302 017704 173472
2459 007306 012777 007350 173462
2460 007314 012777 000340 173456
2461 007322 004737 012356
2462 007326 000140
2463 007330 105777 173420 1$: TSTB @TCSR ;WAIT FOR DONE
2464 007334 100375 BPL 1$
2465 007336 052777 000100 173410 BIS #BIT6,@TCSR ;ENABLE INTERRUPTS
2466 007344 000240 NOP
2467
2468 007346 104122 ERROR 122
2469
2470 007350 022626
2471 007352 012777 007400 173416 2$: CMP (SP)+,(SP)+ ;XMIT INTERRUPT DID NOT OCCUR
2472 007360 004737 012356 MOV #4,@TVECT ;RESTORE SP AFTER INTERRUPT
2473 007364 000140 JSR PC,WRPSW ;POINT XMIT VECTOR TO ERROR
2474 007366 000240 .WORD 140 ;SET PSW TO PRIORITY 3
2475 007370 042777 000100 173356 NOP ;GIVE TIME FOR ANY INTERRUPTS
2476 007376 000402 BIC #BIT6,@TCSR ;DISABLE INTERRUPTS
2477 BR 5$ ;BR TO END OF TEST
2478 007400 022626 4$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
2479 007402 104123 ERROR 123
2480
2481 007404 010377 173366 5$: MOV R3,@TVECT ;XMIT RE-INTERRUPTED
2482 007410 010477 173364 MOV R4,@TPSW ;RESTORE XMIT VECTOR
2483 ;RESTORE XMIT PSW VECTOR
2484
2485
2486
2487 007414 000004
2488 007416 012737 000036 001104
2489 007424 032737 000001 001120
2490 007432 001403
2491 007434 005737 001106
2492 007440 001046
2493 007442
2494 007442 042777 000100 173304 70$: BIC #BIT6,@TCSR ;DISABLE INTERRUPTS
2495 007450 004737 012356 JSR PC,WRPSW ;SET PSW TO PRIORITY 7
2496 007454 000340 .WORD 340
2497 007456 017703 173314 MOV @TVECT,R3 ;SAVE XMIT VECTOR
2498 007462 012777 007534 173306 MOV #2,@TVECT ;POINT XMIT VECTOR TO ERROR
2499 007470 052777 000100 173256 BIS #BIT6,@TCSR ;ENABLE INTERRUPTS
2500 007476 005077 173254 CLR @TBUF ;LOAD TBUF
2501 007502 105777 173246 1$: TSTB @TCSR ;WAIT FOR DONE (INTERRUPT)
2502 007506 100375 BPL 1$
2503 007510 005077 173242 CLR @TBUF ;FILL SECOND BUFFER TO RESET INT.
2504 007514 004737 012356 JSR PC,WRPSW ;ALLOW INTERRUPTS
2505 007520 000140 .WORD 140

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2506 007522 000240      NOP      ;GIVE TIME FOR ANY INTERRUPTS
2507 007524 042777 000100 173222  BIC      #BIT6,@TCSR ;DISABLE INTERRUPTS
2508 007532 000402      BR       3$      ;BR TO END OF TEST
2509
2510 007534 022626      2$:     CMP      (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
2511 007536 104124      ERROR   124
2512
2513 007540 005001      3$:     CLR      R1      ;LOADING TBUF DID NOT CLEAR INTERRUPT.
2514 007542 005201      4$:     INC      R1      ;INITIALIZE LOOP COUNTER
2515 007544 001376      BNE     4$      ;INCREMENT LOOP COUNTER
2516 007546 005777 173200  TST     @RBUF    ;UNTIL LOOP COUNTER EQUALS 0
2517 007552 010377 173220  MOV     R3,@RVEC ;CLEAR RECEIVER BUFFER
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2525 007556 000004      TST37:  SCOPE
2526 007560 012737 000037 001104  MOV     #37,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
2527 007566 042777 000100 173160  BIC     #BIT6,@TCSR ;DISABLE TRANSMIT INTERRUPTS
2528 007574 042777 000100 173146  BIC     #BIT6,@RCSR ;DISABLE RECEIVER INTERRUPTS
2529 007602 017703 173164  MOV     @RVECT,R3 ;SAVE RECEIVE VECTOR
2530 007606 012777 007636 173156  MOV     #2$,@RVECT ;POINT RCV VECTOR TO ERROR REPORT
2531 007614 004737 012356  JSR    PC,WRPSW ;SET PSW TO PRIORITY 3
2532 007620 000140      .WORD   140
2533 007622 005077 173130  CLR     @TBUF    ;SEND A CHARACTER
2534 007626 105777 173116  1$:     TSTB   @RCSR ;WAIT FOR RECEIVER DONE
2535 007632 100375      BPL     1$
2536 007634 000402      BR      3$      ;CONTINUE TEST
2537
2538 007636 022626      2$:     CMP      (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
2539 007640 104125      ERROR   125
2540
2541
2542 007642 012777 007662 173122  3$:     MOV     #4$,@RVECT ;POINT RCV VECTOR TO END OF TEST
2543 007650 052777 000100 173072  BIS     #BIT6,@RCSR ;ENABLE RCV INTERRUPTS
2544 007656 000240      NOP
2545 007660 104126      ERROR   126 ;GIVE ANY INTERRUPTS TIME
2546
2547
2548 007662 042777 000100 173060  4$:     BIC     #BIT6,@RCSR ;DISABLE INTERRUPTS
2549 007670 022626      CMP     (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
2550 007672 010377 173074  MOV     R3,@RVECT ;RESTORE RECEIVE VECTOR
2551
2552
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2555
2556 007676 000004      TST40:  SCOPE
2557 007700 012737 000040 001104  MOV     #40,$TESTN ;;SET TEST NUMBER IN APT MAIL BOX
2558 007706 004737 012356  JSR    PC,WRPSW ;SET PSW TO PRIORITY 7
2559 007712 000340      .WORD   340
2560 007714 017703 173052  MOV     @RVECT,R3 ;SAVE RECEIVE VECTOR
2561 007720 012777 007752 173044  MOV     #2$,@RVECT ;POINT RCVR VECTOR TO ERROR REPORT

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2562 007726 005077 173024          CLR    @TBUF          ;SEND A CHARACTER
2563 007732 105777 173012          1$:   TSTB   @RCSR          ;WAIT FOR RECEIVER DONE
2564 007736 100375                BPL    1$
2565 007740 052777 000100 173002  BIS    #BIT6,@RCSR    ;ENABLE INTERRUPTS
2566 007746 000240                NOP
2567 007750 000402                BR     3$              ;GIVE TIME FOR INTERRUPT
2568 007752 022626          2$:   CMP    (SP)+,(SP)+    ;CONTINUE TEST
2569 007754 104127          ERROR  127            ;RESTORE SP AFTER INTERRUPT
2570
2571                                ;RCVR INTERRUPTS AT PRIORITY 7
2572 007756 042777 000100 172764  3$:   BIC    #BIT6,@RCSR    ;CLEAR INTERRUPT ENABLE
2573 007764 012777 010004 173000  MOV    #4$,@RVECT     ;POINT RCVR VECTOR TO ERROR REPORT
2574 007772 004737 012356          JSR    PC,WRPSW        ;SET PSW TO PRIORITY 3
2575 007776 000140                .WORD 140
2576 010000 000240                NOP
2577 010002 000402                BR     5$              ;GIVE TIME FOR ANY INTERRUPT
2578                                ;BR TO END OF TEST, IF NO INTERRUPT
2579 010004 022626          4$:   CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2580 010006 104130          ERROR  130
2581                                ;RCVR INTERRUPT REQUEST PASSED WITH BIT6 CLEAR
2582 010010 010377 172756          5$:   MOV    R3,@RVECT     ;RESTORE RECEIVE VECTOR
2583
2584
2585                                ;*****
2586                                ;*TEST 41      TEST SLU2 RECEIVER FOR DOUBLE INTERRUPTS
2587                                ;*****
2588 010014 000004          TST41: SCOPE
2589 010016 012737 000041 001104  MOV    #41,$TESTN     ;SET TEST NUMBER IN APT MAIL BOX
2590 010024 017703 172742          MOV    @RVECT,R3      ;SAVE RECEIVE VECTOR
2591 010030 017704 172740          MOV    @RPSW,R4       ;SAVE RECEIVE PSW VECTOR
2592 010034 012777 010102 172730  MOV    #2$,@RVECT     ;POINT RCVR VECTOR TO CONTINUE TEST
2593 010042 012777 000340 172724  MOV    #340,@RPSW     ;SET PRIORITY TO 7 AFTER INTERRUPT
2594 010050 004737 012356          JSR    PC,WRPSW        ;SET PSW TO PRIORITY 3
2595 010054 000140                .WORD 140
2596 010056 005077 172674          CLR    @TBUF          ;SEND A CHARACTER
2597 010062 105777 172662          1$:   TSTB   @RCSR          ;WAIT FOR RCVR DONE
2598 010066 100375                BPL    1$
2599 010070 052777 000100 172652  BIS    #BIT6,@RCSR    ;ENABLE RCV INTERRUPTS
2600 010076 000240                NOP
2601                                ;GIVE SOME TIME
2602                                ERROR  131
2603                                ;RCVR INTERRUPT DID NOT OCCUR
2604
2605 010102 022626          2$:   CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2606 010104 012777 010136 172660  MOV    #3$,@RVECT     ;POINT RCVR VECTOR TO ERROR REPORT
2607 010112 004737 012356          JSR    PC,WRPSW        ;RESET PSW TO PRIORITY 3
2608 010116 000140                .WORD 140
2609 010120 000240                NOP
2610 010122 042777 000100 172620  BIC    #BIT6,@RCSR    ;GIVE SOME TIME
2611 010130 010477 172640          MOV    R4,@RPSW       ;CLEAR INTERRUPT ENABLE
2612 010134 000402                BR     4$              ;RESTORE RECEIVE PSW VECTOR
2613                                ;BR TO END OF TEST
2614 010136 022626          3$:   CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2615 010140 104132          ERROR  132
2616                                ;RECEIVER RE-INTERRUPTED
2617 010142 010377 172624          4$:   MOV    R3,@RVECT     ;RESTORE RECEIVE VECTOR

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2618
2619
2620
2621
2622
2623 010146 000004
2624 010150 012737 000042 001104
2625 010156 004737 012356
2626 010162 000340
2627 010164 017703 172602
2628 010170 012777 010242 172574
2629 010176 052777 000100 172544
2630 010204 005077 172546
2631 010210 105777 172534 1$:
2632 010214 100375
2633 010216 005777 172530
2634 010222 004737 012356
2635 010226 000140
2636 010230 000240
2637 010232 042777 000100 172510
2638 010240 000402
2639
2640 010242 022626
2641 010244 104133
2642
2643 010246 010377 172520 3$:
2644
2645
2646
2647
2648
2649
2650 010252 000004
2651 010254 012737 000043 001104
2652 010262 032737 000001 001120
2653 010270 001403
2654 010272 005737 001106
2655 010276 001037
2656 010300
2657 010300 000005 70$:
2658 010302 004737 012356
2659 010306 000340
2660 010310 017703 172456
2661 010314 012777 010366 172450
2662 010322 052777 000100 172420
2663 010330 012777 000377 172420
2664 010336 105777 172406 1$:
2665 010342 100375
2666 010344 000005
2667 010346 004737 012356
2668 010352 000140
2669 010354 000240
2670 010356 042777 000100 172364
2671 010364 000402
2672
2673

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```

;*****
;*TEST 42 TEST THAT RCVR INTERRUPT CLEARS BY READING RBUF
;*****
TST42: SCOPE
MOV #42,$TESTN ;:SET TEST NUMBER IN APT MAIL BCX
JSR PC,WRPSW ;:SET PSW PRIORITY TO 7
.WORD 340
MOV @RVECT,R3 ;SAVE RECEIVE VECTOR
MOV #2,@RVECT ;POINT RCV VECTOR TO ERROR REPORT
BIS #BIT6,@RCSR ;SET RCVR INTERRUPT ENABLE
CLR @TBUF ;SEND A CHARACTER
TSTB @RCSR ;WAIT FOR DONE (INTERRUPT)
BPL 1$
TST @RBUF ;READ RBUF TO CLEAR PENDING INTERRUPT
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$: CMP (SP)+,(SP)+ ;RESTORE SP AFTER INTERRUPT
ERROR 133 ;READING RBUF DID NOT CLEAR INTERRUPT
3$: MOV R3,@RVECT ;RESTORE RECEIVE VECTOR

;*****
;*TEST 43 TEST SLU2 THAT RESET CLEARS RECEIVE INTERRUPT
;*****
TST43: SCOPE
MOV #43,$TESTN ;:SET TEST NUMBER IN APT MAIL BOX
BIT #1,@#$ENV ;ARE WE RUNNING UNDER APT
BEQ 70$ ;IF NO THEN DO TEST
TST @#$PASS ;IS THIS FIRST PASS
BNE TST44 ;IF NO THEN SKIP TO NEXT TEST
70$: RESET ;CLEAR EVERYTHING
JSR PC,WRPSW ;SET PSW TO PRIORITY 7
.WORD 340
MOV @RVECT,R3 ;SAVE RECEIVE VECTOR
MOV #2,@RVECT ;POINT RCV VECTOR TO ERROR REPORT
BIS #BIT6,@RCSR ;SET RCV INTERRUPT ENABLE
MOV #377,@TBUF ;SEND AN ALL 1'S CHARACTER
TSTB @RCSR ;WAIT FOR RCV DONE
BPL 1$
RESET ;CLEAR RCV INTERRUPT & RBUF
JSR PC,WRPSW ;SET PSW TO PRIORITY 3
.WORD 140
NOP ;ALLOW TIME FOR AN ERRONEOUS INTERRUPT
BIC #BIT6,@RCSR ;NO INTERRUPT-CLEAR INT. ENABLE
BR 3$ ;CONTINUE TEST

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2674 010366 022626      2$:  CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2675 010370 104134      ERROR  134              ;RESET DID NOT CLEAR RCVR INTERRUPT
2676
2677 010372 010377 172374 3$:  MOV    R3,@RVECT      ;RESTORE RECEIVE VECTOR
2678
2679
2680
2681 ;*****
2682 ;*TEST 44      TEST SLU2 THAT "OVERRUN & ERROR" BITS CAN BE SET
2683 ;*****
2683 010376 000004      TST44: SCOPE
2684 010400 012737 000044 001104      MOV    #44,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2685 010406 032777 002000 170424      BIT    #BIT10,@SWR     ;IS THIS TEST DISABLED
2686 010414 001023      BNE    TST45           ;IF NOT ENABLED, BR TO NEXT TEST
2687 010416 012700 000003      MOV    #3,R0          ;SET CHARACTER COUNT TO SEND 3 CHAR.
2688 010422 005077 172330      1$:  CLR    @TBUF          ;LOAD TRANSMIT BUFFER
2689 010426 105777 172322      2$:  TSTB  @TCSR          ;WAIT FOR TRANSMIT DONE
2690 010432 100375      BPL    2$
2691 010434 005300      DEC    R0              ;DECREMENT CHARACTER COUNT
2692 010436 001371      BNE    1$              ;BR IF ALL CHARACTERS NOT TRANSMITTED
2693 010440 032777 040000 172304      BIT    #BIT14,@RBUF    ;TEST FOR "OR" ERROR FLAG
2694 010446 001001      BNE    3$              ;BR, IF SET
2695 010450 104135      ERROR  135
2696
2697 ;"OR" ERROR FLAG DID NOT SET
2698 010452 032777 100000 172272 3$:  BIT    #BIT15,@RBUF    ;TEST "ERROR" FLAG
2699 010460 001001      BNE    4$              ;BR, IF SET
2700 010462 104136      ERROR  136
2701
2702 010464      4$:
2703
2704
2705 ;*****
2706 ;*TEST 45      TEST THAT BREAK TRANSMITS ALL ZEROES
2707 ;*****
2708 010464 000004      TST45: SCOPE
2709 010466 012737 000045 001104      MOV    #45,$TESTN      ;;SET TEST NUMBER IN APT MAIL BOX
2710 010474 012777 177777 172254      MOV    #-1,@TBUF      ;TRANSMIT ALL ONES TO RCVR
2711 010502 105777 172242      1$:  TSTB  @RCSR          ;WAIT FOR RCVR DONE
2712 010506 100375      BPL    1$
2713 010510 005777 172236      TST   @RBUF           ;CLEAR DONE (LEAVING ALL ONES IN RBUF)
2714 010514 052777 000001 172232      BIS   #BIT0,@TCSR     ;TRANSMIT BREAK
2715 010522 005000      CLR   R0              ;CLEAR A TIMER
2716 010524 105777 172220      2$:  TSTB  @RCSR          ;WAIT FOR RCVR DONE
2717 010530 100406      BMI   CONT41          ;BR IF DONE
2718 010532 005200      INC   R0              ;IF NOT, INCREMENT TIMER
2719 010534 001373      BNE   2$              ;BR IF TIME REMAINS
2720
2721 010536 042777 000001 172210      BIC   #BIT0,@TCSR     ;CLEAR BREAK BITS
2722 010544 104137      ERROR  137            ;BREAK DID NOT TRANSMIT ANYTHING
2723
2724 010546 105777 172200      CONT41: TSTB @RBUF      ;CHECK RECEIVE BUFFER FOR ZERO
2725 010552 001404      BEQ   3$              ;BR, IF ZERO
2726 010554 042777 000001 172172      BIC   #BIT0,@TCSR     ;CLEAR BREAK BITS
2727
2728 010562 104137      ERROR  137            ;BREAK DID NOT TRANSMIT ALL ZEROES
2729

