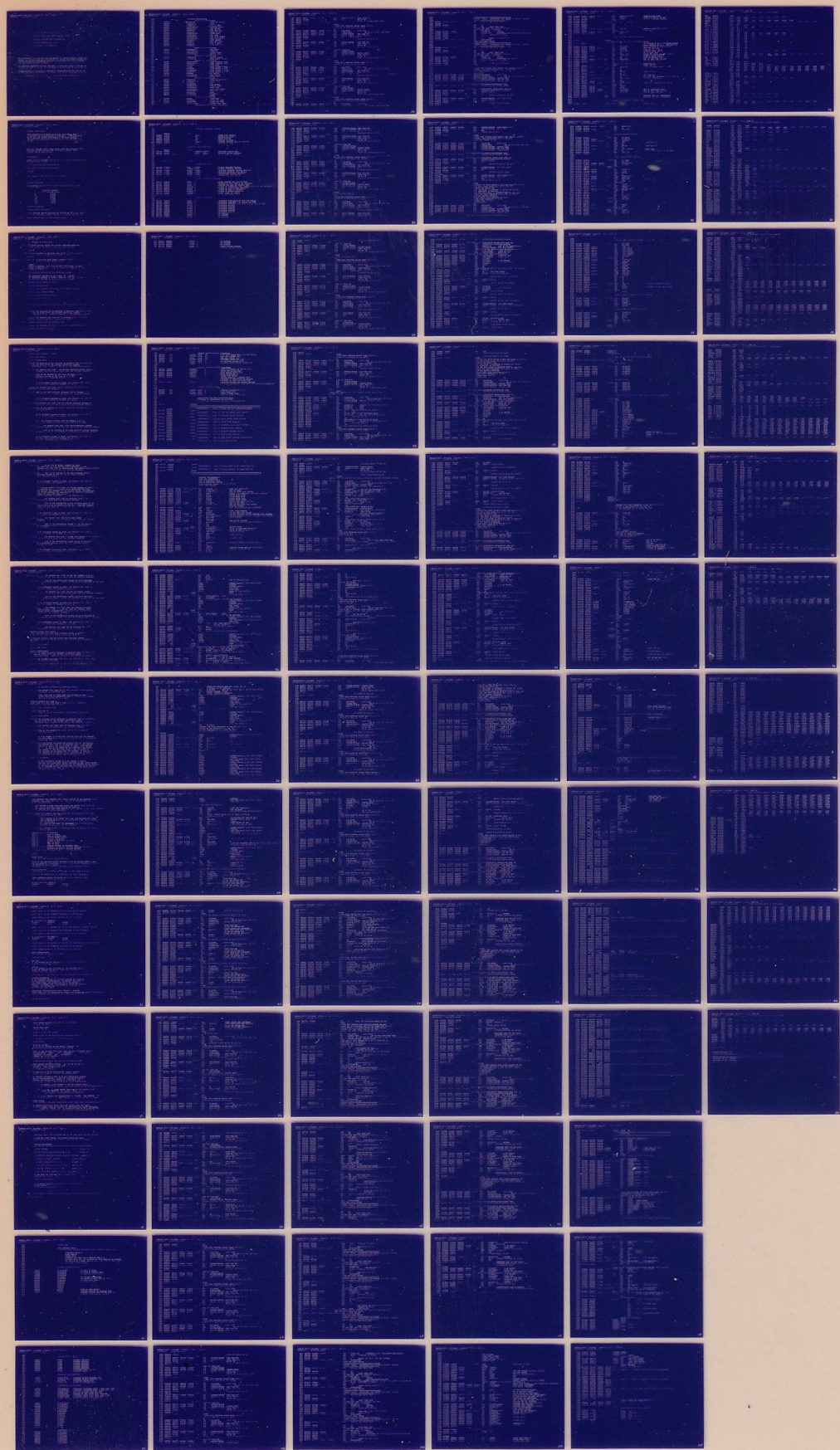


DU11

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: DUI1 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 DUII'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 DUII 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)

DUII SYNCHRONOUS/ASYNCHRONOUS 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

- 4.2 STARTING ADDRESS

THE STARTING ADDRESS FOR ALL TESTS IS 000200

THE RESTARTING 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 "D111 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:
S4R=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 #0200

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:
SWP=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 # ACTRFG; 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 RFC 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 "P" TO INDICATE THAT IT
HAS STARTED AND WILL COMMENCE TESTING AT TEST 1

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

IF MULTIPLE DEVICES WERE PREVIOUSLY SELECTED,LOAD 000200,
AND SELECT SW00=1 AND ANSWER "NO" TO THE MULTIPLE DEVICE QUESTION
SFE 4.3.3

4.3.4.1 LOAD 000200

4.3.4.2 SET SW01=1

4.3.4.3 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)

4.3.4.4 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 SW#2 =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 #00200

4.3.5.2 SFT SW#2 =1
NOTE: IT MAY BE ADVANTAGEOUS TO SET SW#1=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 SW#1 =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
SW09 =1	LOOP ON ERROR
SW02 =1	LOCK ON TEST
SW01 =1	RESTART PROGRAM AT SELECTED TEST
SW00 =1	SELECT 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 (RXDRUF) 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 I.E. 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 #00200 IN SWR AND DEPRESS START....
THE PROGRAM WILL CONTINUE WITH THE DEVICE IT WAS IN BEFORE HALTING.

7.2.2.2OFLOAD #00200 WITH SW00 #1 AND DEPRESS START....
ANSWER THE QUESTION 11ST 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 #00200

