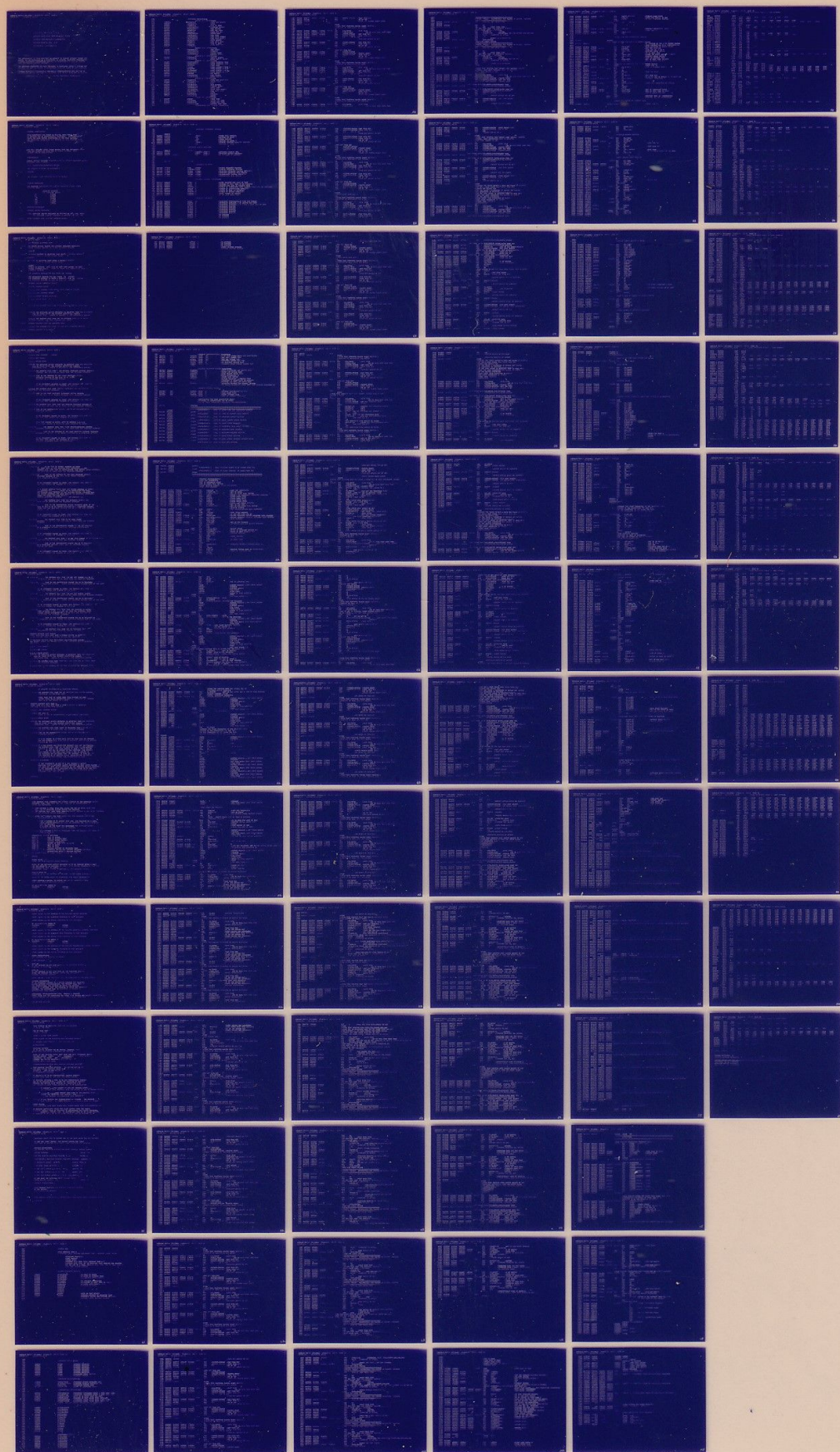


DU11

OFFLINE LOGI TESTS
MD-11-DZDUA-D

EP DZDUA D DL
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I D E N T I F I C A T I O N

PRODUCT NAME: DU11 OFFLINE LOGIC TESTS

PRODUCT CODE: MAINDEC-11-DZDUA-D-D

RELEASE DATE: 21 AUG 1976

MAINTAINER : DIAGNOSTICS

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GENERAL DESCRIPTION

THIS DIAGNOSTIC CAN CHAIN 16 DUI1'S. THIS MEANS THAT 16 DEVICES CAN BE SEQUENTIALLY EXERCISED. THE DIAGNOSTIC MAKES ONE PASS BEFORE PROCEEDING TO THE NEXT DEVICE, AND CONTINUES EXERCISING ALL DEVICES IN THIS FASHION UNTIL HALTED.

1. THE DUI1 OFFLINE LOGIC TESTS VERIFY THAT ALL REGISTERS EXIST ,AND ALL RESPECTIVE BITS CAN BE MASTER CLEARED, READ, WRITTEN AND/OR READ/WITTEN

2. REQUIREMENTS

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

DUI1 SYNCHRONOUS/ISOCRONOUS OPTION

ONE CONSOLE TELETYPE OR EQUIVALENT

- 2.2 STORAGE

THE PROGRAM LOADS AND RUNS IN 8K OF MEMORY.

3. LOADING PROCEDURE

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

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

4. STARTING PROCEDURE

- 4.1 CONTROL SWITCH SETTINGS

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

- 4.1.1 AFTER PROGRAM LOAD (INITIAL PROGRAM START)

ALL CONSOLE SWITCHES DOWN

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

SW00=1

- 4.1.3 TO START PROGRAM AT SELECTED TEST AFTER A PROGRAM RESTART
(ONLY IN SINGLE DEVICE TESTS)

SW01=1

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

SW02=1

NOTE1: IN GENERAL SW01 WILL BE USED WHEN SW02=1 IS USED

NOTE2: WITHOUT SW01=1 "LOCK ON TEST" WILL DEFAULT TO TEST 1
STARTING ADDRESS

- 4.2

THE STARTING ADDRESS FOR ALL TESTS IS 000200

THE RETARTING ADDRESS FOR ALL TESTS IS 000200

THE STARTING ADDRESS TO ENTER A SELECTED TEST IS 000200

THE STARTING ADDRESS TO LOCK ON TEST IS 000200

- 4.3 PROGRAM AND/OR OPERATOR ACTION

- 4.3.1 INITIAL PROGRAM START

4.3.1.1 LOAD PROGRAM INTO MEMORY WITH ABSOLUTE LOADER

4.3.1.2 LOAD ADDRESS 000200

4.3.1.3 CLEAR CONSOLE SWITCHES

4.3.1.4 PRESS START

4.3.1.5 THE PROGRAM WILL TYPE "DU11 DZDUA-D TAPE A" (ONCE ONLY)

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

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

- 4.3.2 PROGRAM RESTART WITH ALL SWITCHES DOWN

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

- 4.3.3 PROGRAM RESTART WITH SW00=1

4.3.3.1 LOAD ADDRESS 000200

4.3.3.2 SET SW00=1

4.3.3.3 PRESS START

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

4.3.3.4 THE PROGRAM WILL TYPE "1ST DEVICE; RECEIVER CONTROL REGISTER
ADDRESS" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

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

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

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

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

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

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

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

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

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

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

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

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

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

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

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?"
AND WILL REPEAT THE MESSAGE OF 4.3.3.11.1

IF A DEVICE ADDRESS LOWER THAN 1ST DEVICE ADDRESS IS TYPED.....
.....SCHOOLS OUT.....THERE IS NO PROTECTION FOR THIS.
THE PROGRAM WILL DEFAULT TO TWO DEVICES ACTIVE (UPWARDS FROM
1ST DEVICE ADDRESS).THE SAME APPLIES TO IDENTICAL ADDRESSES
TYPED FOR FIRST AND LAST DEVICE.
OBSERVE LOCATION 0 ACTREG; SEE SECTION 7.2

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

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

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

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

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

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

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

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

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

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

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

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

4.3.3.20 THE PROGRAM WILL TYPE "IS OPT CLR ENABLE JUMPER
4 IN ? (Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

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

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

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

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

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

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

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

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

4.3.4.1 LOAD 000200

4.3.4.2 SET SW01=1

4.3.4.3 PRESS STAPT

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

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

4.3.4.5 TYPE IN THE ADDRESS OF THE TEST AT WHICH THE PROGRAM IS TO

BE STARTED FOLLOWED BY A <CARRIAGE RETURN>

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

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

4.3.5 PROGRAM RESTART WITH SW02 =1
NOTE: THIS WILL ONLY WORK WHEN A SINGLE DEVICE IS SELECTED
SEE NOTE IN 4.3.4 FOR MORE DETAILS

4.3.5.1 LOAD ADDRESS 000200

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

4.3.5.3 PRESS START

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

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

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

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

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

5. OPERATING PROCEDURE

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

CONTROL:

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

- 1) TYPE CONTROL G <"G"> THIS WILL ALLOW THE TTY TO ENTER DATA INTO LOC. 176 AT SELECTED POINTS WITHIN THE PROGRAM.
- 2) THE MACHINE WILL THEN TYPE: SWR=XXXXXXNEW= (XXXXXX IS THE OCTAL CONTENTS OF THE SOFTWARE SWITCH REGISTER.)
- 3) AFTER THE "NEW=" HAS BEEN TYPED THEN THE OPERATOR CAN DO ONE OF THE FOLLOWING AT THE TTY:
 - A) TYPE A NUMBER TO BE LOADED INTO LOC. 176 FOLLOWED BY A <CR>. (ONLY NUMBERS BETWEEN 0-7 WILL BE ACCEPTED AND ONLY 6 NUMBERS WILL BE ALLOWED)
IF A <CR> IS THE FIRST KEY DEPRESSED THE SOFTWARE SWITCH REGISTER CONTENTS WILL NOT BE CHANGED.
 - B) IF A CONTROL U <"U"> IS DEPRESSED THEN THE PROGRAM WILL SEND YOU BACK TO STEP 2.

5.1 OPERATIONAL SWITCH SETTINGS

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

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

6. ERRORS

6.1 ERROR HALTS
THERE ARE FOUR DISTINCT ERROR TYPEOUTS

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

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

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

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

6.1.2 PC +2 = REGISTER ERROR PC

REGISTER	EXPECTED	ACTUAL
16XXX	YYYYY	ZZZZZ

WHERE 16XXXX IS THE ADDRESS OF THE FAILING DEVICE REGISTER

WHERE YYYYYY IS THE EXPECTED CONTENTS OF THAT REGISTER

WHERE ZZZZZZ IS THE ACTUAL CONTENTS OF THAT REGISTER

6.1.3 PC +2 = RECEIVER ERROR PC
REGISTER EXPECTED ACTUAL
16XXXX YYYYYY ZZZZZZ

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

WHERE YYYYYY IS THE EXPECTED DATA CONTENTS OF THAT REGISTER

WHERE ZZZZZZ IS THE ACTUAL DATA CONTENTS OF THAT REGISTER

6.1.4 PC +2 = TRANSMITTER ERROR PC
REGISTER EXPECTED ACTUAL
16XXXX YYYYYY ZZZZZZ

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

WHERE YYYYYY IS THE EXPECTED CONTENTS OF THAT REGISTER

WHERE ZZZZZZ IS THE ACTUAL CONTENTS OF THAT REGISTER

6.1.5 ERROR DESCRIPTIONS
SEE LISTINGS FOR DETAILS OF ERRORS

6.2 ERROR RECOVERY

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

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

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

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

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

6.3 END OF PASS ROUTINE

THIS TYPEOUT IS MENTIONED HERE FOR CONVENIENCE
IT IS IN THE FORM:

END OF PASS TAPE Y
16XXXX = DEVICE

WHERE Y IS THE TAPE LOADED

WHERE 16XXXX IS THE DEVICE'S BASE REGISTER ADDRESS

TO INHIBIT THIS TYPEOUT - TURN TELETYPE OFF

7. RESTRICTIONS

7.1 MULTIPLE DEVICES

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

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

7.2 DISQUALIFYING DEVICES WHEN RUNNING MULTIPLE DEVICES

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

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

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

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

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

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

7.3 CABLE DELAYS

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

7.3.1

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

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

7.4

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

8.

DEFAULT PARAMETERS:

1ST DEVICE: RECEIVER CONTROL REGISTER ADDRESS- RXCSR: 160040

VECTOR ADDRESS- DURIV: 770

ARE YOU RUNNING MULTIPLE DEVICES ?- NO MULTD: 0

LAST DEVICE: RECEIVER CONTROL REGISTER ADDRESS- LASTADD: 0

DU PRIORITY LEVEL- LEVEL 5 DUPRT: LEVEL 5

OF SYNC CHARS SELECTED - 2 SYNCNO: 377

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

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

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

DO YOU HAVE THE EXTERNAL MODEM BYPASS JUMPER
CONNECTOR ON (M315)- YES JMRBY: 377

9.

PROGRAM DESCRIPTION

9.1

THIS PROGRAM PERFORMS THE OFFLINE LOGIC BIT BANGING
OF THE DEVICE
SEE LISTING FOR DETAILS

10.

FLOW CHARTS: RECEIVER FLOW,TRANSMITTER FLOW,TRANSMITTER & RECEIVER FLOW

11.

LISTINGS

```
587 .ENABLE ABS
588
589 ;DU11 DZDUA-D TAPE A
590 ;COPYRIGHT 1973, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754
591
592 ;STARTING PROCEDURE
593 ;LOAD PROGRAM
594 ;PRESS START
595 ;PROGRAM WILL TYPE "DU11 DZDUA-D TAPE A "
596 ;PROGRAM WILL TYPE "R" TO INDICATE THAT TESTING HAS STARTED
597 ;AT THE END OF A PASS, PROGRAM WILL TYPE "END OF PASS TAPE A"
598 ;AND THEN RESUME TESTING
599
600
601 ;SWITCH REGISTER OPTIONS
602
603 100000 SW15=100000 ;=1,HALT ON ERROR
604 040000 SW14=400000 ;=1,LOOP ON CURRENT TEST
605 020000 SW13=200000 ;=1,INHIBIT ERROR TYPEOUT
606 010000 SW12=100000
607 004000 SW11=400000 ;=1,INHIBIT ITERATIONS
608 002000 SW10=200000 ;=1,ESCAPE TO NEXT TEST ON ERROR
609 001000 SW09=100000 ;=1,LOOP WITH CURRENT DATA
610 000400 SW08=400000 ;=1,LOOP ON ERROR
611 000100 SW06=100000
612 000040 SW05=400000
613 000020 SW04=200000
614 000010 SW03=100000
615 000004 SW02=400000 ;LOCK ON TEST SELECT
616 000002 SW01=200000 ;RESTART PROGRAM AT SELECTED TEST
617 000001 SW00=100000 ;RESELECT VECTOR AND CONTROL REGISTER
618 ;ADDRESS AFTER PROGRAM RESTART
619
```

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620
621                ;REGISTER DEFINITIONS
622
623                R0=00          ;GENERAL REGISTER
624                R1=01          ;GENERAL REGISTER
625                R2=02          ;GENERAL REGISTER
626                R3=03          ;GENERAL REGISTER
627                R4=04          ;GENERAL REGISTER
628                R5=05          ;GENERAL REGISTER
629                SP=06          ;PROCESSOR STACK POINTER
630                PC=07          ;PROGRAM COUNTER
631
632                ;LOCATION EQUIVALENCIES
633
634                DSWR=177570    ;HARDWARE SWITCH REGISTER LOC.
635                DLIGHTS=177570 ;HARDWARE DISPLAY REGISTER LOC.
636                PS=177776      ;PROCESSOR STATUS WORD
637                STACK=1100     ;START OF PROCESSOR STACK
638
639                ;INSTRUCTION DEFINITIONS
640
641                005746          PUSH1SP=5746    ;DECREMENT PROCESSOR STACK 1 WORD =TST -(SP)
642                005726          POP1SP=5726    ;INCREMENT PROCESSOR STACK 1 WORD =TST (SP)+
643                010046          PUSHR0=10046    ;SAVE R0 ON STACK =MOV R0,-(SP)
644                012600          POPR0=12600     ;RESTORE R0 FROM STACK =MOV (SP)+,R0
645                024646          PUSH2SP=24646   ;DECREMENT STACK TWICE =CMP -(SP),-(SP)
646                022626          POP2SP=22626    ;INCREMENT STACK TWICE =CMP (SP)+,(SP)+
647                .FQUIV FMT,HLT ;BASIC DEFINITION OF ERROR CALL
648
649
650                100000          BIT15=100000
651                040000          BIT14=400000
652                020000          BIT13=200000
653                010000          BIT12=100000
654                004000          BIT11=400000
655                002000          BIT10=200000
656                001000          BIT9=100000
657                000400          BIT8=400000
658                000200          BIT7=200000
659                000100          BIT6=100000
660                000040          BIT5=400000
661                000020          BIT4=200000
662                000010          BIT3=100000
663                000004          BIT2=400000
664                000002          BIT1=200000
665                000001          BIT0=100000
666
667                ;PROCESSOR LEVELS
668                000340          LFVEL7=340
669                000300          LEVEL6=300
670                000240          LFVEL5=240
671                000200          LEVEL4=200
672                000140          LFVEL3=140
673                000100          LFVEL2=100
674                000040          LEVEL1=040
675                000000          LFVEL0=000

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676          ;REGISTER DEFINITIONS
677          ;RXCSR BIT DEFINITIONS
678          DSC=BIT15          ;DATA SET CHANGE
679          RING=BIT14         ;RING
680          CTS=BIT13          ;CLP TO SEND
681          CARDET=BIT12       ;CARRIER DETECT
682          RECACT=BIT11       ;REC ACTIVE
683          SRD=BIT10          ;SEC REC DATA
684          DSR=BIT9           ;DATA SET RDY
685          STPSYN=BIT8        ;STRIP SYNC
686          RXDONE=BIT7        ;REC DONE
687          RINTEN=BIT6        ;REC INTR ENABLE
688          DSINTE=BIT5        ;DSC INTR ENABLE
689          SYNSCH=BIT4        ;SYNC SEARCH
690          STD=BIT3           ;SEC XMIT DATA
691          PTS=BIT2           ;PEQ TO SEND
692          DTR=BIT1          ;DATA TERM RDY
693          VOID=BIT0
694          ;RXDBIF BIT DEFINITIONS
695          RXERR=BIT15         ;REC ERROR
696          OVPRUN=BIT14       ;OVERRUN
697          FRMERR=BIT13       ;FRAME ERROR
698          PAPER=BIT12       ;PAPITY ERROR
699          ;PAPCSR BIT DEFINITIONS
700          PAREN=BIT9         ;PAPITY ENABLE
701          EVPAR=BIT8        ;EVEN PARITY SENSE
702          ;PARCSR WRD DEFINITIONS
703          SYNINT=30000       ;SYNC EXTERNAL MODE
704          SYNEXT=20000       ;SYNC INTERNAL MODE
705          ISYMOD=0          ;ISOC MODE
706          FIVE=0            ;WORD LENGTH 5 BITS
707          SIX=2000          ;WORD LENGTH 6 BITS
708          SEVEN=4000        ;WORD LENGTH 7 BITS
709          EIGHT=6000       ;WORD LENGTH 8 BITS
710          NOPAR=0          ;NO PARITY
711          ODDPAR=1000       ;ODD PARITY
712          EVLPAR=1400      ;EVEN PARITY
713          ;TXCSR BIT DEFINITIONS
714          DNA=BIT15          ;DATA NOT AVAILABLE
715          MTDATA=BIT14       ;MAINT DATA
716          CLK=BIT13         ;CLK
717          BITW=BIT10        ;BIT WINDOW
718          MRESET=BIT9       ;MASTER RESET
719          TXDONE=BIT7        ;XMIT DONF
720          TXINTE=BIT6       ;XMIT INTR ENABLE
721          DNAINTE=BIT5      ;DNA INTR ENAB
722          SEND=BIT4         ;SEND
723          HDXFN=BIT3        ;HDX/PDX
724          BPEAK=BIT0        ;BREAK
725          ;TXCSR WRD DEFINITIONS
726          USER=0            ;USER MODE
727          MINT=4000         ;MAINT INT MODE
728          MEXT=10000       ;MAINT EXT MODE
729          SYSTST=14000     ;SYSTEM TEST MODE
730          ;TRAPCATCHER FOR ILLEGAL INTERRUPTS

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731                                     ;STANDARD INTERRUPT VECTORS
732
733
734                                     .=24
735 000024 015152                       .PFAIL                       ;POWER FAIL HANDLER
736 000026 000340                       340                          ;SERVICE AT LEVEL 7
737 000030 014702                       .HLT                          ;ERROR HANDLER
738 000032 000340                       340                          ;SERVICE AT LEVEL 7
739 000034 014650                       .TRPSRV                       ;GENERAL HANDLER DISPATCH SERVICE
740 000036 000340                       340                          ;SERVICE AT LEVEL 7
741
742                                     ;SOFTWARE SWITCH REGISTER
743
744                                     .=174
745 000174 000000                       DISPREG: .WORD 0             ;SOFTWARE DISPLAY REG.
746 000176 000000                       SWREG:  .WORD 0             ;SOFTWARE SWITCH REGISTER
747 000200 000167 001054                 JMP      .START              ;GO TO START OF PROGRAM
748
749
750
751                                     .=1100
752
753                                     ;INDIRECT POINTERS
754
755 001100 177570                       SWR:      177570             ;SWITCH REGISTER POINTER
756 001102 177570                       LIGHTS:177570             ;DISPLAY REGISTER POINTER
757 001104 177560                       TKCSP:   177560             ;TELETYPE KEYBOARD CONTROL REGISTER
758 001106 177562                       TKDBR:   177562             ;TELETYPE KEYBOARD DATA BUFFER
759 001110 177564                       TPCSR:   177564             ;TELEPRINTER CONTROL REGISTER
760 001112 177566                       TPDBR:   177566             ;TELEPRINTER DATA BUFFER
761
762                                     ;PROGRAM CONTROL PARAMETERS
763
764 001114 000000                       RTPN:    0                  ;SCOPE ADDRESS FOR LOOP ON TEST
765 001116 000000                       NEXTE:   0                  ;ADDRESS OF NEXT TEST TO BE EXECUTED
766 001120 000000                       LOCK:    0                  ;ADDRESS FOR LOCK ON CURRENT DATA
767 001122 000000                       ICOUNT:  0                  ;NUMBER OF ITERATIONS THAT CURRENT TEST WILL BE EXECUTED
768 001124 000000                       LPCNT:   0                  ;NUMBER OF ITERATIONS COMPLETED
769 001126 000000                       TSTNO:   0                  ;NUMBER OF TEST IN PROGRESS
770 001130 000000                       PASCNT:  0                  ;NUMBER OF PASSES COMPLETED
771 001132 000000                       ERRCNT:  0                  ;TOTAL NUMBER OF ERRORS
772 001134 000000                       LSTERR:  0                  ;PC OF LAST ERROR CALL
773
774                                     ;PROGRAM VARIABLES
775
776 001136 000020                       HOLD:    20                 ;TEMPORARY STORAGE=DELAY TIME FOR CABLES
777 001140 000000                       SHIFT:   0                  ;TEMPORARY STORAGE= # OF SHIFTS PER CHAR
778 001142 000000                       COUNT:   0                  ;TEMPORARY STORAGE= # OF TIMES A CHAR WILL BE SENT
779 001144 000000                       TEMP1:   0                  ;TEMPORARY STORAGE
780 001146 000000                       TEMP2:   0                  ;TEMPORARY STORAGE
781 001150 000000                       TEMP3:   0                  ;TEMPORARY STORAGE
782 001152 000000                       TEMP4:   0                  ;TEMPORARY STORAGE
783 001154 000000                       TEMP5:   0                  ;TEMPORARY STORAGE
784 001156 000000                       SAVP0:   0                  ;R0 STORAGE
785 001160 000000                       SAVR1:   0                  ;R1 STORAGE
786 001162 000000                       SAVR2:   0                  ;R2 STORAGE

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787 001164 000000
788 001166 000000
789 001170 000000
790 001172 000000
791 001174 000000

SAVR3: 0
SAVP4: 0
SAVR5: 0
SAVSP: 0
SAVPC: 0

;R3 STORAGE
;R4 STORAGE
;R5 STORAGE
;STACK POINTER STORAGE
;PROGRAM COUNTER STORAGE

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792                                     ;PROGRAM CONVERSATIONAL PARAMETERS
793 001176      377      SYNCNO: .BYTE 377      ;# OF SYNC CHARS REQ'D FOR SYNC'ZATION
794 001177      377      SEXMIT: .BYTE 377      ;SEC XMIT JUMPER "IN"
795 001200      377      SEPEC:  .BYTE 377      ;SEC PEC JUMPER "IN"
796 001201      377      OPTCLR: .BYTE 377      ;OPTIONAL JUMPER CLR "IN"
797 001202      000      MULTD:  .BYTE 0        ;NO MULTIPLE DEVICE FLAG
798 001203      377      JMRBY:  .BYTE 377      ;EXTERNAL MODEM BYPASS JUMPER "IN"
799
800
801                                     ;PROGRAM MULTIPLE DEVICE PARAMETERS
802 001204 000000  BASEADD:      0        ;PROG CONTROLLED 1ST DEVICE ADDR
803 001206 000000  KPEADD:      0        ;SAVED 1ST DEVICE ADDR
804 001210 000000  LASTADD:      0        ;LAST DEVICE RXCSR ADDR
805 001212 000000  BASFIV:      0        ;PROG CONTROLLED IV
806 001214 000000  KEEPIV:      0        ;SAVED INTR VECTOR
807 001216 000000  ACTREG:      0        ;ACTIVE REGISTER,,,MODIFY THIS
808                                     ;LOCATION TO DISQUALIFY OR QUALIFY
809                                     ;DEVICES (1= RUN,,,0= DON'T RUN)
010 001220 000000  ROTADD:      0        ;ROTATING POINTER FOR ACTREG,,POINTS
011                                     ;TO DEVICE PRESENTLY UNDER TEST WHEN RUNNING MULTIPLE DE
012
013                                     ;PROGRAM CONTROL FLAGS
014
015 001222      000      INIFLG: .BYTE 0        ;PROGRAM INITIALIZATION FLAG
016 001223      000      STFLG:  .BYTE 0        ;TEST START FLAG
017 001224      000      ERPFLG: .BYTE 0        ;ERROR OCCURED FLAG
018 001225      000      LOKFLG: .BYTE 0        ;LOCK ON CURRENT TEST FLAG
019
020                                     ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
021                                     ;POINTERS TO SUBROUTINES CAN BE FOUND
022                                     ;IN THE TABLE IMMEDIATLY FOLLOWING THE DEFINITIONS
023
024 001226      .TRPTAB:
025 ;.....
026 ;.....
027                                     SCOPE=TRAP+0      ;CALL TO SCOPE LOOP AND ITERATION HANDLER
028 001226 013434  .SCOPE
029                                     SCOP1=TRAP+1      ;CALL TO LOOP ON CURRENT DATA HANDLER
030 001230 013620  .SCOP1
031                                     TYPE=TRAP+2      ;CALL TO TELETYPE OUTPUT ROUTINE
032 001232 013640  .TYPE
033                                     INSTR=TRAP+3      ;CALL TO ASCII STRING INPUT ROUTINE
034 001234 013700  .INSTR
035                                     INSTEP=TRAP+4      ;CALL TO INPUT ERROR HANDLER
036 001236 014016  .INSTEP
037                                     PARAM=TRAP+5      ;CALL TO NUMERICAL DATA INPUT ROUTINE
038 001240 014050  .PARAM
039                                     SAV05=TRAP+6      ;CALL TO REGISTER SAVE ROUTINE
040 001242 014264  .SAV05
041                                     RES05=TRAP+7      ;CALL TO REGISTER RESTORE ROUTINE
042 001244 014324  .RES05
043                                     CONVRT=TRAP+10     ;CALL TO DATA OUTPUT ROUTINE
044 001246 014356  .CONVRT
045                                     CNVRT=TRAP+11     ;CALL TO DATA OUTPUT ROUTINE WITHOUT CR/LF
046 001250 014362  .CNVRT
047                                     SETFLG=TRAP+12     ;CALL TO FLAG SET ROUTINE