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2730 010564 042777 000001 172162 3$: BIC @BIT0,@TCSR ;CLEAR BREAK BITS
2731
2732
2733 ;*****
2734 ;*TEST 46 TEST THAT "FR" ERROR CAN BE SET DURING BREAK
2735 ;*****
2736 010572 000004 TST46: SCOPE
2737 010574 012737 000046 001104 MOV #46,$TESTN ;:SET TEST NUMBER IN APT MAIL BOX
2738 010602 032777 002000 170230 BIT @BIT10,@SWR ;:IS THIS TEST DISABLED
2739 010610 001025 BNE TST47 ;BR TO NEXT TEST, IF DISABLED
2740 010612 052777 000001 172134 BIS @BIT0,@TCSR ;SEND BREAK
2741 010620 005077 172132 CLR @TBUF ;TRANSMIT A CHARACTER TO TIME BREAK
2742 010624 105777 172120 1$: TSTB @RCSR ;WAIT FOR RCVR DONE
2743 010630 100375 BPL 1$
2744 010632 042777 000001 172114 BIC @BIT0,@TCSR ;CLEAR BREAK BITS
2745 010640 032777 020000 172104 BIT @BIT13,@RBUF ;CHECK FOR FRAMING ERROR FLAG
2746 010646 001001 BNE 2$ ;BR, IF SET
2747
2748 010650 104140 ERROR 140
2749 ;BREAK DID NOT SET FRAMING ERROR
2750 010652 032777 100000 172072 2$: BIT @BIT15,@RBUF ;TEST "ERROR" FLAG
2751 010660 001001 BNE 3$ ;BR, IF SET
2752
2753 010662 104141 ERROR 141 ;"ERROR" FLAG DID NOT SET WITH "OR" FLAG
2754
2755 010664 3$:
2756 ;*****
2757 ;*TEST 47 TEST DATA PATHS USING WRAP CABLE
2758 ;*****
2759 010664 000004 TST47: SCOPE
2760 010666 012737 000047 001104 MOV #47,$TESTN ;:SET TEST NUMBER IN APT MAIL BOX
2761 010674 032777 000200 170136 BIT @BIT7,@SWR ;:IS THIS TEST ENABLED
2762 010702 001027 BNE TST50 ;BR, IF NOT
2763 010704 005001 CLR R1 ;CLEAR REGISTER FOR TEST DATA
2764 ;TRANSMIT A BINARY COUNT PATTERN - UP
2765 ;TO THE BIT POSITION INDICATED BY THE
2766 ;CONTENTS OF LOCATION "$USWR"
2767 010706 105201 1$: INCB R1 ;INCREMENT THE TEST DATA
2768 010710 010177 172042 MOV R1,@TBUF ;XMIT A CHARACTER
2769 010714 005000 CLR R0 ;CLEAR A TIMER
2770 010716 105777 172026 2$: TSTB @RCSR ;WAIT FOR RECEIVER DONE
2771 010722 100403 BMI 3$ ;BR IF DONE
2772 010724 005200 INC R0 ;INCREMENT TIMER IF NOT
2773 010726 001373 BNE 2$ ;BR IF TIME REMAINS
2774
2775 010730 104056 ERROR 56 ;RECEIVER DONE NOT SET
2776
2777 010732 017702 172014 3$: MOV @RBUF,R2 ;GET RECEIVED CHARACTER
2778 010736 020102 CMP R1,R2 ;COMPARE DATA
2779 010740 001003 BNE 4$ ;BR, IF NON-COMPARE
2780 010742 105701 TSTB R1 ;TEST XMIT DATA FOR ZERO
2781 010744 001406 BEQ TST50 ;BR, IF FINISHED
2782 010746 000757 BR 1$ ;CONTINUE IF NOT
2783 010750 010137 001024 4$: MOV R1,$GDDAT ;STORE EXPECTED DATA
2784 010754 010237 001026 MOV R2,$BDDAT ;STORE RECEIVED DATA
2785

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2786 010760 104142          ERKJR 142          ;DATA COMPARE ERROR WITH WRAP CABLE
2787
2788
2789 010762          LTCIT:
2790
2791          ;*****
2792          ;*TEST 50      TEST THAT THE REAL TIME CLOCK INTERRUPTS PROPERLY
2793          ;*****
2794 010762 000004          TST50: SCOPE
2795 010764 012737 000050 001104          MOV #50,$TESTN          ;;SET TEST NUMBER IN APT MAIL BOX
2796 010772 032737 000004 001156          BIT #BIT2,@#$DEVM      ;DO THESE TESTS FOR THIS DEVICE?
2797 011000 001002          BNE 99$                ;F YES CONTINUE WITH TESTS
2798 011002 000137 011474          JMP BLAST              ;IF NO GO TO START OF NEXT SET OF TESTS.
2799 011006          99$:
2800 011006 005000          CLR R0
2801 011010 004737 012356          JSR PC,WRPSW          ;SET PSW TO PRIORITY 7
2802 011014 000340          .WORD 340
2803 011016 017703 171770          MOV @RTCVT,R3         ;SAVE LINE CLOCK VECTOR
2804 011022 017704 171766          MOV @RTCP SW,R4       ;SAVE LINE CLOCK PSW VECTOR
2805 011026 012777 011060 171756          MOV #2$,@RTCVT        ;SET RTC INTERRUPT VECTOR TO ERROR REPORT
2806 011034 012777 000340 171752          MOV #340,@RTCP SW    ;KEEP PRIORITY AT 7
2807
2808 011042 052777 000100 171720          BIS #BIT6,@LKS        ;SET INTERRUPT ENABLE
2809 011050 005200          1$: INC R0
2810 011052 001376          BNE 1$
2811 011054 000240          NOP
2812 011056 000402          BR 3$                 ;GIVE TIME FOR ANY INTERRUPTS
2813
2814 011060 022626          2$: CMP (SP)+,(SP)+      ;RESTORE SP AFTER INTERRUPT
2815 011062 104143          ERROR 143             ;RTC INTERRUPTS AT PRIORITY 7
2816
2817 011064 005077 171700          3$: CLR @LKS ;DISABLE RTC INTERRUPTS
2818 011070 005000          CLR R0
2819 011072 012777 011110 171712          MOV #XXX,@RTCVT       ;SET RTC INTERRUPT VECTOR FOR ERROR
2820 011100 004737 012356          JSR PC,WRPSW          ;CHANGE PSW TO PRIORITY 5
2821 011104 000240          .WORD 240
2822 011106 104146          ERROR 146
2823 011110 012777 011134 171674          4$: MOV #4$,@RTCVT
2824 011116 106427 000240          MTPS #240
2825 011122 005200          20$: INC R0
2826 011124 005700          TST R0
2827 011126 100375          BPL 20$
2828 011130 000240          NOP
2829 011132 000402          BR 5$                 ;GIVE TIME FOR ANY INTERRUPT
2830
2831 011134 022626          4$: CMP (SF)+,(SP)+      ;RESTORE SP AFTER INTERRUPT
2832 011136 104144          ERROR 144             ;RTC INTERRUPTS WITH INTERRUPTS DISABLED
2833
2834 011140 012777 011170 171644          5$: MOV #7$,@RTCVT
2835 011146 005000          CLR R0
2836 011150 052777 000100 171612          6$: BIS #BIT6,@LKS
2837 011156 005200          INC R0
2838 011160 005700          TST R0
2839 011162 100375          BPL 6$
2840 011164 000240          NOP
2841

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2842 011166 104145          ERROR 145          ;RTC INTERRUPT DID NOT OCCUR
2843
2844 011170 022626          7$:  CMP      (SP)+,(SP)+  ;RESTORE SP AFTER INTERRUPT
2845 011172 042777 000100 171570  BIC      #BIT6,@LKS    ;DISABLE INTERRUPTS
2846 011200 010377 171606          MOV      R3,@RTCVT    ;RESTORE LINE CLOCK VECTOR
2847 011204 010477 171604          MOV      R4,@RTCPW    ;RESTORE LINE CLOCK PSW VECTOR
2848
2849
2850
2851
2852          ;*****
2853          ;*TEST 51      TEST RTC FOR DOUBLE INTERRUPTS
2854          ;*****
2854 011210 000004          TST51: SCOPE
2855 011212 012737 000051 001104  MOV      #51,$TESTN   ;;SET TEST NUMBER IN APT MAIL BOX
2856 011220 032737 000001 001120  BIT      #1,@#ENV     ;ARE WE RUNNING UNDER APT
2857 011226 001403          BEQ      70$          ;IF NO THEN DO TEST
2858 011230 005737 001106          TST      @#PASS      ;IS THIS FIRST PASS
2859 011234 001050          BNE      TST52       ;IF NO THEN SKIP TO NEXT TEST
2860 011236
2861 011236 017703 171550          70$:  MOV      @RTCVT,R3    ;SAVE LINE CLOCK VECTOR
2862 011242 017704 171546          MOV      @RTCPW,R4   ;SAVE LINE CLOCK PSW VECTOR
2863 011246 012777 011312 171536  MOV      #2,@RTCVT   ;SET UP RTC INTERRUPT VECTOR
2864 011254 012777 000340 171532  MOV      #340,@RTCPW ;DISALLOW INTERRUPTS AFTER THE INTERRUPT
2865 011262 004737 012356          JSR      PC,WRPSW    ;SET PRIORITY TO 5
2866 011266 000240          .WORD   240
2867
2868 011270 005000
2869 011272 052777 000100 171470  1$:  CLR      R0          ;ENABLE CLOCK INTERRUPTS
2870 011300 005200          BIS      #BIT6,@LKS
2871 011302 005700          INC      R0
2872 011304 100375          TST      R0
2873 011306 000240          BPL      1$
2874
2875 011310 104146          ERROR 146          ;RTC INTERRUPT DID NOT OCCUR
2876
2877 011312 022626          2$:  CMP      (SP)+,(SP)+  ;RESTORE SP AFTER INTERRUPT
2878 011314 012777 011334 171470  MOV      #3,@RTCVT   ;POINT RTC VECTOR TO ERROR REPORT
2879 011322 004737 012356          JSR      PC,WRPSW    ;SET PSW TO PRIORITY 5
2880 011326 000240          .WORD   240
2881 011330 000240          NOP
2882 011332 000402          BR       4$          ;GIVE SOME TIME FOR AN INTERRUPT
2883
2884 011334 022626          3$:  CMP      (SP)+,(SP)+  ;RESTORE SP AFTER INTERRUPT
2885 011336 104147          ERROR 147          ;INTERRUPT SEQUENCE DID NOT CLEAR
2886
2887
2888 011340 042777 000100 171422  4$:  BIC      #BIT6,@LKS   ;DISABLE CLOCK INTERRUPTS
2889 011346 010377 171440          MOV      R3,@RTCVT   ;RESTORE LINE CLOCK VECTOR
2890 011352 010477 171436          MOV      R4,@RTCPW   ;RESTORE LINE CLOCK PSW VECTOR
2891
2892
2893          ;*****
2894          ;*TEST 52      TEST THAT RTC INTERRUPT CLEARS WITH RESET
2895          ;*****
2896 011356 000004          TST52: SCOPE
2897 011360 012737 000052 001104  MOV      #52,$TESTN   ;;SET TEST NUMBER IN APT MAIL BOX

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2898 011366 032737 000001 001120      BIT    #1, @#$ENV      ;ARE WE RUNNING UNDER APT
2899 011374 001403                    BEQ    70$             ;IF NO THEN DO TEST
2900 011376 005737 001106      TST    @#$PASS        ;IS THIS FIRST PASS
2901 011402 001034                    BNE    TST53          ;IF NO THEN SKIP TO NEXT TEST
2902 011404                    70$:
2903 011404 004737 012356      JSR    PC,WRPSW        ;SET PRIORITY TO 7
2904 011410 000340                    .WORD 340
2905 011412 017703 171374      MOV    @RTCVT,R3      ;SAVE LINE CLOCK VECTOR
2906 011416 012777 011464 171366    MOV    #2$,@RTCVT     ;POINT RTC VECTOR TO ERROR REPORT
2907
2908 011424 005000                    CLR    R0
2909 011426 052777 000100 171334    BIS    #BIT6,@LKS     ;ENABLE CLOCK INTERRUPTS
2910 011434 005200                    1$: INC    R0
2911 011436 005700                    TST    R0
2912 011440 100375                    BPL    1$
2913 011442 000005                    RESET                                ;CLEAR PENDING INTERRUPT WITH RESET
2914 011444 004737 012356      JSR    PC,WRPSW        ;SET PRIORITY TO 5
2915 011450 000240                    .WORD 240
2916 011452 000240                    NOP
2917 011454 042777 000100 171306    BIC    #BIT6,@LKS     ;GIVE TIME FOR ANY INTERRUPT
2918 011462 000402                    BR     3$              ;DISALLOW INTERRUPTS
2919
2920 011464 022626                    2$: CMP    (SP)+,(SP)+    ;RESTORE SP AFTER INTERRUPT
2921 011466 104150                    ERROR 150              ;RESET DID NOT CLEAR INTERRUPT
2922
2923 011470 010377 171316                    3$: MOV    R3,@RTCVT     ;RESTORE LINE CLOCK VECTOR
2924
2925 011474                    BLAST:
2926
2927
2928
2929
2930 011474 000004                    ;*****
2931 011476 012737 000053 001104    ;*TEST 53      TEST ALL INTERNAL OPTIONS SIMULTANEOUSLY
2932 011504 032737 000001 001120    ;*****
2933 011512 001405                    TST53: SCOPE
2934 011514 005737 001106      MOV    #53,$TESTN     ;;SET TEST NUMBER IN APT MAIL BOX
2935 011520 001402                    BIT    #BIT0,@#$ENV   ;ARE WE RUNNING UNDER APT
2936 011522 000137 012240                    BEQ    70$             ;IF NO DO TEST
2937 011526 000005                    TST    @#$PASS        ;IS THIS FIRST PASS
2938 011530 012737 000340 177776    BEQ    70$             ;IF YES DO TEST
2939 011536 017737 171234 001060    JMP    $EOP           ;IF NO DO NOT DO TEST
2940 011544 017737 171222 001062    70$: RESET            ;CLEAR EVERY BODY
2941 011552 017737 171230 001064    MOV    #340,PS        ;SET PROCESSOR PRIORITY TO 7
2942 011560 017737 171216 001066    MOV    @TVECT,$TMP0
2943 011566 017737 171220 001070    MOV    @RVECT,$TMP1
2944 011574 005037 012232                    MOV    @CTVECT,$TMP2
2945 011600 005037 012234                    MOV    @CRVECT,$TMP3
2946 011604 005037 012236                    MOV    @RTCVT,$TMP4
2947
2948 011610 012777 011726 171160    CLR    XMTCT2
2949 011616 012777 000340 171154    CLR    RECCT2
2950 011624 012777 011762 171140    CLR    COUNT
2951 011632 012777 000340 171134    MOV    #XMIT2, @TVECT ;SET UP SLU2 TRANSMIT VECTOR
2952 011640 012777 011716 171144    MOV    #340, @TPSW    ;AND PSW
2953 011646 012777 000340 171140    MOV    #REC2, @RVECT  ;SET UP SLU2 RECEIVER VECTOR
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```

2954
2955 011654 052777 000100 171072      BIS      #BIT6, @TCSR      ;ENABLE SLU2 XMIT INTERRUPT
2956 011662 052777 000100 171060      BIS      #BIT6, @RCSR      ;ENABLE SLU2 RECEIVER INTERRUPT
2957 011670 012703 026320      MOV      #BUF2, R3      ;SET UP RECEIVER BUFFER
2958
2959 011674 052777 000100 171066      BIS      #BIT6, @LKS      ;ENABLE RTC INTERRUPTS
2960 011702 012701 177777      3$:     MOV      #-1, R1      ;INITIALIZE DATA FOR SLU2(1ST CHR. 0)
2961 011706 005037 177776      CLR      PS      ;DROP PROCESSOR PRIORITY TO ZERO
2962 011712 000001      WAITIO: WAIT      ;WAIT FOR INTERRUPT
2963 011714 000776      BR      WAITIO
2964
2965 011716 005237 012236      TICKER: INC      COUNT      ;UPDATE COUNT
2966 011722 000137 012036      JMP      IOHAND      ;GO TO INTERRUPT HANDLER
2967
2968
2969 011726 005237 012232      XMIT2: INC      XMTCT2      ;UPDATE XMIT INTERRUPT COUNT
2970 011732 005201      INC      R1      ;UPDATE XMIT DATA
2971 011734 010177 171016      MOV      R1, @TBUF      ;SEND NEXT CHARACTER
2972 011740 023727 012232 000400      CMP      XMTCT2, #400      ;IF 256 CHARACTERS HAVE NOT
2973 011746 002403      BLT      1$      ;BEEN TRANSFERRED CONTINUE
2974 011750 042777 000100 170776      BIC      #BIT6, @TCSR      ;ELSE NO MORE XMIT INTERRUPTS
2975 011756 000137 012036      1$:     JMP      IOHAND      ;GO TO INTERRUPT HANDLER
2976
2977 011762 005237 012234      REC2:  INC      RECCT2      ;UPDATE RECEIVER INTERRUPT COUNT
2978 011766 005777 170760      TST      @RBUF      ;BIT 15 SETS IF ANY ERRORS OCCURRED
2979 011772 100017      BPL      3$      ;IF BIT IS CLEAR NO ERRORS
2980 011774 017737 170752 001026      MOV      @RBUF, $BDDAT      ;GET ERROR INFORMATION
2981 012002 000005      RESET      ;CLEAR THE WORLD - STOP ALL
2982      ;INTERRUPTS
2983 012004 020327 026320      CMP      R3, #BUF2      ;WAS MORE THAN 1 WORD TRANSFERRED
2984 012010 003004      BGT      1$      ;IF YES GET LAST GOOD DATA
2985 012012 012737 177777 001024      MOV      #-1, $GDDAT      ;IF NO MAKE GOOD DATA -1
2986 012020 000403      BR      2$      ;AND GET TO ERROR REPORT
2987 012022 116337 177777 001024      1$:     MOV      -1(R3), $GDDAT      ;GET LAST GOOD DATA RECEIVED
2988 012030 104154      2$:     ERROR      154      ;RECEIVER STATUS ERROR
2989 012032 117723 170714      3$:     MOV      @RBUF, (R3)+      ;GET DATA AND STORE IT
2990
2991 012036 023727 012236 000074      IOHAND: CMP      COUNT, #74      ;HAS 1 SEC ELAPSED
2992 012044 002412      BLT      3$      ;IF NO CONTINUE TEST
2993 012046 042777 000100 170710      BIC      #BIT6, @CTCSR      ;IF YES STOP TRANSMISSIONS
2994 012054 042777 000100 170672      BIC      #BIT6, @TCSR      ;
2995 012062 042777 000100 170700      BIC      #BIT6, @LKS      ;TURN OFF LINE CLOCK
2996 012070 000401      BR      WAITER
2997 012072 000002      3$:     RTI      ;RETURN FROM INTERRUPT TO AWAIT NEXT
2998
2999 012074 005037 177776      WAITER: CLR      PS      ;MAKE PROCESSOR PRIORITY 0
3000 012100 012705 140000      MOV      #-40000, R5      ;SET UP LOOP COUNTER
3001 012104 062705 000001      1$:     ADD      #1, R5      ;DO LOOP UNTIL R5 = 0
3002 012110 001375      BNE      1$
3003 012112 000005      RESET      ;STOP EVERYONE SHOULD BE DONE
3004 012114 012706 001000      MOV      #1000, SP      ;RESET STACK AFTER LAST INTERRUPT
3005
3006
3007 012120 023737 012232 012234      CHECK2: CMP      XMTCT2, RECCT2      ;#OF XMIT INTERRUPTS = REC INTERRUPTS
3008 012126 001401      BEQ      1$      ;IF YES CHECK DATA
3009 012130 104157      ERROR      157      ;INTERRUPT COMPARISON ERROR

```



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```

3010 012132 012703 026320      1$:  MOV    #BUF2, R3      ;INITIALIZE TO FIRST RECEIVED DATA
3011 012136 005001              CLR    R1                ;INITIALIZE TO FIRST XMIT DATA
3012 012140 013704 012232      MOV    XMTCT2, R4        ;GET # OF BYTES TRANSFERRED
3013 012144 122301              2$:  CMPB   (R3)+, R1      ;IS RECEIVED DATA = EXPECTED DATA
3014 012146 001406              BEQ    3$                ;IF YES CONTINUE TESTING
3015 012150 114337 001026      MOVB   -(R3), $BDDAT    ;IF NO GET ERROR INFORMATION
3016 012154 010137 001024      MOV    R1, $GDDAT
3017 012160 104160              ERROR  160              ;SLU2 DATA COMPARISON ERROR
3018 012162 005203              INC    R3                ;IF COONTINUE ON ERROR RESET POINTER
3019 012164 005201              3$:  INC    R1                ;UPDATE TO NEXT GOOD DATA
3020 012166 077412              SOB    R4, 2$           ;LOOP UNTIL ALL DATA CHECKED
3021 012170 013777 001060 170600 FINIE: MOV    $TMP0, @TVECT    ;RESTORE VECTORS
3022 012176 013777 001062 170566      MOV    $TMP1, @RVECT
3023 012204 013777 001064 170574      MOV    $TMP2, @CTVECT
3024 012212 013777 001066 170562      MOV    $TMP3, @CRVECT
3025 012220 013777 001070 170564      MOV    $TMP4, @RTCVT
3026 012226 000137 012240      JMP    $EOP              ;FINISHED TESTING GO TO END OF PASS
3027
3028 012232 000000      XMTCT2: .WORD  0
3029 012234 000000      RECCT2: .WORD  0
3030 012236 000000      COUNT:  .WORD  0
3031
3032
3033      .SBTTL  END OF PASS ROUTINE
3034
3035      ;*****
3036      ;*INCREMENT THE PASS NUMBER ($PASS)
3037      ;*TYPE "END PASS #XXXXX" (WHERE XXXXX IS A DECIMAL NUMBER)
3038      ;*IF THERES A MONITOR GO TO IT
3039      ;*IF THERE ISN'T JUMP TO TST1
3040
3041      $EOP:
3042 012240 000004              SCOPE
3043 012242 005037 001002      CLR    $TSTNM           ;;ZERO THE TEST NUMBER
3044 012246 005237 001106      INC    $PASS            ;;INCREMENT THE PASS NUMBER
3045 012252 042737 100000 001106      BIC    @100000, $PASS   ;;DON'T ALLOW A NEG. NUMBER
3046 012260 005327              DEC    (PC)+            ;;LOOP?
3047 012262 000001      $EOPCT: .WORD  1
3048 012264 003022      BGT    $DOAGN           ;;YES
3049 012266 012737      MOV    (PC)+, @ (PC)+  ;;RESTORE COUNTER
3050 012270 000001      $ENDCT: .WORD  1
3051 012272 012262      TYPE   $EOPCT
3052 012274 104401 012341      TYPE   , $ENDMG        ;;TYPE "END PASS #"
3053 012300 013746 001106      MOV    $PASS, -(SP)    ;;SAVE $PASS FOR TYPEOUT
3054 012304 104405              TYPDS  , $ENULL        ;;GO TYPE--DECIMAL ASCII WITH SIGN
3055 012306 104401 012336      TYPE   , $ENULL        ;;TYPE A NULL CHARACTER
3056 012312 013700 000042      $GET42: MOV   @#42, R0   ;;GET MONITOR ADDRESS
3057 012316 001405      BEQ    $DOAGN           ;;BRANCH IF NO MONITOR
3058 012320 000005      RESET
3059 012322 004710      $ENDAD: JSR   PC, (R0)  ;;CLEAR THE WORLD
3060 012324 000240      NOP
3061 012326 000240      NOP                    ;;GO TO MONITOR
3062 012330 000240      NOP                    ;;SAVE ROOM
3063 012332      NOP                    ;;FOR
3064 012332 000137      $DOAGN: JMP   @ (PC)+        ;;ACT11
3065 012334 003430      $RTNAD: .WORD  TST1    ;;RETURN