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- DUPIV: 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 SERFC: 377
IS OPT CLR ENABLE JUMPER # 4 IN ?- YES OPTCLP: 377
DO YOU HAVE THE EXTERNAL MODEM BYPASS JUMPER
CONNECTOR ON (M315)- YES JMRY: 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 010000 SW14=40000 ;=1,LOOP ON CURRENT TEST
605 020000 SW13=20000 ;=1,INHIBIT ERROR TYPEOUT
606 010000 SW12=10000
607 004000 SW11=4000 ;=1,INHIBIT ITERATIONS
608 002000 SW10=2000 ;=1,ESCAPE TO NEXT TEST ON ERROR
609 001000 SW09=1000 ;=1,LOOP WITH CURRENT DATA
610 000400 SW08=400 ;=1,LOOP ON ERROR
611 000100 SW06=100
612 000400 SW05=40
613 000200 SW04=20
614 000100 SW03=10
615 000000 SW02=0 ;LOCK ON TEST SELECT
616 000002 SW01=2 ;RESTART PROGRAM AT SELECTED TEST
617 000001 SW00=1 ;PESELECT VECTOR AND CONTROL REGISTER
618 ;ADDRESS AFTER PROGRAM RESTART
619
```

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620
621                ;REGISTER DEFINITIONS
622
623                RR=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 EQUIVALENCES
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                025746         PUSH1SP=5746    ;DECREMENT PROCESSOR STACK 1 WORD =TST -(SP)
642                025726         POP1SP=5726      ;INCREMENT PROCESSOR STACK 1 WORD =TST (SP)+
643                010446         PUSHR0=10446     ;SAVE R0 ON STACK =MOV R0,-(SP)
644                012602         POPR0=12602      ;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          10000000 DSC=BIT15          ;DATA SET CHANGE
679          04000000 RING=BIT14         ;RING
680          02000000 CTS=BIT13         ;CLP TO SEND
681          01000000 CARDET=BIT12      ;CARRIER DETECT
682          00400000 RECACT=BIT11     ;REC ACTIVE
683          00200000 SRD=BIT10        ;SEC REC DATA
684          00100000 DSP=BIT9         ;DATA SFT RDY
685          00040000 STPSYN=BIT8      ;STRIP SYNC
686          00020000 RXDONE=BIT7      ;REC DONE
687          00010000 RINTEN=BIT6     ;REC INTR ENABLE
688          00004000 DSINTE=BIT5     ;DSC INTR ENABLE
689          00002000 SYNSCH=BIT4     ;SYNC SEARCH
690          00001000 STD=BIT3        ;SEC XMIT DATA
691          00000400 PTS=BIT2        ;PFO TO SEND
692          00000200 DTR=BIT1        ;DATA TERM RDY
693          00000100 VOID=BIT0
694
695          ;RXDBIF BIT DEFINITIONS
696          10000000 RXERR=BIT15       ;REC ERROR
697          04000000 OVPRUN=BIT14     ;OVERPUN
698          02000000 FRMERR=BIT13     ;FRAME ERROR
699          01000000 PAPER=BIT12     ;PAPITY ERROR
700          ;PAPCSR BIT DEFINITIONS
701          00100000 PAREN=BIT9       ;PAPITY ENABLE
702          00040000 EVPAR=BIT8      ;EVEN PARITY SENSE
703          ;PAPCSR WRD DEFINITIONS
704          03000000 SYNINT=3000000   ;SYNC EXTERNAL MODE
705          02000000 SYNEXT=2000000   ;SYNC INTERNAL MODE
706          00000000 ISYMOD=0        ;ISOC MODE
707          00000000 FIVE=0          ;WORD LENGTH 5 BITS
708          00000000 SIX=2000000    ;WORD LENGTH 6 BITS
709          00000000 SEVEN=4000000   ;WORD LENGTH 7 BITS
710          00000000 EIGHT=6000000  ;WORD LENGTH 8 BITS
711          00000000 NOPAR=0        ;NO PARITY
712          00100000 ODDPAR=1000000  ;ODD PARITY
713          00010000 EVELPAR=1400000 ;EVEN PARITY
714          ;TXCSR BIT DEFINITIONS
715          10000000 DNA=BIT15        ;DATA NOT AVAILABLE
716          04000000 MTDATA=BIT14    ;MAINT DATA
717          02000000 CLK=BIT13       ;CLK
718          00200000 BITW=BIT10      ;BIT WINDOW
719          00040000 MRESET=BIT8     ;MASTER RESET
720          00020000 TXDONE=BIT7     ;XMIT DONT
721          00010000 TXINTE=BIT6    ;XMIT INTR ENABLE
722          00004000 DNAINTR=BIT5    ;DNA INTR ENAB
723          00002000 SEND=BIT4      ;SEND
724          00001000 HDXFN=BIT3     ;HDX/PDX
725          00000400 BPFAN=BIT2     ;BREAK
726          ;TXCSR WRD DEFINITIONS
727          03000000 USER=0          ;USER MODE
728          02000000 MINT=4000000   ;MAINT INT MODE
729          01000000 NEXTE=1000000  ;MAINT EXT MODE
730          00100000 SYSTST=1400000 ;SYSTEM TEST MODE
          ;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                       NFXT:    0                   ;ADDRESS OF NFXT 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                       LSTEP:   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                       TFMP1:   0                   ;TEMPORARY STORAGE
780 001146 000000                       TFMP2:   0                   ;TEMPORARY STORAGE
781 001150 000000                       TFMP3:   0                   ;TEMPORARY STORAGE
782 001152 000000                       TEMP4:   0                   ;TEMPORARY STORAGE
783 001154 000000                       TFMP5:   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
SAVR4: 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 CONVEPATIONAL 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      JMRAY:  .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  KFEPADD:         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)
810 001220 000000  ROTADD:          0        ;ROTATING POINTER FOR ACTREG,,POINTS
811                                     ;TO DEVICE PRESENTLY UNDER TEST WHEN RUNNING MULTIPLE DE
812
813                                     ;PROGRAM CONTROL FLAGS
814
815 001222      000      INIFLG: .BYTE 0        ;PROGRAM INITIALIZATION FLAG
816 001223      000      STFLG:  .BYTE 0        ;TEST START FLAG
817 001224      000      ERPFLG: .BYTE 0        ;ERROR OCCURED FLAG
818 001225      000      LOKFLG: .BYTE 0        ;LOCK ON CURRENT TEST FLAG
819
820                                     ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
821                                     ;POINTERS TO SUBROUTINES CAN BE FOUND
822                                     ;IN THE TABLE IMMEDIATLY FOLLOWING THE DEFINITIONS
823
824 001226      .TRPTAB:
825 ;.....
826 ;.....
827                                     SCOPE=TRAP+0      ;CALL TO SCOPE LOOP AND ITERATION HANDLER
828 001226 013434  .SCOPE
829                                     SCOPE1=TRAP+1      ;CALL TO LOOP ON CURRENT DATA HANDLER
830 001230 013620  .SCOPE1
831                                     TYPE=TRAP+2      ;CALL TO TELETYPE OUTPUT ROUTINE
832 001232 013640  .TYPE
833                                     INSTR=TRAP+3      ;CALL TO ASCII STRING INPUT ROUTINE
834 001234 013700  .INSTR
835                                     INSTEP=TRAP+4      ;CALL TO INPUT ERROR HANDLER
836 001236 014016  .INSTEP
837                                     PARAM=TRAP+5      ;CALL TO NUMERICAL DATA INPUT ROUTINE
838 001240 014050  .PARAM
839                                     SAV05=TRAP+6      ;CALL TO REGISTER SAVE ROUTINE
840 001242 014264  .SAV05
841                                     RES05=TRAP+7      ;CALL TO REGISTER RESTORE ROUTINE
842 001244 014324  .RES05
843                                     CONVRT=TRAP+10     ;CALL TO DATA OUTPUT ROUTINE
844 001246 014356  .CONVRT
845                                     CNVPT=TRAP+11     ;CALL TO DATA OUTPUT ROUTINE WITHOUT CR/LF
846 001250 014362  .CNVRT
847                                     SETFLG=TRAP+12     ;CALL TO FLAG SET ROUTINE

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048 R01252 014602 .SETFLG
049          104413          CKSWR=TPAP+13 ;CALL TO ALLOW SWREG TO BE LOADED FROM TTY
050 R01254 015316 .CKSWP
051          104414          CNTLU=TPAP+14 ;CALL TO ALLOW LOADING OF SWREG FROM TTY
052 R01256 015372 .CNTLU
053          ;.....
054          ;.....
055
056          ;PROGRAM INITIALIZATION
057          ;LOCK OUT INTERRUPTS
058          ;SET UP PROCESSOR STACK
059          ;SET UP POWER FAIL VECTOR
060          ;CLFAR PROGRAM CONTROL FLAGS AND COUNTS
061          ;TYPE TITLE MESSAGE
062
063 R01260 012767 R00340 176510 .START: MOV      0340,PS          ;LOCK OUT INTERRUPTS
064 R01266 012706 R01100          MOV      0STACK,SP        ;SET UP STACK
065 R01272 012737 015152 R00024          MOV      0.PFAIL,0#24    ;SET UP POWER FAIL VECTOR
066 R01300 005067 177629          CLP      LPCNT           ;CLFAR 0 OF ITERATION COMPLETED LOCATION
067 R01304 105067 177713          CLRR     STFLG           ;CLEAR START FLAG
068 R01310 005067 177614          CLR     PASCNT           ;CLEAR PASS COUNT
069 R01314 105067 177704          CLRR     ERRFLG          ;CLEAR ERROR FLAG
070 R01320 005067 177606          CLR     ERRCNT           ;CLEAR ERROR COUNT
071 R01324 005067 177604          CLR     LSTERR           ;CLEAR LAST ERROR POINTER
072 R01330 012767 R00001 177570          MOV      01,TSTNO        ;SET UP FOR TFST 1
073 R01336 012767 R01260 177550          MOV      0,START,RTPN    ;SET UP FOR POWER FAIL BEFORE
074          ;TESTING STARTS
075 R01344 125767 177652          TSTR     INIFLG           ;HAS INITIALIZATION BEEN PERFORMED
076 R01350 001004          BNE     ONCE
077 R01352 104402 015472          TYPE     ,MTITLE         ;TYPE TITLE MESSAGE
078 R01356 105167 177640          COMB     INIFLG           ;IF NOT SET FLAG AND DO
079 R01362 012767 177570 177510 ONCE: MOV      0DSWP,SWP        ;RELOAD HARDWARE SWITCH REGISTER INTO POINTER
080 R01370 012767 177570 177504          MOV      0DLIGHTS,LIGHTS ;RELOAD HARDWARE DISPLAY REGISTER INTO POINTER
081 R01376 013746 R00006          MOV      006,-(SP)        ;SAVE VECTORS
082 R01402 013746 000004          MOV      004,-(SP)
083 R01406 012737 001426 R00004          MOV      0648,004        ;SET UP FOR TIMEOUT