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048 001252 014602      .SETFLG
049          104413      CKSWR=TPAP+13    ;CALL TO ALLOW SWREG TO BE LOADED FROM TTY
050 001254 015316      .CKSWP
051          104414      CNTLU=TRAP+14   ;CALL TO ALLOW LOADING OF SWREG FROM TTY
052 001256 015372      .CNTLU
053          ;.....
054          ;.....
055
056          ;PROGRAM INITIALIZATION
057          ;LOCK OUT INTERRUPTS
058          ;SET UP PROCESSOR STACK
059          ;SET UP POWER FAIL VECTOR
060          ;CLEAR PROGRAM CONTROL FLAGS AND COUNTS
061          ;TYPE TITLE MESSAGE
062
063 001260 012767 000340 176510 .START: MOV      0340,PS      ;LOCK OUT INTERRUPTS
064 001266 012706 001100      MOV      0STACK,SP   ;SET UP STACK
065 001272 012737 015152 000024      MOV      0.PFAIL,0024 ;SET UP POWER FAIL VECTOR
066 001300 005067 177620      CLP      LPCNT       ;CLEAR 0 OF ITERATION COMPLETED LOCATION
067 001304 105067 177713      CLRR     STFLG       ;CLEAR START FLAG
068 001310 005067 177614      CLR      PASCNT     ;CLEAR PASS COUNT
069 001314 105067 177704      CLRBR   ERRFLG      ;CLEAR ERROR FLAG
070 001320 005067 177606      CLR      ERRCNT     ;CLEAR ERROR COUNT
071 001324 005067 177604      CLR      LSTERP     ;CLEAR LAST ERROR POINTER
072 001330 012767 000001 177570      MOV      01,TSTNO   ;SET UP FOR TEST 1
073 001336 012767 001260 177550      MOV      0.START,RTPN ;SET UP FOR POWER FAIL BEFORE
074          ;TESTING STARTS
075 001344 105767 177652      TSTR     INIFLG      ;HAS INITIALIZATION BEEN PERFORMED
076 001350 001004      BNE      ONCE
077 001352 104402 015472      TYPE     ,MTITLE    ;TYPE TITLE MESSAGE
078 001356 105167 177640      COMB     INIFLG      ;IF NOT SET FLAG AND DO
079 001362 012767 177570 177510 ONCE: MOV      0DSWP,SWR   ;RELOAD HARDWARE SWITCH REGISTER INTO POINTER
080 001370 012767 177570 177504      MOV      0DLIGHTS,LIGHTS ;RELOAD HARDWARE DISPLAY REGISTER INTO POINTER
081 001376 013746 000006      MOV      006,-(SP)   ;SAVE VECTORS
082 001402 013746 000004      MOV      004,-(SP)
083 001406 012737 001426 000004      MOV      0648,004   ;SET UP FOR TIMEOUT
084 001414 022777 177777 177456      CMP      0-1,0SWR   ;REFERENCE HARDWARE SWITCH REGISTER
085 001422 001402      HEO      658
086 001424 000407      BR       668
087 001426 022626      648:    CMP      (SP)+,(SP)+ ;ADJUST STACK
088 001430 012767 000176 177442 658:    MOV      0SWPEG,SWR  ;POINT TO SOFTWARE SWITCH REG
089 001436 012767 000174 177436      MOV      0DISPREG,LIGHTS ;POINT TO SOFT DISPLAY REG
090 001444 012637 000004      668:    MOV      (SP)+,004   ;RESTORE VECTORS
091 001450 012637 000006      MOV      (SP)+,006
092 001454 005737 000042      TST      0042       ;UNDER MONITOR
093 001460 001005      BNE      678
094 001462 022767 000176 177410      CMP      0SWREG,SWR ;IS SWREG USED
095 001470 001001      BNE      678
096 001472 104414      CNTLU
097 001474 032777 000001 177376 678:    BIT      0SW00,0SWR ;PESELECT VECTOR & CONTROL REG?
098 001502 001002      BNE      18
099 001504 000167 000446      JMP      .BEGIN
900 001510 012700 000300      18:    MOV      0300,R0    ;RESTORE VECTOR AREA TO TRAPCATCHER
901 001514 012701 000302      MOV      0302,R1    ;START AT LOCATION 300
902 001520 012702 000004      MOV      04,R2
903 001524 010110      28:    MOV      R1,(R0)

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904	001526	005011			CLR	(R1)	
905	001530	060200			ADD	R2,R0	
906	001532	060201			ADD	R2,R1	
907	001534	022701	001000		CMP	#1000,R1	;END AT LOCATION 776
908	001540	002771			BLT	28	
909	001542	104403			INSTR		;OUTPUT MESSAGE & GET INPUT STRING
910	001544	015546			MREGAD		;MESSAGE
911	001546	104405			PARAM		;CONVERT STRING
912	001550	160000			160000		;LOW LIMIT
913	001552	167776			167776		;HIGH LIMIT
914	001554	017402			DUBASE		;STORE AT THIS LOCATION
915	001556	001			.BYTE	1	;MASK
916	001557	001			.BYTE	1	;HOW MANY TIMES + 2
917	001560	016767	015616	177420	MOV	DUBASE,KEEPADD	;SAVE
918	001566	004767	015456		JSH	PC,DUADDR	
919	001572	016767	177410	177404	MOV	KEEPADD,BASEADD	;RESTORE FOR ROTATION
920	001600	104403			INSTR		;OUTPUT MESSAGE & GET INPUT STRING
921	001602	015524			MVECTO		;MESSAGE
922	001604	104405			PARAM		;CONVERT STRING
923	001606	000300			300		;LOW LIMIT
924	001610	000776			776		;HIGH LIMIT
925	001612	017724			DURIV		;STORE AT THIS LOCATION
926	001614	001			.BYTE	1	;MASK
927	001615	004			.BYTE	4	;HOW MANY TIMES + 2
928	001616	016767	016102	177370	MOV	DURIV,KEEPIV	;SAVE
929	001624	016767	016074	177360	MOV	DURIV,BASEIV	;SET UP FOR ROTATION
930	001632	104403			INSTR		;OUTPUT MESSAGE & GET INPUT STRING
931	001634	015627			MMULT		;MESSAGE
932	001636	104412			SFTFLG		;SET FLAG BASED UPON INPUT STRING
933	001640	001202			MULTD		;THIS FLAG
934	001642	105767	177334		TSTR	MULTD	;ARE THERE MULTIPLE DEVICES
935							;ON THE SYSTEM ?
936	001646	100406			BMI	BBB	;YES,ASK NEXT QUESTION
937	001650	005067	177342		CLR	ACTREG	
938	001654	005067	177340		CLR	ROTADD	
939	001660	000167	000140		JMP	OUTMUL	;JUMP AROUND NEXT QUESTION
940	001664				RRB:		
941	001664	104403			INSTR		;OUTPUT MESSAGE & GET INPUT STRING
942	001666	015706			MLASTD		;MESSAGE
943	001670	104405			PARAM		;CONVERT STRING
944	001672	160000			160000		;LOW LIMIT
945	001674	167776			167776		;HIGH LIMIT
946	001676	001210			LASTADD		;STORE AT THIS LOCATION
947	001700	001			.BYTE	1	;MASK
948	001701	001			.BYTE	1	;HOW MANY TIMES + 2
949							;THE FOLLOWING ROUTINE SETS UP ACTREG FOR THE FIRST TIME
950	001702	012767	000001	177310	18:	MOV	#1,ROTADD ;SET UP POINTER
951	001710	005067	177302		CLR	ACTREG	;CLR ACTIVE REGISTER
952	001714	056767	177300	177274	28:	RIS	ROTADD,ACTREG ;MAKE THIS DEVICE ACTIVE
953	001722	000241			CLC		
954	001724	006167	177270		ROL	ROTADD	;SET UP POINTER
955	001730	103421			BCC	38	;ARE YOU OUT OF RANGE ?
956	001732	062767	000010	177244	ADD	#10,BASEADD	;SET UP BASE ADDRESS
957	001740	026767	177244	177236	CMP	LASTADD,BASEADD	;IS THIS THE LAST DEVICE ?
958	001746	101362			BHI	28	;NO DO IT AGAIN
959	001750	056767	177244	177240	RIS	ROTADD,ACTREG	;THIS ASSUMES THAT THERE ARE AT

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960
961
962 001756 012767 000001 177234 48: MOV ;LEAST TWO DEVICES WHEN YOU ANSWER YES TO
963 001764 016767 177216 177212 MOV ;MULTIPLE DEVICE QUESTION
964 001772 000414 BR ;SET UP FOR LATER USE IN END OF PASS ROUTINE
965 001774 016767 177206 177202 38: MOV ;KEEPADD,BASEADD ;DITTO
966 002002 104403 INSTR ;CONTINUE QUESTIONS
967 002004 016071 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
968 002006 104405 MPANGE ;MESSAGE
969 002010 160000 PARAM ;CONVERT STRING
970 002012 167776 160000 ;LOW LIMIT
971 002014 001210 LASTADD ;HIGH LIMIT
972 002016 001 .BYTE ;STORE AT THIS LOCATION
973 002017 001 .BYTE ;MASK
974 002020 000167 177656 JMP 18 ;DO IT AGAIN
975 002024 OUTMUL: ;HOW MANY TIMES + 2
976 002024 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
977 002026 016355 MLEVEL ;MESSAGE
978 002030 104405 PARAM ;CONVERT STRING
979 002032 000004 4 ;LOW LIMIT
980 002034 000007 7 ;HIGH LIMIT
981 002036 017244 DUPRT ;STORE AT THIS LOCATION
982 002040 000 .BYTE ;MASK
983 002041 001 .BYTE ;HOW MANY TIMES + 2
984 002042 004767 015126 JSP PC,DULEV
985 ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
986 ;BUFFER TO THE CHARACTERS "1" AND "2".
987 ;IF THE CHARACTER IS "1" CLEAR THE FLAG
988 ;IF THE CHARACTER IS "2" SET THE FLAG
989 AAA:
990 002046 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
991 002050 016402 MSYNC ;MESSAGE
992 002052 122767 000001 014754 38: CMPR 0'1,INBUF ;IS IT "1" ?
993 002060 001003 BNE 18
994 002062 105067 177110 CLRB SYNCNO ;000
995 002066 000412 HP 48
996 002070 122767 000002 014736 18: CMPR 0'2,INBUF ;IS IT "2" ?
997 002076 001004 ANE 28
998 002100 112767 177777 177070 MOVR 0-1,SYNCNO ;377
999 002106 000402 RR 48
1000 002110 104404 78: INSTR ;RETRY
1001 002112 000757 HK 38
1002 002114 000240 48: NOP
1003 002116 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
1004 002120 016450 MWIRE6 ;MESSAGE
1005 002122 104412 SETFLG ;SET FLAG BASED UPON INPUT STRING
1006 002124 001177 SEXMIT ;THIS FLAG
1007 002126 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
1008 002130 016516 MWIRE5 ;MESSAGE
1009 002132 104412 SETFLG ;SET FLAG BASED UPON INPUT STRING
1010 002134 001200 SREC ;THIS FLAG
1011 002136 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
1012 002140 016563 MWIRE4 ;MESSAGE
1013 002142 104412 SETFLG ;SET FLAG BASED UPON INPUT STRING
1014 002144 001201 OPTCLR ;THIS FLAG
1015 002146 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING

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1072 002420 012737 000006 000004 658: MOV 06,004 ;RESTORE TRAPCATCHER
1073 002426 012737 000000 000006 MOV 00,006 ;
1074 002434 104400 SCOPE
1075 ;;THIS TEST PROVES EXISTANCE OF DEVICE REGISTERS
1076 ;;
1077 002436 012767 000002 176462 TST2: MOV 02,TSTNO ;SAVE THIS
1078 002444 012767 002524 176444 MOV 0TST3,NEXT ;GO TO THIS TEST WHEN THRU
1079 002452 012737 017642 000004 MOV 0TRPREG,004 ;SETUP TRAPCATCHER
1080 002460 012737 000340 000006 MOV 0LEVEL7,006 ;
1081 002466 105277 015217 INCB 0PRXDBUF ;TEST THIS REG
1082 002472 000401 BR 648 ;IF OK JMP AROUND HLT
1083 002474 104000 HLT ;CHECK DEVICE REG ADDRESSES
1084 002476 105277 015204 648: INCB 0HRXDBUF ;TEST UPPER BYTE THIS REGISTER
1085 002502 000401 BR 658 ;IF OK JMP AROUND HLT
1086 002504 104000 HLT ;CHECK DEVICE REG ADDRESSES
1087 002506 012737 000006 000004 658: MOV 06,004 ;RESTORE TRAPCATCHER
1088 002514 012737 000000 000006 MOV 00,006 ;
1089 002522 104400 SCOPE
1090 ;;THIS TEST PROVES EXISTANCE OF DEVICE REGISTERS
1091 ;;
1092 002524 012767 000003 176374 TST3: MOV 03,TSTNO ;SAVE THIS
1093 002532 012767 002612 176356 MOV 0TST4,NEXT ;GO TO THIS TEST WHEN THRU
1094 002540 012737 017642 000004 MOV 0TRPREG,004 ;SETUP TRAPCATCHER
1095 002546 012737 000340 000006 MOV 0LEVEL7,006 ;
1096 002554 105277 015130 INCB 0PAPCSR ;TEST THIS REG
1097 002560 000401 BR 648 ;IF OK JMP AROUND HLT
1098 002562 104000 HLT ;CHECK DEVICE REG ADDRESSES
1099 002564 105277 015122 648: INCB 0HPARCSR ;TEST UPPER BYTE THIS REGISTER
1100 002570 000401 BR 658 ;IF OK JMP AROUND HLT
1101 002572 104000 HLT ;CHECK DEVICE REG ADDRESSES
1102 002574 012737 000006 000004 658: MOV 06,004 ;RESTORE TRAPCATCHER
1103 002602 012737 000000 000006 MOV 00,006 ;
1104 002610 104400 SCOPE
1105 ;;THIS TEST PROVES EXISTANCE OF DEVICE REGISTERS
1106 ;;
1107 002612 012767 000004 176306 TST4: MOV 04,TSTNO ;SAVE THIS
1108 002620 012767 002700 176270 MOV 0TST5,NEXT ;GO TO THIS TEST WHEN THRU
1109 002626 012737 017642 000004 MOV 0TRPREG,004 ;SETUP TRAPCATCHER
1110 002634 012737 000340 000006 MOV 0LEVEL7,006 ;
1111 002642 105277 015046 INCB 0TXCSR ;TEST THIS REG
1112 002646 000401 BR 648 ;IF OK JMP AROUND HLT
1113 002650 104000 HLT ;CHECK DEVICE REG ADDRESSES
1114 002652 105277 015040 648: INCB 0HTXCSR ;TEST UPPER BYTE THIS REGISTER
1115 002656 000401 BR 658 ;IF OK JMP AROUND HLT
1116 002660 104000 HLT ;CHECK DEVICE REG ADDRESSES
1117 002662 012737 000006 000004 658: MOV 06,004 ;RESTORE TRAPCATCHER
1118 002670 012737 000000 000006 MOV 00,006 ;
1119 002676 104400 SCOPE
1120 ;;THIS TEST PROVES EXISTANCE OF DEVICE REGISTERS
1121 ;;
1122 002700 012767 000005 176220 TST5: MOV 05,TSTNO ;SAVE THIS
1123 002706 012767 002766 176202 MOV 0TST6,NEXT ;GO TO THIS TEST WHEN THRU
1124 002714 012737 017642 000004 MOV 0TRPREG,004 ;SETUP TRAPCATCHER
1125 002722 012737 000340 000006 MOV 0LEVEL7,006 ;
1126 002730 105277 014764 INCB 0TXDBUF ;TEST THIS REG
1127 002734 000401 BR 648 ;IF OK JMP AROUND HLT

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1120 002736 104000          HLT                ;CHECK DEVICE REG ADDRESSES
1129 002740 105277 014756    648:  INCB           0HTXDBUF    ;TEST UPPER BYTE THIS REGISTER
1130 002744 000401          BR                658          ;IF OK JMP AROUND HLT
1131 002746 104000          HLT                ;CHECK DEVICE REG ADDRESSES
1132 002750 012737 000006 000004    658:  MOV           06,004      ;RESTORE TRAPCATCHER
1133 002756 012737 000000 000006          MOV           00,006      ;
1134 002764 104400          SCOPE
1135          ;;BUS DRIVER TEST
1136          ;;
1137 002766 012767 000006 176132  TST6:  MOV           06,TSTNO    ;SAVE THIS
1138 002774 012767 003016 176114          MOV           0TST7,NEXT ;GO TO THIS TEST WHEN THRU
1139 003002 022777 177777 014710          CMP           0177777,0TXDBUF
1140 003010 001401          BEQ           +4
1141 003012 104000          HLT           ;READING TXDBUF SHOULD BE ALL 1'S
1142 003014 104400          SCOPE
1143          ;;THIS TEST PERFORMS MASTER RESET TESTING &
1144          ;;TESTING OF READ/WRITE BIT DTR
1145          ;;
1146 003016 012767 000007 176102  TST7:  MOV           07,TSTNO    ;SAVE THIS
1147 003024 012767 003146 176064          MOV           0TST8,NEXT ;GO TO THIS TEST WHEN THRU
1148 003032 052777 000002 014640          BIS           0DTR,0PXCSR ;SET THIS BIT
1149 003040 032777 000002 014632          BIT           0DTR,0PXCSR ;TEST THIS BIT
1150 003046 001001          BNE           648        ;BR IF "1"
1151 003050 104000          HLT           ;THIS BIT SHOULD BE SET
1152 003052          ;
1153 003052 042777 000002 014620    648:  BIC           0DTR,0PXCSR ;CLR THIS BIT
1154 003060 032777 000002 014612          BIT           0DTR,0PXCSR ;TEST THIS BIT
1155 003066 001401          BEQ           658        ;BR IF "0"
1156 003070 104000          HLT           ;THIS BIT SHOULD BE CLR
1157 003072          ;
1158          ;NOW SET THIS BIT
1159 003072 052777 000002 014600          RIS           0DTR,0PXCSR ;MASTER RESET
1160 003100 052777 000400 014606          RIS           0MRFSET,0TXCSR ;MASTER RESET
1161          ;;CHECK EXISTANCE OF OPTIONAL CLEAR JUMPER
1162          ;;
1163 003106 105767 176067          TSTR          OPTCLR     ;TEST FLAG
1164 003112 100006          BPL           18         ;OPTIONAL CLR JUMPER IS NOT IN
1165 003114 032777 000002 014556          BIT           0DTR,0PXCSR ;TEST THIS BIT
1166 003122 001401          BEQ           668        ;BR IF "0"
1167 003124 104000          HLT           ;CHECK OUT MASTER RESET LOGIC
1168 003126          ;
1169 003126 000405    668:  RR            28         ;JMP AROUND
1170 003130 032777 000002 014542  18:  BIT           0DTR,0PXCSR ;TEST THIS BIT
1171 003136 001001          BNE           678        ;BR IF "1"
1172 003140 104000          HLT           ;CHECK OUT OPTIONAL CLR JUMPER
1173 003142          ;
1174 003142 000240    678:  NOP
1175 003144 104400    28:  SCOPE
1176          ;;THIS TEST PERFORMS MASTER RESET TESTING &
1177          ;;TESTING OF READ/WRITE BIT RTS
1178          ;;
1179 003146 012767 000010 175752  TST8:  MOV           08,TSTNO    ;SAVE THIS
1180 003154 012767 003276 175734          MOV           0TST9,NEXT ;GO TO THIS TEST WHEN THRU
1181 003162 052777 000004 014510          BIS           0RTS,0PXCSR ;SET THIS BIT
1182 003170 032777 000004 014502          BIT           0RTS,0PXCSR ;TEST THIS BIT
1183 003176 001001          BNE           648        ;BR IF "1"

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1104 003200 104000                HLT                ;THIS BIT SHOULD BE SET
1105 003202                648:
1106 003202 042777 000004 014470    BIC      0RTS,0RXCSR    ;CLR THIS BIT
1107 003210 032777 000004 014462    BIT      0RTS,0RXCSR    ;TEST THIS BIT
1108 003216 001401                BEQ      658            ;BR IF "0"
1109 003220 104000                HLT                ;THIS BIT SHOULD BE CLR
1190 003222                658:
1191                ;NOW SET THIS BIT
1192 003222 052777 000004 014450    BIS      0RTS,0RXCSR    ;
1193 003230 052777 000400 014456    BIS      0MRESET,0TXCSR ;MASTER PESET
1194                ;;CHECK EXISTANCE OF OPTIONAL CLEAR JUMPER
1195                ;;
1196 003236 105767 175737    TSTB    OPTCLR          ;TEST FLAG
1197 003242 100006                BPL      18              ;OPTIONAL CLR JUMPER IS NOT IN
1198 003244 032777 000004 014426    BIT      0RTS,0RXCSR    ;TEST THIS BIT
1199 003252 001401                BEQ      668            ;BR IF "0"
1200 003254 104000                HLT                ;CHECK OUT MASTER RESFT LOGIC
1201 003256                668:
1202 003256 000405                BR       28              ;JMP AROUND
1203 003260 032777 000004 014412    18:    BIT      0RTS,0RXCSR    ;TEST THIS BIT
1204 003266 001001                BNE     678 ;BR IF "1"
1205 003270 104000                HLT                ;CHECK OUT OPTIONAL CLR JUMPER
1206 003272                678:
1207 003272 000240                28:    NOP
1208 003274 104400                SCOPE
1209                ;;THIS TEST PERFORMS MASTER RESET TESTING &
1210                ;;TESTING OF READ/WRITE BIT STD
1211                ;;
1212 003276 012767 000011 175622    TST9:  MOV      09,TSTNO        ;SAVE THIS
1213 003304 012767 003426 175604    MOV      0TST10,NEXT    ;GO TO THIS TEST WHEN THRU
1214 003312 052777 000010 014360    BIS      0STD,0RXCSR    ;SET THIS BIT
1215 003320 032777 000010 014352    BIT      0STD,0RXCSR    ;TEST THIS BIT
1216 003326 001001                BNE     648 ;BR IF "1"
1217 003330 104000                HLT                ;THIS BIT SHOULD BE SET
1218 003332                648:
1219 003332 042777 000010 014340    BIC      0STD,0RXCSR    ;CLR THIS BIT
1220 003340 032777 000010 014332    BIT      0STD,0RXCSR    ;TEST THIS BIT
1221 003346 001401                BEQ      658            ;BR IF "0"
1222 003350 104000                HLT                ;THIS BIT SHOULD BE CLR
1223 003352                658:
1224                ;NOW SET THIS BIT
1225 003352 052777 000010 014320    BIS      0STD,0RXCSR    ;
1226 003360 052777 000400 014326    BIS      0MRESET,0TXCSR ;MASTER RESET
1227                ;;CHECK EXISTANCE OF OPTIONAL CLEAR JUMPER
1228                ;;
1229 003366 105767 175607    TSTR    OPTCLR          ;TEST FLAG
1230 003372 100006                HPL      18              ;OPTIONAL CLR JUMPER IS NOT IN
1231 003374 032777 000010 014276    BIT      0STD,0RXCSR    ;TEST THIS BIT
1232 003402 001401                BEQ      668            ;BR IF "0"
1233 003404 104000                HLT                ;CHECK OUT MASTER RESET LOGIC
1234 003406                668:
1235 003406 000405                BR       28              ;JMP AROUND
1236 003410 032777 000010 014262    18:    BIT      0STD,0RXCSR    ;TEST THIS BIT
1237 003416 001001                BNE     678 ;BR IF "1"
1238 003420 104000                HLT                ;CHECK OUT OPTIONAL CLR JUMPER
1239 003422                678:

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1240 003422 000240          28:  NOP
1241 003424 104400          SCOPE
1242                                     ;;THIS TEST PERFORMS MASTER RESET TESTING &
1243                                     ;;TESTING OF READ/WRITE BIT SYNSCH
1244                                     ;;
1245 003426 012767 000012 175477 TST10: MOV    010,TSTNO      ;SAVE THIS
1246 003434 012767 003532 175454      MOV    0TST11,NEXT   ;GO TO THIS TEST WHEN THRU
1247 003442 052777 000020 014230      BIS    0SYNSCH,0PXCSP ;SET THIS BIT
1248 003450 032777 000020 014222      BIT    0SYNSCH,0PXCSP ;TEST THIS BIT
1249 003456 001001                                     RNE    648      ;BR IF "1"
1250 003460 104000                                     HLT                                     ;THIS BIT SHOULD BE SET
1251 003462                                     648:
1252 003462 042777 000020 014210      BIC    0SYNSCH,0PXCSP ;CLR THIS BIT
1253 003470 032777 000020 014202      BIT    0SYNSCH,0PXCSP ;TEST THIS BIT
1254 003476 001401                                     BEQ    658      ;BR IF "0"
1255 003500 104000                                     HLT                                     ;THIS BIT SHOULD BE CLR
1256 003502                                     658:
1257                                     ;NOW SET THIS BIT
1258 003502 052777 000020 014170      BIS    0SYNSCH,0PXCSP
1259 003510 052777 000400 014176      MTS    0MPESET,0TXCSP ;MASTER RESET
1260 003516 032777 000020 014154      BIT    0SYNSCH,0PXCSP ;TEST THIS BIT
1261 003524 001401                                     BEQ    668      ;BR IF "0"
1262 003526 104000                                     HLT                                     ;CHECK OUT MASTER RESET LOGIC
1263 003530                                     668:
1264 003530 104400          SCOPE
1265                                     ;;THIS TEST PERFORMS MASTER RESET TESTING &
1266                                     ;;TESTING OF READ/WRITE BIT DSINTE
1267                                     ;;
1268 003532 012767 000013 175366 TST11: MOV    011,TSTNO      ;SAVE THIS
1269 003540 012767 003636 175350      MOV    0TST12,NEXT   ;GO TO THIS TEST WHEN THRU
1270 003546 052777 000040 014124      BIS    0DSINTE,0PXCSP ;SET THIS BIT
1271 003554 032777 000040 014116      BIT    0DSINTE,0PXCSP ;TEST THIS BIT
1272 003562 001001                                     BNE    648      ;BR IF "1"
1273 003564 104000                                     HLT                                     ;THIS BIT SHOULD BE SET
1274 003566                                     648:
1275 003566 042777 000040 014104      BIC    0DSINTE,0PXCSP ;CLR THIS BIT
1276 003574 032777 000040 014076      BIT    0DSINTE,0PXCSP ;TEST THIS BIT
1277 003602 001401                                     BEQ    658      ;BR IF "0"
1278 003604 104000                                     HLT                                     ;THIS BIT SHOULD BE CLR
1279 003606                                     658:
1280                                     ;NOW SET THIS BIT
1281 003606 052777 000040 014064      BIS    0DSINTE,0PXCSP
1282 003614 052777 000400 014072      MTS    0MPESET,0TXCSP ;MASTER RESET
1283 003622 032777 000040 014050      BIT    0DSINTE,0PXCSP ;TEST THIS BIT
1284 003630 001401                                     BEQ    668      ;BR IF "0"
1285 003632 104000                                     HLT                                     ;CHECK OUT MASTER RESET LOGIC
1286 003634                                     668:
1287 003634 104400          SCOPE
1288                                     ;;THIS TEST PERFORMS MASTER RESET TESTING &
1289                                     ;;TESTING OF READ/WRITE BIT RINTEN
1290                                     ;;
1291 003636 012767 000014 175262 TST12: MOV    012,TSTNO      ;SAVE THIS
1292 003644 012767 003742 175244      MOV    0TST13,NEXT   ;GO TO THIS TEST WHEN THRU
1293 003652 052777 000100 014020      BIS    0RINTEN,0PXCSP ;SET THIS BIT
1294 003660 032777 000100 014012      BIT    0RINTEN,0PXCSP ;TEST THIS BIT
1295 003666 001001                                     BNE    648      ;BR IF "1"