```

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END OF PASS ROUTINE

```

3066 012336 377 377 000 $ENULL: .BYTE -1,-1,0 ;NULL CHARACTER STRING
3067 012341 015 042412 042116 $ENDMG: .ASCIZ <15><12>/END PASS #/
3068 012346 050040 051501 020123
3069 012354 000043
3070
3071
3072
3073 012356 011646 WRPSW: MOV(SP),-(SP) ;COPY RETURN PC
3074 012360 013616 MOV @2(SP),-(SP) ;MOVE NEW PSW TO STACK
3075 012362 062746 000002 ADD #2,-(SP) ;ADJUST JSR RETURN
3076 012366 000002 RTI ;POP RETURN PC & NEW PSW
3077
3078 ;SUBROUTINE TO REPORT UNEXPECTED OR ERRONEOUS TRAPS OR INTERRUPTS
3079
3080 012370 012600 CATCH: MOV (SP)+,RO ;GET ADDRESS OF TRAP VECTOR + 4
3081 012372 162700 000004 SUB #4,RO ;ADJUST TO POINT TO TRAP ADDRESS
3082 012376 010037 012416 MOV RO,BDVECT ;STORE TRAP OR INTERRUPT ADDRESS
3083 012402 016637 000002 012414 MOV 2(SP),OLDPC ;GET PC WHERE TRAP OR INTERRUPT OCCURRED
3084 012410 104161 ERROR 161 ;REPORT ERROR
3085
3086 012412 000000 HALT ;PROGRAM MUST BE RESTARTED AT THIS POINT
3087 012414 000000 OLDPC: .WORD 0
3088 012416 000000 BDVECT: .WORD 0
3089
3090
3091 ;*****
3092 ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
3093 ;*SAVE THE ERROR ITEM NUMBER AND ADDRESS OF THE ERROR CALL
3094 ;*AND GO TO $ERRTYP ON ERROR
3095 ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
3096 ;*SW15=1 HALT ON ERROR
3097 ;*SW13=1 INHIBIT ERROR TYPEOUTS
3098 ;*SW09=1 LOOP IN ERROR
3099 ;*CALL
3100 ;* ERROR N ;;ERROR=EMT AND N=ERROR ITEM NUMBER
3101 ;*****
3102
3103 012420 $ERROR:
3104 012420 105237 001003 7$: INCB $ERFLG ;SET THE ERROR FLAG
3105 012424 001775 BEQ 7$ ;DON'T LET FLAG GO TO ZERO
3106 012426 013777 001002 166406 MOV $TSTNM,@DISPLAY ;DISPLAY TEST NUMBER AND ERROR FLAG
3107 012434 005237 001012 INC $ERTTL ;INCREMENT ERROR COUNT
3108 012440 011637 001016 MOV (SP),$ERRPC ;GET ADDRESS OF ERROR INSTRUCTION
3109 012444 162737 000002 001016 SUB #2,$ERRPC
3110 012452 117737 166340 001014 MOV @2,$ERRPC,$ITEMB ;STRIP AND SAVE THE ERROR ITEM CODE
3111 012460 032777 020000 166352 BIT #BIT13,@SWR ;SKIP TYPEOUT IF SET
3112 012466 001004 BNE 20$ ;SKIP TYPEOUTS
3113 012470 004737 012602 JSR PC,$ERRTYP ;GO TO USER ERROR ROUTINE
3114 012474 104401 001075 TYPE , $CRLF
3115 012500 20$:
3116 012500 122737 000001 001120 CMPB #APTENV,$ENV ;RUNNING IN APT MODE
3117 012506 001007 BNE 21$ ;NO, SKIP APT ERROR REPORT
3118 012510 113737 001014 012522 MOV @2,$ITEMB,21$ ;SET ITEM NUMBER AS ERROR NUMBER
3119 012516 004737 013304 JSR PC,$ATY4 ;REPORT FATAL ERROR TO APT
3120 012522 000 21$: .BYTE 0
3121 012523 000 .BYTE 0

```

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END OF PASS ROUTINE

```

3122 012524 000777
3123 012526 005777 166306
3124 012532 100001
3125 012534 000000
3126 012536 104407
3127 012540 032777 001000 166272
3128 012546 001402
3129 012550 013716 001010
3130 012554 005737 001072
3131 012560 001402
3132 012562 013716 001072
3133 012566
3134 012566 022737 012322 000042
3135 012574 001001
3136 012576 000000
3137 012600
3138 012600 000002
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3141
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3148 012602
3149 012602 104401 001075
3150 012606 010046
3151 012610 005000
3152 012612 153700 001014
3153 012616 001004
3154
3155 012620 013746 001016
3156
3157 012624 104402
3158 012626 000426
3159 012630 005300
3160 012632 006300
3161 012634 006300
3162 012636 006300
3163 012640 062700 001160
3164 012644 012037 012654
3165 012650 001404
3166 012652 104401
3167 012654 000000
3168 012656 104401 001075
3169 012662 012037 012672
3170 012666 001404
3171 012670 104401
3172 012672 000000
3173 012674 104401 001075
3174 012700 011000
3175 012702 001004
3176 012704 012600
3177 012706 104401 001075

```

```

22$: BR 22$ ;APT ERROR LOOP
2$: TST @SWR ;HALT ON ERROR
BPL 3$ ;SKIP IF CONTINUE
HALT ;HALT ON ERROR!
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

```

.SBTTL ERROR MESSAGE TYPEOUT ROUTINE

```

;*****
;THIS ROUTINE USES THE "ITEM CONTROL BYTE" ($ITEMB) TO DETERMINE WHICH
;ERROR IS TO BE REPORTED. IT THEN OBTAINS, FROM THE "ERROR TABLE" ($ERRTB),
;AND REPORTS THE APPROPRIATE INFORMATION CONCERNING THE ERROR.

```

```

$ERRTYP:
        TYPE    , $CRLF                ;; "CARRIAGE RETURN" & "LINE FEED"
        MOV     RO, -(SP)              ;; SAVE RO
        CLR     RO                      ;; PICKUP THE ITEM INDEX
        BISB   @#$ITEMB,RO
        BNE    1$
        MOV     $ERRPC, -(SP)          ;; IF ITEM NUMBER IS ZERO, JUST
        TYPCD                                     ;; TYPE THE PC OF THE ERROR
        BR     6$                        ;; SAVE $ERRPC FOR TYPEOUT
        DEC    RO                        ;; ERROR ADDRESS
        ASL    RO                        ;; GO TYPE--OCTAL ASCII(ALL DIGITS)
        ASL    RO                        ;; GET OUT
        ASL    RO                        ;; ADJUST THE INDEX SO THAT IT WILL
        ADD    # $ERRTB,RO              ;; WORK FOR THE ERROR TABLE
        MOV     (RO)+, 2$
        BEQ    3$
        TYPE   .WORD 0                  ;; FORM TABLE POINTER
        TYPE   , $CRLF                ;; PICKUP "ERROR MESSAGE" POINTER
        2$:   .WORD 0                  ;; SKIP TYPEOUT IF NO POINTER
        TYPE   , $CRLF                ;; TYPE THE "ERROR MESSAGE"
        BEQ    5$                        ;; "ERROR MESSAGE" POINTER GOES HERE
        TYPE   (RO)+, 4$              ;; "CARRIAGE RETURN" & "LINE FEED"
        BEQ    5$                        ;; PICKUP "DATA HEADER" POINTER
        TYPE   .WORD 0                  ;; SKIP TYPEOUT IF 0
        TYPE   , $CRLF                ;; TYPE THE "DATA HEADER"
        4$:   .WORD 0                  ;; "DATA HEADER" POINTER GOES HERE
        MOV     (RO),RO                ;; "CARRIAGE RETURN" & "LINE FEED"
        BNE    7$                        ;; PICKUP "DATA TABLE" POINTER
        MOV     (SP)+,RO                ;; GO TYPE THE DATA
        6$:   TYPE   , $CRLF                ;; RESTORE RO
        ;; "CARRIAGE RETURN" & "LINE FEED"

```

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ERROR MESSAGE TYPEOUT ROUTINE

```

3178 012712 000207
3179 012714
3180 012714 013046
3181 012716 104402
3182 012720 005710
3183 012722 001770
3184 012724 104401 012732
3185 012730 000771
3186 012732 020040 000
3187 012736
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3194 012736 012737 013076 000024
3195 012744 012737 000340 000026
3196 012752 010046
3197 012754 010146
3198 012756 010246
3199 012760 010346
3200 012762 010446
3201 012764 010546
3202 012766 017746 166046
3203 012772 010637 013102
3204 012776 012737 013010 000024
3205 013004 000000
3206 013006 000776
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3212 013010 012737 013076 000024
3213 013016 013706 013102
3214 013022 012677 166012
3215 013026 012605
3216 013030 012604
3217 013032 012603
3218 013034 012602
3219 013036 012601
3220 013040 012600
3221 013042 012737 012736 000024
3222 013050 012737 000340 000026
3223 013056 005037 013102
3224 013062 005237 013102
3225 013066 001375
3226 013070 104401
3227 013072 013104
3228 013074 000002
3229 013076 000000
3230 013100 000776
3231 013102 000000
3232 013104 005015 047520 042527
3233 013112 000122

RTS PC ;;RETURN
7$: MOV @ (R0)+, -(SP) ;;SAVE @ (R0)+ FOR TYPEOUT
TYPOC ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
TST (R0) ;;IS THERE ANOTHER NUMBER?
BEQ 6$ ;;BR IF NO
TYPE ,8$ ;;TYPE TWO(2) SPACES
BR 7$ ;;LOOP
8$: .ASCIZ / / ;;TWO(2) SPACES
.EVEN

.SBTTL POWER DOWN AND UP ROUTINES
;*****
;POWER DOWN ROUTINE
;*****
$PWRDN: MOV $ILLUP, @PWRVEC ;SET FOR FAST UP
MOV #340, @PWRVEC+2 ;PRIO:7
MOV R0, -(SP) ;PUSH R0 ON STACK
MOV R1, -(SP) ;PUSH R1 ON STACK
MOV R2, -(SP) ;PUSH R2 ON STACK
MOV R3, -(SP) ;PUSH R3 ON STACK
MOV R4, -(SP) ;PUSH R4 ON STACK
MOV R5, -(SP) ;PUSH R5 ON STACK
MOV @SWR, -(SP) ;PUSH @SWR ON STACK
MOV SP, $SAVR6 ;SAVE SP
MOV $PWRUP, @PWRVEC ;SET UP VECTOR
HALT
BR .-2 ;HANG UP

;*****
;POWER UP ROUTINE
;*****
$PWRUP: MOV $ILLUP, @PWRVEC ;SET FOR FAST DOWN
MOV $SAVR6, SP ;GET SP
MOV (SP)+, @SWR ;POP STACK INTO @SWR
MOV (SP)+, R5 ;POP STACK INTO R5
MOV (SP)+, R4 ;POP STACK INTO R4
MOV (SP)+, R3 ;POP STACK INTO R3
MOV (SP)+, R2 ;POP STACK INTO R2
MOV (SP)+, R1 ;POP STACK INTO R1
MOV (SP)+, R0 ;POP STACK INTO R0
MOV $PWRDN, @PWRVEC ;SET UP THE POWER DOWN VECTOR
MOV #340, @PWRVEC+2 ;PRIO:7
CLR $SAVR6 ;WAIT LOOP FOR THE TTY
1$: INC $SAVR6 ;WAIT FOR THE INC
BNE 1$ ;OF WORD
TYPE ;REPORT THE POWER FAILURE
$PWRMG: .WORD $POWER ;POWER FAIL MESSAGE POINTER
RTI
$ILLUP: HALT ;THE POWER UP SEQUENCE WAS STARTED
BR .-2 ;BEFORE THE POWER DOWN WAS COMPLETE
$SAVR6: 0 ;PUT THE SP HERE
$POWER: .ASCIZ <15><12>"POWER"

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013114  
013114 104407  
013116 032777 040000 165714  
013124 001052  
013126 000416  
013130 013746 000004  
013134 012737 013154 000004  
013142 005737 177060  
013146 012637 000004  
013152 000421  
013154 022626  
013156 012637 000004  
013162 000407  
013164  
013164 105737 001003  
013170 001412  
013172 032777 001000 165640  
013200 001404  
013202 013737 001010 001006  
013210 000420  
013212 105037 001003  
013216 105237 001002  
013222 113737 001002 001104  
013230 011637 001006  
013234 011637 001010  
013240 005037 001072  
013244 112737 000001 001015  
013252 013777 001002 165562  
013260 013716 001006  
013264 000002

.SBTTL SCOPE HANDLER ROUTINE

```

;*****
;THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
;AND LOAD THE TEST NUMBER($TSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
;AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
;THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
;SW14=1 LOOP ON TEST
;SW09=1 LOOP ON ERROR
;CALL
;* SCOPE ;:SCOPE=IOT

$SCOPE:
CKSWR ;:TEST FOR CHANGE IN SOFT-SWR
1$: BIT #BIT14,@SWR ;:LOOP ON PRESENT TEST?
BNE $OVER ;:YES IF SW14=1
;####START OF CODE FOR THE XOR TESTER####
$XTSTR: BR 6$ ;:IF RUNNING ON THE "XOR" TESTER CHANGE
;THIS INSTRUCTION TO A "NOP" (NOP=240)
MOV @#ERRVEC,-(SP) ;:SAVE THE CONTENTS OF THE ERROR VECTOR
MOV #5,@#ERRVEC ;:SET FOR TIMEOUT
TST @#177060 ;:TIME OUT ON XOR?
MOV (SP)+,@#ERRVEC ;:RESTORE THE ERROR VECTOR
BR $SVLAD ;:GO TO THE NEXT TEST
5$: CMP (SP)+,(SP)+ ;:CLEAR THE STACK AFTER A TIME OUT
MOV (SP)+,@#ERRVEC ;:RESTORE THE ERROR VECTOR
BR 7$ ;:LOOP ON THE PRESENT TEST
6$::####END OF CODE FOR THE XOR TESTER####
2$: TSTB $ERFLG ;:HAS AN ERROR OCCURRED?
BEQ $SVLAD ;:BR IF NO
BIT #BIT09,@SWR ;:LOOP ON ERROR?
BEQ 4$ ;:BR IF NO
7$: MOV $LPERR,$LPADR ;:SET LOOP ADDRESS TO LAST SCOPE
BR $OVER
4$: CLRB $ERFLG ;:ZERO THE ERROR FLAG
$SVLAD: INCB $TSTNM ;:COUNT TEST NUMBERS
MOVB $TSTNM,$TESTN ;:SET TEST NUMBER IN APT MAILBOX
MOV (SP),$LPADR ;:SAVE SCOPE LOOP ADDRESS
MOV (SP),$LPERR ;:SAVE ERROR LOOP ADDRESS
CLR $ESCAPE ;:CLEAR THE ESCAPE FROM ERROR ADDRESS
MOVB #1,$ERMAX ;:ONLY ALLOW ONE(1) ERROR ON NEXT TEST
$OVER: MOV $TSTNM,@DISPLAY ;:DISPLAY TEST NUMBER
MOV $LPADR,(SP) ;:FUDGE RETURN ADDRESS
RTI ;:FIXES PS

```

;;\*\*\*\*\*  
.SBTTL APT COMMUNICATIONS ROUTINE  
;;\*\*\*\*\*