084 R01414 022777 177777 177456          CMP      0-1,0SWR        ;REFERENCE HARDWARE SWITCH REGISTER
085 R01422 001402          HEO     658
086 R01424 000407          RR      668
087 R01426 022626          648: CMP      (SP)+,(SP)+    ;ADJUST STACK
088 R01430 012767 R00176 177442 658: MOV      0SWPEG,SWR      ;POINT TO SOFTWARE SWITCH REG
089 R01436 012767 R00174 177436          MOV      0DISPPEG,LIGHTS ;POINT TO SOFT DISPLAY REG
090 R01444 012637 R00004          668: MOV      (SP)+,004      ;RESTORE VECTORS
091 R01450 012637 R00006          MOV      (SP)+,006
092 R01454 005737 R00042          TST     0042             ;UNDER MONITOR
093 R01460 001005          BNE     678
094 R01462 022767 R00176 177410          CMP     0SWREG,SWR      ;IS SWREG USED
095 R01470 001001          BNE     678
096 R01472 104414          CNTLU
097 R01474 032777 R00001 177376 678: BIT     0SW00,0SWR      ;PESELECT VECTOR & CONTROL REG?
098 R01502 001002          BNE     18
099 R01504 000167 R00446          JMP     ,BEGIN
900 R01510 012702 R00300          18: MOV     0300,R0        ;RESTORE VECTOR AREA TO TRAPCATCHER
901 R01514 012701 R00302          MOV     0302,R1        ;START AT LOCATION 300
902 R01520 012702 R00004          MOV     04,R2
903 R01524 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	01000,R1	;END AT LOCATION 776
908	001540	002771			BLT	20	
909	001542	104403			INSTR		;OUTPUT MESSAGE & GET INPUT STRING
910	001544	015540			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			.RYTE	1	;MASK
916	001557	001			.RYTE	1	;HOW MANY TIMES * 2
917	001560	016767	015616	177420	MOV	DUBASE,KEEPPAD	;SAVE
918	001566	004767	015456		JSH	PC,DUADDR	
919	001572	016767	177410	177404	MOV	KEEPPAD,BASFADD	;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	000100			300		;LOW LIMIT
924	001610	000776			776		;HIGH LIMIT
925	001612	017724			DURIV		;STORE AT THIS LOCATION
926	001614	001			.RYTE	1	;MASK
927	001615	004			.RYTE	4	;HOW MANY TIMES * 2
928	001616	016767	016102	177370	MOV	DURIV,KEEPIV	;SAVE
929	001624	016767	016074	177360	MOV	DUPIV,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	R00	;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				R00:		
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			.RYTE	1	;MASK
948	001701	001			.RYTE	1	;HOW MANY TIMES * 2
949							;THE FOLLOWING ROUTINE SETS UP ACTREG FOR THE FIRST TIME
950	001702	012767	000001	177310	10:	MOV	01,ROTADD ;SET UP POINTER
951	001710	005067	177302		CLR	ACTREG	;CLR ACTIVE REGISTER
952	001714	056767	177300	177274	20:	RIS	ROTADD,ACTREG ;MAKE THIS DEVICE ACTIVE
953	001722	000241			CLC		
954	001724	006167	177270		ROL	ROTADD	;SET UP POINTER
955	001730	103421			RCS	38	;ARE YOU OUT OF RANGE ?
956	001732	062767	000010	177244	ADD	010,BASEADD	;SET UP BASE ADDRESS
957	001740	026767	177244	177236	CMP	LASTADD,BASEADD	;IS THIS THE LAST DEVICE ?
958	001746	101362			RHI	28	;NO DO IT AGAIN
959	001750	056767	177244	177240	RIS	ROTADD,ACTREG	;THIS ASSUMES THAT THERE ARE AT


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960                                     ;LEAST TWO DEVICES WHEN YOU ANSWER YES TO
961                                     ;MULTIPLE DEVICE QUESTION
962 001756 012767 000001 177234 48:  MOV      #1,ROTADD      ;SET UP FOR LATER USE IN END OF PASS ROUTINE
963 001764 016767 177216 177212      MOV      KEEPADD,BASEADD ;DITTO
964 001772 000414                        BR       OUTMUL      ;CONTINUE QUESTIONS
965 001774 016767 177206 177202 38:  MOV      AFEPADD,BASEADD ;RESTORE
966 002002 104403                        INSTR                                ;OUTPUT MESSAGE & GET INPUT STRING
967 002004 016071                        MFRNGE                                ;MESSAGE
968 002006 104425                        PARAM                                ;CONVERT STRING
969 002010 102000                        160000                                ;LOW LIMIT
970 002012 107776                        167776                                ;HIGH LIMIT
971 002014 001210                        LASTADD                                ;STORE AT THIS LOCATION
972 002016 001                                .BYTE 1                                ;MASK
973 002017 001                                .BYTE 1                                ;HOW MANY TIMES + 2
974 002020 000167 177656      JMP      10      ;DO IT AGAIN
975 002024                                OUTMUL:
976 002024 104423                        INSTR                                ;OUTPUT MESSAGE & GET INPUT STRING
977 002026 016355                        MFRVEL                                ;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 0                                ;MASK
983 002041 001                                .BYTE 1                                ;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 104423                        INSTR                                ;OUTPUT MESSAGE & GET INPUT STRING
991 002050 016422                        MSYNC                                ;MESSAGE
992 002052 122767 000001 014754 38:  CMPR      #'1,INBIF      ;IS IT "1" ?
993 002060 001003                        BNE      10
994 002062 105267 177110                        CLRB      SYNCNO      ;NO
995 002066 000412                        HP      48
996 002070 122767 000002 014736 18:  CMPR      #'2,INBIF      ;IS IT "2" ?
997 002076 001004                        ANE      28
998 002100 112767 177777 177070      MOVR      #'1,SYNCNO      ;377
999 002106 000402                        RR      48
1000 002110 104404                        78:  INSTR                                ;RETRY
1001 002112 000757                        HK      38
1002 002114 000242                        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                        SFXMIT                                ;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                        SFREC                                ;THIS FLAG
1011 002136 104403                        INSTR                                ;OUTPUT MESSAGE & GET INPUT STRING
1012 002140 016563                        MWIRE4                                ;MESSAGE
1013 002142 104412                        SFTFLG                                ;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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1016 002150 016637          NEXTJ
1017 002152 104412          SETFLG
1018 002154 001203          JMRBY
1019
1020
1021          ;TEST START AND RFSTART
1022 002156 012767 000340 175612 .BEGIN: MOV      0340,PS          ;LOCK OUT INTERRUPTS
1023 002164 012706 001100          MOV      0STACK,SP     ;SET UP STACK
1024 002170 005737 000042          TST      0042          ;IS PROGRAM UNDER MONITOR CONTROL
1025 002174 001056          RNE      30
1026 002176 105767 177000          TSTB    MULTD          ;DON'T ALLOW LOCK ON TEST IF RUNNING
1027          ;MULTIPLE DEVICES
1028 002202 001407          BFO      50          ;IF NO,TEST FOR LOCK ON TEST
1029 002204 016767 011404 011304          MOV      BRW,TTST      ;RESTORE NORMAL SCOPE LOOP
1030 002212 016767 011400 011300          MOV      BRX,TTST+2    ;DITTO
1031 002220 000444          BR       30          ;JUMP AROUND IF YES
1032 002222 032777 000004 176650 58:  RIT      0RIT2,0SWP    ;CHECK FOR LOCK ON TEST
1033 002230 001416          BEQ      10
1034 002232 104403          INSTR          ;OUTPUT MESSAGE & GET INPUT STRING
1035 002234 016312          MLOCK          ;MESSAGE
1036 002236 104412          SFIFLG        ;SET FLAG BASED UPON INPUT STRING
1037 002240 001225          LOKFLG        ;THIS FLAG
1038 002242 105767 176757          TSTB    LOKFLG        ;IS LOCK ON TEST OPTION SELECTED
1039 002246 001407          BFO      10
1040 002250 012767 000240 011240          MOV      0NOP,TTST
1041 002256 012767 000240 011234          MOV      0NOP,TTST+2   ;SET UP TO LOCK
1042 002264 000400          RR        20
1043 002266 016767 011322 011222 16:  MOV      BRW,TTST
1044 002274 016767 011316 011216          MOV      BPX,TTST+2    ;LOCK NOT SELECTED, SET UP FOR NORMAL SCOPE LOOP
1045 002302 032777 000002 176570 20:  RIT      0SW01,0SWR    ;IF SW01=1, GET STARTING PC
1046 002310 001410          BEQ      30
1047 002312 104403          INSTR          ;OUTPUT MESSAGE & GET INPUT STRING
1048 002314 016277          MTSTPC        ;MESSAGE
1049 002316 104405          PANAM        ;CONVERT STRING
1050 002320 002350          TST1         ;LOW LIMIT
1051 002322 012642          TLAST        ;HIGH LIMIT
1052 002324 001114          RTPN         ;STORE AT THIS LOCATION
1053 002326 001          .BYTE 1          ;MASK
1054 002327 001          .BYTE 1          ;HOW MANY TIMES + 2
1055 002330 000403          BR       40
1056 002332 012767 002350 176554 30:  MOV      0TST1,RTRN    ;START AT TEST 1
1057 002340 104402 016273 40:  TYPE    ,MR           ;TYPE R
1058 002344 000177 176544          JMP      0RTRN        ;START TESTING
1059
1060          ;THIS TEST PROVES EXISTANCE OF DEVICE REGISTERS
1061          ;
1062 002350 012767 000001 176550 TST1:  MOV      01,ISTNO      ;SAVE THIS
1063 002356 012767 002436 176532          MOV      0TST2,NEXT    ;GO TO THIS TEST WHEN THRU
1064 002364 012737 017642 000004          MOV      0TRPREG,004   ;SETUP TRAPCATCHER
1065 002372 012737 000340 000006          MOV      0LEVEL7,006   ;
1066 002400 105277 015274          INCR     0PXCSP        ;TEST THIS REG
1067 002404 000401          RR       640          ;IF OK JMP AROUND HLT