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1296 003670 104000          HLT                ;THIS BIT SHOULD BE SET
1297 003672                648:
1298 003672 042777 000100 014000 BIC      0RINTEN,0RXCSP ;CLR THIS BIT
1299 003700 032777 000100 013772 BIT      0RINTEN,0RXCSP ;TEST THIS BIT
1300 003706 001401          BEQ      658          ;BR IF "0"
1301 003710 104000          HLT                ;THIS BIT SHOULD BE CLR
1302 003712                658:
1303                ;NOW SET THIS BIT
1304 003712 052777 000100 013760 BIS      0PINTEN,0RXCSP
1305 003720 052777 000400 013766 RIS      0MRESET,0TXCSR ;MASTER RESET
1306 003726 032777 000100 013744 BIT      0PINTEN,0RXCSP ;TEST THIS BIT
1307 003734 001401          BEQ      668          ;BR IF "0"
1308 003736 104000          HLT                ;CHECK OUT MASTER RESET LOGIC
1309 003740                668:
1310 003740 104400          SCOPE
1311                ;THIS TEST PERFORMS MASTER RESET TESTING &
1312                ;TESTING OF READ/WRITE BIT STPSYN
1313                ;;
1314 003742 012767 000015 175156 TST13: MOV      013,TSTNO      ;SAVE THIS
1315 003750 012767 000406 175140 MOV      0TST14,NEXT    ;GO TO THIS TEST WHEN THRU
1316 003756 052777 000400 013714 BIS      0STPSYN,0RXCSP ;SET THIS BIT
1317 003764 032777 000400 013706 BIT      0STPSYN,0RXCSP ;TEST THIS BIT
1318 003772 001001          BNE     648          ;BR IF "1"
1319 003774 104000          HLT                ;THIS BIT SHOULD BE SET
1320 003776                648:
1321 003776 042777 000400 013674 BIC      0STPSYN,0RXCSP ;CLR THIS BIT
1322 004004 032777 000400 013666 BIT      0STPSYN,0RXCSP ;TEST THIS BIT
1323 004012 001401          BEQ      658          ;BR IF "0"
1324 004014 104000          HLT                ;THIS BIT SHOULD BE CLR
1325 004016                658:
1326                ;NOW SET THIS BIT
1327 004016 052777 000400 013654 RIS      0STPSYN,0RXCSP
1328 004024 052777 000400 013662 BIS      0MRESET,0TXCSR ;MASTER RESET
1329 004032 032777 000400 013640 BIT      0STPSYN,0RXCSP ;TEST THIS BIT
1330 004040 001401          BEQ      668          ;BR IF "0"
1331 004042 104000          HLT                ;CHECK OUT MASTER RESET LOGIC
1332 004044                668:
1333 004044 104400          SCOPE
1334                ;THIS TEST PERFORMS MASTER RESET TESTING &
1335                ;TESTING OF READ/WRITE BIT BREAK
1336                ;;
1337 004046 012767 000016 175052 TST14: MOV      014,TSTNO      ;SAVE THIS
1338 004054 012767 0004152 175034 MOV      0TST15,NEXT    ;GO TO THIS TEST WHEN THRU
1339 004062 052777 000001 013624 RIS      0BREAK,0TXCSR  ;SET THIS BIT
1340 004070 032777 000001 013616 BIT      0BREAK,0TXCSR  ;TEST THIS BIT
1341 004076 001001          BNE     648          ;BR IF "1"
1342 004100 104000          HLT                ;THIS BIT SHOULD BE SET
1343 004102                648:
1344 004102 042777 000001 013604 RIC      0BREAK,0TXCSR  ;CLR THIS BIT
1345 004110 032777 000001 013576 BIT      0BREAK,0TXCSR  ;TEST THIS BIT
1346 004116 001401          BEQ      658          ;BR IF "0"
1347 004120 104000          HLT                ;THIS BIT SHOULD BE CLR
1348 004122                658:
1349                ;NOW SET THIS BIT
1350 004122 052777 000001 013564 RIS      0BREAK,0TXCSR
1351 004130 052777 000400 013556 BIS      0MRESET,0TXCSR ;MASTER RESET

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1352 004136 032777 000001 013550 BIT 0BREAK,0TXCSR ;TEST THIS BIT
1353 004144 001401 BEQ 668 ;BR IF "0"
1354 004146 104000 HLT ;CHECK OUT MASTER RESET LOGIC
1355 004150 668:
1356 004150 104400 SCOPE
1357 ;THIS TEST PERFORMS MASTER RESET TESTING &
1358 ;TESTING OF READ/WRITE BIT HDXEN
1359 ;;
1360 004152 012767 000017 174746 TST15: MOV 015,TSTNO ;SAVE THIS
1361 004160 012767 004256 174730 MOV 0TST16,NEXT ;GO TO THIS TEST WHEN THRU
1362 004166 052777 000010 013520 BIS 0HDXEN,0TXCSR ;SET THIS BIT
1363 004174 032777 000010 013512 BIT 0HDXEN,0TXCSR ;TEST THIS BIT
1364 004202 001001 RNE 648 ;BR IF "1"
1365 004204 104000 HLT ;THIS BIT SHOULD BE SET
1366 004206 648:
1367 004206 042777 000010 013500 BIC 0HDXEN,0TXCSR ;CLR THIS BIT
1368 004214 032777 000010 013472 BIT 0HDXEN,0TXCSR ;TEST THIS BIT
1369 004222 001401 BEQ 658 ;BR IF "0"
1370 004224 104000 HLT ;THIS BIT SHOULD BE CLR
1371 004226 658:
1372 ;NOW SET THIS BIT
1373 004226 052777 000010 013460 BIS 0HDXEN,0TXCSR
1374 004234 052777 000400 013452 BIS 0MRESET,0TXCSR ;MASTER RESET
1375 004242 032777 000010 013444 BIT 0HDXEN,0TXCSR ;TEST THIS BIT
1376 004250 001401 BEQ 668 ;BR IF "0"
1377 004252 104000 HLT ;CHECK OUT MASTER RESET LOGIC
1378 004254 668:
1379 004254 104400 SCOPE
1380 ;THIS TEST PERFORMS MASTER RESET TESTING &
1381 ;TESTING OF READ/WRITE BIT SEND
1382 ;;
1383 004256 012767 000020 174642 TST16: MOV 016,TSTNO ;SAVE THIS
1384 004264 012767 004362 174624 MOV 0TST17,NEXT ;GO TO THIS TEST WHEN THRU
1385 004272 052777 000020 013414 BIS 0SEND,0TXCSR ;SET THIS BIT
1386 004300 032777 000020 013406 BIT 0SEND,0TXCSR ;TEST THIS BIT
1387 004306 001001 RNE 648 ;BR IF "1"
1388 004310 104000 HLT ;THIS BIT SHOULD BE SET
1389 004312 648:
1390 004312 042777 000020 013374 BIC 0SEND,0TXCSR ;CLR THIS BIT
1391 004320 032777 000020 013366 BIT 0SEND,0TXCSR ;TEST THIS BIT
1392 004326 001401 BEQ 658 ;BR IF "0"
1393 004330 104000 HLT ;THIS BIT SHOULD BE CLR
1394 004332 658:
1395 ;NOW SET THIS BIT
1396 004332 052777 000020 013354 BIS 0SEND,0TXCSR
1397 004340 052777 000400 013346 BIS 0MRESET,0TXCSR ;MASTER RESET
1398 004346 032777 000020 013340 BIT 0SEND,0TXCSR ;TEST THIS BIT
1399 004354 001401 BEQ 668 ;BR IF "0"
1400 004356 104000 HLT ;CHECK OUT MASTER RESET LOGIC
1401 004360 668:
1402 004360 104400 SCOPE
1403 ;THIS TEST PERFORMS MASTER RESET TESTING &
1404 ;TESTING OF READ/WRITE BIT DNAINTE
1405 ;;
1406 004362 012767 000021 174536 TST17: MOV 017,TSTNO ;SAVE THIS
1407 004370 012767 004466 174520 MOV 0TST18,NEXT ;GO TO THIS TEST WHEN THRU

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1400 004376 052777 000040 013310 BIS      0DNAINTE,@TXCSR ;SET THIS BIT
1409 004404 032777 000040 013302 BIT      0DNAINTE,@TXCSR ;TEST THIS BIT
1410 004412 001001 BNE      648          ;BR IF "1"
1411 004414 104000 HLT                                ;THIS BIT SHOULD BE SET
1412 004416                                648:
1413 004416 042777 000040 013270 BIC      0DNAINTE,@TXCSR ;CLR THIS BIT
1414 004424 032777 000040 013267 BIT      0DNAINTE,@TXCSR ;TEST THIS BIT
1415 004432 001401 RFO      658          ;BR IF "0"
1416 004434 104000 HLT                                ;THIS BIT SHOULD BE CLR
1417 004436                                658:
1418                                ;NOW SET THIS BIT
1419 004436 052777 000040 013250 BIS      0DNAINTE,@TXCSR
1420 004444 052777 000400 013247 BIS      0MPESET,@TXCSR ;MASTER RESET
1421 004452 032777 000040 013234 BIT      0DNAINTE,@TXCSR ;TEST THIS BIT
1422 004460 001401 BEQ      668          ;BR IF "0"
1423 004462 104000 HLT                                ;CHECK OUT MASTER RESET LOGIC
1424 004464                                668:
1425 004464 104400 SCOPE
1426                                ;THIS TEST PERFORMS MASTER RESET TESTING &
1427                                ;TESTING OF READ/WRITE BIT TXINTE
1428                                ;;
1429 004466 012767 000022 174432 TST18:  MOV      018,TSTNO          ;SAVE THIS
1430 004474 012767 004572 174414 MOV      0TST19,NEXT          ;GO TO THIS TEST WHEN THRU
1431 004502 052777 000100 013204 BIS      0TXINTE,@TXCSR ;SET THIS BIT
1432 004510 032777 000100 013176 BIT      0TXINTE,@TXCSR ;TEST THIS BIT
1433 004516 001001 BNE      648          ;BR IF "1"
1434 004520 104000 HLT                                ;THIS BIT SHOULD BE SET
1435 004522                                648:
1436 004522 042777 000100 013164 BIC      0TXINTE,@TXCSR ;CLR THIS BIT
1437 004530 032777 000100 013156 BIT      0TXINTE,@TXCSR ;TEST THIS BIT
1438 004536 001401 RFO      658          ;BR IF "0"
1439 004540 104000 HLT                                ;THIS BIT SHOULD BE CLR
1440 004542                                658:
1441                                ;NOW SET THIS BIT
1442 004542 052777 000100 013144 BIS      0TXINTE,@TXCSR
1443 004550 052777 000400 013136 BIS      0MRESET,@TXCSR ;MASTER RESET
1444 004556 032777 000100 013130 BIT      0TXINTE,@TXCSR ;TEST THIS BIT
1445 004564 001401 BEQ      668          ;BR IF "0"
1446 004566 104000 HLT                                ;CHECK OUT MASTER RESET LOGIC
1447 004570                                668:
1448 004570 104400 SCOPE
1449                                ;TEST MAINT MODE BIT 0
1450                                ;;
1451                                ;THIS TEST PERFORMS MASTER RESET TESTING &
1452                                ;TESTING OF READ/WRITE BIT BIT11
1453                                ;;
1454 004572 012767 000023 174326 TST19:  MOV      019,TSTNO          ;SAVE THIS
1455 004600 012767 004676 174310 MOV      0TST20,NEXT          ;GO TO THIS TEST WHEN THRU
1456 004606 052777 004000 013100 RIS      0BIT11,@TXCSR ;SET THIS BIT
1457 004614 032777 004000 013072 BIT      0BIT11,@TXCSR ;TEST THIS BIT
1458 004622 001401 BNE      648          ;BR IF "1"
1459 004624 104000 HLT                                ;THIS BIT SHOULD BE SET
1460 004626                                648:
1461 004626 042777 004000 013060 BIC      0BIT11,@TXCSR ;CLR THIS BIT
1462 004634 032777 004000 013052 BIT      0BIT11,@TXCSR ;TEST THIS BIT
1463 004642 001401 BFO      658          ;BR IF "0"

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1464 004644 104000          HLT                ;THIS BIT SHOULD BE CLR
1465 004646                658:
1466                                ;NOW SET THIS BIT
1467 004646 052777 004000 013040  BIS  #BIT11,@TXCSR
1468 004654 052777 000400 013032  BIS  #MRESET,@TXCSR ;MASTER RESET
1469 004662 032777 004000 013024  BIT  #BIT11,@TXCSR  ;TEST THIS BIT
1470 004670 001401          BEQ  668            ;BR IF "0"
1471 004672 104000          HLT                ;CHECK OUT MASTER RESPT LOGIC
1472 004674                668:
1473 004674 104400          SCOPE
1474                                ;;TEST MAINT MODE BIT 1
1475                                ;;
1476                                ;;THIS TEST PERFORMS MASTER RESET TESTING &
1477                                ;;TESTING OF READ/WRITE BIT BIT12
1478                                ;;
1479 004676 012767 000024 174222  TST20: MOV  #20,TSTNO      ;SAVE THIS
1480 004704 012767 005002 174204  MOV  #TST21,NEXT   ;GO TO THIS TEST WHEN THRU
1481 004712 052777 010000 012774  BIS  #BIT12,@TXCSR ;SET THIS BIT
1482 004720 032777 010000 012766  BIT  #BIT12,@TXCSR ;TEST THIS BIT
1483 004726 001401          BNE  648            ;BR IF "1"
1484 004730 104000          HLT                ;THIS BIT SHOULD BE SET
1485 004732                648:
1486 004732 042777 010000 012754  BIC  #BIT12,@TXCSR ;CLR THIS BIT
1487 004740 032777 010000 012746  BIT  #BIT12,@TXCSR ;TEST THIS BIT
1488 004746 001401          BEO  658            ;BR IF "0"
1489 004750 104000          HLT                ;THIS BIT SHOULD BE CLR
1490 004752                658:
1491                                ;NOW SET THIS BIT
1492 004752 052777 010000 012734  BIS  #BIT12,@TXCSR
1493 004760 052777 000400 012726  BIS  #MRESET,@TXCSR ;MASTER RESET
1494 004766 032777 010000 012720  BIT  #BIT12,@TXCSR ;TEST THIS BIT
1495 004774 001401          BEQ  668            ;BR IF "0"
1496 004776 104000          HLT                ;CHECK OUT MASTER RESET LOGIC
1497 005000                668:
1498 005000 104400          SCOPE
1499                                ;;THIS TEST PERFORMS MASTER RESET TESTING &
1500                                ;;TESTING OF READ/WRITE BIT CLK
1501                                ;;
1502 005002 012767 000025 174116  TST21: MOV  #21,TSTNO      ;SAVE THIS
1503 005010 012767 005106 174100  MOV  #TST22,NEXT   ;GO TO THIS TEST WHEN THRU
1504 005016 052777 020000 012670  BIS  #CLK,@TXCSR   ;SET THIS BIT
1505 005024 032777 020000 012662  BIT  #CLK,@TXCSR   ;TEST THIS BIT
1506 005032 001401          BNE  648            ;BR IF "1"
1507 005034 104000          HLT                ;THIS BIT SHOULD BE SET
1508 005036                648:
1509 005036 042777 020000 012650  BIC  #CLK,@TXCSR   ;CLR THIS BIT
1510 005044 032777 020000 012642  BIT  #CLK,@TXCSR   ;TEST THIS BIT
1511 005052 001401          BEQ  658            ;BR IF "0"
1512 005054 104000          HLT                ;THIS BIT SHOULD BE CLR
1513 005056                658:
1514                                ;NOW SET THIS BIT
1515 005056 052777 020000 012630  BIS  #CLK,@TXCSR
1516 005064 052777 000400 012622  BIS  #MRESET,@TXCSR ;MASTER RESET
1517 005072 032777 020000 012614  BIT  #CLK,@TXCSR   ;TEST THIS BIT
1518 005100 001401          BEQ  668            ;BR IF "0"
1519 005102 104000          HLT                ;CHECK OUT MASTER RESET LOGIC

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1520 005104
1521 005104 104400
1522
1523
1524
1525 005106 012767 000026 174012 TST22: MOV 022,TSTNO ;SAVE THIS
1526 005114 012767 005212 173774 MOV 0TST23,NEXT ;GO TO THIS TEST WHEN THRU
1527 005122 052777 040000 012564 BIS 0MTDATA,0TXCSR ;SET THIS BIT
1528 005130 032777 040000 012556 BIT 0MTDATA,0TXCSR ;TEST THIS BIT
1529 005136 001001 BNE 648 ;BR IF "1"
1530 005140 104000 HLT ;THIS BIT SHOULD BE SET
1531 005142
1532 005142 042777 040000 012544 648: BIC 0MTDATA,0TXCSR ;CLR THIS BIT
1533 005150 032777 040000 012536 BIT 0MTDATA,0TXCSR ;TEST THIS BIT
1534 005156 001401 BEQ 658 ;BR IF "0"
1535 005160 104000 HLT ;THIS BIT SHOULD BE CLR
1536 005162
1537 ;NOW SET THIS BIT
1538 005162 052777 040000 012524 FIS 0MTDATA,0TXCSR
1539 005170 052777 000400 012516 BIS 0MRESET,0TXCSR ;MASTER RESET
1540 005176 032777 040000 012510 BIT 0MTDATA,0TXCSR ;TEST THIS BIT
1541 005204 001401 BEQ 668 ;BR IF "0"
1542 005206 104000 HLT ;CHECK OUT MASTER RESET LOGIC
1543 005210
1544 005210 104400 668:
1545 ;SCOPE
1546 ;THIS TEST VERIFYS THAT INIT (RESET) CLEARS BITS IN THE
1547 ;TXCSR & TXCSP
1548 ;
1548 005212 012767 000027 173706 TST23: MOV 023,TSTNO ;SAVE THIS
1549 005220 012767 005322 173670 MOV 0TST24,NEXT ;GO TO THIS TEST WHEN THRU
1550 005226 012777 177777 012444 MOV 0177777,0RXCSR ;SET ALL POSSIBLE BITS
1551 005234 012777 177777 012452 MOV 0177777,0TXCSR ;DITTO
1552 005242 000005 RESET
1553 005244 012767 000340 172524 MOV 0LEVEL7,PS ;RESTORE NON INTERRUPT STATUS
1554 005252 017701 012422 MOV 0PXCSR,P1 ;SAVE
1555 005256 017702 012432 MOV 0TXCSR,R2 ;SAVE
1556 005262 105767 173713 TSTR OPTCLR ;IS THE OPTIONAL CLR JUMPER ON ?
1557 005266 100402 BMI 18 ;YES
1558 005270 042701 000016 BIC 016,P1 ;CLR THE NON RESETABLE BITS
1559 005274 042701 073000 18: BIC 0073000,R1 ;CLR ALL NON-CLEARABLE BITS
1560 005300 005701 TST R1 ;ARE THEY ALL 0 ?
1561 005302 001401 BEQ .+4
1562 005304 104000 HLT ;ALL SPECIFIED BITS SHOULD BE CLEAR
1563 005306 042702 002200 RIC 0002200,R2 ;CLEAR ALL NON-CLEARABLE BITS
1564 005312 005702 TST R2 ;ARE THEY ALL 0 ?
1565 005314 001401 BEQ .+4
1566 005316 104000 HLT ;ALL SPECIFIED BITS SHOULD BE CLEAR
1567 005320 104400
1568 ;SCOPE
1569 ;THIS TEST PERFORMS MASTER RESET TESTING &
1570 ;TESTING OF WRITE ONLY BIT MRESET
1571 ;
1571 005322 012767 000030 173576 TST24: MOV 024,TSTNO ;SAVE THIS
1572 005330 012767 005400 173560 MOV 0TST25,NEXT ;GO TO THIS TEST WHEN THRU
1573 005336 052777 000400 012350 BIS 0MRESET,0TXCSR ;TRY TO SET THIS BIT
1574 005344 032777 000400 012342 BIT 0MRESET,0TXCSR ;TEST THIS BIT
1575 005352 001401 BEQ 648 ;BR IF "0"

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1576 005354 104000 HLT ;THIS BIT SHOULD NOT BE SET
1577 005356 648:
1578 005356 052777 000400 012330 BIS 0MRESET,0TXCSR ;MASTER RESET
1579 005364 032777 000400 012322 BIT 0MRESET,0TXCSR ;TEST THIS BIT
1580 005372 001401 BEQ 658 ;BR IF "0"
1581 005374 104000 HLT ;THIS BIT SHOULD NOT BE SET
1582 005376 658:
1583 ;CHECK MASTER RESET LOGIC
1584 005376 104400 SCOPE
1585 ;;THIS TEST VERIFYS THAT THE RXCSR & TXCSR CAN BE BYTE ADDRESSED (DATOB)
1586 ;;
1587 005400 012767 000031 173520 TST25: MOV 025,TSTNO ;SAVE THIS
1588 005406 012767 005566 173502 MOV 0TST26,NEXT ;GO TO THIS TEST WHEN THRU
1589 005414 052777 000400 012272 BIS 0MRESET,0TXCSR ;MASTER RESET
1590 005422 105767 173553 TSTR OPTCLR ;IS THE OPTIONAL CLR JUMPER ON ?
1591 005426 100405 RMI 10 ;YES
1592 005430 012777 000000 012242 MOV 00,0RXCSR ;CLR OUT NON RESETABLE BITS
1593 005436 005777 012236 TST 0RXCSR ;CLR OUT DSC BY READING RXCSR
1594 005442 152777 000001 012232 18: BISR 0BIT0,0HRXCSR ;SET STRIP SYNC UPPER BYTE
1595 005450 017701 012224 MOV 0RXCSR,R1 ;SAVE RXCSR
1596 005454 022701 000400 CMP 0400,R1 ;TEST RXCSR
1597 005460 001401 BEQ 0+4
1598 005462 104000 HLT ;ONLY STRIP SYNC SHOULD BE SET
1599 005464 105077 012210 CLRB 0RXCSR ;CLR LOWER BYTE
1600 005470 017701 012204 MOV 0RXCSR,R1 ;SAVE RXCSR
1601 005474 022701 000400 CMP 0400,R1 ;TEST RXCSR
1602 005500 001401 BEQ 0+4
1603 005502 104000 HLT ;ONLY STRIP SYNC SHOULD BE SET
1604 005504 052777 000400 012202 BIS 0MRESET,0TXCSR ;MASTER RESET
1605 005512 152777 000040 012176 BISR 0BIT5,0HTXCSR ;SET MAINT CLK UPPER BYTE
1606 005520 017701 012170 MOV 0TXCSR,R1 ;SAVE TXCSR
1607 005524 042701 002000 BIC 0BITW,R1 ;CLR BIT WINDOW (DEPENDENT
;ON H315 CONNECTOR EXISTANCE)
1608 CMP 020200,R1 ;TEST TXCSR
1609 005530 022701 020700 BEQ 0+4
1610 005534 001401 HLT ;ONLY MAINT CLK BIT & TXDONE SHOULD BE SET
1611 005536 104000 HLT ;ONLY MAINT CLK BIT & TXDONE SHOULD BE SET
1612 005540 105077 012150 CLRB 0TXCSR ;CLR LOWER BYTE
1613 005544 017701 012144 MOV 0TXCSR,R1 ;SAVE TXCSR
1614 005550 042701 002000 PIC 0BITW,R1 ;CLR BIT WINDOW (DITTO)
1615 005554 022701 020200 CMP 020200,R1 ;TEST TXCSP
1616 005560 001401 BEQ 0+4
1617 005562 104000 HLT ;ONLY MAINT CLK BIT & TXDONE SHOULD BE SET
1618 005564 104400 SCOPE
1619 ;;THIS TEST PERFORMS MASTER RESET TESTING &
1620 ;;TESTING OF READ ONLY BIT BITW
1621 ;;MAINT INTERNAL
1622 ;;
1623 005566 012767 000032 173332 TST26: MOV 026,TSTNO ;SAVE THIS
1624 005574 012767 005720 173314 MOV 0TST27,NEXT ;GO TO THIS TEST WHEN THRU
1625 005602 012777 044001 012104 MOV 0MINT!MCDATA!BREAK,0TXCSR ;SET MAINT INT.,BREAK,
;MCDATA
1626 BIT 0BITW,0TXCSR ;TEST BITW
1627 005610 032777 002000 012076 RNE 0+4
1628 005616 001001 HLT ;BIT WINDOW SHOULD BE SET
1629 005620 104000 HLT
1630 005622 042777 040000 012064 BIC 0MCDATA,0TXCSR
1631 005630 013702 001136 MOV 00HOLD,R2

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1632 005634 005302          18: DEC R2
1633 005636 001376          BNE 18
1634 005640 032777 002000 012046 BIT 0BITW,0TXCSR
1635 005646 001401          REQ  +4
1636 005650 104000          HLT          ;BIT SHOULD BE CLR
1637          ;NOW SET THE MTDATA
1638 005652 052777 040000 012034 BIS 0MTDATA,0TXCSR
1639 005660 052777 000400 012026 RIS 0MRESET,0TXCSR ;MASTER RESET
1640 005666 052777 004001 012020 RIS 0MINT|BREAK,0TXCSR
1641 005674 013702 001136          MOV 00HOLD,R2
1642 005700 005302          26: DEC R2
1643 005702 001376          BNE 26
1644 005704 032777 002000 012002 BIT 0BITW,0TXCSR
1645 005712 001401          REQ  +4
1646 005714 104000          HLT          ;BITW SHOULD BE CLR BY MASTER RESET
1647 005716 104400          SCOPE
1648          ;;THIS TEST PERFORMS MASTER RESET TESTING &
1649          ;;TESTING OF PEAD ONLY BITW
1650          ;;MAINT EXTERNAL
1651          ;;
1652 005720 012767 000033 173200 TST27: MOV 027,TSTNO ;SAVE THIS
1653 005726 012767 006060 173162 MOV 0TST20,NEXT ;GO TO THIS TEST WHEN THRU
1654          ;TEST TO SEE IF EXTERNAL MODEM BYPASS CONNECTOR
1655          ;IS ON (H315)....IF "NO" JUMP AROUND TEST
1656 005734 105767 173243          TSTB JMRBY
1657 005740 100046          BPL 18 ;IT IS NOT ON
1658 005742 012777 050001 011744 MOV 0NEXT|MTDATA|BREAK,0TXCSR ;SET MAINT EXT.,BREAK,
1659          ;&MTDATA
1660 005750 032777 002000 011736 BIT 0BITW,0TXCSR ;TEST BITW
1661 005756 001001          BNE  +4
1662 005760 104000          HLT          ;BIT WINDOW SHOULD BE SET
1663 005762 042777 040000 011724 BIC 0MTDATA,0TXCSR
1664 005770 013702 001136          MOV 00HOLD,R2
1665 005774 005302          28: DEC R2
1666 005776 001376          BNE 28
1667 006000 032777 002000 011706 RIT 0BITW,0TXCSR
1668 006006 001401          BEQ  +4
1669 006010 104000          HLT          ;BIT SHOULD BE CLR
1670          ;NOW SET THE MTDATA
1671 006012 052777 040000 011674 BIS 0MTDATA,0TXCSR
1672 006020 052777 000400 011666 RIS 0MRESET,0TXCSR ;MASTER RESET
1673 006026 052777 010001 011660 RIS 0NEXT|BREAK,0TXCSR
1674 006034 013702 001136          MOV 00HOLD,R2
1675 006040 005302          38: DEC R2
1676 006042 001376          BNE 38
1677 006044 032777 002000 011642 RIT 0BITW,0TXCSR
1678 006052 001401          REQ  +4
1679 006054 104000          HLT          ;BITW SHOULD BE CLR BY MASTER RESET
1680 006056 104400          18: SCOPE
1681
1682
1683          ;;THIS TEST PERFORMS MASTER RESET TESTING &
1684          ;;TESTING OF PEAD ONLY BIT RXDONE
1685          ;;
1686 006060 012767 000034 173040 TST28: MOV 028,TSTNO ;SAVE THIS
1687 006066 012767 006116 173022 MOV 0TST29,NEXT ;GO TO THIS TEST WHEN THRU