```

$ATY1: MOVB #1,$FFLG ;:TO REPORT FATAL ERROR
$ATY3: MOVB #1,$MFLG ;:TO TYPE A MESSAGE
BR $ATYC

```

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APT COMMUNICATIONS ROUTINE

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3290 013304 112737 000001 013532 $ATY4:  MOVB    #1,$FFLG      ;TO ONLY REPORT FATAL ERROR
3291 013312                                $ATYC:
3292 013312 010046                                MOV     RO,-(SP)      ;PUSH RO ON STACK
3293 013314 010146                                MOV     R1,-(SP)      ;PUSH R1 ON STACK
3294 013316 105737 013530                                TSTB   $MFLG         ;SHOULD TYPE A MESSAGE?
3295 013322 001450                                BEQ     5$            ;IF NOT: BR
3296 013324 122737 000001 001120                                CMPB   #APTENV,$ENV   ;OPERATING UNDER APT?
3297 013332 001031                                BNE     3$            ;IF NOT: BR
3298 013334 132737 000100 001121                                BITB   #APTPOOL,$ENVM ;SHOULD SPOOL MESSAGE?
3299 013342 001425                                BEQ     3$            ;IF NOT: BR
3300 013344 017600 000004                                MOV     @4(SP),RO     ;GET MESSAGE ADDRESS
3301 013350 062766 000002 000004                                ADD     #2,4(SP)      ;BUMP RETURN ADDRESS
3302 013356 005737 001100                                1$:    TST     $MSGTYPE      ;SEE IF DONE W/ LAST XMISSION?
3303 013362 001375                                BNE     1$            ;IF NOT: WAIT
3304 013364 010037 001114                                MOV     RO,$MSGAD     ;PUT ADDRESS IN MAILBOX
3305 013370 105720                                2$:    TSTB   (RO)+      ;FIND END OF MESSAGE
3306 013372 001376                                BNE     2$
3307 013374 163700 001114                                SUB     $MSGAD,RO     ;SUB START OF MESSAGE
3308 013400 006200                                ASR     RO            ;GET MESSAGE LENGTH IN WORDS
3309 013402 010037 001116                                MOV     RO,$MSGLGT    ;PUT LENGTH IN MAILBOX
3310 013406 012737 000004 001100                                MOV     #4,$MSGTYPE   ;TELL APT TO TAKE MESSAGE
3311 013414 000413                                BR      5$
3312 013416 017637 000004 013442 3$:    MOV     @4(SP),4$     ;PUT MSG ADDR IN JSR LINKAGE
3313 013424 062766 000002 000004                                ADD     #2,4(SP)      ;BUMP RETURN ADDRESS
3314 013432 013746 177776                                MOV     177776,-(SP)  ;PUSH 177776 ON STACK
3315 013436 004737 013534                                JSR     PC,$TYPE     ;CALL TYPE MACRO
3316 013442 000000                                4$:    .WORD    0
3317 013444                                5$:
3318 013444 105737 013532                                10$:   TSTB   $FFLG         ;SHOULD REPORT FATAL ERROR?
3319 013450 001413                                BEQ     12$          ;IF NOT: BR
3320 013452 005737 001120                                TST     $ENV          ;RUNNING UNDER APT?
3321 013456 001410                                BEQ     12$          ;IF NOT: BR
3322 013460 005737 001100                                11$:  TST     $MSGTYPE     ;FINISHED LAST MESSAGE?
3323 013464 001375                                BNE     11$          ;IF NOT: WAIT
3324 013466 017637 000004 001102                                MOV     @4(SP),$FATAL ;GET ERROR #
3325 013474 005237 001100                                INC     $MSGTYPE     ;TELL APT TO TAKE ERROR
3326 013500 062766 000002 000004 12$:  ADD     #2,4(SP)      ;BUMP RETURN ADDRESS
3327 013506 105037 013532                                CLRB   $FFLG         ;CLEAR FATAL FLAG
3328 013512 105037 013531                                CLRB   $LFLG         ;CLEAR LOG FLAG
3329 013516 105037 013530                                CLRB   $MFLG         ;CLEAR MESSAGE FLAG
3330 013522 012601                                MOV     (SP)+,R1     ;POP STACK INTO R1
3331 013524 012600                                MOV     (SP)+,RO     ;POP STACK INTO R1
3332 013526 000207                                RTS     PC            ;RETURN
3333 013530 000                                $MFLG: .BYTE    0
3334 013531 000                                $LFLG: .BYTE    0      ;LOG FLAG
3335 013532 000                                $FFLG: .BYTE    0      ;FATAL FLAG
3336
3337                                .EVEN
3338                                013534
3339                                000200
3340                                000001
3341                                000100
3342                                000040
3343
3344                                APTSIZE=200
3345                                APTENV=001
3346                                APTPOOL=100
3347                                APTCSUP=040
3348
3349                                .SBTTL  TYPE ROUTINE

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3346 ;:*****
3347 ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
3348 ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
3349 ;*NOTE1: $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
3350 ;*NOTE2: $FILLC CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
3351 ;*NOTE3: $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
3352 ;*
3353 ;*CALL:
3354 ;*1) USING A TRAP INSTRUCTION
3355 ;* TYPE ,MESADR ;:MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
3356 ;*OR
3357 ;* TYPE
3358 ;* MESADR
3359 ;*
3360
3361 013534 105737 001057 $TYPE: TSTB $TPFLG ;:IS THERE A TERMINAL?
3362 013540 100002 BPL 1$ ;:BR IF YES
3363 013542 000000 HALT ;:HALT HERE IF NO TERMINAL
3364 013544 000430 BR 3$ ;:LEAVE
3365 013546 010046 1$: MOV RO,-(SP) ;:SAVE RO
3366 013550 017600 000002 001120 MOV @2(SP),RO ;:GET ADDRESS OF ASCIZ STRING
3367 013554 122737 000001 001120 CMPB #APTENV,$ENV ;:RUNNING IN APT MODE
3368 013562 001011 BNE 62$ ;:NO,GO CHECK FOR APT CONSOLE
3369 013564 132737 000100 001121 BITB #APTSPOOL,$ENVM ;:SPOOL MESSAGE TO APT
3370 013572 001405 BEQ 62$ ;:NO,GO CHECK FOR CONSOLE
3371 013574 010037 013604 MOV RO,61$ ;:SETUP MESSAGE ADDRESS FOR APT
3372 013600 004737 013274 JSR PC,$ATY3 ;:SPOOL MESSAGE TO APT
3373 013604 000000 61$: .WORD 0 ;:MESSAGE ADDRESS
3374 013606 132737 000040 001121 62$: BITB #APTCSUP,$ENVM ;:APT CONSOLE SUPPRESSED
3375 013614 001003 BNE 60$ ;:YES,SKIP TYPE OUT
3376 013616 112046 2$: MOVB (RO)+,-(SP) ;:PUSH CHARACTER TO BE TYPED ONTO STACK
3377 013620 001005 BNE 4$ ;:BR IF IT ISN'T THE TERMINATOR
3378 013622 005726 TST (SP)+ ;:IF TERMINATOR POP IT OFF THE STACK
3379 013624 012600 60$: MOV (SP)+,RO ;:RESTORE RO
3380 013626 062716 000002 3$: ADD #2,(SP) ;:ADJUST RETURN PC
3381 013632 000002 RTI ;:RETURN
3382 013634 122716 000011 4$: CMPB #HT,(SP) ;:BRANCH IF <HT>
3383 013640 001430 BEQ 8$ ;:BRANCH IF NOT <CRLF>
3384 013642 122716 000200 CMPB #CRLF,(SP) ;:BRANCH IF NOT <CRLF>
3385 013646 001006 BNE 5$ ;:BRANCH IF NOT <CRLF>
3386 013650 005726 TST (SP)+ ;:POP <CR><LF> EQUIV
3387 013652 104401 TYPE ;:TYPE A CR AND LF
3388 013654 001075 $CRLF
3389 013656 105037 014064 CLRB $CHARCNT ;:CLEAR CHARACTER COUNT
3390 013662 000755 BR 2$ ;:GET NEXT CHARACTER
3391 013664 004737 013746 5$: JSR PC,$TYPEC ;:GO TYPE THIS CHARACTER
3392 013670 123726 001056 6$: CMPB $FILLC,(SP)+ ;:IS IT TIME FOR FILLER CHARS.?
3393 013674 001350 BNE 2$ ;:IF NO GO GET NEXT CHAR.
3394 013676 013746 001054 MOV $NULL,-(SP) ;:GET # OF FILLER CHARS. NEEDED
3395 ;:AND THE NULL CHAR.
3396 013702 105366 000001 7$: DECB 1(SP) ;:DOES A NULL NEED TO BE TYPED?
3397 013706 002770 BLT 6$ ;:BR IF NO--GO POP THE NULL OFF OF STACK
3398 013710 004737 013746 JSR PC,$TYPEC ;:GO TYPE A NULL
3399 013714 105337 014064 DECB $CHARCNT ;:DO NOT COUNT AS A COUNT
3400 013720 000770 BR 7$ ;:LOOP
3401

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3403
3404 013722 112716 000040
3405 013726 004737 013746
3406 013732 132737 000007 014064
3407 013740 001372
3408 013742 005726
3409 013744 000724
3410 013746
3411 013746 105777 165072
3412 013752 100022
3413 013754 017746 165066
3414 013760 042716 177600
3415 013764 122716 000023
3416 013770 001012
3417 013772
3418 013772 105777 165046
3419 013776 100375
3420 014000 117716 165042
3421 014004 042716 177600
3422 014010 122716 000021
3423 014014 001366
3424 014016
3425 014016 005726
3426 014020
3427 014020 105777 165024
3428 014024 100375
3429 014026 116677 000002 165016
3430 014034 122766 000015 000002
3431 014042 001003
3432 014044 105037 014064
3433 014050 000406
3434 014052 122766 000012 000002
3435 014060 001402
3436 014062 105227
3437 014064 000000
3438 014066 000207
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;HORIZONTAL TAB PROCESSOR
8$:   MOVB   #' ,(SP)           ;;REPLACE TAB WITH SPACE
9$:   JSR    PC,$TYPEC         ;;TYPE A SPACE
      BITB   #7,$CHARCNT       ;;BRANCH IF NOT AT
      BNE    9$                ;;TAB STOP
      TST    (SP)+             ;;POP SPACE OFF STACK
      BR     2$                ;;GET NEXT CHARACTER
$TYPEC:
      TSTB   @ $TKS             ;;CHAR IN KYBD BUFFER?
      BPL    10$               ;;BR IF NOT
      MOV    @ $TKB,-(SP)       ;;GET CHAR
      BIC    #177600,(SP)      ;;STRIP EXTRANEIOUS BITS
      CMPB   # $XOFF,(SP)      ;;WAS CHAR XOFF
      BNE    102$              ;;BR IF NOT
101$:  TSTB   @ $TKS             ;;WAIT FOR CHAR
      BPL    101$
      MOVB   @ $TKB,(SP)       ;;GET CHAR
      BIC    #177600,(SP)      ;;STRIP IT
      CMPB   # $XON,(SP)       ;;WAS IT XON?
      BNE    101$              ;;BR IF NOT
102$:  TST    (SP)+             ;;FIX STACK
10$:   TSTB   @ $TPS             ;;WAIT UNTIL PRINTER IS READY
      BPL    10$
      MOVB   2(SP),@ $TPB      ;;LOAD CHAR TO BE TYPED INTO DATA REG.
      CMPB   #CR,2(SP)         ;;IS CHARACTER A CARRIAGE RETURN?
      BNE    1$                ;;BRANCH IF NO
      CLRB   $CHARCNT          ;;YES--CLEAR CHARACTER COUNT
      BR     $TYPEX            ;;EXIT
1$:    CMPB   #LF,2(SP)         ;;IS CHARACTER A LINE FEED?
      BEQ    $TYPEX            ;;BRANCH IF YES
      INCB   (PC)+             ;;COUNT THE CHARACTER
      $CHARCNT: .WORD 0        ;;CHARACTER COUNT STORAGE
      $TYPEX:  RTS    PC

.SBTTL  BINARY TO OCTAL (ASCII) AND TYPE
;*****
;THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
;OCTAL (ASCII) NUMBER AND TYPE IT.
;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
;CALL:
;*   MOV     NUM,-(SP)          ;;NUMBER TO BE TYPED
;*   TYPOS          ;;CALL FOR TYPEOUT
;*   .BYTE   N                ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
;*   .BYTE   M                ;;M=1 OR 0
;*                               ;;1=TYPE LEADING ZEROS
;*                               ;;0=SUPPRESS LEADING ZEROS
;*$TYPON---ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
;*$TYPOS OR $TYPOC
;CALL:
;*   MOV     NUM,-(SP)          ;;NUMBER TO BE TYPED

```



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3458          ;*      TYPON                ;;CALL FOR TYPEOUT
3459          ;*
3460          ;*$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
3461          ;*CALL:
3462          ;*      MOV      NUM,-(SP)      ;;NUMBER TO BE TYPED
3463          ;*      TYPOC                ;;CALL FOR TYPEOUT
3464
3465 014070 017646 000000          $TYPOS: MOV      @ (SP),-(SP)      ;;PICKUP THE MODE
3466 014074 116637 000001 014313 MOVVB   1(SP), $OFILL      ;;LOAD ZERO FILL SWITCH
3467 014102 112637 014315          MOVVB   (SP)+, $OMODE+1    ;;NUMBER OF DIGITS TO TYPE
3468 014106 062716 000002          ADD     #2,(SP)          ;;ADJUST RETURN ADDRESS
3469 014112 000406                BR      $TYPON
3470 014114 112737 000001 014313 $TYPOC: MOVVB   #1, $OFILL      ;;SET THE ZERO FILL SWITCH
3471 014122 112737 000006 014315 MOVVB   #6, $OMODE+1    ;;SET FOR SIX(6) DIGITS
3472 014130 112737 000005 014312 $TYPON: MOVVB   #5, $OCNT      ;;SET THE ITERATION COUNT
3473 014136 010346                MOV     R3, -(SP)        ;;SAVE R3
3474 014140 010446                MOV     R4, -(SP)        ;;SAVE R4
3475 014142 010546                MOV     R5, -(SP)        ;;SAVE R5
3476 014144 113704 014315          MOVVB   $OMODE+1, R4     ;;GET THE NUMBER OF DIGITS TO TYPE
3477 014150 005404                NEG     R4
3478 014152 062704 000006          ADD     #6, R4          ;;SUBTRACT IT FOR MAX. ALLOWED
3479 014156 110437 014314          MOVVB   R4, $OMODE      ;;SAVE IT FOR USE
3480 014162 113704 014313          MOVVB   $OFILL, R4      ;;GET THE ZERO FILL SWITCH
3481 014166 016605 000012          MOV     12(SP), R5      ;;PICKUP THE INPUT NUMBER
3482 014172 005003                CLR     R3              ;;CLEAR THE OUTPUT WORD
3483 014174 006105                1$:    ROL     R5          ;;ROTATE MSB INTO "C"
3484 014176 000404                BR      3$              ;;GO DO MSB
3485 014200 006105                2$:    ROL     R5          ;;FORM THIS DIGIT
3486 014202 006105                ROL     R5
3487 014204 006105                ROL     R5
3488 014206 010503                MOV     R5, R3
3489 014210 006103                3$:    ROL     R3          ;;GET LSB OF THIS DIGIT
3490 014212 105337 014314          DECB   $OMODE          ;;TYPE THIS DIGIT?
3491 014216 100016                BPL     7$              ;;BR IF NO
3492 014220 042703 177770          BIC     #177770, R3     ;;GET RID OF JUNK
3493 014224 001002                BNE     4$              ;;TEST FOR 0
3494 014226 005704                TST     R4              ;;SUPPRESS THIS 0?
3495 014230 001403                BEQ     5$              ;;BR IF YES
3496 014232 005204                4$:    INC     R4          ;;DON'T SUPPRESS ANYMORE 0'S
3497 014234 052703 000060          BIS     #'0, R3        ;;MAKE THIS DIGIT ASCII
3498 014240 052703 000040          5$:    BIS     #' , R3    ;;MAKE ASCII IF NOT ALREADY
3499 014244 110337 014310          MOVVB   R3, 8$         ;;SAVE FOR TYPING
3500 014250 104401 014310          TYPE   , 8$           ;;GO TYPE THIS DIGIT
3501 014254 105337 014312          7$:    DECB   $OCNT      ;;COUNT BY 1
3502 014260 003347                BGT     2$              ;;BR IF MORE TO DO
3503 014262 002402                BLT     6$              ;;BR IF DONE
3504 014264 005204                INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
3505 014266 000744                BR      2$              ;;GO DO THE LAST DIGIT
3506 014270 012605                6$:    MOV     (SP)+, R5   ;;RESTORE R5
3507 014272 012604                MOV     (SP)+, R4       ;;RESTORE R4
3508 014274 012603                MOV     (SP)+, R3       ;;RESTORE R3
3509 014276 016666 000002 000004 MOV     2(SP), 4(SP)    ;;SET THE STACK FOR RETURNING
3510 014304 012616                MOV     (SP)+, (SP)
3511 014306 000002                RTI
3512 014310 000                8$:    .BYTE   0          ;;RETURN
3513 014311 000                .BYTE   0          ;;STORAGE FOR ASCII DIGIT
                        .BYTE   0          ;;TERMINATOR FOR TYPE ROUTINE

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3514 014312 000
3515 014313 000
3516 014314 000000
3517
3518
3519
3520
3521
3522
3523
3524
3525
3526
3527
3528
3529 014316
3530 014316 010046
3531 014320 010146
3532 014322 010246
3533 014324 010346
3534 014326 010546
3535 014330 012746 020200
3536 014334 016605 000020
3537 014340 100004
3538 014342 005405
3539 014344 112766 000055 000001
3540 014352 005000
3541 014354 012703 014532
3542 014360 112723 000040
3543 014364 005002
3544 014366 016001 014522
3545 014372 160105
3546 014374 002402
3547 014376 005202
3548 014400 000774
3549 014402 060105
3550 014404 005702
3551 014406 001002
3552 014410 105716
3553 014412 100407
3554 014414 106316
3555 014416 103003
3556 014420 116663 000001 177777
3557 014426 052702 000060
3558 014432 052702 000040
3559 014436 110223
3560 014440 005720
3561 014442 020027 000010
3562 014446 002746
3563 014450 003002
3564 014452 010502
3565 014454 000764
3566 014456 105726
3567 014460 100003
3568 014462 116663 177777 177776
3569 014470 105013
    
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$OCNT: .BYTE 0 ;;OCTAL DIGIT COUNTER
$OFILL: .BYTE 0 ;;ZERO FILL SWITCH
$OMODE: .WORD 0 ;;NUMBER OF DIGITS TO TYPE
.SBTTL CONVERT BINARY TO DECIMAL AND TYPE ROUTINE

;*****
;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT
;*SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE
;*NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED
;*BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
;*REPLACED WITH SPACES.
;*CALL:
;* MOV NUM,-(SP) ;;PUT THE BINARY NUMBER ON THE STACK
;* TYPDS ;;GO TO THE ROUTINE