1068 002406 104000          HLT          ;CHECK DEVICE REG ADDRESSES
1069 002410 105277 015266 640:  INCR     0HRXCSR ;TEST UPPER BYTE THIS REGISTER
1070 002414 000401          BR       650          ;IF OK JMP AROUND HLT
1071 002416 104000          HIT          ;CHECK DEVICE REG ADDRESSES
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1072 002420 012737 000006 000004 658: MOV 06,004 ;RESTORE TRAPCATCHER
1073 002426 012737 00000F 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 0PXDRUF ;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 0HRXDRUF ;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 00000F 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 00000F 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 00000F 000006 MOV 00,004 ;
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 002706 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 0TXDRUF ;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: INCR 0HTXDRAF ;TEST UPPER BYTE THIS REGISTER
1130 002744 000401 RR 658 ;IF OF 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 00000F 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 01471F CMP 0177777,0TXDBUF
1140 003010 001401 BEQ 0+4
1141 003012 104000 HLT ;READING TXDBUF SHOULD BE ALL 1'S
1142 003014 104400 SCOPE
1143 ;THIS TEST PERFORMS MASTER RESET TESTING 6
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,0PXCSP ;SET THIS BIT
1149 003040 032777 000002 014632 HIT 0DTR,0PXCSP ;TEST THIS BIT
1150 003046 001001 BNE 648 ;BR IF "1"
1151 003050 104000 HLT ;THIS BIT SHOULD BE SET
1152 003052 648:
1153 003052 042777 000002 014620 RIC 0DTR,0PXCSP ;CLR THIS BIT
1154 003060 032777 000002 014612 BIT 0DTR,0PXCSP ;TEST THIS BIT
1155 003066 001401 BFC 658 ;BR IF "0"
1156 003070 104000 HLT ;THIS BIT SHOULD BE CLR
1157 003072 658:
1158 ;NOW SET THIS BIT
1159 003072 052777 000002 014600 RIS 0DTR,0PXCSP
1160 003100 052777 000400 014606 RIS 0MWRSET,0TXCSR ;MASTER RESET
1161 ;CHECK EXISTANCE OF OPTIONAL CLEAR JUMPER
1162 ;
1163 003106 105767 176067 TSTP OPTCLR ;TEST FLAG
1164 003112 100006 MPL 18 ;OPTIONAL CLR JUMPER IS NOT IN
1165 003114 032777 000002 014556 BIT 0DTR,0PXCSP ;TEST THIS BIT
1166 003122 001401 BEQ 668 ;BR IF "0"
1167 003124 104000 HLT ;CHECK OUT MASTER RESET LOGIC
1168 003126 668:
1169 003126 000405 RR 28 ;JMP AROUND
1170 003130 032777 000002 014542 18: BIT 0DTR,0PXCSP ;TEST THIS BIT
1171 003136 001001 BNE 678 ;BR IF "1"
1172 003140 104000 HLT ;CHECK OUT OPTIONAL CLR JUMPER
1173 003142 678:
1174 003142 000240 28: NOP
1175 003144 104400 SCOPE
1176 ;THIS TEST PERFORMS MASTER RESET TESTING 6
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,0PXCSP ;SET THIS BIT
1182 003170 032777 000004 014502 HIT 0RTS,0PXCSP ;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 RESET
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 RESET LOGIC
1201 003256 668:
1202 003256 000405 BR 28 ;JMP AROUND
1203 003260 032777 000404 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 RIS 0STD,0RXCSR ;SET THIS BIT
1215 003320 032777 000010 014352 BIT 0STD,0RXCSR ;TEST THIS BIT
1216 003326 001001 BNF 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 SYNCSCH
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      RIC     0SYNSCH,0PXCSP ;CLR THIS BIT
1253 003470 032777 000020 014202      BIT     0SYNSCH,0PXCSP ;TEST THIS BIT
1254 003476 001001                                     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 000040 014176      MTS     0MPFSET,0TXCSP ;MASTER RESET
1260 003516 032777 000020 014154      BIT     0SYNSCH,0PXCSP ;TEST THIS BIT
1261 003524 001001                                     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                                     RNE     648           ;BR IF "1"
1273 003564 104000                                     HLT                                     ;THIS BIT SHOULD BE SET
1274 003566                                     648:
1275 003566 042777 000040 014104      RIC     0DSINTE,0PXCSP ;CLR THIS BIT
1276 003574 032777 000040 014076      BIT     0DSINTE,0PXCSP ;TEST THIS BIT
1277 003602 001001                                     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 000040 014072      MTS     0MPFSET,0TXCSP ;MASTER RESET
1283 003622 032777 000040 014050      BIT     0DSINTE,0PXCSP ;TEST THIS BIT
1284 003630 001001                                     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                                     RNE     648           ;BR IF "1"

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1296 003670 104000          HLT          ;THIS BIT SHOULD BE SFT
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 SFT THIS BIT
1304 003712 052777 000100 013760  BIS      0RINTEN,0RXCSP
1305 003720 052777 000400 013766  BIS      0RRESET,0TXCSR ;MASTER RESET
1306 003726 032777 000100 013744  BIT      0RINTEN,0RXCSP ;TEST THIS BIT
1307 003734 001401          BEQ      668          ;BR IF "0"
1308 003736 104000          HLT          ;CHECK OUT MASTER RESFT 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 001401          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  BIS      0STPSYN,0RXCSP
1328 004024 052777 000400 013662  BIS      0RRESET,0TXCSR ;MASTER RESFT
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 RESFT 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 000452 175034  MOV      0TST15,NEXT    ;GO TO THIS TEST WHEN THRU
1339 004062 052777 000001 013624  BIS      0RBREAK,0TXCSR ;SET THIS BIT
1340 004070 032777 000001 013616  BIT      0RBREAK,0TXCSR ;TEST THIS BIT
1341 004076 001401          BNE      648          ;BR IF "1"
1342 004100 104000          HLT          ;THIS BIT SHOULD BE SET
1343 004102          648:
1344 004102 042777 000001 013604  BIC      0RBREAK,0TXCSR ;CLR THIS BIT
1345 004110 032777 000001 013576  BIT      0RBREAK,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  BIS      0RBREAK,0TXCSR
1351 004130 052777 000400 013556  BIS      0RRESET,0TXCSR ;MASTER RESET

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1352 004136 032777 000001 013550 BIT 0BREAK,0TXCSR ;TEST THIS BIT
1353 004144 001401 BFO 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 BFO 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 RIS 0MPFSET,0TXCSR ;MASTER RESET
1375 004242 032777 000010 013444 BIT 0HDXEN,0TXCSR ;TEST THIS BIT
1376 004250 001401 BFO 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 004302 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 BFO 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 RIS 0SEND,0TXCSR
1397 004340 052777 000400 013346 BIS 0MPFSET,0TXCSR ;MASTER RESET
1398 004346 032777 000020 013340 BIT 0SEND,0TXCSR ;TEST THIS BIT
1399 004354 001401 BFO 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 004406 174520 MOV 0TST18,NEXT ;GO TO THIS TEST WHEN THRU

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1400 004376 052777 000000 013310  BIS      0DNAINTE,0TXCSR ;SET THIS BIT
1409 004404 032777 000000 013302  BIT      0DNAINTE,0TXCSR ;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 000000 013270  BIC      0DNAINTE,0TXCSR ;CLR THIS BIT
1414 004424 032777 000000 013267  BIT      0DNAINTE,0TXCSR ;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 000000 013250  BIS      0DNAINTE,0TXCSR
1420 004444 052777 000000 013247  BIS      0MPFSET,0TXCSR ;MASTER RESET
1421 004452 032777 000000 013234  BIT      0DNAINTE,0TXCSR ;TEST THIS BIT
1422 004460 001101  ;REQ    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,0TXCSR ;SET THIS BIT
1432 004510 032777 000100 013176  BIT      0TXINTE,0TXCSR ;TEST THIS BIT
1433 004516 001001  ;RFE    648           ;BR IF "1"
1434 004520 104000  HLT                               ;THIS BIT SHOULD BE SET
1435 004522  ;648:
1436 004522 042777 000100 013164  BIC      0TXINTE,0TXCSR ;CLR THIS BIT
1437 004530 032777 000100 013156  BIT      0TXINTE,0TXCSR ;TEST THIS BIT
1438 004536 001101  ;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,0TXCSR
1443 004550 052777 000000 013136  BIS      0MPFSET,0TXCSR ;MASTER RESET
1444 004556 032777 000100 013130  BIT      0TXINTE,0TXCSR ;TEST THIS BIT
1445 004564 001401  ;REQ    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  BIS      0BIT11,0TXCSR  ;SET THIS BIT
1457 004614 032777 004000 013072  BIT      0BIT11,0TXCSR  ;TEST THIS BIT
1458 004622 001101  ;BNE    648           ;BR IF "1"
1459 004624 104000  HLT                               ;THIS BIT SHOULD BE SET
1460 004626  ;648:
1461 004626 042777 004000 013060  BIC      0BIT11,0TXCSR  ;CLR THIS BIT
1462 004634 032777 004000 013052  BIT      0BIT11,0TXCSR  ;TEST THIS BIT
1463 004642 001401  ;RFO    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 0BIT11,0TXCSP
1468 004654 052777 000400 013032  BIS 0MRESET,0TXCSR ;MASTER RESET
1469 004662 032777 004000 013024  BIT 0BIT11,0TXCSR ;TEST THIS BIT
1470 004670 001001          BFO 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 020,TSTNO      ;SAVE THIS
1480 004704 012767 005002 174204  MOV 0TST21,NEXT   ;GO TO THIS TEST WHEN THRU
1481 004712 052777 010000 012774  BIS 0BIT12,0TXCSR ;SET THIS BIT
1482 004720 032777 010000 012766  BIT 0BIT12,0TXCSR ;TEST THIS BIT
1483 004726 001001          BNE 648            ;BR IF "1"
1484 004730 104000          HLT                ;THIS BIT SHOULD BE SFT
1485 004732                648:
1486 004732 042777 010000 012754  BIC 0BIT12,0TXCSP ;CLR THIS BIT
1487 004740 032777 010000 012746  BIT 0BIT12,0TXCSR ;TEST THIS BIT