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1688 006074 052777 000400 011612    BIS      0MRESET,0TXCSR ;MASTER RESET
1689 006102 032777 000200 011570    BIT      0RXDONE,0RXCSR ;TEST THIS BIT
1690 006110 001401                BEQ      648             ;BR IF "0"
1691 006112 104000                HLT                               ;CHECK MASTER RESET LOGIC
1692 006114                648:
1693                                ;OR SHORT ON THIS BIT
1694 006114 104400    SCOPE
1695                                ;;THIS TEST PERFORMS MASTER RESET TESTING &
1696                                ;;TESTING OF READ ONLY BIT RECACT
1697                                ;;
1698 006116 012767 000035 173002 TST29: MOV      029,TSTNO      ;SAVE THIS
1699 006124 012767 006154 172764      MOV      0TST30,NEXT   ;GO TO THIS TEST WHEN THRU
1700 006132 052777 000400 011554    BIS      0MRESET,0TXCSR ;MASTER RESET
1701 006140 032777 004000 011532    BIT      0RECACT,0PXCSP ;TEST THIS BIT
1702 006146 001401                BEQ      648             ;BR IF "0"
1703 006150 104000                HLT                               ;CHECK MASTER RESET LOGIC
1704 006152                648:
1705                                ;OR SHORT ON THIS BIT
1706 006152 104400    SCOPE
1707                                ;;THIS TEST PERFORMS MASTER RESET TESTING &
1708                                ;;TESTING OF READ ONLY BIT DSC
1709                                ;;
1710 006154 012767 000036 172744 TST30: MOV      030,TSTNO      ;SAVE THIS
1711 006162 012767 006212 172726      MOV      0TST31,NEXT   ;GO TO THIS TEST WHEN THRU
1712 006170 052777 000400 011510    BIS      0MRESET,0TXCSR ;MASTER RESET
1713 006176 032777 100000 011474    BIT      0DSC,0RXCSR   ;TEST THIS BIT
1714 006204 001401                BEQ      648             ;BR IF "0"
1715 006206 104000                HLT                               ;CHECK MASTER RESET LOGIC
1716 006210                648:
1717                                ;OR SHORT ON THIS BIT
1718 006210 104400    SCOPE
1719                                ;;THIS TEST PERFORMS MASTER RESET TESTING &
1720                                ;;TESTING OF READ ONLY BIT TXDONE
1721                                ;;
1722 006212 012767 000037 172706 TST31: MOV      031,TSTNO      ;SAVE THIS
1723 006220 012767 006250 172670      MOV      0TST32,NEXT   ;GO TO THIS TEST WHEN THRU
1724 006226 052777 000400 011460    RTS      0MRESET,0TXCSR ;MASTER RESET
1725 006234 032777 000200 011452    BIT      0TXDONE,0TXCSR ;TEST THIS BIT
1726 006242 001001                BNE     +4              ;BR IF "1"
1727 006244 104000                HLT                               ;CHECK MASTER RESET LOGIC
1728                                ;OR SHORT ON THIS BIT
1729 006246 104400    SCOPE
1730                                ;;THIS TEST PERFORMS MASTER RESET TESTING &
1731                                ;;TESTING OF READ ONLY BIT DNA
1732                                ;;
1733 006250 012767 000040 172650 TST32: MOV      032,TSTNO      ;SAVE THIS
1734 006256 012767 006300 172632      MOV      0TST33,NEXT   ;GO TO THIS TEST WHEN THRU
1735 006264 052777 000400 011422    BIS      0MRESET,0TXCSR ;MASTER RESET
1736 006272 032777 100000 011414    BIT      0DNA,0TXCSR   ;TEST THIS BIT
1737 006300 001401                BEQ      648             ;BR IF "0"
1738 006302 104000                HLT                               ;CHECK MASTER RESET LOGIC
1739 006304                648:
1740                                ;OR SHORT ON THIS BIT
1741 006304 104400    SCOPE
1742                                ;;THIS TEST PERFORMS MASTER RESET TESTING &
1743                                ;;TESTING OF READ ONLY WORD RECEIVE DATA

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1744
1745 006306 012767 000041 172612 TST33: MOV      033,TSTNO      ;SAVE THIS
1746 006314 012767 006354 172574      MOV      0TST34,NEXT      ;GO TO THIS TEST WHEN THRU
1747 006322 052777 000400 011364      BIS      0MRESET,0TXCSR  ;MASTER RESET
1748 006330 016703 011350      MOV      0RXDBUF,R3      ;FOR ERROR MESSAGE
1749 006334 012700 000377      MOV      0377,R0         ;EXPECTED
1750 006340 017701 011340      MOV      0PXDBUF,R1      ;ACTUAL
1751 006344 120001      CMPB    R0,R1
1752 006346 001401      BEQ     .+4              ;BR IF "0"
1753 006350 104002      HLT     2                ;REC DATA SHOULD BE ALL 1'S
1754 006352 104400      SCOPE
1755      ;;THIS TEST PERFORMS MASTER RESET TESTING &
1756      ;;TESTING OF READ ONLY BIT PAPER
1757
1758 006354 012767 000042 172544 TST34: MOV      034,TSTNO      ;SAVE THIS
1759 006362 012767 006412 172526      MOV      0TST35,NEXT      ;GO TO THIS TEST WHEN THRU
1760 006370 052777 000400 011316      BIS      0MRESET,0TXCSR  ;MASTER RESET
1761 006376 032777 010000 011300      BIT      0PAPER,0RXDBUF  ;TEST THIS BIT
1762 006404 001401      BEQ     648              ;BR IF "0"
1763 006406 104000      HLT
1764 006410      648:
1765      ;OR SHORT ON THIS BIT
1766 006410 104400      SCOPE
1767      ;;THIS TEST PERFORMS MASTER RESET TESTING &
1768      ;;TESTING OF READ ONLY BIT FRMEPR
1769
1770 006412 012767 000043 172506 TST35: MOV      035,TSTNO      ;SAVE THIS
1771 006420 012767 006450 172470      MOV      0TST36,NEXT      ;GO TO THIS TEST WHEN THRU
1772 006426 052777 000400 011260      BIS      0MRESET,0TXCSR  ;MASTER RESET
1773 006434 032777 020000 011242      BIT      0FRMEPR,0RXDBUF ;TEST THIS BIT
1774 006442 001401      BEQ     648              ;BR IF "0"
1775 006444 104000      HLT
1776 006446      648:
1777      ;OR SHORT ON THIS BIT
1778 006446 104400      SCOPE
1779      ;;THIS TEST PERFORMS MASTER RESET TESTING &
1780      ;;TESTING OF READ ONLY BIT OVRRUN
1781
1782 006450 012767 000044 172450 TST36: MOV      036,TSTNO      ;SAVE THIS
1783 006456 012767 006506 172432      MOV      0TST37,NEXT      ;GO TO THIS TEST WHEN THRU
1784 006464 052777 000400 011222      BIS      0MRESET,0TXCSR  ;MASTER RESET
1785 006472 032777 040000 011204      BIT      0OVRRUN,0RXDBUF ;TEST THIS BIT
1786 006500 001401      BEQ     648              ;BR IF "0"
1787 006502 104000      HLT
1788 006504      648:
1789      ;OR SHORT ON THIS BIT
1790 006504 104400      SCOPE
1791      ;;THIS TEST PERFORMS MASTER RESET TESTING &
1792      ;;TESTING OF READ ONLY BIT RXERR
1793
1794 006506 012767 000045 172412 TST37: MOV      037,TSTNO      ;SAVE THIS
1795 006514 012767 006544 172374      MOV      0TST38,NEXT      ;GO TO THIS TEST WHEN THRU
1796 006522 052777 000400 011164      BIS      0MRESET,0TXCSR  ;MASTER RESET
1797 006530 032777 100000 011146      BIT      0RXERR,0RXDBUF  ;TEST THIS BIT
1798 006536 001401      BEQ     648              ;BR IF "0"
1799 006540 104000      HLT
1799      ;CHECK MASTER RESET LOGIC
  
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1000 006542          648:
1001
1002 006542 104400
1003
1004
1005 006544 012767 000046 172354 TST38:
1006 006552 012767 006652 172336
1007 006560 012777 177777 011112
1008 006566 052777 000400 011120
1009 006574 016703 011100
1010 006600 017701 011074
1011 006604 105767 172371
1012 006610 100010
1013 006612 042701 173000
1014
1015 006616 012700 000000
1016 006622 020001
1017 006624 001401
1018 006626 104001
1019 006630 000407
1020 006632 042701 073000 18:
1021
1022 006636 012700 000016
1023 006642 020001
1024 006644 001401
1025 006646 104001
1026
1027
1028 006650 104400 28:
1029
1030
1031
1032
1033 006652 012767 000047 172246 TST39:
1034 006660 012767 006726 172230
1035 006666 012777 177777 011020
1036 006674 052777 000400 011012
1037 006702 016703 011006
1038 006706 017701 011002
1039 006712 012700 000200
1040 006716 020001
1041 006720 001401
1042 006722 104001
1043 006724 104400
1044
1045
1046
1047
1048 006726 012767 000050 172172 TST40:
1049 006734 012767 006774 172154
1050 006742 052777 000400 010744
1051 006750 016703 010730
1052 006754 017701 010724
1053 006760 012700 000377
1054 006764 020001
1055 006766 001401

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;OR SHORT ON THIS BIT

SCOPE
 ;;THIS TEST VERIFYS THAT THE DEVICE REGISTER RXCSR
 ;;IS CLEARED BY MASTER RESET

MOV 038,TSTNO ;SAVE THIS
 MOV 0TST39,NEXT ;GO TO THIS TEST WHEN THRU
 MOV 0177777,0RXCSR ;SET ALL POSSIBLE BITS
 BIS 0MRESET,0TXCSR ;MASTER RESET
 MOV RXCSR,R3 ;FOR ERROR MESSAGE
 MOV 0RXCSR,R1 ;SAVE ACTUAL
 TSTB OPTCLR ;TEST THE OPT CLR JUMPER FLAG
 BPL 18 ;NO ,ITS NOT IN
 BIC 0173000,R1 ;CLR NON-MASTER RESETTABLE
 ;BITS(SINCE THESE ARE DEPENDENT ON H315 CONNECTORS EXISTANCE)
 MOV 00,R0 ;EXPECTED
 CMP R0,R1 ;EXPECTED VS ACTUAL
 BEQ .+4
 HLT 1 ;ALL MASTER RESETABLE BITS SHOULD BE CLR
 BP 28 ;JUMP AROUND
 BIC 073000,R1 ;CLR NON-MASTER RESETTABLE
 ;BITS(SINCE THESE ARE DEPENDENT ON H315 CONNECTORS EXISTANCE)
 MOV 016,R0 ;EXPECTED
 CMP R0,R1 ;EXPECTED VS ACTUAL
 BEQ .+4
 HLT 1 ;ONLY STD,PTS,DTR BITS SHOULD BE SET
 ;NOTE THAT STD IS READ =1 INDEPENDENT OF
 ;SEC XMIT 06 STRAP

SCOPE
 ;;THIS TEST VERIFYS THAT THE DEVICE REGISTER TXCSR
 ;;IS CLEARED BY MASTER RESET

MOV 039,TSTNO ;SAVE THIS
 MOV 0TST40,NEXT ;GO TO THIS TEST WHEN THRU
 MOV 0177777,0TXCSR ;SET ALL POSSIBLE BITS
 BIS 0MRESET,0TXCSR ;MASTER RESET
 MOV TXCSR,R3 ;FOR ERROR MESSAGE
 MOV 0TXCSR,R1 ;SAVE ACTUAL
 MOV 0200,R0 ;EXPECTED
 CMP R0,R1 ;EXPECTED VS ACTUAL
 BEQ .+4
 HLT 1 ;ONLY TXDONE SHOULD BE SET

SCOPE
 ;;THIS TEST VERIFYS THAT THE DEVICE REGISTER RXDBUF
 ;;IS CLEARED BY MASTER RESET

MOV 040,TSTNO ;SAVE THIS
 MOV 0TST41,NEXT ;GO TO THIS TEST WHEN THRU
 BIS 0MRESET,0TXCSR ;MASTER RESET
 MOV RXDBUF,R3 ;FOR ERROR MESSAGE
 MOV 0RXDBUF,R1 ;SAVE
 MOV 0377,R0 ;EXPECTED
 CMP R0,R1 ;EXPECTED VS ACTUAL
 BEQ .+4

1856	006770	104302			HLT	2		;ONLY REC DATA BITS SHOULD BE SET
1857	006772	104400			SCOPE			
1858								;THIS TEST VERIFYS BITS RING,CTS,CARDET,SRD,DSR
1859								;ALSO DSC IS GENERATED WHEN ANY OF THESE BITS ARE SET
1860								;OR CLEARED.....IT ALSO CHECKS THE MODEM BYPASS
1861								;JUMPER AND THAT THESE BITS CAN BE READ
1862								;NOTE: THE MODEM BYPASS JUMPER MUST BE ON (H315)
1863								
1864	006774	012767	000051	172124	TST411	MOV	041,TSTNO	;SAVE THIS
1865	007002	012767	007710	172106		MOV	0TST42,NEXT	;GO TO THIS TEST WHEN THRU
1866	007010	005077	010604			CLR	0RXCSR	;TO GET RID OF STD ,RTS,DTR IF OPTCLR JUMPER 04 IS NOT ON
1867	007014	052777	000400	010672		BIS	0MRESET,0TXCSR	;MASTER RESET
1868								;TEST THAT A "YES" ANSWER WAS GIVEN TO QUESTION IN
1869								;THE MONITOR OR BY DEFAULT
1870								;THIS TEST WILL BE BYPASSED IF THE EXTERNAL BYPASS
1871								;JUMPER IS NOT INSTALLED
1872	007022	105767		172155		TSTR	JMBRY	
1873	007026	100402				BMI	.+6	;THE ANSWER WAS YES.....
1874								; PERFORM THIS TEST
1875	007030	000167	000652			JMP	OUT1	;JUMP AROUND THIS TEST IF THE ANSWER
1876								;WAS NO
1877	007034	016703	010640			MOV	RXCSP,R3	;SET UP FOR ERROR MESSAGE
1878	007040	017701	010634			MOV	0RXCSR,R1	;ACTUAL
1879	007044	005000				CLR	R0	;EXPECTED
1880	007046	005701				TST	R1	;IS IT = 0 ?
1881	007050	001401				BEQ	.+4	
1882	007052	104001				HLT	1	;RXCSR SHOULD BE CLR
1883	007054	052777	000002	010616		BIS	0DTP,0RXCSR	;SET DTR
1884								;WAIT FOR CABLE DELAYS
1885								;.....
1886								;MODIFY "HOLD:" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
1887								;.....
1888	007062	016702		172050		MOV	HOLD,R2	;SET DELAY TIME
1889	007066				648:			
1890	007066	005302				DEC	P2	
1891	007070	001376				BNE	648	;WAIT THIS TIME
1892								;OK NOW FALL THRU AND CONTINUE TESTING.....
1893								;EXIT STAGE LEFT....CHINNG!
1894	007072	017701	010602			MOV	0RXCSR,R1	;ACTUAL
1895	007076	012700	130002			MOV	0130002,R0	;DSC,CTS,CARDET,DTR
1896	007102	020001				CMP	R0,R1	;EXPECTED VS ACTUAL
1897	007104	001401				BEQ	.+4	
1898	007106	104001				HLT	1	;CHECK BYPASS CONNECTOR
1899	007110	017701	010564			MOV	0RXCSR,R1	;ACTUAL
1900	007114	012700	030002			MOV	030002,R0	;CTS,CARDET,DTR
1901	007120	020001				CMP	R0,R1	;EXPECTED VS ACTUAL
1902	007122	001401				BEQ	.+4	
1903	007124	104001				HLT	1	;PREVIOUS READING OF RXCSR SHOULD
1904								;HAVE CLEARED DSC
1905	007126	052777	000004	010544		BIS	0RTS,0RXCSR	
1906								;WAIT FOR CABLE DELAYS
1907								;.....
1908								;MODIFY "HOLD:" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
1909								;.....
1910	007134	016702		171776		MOV	HOLD,R2	;SET DELAY TIME
1911	007140				658:			

1912	007140	005302		DEC	R2	
1913	007142	001376		BNE	658	;WAIT THIS TIME
1914						;OK NOW FALL THRU AND CONTINUE TESTING.....
1915						;EXIT STAGE LEFT....CHINNGI
1916	007144	017701	010530	MOV	0RXCSR,R1	
1917	007150	012700	170006	MOV	0170006,R0	;DSC,RING,CTS,CARDET,RTS,DTR
1918	007154	020001		CMP	R0,R1	;EXPECTED VS ACTUAL
1919	007156	001401		BEQ	0+4	
1920	007160	104001		HLT	1	;CHECK BYPASS CONNECTOR
1921	007162	017701	010512	MOV	0RXCSR,R1	
1922	007166	012700	070006	MOV	070006,R0	;RING,CTS,CARDET,RTS,DTR
1923	007172	020001		CMP	R0,R1	;EXPECTED VS ACTUAL
1924	007174	001401		BEQ	0+4	
1925	007176	104001		HLT	1	;PREVIOUS READING OF RXCSR SHOULD
1926						;HAVE CLEARED DSC
1927	007200	105767	171773	TSTB	SEXMIT	;IS SEC XMIT JUMPER IN ?
1928	007204	100112		BPL	OUT2	;NO
1929	007206	105767	171766	TSTR	SEPEC	;IS SEC REC JUMPER IN ?
1930	007212	100163		BPL	OUT3	;NO
1931	007214	052777	000010 010456	BIS	0STD,0RXCSR	
1932						;WAIT FOR CABLE DELAYS
1933						;.....
1934						;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
1935						;.....
1936	007222	016702	171710	MOV	HOLD,R2	;SET DELAY TIME
1937	007226					
1938	007226	005302				
1939	007230	001376				
1940						
1941						
1942	007232	017701	010442			
1943	007236	012700	173016	MASK1:	MOV	0173016,R0 ;DSC,PING,CTS,CARDET,SRD,DSR
1944						;STD,RTS,DTR
1945	007242	020001		CMP	R0,R1	;EXPECTED VS ACTUAL
1946	007244	001401		BEQ	0+4	
1947	007246	104001		HLT	1	;CHECK BYPASS CONNECTOR
1948	007250	017701	010424	MOV	0RXCSR,R1	
1949	007254	012700	073016	MASK2:	MOV	073016,R0 ;RING,CTS,CARDET,SRD,DSR,STD
1950						;RTS,DTR
1951	007260	020001		CMP	R0,R1	;EXPECTED VS ACTUAL
1952	007262	001401		BEQ	0+4	
1953	007264	104001		HLT	1	;PREVIOUS READING OF RXCSR SHOULD
1954						;HAVE CLEARED DSC
1955	007266	042777	000002 010404	BIC	0DTR,0RXCSR	
1956						;WAIT FOR CABLE DELAYS
1957						;.....
1958						;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
1959						;.....
1960	007274	016702	171636	MOV	HOLD,R2	;SET DELAY TIME
1961	007300					
1962	007300	005302				
1963	007302	001376				
1964						
1965						
1966	007304	017701	010370	MOV	0RXCSR,R1	
1967	007310	012700	143014	MOV	0143014,R0	;DSC,RING,SPD,DSR,STD,RTS

1968	007314	020001				CMP	R0,R1	;EXPECTED VS ACTUAL
1969	007316	001401				REQ	.+4	
1970	007320	104001				HLT	1	;DSC SHOULD BE SET
1971	007322	042777	000004	010350		BIC	0PTS,0RXCSR	
1972								;WAIT FOR CABLE DELAYS
1973								;.....
1974								;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
1975								;.....
1976	007330	016702	171602			MOV	HOLD,R2	;SET DELAY TIME
1977	007334				658:			
1978	007334	005302				DEC	R2	
1979	007336	001376				BNE	658	;WAIT THIS TIME
1980								;OK NOW FALL THRU AND CONTINUE TESTING.....
1981								;EXIT STAGE LEFT....CHINNG!
1982	007340	017701	010334			MOV	0RXCSR,R1	
1983	007344	012700	103010		MASK3:	MOV	0103010,R0	;DSC,SRD,DSP,STD
1984	007350	020001				CMP	R0,R1	;EXPECTED VS ACTUAL
1985	007352	001401				REQ	.+4	
1986	007354	104001				HLT	1	;DSC SHOULD BE SET
1987	007356	042777	000010	010314		BIC	0STD,0RXCSR	
1988								;WAIT FOR CABLE DELAYS
1989								;.....
1990								;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
1991								;.....
1992	007364	016702	171546			MOV	HOLD,R2	;SET DELAY TIME
1993	007370				648:			
1994	007370	005302				DFC	R2	
1995	007372	001376				BNE	648	;WAIT THIS TIME
1996								;OK NOW FALL THRU AND CONTINUE TESTING.....
1997								;EXIT STAGE LEFT....CHINNG!
1998	007374	017701	010300			MOV	0RXCSR,R1	
1999	007403	012700	100000			MOV	0100000,R0	;DSC
2000	007404	020001				CMP	R0,R1	;EXPECTED VS ACTUAL
2001	007406	001401				REQ	.+4	
2002	007410	104001				HLT	1	;DSC SHOULD BE SET
2003	007412	017701	010262			MOV	0RXCSR,R1	
2004	007416	005000				CLR	R0	;NONE
2005	007420	005701				IST	R1	
2006	007422	001401				REQ	.+4	
2007	007424	104001				HLT	1	;DSC SHOULD BE CLEARED FROM PREVIOUS
2008								;READING OF RXCSR
2009	007426	000167	000254			JMP	OUT1	;JUMP AROUND
2010								;THE FOLLOWING ROUTINE HANDLES THE SITUATION WHERE SEC XMIT
2011								;AND SEC REC JUMPERS ARE NOT ON
2012	007432	052777	000010	010240	OUT2:	BIS	0STD,0RXCSR	
2013								;WAIT FOR CABLE DELAYS
2014								;.....
2015								;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
2016								;.....
2017	007440	016702	171472			MOV	HOLD,R2	;SET DELAY TIME
2018	007444				648:			
2019	007444	005302				DEC	R2	
2020	007446	001376				BNE	648	;WAIT THIS TIME
2021								;OK NOW FALL THRU AND CONTINUE TESTING.....
2022								;EXIT STAGE LEFT....CHINNG!
2023	007450	017701	010224			MOV	0RXCSR,R1	;ACTUAL

2024	007454	012700	070016		MOV	070016,R0		;EXPECTED: RING ,CTS,CARDET,STD,RTS,DTR
2025	007460	020001			CMP	R0,R1		;EXPECTED VS ACTUAL
2026	007462	001401			BEQ	.+4		
2027	007464	104001			HLT	1		;CHECK SEC XMIT & SEC REC JUMPERS
2028	007466	042777	000004	010204	BIC	0PTS,0RXCSR		
2029								;WAIT FOR CABLE DELAYS
2030								;.....
2031								;MODIFY "HOLD:" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
2032								;.....
2033	007474	016702	171436		MOV	HOLD,R2		;SET DELAY TIME
2034	007500			658:				
2035	007500	005302			DEC	R2		
2036	007502	001376			BNE	658		;WAIT THIS TIME
2037								;OK NOW FALL THRU AND CONTINUE TESTING.....
2038								;EXIT STAGE LEFT....CHINNG!
2039	007504	017701	010170		MOV	0RXCSR,R1		;ACTUAL
2040	007510	012700	130012		MOV	0130012,R0		;DSC,CTS,CARDET,DTR,STD
2041								;NOTE THAT DSC STILL ASSERTS EVEN THO THE SEC XMIT JUMPER 0 6 IS NOT ON
2042	007514	020001			CMP	R0,R1		;EXPECTED VS ACTUAL
2043	007516	001401			BEQ	.+4		
2044	007520	104001			HLT	1		;CHECK BYPASS CONNECTOR
2045	007522	042777	000002	010150	BIC	0DTR,0RXCSR		
2046								;WAIT FOR CABLE DELAYS
2047								;.....
2048								;MODIFY "HOLD:" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
2049								;.....
2050	007530	016702	171402		MOV	HOLD,R2		;SET DELAY TIME
2051	007534			668:				
2052	007534	005302			DEC	R2		
2053	007536	001376			BNE	668		;WAIT THIS TIME
2054								;OK NOW FALL THRU AND CONTINUE TESTING.....
2055								;EXIT STAGE LEFT....CHINNG!
2056	007540	017701	010134		MOV	0RXCSR,R1		;ACTUAL
2057	007544	012700	100010		MOV	0100010,R0		;DSC,STD
2058	007550	020001			CMP	R0,R1		;EXPECTED VS ACTUAL
2059	007552	001401			BEQ	.+4		
2060	007554	104001			HLT	1		;ONLY DSC & STD SHOULD BE SET
2061	007556	000167	000124		JMP	OUT1		;JUMP AROUND
2062	007562	052777	000010	010110	BIS	0STD,0RXCSR		
2063								;WAIT FOR CABLE DELAYS
2064								;.....
2065								;MODIFY "HOLD:" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
2066								;.....
2067	007570	016702	171342		MOV	HOLD,R2		;SET DELAY TIME
2068	007574			648:				
2069	007574	005302			DEC	R2		
2070	007576	001376			BNE	648		;WAIT THIS TIME
2071								;OK NOW FALL THRU AND CONTINUE TESTING.....
2072								;EXIT STAGE LEFT....CHINNG!
2073	007600	017701	010074		MOV	0RXCSR,R1		;ACTUAL
2074	007604	012700	171016		MOV	0171016,R0		;EXPECTED: DSC,RING,CTS,CARDET,DSR,STD,RTS,DTR
2075	007610	020001			CMP	R0,R1		;EXPECTED VS ACTUAL
2076	007612	001401			BEQ	.+4		
2077	007614	104001			HLT	1		;CHECK SEC REC JUMPER
2078	007616	042777	000004	010054	BIC	0RTS,0RXCSR		
2079								;WAIT FOR CABLE DELAYS


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2000 ;*****
2001 ;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
2002 ;*****
2003 007624 016702 171306          658: MOV    HOLD,R2 ;SET DELAY TIME
2004 007630                                DEC    R2
2005 007630 005302                                BNE    658 ;WAIT THIS TIME
2006 007632 001376                                ;OK NOW FALL THRU AND CONTINUE TESTING.....
2007 ;EXIT STAGE LEFT,...CHINNG!
2008 MOV    0RXCSR,R1 ;ACTUAL
2009 007634 017701 010040          MOV    0131012,R0 ;EXPECTED: DSC,CTS,CARDET,DSR,STD,DTR
2010 007640 012700 131012          CMP    R0,R1 ;EXPECTED VS ACTUAL
2011 007644 020001                                BEQ    .+4
2012 007646 001401                                HLT    1 ;CHECK H315 CONNECTOR
2013 007650 104001                                BIC    0DTP,0RXCSR
2014 007652 042777 000002 010020          ;WAIT FOR CABLE DELAYS
2015 ;*****
2016 ;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
2017 ;*****
2018 007660 016702 171252          668: MOV    HOLD,R2 ;SET DELAY TIME
2019 007664                                DEC    R2
2020 007664 005302                                BNE    668 ;WAIT THIS TIME
2021 007666 001376                                ;OK NOW FALL THRU AND CONTINUE TESTING.....
2022 ;EXIT STAGE LEFT,...CHINNG!
2023 007670 017701 010004          MOV    0RXCSR,R1 ;ACTUAL
2024 007674 012700 101010          MOV    0101010,R0 ;EXPECTED: DSC,DSR,STD
2025 007700 020001                                CMP    R0,R1 ;EXPECTED VS ACTUAL
2026 007702 001401                                BEQ    .+4
2027 007704 104001                                HLT    1 ;CHECK H315 CONNECTOR
2028 007706 104000          OUT1: SCOPE
2029 ;
2030 ;;THIS TEST VERIFYS THAT RECACT (REC ACTIVE) ASSERTS
2031 ;;IMMED. WHEN SYNC EXTERNAL MODE IS SELECTED
2032 ;;AND SYNC SEARCH IS SET
2033 ;;
2034 007710 012767 000052 171210  TST42: MOV    042,TSTNO ;SAVE THIS
2035 007716 012767 010036 171172  MOV    0TST43,NEXT ;GO TO THIS TEST WHEN THRU
2036 007724 052777 000400 007762  BIS    0MRESET,0TXCSP ;MASTER RESET
2037 007732 012777 020000 007750  MOV    0SYNEXT,0PARCSR ;SET THE MODE
2038 007740 052777 000400 007746  BIS    0MRESET,0TXCSP ;MASTER RESET
2039 ;
2040 ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2041 007746 012777 064001 007740  MOV    0MTDATA!CLK!MINT!BREAK,0TXCSR
2042 ;
2043 ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2044 007754 012777 026026 007726  MOV    0SYNEXT!EIGHT!NOPAR!26,0PARCSR
2045 007762 032777 004000 007710  BIT    0RECACT,0RXCSR
2046 007770 001401                                BEQ    648
2047 007772 104000                                HLT                                ;RECACT SHOULD NOT BE SET
2048 ;
2049 007774 052777 000020 007676  648: BIS    0SYNSCH,0RXCSR ;SET SYNC SEARCH
2050 010002 032777 004000 007670  FIT    0RECACT,0RXCSR
2051 010010 001001                                BNE    658
2052 010012 104000                                HLT                                ;RECACT DID NOT ASSERT
2053 010014          658:

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2136 010014 042777 000020 007656      BIC      %SYNSCH,%RXCSR ;DROP SEARCH SYNC
2137 010022 032777 004000 007650      BIT      %RECACT,%RXCSR ;IS IT =0?
2138 010030 001401                      BEQ      668
2139 010032 104000                      HLT      ;RECACT SHOULD BE 0
2140 010034                      668:
2141 010034 104400                      SCOPE
2142                                     ;;THIS TEST VERIFYS THAT RECACT (REC ACTIVE) ASSERTS
2143                                     ;;IMMED. WHEN ISOCRONOUS MODE IS SELECTED
2144                                     ;;AND SYNC SEARCH IS SET
2145                                     ;;
2146 010036 012767 000053 171062 TST43:  MOV      %43,TSTNO      ;SAVE THIS
2147 010044 012767 010164 171044      MOV      %TST44,NEXT    ;GO TO THIS TEST WHEN THRU
2148 010052 052777 000400 007634      BIS      %MRESET,%TXCSR ;MASTER RESET
2149 010060 012777 000000 007622      MOV      %ISYMOD,%PARCSR ;SET THE MODE
2150 010066 052777 000400 007620      BIS      %MRESET,%TXCSR ;MASTER RESET
2151
2152                                     ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2153 010074 012777 064001 007612      MOV      %MTDATA!CLK!MINT!BREAK,%TXCSR
2154
2155                                     ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2156 010102 012777 006026 007600      MOV      %ISYMOD!EIGHT!NOPARI26,%PARCSR
2157 010110 032777 004000 007562      BIT      %RECACT,%RXCSR
2158 010116 001401                      BEQ      648
2159 010120 104000                      HLT      ;RECACT SHOULD NOT BE SET
2160 010122                      648:
2161 010122 052777 000020 007550      BIS      %SYNSCH,%RXCSR ;SET SYNC SEARCH
2162 010130 032777 004000 007542      BIT      %RECACT,%RXCSR
2163 010136 001001                      RNF      658
2164 010140 104000                      HLT      ;RECACT DID NOT ASSERT
2165 010142                      658:
2166 010142 042777 000020 007530      BIC      %SYNSCH,%RXCSR ;DROP SEARCH SYNC
2167 010150 032777 004000 007522      BIT      %RECACT,%RXCSR ;IS IT =0?
2168 010156 001401                      BEQ      668
2169 010160 104000                      HLT      ;RECACT SHOULD BE 0
2170 010162                      668:
2171 010162 104400                      SCOPE
2172                                     ;;VERIFY THE MATCH DETECT & DATA RDY FLAGS BY PUMPING
2173                                     ;;IN TWO * SYNC CHARS THRU MAINT DATA BIT
2174                                     ;;WATCH THE RECACT BIT
2175                                     ;;ON THE THIRD * CHARACTER IT SHOULD SET RXDONE
2176                                     ;;* DEPENDENT ON MONITOR.....
2177                                     ;;IF ONE SYNC STRAP IS SELECTED THEN IT WILL ONLY
2178                                     ;;TAKE ONE SYNC CHARACTER FOR RXDONE TO ASSERT
2179                                     ;;ON THE SECOND CHARACTER
2180                                     ;;ALSO CHECK THIS CHARACTER IN RXDBUF
2181                                     ;;AND CHECK OPERATION OF SYNSCH
2182                                     ;;MODE: SYNC INTERNAL
2183                                     ;;LENGTH:FIVE
2184                                     ;;
2185 010164 012767 000054 170734 TST44:  MOV      %44,TSTNO      ;SAVE THIS
2186 010172 012767 010506 170716      MOV      %TST45,NEXT    ;GO TO THIS TEST WHEN THRU
2187 010200 052777 000400 007506      BIS      %MRESET,%TXCSR ;MASTER RESET
2188 010206 012777 030000 007474      MOV      %SYNINT,%PAPCSR ;SET THE MODE
2189 010214 052777 000400 007472      BIS      %MRESET,%TXCSR ;MASTER RESET
2190
2191                                     ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE

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2192 010222 012777 064001 007464      MOV      #MTDATA|CLK|MINT|BREAK,@TXCSR
2193
2194                                     ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2195 010230 012777 030026 007452      MOV      @SYNINT|FIVE|NOPAR|26,@PARCSR
2196 010236 016703 007442              MOV      RXDRUF,R3          ;SET UP FOR ERROR MESSAGE
2197 010242 052777 000020 007430      RIS      @SYNSCH,@RXCSR    ;SET SYNC SEARCH
2198                                     ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION,...
2199 010250 042777 020000 007436      BIC      @CLK,@TXCSR      ;POKE CLK DOWN
2200 010256 052777 020000 007430      BIS      @CLK,@TXCSR      ;POKE CLK UP
2201                                     ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2202 010264 042777 020000 007422      BIC      @CLK,@TXCSR      ;POKE CLK DOWN
2203 010272 052777 020000 007414      BIS      @CLK,@TXCSR      ;POKE CLK UP
2204 010300 012767 000002 170634      MOV      @2,COUNT
2205 010306 012767 000005 170624 18:    MOV      @5,SHIFT          ;# OF SHIFTS
2206 010314 012767 000026 170622      MOV      @26,TEMP1        ;SYNC CHARACTER
2207 010322 004767 007056      JSR      PC,RPOKE
2208 010326 005367 170610      DEC      COUNT
2209 010332 001433              REQ      28
2210                                     ;TEST SYNCNO TO SEE HOW MANY SYNC CHARS WERE SELECTED
2211 010334 105767 170636      TSTB     SYNCNO
2212 010340 100762              BMI      18              ;TWO SYNC CHARS
2213 010342 105777 007332 28:    TSTR     @RXCSR          ;CHECK REC DONE BIT
2214 010346 100001              BPL      648
2215 010350 104000              HLT
2216 010352              648:
2217 010352 032777 004000 007320      BIT      @PECACT,@RXCSR
2218 010360 001001              BNE      658
2219 010362 104000              HLT          ;PECACT SHOULD BE ASSERTED
2220 010364              658:
2221 010364 012767 000005 170546      MOV      @5,SHIFT
2222 010372 012767 000021 170544      MOV      @21,TEMP1        ;ANY CHARACTER
2223 010400 004767 007000      JSR      PC,RPOKE
2224 010404 105777 007270      TSTR     @RXCSR          ;CHECK RXDONE
2225 010410 100401              BMI      668
2226 010412 104000              HLT          ;RXDONE SHOULD BE ASSERTED
2227 010414              668:
2228 010414 032777 004000 007256      BIT      @PECACT,@RXCSR
2229 010422 001001              BNE      678
2230 010424 104000              HLT          ;RECACT SHOULD STILL BE ASSERTED
2231 010426              678:
2232 010426 042777 000020 007244      BIC      @SYNSCH,@RXCSR    ;CLR SYNC SEARCH
2233 010434 032777 004000 007236      RIT      @PECACT,@RXCSR    ;IT SHOULD DROP IMMEDIATELY
2234 010442 001401              BEQ      688
2235 010444 104000              HLT          ;RECACT SHOULD BE CLR
2236 010446              688:
2237 010446 105777 007226      TSTB     @RXCSR          ;RXDONE
2238 010452 100401              BMI      698
2239 010454 104000              HLT          ;RXDONE SHOULD STILL BE ASSERTED
2240 010456              698:
2241 010456 012700 000021      MOV      @21,R0          ;EXPECTED DATA
2242 010462 017701 007216      MOV      @RXDBUF,R1       ;ACTUAL DATA
2243 010466 020001      CMP      R0,R1          ;COMPARE EXP VS ACT
2244 010470 001401              BEQ      708
2245 010472 104002              HLT      2              ;DATA CHARS SHOULD COMPARE
2246 010474              708:
2247 010474 105777 007200      TSTR     @RXCSR          ;CHECK RXDONE

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2248 010500 100001          BPL      718
2249 010502 104000          HLT      ;RXDONE SHOULD BE CLR FROM
2250 010504                718:
2251                                ;PREVIOUS READING OF RXDBUF
2252 010504 104400          SCOPE
2253                                ;VERIFY THE MATCH DETECT & DATA RDY FLAGS BY PUMPING
2254                                ;IN TWO * SYNC CHARS THRU MAINT DATA BIT
2255                                ;WATCH THE RECACT BIT
2256                                ;ON THE THIRD * CHARACTER IT SHOULD SET RXDONE
2257                                ;: DEPENDENT ON MONITOR.....
2258                                ;IF ONE SYNC STRAP IS SELECTED THEN IT WILL ONLY
2259                                ;TAKE ONE SYNC CHARACTER FOR RXDONE TO ASSERT
2260                                ;ON THE SECOND CHARACTER
2261                                ;ALSO CHECK THIS CHARACTER IN RXDBUF
2262                                ;AND CHECK OPERATION OF SYNCSCH
2263                                ;MODE: SYNC INTERNAL
2264                                ;LENGTH: SIX
2265                                ;;
2266 010506 012767 000055 170412 TST45: MOV      045, TSTNO      ;SAVE THIS
2267 010514 012767 011030 170374      MOV      0TST46, NEXT      ;GO TO THIS TEST WHEN THRU
2268 010522 052777 000400 007164      BIS      0MPESET, 0TXCSR  ;MASTER RESET
2269 010530 012777 030000 007152      MOV      0SYNINT, 0PARCSR ;SET THE MODE
2270 010536 052777 000400 007150      BIS      0MPESET, 0TXCSR  ;MASTER RESET
2271
2272                                ;SET MAINT DATA, CLK, BREAK, & MAINTENANCE MODE
2273 010544 012777 064001 007142      MOV      0MTDATA!CLK!MINT!BREAK, 0TXCSR
2274
2275                                ;SET MODE , # OF BITS, PARITY SENSE, & LOAD SYNC REG
2276 010552 012777 032026 007130      MOV      0SYNINT!SIX!NOPAR!26, 0PARCSR
2277 010560 016703 007120      MOV      RXDBUF, R3      ;SET UP FOR ERROR MESSAGE
2278 010564 052777 000020 007106      BIS      0SYNCSCH, 0RXCSR ;SET SYNC SEARCH
2279                                ;POKE CLK TO GET RECEIVER INTO SYNCRIZATION....
2280 010572 042777 020000 007114      BIC      0CLK, 0TXCSR    ;POKE CLK DOWN
2281 010600 052777 020000 007106      BIS      0CLK, 0TXCSR    ;POKE CLK UP
2282                                ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2283 010606 042777 020000 007100      BIC      0CLK, 0TXCSR    ;POKE CLK DOWN
2284 010614 052777 020000 007072      BIS      0CLK, 0TXCSR    ;POKE CLK UP
2285 010622 012767 000002 170312      MOV      02, COUNT
2286 010630 012767 000006 170302 18:  MOV      06, SHIFT      ;# OF SHIFTS
2287 010636 012767 000026 170300      MOV      026, TEMP1     ;SYNC CHARACTER
2288 010644 004767 006534      JSR      PC, RPOKE
2289 010650 005367 170266      DEC      COUNT
2290 010654 001403      NEG      28
2291                                ;TEST SYNCNO TO SEE HOW MANY SYNC CHARS WERE SELECTED
2292 010656 105767 170314      TSTR     SYNCNO
2293 010662 100762      BMI      18      ;TWO SYNC CHARS
2294 010664 105777 007010 28:  TSTR     0RXCSR      ;CHECK REC DONE BIT
2295 010670 100001      BPL      648
2296 010672 104000      HLT      ;RXDONE SHOULD NOT BE ASSERTED
2297 010674
2298 010674 032777 004000 006776 648:  BIT      0RECACT, 0RXCSR
2299 010702 001001      RNE      658
2300 010704 104000      HLT      ;RECACT SHOULD BE ASSERTED
2301 010706
2302 010706 012767 000006 170224 658:  MOV      06, SHIFT
2303 010714 012767 000021 170222      MOV      021, TEMP1     ;ANY CHARACTER

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2304 010722 004767 006456 JSR PC,PPOKE
2305 010726 105777 006746 TSTB 0RXCSR ;CHECK RXDONE
2306 010732 100401 BHI 668
2307 010734 104000 HLT ;RXDONE SHOULD BE ASSERTED
2308 010736 668:
2309 010736 032777 004000 006734 BIT 0REACT,0RXCSR
2310 010744 001001 BNE 678
2311 010746 104000 HLT ;REACT SHOULD STILL BE ASSERTED
2312 010750 678:
2313 010750 042777 000020 006722 BIC 0SYNSCH,0RXCSR ;CLR SYNC SEARCH
2314 010756 032777 004000 006714 BIT 0REACT,0RXCSR ;IT SHOULD DROP IMMEDIATELY
2315 010764 001401 REQ 688
2316 010766 104000 HLT ;REACT SHOULD BE CLR
2317 010770 688:
2318 010770 105777 006704 TSTB 0RXCSR ;RXDONE
2319 010774 100401 BHI 698
2320 010776 104000 HLT ;RXDONE SHOULD STILL BE ASSERTED
2321 011000 698:
2322 011000 012700 000021 MOV #21,R0 ;EXPECTED DATA
2323 011004 017701 006674 MOV 0RXDBUF,R1 ;ACTUAL DATA
2324 011010 020001 CMP R0,R1 ;COMPARE EXP VS ACT
2325 011012 001401 BEQ 708
2326 011014 104002 HLT 2 ;DATA CHARS SHOULD COMPARE
2327 011016 708:
2328 011016 105777 006656 TSTB 0RXCSR ;CHECK RXDONE
2329 011022 100001 RPL 718
2330 011024 104000 HLT ;RXDONE SHOULD BE CLR FROM
2331 011026 718:
2332 ;PREVIOUS READING OF RXDBUF
2333 011026 104400 SCOPE
2334 ;;VERIFY THE MATCH DETECT & DATA RDY FLAGS BY PUMPING
2335 ;;IN TWO * SYNC CHARS THRU MAINT DATA BIT
2336 ;;WATCH THE REACT BIT
2337 ;;ON THE THIRD * CHARACTER IT SHOULD SET RXDONE
2338 ;;: DEPENDENT ON MONITOR.....
2339 ;;IF ONE SYNC STRAP IS SELECTED THEN IT WILL ONLY
2340 ;;TAKE ONE SYNC CHARACTER FOR RXDONE TO ASSERT
2341 ;;ON THE SECOND CHARACTER
2342 ;;ALSO CHECK THIS CHARACTER IN RXDBUF
2343 ;;AND CHECK OPERATION OF SYNSCH
2344 ;;MODE: SYNC INTERNAL
2345 ;;LENGTH:SEVEN
2346 ;;
2347 011030 012767 000056 170070 TST46: MOV #46,TSTNO ;SAVE THIS
2348 011036 012767 011352 170052 MOV #TST47,NEXT ;GO TO THIS TEST WHEN THRU
2349 011044 052777 000400 006642 BIS #MRESET,0TXCSR ;MASTER RESET
2350 011052 012777 030000 006630 MOV #SYNINT,0PARCSR ;SET THE MODE
2351 011060 052777 000400 006626 BIS #MRESET,0TXCSR ;MASTER RESET
2352
2353 ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2354 011066 012777 064001 006620 MOV #MTDATA!CLK!MINT!BREAK,0TXCSR
2355
2356 ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2357 011074 012777 034026 006606 MOV #SYNINT!SEVEN!NOPAR!26,0PARCSR
2358 011102 016703 006576 MOV RXDBUF,R3 ;SET UP FOR ERROR MESSAGE
2359 011106 052777 000020 006564 BIS #SYNSCH,0RXCSR ;SET SYNC SEARCH

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2360 ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION....
2361 011114 042777 020000 006572 BIC 0CLK,0TXCSR ;POKE CLK DOWN
2362 011122 052777 020000 006564 BIS 0CLK,0TXCSR ;POKE CLK UP
2363 ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2364 011130 042777 020000 006556 BIC 0CLK,0TXCSR ;POKE CLA DOWN
2365 011136 052777 020000 006550 HIS 0CLK,0TXCSR ;POKE CLK UP
2366 011144 012767 000002 167770 MOV 02,COUNT
2367 011152 012767 000007 167760 18: MOV 07,SHIFT ;0 OF SHIFTS
2368 011160 012767 000026 167756 MOV 026,TEMP1 ;SYNC CHARACTER
2369 011166 004767 006212 JSR PC,RPOKE
2370 011172 005367 167744 DEC COUNT
2371 011176 001403 BEQ 28
2372 ;TEST SYNCNO TO SEE HOW MANY SYNC CHAPS WERE SELECTED
2373 011200 105767 167772 TSTB SYNCNO
2374 011204 100762 BMI 18 ;TWO SYNC CHAPS
2375 011206 105777 006466 28: TSTR 0PXCSP ;CHECK PEC DONE BIT
2376 011212 100001 BPL 648
2377 011214 104000 HLT ;RXDONE SHOULD NOT BE ASSERTED
2378 011216 648:
2379 011216 032777 004000 006454 BIT 0REACT,0PXCSP
2380 011224 001001 BNE 658
2381 011226 104000 HLT ;REACT SHOULD BE ASSERTED
2382 011230 658:
2383 011230 012767 000007 167702 MOV 07,SHIFT
2384 011236 012767 000021 167700 MOV 021,TEMP1 ;ANY CHARACTER
2385 011244 004767 006134 JSR PC,RPOKE
2386 011250 105777 006424 TSTR 0PXCSP ;CHECK RXDONE
2387 011254 100401 BMI 668
2388 011256 104000 HLT ;RXDONE SHOULD BE ASSERTED
2389 011260 668:
2390 011260 032777 004000 006412 BIT 0REACT,0PXCSP
2391 011266 001001 BNE 678
2392 011270 104000 HLT ;REACT SHOULD STILL BE ASSERTED
2393 011272 678:
2394 011272 042777 000020 006400 BIC 0SYNSCH,0PXCSP ;CLR SYNC SEARCH
2395 011300 032777 004000 006372 BIT 0REACT,0PXCSP ;IT SHOULD DROP IMMEDIATELY
2396 011306 001401 BEQ 688
2397 011310 104000 HLT ;REACT SHOULD BE CLR
2398 011312 688:
2399 011312 105777 006362 TSTR 0PXCSP ;RXDONE
2400 011316 100401 BMI 698
2401 011320 104000 HLT ;RXDONE SHOULD STILL BE ASSFRTED
2402 011322 698:
2403 011322 012700 000021 MOV 021,R0 ;EXPECTED DATA
2404 011326 017701 006352 MOV 0PXDDBUF,R1 ;ACTUAL DATA
2405 011332 020001 CMP R0,R1 ;COMPAPE EXP VS ACT
2406 011334 001401 BEQ 708
2407 011336 104002 HLT 2 ;DATA CHARS SHOULD COMPARE
2408 011340 708:
2409 011340 105777 006334 TSTR 0PXCSP ;CHECK RXDONE
2410 011344 100001 BPL 718
2411 011346 104000 HLT ;RXDONE SHOULD BE CLR FROM
2412 011350 718:
2413 ;PREVIOUS READING OF PXCDBUF
2414 011350 104400 SCOPE
2415 ;VERIFY THE MATCH DETECT & DATA RDY FLAGS BY PUMPING

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2416                                     ;;IN TWO * SYNC CHARS THRU MAINT DATA BIT
2417                                     ;;WATCH THE RECACT BIT
2418                                     ;;ON THE THIRD * CHAPACTER IT SHOULD SET RXDONE
2419                                     ;;; DEPENDENT ON MONITOR.....
2420                                     ;;IF ONE SYNC STRAP IS SELECTED THEN IT WILL ONLY
2421                                     ;;TAKE ONE SYNC CHARACTER FOR RXDONE TO ASSERT
2422                                     ;;ON THE SECOND CHARACTER
2423                                     ;;ALSO CHECK THIS CHARACTER IN RXDBUF
2424                                     ;;AND CHECK OPERATION OF SYNSCH
2425                                     ;;MODE: SYNC INTERNAL
2426                                     ;;LENGTH:EIGHT
2427                                     ;;
2428 011352 012767 000057 167546 TST47: MOV      047,TSTNO      ;SAVE THIS
2429 011360 012767 011674 167530 MOV      0TST48,NEXT      ;GO TO THIS TEST WHEN THRU
2430 011366 052777 000400 006320 BIS      0MRESET,0TXCSR  ;MASTER RESET
2431 011374 012777 030000 006306 MOV      0SYNINT,0PARCSR ;SET THE MODE
2432 011402 052777 000400 006304 BIS      0MRESET,0TXCSR  ;MASTER RESET
2433
2434                                     ;SET MAINT DATA,CLK,BPEAK,&MAINTENANCE MODE
2435 011410 012777 064001 006276 MOV      0MNTDATA!CLK!MINT!BREAK,0TXCSR
2436
2437                                     ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2438 011416 012777 036026 006264 MOV      0SYNINT!EIGHT!NOPAR!26,0PARCSR
2439 011424 016703 006254 MOV      RXDBUF,R3      ;SET UP FOR ERROR MESSAGE
2440 011430 052777 000020 006242 BIS      0SYNSCH,0RXCSR ;SET SYNC SEARCH
2441                                     ;POKE CLK TO GET RECEIVER INTO SYNCRIZATION....
2442 011436 042777 020000 006250 RIC      0CLK,0TXCSR    ;POKE CLK DOWN
2443 011444 052777 020000 006242 BIS      0CLK,0TXCSR    ;POKE CLK UP
2444                                     ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2445 011452 042777 020000 006234 BIC      0CLK,0TXCSR    ;POKE CLK DOWN
2446 011460 052777 020000 006226 BIS      0CLK,0TXCSR    ;POKE CLK UP
2447 011466 012767 000002 167446 MOV      02,COUNT
2448 011474 012767 000010 167436 18: MOV      00,,SHIFT      ;# OF SHIFTS
2449 011502 012767 000026 167434 MOV      026,TEMP1      ;SYNC CHARACTER
2450 011510 004767 005670 JSR      PC,RPOKE
2451 011514 005367 167422 DEC      COUNT
2452 011520 001403 REQ      28
2453                                     ;TEST SYNCNO TO SEE HOW MANY SYNC CHARS WERE SELECTED
2454 011522 105767 167450 TSTR     SYNCNO
2455 011526 100762 BMI      18      ;TWO SYNC CHARS
2456 011530 105777 006144 28: TSTR     0RXCSR ;CHECK REC DONE BIT
2457 011534 100001 BPL      648
2458 011536 104000 HLT
2459 011540 648: HLT      ;RXDONE SHOULD NOT BE ASSERTED
2460 011540 032777 004000 006132 648: BIT      0RECACT,0RXCSR
2461 011546 001001 BNE      658
2462 011550 104000 HLT      ;RECACT SHOULD BE ASSERTED
2463 011552 658:
2464 011552 012767 000010 167360 MOV      00,,SHIFT
2465 011560 012767 000021 167356 MOV      021,TEMP1      ;ANY CHARACTER
2466 011566 004767 005612 JSR      PC,PPOKE
2467 011572 105777 006102 TSTB     0RXCSR ;CHECK RXDONE
2468 011576 100001 BMI      668
2469 011600 104000 HLT      ;RXDONE SHOULD BE ASSERTED
2470 011602 668:
2471 011602 032777 004000 006070 BIT      0RECACT,0RXCSR
  
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2472 011610 001001      BNE      678
2473 011612 104000      HLT
2474 011614              678:
2475 011614 042777 000020 006056      BIC      0SYNSCH,0RXCSR ;CLR SYNC SEARCH
2476 011622 032777 004000 006050      BIT      0RECACT,0RXCSR ;IT SHOULD DROP IMMEDIATELY
2477 011630 001401      BEQ      688
2478 011632 104000      HLT
2479 011634              688:
2480 011634 105777 006040      TSTB    0RXCSR ;RXDONE
2481 011640 100401      BMI      698
2482 011642 104000      HLT
2483 011644              698:
2484 011644 012700 000021      MOV      021,R0 ;EXPECTED DATA
2485 011650 017701 006030      MOV      0RXDBUF,R1 ;ACTUAL DATA
2486 011654 020001      CMP      R0,R1 ;COMPARE EXP VS ACT
2487 011656 001401      BFG      708
2488 011660 104002      HLT
2489 011662              708:
2490 011662 105777 006012      TSTB    0RXCSR ;CHECK RXDONE
2491 011666 100001      BPL      718
2492 011670 104000      HLT
2493 011672              718:
2494
2495 011672 104400      ;PREVIOUS READING OF RXDBUF
2496
2497
2498
2499
2500
2501
2502
2503
2504 011674 012767 000060 167224 TST48:
2505 011702 012767 012136 167206      MOV      040,TSTNO ;SAVE THIS
2506 011710 052777 000400 005776      MOV      0TST49,NEXT ;GO TO THIS TEST WHEN THRU
2507 011716 012777 000000 005764      BIS      0MRESET,0TXCSR ;MASTER RESET
2508 011724 052777 000400 005762      MOV      0ISYMOD,0PARCSR ;SET THE MODE
2509
2510
2511 011732 012777 064001 005754      RIS      0MRESET,0TXCSR ;MASTER RESET
2512
2513
2514 011740 012777 000000 005742      ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2515 011746 052777 000020 005724      MOV      0MTDATA!CLK!MINT!BREAK,0TXCSR
2516
2517 011754 042777 020000 005732      ;SET MODE ,0 OF BITS,PARITY SENSE,&LOAD SYNC REG
2518 011762 052777 020000 005724      MOV      0ISYMOD!FIVE!NOPAR!0,0PARCSR
2519
2520 011770 042777 020000 005716      RIS      0SYNSCH,0RXCSR ;SET SYNC SEARCH
2521 011776 052777 020000 005710      ;POKE CLK TO GET RECEIVER INTO SYNCRIZATION....
2522 012004 016703 005674      BIC      0CLK,0TXCSR ;POKE CLK DOWN
2523 012010 012700 000025      BIS      0CLK,0TXCSR ;POKE CLK UP
2524 012014 012767 000007 167116      ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2525 012022 012767 000152 167114      BIC      0CLK,0TXCSR ;POKE CLK DOWN
2526 012030 004707 005350      BIS      0CLK,0TXCSR ;POKE CLK UP
2527 012034 105777 005640      MOV      RXDBUF,R3 ;SET UP FOR ERROR MESSAGE
                MOV      025,R0 ;EXPECTED
                MOV      07,SHIFT ;0 OF SHIFTS
                MOV      0152,TEMP1 ;DATA CHAR
                JSR      PC,RPOKE ;SHIFT IN THIS CHAR
                TSTB    0RXCSR ;RXDONE ?