$TYPDS:
MOV R0,-(SP) ;;PUSH R0 ON STACK
MOV R1,-(SP) ;;PUSH R1 ON STACK
MOV R2,-(SP) ;;PUSH R2 ON STACK
MOV R3,-(SP) ;;PUSH R3 ON STACK
MOV R5,-(SP) ;;PUSH R5 ON STACK
MOV #20200,-(SP) ;;SET BLANK SWITCH AND SIGN
MOV 20(SP),R5 ;;GET THE INPUT NUMBER
BPL 1$ ;;BR IF INPUT IS POS.
NEG R5 ;;MAKE THE BINARY NUMBER POS.
MOVB #'-,1(SP) ;;MAKE THE ASCII NUMBER NEG.
1$: CLR R0 ;;ZERO THE CONSTANTS INDEX
MOV #DBLK,R3 ;;SETUP THE OUTPUT POINTER
MOVB #' ,(R3)+ ;;SET THE FIRST CHARACTER TO A BLANK
2$: CLR R2 ;;CLEAR THE BCD NUMBER
MOV $DTBL(R0),R1 ;;GET THE CONSTANT
3$: SUB R1,R5 ;;FORM THIS BCD DIGIT
BLT 4$ ;;BR IF DONE
INC R2 ;;INCREASE THE BCD DIGIT BY 1
BR 3$
4$: ADD R1,R5 ;;ADD BACK THE CONSTANT
TST R2 ;;CHECK IF BCD DIGIT=0
BNE 5$ ;;FALL THROUGH IF 0
TSTB (SP) ;;STILL DOING LEADING 0'S?
BMI 7$ ;;BR IF YES
5$: ASLB (SP) ;;MSD?
BCC 6$ ;;BR IF NO
MOVB 1(SP),-1(R3) ;;YES--SET THE SIGN
6$: BIS #'0,R2 ;;MAKE THE BCD DIGIT ASCII
7$: BIS #' ,R2 ;;MAKE IT A SPACE IF NOT ALREADY A DIGIT
MOVB R2,(R3)+ ;;PUT THIS CHARACTER IN THE OUTPUT BUFFER
TST (R0)+ ;;JUST INCREMENTING
CMP R0,#10 ;;CHECK THE TABLE INDEX
BLT 2$ ;;GO DO THE NEXT DIGIT
BGT 8$ ;;GO TO EXIT
MOV R5,R2 ;;GET THE LSD
BR 6$ ;;GO CHANGE TO ASCII
8$: TSTB (SP)+ ;;WAS THE LSD THE FIRST NON-ZERO?
BPL 9$ ;;BR IF NO
MOVB -1(SP),-2(R3) ;;YES--SET THE SIGN FOR TYPING
9$: CLRB (R3) ;;SET THE TERMINATOR
    
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3570	014472	012605			MOV	(SP)+,R5	::POP STACK INTO R5
3571	014474	012603			MOV	(SP)+,R3	::POP STACK INTO R3
3572	014476	012602			MOV	(SP)+,R2	::POP STACK INTO R2
3573	014500	012601			MOV	(SP)+,R1	::POP STACK INTO R1
3574	014502	012600			MOV	(SP)+,R0	::POP STACK INTO R0
3575	014504	104401	014532		TYPE	, \$DBLK	::NOW TYPE THE NUMBER
3576	014510	016666	000002	000004	MOV	2(SP),4(SP)	::ADJUST THE STACK
3577	014516	012616			MOV	(SP)+,(SP)	
3578	014520	000002			RTI		::RETURN TO USER
3579	014522	023420			\$DTBL:	10000.	
3580	014524	001750				1000.	
3581	014526	000144				100.	
3582	014530	000012				10.	
3583	014532	000004			\$DBLK:	.BLKW 4	
3584							
3585							
3586					.SBTTL	TTY INPUT ROUTINE	
3587							
3588					::*****		
3589					.ENABL	LSB	
3590							
3591					::*****		
3592					::*SOFTWARE SWITCH REGISTER CHANGE ROUTINE.		
3593					::*ROUTINE IS ENTERED FROM THE TRAP HANDLER, AND WILL		
3594					::*SERVICE THE TEST FOR CHANGE IN SOFTWARE SWITCH REGISTER TRAP CALL		
3595					::*WHEN OPERATING IN TTY FLAG MODE.		
3596	014542	022737	000176	001040	\$CKSWR:	CMP \$SWREG,SWR	::IS THE SOFT-SWR SELECTED?
3597	014550	001074				BNE 15\$	::BRANCH IF NO
3598	014552	105777	164266			TSTB @TKS	::CHAR THERE?
3599	014556	100071				BPL 15\$	::IF NO, DON'T WAIT AROUND
3600	014560	117746	164262			MOVB @TKB,-(SP)	::SAVE THE CHAR
3601	014564	042716	177600			BIC #C177,(SP)	::STRIP-OFF THE ASCII
3602	014570	022726	000007			CMP #7,(SP)+	::IS IT A CONTROL G?
3603	014574	001062				BNE 15\$	::NO, RETURN TO USER
3604	014576	123727	001034	000001		CMPB \$AUTOB,#1	::ARE WE RUNNING IN AUTO-MODE?
3605	014604	001456				BEQ 15\$	::BRANCH IF YES
3606							
3607	014606	104401	015277		\$GTSWR:	TYPE , \$CNTLG	::ECHO THE CONTROL-G (+G)
3608	014612	104401	015304			TYPE , \$MSWR	::TYPE CURRENT CONTENTS
3609	014616	013746	000176			MOV SWREG,-(SP)	::SAVE SWREG FOR TYPEOUT
3610	014622	104402				TYPOC	::GO TYPE--OCTAL ASCII(ALL DIGITS)
3611	014624	104401	015315			TYPE , \$MNEW	::PROMPT FOR NEW SWR
3612	014630	005046			19\$:	CLR -(SP)	::CLEAR COUNTER
3613	014632	005046				CLR -(SP)	::THE NEW SWR
3614	014634	105777	164204		7\$:	TSTB @TKS	::CHAR THERE?
3615	014640	100375				BPL 7\$	::IF NOT TRY AGAIN
3616							
3617	014642	117746	164200			MOVB @TKB,-(SP)	::PICK UP CHAR
3618	014646	042716	177600			BIC #C177,(SP)	::MAKE IT 7-BIT ASCII
3619							
3620							
3621							
3622	014652	021627	000025		9\$:	CMP (SP),#25	::IS IT A CONTROL-U?
3623	014656	001005				BNE 10\$	::BRANCH IF NOT
3624	014660	104401	015272			TYPE , \$CNTLU	::YES, ECHO CONTROL-U (+U)
3625	014664	062706	000006		20\$:	ADD #6,SP	::IGNORE PREVIOUS INPUT

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TTY INPUT ROUTINE

```

3626 014670 000757          BR      19$          ;;LET'S TRY IT AGAIN
3627
3628
3629 014672 021627 000015   10$:   CMP      (SP),#15          ;;IS IT A <CR>?
3630 014676 001022          BNE      16$          ;;BRANCH IF NO
3631 014700 005766 000004   TST      4(SP)          ;;YES, IS IT THE FIRST CHAR?
3632 014704 001403          BEQ      11$          ;;BRANCH IF YES
3633 014706 016677 000002 164124   MOV      2(SP),@SWR     ;;SAVE NEW SWR
3634 014714 062706 000006   11$:   ADD      #6,SP         ;;CLEAR UP STACK
3635 014720 104401 001075   14$:   TYPE     ,#CRLF       ;;ECHO <CR> AND <LF>
3636 014724 123727 001035 000001   CMPB    $INTAG,#1      ;;RE-ENABLE TTY KBD INTERRUPTS?
3637 014732 001003          BNE      15$          ;;BRANCH IF NOT
3638 014734 012777 000100 164102   MOV      #100,@TKS     ;;RE-ENABLE TTY KBD INTERRUPTS
3639 014742 000002          RTI                     ;;RETURN
3640 014744 004737 013746   15$:   JSR      PC,$TYPEPC    ;;ECHO CHAR
3641 014750 021627 000060   16$:   CMP      (SP),#60     ;;CHAR < 0?
3642 014754 002420          BLT      18$          ;;BRANCH IF YES
3643 014756 021627 000067   CMP      (SP),#67     ;;CHAR > ??
3644 014762 003015          BGT      18$          ;;BRANCH IF YES
3645 014764 042726 000060   BIC      #60,(SP)+     ;;STRIP-OFF ASCII
3646 014770 005766 000002   TST      2(SP)         ;;IS THIS THE FIRST CHAR
3647 014774 001403          BEQ      17$          ;;BRANCH IF YES
3648 014776 006316          ASL      (SP)          ;;NO, SHIFT PRESENT
3649 015000 006316          ASL      (SP)          ;; CHAR OVER TO MAKE
3650 015002 006316          ASL      (SP)          ;; ROOM FOR NEW ONE.
3651 015004 005266 000002   17$:   INC      2(SP)         ;;KEEP COUNT OF CHAR
3652 015010 056616 177776   BIS      -2(SP),(SP)   ;;SET IN NEW CHAR
3653 015014 000707          BR       7$           ;;GET THE NEXT ONE
3654 015016 104401 001074   18$:   TYPE     ,#QUES       ;;TYPE ?<CR><LF>
3655 015022 000720          BR       20$          ;;SIMULATE CONTROL-U
3656          .DSABL  LSB
3657
3658
3659          ;;*****
3660          ;*THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TTY
3661          ;*CALL:
3662          ;*      RDCHR          ;;INPUT A SINGLE CHARACTER FROM THE TTY
3663          ;*      RETURN HERE   ;;CHARACTER IS ON THE STACK
3664          ;*                  ;;WITH PARITY BIT STRIPPED OFF
3665          ;
3666
3667 015024 011646          $RDCHR: MOV      (SP),-(SP)      ;;PUSH DOWN THE PC
3668 015026 016666 000004 000002   MOV      4(SP),2(SP)    ;;SAVE THE PS
3669 015034 105777 164004   1$:   TSTB    @TKS          ;;WAIT FOR
3670 015040 100375          BPL      1$           ;;A CHARACTER
3671 015042 117766 164000 000004   MOVB    @TKB,4(SP)     ;;READ THE TTY
3672 015050 042766 177600 000004   BIC     #C<177>,4(SP)  ;;GET RID OF JUNK IF ANY
3673 015056 026627 000004 000023   CMP      4(SP),#23     ;;IS IT A CONTROL-S?
3674 015064 001013          BNE      3$           ;;BRANCH IF NO
3675 015066 105777 163752   2$:   TSTB    @TKS          ;;WAIT FOR A CHARACTER
3676 015072 100375          BPL      2$           ;;LOOP UNTIL ITS THERE
3677 015074 117746 163746   MOVB    @TKB,-(SP)     ;;GET CHARACTER
3678 015100 042716 177600   BIC     #C177,(SP)    ;;MAKE IT 7-BIT ASCII
3679 015104 022627 000021   CMP      (SP)+,#21     ;;IS IT A CONTROL-Q?
3680 015110 001366          BNE      2$           ;;IF NOT DISCARD IT
3681 015112 000750          BR       1$           ;;YES, RESUME

```

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TTY INPUT ROUTINE

```

3682 015114 026627 000004 000021 3$:    CMP      4(SP),#XON      ;;IS IT A RANDOM XON?                ;RAN001
3683 015122 001744                BEQ      1$              ;;BRANCH IF YES                      ;RAN001
3684 015124 026627 000004 000140                CMP      4(SP),#140     ;;IS IT UPPER CASE?
3685 015132 002407                BLT      4$              ;;BRANCH IF YES
3686 015134 026627 000004 000175                CMP      4(SP),#175     ;;IS IT A SPECIAL CHAR?
3687 015142 003003                BGT      4$              ;;BRANCH IF YES
3688 015144 042766 000040 000004                BIC      #40,4(SP)      ;;MAKE IT UPPER CASE
3689 015152 000002                RTI                          ;;GO BACK TO USER
3690                                     ;;*****
3691                                     ;;*THIS ROUTINE WILL INPUT A STRING FROM THE TTY
3692                                     ;;*CALL:
3693                                     ;;*      RDLIN              ;;INPUT A STRING FROM THE TTY
3694                                     ;;*      RETURN HERE      ;;ADDRESS OF FIRST CHARACTER WILL BE ON THE STACK
3695                                     ;;*                          ;;TERMINATOR WILL BE A BYTE OF ALL 0'S
3696
3697 015154 010346                $RDLIN: MOV      R3,-(SP)      ;;SAVE R3
3698 015156 012703 015262                1$:    MOV      #TTYIN,R3    ;;GET ADDRESS
3699 015162 022703 015272                2$:    CMP      #TTYIN+8.,R3  ;;BUFFER FULL?
3700 015166 101405                BLOS     4$              ;;BR IF YES
3701 015170 104410                RDCHR                    ;;GO READ ONE CHARACTER FROM THE TTY
3702 015172 112613                MOV      (SP)+,(R3)      ;;GET CHARACTER
3703 015174 122713 000177                10$:   CMP      #177,(R3)     ;;IS IT A RUBOUT
3704 015200 001003                BNE      3$              ;;SKIP IF NOT
3705 015202 104401 001074                4$:    TYPE     ,QUES      ;;TYPE A '?'
3706 015206 000763                BR       1$              ;;CLEAR THE BUFFER AND LOOP
3707 015210 111337 015260                3$:    MOV      (R3),9$     ;;ECHO THE CHARACTER
3708 015214 104401 015260                TYPE     ,9$
3709 015220 122723 000015                CMP      #15,(R3)+      ;;CHECK FOR RETURN
3710 015224 001356                BNE      2$              ;;LOOP IF NOT RETURN
3711 015226 105063 177777                CLRB    -1(R3)          ;;CLEAR RETURN (THE 15)
3712 015232 104401 001076                TYPE     ,LF            ;;TYPE A LINE FEED
3713 015236 012603                MOV      (SP)+,R3        ;;RESTORE R3
3714 015240 011646                MOV      (SP),-(SP)      ;;ADJUST THE STACK AND PUT ADDRESS OF THE
3715 015242 016666 000004 000002                MOV      4(SP),2(SP)    ;;FIRST ASCII CHARACTER ON IT
3716 015250 012766 015262 000004                MOV      #TTYIN,4(SP)
3717 015256 000002                RTI                          ;;RETURN
3718 015260 000                9$:    .BYTE     0          ;;STORAGE FOR ASCII CHAR. TO TYPE
3719 015261 000                .BYTE     0          ;;TERMINATOR
3720 015262 000010                $TTYIN: .BLKB    8.     ;;RESERVE 8 BYTES FOR TTY INPUT
3721 015272 052536 005015 000                $CNTLU: .ASCIZ  /tU/<15><12>  ;;CONTROL "U"
3722 015277 136 006507 000012                $CNTLG: .ASCIZ  /tG/<15><12>  ;;CONTROL "G"
3723 015304 005015 053523 020122                $MSWR:  .ASCIZ  <15><12>/SWR = /
3724 015312 020075 000
3725
3726 015315 040 047040 053505                $MNEW:  .ASCIZ  / NEW = /
3727 015322 036440 000040
3728
3729
3730
3731
3732 .SBTTL TRAP DECODER
3733
3734 ;;*****
3735 ;;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
3736 ;;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
3737 ;;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL

```

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TRAP DECODER

```

3738
3739
3740 015326 010046
3741 015330 016600 000002
3742 015334 005740
3743 015336 111000
3744 015340 006300
3745 015342 016000 015362
3746 015346 000200
3747
3748
3749
3750
3751 015350 011646
3752 015352 016666 000004 000002
3753 015360 000002
3754
3755
3756
3757
3758
3759
3760
3761
3762 015362 015350
3763 015364 013534
3764 015366 014114
3765 015370 014070
3766 015372 014130
3767 015374 014316
3768
3769 015376 014612
3770
3771 015400 014542
3772 015402 015024
3773 015404 015154
3774
3775
3776
3777
3778
3779
3780
3781
3782 015406 012737 000176 001040
3783 015414 012737 000174 001042
3784 015422 032777 000020 163410
3785 015430 001403
3786 015432 012703 002750
3787 015436 000402
3788 015440 012703 002760
3789 015444 000005
3790 015446 112773 000052 000006
3791 015454 105773 000000
3792 015460 100375
3793 015462 117373 000002 000006
    
```

;\*GO TO THAT ROUTINE.

```

$TRAP:  MOV    RO,-(SP)      ;;SAVE RO
        MOV    2(SP),RO     ;;GET TRAP ADDRESS
        TST    -(RO)        ;;BACKUP BY 2
        MOVB   (RO),RO      ;;GET RIGHT BYTE OF TRAP
        ASL    RO           ;;POSITION FOR INDEXING
        MOV    $TRPAD(RO),RO ;;INDEX TO TABLE
        RTS    RO           ;;GO TO ROUTINE
    
```

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

```

$TRAP2: MOV    (SP),-(SP)   ;;MOVE THE PC DOWN
        MOV    4(SP),2(SP)  ;;MOVE THE PSW DOWN
        RTI                    ;;RESTORE THE PSW
    
```

.SBTTL TRAP TABLE

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

```

; ROUTINE
;-----
$TRPAD: .WORD  $TRAP2
        $TYPE  ;;CALL=TYPE      TRAP+1(104401) TTY TYPEOUT ROUTINE
        $TYPOC ;;CALL=TYPOC    TRAP+2(104402) TYPE OCTAL NUMBER (WITH LEADING ZEROS)
        $TYPOS ;;CALL=TYPOS    TRAP+3(104403) TYPE OCTAL NUMBER (NO LEADING ZEROS)
        $TYPON ;;CALL=TYPON    TRAP+4(104404) TYPE OCTAL NUMBER (AS PER LAST CALL)
        $TYPDS ;;CALL=TYPDS    TRAP+5(104405) TYPE DECIMAL NUMBER (WITH SIGN)

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

        $CKSWR ;;CALL=CKSWR    TRAP+7(104407) TEST FOR CHANGE IN SOFT-SWR
        $RDCHR ;;CALL=RDCHR    TRAP+10(104410) TTY TYPEIN CHARACTER ROUTINE
        $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
;*****
    
```

```

ECHO:  MOV    #SWREG,SWR      ;SET UP FOR SOFTWARE SWITCH REGISTER
        MOV    #DISPREG,DISPLAY ;AND DISPLAY REGISTER
        BIT    #BIT4, @SWR    ;CHECK IF BIT4 SET IN SWITCH REG
        BEQ    1$           ;IF NOT THEN SELECT SLU1
        MOV    #RCSR, R3     ;IF BIT4 SET THEN SELECT SLU2
        BR     2$
1$:    MOV    #CRCSR, R3     ;SELECT SLU1 (THIS IS DEFAULT DEVICE)
2$:    RESET                    ;CLEAR EVERYTHING
3$:    MOVB   #'*,@6(R3)     ;TRANSMIT PROMPT "*"
        TSTB  @R3           ;WAIT FOR INPUT
        BPL   3$
        MOVB  @2(R3),@6(R3) ;ECHO INPUT
    
```