1488 004746 001001          BFO 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 0BIT12,0TXCSR
1493 004760 052777 000400 012726  BIS 0MRESET,0TXCSR ;MASTER RESET
1494 004766 032777 010000 012720  BIT 0BIT12,0TXCSR ;TEST THIS BIT
1495 004774 001001          BFO 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 021,TSTNO      ;SAVE THIS
1503 005010 012767 005106 174100  MOV 0TST22,NEXT   ;GO TO THIS TEST WHEN THRU
1504 005016 052777 020000 012670  BIS 0CLK,0TXCSR   ;SET THIS BIT
1505 005024 032777 020000 012662  BIT 0CLK,0TXCSR   ;TEST THIS BIT
1506 005032 001001          BNE 648            ;BR IF "1"
1507 005034 104000          HLT                ;THIS BIT SHOULD BE SFT
1508 005036                648:
1509 005036 042777 020000 012650  BIC 0CLK,0TXCSR   ;CLR THIS BIT
1510 005044 032777 020000 012642  BIT 0CLK,0TXCSR   ;TEST THIS BIT
1511 005052 001001          BFO 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 0CLK,0TXCSR
1516 005064 052777 000400 012622  BIS 0MRESET,0TXCSP ;MASTER RESET
1517 005072 032777 020000 012614  BIT 0CLK,0TXCSR   ;TEST THIS BIT
1518 005100 001001          BFO 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 001001 BNE 658 ;BR IF "0"
1535 005160 104000 HLT ;THIS BIT SHOULD BE CLR
1536 005162
1537
1538 005162 052777 040000 012524 658: ;NOW SET THIS BIT
1539 005170 052777 000400 012516 BIS 0MRESET,0TXCSR ;MASTER RESET
1540 005176 032777 040000 012510 BIT 0MTDATA,0TXCSR ;TEST THIS BIT
1541 005204 001001 BNE 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 ;;PXCSR & TXCSR
1548
1549 005212 012767 000027 173706 TST23: MOV 023,ISTNO ;SAVE THIS
1550 005220 012767 005322 173670 MOV 0TST24,NEXT ;GO TO THIS TEST WHEN THRU
1551 005226 012777 177777 012444 MOV 0177777,0PXCSR ;SET ALL POSSIBLE BITS
1552 005242 000005 MOV 0177777,0TXCSR ;DITTO
1553 005244 012767 000300 172524 RESET
1554 005252 017701 012422 MOV 0LEVEL7,PS ;RESTORE NON INTERRUPT STATUS
1555 005256 017702 012432 MOV 0PXCSR,P1 ;SAVE
1556 005262 105767 173713 MOV 0TXCSR,P2 ;SAVE
1557 005266 100002 TSTR OPTCLR ;IS THE OPTIONAL CLR JUMPER ON ?
1558 005270 042701 000016 BMI 18 ;YES
1559 005274 042701 073000 18: BIC 0073000,R1 ;CLR THE NON RESETTABLE BITS
1560 005300 005701 TST R1 ;ARE THEY ALL 0 ?
1561 005302 001001 BNE 04 ;NO
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 001001 BNE 04 ;NO
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 001001 BNE 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  RIS          0MPRESET,0TXCSR ;MASTER RESET
1579 005364 032777 000400 012322  BIT          0MPRESET,0TXCSR ;TEST THIS BIT
1580 005372 001401          REQ          650          ;BR IF "0"
1581 005374 104000          HIT          ;THIS BIT SHOULD NOT BE SET
1582 005376                656:          ;
1583                                ;CHECK MASTER RESET LOGIC
1584 005376 104400          SCOPE
1585                                ;;THIS TEST VFRIFYS 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 TPST WHEN THRU
1589 005414 052777 000400 012272  RIS          0MPRESET,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 10:  RISR          0BITW,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          RFO          .+4
1598 005462 104000          HLT          ;ONLY STRIP SYNC SHOULD BE SET
1599 005464 105077 012210  CLR0          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          BEO          .+4
1603 005502 104000          HLT          ;ONLY STRIP SYNC SHOULD BE SET
1604 005504 052777 000400 012202  BIS          0MPRESET,0TXCSR ;MASTER RESET
1605 005512 152777 000040 012176  MISR          0BITS,0HTXCSR ;SET MAINT CLK UPPER BYTE
1606 005520 017701 012170  MOV          0TXCSR,R1          ;SAVE TXCSR
1607 005524 042701 002000  RIC          0BITW,R1          ;CLR BIT WINDOW (DEPENDENT
                                ;ON H315 CONNECTOR EXISTANCE)
1608                                ;
1609 005530 022701 020700  CMP          020200,R1          ;TEST TXCSR
1610 005534 001401          MEU          .+4
1611 005536 104000          HLT          ;ONLY MAINT CLK BIT & TXDONE SHOULD BE SET
1612 005540 105077 012150  CLR0          0TXCSR ;CLR LOWER BYTE
1613 005544 017701 012144  MOV          0TXCSR,R1          ;SAVE TXCSR
1614 005550 042701 002000  RIC          0BITW,R1          ;CLR BIT WINDOW (DITTO)
1615 005554 022701 020200  CMP          020200,R1          ;TEST TXCSR
1616 005560 001401          RFO          .+4
1617 005562 104000          HLT          ;ONLY MAINT CLK BIT & TXDONE SHOULD BE SET
1618                                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          0MINTIMTDATAIBREAK,0TXCSR ;SET MAINT INT.,BREAK,
1626                                ;&MTDATA
1627 005610 032777 002000 012076  BIT          0BITW,0TXCSR ;TEST BITW
1628 005616 001401          RNE          .+4
1629 005620 104000          HLT          ;BIT WINDOW SHOULD BE SET
1630 005622 042777 040000 012064  BIC          0MTDATA,0TXCSR
1631 005630 013702 001130  MOV          00HOLD,R2

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1632 005634 005302          18: DEC      R2
1633 005636 001376          RNE      18
1634 005640 032777 002000 012046 BIT      @BITW,@TXCSR
1635 005646 001401          REG      .+4
1636 005650 104000          HLT              ;BIT SHOULD BE CLR
1637                                ;NOW SET THE MTDATA
1638 005652 052777 040000 012034 BIS      @MTDATA,@TXCSR
1639 005660 052777 000400 012026 RIS      @MRESET,@TXCSR ;MASTER RESET
1640 005666 052777 004001 012020 RIS      @NEXT|BREAK,@TXCSR
1641 005674 013702 001136          MOV      @HOLD,R2
1642 005700 005302          28: DFC      R2
1643 005702 001376          RNE      28
1644 005704 032777 002000 012002 BIT      @BITW,@TXCSR
1645 005712 001401          REG      .+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 BIT BITW
1650                                ;MAINT EXTERNAL
1651                                ;;
1652 005720 012767 000033 173200 TST27: MOV      @27,TSTNO          ;SAVE THIS
1653 005726 012767 006060 173162 MOV      @TST20,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 TSTR     JMRBY
1657 005740 100046 BPL      18          ;IT IS NOT ON
1658 005742 012777 050001 011744 MOV      @NEXT|MTDATA|BREAK,@TXCSR ;SET MAINT EXT.,BREAK,
1659                                ;@MTDATA
1660 005750 032777 002000 011736 BIT      @BITW,@TXCSR ;TEST BITW
1661 005756 001001          RNE      .+4
1662 005760 104000          HLT              ;BIT WINDOW SHOULD BE SFT
1663 005762 042777 040000 011724 BIC      @MTDATA,@TXCSR
1664 005770 013702 001136          MOV      @HOLD,R2
1665 005774 005302          28: DEC      R2
1666 005776 001376          RNE      28
1667 006000 032777 002000 011706 RIT      @BITW,@TXCSR
1668 006006 001401          BEO      .+4
1669 006010 104000          HLT              ;BIT SHOULD BE CLR
1670                                ;NOW SET THE MTDATA
1671 006012 052777 040000 011674 BIS      @MTDATA,@TXCSR
1672 006020 052777 000400 011666 RIS      @MRESET,@TXCSR ;MASTER RESET
1673 006026 052777 010001 011660 RIS      @NEXT|BREAK,@TXCSR
1674 006034 013702 001136          MOV      @HOLD,R2
1675 006040 005302          38: DEC      R2
1676 006042 001376          RNE      38
1677 006044 032777 002000 011642 RIT      @BITW,@TXCSR
1678 006052 001401          REG      .+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      @28,TSTNO          ;SAVE THIS
1687 006066 012767 006116 173022 MOV      @TST29,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 REACT
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      0REACT,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 RESFT 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 011516    BIS      0MRESET,0TXCSR ;MASTER RESET
1713 006176 032777 100000 011474    BIT      0DSC,0RXCSR   ;TEST THIS BIT
1714 006204 001401                      RFO      648             ;BR IF "0"
1715 006206 104000                      HLT                               ;CHECK MASTER RESFT LOGIC
1716 006210                      648:
1717                                ;OR SHORT ON THIS BIT
1718 006210 104400    SCOPE
1719                                ;;THIS TEST PERFORMS MASTER RESFT 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    BIS      0MRESET,0TXCSR ;MASTER RESET
1725 006234 032777 000200 011452    BIT      0TXDONE,0TXCSR ;TEST THIS BIT
1726 006242 001001                      BNE      0+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 RESFT 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      ;POP ERROR MESSAGE
1749 006334 012700 000377      MOV      0377,R0        ;EXPECTED
1750 006340 017701 011340      MOV      0RXDBUF,R1      ;ACTUAL
1751 006344 120001      CMPR     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 OVPRUN
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      0OVPRUN,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          640:
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 011070
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 011007
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 011070
1052 006754 017701 010724
1053 006760 012700 000377
1054 006764 020001
1055 006766 001401

;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 0PXCSR,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 RESETTABLE 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,DTP BITS SHOULD BE SET
;NOTE THAT STD IS READ =1 INDEPENDENT OF
;SFC 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