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2528	012040	100401			BMI	648	
2529	012042	104000			HLT		;RXDONE SHOULD BE SET
2530	012044					648:	
2531	012044	017701	005634		MOV	@RXDBUF,R1	;ACTUAL
2532	012050	020001			CMP	R0,R1	;COMPARE EXPECTED VS. ACTUAL
2533	012052	001401			BEO	658	
2534	012054	104002			HLT	2	;RECEIVED DATA DID NOT MATCH ;EXPECTED DATA - CHECK MAINT DATA ;OR RECEIVER LOGIC
2535							
2536							
2537	012056					658:	
2538	012056	012767	000007	167054	MOV	@7,SHIFT	;# OF SHIFTS
2539	012064	012767	000152	167052	MOV	@152,TEMP1	;DATA CHAR
2540	012072	004767	005306		JSR	PC,RPOKE	;SHIFT IN THIS CHAR
2541							;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
2542	012076	012767	000007	167034	MOV	@7,SHIFT	;# OF SHIFTS
2543	012104	012767	000152	167032	MOV	@152,TEMP1	;DATA CHAR
2544	012112	004767	005266		JSR	PC,RPOKE	;SHIFT IN THIS CHAR
2545	012116	012700	140025		MOV	@140000125,R0	;EXPECTED DATA PLUS ;RXERR & OVPRUN
2546							
2547	012122	017701	005556		MOV	@RXDBUF,R1	;ACTUAL
2548	012126	020001			CMP	R0,R1	;COMPARE EXP VS. ACT
2549	012130	001401			BEO	668	
2550	012132	104002			HLT	2	;SPECIFICALLY LOOK AT RXERR & ;OVPRUN BITS...THEY BOTH SHOULD BE SET
2551							
2552	012134					648:	
2553	012134	104400					SCOPE
2554							;;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
2555							;;RECEIVER SECTION,IT USES THE ERROR FLAGS
2556							;;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
2557							;;(OVPRUN,RXERR)
2558							;;MODE:ISYMOD
2559							;;LENGTH:FIVE
2560							;;CHAR:12
2561							;;
2562	012136	012767	000061	166762	TST49:	MOV	@49,TSTNO ;SAVE THIS
2563	012144	012767	012400	166744		MOV	@TST50,NEXT ;GO TO THIS TEST WHEN THRU
2564	012152	052777	000400	005534		BIS	@MRESET,@TXCSR ;MASTER RESET
2565	012160	012777	000000	005522		MOV	@ISYMOD,@PARCSR ;SET THE MODE
2566	012166	052777	000400	005520		BIS	@MPESET,@TXCSR ;MASTER RESET
2567							
2568							;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2569	012174	012777	064001	005512		MOV	@MTDATA CLK MINT BREAK,@TXCSR
2570							
2571							;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2572	012202	012777	000000	005500		MOV	@ISYMOD FIVE NOPAR 0,@PARCSR
2573	012210	052777	000020	005462		BIS	@SYNSCH,@RXCSR ;SET SYNC SEARCH
2574							;POKE CLK TO GET RECEIVER INTO SYNCRIZATION....
2575	012216	042777	020000	005470		BIC	@CLK,@TXCSR ;POKE CLK DOWN
2576	012224	052777	020000	005462		BIS	@CLK,@TXCSR ;POKE CLK UP
2577							;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2578	012232	042777	020000	005454		BIC	@CLK,@TXCSR ;POKE CLK DOWN
2579	012240	052777	020000	005446		BIS	@CLK,@TXCSR ;POKE CLK UP
2580	012246	016703	005432			MOV	RXDR'F,R3 ;SET UP FOR ERROR MESSAGE
2581	012252	012700	000012			MOV	@12,R0 ;EXPECTED
2582	012256	012767	000007	166654		MOV	@7,SHIFT ;# OF SHIFTS
2583	012264	012767	000124	166652		MOV	@124,TEMP1 ;DATA CHAR

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2504 012272 004767 005106      JSR    PC,RPOKE      ;SHIFT IN THIS CHAR
2505 012276 105777 005376      ISTB   0RXCSR      ;RXDONE ?
2506 012302 100401                BMI    648
2507 012304 104000                HLT    ;RXDONE SHOULD BE SET
2508 012306                648:
2509 012306 017701 005372      MOV    0RXDBUF,R1   ;ACTUAL
2590 012312 020001                CMP    R0,R1      ;COMPARE EXPECTED VS. ACTUAL
2591 012314 001401                BEQ    658
2592 012316 104002                HLT    2          ;RECEIVED DATA DID NOT MATCH
2593                                ;EXPECTED DATA - CHECK MAINT DATA
2594                                ;OR RECEIVER LOGIC
2595 012320                658:
2596 012320 012767 000007 166612    MOV    07,SHIFT     ;# OF SHIFTS
2597 012326 012767 000124 166610    MOV    0124,TEMP1  ;DATA CHAR
2598 012334 004767 005044                JSR    PC,RPOKE     ;SHIFT IN THIS CHAR
2599                                ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
2600 012340 012767 000007 166572    MOV    07,SHIFT     ;# OF SHIFTS
2601 012346 012767 000124 166570    MOV    0124,TEMP1  ;DATA CHAR
2602 012354 004767 005024                JSR    PC,RPOKE     ;SHIFT IN THIS CHAR
2603 012360 012700 140012                MOV    0140000112,R0 ;EXPECTED DATA PLUS
2604                                ;RXERR & OVRUN
2605 012360 017701 005314                MOV    0RXDBUF,R1   ;ACTUAL
2606 012370 020001                CMP    R0,R1      ;COMPARE EXP VS. ACT
2607 012372 001401                BEQ    668
2608 012374 104002                HLT    2          ;SPECIFICALLY LOOK AT RXERR &
2609                                ;OVRUN BITS...THEY BOTH SHOULD BE SET
2610 012376                668:
2611 012376 104400                SCOPE
2612                                ;;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
2613                                ;;RECEIVER SECTION,IT USES THE ERROR FLAGS
2614                                ;;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
2615                                ;;(OVRUN,RXERR)
2616                                ;;MODE:ISYMOD
2617                                ;;LENGTH:FIVE
2618                                ;;CHAR:37
2619                                ;;
2620 012400 012767 000062 166520    TST50: MOV    050,TSTNO   ;SAVE THIS
2621 012406 012767 012642 166502    MOV    0TST51,NEXT ;GO TO THIS TEST WHEN THRU
2622 012414 052777 000400 005272    BIS    0MPESET,0TXCSR ;MASTER RESET
2623 012422 012777 000000 005260    MOV    0ISYMOD,0PARCSR ;SET THE MODE
2624 012430 052777 000400 005256    BIS    0MPESET,0TXCSR ;MASTER RESET
2625
2626                                ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2627 012436 012777 064001 005250    MOV    0MTDATA|CLK|MINT|BPEAK,0TXCSR
2628
2629                                ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2630 012444 012777 000000 005236    MOV    0ISYMOD|FIVE|NOPARI|0,0PARCSR
2631 012452 052777 000020 005220    BIS    0SYNSCH,0RXCSR ;SET SYNC SEARCH
2632                                ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION,...
2633 012460 042777 020000 005226    BIC    0CLK,0TXCSR  ;POKE CLK DOWN
2634 012466 052777 020000 005220    BIS    0CLK,0TXCSR  ;POKE CLK UP
2635                                ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2636 012474 042777 020000 005212    BIC    0CLK,0TXCSR  ;POKE CLK DOWN
2637 012502 052777 020000 005204    BIS    0CLK,0TXCSR  ;POKE CLK UP
2638 012510 016703 005170                MOV    RXDBUF,R3   ;SET UP FOR ERROR MESSAGE
2639 012514 012700 000037                MOV    037,R0      ;EXPECTED

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2640 012520 012767 000007 166412      MOV      07,SHIFT          ;# OF SHIFTS
2641 012526 012767 000176 166410      MOV      0176,TEMP1       ;DATA CHAR
2642 012534 004767 004644              JSP      PC,RPOKE         ;SHIFT IN THIS CHAR
2643 012540 105777 005134              TSTB    0RXCSR ;RXDONE ?
2644 012544 100401              BMI     648
2645 012546 104000              HLT     ;RXDONE SHOULD BE SET
2646 012550              648:
2647 012550 017701 005130              MOV      0RXDBUF,R1       ;ACTUAL
2648 012554 020001              CMP      R0,R1            ;COMPARE EXPECTED VS. ACTUAL
2649 012556 001401              BEQ     658
2650 012560 104002              HLT     2                  ;RECEIVED DATA DID NOT MATCH
                               ;EXPECTED DATA - CHECK MAINT DATA
                               ;OR RECEIVER LOGIC
2651
2652
2653 012562              658:
2654 012562 012767 000007 166350      MOV      07,SHIFT          ;# OF SHIFTS
2655 012570 012767 000176 166346      MOV      0176,TEMP1       ;DATA CHAR
2656 012576 004767 004602              JSR      PC,RPOKE         ;SHIFT IN THIS CHAR
2657              ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
2658 012602 012767 000007 166330      MOV      07,SHIFT          ;# OF SHIFTS
2659 012610 012767 000176 166326      MOV      0176,TEMP1       ;DATA CHAR
2660 012616 004767 004562              JSP      PC,RPOKE         ;SHIFT IN THIS CHAR
2661 012622 012700 140037              MOV      0140000137,R0    ;EXPECTED DATA PLUS
2662              ;RXERR & OVRRUN
2663 012626 017701 005052              MOV      0RXDBUF,R1       ;ACTUAL
2664 012632 020001              CMP      R0,R1            ;COMPARE EXP VS. ACT
2665 012634 001401              BEQ     668
2666 012636 104002              HLT     2                  ;SPECIFICALLY LOOK AT RXERR &
                               ;OVRRUN BITS...THEY BOTH SHOULD BE SET
2667
2668 012640              668:
2669 012640 104400              SCOPE
2670              ;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
2671              ;RECFIVER SECTION,IT USES THE ERROR FLAGS
2672              ;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
2673              ;;(OVRRUN,RXERR)
2674              ;MODE:ISYMOD
2675              ;LENGTH:FIVE
2676              ;CHAR:0
2677              ;;
2678 012642 012767 000063 166256      TST51: MOV      051,TSTNO        ;SAVE THIS
2679 012650 012767 013104 166240      MOV      0.EOP,NEXT        ;GO TO THIS TEST WHEN THRU
2680 012656 052777 000400 005030      BIS      0MRESET,0TXCSR   ;MASTER RESET
2681 012664 012777 000000 005016      MOV      0ISYMOD,0PARCSP  ;SET THE MODE
2682 012672 052777 000400 005014      BIS      0MRESET,0TXCSR   ;MASTER RESET
2683
2684              ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2685 012700 012777 004001 005006      MOV      0MNTDATA|CLK|MINT|BREAK,0TXCSR
2686
2687              ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2688 012706 012777 000000 004774      MOV      0ISYMOD|FIVE|NOPAR|0,0PARCSR
2689 012714 052777 000020 004756      BIS      0SYNSCH,0RXCSR   ;SET SYNC SEARCH
2690              ;POKE CLK TO GET RECEIVER INTO SYNCRIZATION....
2691 012722 042777 020000 004764      BIC      0CLK,0TXCSR      ;POKE CLK DOWN
2692 012730 052777 020000 004756      BIS      0CLK,0TXCSR      ;POKE CLK UP
2693              ;POKE CLK TO GET LOGIC INTO SYNCRIZATION
2694 012736 042777 020000 004750      BIC      0CLK,0TXCSR      ;POKE CLK DOWN
2695 012744 052777 020000 004742      BIS      0CLK,0TXCSR      ;POKE CLK UP

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2696 012752 016703 004726      MOV      RXDBUF,R3      ;SET UP FOR ERROR MESSAGE
2697 012756 012700 000000      MOV      R0,R0      ;EXPECTED
2698 012762 012767 000007 166150  MOV      R7,SHIFT      ;# OF SHIFTS
2699 012770 012767 000100 166146  MOV      R100,TEMP1     ;DATA CHAR
2700 012776 004767 004402      JSR      PC,PPOKE      ;SHIFT IN THIS CHAR
2701 013002 105777 004672      TSTB    BRXCSR ;PXDONE ?
2702 013006 100401      BMI     648
2703 013010 104000      HLT     ;PXDONE SHOULD BE SET
2704 013012
2705 013012 017701 004666      648:    MOV      BRXDBUF,R1     ;ACTUAL
2706 013016 020001      CMP     R0,R1      ;COMPARE EXPECTED VS. ACTUAL
2707 013020 001401      BEQ     658
2708 013022 104002      HLT     2          ;RECEIVED DATA DID NOT MATCH
2709                                     ;EXPECTED DATA - CHECK MAINT DATA
2710                                     ;OR RECEIVER LOGIC
2711 013024
2712 013024 012767 000007 166106  658:    MOV      R7,SHIFT      ;# OF SHIFTS
2713 013032 012767 000100 166104  MOV      R100,TEMP1     ;DATA CHAR
2714 013040 004767 004340      JSR      PC,PPOKE      ;SHIFT IN THIS CHAR
2715                                     ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
2716 013044 012767 000007 166066  MOV      R7,SHIFT      ;# OF SHIFTS
2717 013052 012767 000100 166064  MOV      R100,TEMP1     ;DATA CHAR
2718 013060 004767 004320      JSR      PC,PPOKE      ;SHIFT IN THIS CHAR
2719 013064 012700 140000      MOV      R140000,R0     ;EXPECTED DATA PLUS
2720                                     ;RXERR & OVRRUN
2721 013070 017701 004610      MOV      BRXDBUF,R1     ;ACTUAL
2722 013074 020001      CMP     R0,R1      ;COMPARE EXP VS. ACT
2723 013076 001401      BEQ     668
2724 013100 104002      HLT     2          ;SPECIFICALLY LOOK AT RXERR &
2725                                     ;OVRRUN BITS...THEY BOTH SHOULD BE SET
2726 013102
2727 013102 104400      668:    SCOPE
2728

```

```

2729
2730
2731 ;END OF PASS
2732 ;TYPE NAME OF TEST
2733 ;UPDATE PASS COUNT
2734 ;CHECK FOR EXIT TO ACT-11
2735 ;RESTART TEST
2736 013104 104402 ;EOP: TYPE ;TYPE NAME OF TEST
2737 013106 016246 MEPASS
2738 013110 104410 013342 CONVPT ,OUTCRY
2739 013114 104402 015767 TYPE ,DEVICE
2740 013120 105767 166056 TSTR MULTD ;ARE YOU RUNNING MULTIPLE DEVICES ?
2741 013124 001511 BEQ CCC ;NO,JUMP AROUND
2742 013126 005767 166064 TST ACTREG ;ARE ANY DEVICES ACTIVE ?
2743 013132 001007 BNE RUNIT ;YES
2744 013134 104402 016001 TYPE ,MCOV ;NO
2745 013140 016700 166052 MOV ACTREG,R0 ;DISPLAY ACTREG
2746 013144 000000 HALT ;SELECT SOMETHING TO RUN @ ACTREG:
2747 ;SELECT SWITCHES & HIT CONTINUE (PUT SW00 #1)
2748 013146 000167 166106 JMP .START ;START OVER AGAIN.....YOU Deselected EVERYTHING
2749 013152 062767 000010 166024 PUNIT: ADD #10,BASEADD ;NEXT BLOCK (ADDRESSES)
2750 013160 062767 000010 166024 ZERO: ADD #10,BASEIV ;NEXT BLOCK (VECTORS)
2751 013166 000241 CLC
2752 013170 006167 166024 ROL ROTADD
2753 013174 103410 BCS 28 ;UP DATE ROTATING POINTER
2754 ;IS IT THE LAST DEVICE
2755 013176 036767 166016 166012 BIT ROTADD,ACTREG ;TO BE TESTED IN THIS PASS ?
2756 013204 001762 BEQ RUNIT ;TEST THIS DEVICE FOR ACTIVE STATUS
2757 013206 004767 000034 JSR PC,REPLAY ;IF NOT ACTIVE, TRY NEXT ADDRESS
2758 013212 000167 000174 JMP RESTR ;CALCULATE NEW PARAMETERS
2759 013216 012767 000001 165774 28: MOV #1,ROTADD ;YES IT WAS ACTIVE,TEST THIS DEVICE
2760 ;OKI,NOW SET UP ROTATING
2761 013224 016767 165756 165752 MOV KEFEPADD,BASEADD ;POINTER FOR NEXT MULTIPLE PASS
2762 013232 016767 165756 165752 MOV KEEPIV,BASEIV ;RESTORE BASE ADDRESS
2763 013240 004767 000002 JSR PC,REPLAY ;RESTORE BASE INTERRUPT VECTORS
2764 013244 000441 BP CCC ;CALC NEW PARAMETERS
2765 013246 016767 165732 004126 REPLAY: MOV BASEADD,DUBASE ;JUMP AROUND REPLAY
2766 013254 004767 003770 JSR PC,DUADDR ;SET UP FOR NEW ADDRESSES
2767 013260 016767 165726 004436 MOV BASEIV,DURIV ;CREATE NEW ADDRESSES
2768 013266 062767 000002 165716 ADD #2,BASEIV ;CREATE DURIV
2769 013274 016767 165712 004424 MOV BASEIV,DURIS ;CREATE DURIS
2770 013302 062767 000002 165702 ADD #2,BASEIV
2771 013310 016767 165676 004412 MOV BASEIV,DUTIV ;CREATE DUTIV
2772 013316 062767 000002 165666 ADD #2,BASEIV
2773 013324 016767 165662 004400 MOV BASEIV,DUTIS ;CREATE DUTIS
2774 013332 016767 004366 165652 MOV DURIV,BASEIV ;RESTORE
2775 013340 000207 RTS PC
2776
2777 013342 000001 OUTCRY: 1
2778 013344 006 002 ;RYTE 6,2
2779 013346 017700 FXCSR
2780
2781 013350 CCC:
2782 013350 005067 165560 CLR LSTERR ;CLEAR LAST ERROR PC
2783 013354 005067 165644 CLR EPRFLG ;CLEAR ERROR FLAG
2784 013360 005267 165544 INC PASCNT ;UPDATE PASS COUNT

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2785 013364 016777 165540 165510      MOV      PASCNT,@LIGHTS      ;DISPLAY PASS COUNT
2786 013372 013701 000042              MOV      0042,P1            ;CHECK FOR ACT-11 OR DDP
2787 013376 001405                      BEQ      PESTRT             ;IF NOT, CONTINUE TESTING
2788 013400 000005                      RESET
2789 013402 004711              LOGICAL:  JSP      PC,(R1)
2790 013404 000240                      NOP
2791 013406 000240                      NOP
2792 013410 000240                      NOP
2793 013412 012767 000340 164356  RESTRT:  MOV      0340,PS      ;PREVENT INTERRUPTS (PRIO: 7)
2794 013420 104413                      CKSWR      ;CHECK FOR "G"
2795 013422 012767 002350 165464      MOV      @TST1,RTRN
2796 013430 000167 166714              JMP      TST1
2797
2798
2799
2800 013434              .SCOPE:
2801              ;**** START OF CODE FOR THE X OR TESTER ****
2802 013434 000424              BR      48                  ;IF RUNNING ON THE X OR TESTER CHANGE
2803
2804 013436 013746 000004              MOV      004,-(SP)         ;THIS INSTRUCTION TO A "NOP"(NOP=240)
2805 013442 012737 013462 000004      MOV      018,004          ;SAVE CONTENTS OF ERROR VECTOR
2806 013450 005737 177060              TST      00177060         ;SET FOR TIME OUT
2807 013454 012637 000004              MOV      (SP)+,004        ;TIME OUT ON X OR ?
2808 013460 000404              BR      28                  ;RESTORE ERROR VECTOR
2809 013462 022626              18:    C4P      (SP)+,(SP)+   ;GO TO NEXT TEST
2810 013464 012637 000004              MOV      (SP)+,004        ;CLEAR THE STACK AFTER A TIMEOUT
2811 013470 000403              BR      38                  ;RESTORE ERROR VECTOR
2812 013472 016767 165420 165414  28:    MOV      NEXT,RTRN      ;LOOP ON PRESENT TEST
2813 013500 016710 165410              38:    MOV      RTRN,(SP)    ;SET UP NEXT TEST IN RTRN
2814 013504 000002              RTI                          ;SET UP STACK FOR RTI
2815 013506              48:    ;**** END OF CODE FOR THE X OR TESTER ****
2816 013506 104413              CKSWR      ;CHECK FOR "G"
2817 013510 032777 040000 165362      BIT      @SW14,@SWR       ;LOOP ON CURRENT TEST ?
2818 013510 001407              TTST:    BEQ      18
2819 013520 000432              BR      38
2820 013522 105777 165356              TSTR     @TKCSR           ;TEST TTY FLAG
2821 013526 100027              RPL      38
2822 013530 017700 165352              MOV      @TKDBR,P0       ;CLR DONE BIT
2823 013534 000412              BR      28                  ;IF A TTY KEY IS STRUCK GO TO NEXT TST
2824 013536 032777 004000 165334  18:    BIT      @SW11,@SWR       ;INHIBIT ITERATIONS ?
2825 013544 001006              BNE      28
2826 013546 005267 165352              INC      LPCNT
2827 013552 026767 165346 165342      CMP      LPCNT,ICOUNT    ;CHECK FOR ITERATION CNT FINISH
2828 013560 101412              HLOS     38
2829 013562 105067 165436              28:    CLRB     ERHFLG
2830 013566 005067 165332              CLR      LPCNT
2831 013572 012767 000005 165322      MOV      05,ICOUNT       ;SET UP ITERATION COUNT
2832 013600 016767 165312 165306      MOV      @NEXT,PTRN     ;SET UP NEXT TEST IN RTRN
2833 013606 016710 165302              38:    MOV      RTRN,(SP)    ;SET UP STACK FOR RTI
2834 013612 000002              RTI
2835 013614 001407              BR4:    1407               ;RESTORE "BEQ 18" INSTRUCTION
2836 013616 000432              BRX:    432               ;RESTORE "BR 38" INSTRUCTION
2837
2838
2839
2840 013620 104413              ;CHECK FOR FREEZE ON CURRENT DATA
              .SCOPE:  CKSWR      ;CHECK FOR "G"

```

```

2041 013622 032777 001000 165250 BIT 0SW09,0SWR
2042 013630 001402 BEQ 10
2043 013632 016716 165262 MOV LOCK,(SP)
2044 013636 000002 10: RTI
2045
2046 ;TELETYPE OUTPUT ROUTINE
2047
2048 013640 010546 .TYPE: MOV R5,-(SP)
2049 013642 017605 000002 MOV 02(SP),R5
2050 013646 062766 000002 000002 ADD 02,2(SP)
2051 013654 105715 10: TSTB (R5) ;LOOK FOR "0"
2052 013656 001406 BEQ 30
2053 013660 105777 165224 20: TSTB 0TPCSR ;TEST DONE BIT
2054 013664 100375 BPL 20
2055 013666 112577 165220 MOVB (R5)+,0TPDDBR ;TYPE CHAR
2056 013672 000770 BR 10 ;DO IT AGAIN UNTIL "0" IS SEEN
2057 013674 012605 30: MOV (SP)+,R5
2058 013676 000002 RTI
2059
2060 ;ASCII STRING INPUT ROUTINE
2061
2062 013700 010346 .INSTR: MOV R3,-(SP)
2063 013702 010146 MOV R4,-(SP)
2064 013704 017667 000004 000010 MOV 04(SP),.MSG
2065 013712 062766 000002 000004 ADD 02,4(SP)
2066 013720 104402 .INST1: TYPE
2067 013722 000000 .MSG: 0
2068 013724 012704 017034 MOV 0INBUF,R4
2069 013730 012703 000007 MOV 07,R3
2070 013734 105777 165144 10: TSTB 0TKCSR
2071 013740 100375 BPL 10
2072 013742 117714 165140 MOVB 0TKDDBR,(R4)
2073 013746 142714 000200 BICR 0200,(R4)
2074 013752 121427 000025 CMPB (R4),025 ;IS IT <"U>
2075 013756 001003 HNE 2008
2076 013760 104402 016156 TYPE,MCRLF
2077 013764 000755 BR .INST1
2078 013766 122427 000015 2008: CMPB (R4)+,015
2079 013772 001423 BEQ INSTR2
2080 013774 117777 165106 165110 MOVB 0TKDDBR,0TPDDBR
2081 014002 105777 165102 20: TSTB 0TPCSR
2082 014006 100375 BPL 20
2083 014010 005303 DEC R3
2084 014012 001350 BNE 10
2085 014014 000402 BR .INSTG
2086 014016 010346 .INSTE: MOV R3,-(SP)
2087 014020 010446 MOV R4,-(SP)
2088 014022 104402 .INSTG: TYPE
2089 014024 016152 MQM
2090 014026 005737 015314 TST 0RDSW
2091 014032 001402 BEQ 4008
2092 014034 104402 016156 TYPE,MCRLF
2093 014040 000727 4008: BR .INST1
2094 014042 012604 INSTR2: MOV (SP)+,R4
2095 014044 012603 MOV (SP)+,R3
2096 014046 000002 RTI

```

2897
 2898
 2899
 2900 014050 010546
 2901 014052 010446
 2902 014054 016605 000004
 2903 014060 012567 000170
 2904 014064 012567 000166
 2905 014070 012567 000164
 2906 014074 112567 000162
 2907 014100 112567 000157
 2908 014104 010566 000004
 2909 014110 005905
 2910 014112 012704 017034
 2911 014116 122714 000015
 2912 014122 001420
 2913 014124 121427 000060
 2914 014130 002415
 2915 014132 121427 000067
 2916 014136 003012
 2917 014140 142714 000060
 2918 014144 152405
 2919 014146 122714 000015
 2920 014152 001414
 2921 014154 006305
 2922 014156 006305
 2923 014160 006305
 2924 014162 000760
 2925 014164 122714 000015
 2926 014170 001003
 2927 014172 005737 015314
 2928 014176 001023
 2929 014200 104404
 2930 014202 000742
 2931
 2932
 2933
 2934 014204 020567 000046
 2935 014210 101365
 2936 014212 020567 000036
 2937 014216 103762
 2938 014220 136705 000036
 2939 014224 001357
 2940
 2941
 2942
 2943 014226 016704 000026
 2944 014232 010524
 2945 014234 002705 000002
 2946 014240 105367 000017
 2947 014244 001372
 2948 014246 012604
 2949 014250 012605
 2950 014252 000002
 2951 014254 000000
 2952 014256 000000

;CONVERT ASCII STRING TO OCTAL

```

.PARAM: MOV R5, -(SP)
        MOV R4, -(SP)
        MOV 4(SP), R5
        MOV (R5)+, LOLIM
        MOV (R5)+, HILIM
        MOV (R5)+, DEVADR
        MOVH (R5)+, LOBITS
        MOVH (R5)+, ADRCNT
        MOV R5, 4(SP)
PARAM1: CLR R5
        MOV 0(INBUF), R4
        CMPL #15, (R4)
        BFO PARERR
18:     CMPB (R4), #60
        BLT PARERR
        CMPB (R4), #67
        HGT PARERR
        BICR #60, (R4)
        RISR (R4)+, R5
        CMPB #15, (R4)
        BFO LIMITS
        ASL R5
        ASL R5
        ASL R5
        RR 18
PARERR: CMPB #15, (R4)
        BNE 1208
        TST 0(ORDSW)
        BNE PARTI
1208:  INSTER
        RR PARAM1
  
```

;IS FIRST CHARACTER A <CR>
 ;IS CKSWR ROUTINE BEING USED

;TEST TO SEE IF NUMBER IS WITHIN LIMITS

```

LIMITS: CMP R5, HILIM
        BHI PARERR
        CMP R5, LOLIM
        BLO PARERR
        BITB LOBITS, R5
        BNE PARERR
  
```

;STORE NUMBER AT SPECIFIED ADDRESS

```

18:     MOV DEVADR, R4
        MOV R5, (R4)+
        ADD #2, R5
        DECB ADRCNT
        BNE 18
PARTI:  MOV (SP)+, R4
        MOV (SP)+, R5
        RTI
LOLIM:  0
HILIM:  0
  
```



```

2953 014260 000000          DFVADR: 0
2954 014262 000000          LOBITS: 0
2955          014263          ADPCNT=LOBITS+1
2956
2957          ;SAVE PC OF TEST THAT FAILED AND R0-R5
2958
2959 014264 016667 000004 164702 .SAV05: MOV     4(SP),SAVPC
2960
2961          ;SAVE R0-P5
2962
2963 014272 010567 164672      SV05:  MOV     R5,SAVR5
2964 014276 010467 164664          MOV     R4,SAVP4
2965 014302 010367 164656          MOV     R3,SAVR3
2966 014306 010267 164650          MOV     R2,SAVR2
2967 014312 010167 164642          MOV     R1,SAVP1
2968 014316 010067 164634          MOV     R0,SAVR0
2969 014322 000002          RTI
2970
2971          ;PESTORE R0-R5
2972
2973 014324 016700 164626      .RES05: MOV     SAVR0,R0
2974 014330 016701 164624          MOV     SAVP1,R1
2975 014334 016702 164622          MOV     SAVR2,R2
2976 014340 016703 164620          MOV     SAVR3,R3
2977 014344 016704 164616          MOV     SAVR4,R4
2978 014350 016705 164614          MOV     SAVP5,R5
2979 014354 000002          RTI
2980
2981          ;CONVIRT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
2982
2983 014356 104402          .CONVP: TYPE
2984 014360 016156          MCRLF
2985 014362 010046          .CNVRT: MOV     R0,-(SP)
2986 014364 010146          MOV     R1,-(SP)
2987 014366 010346          MOV     R3,-(SP)
2988 014370 010446          MOV     R4,-(SP)
2989 014372 010546          MOV     R5,-(SP)
2990 014374 017601 000012          MOV     012(SP),R1
2991 014400 016767 002470 164542          MOV     TEMP,TEMP3
2992 014406 002766 000002 000012          ADD     #2,12(SP)
2993 014414 012167 000154          MOV     (R1)+,WRDCNT
2994 014420 112167 000152          18:   MOVB   (R1)+,CHRCNT
2995 014424 112167 000147          MOVB   (R1)+,SPACNT
2996 014430 013167 000144          MOV     0(R1)+,BINWRD
2997 014434 016704 000140          26:   MOV     BINWRD,R4
2998 014440 116705 000132          MOVR   CHRCNT,R5
2999 014444 012700 017074          MOV     #TEMP,R0
3000 014450 010403          38:   MOV     R4,R3
3001 014452 042703 177770          BIC     #177770,R3
3002 014456 062703 000260          ADD     #060,R3
3003 014462 110320          MOVB   R3,(R0)+
3004 014464 006204          ASR    R4
3005 014466 042704 100000          BIC     #100000,R4          ;SHIFT FOR NEXT 0
3006 014472 006204          ASR    R4          ;CLUGE TO STOP BIT 15 PROPAGATING.
3007 014474 006204          ASR    R4          ;DITTO
3008 014476 005305          DEC     R5          ;DITTO

```