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ECHO TEST

```

3794 015470 017300 000002      MOV      @2(R3),R0      ;STORE INPUT
3795 015474 100023      BPL      6$            ;BR IF "ERROR"NOT SET
3796 015476 052701 010000      BIS      #BIT12,R1     ;SET PARITY ERROR TEST MASK
3797 015502 030100      BIT      R1,R0         ;CHECK FOR PARITY ERROR FLAG
3798 015504 001403      BEQ      4$            ;BR IF NOT SET
3799 015506 004737 015570      JSR      PC,MSG        ;REPORT PARITY ERROR
3800 015512 015616      MPAR
3801 015514 006301      4$: ASL      R1            ;SHIFT MASK TO TEST "FR" FLAG
3802 015516 030100      BIT      R1,R0         ;TEST FOR FRAMING ERROR FLAG
3803 015520 001403      BEQ      5$            ;BR IF NOT SET
3804 015522 004737 015570      JSR      PC,MSG        ;REPSORT FRAMING ERROR
3805 015526 015627      MFR
3806 015530 006301      5$: ASL      R1            ;SHIFT MASK TO TEST "OR" FLAG
3807 015532 030100      BIT      R1,R0         ;TEST FOR OVERFLOW ERROR
3808 015534 001403      BEQ      6$            ;BR IF NOT SET
3809 015536 004737 015570      JSR      PC,MSG        ;REPORT OVERFLOW ERROR
3810 015542 015641      MOR
3811 015544 042700 000200      6$: BIC      #BIT7,R0     ;CLEAR ANY PARITY BIT
3812 015550 022700 000003      CMP      #3,R0         ;WAS INPUT CONTROL-C
3813 015554 001337      BNE      3$            ;BR IF IS NOT
3814 015556 004737 015570      JSR      PC,MSG        ;REPORT PROGRAM STOP
3815 015562 015654      MSTOP
3816 015564 000000      HALT
3817 015566 000707      BR      ECHO           ;END OF TEST HALT
3818                                     ;AFTER END OF TEST HALT
3819                                     ; PRESS CONTINUE TO RESTART ECHO TEST
3820 015570 013600      MSG:  MOV      @2(SP)+,R0 ;PICK UP MESSAGE POINTER
3821 015572 062746 000002      ADD      #2,-(SP)      ;ADJUST RETURN PC
3822 015576 105773 000004      WAIT: TSTB     @4(R3)    ;WAIT FOR XMIT DONE
3823 015602 100375      BPL      WAIT
3824 015604 112073 000006      MOVB    (R0)+,@6(R3)   ;SEND CHARACTER
3825 015610 105710      TSTB    (R0)           ;IS THIS END OF MESSAGE?
3826 015612 001371      BNE      WAIT          ;BR IF NOT
3827 015614 000207      RTS      PC            ;RETURN
3828
3829 015616 005015 040520 044522 MPAR: .ASCIZ <CR><LF>/PARITY/
3830 015624 054524 000      000
3831
3832 015627 015 043012 040522 /FR: .ASCIZ <CR><LF>/FRAMING/
3833 015634 044515 043516 000      000
3834
3835 015641 015 047412 042526 MOR: .ASCIZ <CR><LF>/OVERFLOW/
3836 015646 043122 047514 000127 000
3837
3838 015654 005015 052123 050117 MSTOP: .ASCIZ <CR><LF>/STOP/
3839 015662 000
3840
3841
3842
3843 015664 .EVEN
3844
3845 .SBTTL TERMINAL OUTPUT TEST
3846
3847 ;*****
3848 ;*THIS ROUTINE WILL OUTPUT ALL WRITABLE CHARACTERS FOR THE
3849 ;*THE OCTAL CODE 040 --> 377

```

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TERMINAL OUTPUT TEST

```

3850                                     ;*32 CHARACTERS ARE PRINTED ON EACH LINE
3851                                     ;*THE PATTERN IS REPEATED EVERY THREE LINES
3852                                     ;*
3853                                     ;:*****
3854
3855 015664 012737 000176 001040 OUTTST: MOV      #SWREG,SWR      ;SET UP FOR SOFTWARE SWITCH REGISTER
3856 015672 012737 000174 001042      MOV      #DISPREG,DISPLAY ;AND DISPLAY REGISTER
3857 015700 032777 000020 163132      BIT      #BIT4, @SWR      ;CHECK IF BIT4 SET IN SWITCH REG
3858 015706 001403                                     BEQ      1$              ;IF NOT THEN SELECT SLU1
3859 015710 012703 002750                                     MOV      #RCSR, R3      ;IF BIT4 SET THEN SELECT SLU2
3860 015714 000402                                     BR       2$
3861 015716 012703 002760      1$:  MOV      #CRCSR, R3      ;SELECT SLU1 (THIS IS DEFAULT DEVICE)
3862 015722 000005                                     2$:  RESET              ;CLEAR THE WORLD
3863 015724 012701 000040      3$:  MOV      #40,R1        ;LOAD FIRST WRITABLE CHARACTER
3864 015730 012700 000040      4$:  MOV      #40,R0        ;LOAD CHAR COUNT PER LINE
3865 015734 105773 000004      5$:  TSTB     @4(R3)        ;WAIT FOR DONE
3866 015740 100375                                     BPL      5$
3867 015742 010173 000006      MOV      R1,@6(R3)      ;TRANSMIT A CHARACTER
3868 015746 105201                                     INCB     R1              ;INCREMENT CHARACTER CODE
3869 015750 005300                                     DEC      R0              ;DECREMENT CHAR COUNT
3870 015752 001370                                     BNE     5$              ;BR IF LINE NOT COMPLETE
3871 015754 004737 015570      JSR      PC,MSG        ;SSUE CR,LINE FEED
3872
3873 015760 001075                                     $CRLF
3874 015762 105773 000000      TSTB     @R3            ;ANY CHARACTER RECEIVED?
3875 015766 100404                                     BMI     6$              ;BR IF YES
3876 015770 032701 000200      BIT      #BIT7,R1      ;FINISHED ONE PASS OF WRITABLE CHARACTERS?
3877 015774 001353                                     BNE     3$              ;BR IF YES
3878 015776 000754                                     BR      4$              ;IF NOT WRITE NEXT LINE
3879
3880 016000 005073 000002      6$:  CLR      @2(R3)        ;CLEAR RECEIVER
3881 016004 000000                                     HALT
3882 016006 000726      BR      OUTTST        ;RESTART TEST IF CONTINUED
3883
3884
3885 016010 046123 030525 052040 EM5:  .ASCIZ  /SLU1 TCSR DONE NOT SET WITH RESET/
3886 016016 051503 020122 047504
3887 016024 042516 047040 052117
3888 016032 051440 052105 053440
3889 016040 052111 020110 042522
3890 016046 042523 000124
3891
3892
3893
3894
3895
3896 016052 046123 030525 051040 EM6:  .ASCIZ  /SLU1 RCSR DID NOT RETURN SSYNC/
3897 016060 051503 020122 044504
3898 016066 020104 047516 020124
3899 016074 042522 052524 047122
3900 016102 051440 054523 041516
3901 016110      000
3902
3903
3904
3905

```



H6

SEQ 0072

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3906					
3907	016111	123	052514	020061	EM7: .ASCIZ /SLU1 RBUF DID NOT RETURN SSYNC/
3908	016116	041122	043125	042040	
3909	016124	042111	047040	052117	
3910	016132	051040	052105	051125	
3911	016140	020116	051523	047131	
3912	016146	000103			
3913					
3914					
3915					
3916					
3917					
3918	016150	040503	020116	047516	EM11: .ASCIZ /CAN NOT SET BIT2 OF SLU1 TCSR/
3919	016156	020124	042523	020124	
3920	016164	044502	031124	047440	
3921	016172	020106	046123	030525	
3922	016200	052040	051503	000122	
3923					
3924					
3925					
3926					
3927	016206	042522	042523	020124	EM13: .ASCIZ /RESET DID NOT CLEAR BIT2 OF SLU1 TCSR/
3928	016214	044504	020104	047516	
3929	016222	020124	046103	040505	
3930	016230	020122	044502	031124	
3931	016236	047440	020106	046123	
3932	016244	030525	052040	051503	
3933	016252	000122			
3934					
3935					
3936					
3937					
3938					
3939					
3940	016254	044502	033124	047440	EM14: .ASCIZ /BIT6 OF SLU1 TCSR NOT CLEAR AFTER RESET/
3941	016262	020106	046123	030525	
3942	016270	052040	051503	020122	
3943	016276	047516	020124	046103	
3944	016304	040505	020122	043101	
3945	016312	042524	020122	042522	
3946	016320	042523	000124		
3947					
3948					
3949					
3950					
3951					
3952					
3953	016324	046123	030525	054040	EM15: .ASCIZ /SLU1 XMIT INTERRUPTED WITH PRIORITY 7/
3954	016332	044515	020124	047111	
3955	016340	042524	051122	050125	
3956	016346	042524	020104	044527	
3957	016354	044124	050040	044522	
3958	016362	051117	052111	020131	
3959	016370	000067			
3960					
3961					

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3962
3963
3964
3965
3966 016372 040503 020116 047516 EM16: .ASCIZ /CAN NOT SET BIT6 OF SLU1 TCSR/
3967 016400 020124 042523 020124
3968 016406 044502 033124 047440
3969 016414 020106 046123 030525
3970 016422 052040 051503 000122
3971
3972
3973
3974
3975 016430 040503 020116 047516 EM17: .ASCIZ /CAN NOT CLEAR BIT6 OF SLU1 TCSR/
3976 016436 020124 046103 040505
3977 016444 020122 044502 033124
3978 016452 047440 020106 046123
3979 016460 030525 052040 051503
3980 016466 000122
3981
3982
3983
3984
3985
3986 016470 042522 042523 020124 EM20: .ASCIZ /RESET DID NOT CLEAR BIT6 OF SLU1 TCSR/
3987 016475 044504 020104 047516
3988 016501 020124 046103 040505
3989 016512 020122 044502 033124
3990 016520 047440 020106 046123
3991 016526 030525 052040 051503
3992 016534 000122
3993
3994
3995
3996
3997
3998
3999 016536 044502 033124 047440 EM21: .ASCIZ /BIT6 OF SLU1 RCSR NOT CLEAR AFTER RESET/
4000 016544 020106 046123 030525
4001 016552 051040 051503 020122
4002 016560 047516 020124 046103
4003 016566 040505 020122 043101
4004 016574 042524 020122 042522
4005 016602 042523 000124
4006
4007
4008
4009
4010
4011
4012 016606 046123 030525 051040 EM22: .ASCIZ /SLU1 RCVR INTERRUPT WITH PRIORITY 7/
4013 016614 053103 020122 047111
4014 016622 042524 051122 050125
4015 016630 020124 044527 044124
4016 016636 050040 044522 051117
4017 016644 052111 020131 000067

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J6

SEQ 0074

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4018
4019
4020
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4023 016652 040503 020116 047516 EM23: .ASCIZ /CAN NOT SET BIT6 OF SLU1 RCSR/
4024 016660 020124 042523 020124
4025 016666 044502 033124 047440
4026 016674 020106 046123 030525
4027 016702 051040 051503 000122
4028
4029
4030
4031
4032 016710 040503 020116 047516 EM24: .ASCIZ /CAN NOT CLEAR BIT6 OF SLU1 RCSR/
4033 016716 020124 046103 040505
4034 016724 020122 044502 033124
4035 016732 047440 020106 046123
4036 016740 030525 051040 051503
4037 016746 000122
4038
4039
4040
4041
4042
4043 016750 040503 020116 047516 EM25: .ASCIZ /CAN NOT CLEAR BIT6 OF SLU1 RCSR WITH RESET/
4044 016756 020124 046103 040505
4045 016764 020122 044502 033124
4046 016772 047440 020106 046123
4047 017000 030525 051040 051503
4048 017006 020122 044527 044124
4049 017014 051040 051505 052105
4050 017022 000
4051
4052
4053
4054
4055
4056
4057
4058 017023 123 052514 020061 EM26: .ASCIZ /SLU1 RECEIVER DONE NEVER SET/
4059 017030 042522 042503 053111
4060 017036 051105 042040 047117
4061 017044 020105 042516 042526
4062 017052 020122 042523 000124
4063
4064
4065
4066
4067 017060 042522 042523 020124 EM27: .ASCIZ /RESET DID NOT CLEAR SLU1 RCVR DONE/
4068 017066 044504 020104 047516
4069 017074 020124 046103 040505
4070 017102 020122 046123 030525
4071 017110 051040 053103 020122
4072 017116 047504 042516 000
4073

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K6

SEQ 0075

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4074					
4075					
4076					
4077					
4078	017123	122	040505	044504	EM30: .ASCIZ /READING SLU1 RBUF DID NOT CLEAR RCVR DONE/
4079	017130	043516	051440	052514	
4080	017136	020061	041122	043125	
4081	017144	042040	042111	047040	
4082	017152	052117	041440	042514	
4083	017160	051101	051040	053103	
4084	017166	020122	047504	042516	
4085	017174	000			
4086					
4087					
4088					
4089					
4090					
4091					
4092					
4093	017175	123	052514	020062	EM31: .ASCIZ /SLU2 TCSR DID NOT RETURN SSYNC/
4094	017202	041524	051123	042040	
4095	017210	042111	047040	052117	
4096	017216	051040	052105	051125	
4097	017224	020116	051523	047131	
4098	017232	000103			
4099					
4100					
4101					
4102					
4103					
4104	017234	046123	031125	052040	EM32: .ASCIZ /SLU2 TBUF DID NOT RETURN SSYNC/
4105	017242	052502	020106	044504	
4106	017250	020104	047516	020124	
4107	017256	042522	052524	047122	
4108	017264	051440	054523	041516	
4109	017272	000			
4110					
4111					
4112					
4113					
4114					
4115	017273	123	052514	020062	EM33: .ASCIZ /SLU2 TCSR DONE NOT CLEARED WITH TBUF FULL/
4116	017300	041524	051123	042040	
4117	017306	047117	020105	047516	
4118	017314	020124	046103	040505	
4119	017322	042522	020104	044527	
4120	017330	044124	052040	052502	
4121	017336	020106	052506	046114	
4122	017344	000			
4123					
4124					
4125					
4126					
4127					
4128					
4129					

L6

SEQ 0076

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4130	017345	123	052514	020062
4131	017352	041524	051123	042040
4132	017360	047117	020105	047516
4133	017366	020124	042523	020124
4134	017374	043101	042524	020122
4135	017402	051124	047101	046523
4136	017410	052111	000	

EM34: .ASCIZ /SLU2 TCSR DONE NOT SET AFTER TRANSMIT/

4137  
4138  
4139  
4140  
4141  
4142

4143	017413	123	052514	020062
4144	017420	041524	051123	042040
4145	017426	047117	020105	047516
4146	017434	020124	042523	020124
4147	017442	044527	044124	051040
4148	017450	051505	052105	000

EM35: .ASCIZ /SLU2 TCSR DONE NOT SET WITH RESET/

4149  
4150  
4151  
4152  
4153

4154	017455	123	052514	020062
4155	017462	041522	051123	042040
4156	017470	042111	047040	052117
4157	017476	051040	052105	051125
4158	017504	020116	051523	047131
4159	017512	000103		

EM36: .ASCIZ /SLU2 RCSR DID NOT RETURN SSYNC/

4160  
4161  
4162  
4163  
4164

4165	017514	046123	031125	051040
4166	017522	052502	020106	044504
4167	017530	020104	047516	020124
4168	017536	042522	052524	047122
4169	017544	051440	054523	041516
4170	017552	000		

EM37: .ASCIZ /SLU2 RBUF DID NOT RETURN SSYNC/

4171  
4172  
4173  
4174  
4175

4176	017553	102	052111	020060
4177	017560	043117	051440	052514
4178	017566	020062	041524	051123
4179	017574	047040	052117	041440
4180	017602	042514	051101	040440
4181	017610	052106	051105	051040
4182	017616	051505	052105	000

EM40: .ASCIZ /BIT0 OF SLU2 TCSR NOT CLEAR AFTER RESET/

4183  
4184  
4185

M6

SEQ 0077

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4186
4187
4188
4189 017623      103 047101 047040 EM41: .ASCIZ /CAN NOT SET BIT0 OF SLU2 TCSR/
4190 017630 052117 051440 052105
4191 017636 041040 052111 020060
4192 017644 043117 051440 052514
4193 017652 020062 041524 051123
4194 017660      000
4195
4196
4197
4198
4199
4200 017661      103 047101 047040 EM42: .ASCIZ /CAN NOT CLEAR BIT0 OF SLU2 TCSR/
4201 017666 052117 041440 042514
4202 017674 051101 041040 052111
4203 017702 020060 043117 051440
4204 017710 052514 020062 041524
4205 017716 051123      000
4206
4207
4208
4209
4210
4211 017721      122 051505 052105 EM43: .ASCIZ /RESET DID NOT CLEAR BIT0 OF SLU2 TCSR/
4212 017726 042040 042111 047040
4213 017734 052117 041440 042514
4214 017742 051101 041040 052111
4215 017750 020060 043117 051440
4216 017756 052514 020062 041524
4217 017764 051123      000
4218
4219
4220
4221
4222
4223
4224 017767      102 052111 020066 EM44: .ASCIZ /BIT6 OF SLU2 TCSR NOT CLEAR AFTER RESET/
4225 017774 043117 051440 052514
4226 020002 020062 041524 051123
4227 020010 047040 052117 041440
4228 020016 042514 051101 040440
4229 020024 052106 051105 051040
4230 020032 051505 052105      000
4231
4232
4233
4234
4235
4236
4237 020037      123 052514 020062 EM45: .ASCIZ /SLU2 XMIT INTERRUPTED WITH PRIORITY 7/
4238 020044 046530 052111 044440
4239 020052 052116 051105 052522
4240 020060 052120 042105 053440
4241 020066 052111 020110 051120

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4242	020074	047511	044522	054524	
4243	020102	033440	000		
4244					
4245					
4246					
4247					
4248					
4249					
4250	020105	103	047101	047040	EM46: .ASCIZ /CAN NOT SET BIT6 OF SLU2 TCSR/
4251	020112	052117	051440	052105	
4252	020120	041040	052111	020066	
4253	020126	043117	051440	052514	
4254	020134	020062	041524	051123	
4255	020142	000			
4256					
4257					
4258					
4259					
4260					
4261	C20143	103	047101	047040	EM47: .ASCIZ /CAN NOT CLEAR BIT6 OF SLU2 TCSR/
4262	020150	052117	041440	042514	
4263	020156	051101	041040	052111	
4264	020164	020066	043117	051440	
4265	020172	052514	020062	041524	
4266	020200	051123	000		
4267					
4268					
4269					
4270					
4271					
4272	020203	122	051505	052105	EM50: .ASCIZ /RESET DID NOT CLEAR BIT6 OF SLU2 TCSR/
4273	020210	042040	042111	047040	
4274	020216	052117	041440	042514	
4275	020224	051101	041040	052111	
4276	020232	020066	043117	051440	
4277	020240	052514	020062	041524	
4278	020246	051123	000		
4279					
4280					
4281					
4282					
4283					
4284					
4285	020251	102	052111	020066	EM51: .ASCIZ /BIT6 OF SLU2 RCSR NOT CLEAR AFTER RESET/
4286	020256	043117	051440	052514	
4287	020264	020062	041522	051123	
4288	020272	047040	052117	041440	
4289	020300	042514	051101	040440	
4290	020306	052106	051105	051040	
4291	020314	051505	052105	000	
4292					
4293					
4294					
4295					
4296					
4297					