```


1056	006770	104302				HLT	2		ONLY REC DATA BITS SHOULD BE SET
1057	006772	104400				SCOPE			
1058									THIS TEST VERIFYS BITS RING,CTS,CARDET,SRD,DSR
1059									ALSO DSC IS GENERATED WHEN ANY OF THESE BITS ARE SET
1060									OR CLEARED.....IT ALSO CHECKS THE MODEM BYPASS
1061									JUMPER AND THAT THESE BITS CAN BE READ
1062									NOTE: THE MODEM BYPASS JUMPER MUST BE ON (H315)
1063									
1064	006774	012767	000051	172124	TST411	MOV	041,TSTNO		SAVE THIS
1065	007002	012767	007710	172106		MOV	0TST42,NEXT		GO TO THIS TPST WHEN THRU
1066	007010	005077	010604			CLR	0RXCSR		TO GET RID OF STD ,RTS,DTR IF OPTCLR JUMPER 04 IS NOT ON
1067	007014	052777	000400	010672		BIS	0MRESET,0TXCSR		MASTER RESET
1068									TEST THAT A "YES" ANSWER WAS GIVEN TO QUESTION IN
1069									THE MONITOR OR BY DEFAULT
1070									THIS TEST WILL BE BYPASSED IF THE EXTERNAL BYPASS
1071									JUMPER IS NOT INSTALLED
1072	007022	105767		172155		TSTB	JMPRY		
1073	007026	100402				BMI	.+6		THE ANSWER WAS YES.....
1074									PERFORM THIS TEST
1075	007030	000167	000652			JMP	OUT1		JUMP AROUND THIS TEST IF THE ANSWER
1076									WAS NO
1077	007034	016703	010640			MOV	0RXCSR,H3		SET UP FOR ERROR MESSAGE
1078	007040	017701	010634			MOV	0RXCSR,R1		ACTUAL
1079	007044	005000				CLR	R0		EXPECTED
1080	007046	005701				TST	R1		IS IT = 0 ?
1081	007050	001401				BEQ	.+4		
1082	007052	104001				HLT	1		0RXCSR SHOULD BE CLR
1083	007054	052777	000002	010616		BIS	0DTR,0RXCSR		SET DTR
1084									WAIT FOR CABLE DELAYS
1085								
1086									MODIFY "HOLD:" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
1087								
1088	007062	016702		172050		MOV	HOLD,R2		SET DELAY TIME
1089	007066				648:				
1090	007066	005102				DFC	P2		
1091	007070	001376				BNE	648		WAIT THIS TIME
1092									OK NOW FALL THRU AND CONTINUE TESTING.....
1093									EXIT STAGE LEFT....CHINNG!
1094	007072	017701	010602			MOV	0RXCSR,R1		ACTUAL
1095	007076	012700	130002			MOV	0130002,R0		DSC,CTS,CARDET,DTR
1096	007102	020001				CMP	R0,R1		EXPECTED VS ACTUAL
1097	007104	001401				BEQ	.+4		
1098	007106	104001				HLT	1		CHECK BYPASS CONNECTOR
1099	007110	017701	010564			MOV	0RXCSR,R1		ACTUAL
1000	007114	012700	030002			MOV	030002,R0		CTS,CARDET,DTR
1001	007120	020001				CMP	R0,R1		EXPECTED VS ACTUAL
1002	007122	001401				BEQ	.+4		
1003	007124	104001				HLT	1		PREVIOUS READING OF RXCSR SHOULD
1004									HAVE CLEARED DSC
1005	007126	052777	000004	010544		BIS	0RTS,0RXCSR		
1006									WAIT FOR CABLE DELAYS
1007								
1008									MODIFY "HOLD:" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
1009								
1010	007134	016702		171776		MOV	HOLD,R2		SET DELAY TIME
1011	007140				658:				