```

3009 014500 001363          BNE      38
3010 014502 012703 017134    MOV      @MDATA,R3
3011 014506 114023          48:     MOVB   -(R0),(R3)+
3012 014510 105367 000062    DECB   CHRCNT
3013 014514 001374          BNE      48
3014 014516 105767 000055    TSTB   SPACNT
3015 014522 001405          REG      68
3016 014524 112723 000040    58:     MOVB   @040,(R3)+
3017 014530 105367 000043    DECB   SPACNT
3018 014534 001373          BNE      58
3019 014536 105013          68:     CLRB   (R3)
3020 014540 104402          TYPE
3021 014542 017134          MDATA
3022 014544 005367 000024    DEC     WPCNT
3023 014550 001323          BNE      18
3024 014552 016767 164372 002314  MOV     TEMP3,TEMP
3025 014560 012605          MOV     (SP)+,R5
3026 014562 012604          MOV     (SP)+,R4
3027 014564 012603          MOV     (SP)+,R3
3028 014566 012601          MOV     (SP)+,R1
3029 014570 012600          MOV     (SP)+,R0
3030 014572 000002          RTI
3031 014574 000000          WPCNT: 0
3032 014576 000000          CHRCNT: 0
3033          SPACNT=CHRCNT+1
3034 014600 000000          BINWRD: 0
3035
3036          ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
3037          ;BUFFER TO THE CHARACTERS "N" AND "Y".
3038          ;IF THE CHARACTER IS "N" CLEAR THE FLAG
3039          ;IF THE CHARACTER IS "Y" SET THE FLAG
3040
3041 014602 017605 000000    .SETFLG:MOV  @ (SP),R5
3042 014606 122767 000116 002220  CMPB   @'N',INBUF      ;IS IT "N" ?
3043 014614 001002          BNE      18
3044 014616 105015          CLRB   (R5)      ;000
3045 014620 000406          BR      28
3046 014622 122767 000131 002204  18:     CMPE   @'Y',INBUF      ;IS IT "Y" ?
3047 014630 001005          BNE      38
3048 014632 112715 177777          MOVB   @-1,(R5)      ;377
3049 014636 002716 000002    28:     ADD     @2,(SP)
3050 014642 000002          RTI
3051 014644 104404          38:     INSTEP
3052 014646 000755          BR      .SETFLG
3053          ;TRAP DISPATCH SERVICE
3054          ;ARGUMENT OF TRAP IS EXTRACTED
3055          ;AND USED AS OFFSET TO OBTAIN POINTFR
3056          ;TO SELECTED SUBROUTINE
3057
3058 014650 011616          .TRPSP: MOV  (SP),-(SP)      ;GET PC OF RETURN
3059 014652 162716 000002          SUB     @2,(SP)      ;PC OF TRAP
3060 014656 017616 000000          MOV     @ (SP),(SP)  ;GET TRP
3061 014662 006316          TPPOK: ASL  (SP)      ;MULTIPLY TRAP ARG BY 2
3062 014664 042716 177001          RLC     @177001,(SP) ;CLEAR UNWANTED BITS
3063 014670 002716 001226          ADD    @,TRPTAB,(SP) ;POINTER TO SUBROUTINE ADDRESS
3064 014674 017616 000000          MOV     @ (SP),(SP) ;SUBROUTINE ADDRESS

```

3065	014700	000136			JMP	0(SP)+		;GO TO SUBROUTINE
3066								
3067								;ERROR HANDLER
3068								
3069	014702	104413			.HLTI	CKSWP		;CHECK FOR *G
3070	014704	032777	020000	164166		BIT	0SW13,0SWP	;INHIBIT ERROR TYPE OUT ?
3071	014712	001061				BNE	HALTS	
3072	014714	021667	164214			CMP	(SP),LSTERR	
3073	014720	001401				REQ	18	
3074	014722	011667	164206			MOV	(SP),LSTERR	
3075	014726	105067	164272			CLRB	ERPFLG	
3076	014732	104406			18:	SAV05		
3077	014734	011605				MOV	(SP),R5	
3078	014736	162705	000002			SUB	02,R5	
3079	014742	011504				MOV	(R5),P4	
3080	014744	006304				ASL	R4	
3081	014746	061504				ADD	(R5),R4	
3082	014750	006304				ASL	R4	
3083	014752	042704	177001			BIC	0177001,R4	
3084	014756	062704	017650			ADD	0,ERRTAB,R4	
3085	014762	012467	000040			MOV	(R4)+,ERRMSG	
3086	014766	012467	000046			MOV	(R4)+,DATAHD	
3087	014772	011467	000054			MOV	(R4),DATABP	
3088	014776	105767	164222			TSTR	ERPFLG	
3089	015002	001403				REQ	TYPMSG	
3090	015004	005767	000042			TST	DATABP	
3091	015010	001014				BNE	TYPDAT	
3092	015012	104410			TYPMSG:	CONVRT		
3093	015014	015144				ERTAB0		
3094	015016	112767	177777	164200		MOVR	0-1,ERPFLG	
3095	015024	104402				TYPE		
3096	015026	000000			ERRMSG:	0		
3097	015030	005767	000004			TST	DATAHD	
3098	015034	001402				REQ	TYPDAT	
3099	015036	104402				TYPE		
3100	015040	000000			DATAHD:	0		
3101	015042	005767	000004		TYPDAT:	TST	DATABP	
3102	015046	001402				REQ	RESPEC	
3103	015050	104410				CONVRT		
3104	015052	000000			DATABP:	0		
3105	015054	104407			PFSPEC:	RES05		
3106	015056	005777	164016		HALTS:	TST	0SWP	
3107	015062	100005				BPL	EXITER	
3108	015064	010046				PUSHR0		
3109	015066	016600	000002			MOV	2(SP),R0	
3110	015072	000000				HALT		
3111	015074	012600				POPR0		
3112	015076	104413			EXITER:	CKSWP		;CHECK FOR *G
3113	015100	005267	164026			INC	ERRCNT	
3114	015104	032777	000400	163766		BIT	0SW00,0SWP	;LOOP ON ERROR ?
3115	015112	001007				BNE	18	
3116	015114	032777	002000	163756		BIT	0SW10,0SWP	;ESCAPE TO NEXT ON ERROR ?
3117	015122	001407				REQ	28	
3118	015124	016767	163766	163762		MOV	NEXT,RTRN	;SET UP FOR NEXT TEST
3119	015132	012706	001100		18:	MOV	0STACK,SP	;REINITIALIZE SP
3120	015136	000177	163752			JMP	0RTPN	

```

3121 015142 000002          28: PTI
3122 015144 000001          EPTAB0: 1
3123 015146 006          002      .BYTE 6,2
3124 015150 001174          SAVPC
3125                                ;ENTER HERE ON POWER FAILURE
3126
3127
3128 015152 P10046          .PFAIL: MOV R0,-(SP)          ;SAVE R0-R5 ON PROCESSOR STACK
3129 015154 010140          MOV R1,-(SP)
3130 015156 010246          MOV R2,-(SP)
3131 015160 010346          MOV R3,-(SP)
3132 015162 010446          MOV R4,-(SP)
3133 015164 010546          MOV R5,-(SP)
3134 015166 016746 162632  MOV 24,-(SP)
3135 015172 010667 163774  MOV SP,SAVSP          ;SAVE STACK POINTER
3136 015176 P12767 015210 162620 MOV 0PESTART,24      ;SET UP FOR POWER UP TRAP
3137 P15204 000000          HALT          ;HALT ON POWER DOWN NORMAL
3138 015206 000777          18: RP 18
3139
3140                                ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
3141
3142 015210 016706 163756  RESTAP: MOV SAVSP,SP          ;RESTORE STACK POINTER
3143 015214 012605          MOV (SP)+,R5          ;RESTORE R0-R5
3144 015216 012604          MOV (SP)+,R4
3145 015220 012603          MOV (SP)+,R3
3146 015222 012602          MOV (SP)+,R2
3147 015224 012601          MOV (SP)+,R1
3148 015226 012600          MOV (SP)+,R0
3149 015230 012767 015152 162566  MOV 0,PFAIL,24          ;SET UP FOR POWER FAILURE
3150 015236 012767 000340 162532  MOV 0340,PS
3151 015244 012706 001100          MOV 0STACK,SP
3152 015250 005067 001620          CLR TEMP
3153 015254 005267 001614          18: INC TEMP
3154 015260 001375          BNE 18
3155 015262 104410          CONVRT
3156 015264 015306          PFTAB
3157 015266 104402          TYPE
3158 015270 P16161          MPFAIL
3159 015272 005067 163726  CLR EPPFLG
3160 015276 005067 163632  CLR LSTERR
3161 015302 000177 163606  JMP 0RTPN
3162 015306 000001          PFTAB: 1
3163 015310 006          002      .BYTE 6,2
3164 015312 001114          RTN
3165
3166
3167                                ;CHECK SWITCH REGISTER ROUTINE. CHECKS FOR *G TO ALLOW CHANGING
3168                                ;OF LOC.176.
3169                                ;LOCATIONS USED:
3170 015314 000000          RDSW: .WORD 0
3171
3172
3173 015316 005737 000042          .CKSWP: TST 0042
3174 015322 001042          BNE OUT
3175 015324 022767 000176 163546  CMP 0SWPEG,SWP          ;SOFTWARE SWITCH REGISTER PRESENT
3176 015332 001036          BNE OUT          ;NO, GET OUT

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3177	015334	105777	163544		TSTB	0TKCSR				
3178	015340	100033			RPL	OUT				;YES, WAIT FOR
3179	015342	017767	163540	176352	MOV	0TKDBR, .MSG				;READY, GET CHARACTER
3180	015350	042767	177600	176344	BIC	0177600, .MSG				;AND STRIP OFF
3181	015356	122767	000007	176336	CMPB	07, .MSG				;THE GARBAGE
3182	015364	001021			BNE	OUT				;IS IT A <'G>
3183	015366	104402	015444			TYPE, 8CNTG				
3184	015372	005137	015314		.CNTLU:	COM	00RDSW			
3185	015376	104402	015451			TYPE, 8MSWP				
3186	015402	104411	015436			CNVRT, SWREGC				
3187	015406	104403	015461			INSTR, 8MNEW				
3188	015412	104405				PARAM				
3189	015414	000000				0				
3190	015416	177777				177777				
3191	015420	000176				SWREG				
3192	015422	000	001		.BYTE	0,1				
3193	015424	104402	016156			TYPE, MCPLP				
3194	015430	005037	015314		OUT:	CLR	00RDSW			
3195	015434	000002				RTI				
3196	015436	000001			SWREGC:	1				
3197	015440	006	002		.BYTE	6,2				
3198	015442	000176				SWREG				
3199	015444	005015	043536	000	8CNTG:	.ASCIZ	<15><12>/^G/			
3200	015451	015	051412	051127	8MSWR:	.ASCIZ	<15><12>/SWRB /			
3201	015456	020075	000							
3202	015461	040	047040	053505	8MNEW:	.ASCIZ	/ NEW /			
3203	015466	020075	000							
3204		015472			.FVFN					
3205	015472	005015	042012	030525	MTITLE:	.ASCIZ	<15><12><12>/DU11 DZDUA-D TAPE A /<15><12>			
3206	015500	020061	055104	052504						
3207	015506	026501	020104	040524						
3208	015514	042520	040440	006440						
3209	015522	000012								
3210	015524	005015	042526	052103	MVECTO:	.ASCIZ	<15><12>/VECTOR ADDRESS-/			
3211	015532	051117	040440	042104						
3212	015540	042522	051523	000055						
3213	015546	005015	051461	020124	MREGAD:	.ASCIZ	<15><12>/1ST DEVICE: RECEIVER CONTROL REGISTER ADDRESS-/			
3214	015554	042504	044526	042503						
3215	015562	020072	042522	042503						
3216	015570	053111	051105	041440						
3217	015576	047117	051124	046117						
3218	015604	051040	043505	051511						
3219	015612	042524	020122	042101						
3220	015620	051104	051505	026523						
3221	015626	000								
3222	015627	015	040412	042522	MMULT:	.ASCIZ	<15><12>/ARE YOU RUNNING MULTIPLE DEVICES ? (Y OR N)-/			
3223	015634	054440	052517	051040						
3224	015642	047125	044516	043516						
3225	015650	046440	046125	044524						
3226	015656	046120	020105	042504						
3227	015664	044526	042503	020123						
3228	015672	020077	054450	047440						
3229	015700	020122	024516	000055						
3230	015706	005015	040514	052123	MLASTD:	.ASCIZ	<15><12>/LAST DEVICE: PECEIVER CONTROL REGISTER ADDRESS-/			
3231	015714	042040	053105	041511						
3232	015722	035105	042522	042503						

3233	015730	053111	051105	041440
3234	015736	047117	051124	046117
3235	015744	051040	043505	051511
3236	015752	042524	020122	042101
3237	015760	051104	051505	026523
3238	015766	000		
3239	015767	075	042504	044526
3240	015774	042503	020040	000
3241	016001	015	044012	053517
3242	016006	047040	053517	041040
3243	016014	047522	047127	041440
3244	016022	053517	020077	027056
3245	016030	051456	046105	041505
3246	016036	020124	047523	042515
3247	016044	044124	047111	020107
3248	016052	047524	051040	047125
3249	016060	040040	041501	051124
3250	016066	043505	000	
3251	016071	015	047412	052125
3252	016076	047440	020106	040522
3253	016104	043516	035105	042522
3254	016112	054524	042520	046040
3255	016120	051501	020124	042504
3256	016126	044526	042503	051040
3257	016134	041530	051123	040440
3258	016142	042104	042522	051523
3259	016150	000055		
3260	016152	020040	000077	
3261	016156	005015	000	
3262	016161	040	050040	053517
3263	016166	051105	043040	044501
3264	016174	052514	042522	020054
3265	016202	051120	043517	040522
3266	016210	020115	042522	052123
3267	016216	051101	020124	052101
3268	016224	052040	051505	020124
3269	016232	047111	050040	047522
3270	016240	051107	051505	000123
3271	016246	005015	047105	020104
3272	016254	043117	050040	051501
3273	016262	020123	040524	042520
3274	016270	040440	000	
3275	016273	015	051012	000
3276	016277	015	052012	051505
3277	016304	020124	041520	000055
3278	016312	005015	047514	045503
3279	016320	047440	020116	042523
3280	016326	042514	052103	047105
3281	016334	052040	051505	037524
3282	016342	024040	020131	051117
3283	016350	047040	026451	000
3284	016355	015	042012	020125
3285	016362	051120	047511	044522
3286	016370	054524	046040	053105
3287	016376	046105	000055	
3288	016402	005015	020043	043117

DEVICE: .ASCIZ /#DEVICE /

MCOW: .ASCIZ <15><12>/HOW NOW BROWN COW? ...SELECT SOMETHING TO RUN @ACTREG/

MPRANGE: .ASCIZ <15><12>/OUT OF RANGE:RETYPE LAST DEVICE PXCSR ADDRESS-/

MQM: .ASCIZ / ?/

MCRLF: .ASCIZ <15><12>

MPFAIL: .ASCIZ / POWER FAILURE, PROGRAM RESTART AT TEST IN PROGRESS/

MEPASS: .ASCIZ <15><12>/END OF PASS TAPE A/

MP: .ASCIZ <15><12>/R/

MTSTPC: .ASCIZ <15><12>/TEST PC-/

MLOCK: .ASCIZ <15><12>/LOCK ON SELECTED TEST? (Y OR N)-/

MLEVEL: .ASCIZ <15><12>/DU PRIORITY LEVEL-/

MSYNC: .ASCIZ <15><12>/# OF SYNC CHARS SELECTED (1 OR 2)-/

3289	016410	051440	047131	020103	
3290	016416	044103	051101	020123	
3291	016424	042523	042514	052103	
3292	016432	042105	024040	030440	
3293	016440	047440	020122	024462	
3294	016446	000055			
3295	016450	005015	051511	051440	MWIRE6: .ASCIZ <15><12>/IS SEC XMIT JUMPER 06 IN? (Y OR N)-/
3296	016456	041505	054040	044515	
3297	016464	020124	052512	050115	
3298	016472	051105	021440	020066	
3299	016500	047111	020077	054450	
3300	016506	047440	020122	024516	
3301	016514	000055			
3302	016516	005015	051511	051440	MWIRE5: .ASCIZ <15><12>/IS SEC RFC JUMPER 05 IN? (Y OR N)-/
3303	016524	041505	051040	041505	
3304	016532	045040	046525	042520	
3305	016540	020122	032443	044440	
3306	016546	037516	024040	020131	
3307	016554	051117	047040	026451	
3308	016562	000			
3309	016563	015	044012	020123	MWIRE4: .ASCIZ <15><12>/IS OPT CLR ENABLE JUMPER 04 IN? (Y OR N)-/
3310	016570	050117	020124	046103	
3311	016576	020122	047105	041101	
3312	016604	042514	045040	046525	
3313	016612	042520	020122	032043	
3314	016620	044440	037516	024040	
3315	016626	020131	051117	047040	
3316	016634	026451	000		
3317	016637	015	040412	042522	MEXTJ: .ASCII <15><12>/ARE YOU RUNNING IN MAINT MODE EXTERNAL?/
3318	016644	054440	052517	051040	
3319	016652	047125	044516	043516	
3320	016660	044440	020116	040515	
3321	016666	047111	020124	047515	
3322	016674	042504	042440	052130	
3323	016702	051105	040516	037514	
3324	016710	005015	040401	042116	.ASCII <15><12><1>/AND DO YOU HAVE THE EXTERNAL MODEM BYPASS/
3325	016716	027040	027056	027056	
3326	016724	042040	020117	047531	
3327	016732	020125	040510	042526	
3328	016740	052040	042510	042440	
3329	016746	052130	051105	040516	
3330	016754	020114	047515	042504	
3331	016762	020115	054502	040520	
3332	016770	051523			
3333	016772	005015	045001	046525	.ASCIZ <15><12><1>/JUMPER CONNECTION ON ?(Y OR N)-/
3334	017000	042520	020122	047503	
3335	017006	047116	041505	047524	
3336	017014	020122	047117	037440	
3337	017022	054450	047440	020122	
3338	017030	024516	000055		
3339					.EVEN
3340					
3341					;BUFFERS FOR INPUT-OUTPUT
3342					
3343	017034	000040			INBUF: .ALKB 40
3344	017074	000040			TEMP: .ALKB 40

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3345 017134 000040          MDATA: .BLKB 40
3346                      ;.....
3347                      ;UTILITIES
3348                      ;.....
3349
3350                      ;THIS UTILITY CALCULATES PRIORITY LEVEL
3351 017174 006367 000044  DULEV: ASL     DUPRT  ;SHIFT LEFT
3352 017200 006367 000040          ASL     DUPRT  ;
3353 017204 006367 000034          ASL     DUPRT  ;
3354 017210 006367 000030          ASL     DUPRT  ;
3355 017214 006367 000024          ASL     DUPRT  ;
3356 017220 016767 000020 000020  MOV     DUPRT,LESS1 ;MOVE THIS TO LESS1
3357 017226 162767 000001 000012  SUB     01,LESS1   ;CREATE LESS1
3358 017234 042767 000037 000004  BTC     037,LESS1  ;CLEAR TNZVC
3359 017242 000207          RTS     PC
3360 017244 000240
3361 017246 000200  DUMPRT: LEVEL5
LESS1: LEVEL4 ;LEVEL TO ALLOW INTERRUPTS
3362
3363                      ;NEW DU ADDRESSES
3364 017250 016767 000126 000422  D'ADDR: MOV     DUBASE,FXCSP  ;XXX0
3365 017256 005267 000120          INC     DUBASE
3366 017262 016767 000114 000412  MOV     DUBASE,HPXCSR  ;XXX1
3367 017270 005267 000106          INC     DUBASE
3368 017274 016767 000102 000402  MOV     DUBASE,RXDBUF  ;XXX2
3369 017302 016767 000074 000400  MOV     DUBASE,PARCSR  ;XXX2
3370 017310 005267 000066          INC     DUBASE
3371 017314 016767 000062 000364  MOV     DUBASE,HRXDRUF ;XXX3
3372 017322 016767 000054 000362  MOV     DUBASE,HPARCSR ;XXX3
3373 017330 005267 000046          INC     DUBASE
3374 017334 016767 000042 000352  MOV     DUBASE,TXCSR   ;XXX4
3375 017342 005267 000034          INC     DUBASE
3376 017346 016767 000030 000342  MOV     DUBASE,HTXCSR  ;XXX5
3377 017354 005267 000022          INC     DUBASE
3378 017360 016767 000016 000332  MOV     DUBASE,TXDBUF  ;XXX6
3379 017366 005267 000010          INC     DUBASE
3380 017372 016767 000004 000322  MOV     DUBASE,HTXDRUF ;XXX7
3381 017400 000207          RTS     PC
3382 017402 000000  DUBASE: 0
3383
3384                      ;THIS UTILITY POKES THE MAINT DATA BASED UPON THE
3385                      ;INFORMATION CONTAINED IN TEMP1 AND IT IS
3386                      ;SHIFTED IN BY THE CONTENTS OF SHIFT
3387 017404 042777 040000 000302  RPOKE: BIC     @MTDATA,@TXCSR
3388 017412 005067 161530          CLR     TEMP2
3389 017416 006067 161522          ROR     TEMP1 ;FORCE CARRY
3390 017422 006067 161520          POP     TEMP2 ;PICK UP CARRY IN BIT 15
3391 017426 006267 161514          ASH     TEMP2 ;SHIFT INTO BIT 14
3392 017432 042767 100000 161506  BIC     @BIT15,TEMP2 ;CLR BIT 15
3393 017440 056777 161502 000246  BIS     TEMP2,@TXCSR  ;POKE MAINT DATA
3394 017446 042777 020000 000240  BIC     @CLK,@TXCSR  ;POKE CLK
3395 017454 052777 020000 000232  BIS     @CLK,@TXCSR  ;
3396 017462 005367 161452          DEC     SHIFT
3397 017466 001346          BNE     RPOKE
3398 017470 000207          RTS     PC
3399
3400                      ;THIS ROUTINE CALCULATES ODD PARITY FOR AN 8 BIT CHAR

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3401 017472 016767 161446 161446 ODD0: MOV TEMP1,TEMP2 ;SAVE TEMP1
3402 017500 005067 161444 CLR TEMP3
3403 017504 012727 000010 MOV 00,,(PC)+
3404 017510 000000 18: 0
3405 017512 006067 161430 28: ROR TEMP2
3406 017516 005567 161426 ADC TEMP3
3407 017522 005367 177762 DEC 18
3408 017526 001371 BNE 28
3409 017530 006067 161414 ROP TEMP3
3410 017534 103404 BCS 38
3411 017536 052767 000400 161400 BIS 0BIT0,TEMP1 ;SET ODD PARITY
3412 017544 000403 BR 48
3413 017546 042767 000400 161370 38: HIC 0BIT0,TEMP1 ;CLR EVEN PARITY
3414 ;TEMP1 NOW HAS ODD PARITY CHARACTER
3415 017554 000207 48: RTS PC
3416
3417 ;THIS ROUTINE CALCULATES EVEN PARITY FOR AN 8 BIT CHARACTER
3418 017556 016767 161362 161362 EVEN0: MOV TEMP1,TEMP2 ;SAVE TEMP1
3419 017564 005067 161360 CLR TEMP3
3420 017570 012727 000010 MOV 00,,(PC)+
3421 017574 000000 18: 0
3422 017576 006067 161344 28: ROR TEMP2
3423 017602 005567 161342 ADC TEMP3
3424 017606 005367 177762 DEC 18
3425 017612 001371 BNE 28
3426 017614 006067 161330 ROP TEMP3
3427 017620 103404 BCC 38
3428 017622 052767 000400 161314 BIS 0BIT0,TEMP1 ;SET EVEN PARITY
3429 017630 000403 BR 48
3430 017632 042767 000400 161304 38: HIC 0BIT0,TEMP1 ;CLR ODD PARITY
3431 ;TEMP1 NOW HAS EVEN PARITY CHARACTER
3432 017640 000207 48: RTS PC
3433 017642 062716 000007 TRPPEG: ADD 02,(SP) ;ALLOW IT TO "CRUNCH" INTO HLT BACK
3434 ;IN MAIN PART OF THE PROGRAM
3435 017646 000002 PTI
3436 ;FRROP HLT TABLE
3437 017650 017734 ,FRPTAB: E40 ;HLT 0 BIT ERROR (GENERAL)
3438 017652 000000 0
3439 017654 000000 0
3440 017656 017750 E41 ;HLT 1 REGISTER ERROR
3441 017660 020121 DH1
3442 017662 020142 DT1
3443 017664 020012 E42 ;HLT 2 RECEIVER ERROR
3444 017666 020121 DH1
3445 017670 020142 DT1
3446 017672 020054 E43 ;HLT 3 TRANSMITTER ERROR
3447 017674 020121 DH1
3448 017676 020142 DT1
3449 ;DEFAULT DU ADDRESSES
3450 017700 160040 RXCSR: 160040
3451 017702 160041 HPXCSR: 160041
3452 017704 160042 PDXBUF: 160042
3453 017706 160043 HPXDBUF: 160043
3454 017710 160042 PARCSP: 160042
3455 017712 160043 HPAPCSP: 160043
3456 017714 160044 TXCSR: 160044

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3457	017716	160045			MTXCSR: 160045
3458	017720	160046			TXDBUF: 160046
3459	017722	160047			MTXDBUF: 160047
3460					;DEFAULT DU VECTORS
3461	017724	000770			DURIV: 770 ;REC INTR VECTOR
3462	017726	000772			DURIS: 772 ;REC INTR STATUS
3463	017730	000774			DUTIV: 774 ;XMIT INTR VECTOR
3464	017732	000776			DUTIS: 776 ;XMIT INTR STATUS
3465					;ERPOP MESSAGES
3466	017734	036440	042440	051122	EM0: .ASCIZ / = ERROR PC/
3467	017742	051117	050040	000103	
3468	017750	036440	051040	043505	EM1: .ASCIZ / = REGISTER ERPOP PC/<15><12><1>/REGISTER /
3469	017756	051511	042524	020122	
3470	017764	051105	047522	020122	
3471	017772	041520	045015	051001	
3472	020000	043505	051511	042524	
3473	020006	020122	000040		
3474	020012	036440	051040	041505	EM2: .ASCIZ / = RECEIVER ERROR PC/<15><12><1>/REGISTER /
3475	020020	044505	042526	020122	
3476	020026	051105	047522	020122	
3477	020034	041520	005015	051001	
3478	020042	043505	051511	042524	
3479	020050	020122	000040		
3480	020054	036440	052040	040522	EM3: .ASCIZ / = TRANSMITTER ERROR PC/<15><12><1>/REGISTER /
3481	020062	051516	044515	052124	
3482	020070	051105	042440	051122	
3483	020076	051117	050040	006503	
3484	020101	000012	042522	044507	
3485	020112	052123	051105	020040	
3486	020120	000			
3487					;DATA HEADERS FOR ERROR MESSAGES
3488	020121	105	050130	041505	DH1: .ASCIZ /EXPECTED ACTUAL/
3489	020126	042524	020104	040440	
3490	020134	052103	040525	000114	
3491					.FVFN
3492					;DATA TABLES FOR ERPOP MESSAGES
3493	020142	000003			DT1: 3
3494	020144	006	004		.BYTE 6,4
3495	020146	001164			SAVR3 ;REGISTER
3496	020150	006	004		.BYTE 6,4
3497	020152	001150			SAVR0 ;EXPECTED DATA
3498	020154	006	002		.BYTE 6,2
3499	020156	001160			SAVR1 ;ACTUAL DATA
3500		000001			.FND