B7

SEQ 0079

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4298	020321	123	052514	020062
4299	020326	041522	051126	044440
4300	020334	052116	051105	052522
4301	020342	052120	053440	052111
4302	020350	020110	051120	047511
4303	020356	044522	054524	033440
4304	020364	000		

EM52: .ASCIZ /SLU2 RCVR INTERRUPT WITH PRIORITY 7/

4305  
4306  
4307  
4308  
4309  
4310

4311	020365	103	047101	047040
4312	020372	052117	051440	052105
4313	020400	041040	052111	020066
4314	020406	043117	051440	052514
4315	020414	020062	041522	051123
4316	020422	000		

EM53: .ASCIZ /CAN NOT SET BIT6 OF SLU2 RCSR/

4317  
4318  
4319  
4320

4321				
4322	020423	103	047101	047040
4323	020430	052117	041440	042514
4324	020436	051101	041040	052111
4325	020444	020066	043117	051440
4326	020452	052514	020062	041522
4327	020460	051123	000	

EM54: .ASCIZ /CAN NOT CLEAR BIT6 OF SLU2 RCSR/

4328  
4329  
4330  
4331

4332				
4333	020463	103	047101	047040
4334	020470	052117	041440	042514
4335	020476	051101	041040	052111
4336	020504	020066	043117	051440
4337	020512	052514	020062	041522
4338	020520	051123	053440	052111
4339	020526	020110	042522	042523

EM55: .ASCIZ /CAN NOT CLEAR BIT6 OF SLU2 RCSR WITH RESET/

4340  
4341  
4342  
4343

4344				
4345				
4346				
4347				
4348	020536	046123	031125	051040
4349	020544	041505	044505	042526
4350	020552	020122	047504	042516
4351	020560	047040	053105	051105
4352	020566	051440	052105	000

EM56: .ASCIZ /SLU2 RECEIVER DONE NEVER SET/

4353





D7

SEQ 0081

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4410					
4411					
4412	021041	103	047101	047040	EM64: .ASCIZ /CAN NOT SET BIT6 OF LKS/
4413	021046	052117	051440	052105	
4414	021054	041040	052111	020066	
4415	021062	043117	046040	051513	
4416	021070	000			
4417					
4418					
4419					
4420					
4421	021071	103	047101	047040	EM65: .ASCIZ /CAN NOT CLEAR BIT6 OF LKS/
4422	021076	052117	041440	042514	
4423	021104	051101	041040	052111	
4424	021112	020066	043117	046040	
4425	021120	051513	000		
4426					
4427					
4428					
4429					
4430	021123	122	051505	052105	EM66: .ASCIZ /RESET DID NOT CLEAR BIT6 OF LKS/
4431	021130	042040	042111	047040	
4432	021136	052117	041440	042514	
4433	021144	051101	041040	052111	
4434	021152	020066	043117	046040	
4435	021160	051513	000		
4436					
4437					
4438					
4439					
4440					
4441	021163	102	052111	020067	EM67: .ASCIZ /BIT7 OF LKS NOT SET AFTER RESET/
4442	021170	043117	046040	051513	
4443	021176	047040	052117	051440	
4444	021204	052105	040440	052106	
4445	021212	051105	051040	051505	
4446	021220	052105	000		
4447					
4448					
4449					
4450					
4451					
4452	021223	103	047101	047040	EM70: .ASCIZ /CAN NOT CLEAR BIT7 OF LKS/
4453	021230	052117	041440	042514	
4454	021236	051101	041040	052111	
4455	021244	020067	043117	046040	
4456	021252	051513	000		
4457					
4458					
4459					
4460					
4461	021255	102	052111	020067	EM71: .ASCIZ /BIT7 OF LKS DOES NOT SET/
4462	021262	043117	046040	051513	
4463	021270	042040	042517	020123	
4464	021276	047516	020124	042523	
4465	021304	000124			

E7

SEQ 0082

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4466  
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4519  
4520  
4521

021306 051127 052111 047111  
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

EM72: .ASCIZ /WRITING TO ONE INTERNAL ADDRESS MODIFIED ANOTHER/

021367 123 052514 020061  
021374 046530 052111 044440  
021402 052116 051105 052522  
021410 052120 020123 044127  
021416 047105 042040 051511  
021424 041101 042514 000104

EM74: .ASCIZ /SLU1 XMIT INTERRUPTS WHEN DISABLED/

021432 046123 030525 054040  
021440 044515 020124 044504  
021446 020104 047516 020124  
021454 047111 042524 051122  
021462 050125 000124

EM75: .ASCIZ /SLU1 XMIT DID NOT INTERRUPT/

021466 046123 030525 054040  
021474 044515 020124 047111  
021502 042524 051122 050125  
021510 020124 052101 050040  
021516 044522 051117 052111  
021524 020131 000067

EM76: .ASCIZ /SLU1 XMIT INTERRUPT AT PRIORITY 7/

021530 046123 030525 054040  
021536 044515 020124 047111  
021544 042524 051122 050125  
021552 051524 053440 052111

EM77: .ASCIZ /SLU1 XMIT INTERRUPTS WITH ENABLE CLEAR/

F7

SEQ 0083

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4522	021560	020110	047105	041101	
4523	021566	042514	041440	042514	
4524	021574	051101	000		
4525					
4526					
4527					
4528					
4529					
4530					
4531	021577	123	052514	020061	EM100: .ASCIZ /SLU1 XMIT DID NOT INTERRUPT/
4532	021604	046530	052111	042040	
4533	021612	042111	047040	052117	
4534	021620	044440	052116	051105	
4535	021626	052522	052120	000	
4536					
4537					
4538					
4539					
4540	021633	123	052514	020061	EM101: .ASCIZ /SLU1 XMIT RE-INTERRUPTED/
4541	021640	046530	052111	051040	
4542	021646	026505	047111	042524	
4543	021654	051122	050125	042524	
4544	021662	000104			
4545					
4546					
4547					
4548					
4549	021664	047514	042101	047111	EM102: .ASCIZ /LOADING SLU1 TBUF DID NOT CLEAR INTERRUPT/
4550	021672	020107	046123	030525	
4551	021700	052040	052502	020106	
4552	021706	044504	020104	047516	
4553	021714	020124	046103	040505	
4554	021722	020122	047111	042524	
4555	021730	051122	050125	000124	
4556					
4557					
4558					
4559					
4560					
4561					
4562	021736	046123	030525	051040	EM103: .ASCIZ /SLU1 RCVR INTERRUPTS WITH ENABLE CLEAR/
4563	021744	053103	020122	047111	
4564	021752	042524	051122	050125	
4565	021760	051524	053440	052111	
4566	021766	020110	047105	041101	
4567	021774	042514	041440	042514	
4568	022002	051101	000		
4569					
4570					
4571					
4572					
4573					
4574					
4575	022005	123	052514	020061	EM104: .ASCIZ /SLU1 RCVR DID NOT INTERRUPT/
4576	022012	041522	051126	042040	
4577	022020	042111	047040	052117	

G7

SEQ 0084

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TERMINAL OUTPUT TEST

4578 022026 044440 052116 051105  
4579 022034 052522 052120 000

4580  
4581  
4582  
4583

4584 022041 123 052514 020061 EM105: .ASCIZ /SLU1 RCVR INTERRUPTS AT PRIORITY 7/

4585 022046 041522 051126 044440  
4586 022054 052116 051105 052522  
4587 022062 052120 020123 052101  
4588 022070 050040 044522 051117  
4589 022076 052111 020131 000067

4590  
4591  
4592  
4593  
4594

4595 022104 046123 030525 051040 EM106: .ASCIZ /SLU1 RCVR INTERRUPTS WITH INTERRUPT ENABLE CLEAR/

4596 022112 053103 020122 047111  
4597 022120 042524 051122 050125  
4598 022126 051524 053440 052111  
4599 022134 020110 047111 042524  
4600 022142 051122 050125 020124  
4601 022150 047105 041101 042514  
4602 022156 041440 042514 051101  
4603 022164 000

4604  
4605  
4606  
4607  
4608  
4609  
4610  
4611

4612 022165 123 052514 020061 EM107: .ASCIZ /SLU1 RCVR DID NOT INTERRUPT/

4613 022172 041522 051126 042040  
4614 022200 042111 047040 052117  
4615 022206 044440 052116 051105  
4616 022214 052522 052120 000

4617  
4618  
4619  
4620

4621 022221 123 052514 020061 EM110: .ASCIZ /SLU1 RECEIVER RE-INTERRUPTED/

4622 022226 042522 042503 053111  
4623 022234 051105 051040 026505  
4624 022242 047111 042524 051122  
4625 022250 050125 042524 000104

4626  
4627  
4628  
4629

4630 022256 046123 030525 051040 EM111: .ASCIZ /SLU1 READING RBUF DID NOT CLEAR INTERRUPT/

4631 022264 040505 044504 043516  
4632 022272 051040 052502 020106  
4633 022300 044504 020104 047516

H7

SEQ 0085

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4634 022306 020124 046103 040505  
4635 022314 020122 047111 042524  
4636 022322 051122 050125 000124

4637  
4638  
4639  
4640  
4641

4642  
4643 022330 042522 042523 020124  
4644 022336 044504 020104 047516  
4645 022344 020124 046103 040505  
4646 022352 020122 046123 030525  
4647 022360 051040 053103 020122  
4648 022366 047111 042524 051122  
4649 022374 050125 000124

EM112: .ASCIZ /RESET DID NOT CLEAR SLU1 RCVR INTERRUPT/

4650  
4651  
4652  
4653  
4654

4655  
4656 022400 046123 030525 023440  
4657 022406 051117 020047 046106  
4658 022414 043501 042040 042111  
4659 022422 047040 052117 051440  
4660 022430 052105 000

EM113: .ASCIZ /SLU1 'OR' FLAG DID NOT SET/

4661  
4662  
4663  
4664

4665 022433 123 052514 020061  
4666 022440 042447 051122 051117  
4667 022446 020047 047516 020124  
4668 022454 042523 020124 044527  
4669 022462 044124 023440 051117  
4670 022470 020047 046106 043501  
4671 022476 000

EM114: .ASCIZ /SLU1 'ERROR' NOT SET WITH 'OR' FLAG/

4672  
4673  
4674  
4675

4676  
4677  
4678 022477 104 052101 020101  
4679 022504 047503 050115 051101  
4680 022512 020105 051105 047522  
4681 022520 000122

EM115: .ASCIZ /DATA COMPARE ERROR/

4682  
4683  
4684

4685 022522 046123 031125 054040  
4686 022530 044515 020124 047111  
4687 022536 042524 051122 050125  
4688 022544 051524 053440 042510  
4689 022552 020116 044504 040523

EM116: .ASCIZ /SLU2 XMIT INTERRUPTS WHEN DISABLED/

I7

SEQ 0086

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4690	022560	046102	042105	000	
4691					
4692					
4693					
4694					
4695					
4696	022565	123	052514	020062	EM117: .ASCIZ /SLU2 XMIT DID NOT INTERRUPT/
4697	022572	046530	052111	042040	
4698	022600	042111	047040	052117	
4699	022606	044440	052116	051105	
4700	022614	052522	052120	000	
4701					
4702					
4703					
4704					
4705	022621	123	052514	020062	EM120: .ASCIZ /SLU2 XMIT INTERRUPT AT PRIORITY 7/
4706	022626	046530	052111	044440	
4707	022634	052116	051105	052522	
4708	022642	052120	040440	020124	
4709	022650	051120	047511	044522	
4710	022656	054524	033440	000	
4711					
4712					
4713					
4714					
4715					
4716	022663	123	052514	020062	EM121: .ASCIZ /SLU2 XMIT INTERRUPTS WITH ENABLE CLEAR/
4717	022670	046530	052111	044440	
4718	022676	052116	051105	052522	
4719	022704	052120	020123	044527	
4720	022712	044124	042440	040516	
4721	022720	046102	020105	046103	
4722	022726	040505	000122		
4723					
4724					
4725					
4726					
4727					
4728					
4729	022732	046123	031125	054040	EM122: .ASCIZ /SLU2 XMIT DID NOT INTERRUPT/
4730	022740	044515	020124	044504	
4731	022746	020104	047516	020124	
4732	022754	047111	042524	051122	
4733	022762	050125	000124		
4734					
4735					
4736					
4737					
4738	022766	046123	031125	054040	EM123: .ASCIZ /SLU2 XMIT RE-INTERRUPTED/
4739	022774	044515	020124	042522	
4740	023002	044455	052116	051105	
4741	023010	052522	052120	042105	
4742	023016	000			
4743					
4744					
4745					

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4746					
4747	023017	114	040517	044504	EM124: .ASCIZ /LOADING SLU2 TBUF DID NOT CLEAR INTERRUPT/
4748	023024	043516	051440	052514	
4749	023032	020062	041124	043125	
4750	023040	042040	042111	047040	
4751	023046	052117	041440	042514	
4752	023054	051101	044440	052116	
4753	023062	051105	052522	052120	
4754	023070	000			
4755					
4756					
4757					
4758					
4759					
4760					
4761					
4762	023071	123	052514	020062	EM125: .ASCIZ /SLU2 RCVR INTERRUPTS WITH ENABLE CLEAR/
4763	023076	041522	051126	044440	
4764	023104	052116	051105	052522	
4765	023112	052120	020123	044527	
4766	023120	044124	042440	040516	
4767	023126	046102	020105	046103	
4768	023134	040505	000122		
4769					
4770					
4771					
4772					
4773					
4774					
4775	023140	046123	031125	051040	EM126: .ASCIZ /SLU2 RCVR DID NOT INTERRUPT/
4776	023146	053103	020122	044504	
4777	023154	020104	047516	020124	
4778	023162	047111	042524	051122	
4779	023170	050125	000124		
4780					
4781					
4782					
4783					
4784	023174	046123	031125	051040	EM127: .ASCIZ /SLU2 RCVR INTERRUPTS AT PRIORITY 7/
4785	023202	053103	020122	047111	
4786	023210	042524	051122	050125	
4787	023216	051524	040440	020124	
4788	023224	051120	047511	044522	
4789	023232	054524	033440	000	
4790					
4791					
4792					
4793					
4794					
4795	023237	123	052514	020062	EM130: .ASCIZ /SLU2 RCVR INTERRUPTS WITH INTERRUPT ENABLE CLEAR/
4796	023244	041522	051126	044440	
4797	023252	052116	051105	052522	
4798	023260	052120	020123	044527	
4799	023266	044124	044440	052116	
4800	023274	051105	052522	052120	
4801	023302	042440	040516	046102	



K7

SEQ 0088

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4802	023310	020105	046103	040505	
4803	023316	000122			
4804					
4805					
4806					
4807					
4808					
4809					
4810					
4811					
4812	023320	046123	031125	051040	EM131: .ASCIZ /SLU2 RCVR DID NOT INTERRUPT/
4813	023326	053103	020122	044504	
4814	023334	020104	047516	020124	
4815	023342	047111	042524	051122	
4816	023350	050125	000124		
4817					
4818					
4819					
4820					
4821	023354	046123	031125	051040	EM132: .ASCIZ /SLU2 RECEIVER RE-INTERRUPTED/
4822	023362	041505	044505	042526	
4823	023370	020122	042522	044455	
4824	023376	052116	051105	052522	
4825	023404	052120	042105	000	
4826					
4827					
4828					
4829					
4830	023411	123	052514	020062	EM133: .ASCIZ /SLU2 READING RBUF DID NOT CLEAR INTERRUPT/
4831	023416	042522	042101	047111	
4832	023424	020107	041122	043125	
4833	023432	042040	042111	047040	
4834	023440	052117	041440	042514	
4835	023446	051101	044440	052116	
4836	023454	051105	052522	052120	
4837	023462	000			
4838					
4839					
4840					
4841					
4842					
4843					
4844					
4845	023463	122	051505	052105	EM134: .ASCIZ /RESET DID NOT CLEAR SLU2 RCVR INTERRUPT/
4846	023470	042040	042111	047040	
4847	023476	052117	041440	042514	
4848	023504	051101	051440	052514	
4849	023512	020062	041522	051126	
4850	023520	044440	052116	051105	
4851	023526	052522	052120	000	
4852					
4853					
4854					
4855					
4856					
4857					

L7

SEQ 0089

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TERMINAL OUTPUT TEST

4858	023533	123	052514	020062	EM135: .ASCIZ /SLU2 'OR' FLAG DID NOT SET/
4859	023540	047447	023522	043040	
4860	023546	040514	020107	044504	
4861	023554	020104	047516	020124	
4862	023562	042523	000124		
4863					
4864					
4865					
4866					
4867	023566	046123	031125	023440	EM136: .ASCIZ /SLU2 'ERROR' NOT SET WITH 'OR' FLAG/
4868	023574	051105	047522	023522	
4869	023602	047040	052117	051440	
4870	023610	052105	053440	052111	
4871	023616	020110	047447	023522	
4872	023624	043040	040514	000107	
4873					
4874					
4875					
4876					
4877					
4878	023632	046123	031125	041040	EM137: .ASCIZ /SLU2 BREAK DID NOT TRANSMIT ALL ZEROES/
4879	023640	042522	045501	042040	
4880	023646	042111	047040	052117	
4881	023654	052040	040522	051516	
4882	023662	044515	020124	046101	
4883	023670	020114	042532	047522	
4884	023676	051505	000		
4885					
4886					
4887					
4888					
4889					
4890					
4891	023701	102	042522	045501	EM140: .ASCIZ /BREAK DID NOT SET FRAMING ERROR/
4892	023706	042040	042111	047040	
4893	023714	052117	051440	052105	
4894	023722	043040	040522	044515	
4895	023730	043516	042440	051122	
4896	023736	051117	000		
4897					
4898					
4899					
4900					
4901					
4902	023741	123	052514	020062	EM141: .ASCIZ /SLU2 'ERROR' NOT SET WITH 'FR' FLAG/
4903	023746	042447	051122	051117	
4904	023754	020047	047516	020124	
4905	023762	042523	020124	044527	
4906	023770	044124	023440	051106	
4907	023776	020047	046106	043501	
4908	024004	000			
4909					
4910					
4911					
4912					
4913					

M7

SEQ 0090

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4914					
4915	024005	104	052101	020101	EM142: .ASCIZ /DATA COMPARE ERROR WITH CABLE/
4916	024012	047503	050115	051101	
4917	024020	020105	051105	047522	
4918	024026	020122	044527	044124	
4919	024034	041440	041101	042514	
4920	024042	000			
4921					
4922					
4923					
4924					
4925					
4926	024043	122	041524	044440	EM143: .ASCIZ /RTC INTERRUPT AT PRIORITY 7/
4927	024050	052116	051105	052522	
4928	024056	052120	040440	020124	
4929	024064	051120	047511	044522	
4930	024072	054524	033440	000	
4931					
4932					
4933					
4934					
4935	024077	122	041524	044440	EM144: .ASCIZ /RTC INTERRUPTS WHEN DISABLED/
4936	024104	052116	051105	052522	
4937	024112	052120	020123	044127	
4938	024120	047105	042040	051511	
4939	024126	041101	042514	000104	
4940					
4941					
4942					
4943					
4944	024134	052122	020103	047111	EM145: .ASCIZ /RTC INTERRUPT DID NOT OCCUR/
4945	024142	042524	051122	050125	
4946	024150	020124	044504	020104	
4947	024156	047516	020124	041517	
4948	024164	052503	000122		
4949					
4950					
4951					
4952					
4953	024170	052122	020103	047111	EM146: .ASCIZ /RTC INTERRUPT DID NOT OCCUR/
4954	024176	042524	051122	050125	
4955	024204	020124	044504	020104	
4956	024212	047516	020124	041517	
4957	024220	052503	000122		
4958					
4959					
4960					
4961					
4962	024224	052122	020103	047504	EM147: .ASCIZ /RTC DOUBLE INTERRUPT/
4963	024232	041125	042514	044440	
4964	024240	052116	051105	052522	
4965	024246	052120	000		
4966					
4967					
4968					
4969	024251	122	051505	052105	EM150: .ASCIZ /RESET DID NOT CLEAR RTC INTERRUPT/

N7

SEQ 0091

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4970	024256	042040	042111	047040
4971	024264	052117	041440	042514
4972	024272	051101	051040	041524
4973	024300	044440	052116	051105
4974	024306	052522	052120	000

4975  
4976  
4977  
4978  
4979

4980 024313 122 041524 044440 EM151: .ASCIZ /RTC INTERRUPT DID NOT CLEAR WITH BIT7 OF LKS/

4981	024320	052116	051105	052522
4982	024326	052120	042040	042111
4983	024334	047040	052117	041440
4984	024342	042514	051101	053440
4985	024350	052111	020110	044502
4986	024356	033524	047440	020106
4987	024364	045514	000123	

4988  
4989  
4990  
4991  
4992  
4993  
4994

4995 024370 046103 041517 020113 EM152: .ASCIZ /CLOCK REPEATABILITY ERROR/

4996	024376	042522	042520	052101
4997	024404	041101	046111	052111
4998	024412	020131	051105	047522
4999	024420	000122		

5000  
5001  
5002  
5003

5004 024422 046123 030525 051040 EM153: .ASCIZ /SLU1 RECEIVER STATUS ERROR/

5005	024430	041505	044505	042526
5006	024436	020122	052123	052101
5007	024444	051525	042440	051122
5008	024452	051117	000	

5009  
5010  
5011  
5012

5013 024455 123 052514 020062 EM154: .ASCIZ /SLU2 RECEIVER STATUS ERROR/

5014	024462	042522	042503	053111
5015	024470	051105	051440	040524
5016	024476	052524	020123	051105
5017	024504	047522	000122	

5018  
5019  
5020  
5021

5022 024510 047111 047503 051122 EM155: .ASCIZ /INCORRECT RECEIVE COUNT SLU1/

5023	024516	041505	020124	042522
5024	024524	042503	053111	020105
5025	024532	047503	047125	020124

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5026	024540	046123	030525	000	
5027					
5028					
5029					
5030					
5031	024545	123	052514	020061	EM156: .ASCIZ /SLU1 DATA COMPARE ERROR IN EXERCISER/
5032	024552	040504	040524	041440	
5033	024560	046517	040520	042522	
5034	024566	042440	051122	051117	
5035	024574	044440	020116	054105	
5036	024602	051105	044503	042523	
5037	024610	000122			
5038					
5039					
5040					
5041					
5042					
5043					
5044	024612	047111	047503	051122	EM157: .ASCIZ /INCORRECT RECEIVE COUNT SLU2/
5045	024620	041505	020124	042522	
5046	024626	042503	053111	020105	
5047	024634	047503	047125	020124	
5048	024642	046123	031125	000	
5049					
5050					
5051					
5052					
5053	024647	123	052514	020062	EM160: .ASCIZ /SLU2 DATA COMPARE ERROR IN EXERCISER/
5054	024654	040504	040524	041440	
5055	024662	046517	040520	042522	
5056	024670	042440	051122	051117	
5057	024676	044440	020116	054105	
5058	024704	051105	044503	042523	
5059	024712	000122			
5060					
5061					
5062					
5063					
5064					
5065					
5066	024714	051124	050101	041440	EM161: .ASCIZ /TRAP CATCHER/
5067	024722	052101	044103	051105	
5068	024730	000			
5069					
5070					
5071					
5072	024731	124	051505	021524	DH5: .ASCIZ /TEST# ERR PC TCSR/
5073	024736	020040	042440	051122	
5074	024744	050040	020103	052040	
5075	024752	051503	000122		
5076					
5077					
5078					
5079	024756	042524	052123	020043	DH6: .ASCIZ /TEST# ERR PC RCSR/
5080	024764	020040	051105	020122	
5081	024772	041520	020040	041522	





E8

SEQ 0095

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5194
5195 025510 200 M2: .ASCII <CRLF>
5196
5197 025512 025512 .EVEN
5198 025512 001104 001016 002764 DT5: .WORD $TESTN,$ERRPC,CTCSR,0
5199 025520 000000
5200
5201 025522 001104 001016 002760 DT6: .WORD $TESTN,$ERRPC,CRCSR,0
5202 025530 000000
5203
5204 025532 001104 001016 002762 DT7: .WORD $TESTN,$ERRPC,CRBUF,0
5205 025540 000000
5206
5207 025542 001104 001016 002754 DT31: .WORD $TESTN,$ERRPC,TCSR,0
5208 025550 000000
5209
5210 025552 001104 001016 002756 DT32: .WORD $TESTN,$ERRPC,TBUF,0
5211 025560 000000
5212
5213 025562 001104 001016 002750 DT36: .WORD $TESTN,$ERRPC,RCSR,0
5214 025570 000000
5215
5216 025572 001104 001016 002752 DT37: .WORD $TESTN,$ERRPC,RBUF,0
5217 025600 000000
5218
5219 025602 001104 001016 002770 DT61: .WORD $TESTN,$ERRPC,LKS,0
5220 025610 000000
5221
5222 025612 001104 001016 001020 DT72: .WORD $TESTN,$ERRPC,$GDADR,$BDADR,$GDDAT,$BDDAT,0
5223 025620 001022 001024 001026
5224 025626 000000
5225
5226
5227 025630 001104 001016 002760 DT115: .WORD $TESTN,$ERRPC,CRCSR,$GDDAT,$BDDAT,0
5228 025636 001024 001026 000000
5229
5230 025644 001104 001016 002750 DT137: .WORD $TESTN,$ERRPC,RCSR,$BDDAT,0
5231 025652 001026 000000
5232
5233 025656 001104 001016 001024 DT142: .WORD $TESTN,$ERRPC,$GDDAT,$BDDAT,0
5234 025664 001026 000000
5235
5236 025670 001104 001016 002750 DT157: .WORD $TESTN,$ERRPC,RCSR,XMTCT2,RECCT2,0
5237 025676 012232 012234 000000
5238
5239 025704 001104 001016 002750 DT161: .WORD $TESTN,$ERRPC,RCSR,OLDPC,BDVECT,0
5240 025712 012414 012416 000000
5241
5242 025720 000200 BUF1: .BLKW 200 ;SLU1 INPUT BUFFER FOR BLAST TEST
5243 026320 000200 BUF2: .BLKW 200 ;SLU2 INPIT BUFFER FOR BLAST TEST
5244 000001 .END

```









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CROSS REFERENCE TABLE -- USER SYMBOLS

EM136	023566	1428	4867#
EM137	023632	1433	4878#
EM14	016254	1020	3940#
EM140	023701	1438	4891#
EM141	023741	1443	4902#
EM142	024005	1448	4915#
EM143	024043	1453	4926#
EM144	024077	1458	4935#
EM145	024134	1463	4944#
EM146	024170	1468	4953#
EM147	024224	1473	4962#
EM15	016324	1025	3953#
EM150	024251	1478	4969#
EM151	024313	1483	4980#
EM152	024370	4995#	
EM153	024422	1489	5004#
EM154	024455	1494	5013#
EM155	024510	5022#	
EM156	024545	1500	5031#
EM157	024612	1505	5044#
EM16	016372	1030	3966#
EM160	024647	1510	5053#
EM161	024714	1515	5066#
EM17	016430	1035	3975#
EM20	016470	1040	3986#
EM21	016536	1045	3999#
EM22	016606	1050	4012#
EM23	016652	1055	4023#
EM24	016710	1060	4032#
EM25	016750	1065	4043#
EM26	017023	1070	4058#
EM27	017060	1075	4067#
EM30	017123	1080	4078#
EM31	017175	1085	4093#
EM32	017234	1090	4104#
EM33	017273	1095	4115#
EM34	017345	1100	4130#
EM35	017413	1105	4143#
EM36	017455	1110	4154#
EM37	017514	1115	4165#
EM40	017553	1120	4176#
EM41	017623	1125	4189#
EM42	017661	1130	4200#
EM43	017721	1135	4211#
EM44	017767	1140	4224#
EM45	020037	1145	4237#
EM46	020105	1150	4250#
EM47	020143	1155	4261#
EM5	016010	989	3885#
EM50	020203	1160	4272#
EM51	020251	1165	4285#
EM52	020321	1170	4298#
EM53	020365	1175	4311#
EM54	020423	1180	4322#
EM55	020463	1185	4333#
EM56	020536	1190	4348#

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CROSS REFERENCE TABLE -- USER SYMBOLS

EM57	020573	1195	4357#																	
EM6	016052	994	3896#																	
EM60	020636	1200	4368#																	
EM61	020710	1205	4381#																	
EM62	020741	1210	4390#																	
EM63	021003	1215	4401#																	
EM64	021041	1220	4412#																	
EM65	021071	1225	4421#																	
EM66	021123	1230	4430#																	
EM67	021163	1235	4441#																	
EM7	016111	999	3907#																	
EM70	021223	1240	4452#																	
EM71	021255	1245	4461#																	
EM72	021306	1250	4470#																	
EM74	021367	1258	4487#																	
EM75	021432	1263	4498#																	
EM76	021466	1268	4507#																	
EM77	021530	1273	4518#																	
ERRVEC=	000004	765#	1574	1575*	1586*	3256	3257*	3259*	3262*											
FINIE	012170	3021#																		
GTSWR =	104406	656#	1600																	
HT =	000011	675#	3382																	
ID	003660	1615	1674	1683#																
IOHAND	012036	2966	2975	2991#																
IOTVEC=	000020	770#	1559*	1560*																
LF =	000012	676#	3434	3829	3832	3835	3838	5192												
LKS	002770	1530#	2142	2155*	2160	2170*	2171	2177*	2178	2187*	2189	2808*	2817*	2836*						
		2845*	2869*	2888*	2909*	2917*	2959*	2995*	5219											
LTCIT	010762	2392	2789#																	
LTCRT	005626	1848	2129#																	
MFR	015627	3805	3832#																	
MOR	015641	3810	3835#																	
MPAR	015616	3800	3829#																	
MSG	015570	3799	3804	3809	3814	3820#	3871													
MSTOP	015654	3815	3838#																	
M1	025476	1690	5192#																	
M2	025510	1692	5195#																	
OLDPC	012414	3083*	3087#	5239																
OUTTST	015664	837	3855#	3882																
PIRQ =	177772	682#																		
PIRQVE=	000240	776#																		
PRO =	000000	699#																		
PR1 =	000040	700#																		
PR2 =	000100	701#																		
PR3 =	000140	702#																		
PR4 =	000200	703#																		
PR5 =	000240	704#																		
PR6 =	000300	705#																		
PR7 =	000340	706#																		
PS =	177776	679#	680	2217*	2938*	2961*	2999*													
PSW =	177776	680#																		
PWRVEC=	000024	771#	1565*	1566*	3194*	3195*	3204*	3212*	3221*	3222*										
RBUF	002752	1523#	1947	2090*	2111	2120*	2124	2516	2633	2693	2698	2713	2724	2745						
		2750	2777	2978	2980	2989	5216													
RCSR	002750	1522#	1931	2040*	2045	2055*	2056	2062*	2063	2074*	2076	2093	2106	2122						
		2125	2528*	2534	2543*	2548*	2563	2565*	2572*	2597	2599*	2610*	2629*	2631						

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CROSS REFERENCE TABLE -- USER SYMBOLS

	2637*	2662*	2664	2670*	2711	2716	2742	2770	2956*	3786	3859	5213	5230
	5236	5239											
RDCHR = 104410	658#	3701											
RDLIN = 104411	659#												
RECCT2 012234	2945*	2977*	3007	3029#	5236								
REC2 011762	2950	2977#											
RESVEC= 000010	766#												
RPSW 002774	1536#	2591	2593*	2611*	2951*								
RTCP SW 003014	1544#	2804	2806*	2847*	2862	2864*	2890*	2953*					
RTCVT 003012	1543#	2156	2157*	2194*	2803	2805*	2819*	2823*	2834*	2846*	2861	2863*	2878*
	2889*	2905	2906*	2923*	2943	2952*	3025*						
RVECT 002772	1535#	2041	2042*	2081*	2529	2530*	2542*	2550*	2560	2561*	2573*	2582*	2590
	2592*	2606*	2617*	2627	2628*	2643*	2660	2661*	2677*	2940	2950*	3022*	
SLU1IT 006262	2250#												
SLU2IT 007016	2261	2265	2383#										
SLU2RT 004402	1660	1702	1839#										
STACK = 001100	670#												
START 003016	835	1546#											
STKLMT= 177774	681#												
SWR 001040	900#	1555	1576*	1578	1584*	1591*	1598	1604	1607	1610	2685	2738	2761
	3111	3123	3127	3202	3214*	3251	3267	3596	3633*	3782*	3784	3855*	3857
SWREG 000176	832#	1584	1598	3596	3609	3782	3855						
SW0 = 000001	734#												
SW00 = 000001	724#	734											
SW01 = 000002	723#	733											
SW02 = 000004	722#	732											
SW03 = 000010	721#	731											
SW04 = 000020	720#	730											
SW05 = 000040	719#	729											
SW06 = 000100	718#	728											
SW07 = 000200	717#	727											
SW08 = 000400	716#	726											
SW09 = 001000	715#	725											
SW1 = 000002	733#												
SW10 = 002000	714#												
SW11 = 004000	713#												
SW12 = 010000	712#												
SW13 = 020000	711#												
SW14 = 040000	710#												
SW15 = 100000	709#												
SW2 = 000004	732#												
SW3 = 000010	731#												
SW4 = 000020	730#												
SW5 = 000040	729#												
SW6 = 000100	728#												
SW7 = 000200	727#												
SW8 = 000400	726#												
SW9 = 001000	725#												
TBITVE= 000014	767#												
TBLEND 006076	2202#	2233											
TBUF 002756	1525#	1867	1884*	1889*	1911*	1914*	2092*	2121*	2500*	2503*	2533*	2562*	2596*
	2630*	2663*	2688*	2710*	2741*	2768*	2971*	5210					
TCSR 002754	1524#	1852	1885	1890	1894	1912	1917	1961*	1962	1965*	1966	1969*	1970
	1979*	1981	1983*	1992*	1997	2007*	2008	2014*	2015	2025*	2027	2394*	2397
	2407*	2412*	2422*	2427	2429*	2436*	2456*	2463	2465*	2475*	2494*	2499*	2501
	2507*	2527*	2689	2714*	2721*	2726*	2730*	2740*	2744*	2955*	2974*	2994*	5207









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CROSS REFERENCE TABLE -- USER SYMBOLS

\$SWREG	001122	936#	1591																
\$SWRMR=	000000	664#																	
\$TESTN	001104	927#	1548*	1622*	1639*	1655*	1699*	1721*	1736*	1754*	1798*	1845*	1864*	1878*					
		1905*	1928*	1944*	1960*	1991*	2039*	2089*	2119*	2135*	2154*	2211*	2256*	2295*					
		2327*	2360*	2389*	2421*	2455*	2488*	2526*	2557*	2589*	2624*	2651*	2684*	2709*					
		2737*	2760*	2795*	2855*	2897*	2931*	3273*	5198	5201	5204	5207	5210	5213					
		5216	5219	5222	5227	5230	5233	5236	5239										
\$TKB	001046	903#	3413	3420	3600	3617	3671	3677											
\$TKS	001044	902#	3411	3418	3598	3614	3638*	3669	3675										
\$TMP0	001060	910#	2939*	3021															
\$TMP1	001062	911#	2940*	3022															
\$TMP2	001064	912#	2941*	3023															
\$TMP3	001066	913#	2942*	3024															
\$TMP4	001070	914#	2943*	3025															
\$TN =	000001	662#	665#	780#															
\$TPB	001052	905#	3429*																
\$TPFL5	001057	909#	3361																
\$TPS	001050	904#	3427																
\$TRAP	015326	1563	3740#																
\$TRAP2	015350	3751#	3762																
\$TRPAD	015362	3745	3762#																
\$TSTM	000504	868#																	
\$TSTM	001002	882#	3043*	3106	3272*	3273	3278												
\$TTYIN	015262	3698	3699	3716	3720#														
\$TYPDS	014316	3529#	3767																
\$TYPE	013534	3315	3361#	3763															
\$TYPEC	013746	3391	3398	3405	3410#	3640													
\$TYPEX	014066	3433	3435	3438#															
\$TYPOC	014114	3470#	3764																
\$TYPON	014130	3469	3472#	3766															
\$TYPOS	014070	3465#	3765																
\$UNIT	001112	930#																	
\$UNITM	000510	870#																	
\$USWR	001124	937#																	
\$VECT1	001150	962#																	
\$VECT2	001152	963#																	
\$XOFF =	000023	661#	3415																
\$XON =	000021	660#	3422	3682															
\$XTSTR	013126	3254#																	
\$OFILL	014313	3466*	3470*	3480	3515#														
.	= 026720	813#	820#	824#	830#	834#	839#	844	845#	847#	849#	855	856#	858#					
		860#	879#	985#	1004#	1012#	1255#	1556	1570	1571	3187#	3206	3230	3337#					
		3583#	3720#	3843#	5197#	5242#	5243#												
.\$ERRT	001160	984#																	
.\$X =	000500	855#	860																

. ABS. 026720 000

ERRORS DETECTED: 0

JKDIBO,JKDIBO/SOL/NL:TOC/CRF:SYM=SYSMAC.SML,JKDIBO.P11  
RUN-TIME: 10 15 1 SECONDS  
RUN-TIME RATIO: 60/26=2.3  
CORE USED: 36K (72 PAGES)

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0106