AAA	002046	9890												
ACTREG	001216	8770	9370	9510	9520	9590	2742	2745	2755					
ADRCNT	014263	29470	29460	29550										
BASEAD	001204	8420	9190	9560	957	9630	9650	27490	27610	2765				
BASEIV	001212	8050	9290	27500	27620	2767	27680	2769	27700	2771	27720	2773	27740	
BBB	001664	936	9400											
BINWRD	014620	29960	2997	30340										
BITW	002000	7170	1607	1614	1627	1634	1644	1660	1667	1677				
BIT0	000001	6650	693	724	1594									
BIT1	000002	6640	692											
BIT10	002000	6550	693	717										
BIT11	004000	6540	692	1456	1457	1461	1462	1467	1469					
BIT12	010000	6530	681	698	1491	1482	1486	1487	1492	1494				
BIT13	020000	6520	680	697	716									
BIT14	040000	6510	679	696	715									
BIT15	100000	6500	678	695	714	3392								
BIT2	000004	6630	691	1032										
BIT3	000010	6620	690	723										
BIT4	000020	6610	689	722										
BIT5	000040	6600	688	721	1605									
BIT6	000100	6590	687	720										
BIT7	000200	6580	686	719										
BIT8	000400	6570	685	701	718	3411	3413	3428	3430					
BIT9	001000	6560	684	700										
BREAK	000001	7240	1339	1340	1344	1345	1350	1352	1625	1640	1650	1673	2123	2153
		2192	2273	2354	2435	2511	2569	2627	2685					
BPW	013614	1029	1043	20350										
BPX	013616	1030	1044	20360										
CARDET	010000	6810												
CCC	013350	2741	2764	27810										
CHPCNT	014576	29940	2998	30120	30320	3033								
CKSWR	104413	8490	2794	2816	2840	3069	3112							
CLK	020000	7160	1504	1505	1509	1510	1515	1517	2123	2153	2192	2199	2200	2202
		2203	2273	2280	2281	2283	2284	2354	2361	2362	2364	2365	2435	2442
		2443	2445	2446	2511	2517	2518	2520	2521	2569	2575	2576	2578	2579
		2627	2633	2634	2636	2637	2685	2691	2692	2694	2695	3394	3395	
CNTLU	104414	8510	896											
CNVRT	104411	8450	3186											
CONVRT	104410	8430	2738	3092	3103	3155								
COUNT	001142	7780	22040	22090	22050	22090	23660	23700	24470	24510				
CTS	020000	6800												
DATABP	015052	30870	3090	3101	31040									
DATAHD	015040	30860	3097	31000										
DEVADP	014260	29050	2943	29530										
DFVICE	015767	2739	32390											
DHI	020121	3441	3444	3447	34880									
DISPRE	000174	7450	889											
DLIGHT	177570	6350	880											
DNA	100000	7140	1736											
DNAINT	000040	7210	1408	1409	1413	1414	1419	1421						
DSC	100000	6780	1713											
DSINTE	000040	6880	1270	1271	1275	1276	1281	1283						
DSR	001000	6840												
DSWR	177570	6340	879											
DTR	000002	6920	1148	1149	1153	1154	1159	1165	1170	1083	1955	2045	2094	
DT1	020142	3442	3445	3448	34930									

DUADDP #017250	918	2766	33640											
DUBASE #017402	914	917	27650	3364	33650	3366	33670	3368	3369	33700	3371	3372	33730	
	3374	33750	3376	33770	3378	33790	3380	33820						
DULEV #017174	904	33510												
DUPRT #017244	901	33510	33520	33530	33540	33550	3356	33600						
DURIS #017726	27690	34620												
DUPIV #017724	925	928	929	27670	2774	34610								
DUTIS #017732	27730	34640												
DUIV #017730	27710	34630												
EIGHT #006000	7090	2176	2156	2438										
EM0 #017734	3437	34660												
EM1 #017750	3440	34680												
EM2 #020012	3443	34740												
EM3 #020054	3446	34800												
EPRCNT #001132	7710	8700	31130											
EPPFLG #001224	8170	8690	27830	28290	30750	3088	30940	31590						
EPPMSG #015026	30850	30960												
EPTAB0 #015144	3093	31220												
EVEN0 #017556	34180													
EVEPAR# #001400	7120													
EVPAR #020400	7010													
EXITER #015076	3107	31120												
FIVE #000000	7060	2195	2514	2572	2630	2680								
FRMERR# #020000	6970	1773												
HALTS #015056	3071	31060												
HDXEN #000010	7230	1362	1363	1367	1368	1373	1375							
HILIM #014256	29040	2934	29520											
HOLD #001136	7760	1631	1641	1664	1674	1800	1910	1936	1960	1976	1992	2017	2033	
	2050	2067	2083	2099										
HPARCS #017712	10990	33720	34550											
HPXCSP #017702	10690	15940	33660	34510										
HPXDBU #017706	10840	33710	34530											
HTXCSP #017716	11140	16050	33760	34570										
HTXDBU #017722	11290	33800	34590											
ICOUNT #001122	7470	2827	28310											
INBUF #017034	992	996	2868	2910	3042	3046	33430							
INIFLG #001222	8150	875	8780											
INSTR# #044004	8350	1000	2029	3051										
INSTR # #044003	8330	909	920	930	941	966	976	990	1003	1007	1011	1015	1034	
	1047	3187												
INSTR2 #014042	2079	20940												
ISYMOD# #000000	7050	2149	2156	2507	2514	2565	2572	2623	2630	2681	2688			
JMPRY #001203	7980	1018	1656	1872										
KEEPCAD #001206	8030	9170	919	963	965	2761								
KEEPIV #001214	8060	9280	2762											
LASTAD #001210	8040	946	957	971										
LFSS1 #017246	33560	33570	33580	33610										
LEVEL0# #000000	6750													
LEVEL1# #000040	6740													
LEVEL2# #000100	6730													
LEVEL3# #000140	6720													
LEVEL4# #000200	6710	3361												
LEVEL5# #000240	6700	3360												
LEVEL6# #000300	6690													
LEVEL7# #000340	6680	1065	1080	1095	1110	1125	1553							
LIGHTS #001102	7560	8000	8090	27850										

LIMITS	#14204	2920	2934#															
LOBITS	#14262	2906#	2938	2954#	2955													
LOCK	#01120	766#	2843															
LOGICA	#13402	27A9#																
LOKFLG	#01225	010#	1037	1038														
LOLIM	#14254	2903#	2936	2951#														
LPCNT	#01124	760#	866#	2826#	2827	2830#												
LSTERR	#01134	772#	871#	27A2#	3072	3074#	3160#											
MASK1	#07236	1943#																
MASK2	#07254	1949#																
MASK3	#07344	19A3#																
MCOV	#16001	2744	3241#															
MCRLF	#16156	2876	2892	2984	3193	3261#												
MDATA	#17134	3010	3021	3345#														
MEPASS	#16246	2737	3271#															
MEXT =	#10000	720#	1658	1673														
MEXTJ	#16637	1016	3317#															
MINT =	#04000	727#	1625	1640	2123	2153	2192	2273	2354	2435	2511	2569	2627	2605				
MLASTD	#15706	942	3230#															
MLEVEL	#16355	977	3284#															
MLOCK	#16312	1035	3278#															
MMULT	#15627	931	3222#															
MPFAIL	#16161	3158	3262#															
MQM	#16152	2889	3260#															
MP	#16273	1057	3275#															
MPANGE	#16071	967	3251#															
MPEGAD	#15546	910	3213#															
MPESET =	#00400	710#	1160	1103	1226	1259	1282	1305	1328	1351	1374	1397	1420	1443				
		1468	1493	1516	1539	1573	1574	1578	1579	1589	1604	1639	1672	1688				
		1700	1712	1724	1735	1747	1760	1772	1784	1796	1808	1836	1850	1867				
		2110	2120	2140	2150	2187	2189	2268	2270	2349	2351	2430	2432	2506				
		2508	2564	2566	2622	2624	2680	2682										
MSYNC	#16402	991	3288#															
MTDATA =	#40000	715#	1527	1529	1532	1533	1538	1540	1625	1630	1638	1650	1663	1671				
		2123	2153	2102	2273	2354	2435	2511	2569	2627	2685	3307						
MTITLE	#15472	877	3205#															
MTSTPC	#16277	1048	3276#															
MULTD	#01202	707#	933	934	1026	2740												
MVECTO	#15524	921	3210#															
MWIRE4	#16563	1012	3309#															
MWIPES	#16516	1008	3302#															
MWIRE6	#16450	1004	3295#															
NEXT	#01116	765#	1063#	1078#	1093#	1108#	1123#	1138#	1147#	1180#	1213#	1246#	1269#	1292#				
		1315#	1338#	1361#	1384#	1407#	1430#	1455#	1480#	1503#	1526#	1549#	1572#	1588#				
		1624#	1653#	1687#	1699#	1711#	1723#	1734#	1746#	1759#	1771#	1783#	1795#	1806#				
		1834#	1849#	1865#	2117#	2147#	2186#	2267#	2348#	2429#	2505#	2563#	2621#	2679#				
		2812	2832	3118														
NOPAP =	#00000	710#	2126	2156	2195	2276	2357	2438	2514	2572	2630	2688						
ODDPAP =	#01000	711#																
ODDR	#17472	3401#																
ONCE	#01362	876	879#															
OPTCLR	#01201	796#	1014	1163	1196	1229	1556	1590	1811									
OUT	#15430	3174	3176	3178	3182	3194#												
OUTCRY	#13362	2738	2777#															
OUTMUL	#002024	939	964	975#														
OUT1	#07706	1875	2009	2061	2110#													

OUT2	007432	1928	2012*											
OUT3	007562	1930	2062*											
OVRRUN	040000	696*	1785											
PARAM	104405	837*	911	922	943	968	978	1049	3188					
PAPAM1	014110	2909*	2930											
PARCSP	017710	1096*	2119*	2126*	2149*	2156*	2188*	2195*	2269*	2276*	2350*	2357*	2431*	2438*
		2507*	2514*	2565*	2572*	2623*	2630*	2681*	2688*	3369*	3454*			
PAREN	001000	700*												
PARER	010000	698*	1761											
PAPEPP	014164	2912	2914	2916	2925*	2935	2937	2939						
PARTI	014246	2928	2948*											
PASCNT	001130	770*	868*	2784*	2785									
PFTAB	015306	3156	3162*											
POPR0	012600	644*	3111											
POP1SP	005726	642*												
POP2SP	022626	646*												
PS	177776	636*	863*	1022*	1553*	2793*	3150*							
PUSHR0	010046	643*	3108											
PUSH1S	005746	641*												
PUSH2S	024646	645*												
PDSW	015314	2890	2927	3170*	3184*	3194*								
REACT	004000	682*	1701	2127	2132	2137	2157	2162	2167	2217	2228	2233	2298	2309
		2314	2379	2390	2395	2460	2471	2476						
REPLAY	013246	2757	2763	2765*										
RFSREG	015054	3102	3105*											
RFSTAP	015210	3136	3142*											
PESTRT	013412	2758	2787	2793*										
RES05	104407	841*	3105											
RING	040000	679*												
RINTFN	000100	687*	1293	1294	1298	1299	1304	1306						
ROTADD	001220	810*	938*	950*	952	954*	959	962*	2752*	2755	2759*			
RPOKE	017404	2207	2223	2288	2304	2369	2385	2450	2466	2526	2540	2544	2584	2598
		2602	2642	2656	2660	2700	2714	2718	3387*	3397				
RTRN	001114	764*	873*	1052	1056*	1058	2795*	2812*	2813	2832*	2833	3118*	3120	3161
		3164												
RTS	000004	691*	1181	1182	1186	1187	1192	1198	1203	1905	1971	2020	2078	
RUNA	000000	1	52	69	135	576								
RUNB	000000 II	20	57	69	138	581								
RUNC	000000 II	20	57	69	138	581								
RUND	000000 II	20	57	69	138	581								
RUNE	000000 U	20	57	72	138	581								
RUNF	000000 U	20	57	72	138	581								
RUNIT	013152	2743	2749*	2756										
RXCSP	017700	1066*	1148*	1149	1153*	1154	1159*	1165	1170	1181*	1182	1186*	1187	1192*
		1198	1203	1214*	1215	1219*	1220	1225*	1231	1236	1247*	1248	1252*	1253
		1258*	1260	1270*	1271	1275*	1276	1281*	1283	1293*	1294	1298*	1299	1304*
		1306	1316*	1317	1321*	1322	1327*	1329	1550*	1554	1592*	1593	1595	1599*
		1600	1689	1701	1713	1807*	1809	1810	1866*	1877	1878	1883*	1894	1899
		1905*	1916	1921	1931*	1942	1948	1955*	1966	1971*	1982	1987*	1998	2003
		2012*	2023	2028*	2039	2045*	2056	2062*	2073	2078*	2089	2094*	2105	2127
		2131*	2132	2136*	2137	2157	2161*	2162	2166*	2167	2197*	2213	2217	2224
		2228	2232*	2233	2237	2247	2278*	2294	2298	2305	2309	2313*	2314	2318
		2328	2359*	2375	2379	2386	2390	2394*	2395	2399	2409	2440*	2456	2460
		2467	2471	2475*	2476	2480	2490	2515*	2527	2573*	2585	2631*	2643	2689*
		2701	2779	3364*	3450*									
RXDBUF	017704	1081*	1748	1750	1761	1773	1785	1797	1851	1852	2196	2242	2277	2323

	2358	2404	2439	2485	2522	2531	2547	2580	2589	2605	2630	2647	2663
	2696	2705	2721	3368*	3452*								
RXDONE = 000200	686*	1689											
RXERR = 100000	695*	1797											
SAVPC = 001174	701*	2959*	3124										
SAV00 = 001156	704*	2968*	2973	3497									
SAVR1 = 001160	705*	2967*	2974	3499									
SAVP2 = 001162	706*	2966*	2975										
SAVP3 = 001164	707*	2965*	2976	3495									
SAVP4 = 001166	708*	2964*	2977										
SAVR5 = 001170	709*	2963*	2978										
SAVSP = 001172	790*	3135*	3142										
SAV05 = 104406	839*	3076											
SCOPE = 104400	827*	1074	1089	1104	1119	1134	1142	1175	1200	1241	1264	1287	1310
	1333	1356	1379	1402	1425	1448	1473	1498	1521	1544	1567	1584	1610
	1647	1680	1694	1706	1718	1729	1741	1754	1766	1778	1790	1802	1820
	1843	1857	2110	2141	2171	2252	2333	2414	2495	2553	2611	2669	2727
	829*												
SCOPI = 104401	722*	1385	1386	1390	1391	1396	1398						
SEND = 000020	795*	1010	1929										
SEREC = 001200	847*	937	1005	1009	1013	1017	1036						
SFTFLG = 104412	708*	2357											
SEVEN = 004000	794*	1006	1927										
SEXMIT = 001177	777*	2205*	2221*	2286*	2302*	2367*	2383*	2448*	2464*	2524*	2538*	2542*	2582*
SHIFT = 001140	2596*	2600*	2640*	2654*	2658*	2698*	2712*	2716*	3396*				
	707*	2276											
SIX = 002000	2995*	3014	3017*	3033*									
SPACNT = 014577	683*												
SPD = 002000	637*	864	1023	3119	3151								
STACK = 001100	690*	1214	1215	1219	1220	1225	1231	1236	1931	1987	2012	2062	
STD = 000010	816*	867*											
STFLG = 001223	685*	1316	1317	1321	1322	1327	1329						
STPSYN = 000400	2963*												
SV05 = 014272	755*	879*	884	888*	894	897	1032	1045	2017	2024	2041	3070	3106
SWR = 001100	3114	3116	3175										
	746*	888	894	3175	3191	3198							
SWREG = 000176	3186	3196*											
SWREGC = 015436	617*	897											
SW00 = 000001	616*	1045											
SW01 = 000002	615*												
SW02 = 000004	614*												
SW03 = 000010	613*												
SW04 = 000020	612*												
SW05 = 000040	611*												
SW06 = 000100	610*	3114											
SW08 = 000400	609*	2841											
SW09 = 001000	608*	3116											
SW10 = 002000	607*	2824											
SW11 = 004000	606*												
SW12 = 010000	605*	3070											
SW13 = 020000	604*	2817											
SW14 = 040000	603*												
SW15 = 100000	793*	994*	998*	2211	2292	2373	2454						
SYNCNO = 001176	704*	2119	2126										
SYNEXT = 020000	703*	2180	2195	2269	2276	2350	2357	2431	2438				
SYNINT = 030000	609*	1247	1248	1252	1253	1258	1260	2131	2136	2161	2166	2197	2232
SYNSCH = 000020													

CROSS REFERENCE TABLE -- USER SYMBOLS

		2270	2313	2359	2394	2440	2475	2515	2573	2631	2609			
SYSTST=	014000	7290												
TEMP	017074	2991	2999	30240	31520	31530	33440							
TEMP1	001144	7790	22000	22220	22870	23030	23600	23840	24490	24650	25250	25390	25430	25030
		25970	26010	26410	26550	26590	26090	27130	27170	33090	3401	34110	34130	3410
		34200	34300											
TEMP2	001146	7800	33000	33900	33910	33920	3393	34010	34050	34100	34220			
TEMP3	001150	7810	29910	3024	34020	34060	34090	34190	34230	34260				
TEMP4	001152	7820												
TEMP5	001154	7830												
TKCSR	001104	7570	2020	2070	3177									
TKDAR	001106	7500	2022	2072	2000	3179								
TLAST =	012642	1051	27300											
TFCSP	001110	7500	2053	2001										
TPDBR	001112	7600	20550	20000										
TPPOK	014662	30610												
TPPREG	017642	1064	1079	1094	1109	1124	34330							
TSTNO	001126	7690	0720	10620	10770	10920	11070	11220	11370	11460	11790	12120	12450	12600
		12910	13140	13370	13600	13830	14060	14290	14540	14790	15020	15250	15400	15710
		15070	16230	16520	16060	16980	17100	17220	17330	17450	17500	17700	17820	17940
		18050	18330	18480	18640	21160	21460	21050	22660	23470	24200	25040	25620	26200
		26780												
TST1	002350	1050	1056	10620	2795	2796								
TST10	003426	1213	12450											
TST11	003532	1246	12600											
TST12	003636	1269	12910											
TST13	003742	1292	13140											
TST14	004046	1315	13370											
TST15	004152	1330	13600											
TST16	004256	1361	13830											
TST17	004362	1384	14060											
TST18	004466	1407	14290											
TST19	004572	1430	14540											
TST2	002436	1063	10770											
TST20	004676	1455	14790											
TST21	005002	1400	15020											
TST22	005106	1503	15250											
TST23	005212	1526	15400											
TST24	005322	1549	15710											
TST25	005400	1572	15070											
TST26	005566	1500	16230											
TST27	005720	1624	16520											
TST28	006060	1653	16060											
TST29	006116	1697	16980											
TST3	002524	1070	10920											
TST30	006154	1699	17100											
TST31	006217	1711	17220											
TST32	006250	1723	17330											
TST33	006306	1734	17450											
TST34	006354	1746	17500											
TST35	006412	1759	17700											
TST36	006450	1771	17020											
TST37	006506	1703	17040											
TST38	006544	1795	10050											
TST39	006652	1806	18330											
TST4	002612	1093	11070											

TST40	006726	1034	10400											
TST41	006774	1049	10640											
TST42	007710	1065	21160											
TST43	010036	2117	21460											
TST44	010164	2147	21250											
TST45	010506	2106	22660											
TST46	011030	2267	23470											
TST47	011357	2348	24280											
TST48	011674	2429	25040											
TST49	012136	2505	25620											
TST5	002700	1100	11220											
TST50	012400	2563	26200											
TST51	012642	2621	26700	2730										
TST52	000000 U	2670												
TST6	002766	1123	11370											
TST7	003016	1130	11460											
TST8	003146	1147	11790											
TST9	003276	1100	12120											
TTST	013516	10290	10300	10400	10410	10430	10440	20100						
TXCSP	017714	11110	11600	11930	12260	12590	12020	13050	13280	13390	1340	13440	1345	13500
		13510	1352	13620	1363	13670	1368	13730	13740	1375	13050	1306	13900	1391
		13960	13970	1398	14080	1409	14130	1414	14190	14200	1421	14310	1432	14360
		1437	14420	14430	1444	14560	1457	14610	1462	14670	14680	1469	14810	1482
		14060	1407	14020	14030	1494	15040	1505	15090	1510	15150	15160	1517	15270
		1520	15320	1533	15380	15390	1540	15510	1555	15730	1574	15780	1579	15890
		16040	1606	16120	1613	16250	1627	16300	1634	16380	16390	16400	1644	16580
		1660	16630	1667	16710	16720	16730	1677	16880	17000	17120	17240	1725	17350
		1736	17470	17600	17720	17040	17960	18080	18350	18360	1837	1838	18500	18670
		21100	21200	21230	21400	21500	21530	21070	21090	21920	21990	22000	22020	22030
		22680	22700	22730	22000	22010	22030	22040	23490	23510	23540	23610	23620	23640
		23650	24300	24320	24350	24420	24430	24450	24460	25060	25080	25110	25170	25180
		25200	25210	25640	25660	25690	25750	25760	25780	25790	26220	26240	26270	26330
		26340	26360	26370	26000	26020	26050	26910	26920	26940	26950	33740	33070	33930
		31940	33050	34560										
TXDBUF	017720	11260	1139	33780	34580									
TXDONE	000200	7190	1725											
TXINTE	000100	7200	1431	1432	1436	1437	1442	1444						
TYPDAT	015042	3091	3090	31010										
TYPE	024402	00310	0077	1057	2736	2739	2744	2066	2076	2000	2092	2903	3020	3095
		3009	3157	3103	3105	3103								
TYPMSG	015012	3009	30020											
USER	000000	7260												
VOID	000001	6030												
WRDCNT	014574	29930	30220	30310										
ZEPO	013160	27500												
BCNTG	015444	3103	31090											
SE	000065	5070	1063	10640	1078	10790	1093	10940	1100	11090	1123	11240	1130	11390
		1147	11480	1100	11010	1213	12140	1246	12470	1269	12700	1292	12930	1315
		13160	1338	13390	1361	13620	1304	13050	1407	14080	1430	14310	1455	14560
		1400	14010	1503	15040	1526	15270	1549	15500	1572	15730	1500	15090	1624
		16250	1653	16540	1607	16080	1699	17000	1711	17120	1723	17240	1734	17350
		1746	17470	1759	17600	1771	17720	1703	17040	1795	17960	1806	18070	1834
		18350	1849	18500	1865	18660	2117	21180	2147	21480	2106	21070	2267	22680
		2340	23490	2429	24300	2505	25060	2563	25640	2621	26220	2679	26800	
SMNEW	015461	3107	32020											
SMSP	015451	3105	32000											

CROSS REFERENCE TABLE -- USEP SYMBOLS

BN	= 000063	5870	1062	10640	1077	10790	1092	10940	1107	11090	1122	11240	1137	11390
		1140	11400	1179	11810	1212	12140	1245	12470	1260	12700	1291	12930	1314
		13100	1337	13390	1360	13620	1383	13850	1406	14080	1429	14310	1454	14560
		1479	14810	1502	15040	1525	15270	1548	15500	1571	15730	1587	15890	1623
		16250	1652	16540	1686	16880	1698	17000	1710	17120	1722	17240	1733	17350
		1745	17470	1758	17600	1770	17720	1782	17840	1794	17960	1805	18070	1833
		18350	1848	18500	1864	18660	2116	21180	2146	21480	2185	21870	2266	22680
		2347	23490	2428	24300	2504	25060	2562	25640	2620	26220	2678	26800	27300
BY	= 000015	8190	827	8290	8310	8330	8350	8370	8390	8410	8430	8450	8470	8490
		8510	8530											
.	= 020160	7310	7340	7440	7510	1140	1561	1565	1597	1602	1610	1616	1620	1635
		1645	1661	1660	1678	1726	1752	1817	1824	1841	1855	1873	1881	1897
		1902	1919	1924	1946	1952	1969	1985	2001	2006	2026	2043	2059	2076
		2092	2108	22040	33430	33440	33450							
.BEGIN	002156	899	10220											
.CKSWR	015316	850	31730											
.CNTLI	015372	852	31840											
.CNVRT	014362	816	29850											
.CONVR	014356	844	29830											
.EOP	013104	2670	27360											
.ERRTA	017650	3084	34370											
.HLT	014702	737	30690											
.INSTE	014016	836	28860											
.INSTG	014022	2885	28880											
.INSTR	013700	834	28620											
.INST1	013720	28660	2877	2893										
.MSG	013722	28640	28670	31790	31800	3181								
.PARAM	014050	838	29000											
.PFAIL	015152	735	865	31280	3149									
.PES05	014324	842	29730											
.SAV05	014264	840	29590											
.SCOPE	013434	828	28000											
.SCOPI	013620	830	28400											
.SETFL	014602	848	30410	3052										
.START	001260	717	8630	873	2748									
.TPPSP	014650	739	30580											
.TRPTA	011226	8240	3063											
.TYPE	013640	832	28400											

CROSS REFERENCE TABLE -- MACRO NAMES

HLT	6470	1060	1071	1083	1096	1098	1101	1113	1116	1120	1131	1141	1151	1156	1167
	1172	1184	1189	1200	1205	1217	1222	1233	1238	1250	1255	1262	1273	1270	1285
	1296	1301	1308	1319	1324	1331	1342	1347	1354	1365	1370	1377	1388	1393	1400
	1411	1416	1423	1434	1439	1446	1459	1464	1471	1484	1489	1496	1507	1512	1519
	1530	1535	1542	1562	1566	1576	1581	1598	1603	1611	1617	1629	1636	1646	1662
	1669	1679	1691	1703	1715	1727	1738	1753	1763	1775	1787	1799	1810	1825	1842
	1856	1882	1898	1903	1920	1925	1947	1953	1970	1986	2002	2007	2027	2044	2060
	2077	2093	2109	2129	2134	2139	2159	2164	2169	2215	2219	2226	2230	2235	2239
	2245	2249	2296	2300	2307	2311	2316	2320	2326	2330	2377	2381	2388	2392	2397
	2401	2407	2411	2458	2462	2469	2473	2478	2482	2488	2492	2529	2534	2550	2587
	2592	2600	2645	2650	2666	2703	2708	2724							
PRGEND	5070	2729													
PPGFRT	5070	500													
PUSYF	5070														
RSETUP	5070	2110	2140	2187	2260	2349	2430	2506	2564	2622	2680				
TSETUP	5070														
\$BEGIN	5070	1019													
\$BINAP	5070														
\$BUFFE	5070	3360													
\$CABLE	5070	1004	1906	1932	1956	1972	1988	2013	2029	2046	2063	2079	2095		
\$CATCH	5070	730													
\$CLPVE	5070	879													
\$CONVP	5070	2900													
\$DNA	5070														
\$EOP	5070	2729													
\$GETFL	5070	930	1003	1007	1011	1015	1034								
\$GETPA	5070	909	920	940	966	975	1047								
\$GETSY	5070	905													
\$HEADF	5070	500													
\$HLT	5070	3066													
\$INSTR	5070	2059													
\$ISOB	5070														
\$MATCH	5070														
\$MRR	5070	1603	1695	1707	1730	1755	1767	1779	1791						
\$MRRW	5070	1143	1176	1209	1242	1265	1280	1311	1334	1357	1380	1403	1426	1451	1476
	1499	1522													
\$MRW	5070	1560													
\$MSG	5070	3205													
\$PARAM	5070	2097													
\$PFAIL	5070	3125													
\$SPOKE	5070														
\$SPOKER	5070	2201	2202	2363	2444	2519	2577	2635	2693						
\$PCNET	5070														
\$PECAC	5070	2172	2253	2334	2415										
\$REG	5070	2956													
\$PESET	5070	1160	1103	1226	1259	1282	1305	1320	1351	1374	1397	1420	1443	1460	1493
	1516	1539	1578	1589	1604	1639	1672	1698	1700	1712	1724	1735	1747	1760	1772
	1784	1796	1808	1836	1850	1867	2110	2120	2140	2150	2187	2189	2260	2270	2349
	2351	2430	2432	2506	2508	2564	2566	2622	2624	2680	2682				
\$RXACT	5070	2112	2142												
\$SCOPE	5070	2797													
\$SCOPI	5070	2037													
\$SETFL	5070	3035													
\$SETVE	5070	731													
\$START	5070	855													
\$STRIP	5070														

BSYMB0	5070	600													
BSYNCR	5070	2197	2270	2350	2440	2515	2573	2631	2689						
STRAPS	5070	919													
STRPAR	5070														
STRPDE	5070	827	829	831	833	835	837	839	841	843	845	847	849	851	
STRPSP	5070	3053													
STSTNO	5070	1062	1077	1092	1107	1122	1137	1146	1179	1212	1245	1260	1291	1314	1337
	1360	1383	1406	1429	1456	1479	1502	1525	1540	1571	1587	1623	1652	1686	1690
	1710	1722	1733	1745	1750	1770	1782	1794	1805	1833	1848	1864	2116	2146	2185
	2266	2347	2420	2504	2562	2620	2670								
STYPE	5070	2045													
SUNTB0	5070	1060	1075	1090	1105	1120									
SVARIA	5070	750													
SWORDF	5070														
SWORD0	5070	2496	2554	2612	2670										
SWORDF	5070														

. ABS. #20160 000

ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

DZDUAD,DZDUAD/CRF/CPU:20/SOL=HELLO,P11/EQ:RUNA,PAPA,P11,KEET,P11,DZDUAD,P11
 RUN-TIME: 74 36 3 SECONDS
 RUN-TIME RATIO: 81/64=1.2
 CORE USED: 18K (36 PAGES)