1912	007140	005302	
1913	007142	001376	
1914			
1915			
1916	007144	017701	010530
1917	007150	012700	170006
1918	007154	020001	
1919	007156	001401	
1920	007160	104001	
1921	007162	017701	010512
1922	007166	012700	070006
1923	007172	020001	
1924	007174	001401	
1925	007176	104001	
1926			
1927	007200	105767	171773
1928	007204	100112	
1929	007206	105767	171766
1930	007212	100163	
1931	007214	052777	000010 010456
1932			
1933			
1934			
1935			
1936	007222	016702	171710
1937	007226		
1938	007226	005302	
1939	007230	001376	
1940			
1941			
1942	007232	017701	010442
1943	007236	012700	173016
1944			
1945	007242	020001	
1946	007244	001401	
1947	007246	104001	
1948	007250	017701	010424
1949	007254	012700	073016
1950			
1951	007260	020001	
1952	007262	001401	
1953	007264	104001	
1954			
1955	007266	042777	000002 010404
1956			
1957			
1958			
1959			
1960	007274	016702	171636
1961	007300		
1962	007300	005302	
1963	007302	001376	
1964			
1965			
1966	007304	017701	010370
1967	007310	012700	143014

```

DEC      R2
BNE      650      ;WAIT THIS TIME
;OK NOW FALL THRU AND CONTINUE TESTING.....
;EXIT STAGE LEFT....CHINNGI
MOV      @RXCSR,R1
MOV      @170006,R0      ;DSC,RING,CTS,CARDET,RTS,DTR
CMP      R0,R1      ;EXPECTED VS ACTUAL
BEQ      .+4
HLT      1      ;CHECK BYPASS CONNECTOR
MOV      @RXCSR,R1
MOV      @170006,R0      ;RING,CTS,CARDET,RTS,DTR
CMP      R0,R1      ;EXPECTED VS ACTUAL
BEQ      .+4
HLT      1      ;PREVIOUS READING OF RXCSR SHOULD
;HAVE CLEARD DSC
TSTB     SEXMIT    ;IS SEC XMIT JUMPER IN ?
BPL      OUT2     ;NO
TSTB     SEPEC    ;IS SEC HEC JUMPER IN ?
BPL      OUT3     ;NO
BIS      @STD,@RXCSR
;WAIT FOR CABLE DELAYS
;.....
;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
;.....
MOV      HOLD,R2 ;SET DELAY TIME

648:
DEC      R2
BNE      668      ;WAIT THIS TIME
;OK NOW FALL THRU AND CONTINUE TESTING.....
;EXIT STAGE LEFT....CHINNGI
MOV      @RXCSR,R1
MOV      @173016,R0      ;DSC,RING,CTS,CARDET,SRD,DSR
;STD,RTS,DTR
CMP      R0,R1      ;EXPECTED VS ACTUAL
BEQ      .+4
HLT      1      ;CHECK BYPASS CONNECTOR
MOV      @RXCSR,R1
MOV      @173016,R0      ;RING,CTS,CARDET,SRD,DSR,STD
;RTS,DTR
CMP      R0,R1      ;EXPECTED VS ACTUAL
BEQ      .+4
HLT      1      ;PREVIOUS READING OF RXCSR SHOULD
;HAVE CLEARD DSC
RIS      @DTR,@RXCSR
;WAIT FOR CABLE DELAYS
;.....
;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
;.....
MOV      HOLD,R2 ;SET DELAY TIME

648:
DEC      R2
BNE      648      ;WAIT THIS TIME
;OK NOW FALL THRU AND CONTINUE TESTING.....
;EXIT STAGE LEFT....CHINNGI
MOV      @RXCSR,R1
MOV      @143014,R0      ;DSC,RING,SRD,DSR,STD,RTS

```

1968	007314	020001		
1969	007316	001401		
1970	007320	104001		
1971	007322	042777	000004	010350
1972				
1973				
1974				
1975				
1976	007330	016702	171602	
1977	007334			
1978	007334	005302		
1979	007336	001376		
1980				
1981				
1982	007340	017701	010334	
1983	007344	012700	103010	
1984	007350	020001		
1985	007352	001401		
1986	007354	104001		
1987	007356	042777	000010	010314
1988				
1989				
1990				
1991				
1992	007364	016702	171546	
1993	007370			
1994	007374	005302		
1995	007372	001376		
1996				
1997				
1998	007374	017701	010300	
1999	007400	012700	100000	
2000	007404	020001		
2001	007406	001401		
2002	007410	104001		
2003	007412	017701	010262	
2004	007416	005000		
2005	007420	005701		
2006	007422	001401		
2007	007424	104001		
2008				
2009	007426	000167	000254	
2010				
2011				
2012	007432	052777	000010	010240
2013				
2014				
2015				
2016				
2017	007440	016702	171472	
2018	007444			
2019	007444	005302		
2020	007446	001376		
2021				
2022				
2023	007450	017701	010224	

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CMP      R0,R1      ;EXPECTED VS ACTUAL
REQ      .+4
HLT      1          ;DSC SHOULD BE SET
BIC      00TS,0RXCSR
;WAIT FOR CABLE DELAYS
;.....
;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
;.....
MOV      HOLD,R2 ;SET DELAY TIME

658:
DEC      R2
BNE      658      ;WAIT THIS TIME
;OK NOW FALL THRU AND CONTINUE TESTING.....
;EXIT STAGE LEFT,...CHINNG!
MOV      0RXCSR,R1
MASK3:  MOV      0103010,R0      ;DSC,SRD,DSR,STD
CMP      R0,R1      ;EXPECTED VS ACTUAL
REQ      .+4
HLT      1          ;DSC SHOULD BE SET
BIC      0STD,0RXCSR
;WAIT FOR CABLE DELAYS
;.....
;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
;.....
MOV      HOLD,R2 ;SET DELAY TIME

648:
DFC      R2
BNE      648      ;WAIT THIS TIME
;OK NOW FALL THRU AND CONTINUE TESTING.....
;EXIT STAGE LEFT,...CHINNG!
MOV      0RXCSR,R1
MOV      0100000,R0      ;DSC
CMP      R0,R1      ;EXPECTED VS ACTUAL
REQ      .+4
HLT      1          ;DSC SHOULD BE SET
MOV      0RXCSR,R1
CLL      R0          ;NONE
IST      R1
BFO      .+4
HLT      1          ;DSC SHOULD BE CLEARED FROM PREVIOUS
;READING OF RXCSR
JMP      OUT1      ;JUMP AROUND
;THE FOLLOWING ROUTINE HANDLES THE SITUATION WHERE SEC XMIT
;AND SEC REC JUMPERS ARE NOT ON
OUT2:   BIS      0STD,0RXCSR
;WAIT FOR CABLE DELAYS
;.....
;MODIFY "HOLD;" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
;.....
MOV      HOLD,R2 ;SET DELAY TIME

648:
DEC      R2
BNE      648      ;WAIT THIS TIME
;OK NOW FALL THRU AND CONTINUE TESTING.....
;EXIT STAGE LEFT,...CHINNG!
MOV      0RXCSR,R1      ;ACTUAL

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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			6581				
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...CHINNGI
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			BFO	,+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			6681				
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...CHINNGI
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	000174		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			6481				
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...CHINNGI
2073	007600	017701	010074		MOV	0RXCSR,R1		;ACTUAL
2074	007604	012700	171016		MOV	0171016,R0		;EXPECTED: DSC,RING,CTS,CARDET,DTR,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 R16702 171306 MOV HOLD,R2 ;SET DELAY TIME
2004 007630 658: BNE 658 ;WAIT THIS TIME
2005 007630 R05302 ;OK NOW FALL THRU AND CONTINUE TESTING.....
2006 007632 R01376 ;EXIT STAGE LEFT,...CHINNGI
2007
2008
2009 007634 017701 R10040 MOV 0RXCSR,R1 ;ACTUAL
2010 007640 012700 101012 MOV 0131012,R0 ;EXPECTED: DSC,CTS,CARDET,DSR,STD,DTR
2011 007644 020001 CMP R0,R1 ;EXPECTED VS ACTUAL
2012 007646 R01401 BFO .+4
2013 007650 104001 HLT 1 ;CHECK H315 CONNECTOR
2014 007652 042777 000002 010020 BIC 0DTP,0RXCSR
2015 ;WAIT FOR CABLE DELAYS
2016 ;*****
2017 ;MODIFY "HOLD:" ACCORDINGLY FOR FASTER OR SLOWER MACHINE
2018 ;*****
2019 007660 016702 171252 MOV HOLD,R2 ;SET DELAY TIME
2020 007664 668: BNE 668 ;WAIT THIS TIME
2021 007664 R05302 ;OK NOW FALL THRU AND CONTINUE TESTING.....
2022 007666 R01376 ;EXIT STAGE LEFT,...CHINNGI
2023
2024
2025 007670 017701 R10004 MOV 0RXCSR,R1 ;ACTUAL
2026 007674 012700 101010 MOV 0101010,R0 ;EXPECTED: DSC,DSR,STD
2027 007700 020001 CMP R0,R1 ;EXPECTED VS ACTUAL
2028 007702 001401 BFO .+4
2029 007704 104001 HLT 1 ;CHECK H315 CONNECTOR
2030 007706 104000 0111: SCOPE
2031
2032 ;THIS TEST VERIFYS THAT RECACT (REC ACTIVE) ASSERTS
2033 ;IMMED. WHEN SYNC EXTERNAL MODE IS SFLECTED
2034 ;AND SYNC SEARCH IS SET
2035 ;
2036 007710 012767 030052 171210 TST42: MOV 042,TSTNO ;SAVE THIS
2037 007716 012767 010036 171172 MOV 0TST43,NEXT ;GO TO THIS TEST WHEN THRU
2038 007724 052777 000400 007762 BIS 0MRESET,0TXCSR ;MASTER RESET
2039 007732 012777 020000 007750 MOV 0SYNEXT,0PARCSR ;SET THE MODE
2040 007740 052777 000400 007746 BIS 0MRESET,0TXCSR ;MASTER RESET
2041
2042 ;SET MAINT DATA,CLK,BREAK,&MAINTENANCEF MODE
2043 007746 012777 064001 007740 MOV 0MTDATA!CLK!MINT!BREAK,0TXCSR
2044
2045 ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2046 007754 012777 026026 007726 MOV 0SYNEXT!EIGHT!NOPAR!26,0PARCSR
2047 007762 032777 004000 007710 BIT 0RECACT,0RXCSR
2048 007770 001401 BFO 648
2049 007772 104000 HLT ;RECACT SHOULD NOT BE SET
2050 007774 648:
2051 007774 052777 000020 007676 BIS 0SYNSCH,0RXCSR ;SET SYNC SEARCH
2052 010002 032777 004000 007670 BIT 0RECACT,0RXCSR
2053 010010 001001 BNE 658
2054 010012 104000 HLT ;RECACT DID NOT ASSERT
2055 010014 658:

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2136 010014 042777 000020 007656      BIC      0SYNSCH,0RXCSR ;DROP SEARCH SYNC
2137 010022 032777 004000 007650      BIT      0REACT,0RXCSR ;IS IT =0?
2138 010030 001401                          BEQ      668
2139 010032 104000                          HLT      ;REACT SHOULD BE 0
2140 010034                          668:
2141 010034 104400                          SCOPE
2142                                     ;;THIS TEST VERIFYS THAT REACT (REC ACTIVE) ASSERTS
2143                                     ;;IMMED. WHEN ISOCRONOUS MODE IS SELECTED
2144                                     ;;AND SYNC SEARCH IS SET
2145                                     ;;
2146 010036 012767 000053 171062 TST43:  MOV      043,TSTNO      ;SAVE THIS
2147 010044 012767 010164 171044      MOV      0TST44,NEXT      ;GO TO THIS TEST WHEN THRU
2148 010052 052777 000400 007634      BIS      0MRESET,0TXCSR ;MASTER RESET
2149 010060 012777 000000 007622      MOV      0ISYMOD,0PARCSR ;SET THE MODE
2150 010066 052777 000400 007620      BIS      0MRESET,0TXCSR ;MASTER RESET
2151
2152                                     ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2153 010074 012777 064001 007612      MOV      0MTDATA,CLK,0MINT,0BPAK,0TXCSR
2154
2155                                     ;SET MODE ,# OF BITS,PAPITY SENSE,&LOAD SYNC REG
2156 010102 012777 000026 007600      MOV      0ISYMOD,EIGHT,0NOPAR,0PARCSR
2157 010110 032777 004000 007502      BIT      0REACT,0RXCSR
2158 010116 001401                          BEQ      648
2159 010120 104000                          HLT      ;REACT SHOULD NOT BE SET
2160 010122                          648:
2161 010122 052777 000020 007550      BIS      0SYNSCH,0RXCSR ;SET SYNC SEARCH
2162 010130 032777 004000 007542      BIT      0REACT,0RXCSR
2163 010136 001001                          PNF      658
2164 010140 104000                          HLT      ;REACT DID NOT ASSERT
2165 010142                          658:
2166 010142 042777 000020 007530      BIC      0SYNSCH,0RXCSR ;DROP SEARCH SYNC
2167 010150 032777 004000 007522      BIT      0REACT,0RXCSR ;IS IT =0?
2168 010156 001401                          BEQ      668
2169 010160 104000                          HLT      ;REACT 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 REACT 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      044,TSTNO      ;SAVE THIS
2186 010172 012767 010506 170716      MOV      0TST45,NEXT      ;GO TO THIS TEST WHEN THRU
2187 010200 052777 000400 007506      BIS      0MRESET,0TXCSR ;MASTER RESET
2188 010206 012777 030000 007474      MOV      0SYNINT,0PARCSR ;SET THE MODE
2189 010214 052777 000400 007472      BIS      0MPFSET,0TXCSR ;MASTER RESET
2190
2191                                     ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE

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2192 010222 012777 064001 007464      MOV      0MTDATA|CLK|MINI|BREAK,0TXCSR
2193
2194                                     ;SET MODE ,0 OF BITS,PARITY SENSE,&LOAD SYNC REG
2195 010230 012777 030026 007452      MOV      0SYNINT|FIVE|NOPAR|26,0PARCSR
2196 010236 016703 007442                MOV      RXDRUF,R3          ;SET UP FOR ERROR MESSAGE
2197 010242 052777 000020 007430      RIS      0SYNSCH,0RXCSR   ;SET SYNC SEARCH
2198                                     ;POKE CLK TO GET RECEIVER INTO SYNCROIZATION,...
2199 010250 042777 020000 007436      BIC      0CLK,0TXCSR      ;POKE CLK DOWN
2200 010256 052777 020000 007430      BIS      0CLK,0TXCSR      ;POKE CLK UP
2201                                     ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2202 010264 042777 020000 007427      BIC      0CLK,0TXCSR      ;POKE CLK DOWN
2203 010272 052777 020000 007414      RIS      0CLK,0TXCSR      ;POKE CLK UP
2204 010300 012767 000002 170634      MOV      02,COUNT
2205 010306 012767 000005 170624 10:    MOV      05,SHIFT          ;0 OF SHIFTS
2206 010314 012767 000026 170622      MOV      026,TEMP1        ;SYNC CHARACTER
2207 010322 004767 007056      JSR      PC,RPOKE
2208 010326 005367 170610      DFC      COUNT
2209 010332 001403                REQ      28
2210                                     ;TEST SYNCNO TO SEE HOW MANY SYNC CHARS WERE SELECTED
2211 010334 105767 170636      TSTR     SYNCNO
2212 010340 100762                BMI      18              ;TWO SYNC CHARS
2213 010342 105777 007332 28:    TSTR     0RXCSR          ;CHECK REC DON" BIT
2214 010346 100001                RPL      648
2215 010350 104000                HLT
2216 010352                648:
2217 010352 032777 004000 007320      BIT      0PECACT,0RXCSR
2218 010360 001001                BNE      658
2219 010362 104000                HLT          ;PECACT SHOULD BE ASSERTED
2220 010364                658:
2221 010364 012767 000005 170546      MOV      05,SHIFT
2222 010372 012767 000021 170544      MOV      021,TEMP1        ;ANY CHARACTER
2223 010400 004767 007000      JSR      PC,RPOKE
2224 010404 105777 007270      TSTR     0RXCSR          ;CHECK RXDONE
2225 010410 100401                BMI      668
2226 010412 104000                HLT          ;RXDONE SHOULD BE ASSERTED
2227 010414                668:
2228 010414 032777 004000 007256      BIT      0PECACT,0RXCSR
2229 010422 001001                BNE      678
2230 010424 104000                HLT          ;RECACT SHOULD STILL BE ASSERTED
2231 010426                678:
2232 010426 042777 000020 007244      BIC      0SYNSCH,0RXCSR   ;CLR SYNC SEARCH
2233 010434 032777 004000 007236      BIT      0PECACT,0RXCSR   ;IT SHOULD DROP IMMEDIATELY
2234 010442 001401                BEQ      688
2235 010444 104000                HLT          ;RECACT SHOULD BE CLR
2236 010446                688:
2237 010446 105777 007226      TSTR     0RXCSR          ;RXDONE
2238 010452 100401                BMI      698
2239 010454 104000                HLT          ;RXDONE SHOULD STILL BE ASSERTED
2240 010456                698:
2241 010456 012700 000021      MOV      021,R0          ;EXPECTED DATA
2242 010462 017701 007210      MOV      0RXDBUF,R1       ;ACTUAL DATA
2243 010466 020001                CMP      R0,R1           ;COMPARE EXP VS ACT
2244 010470 001401                BEQ      708
2245 010472 104000                HLT      2              ;DATA CHARS SHOULD COMPARE
2246 010474                708:
2247 010474 105777 007200      TSTR     0RXCSR          ;CHECK RXDONE

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2248 010500 140001          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 STAMP 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 SYNCSH
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      0MNTDATA!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 010703 007120      MOV      RXDBUF,R3      ;SET UP FOR ERROR MESSAGE
2278 010564 052777 000020 007106      BIS      0SYNCSH,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 SYNCRIZATION
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      MPL      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 R10722 R04767 R06456 JSR PC,PPOKE
2305 R10726 105777 R06746 TSTR BRXCSP ;CHECK RXDONE
2306 R10732 102401 BMI 668
2307 R10734 104000 HLT ;RXDONE SHOULD BE ASSERTED
2308 R10736 668:
2309 R10736 R32777 R04000 R06734 BIT RREACT,BRXCSP
2310 R10744 R01001 BNE 678
2311 R10746 104000 HLT ;REACT SHOULD STILL BE ASSERTED
2312 R10750 678:
2313 R10752 R32777 R00020 R06722 BIC RSYNSCH,BRXCSP ;CLR SYNC SEARCH
2314 R10756 R32777 R04000 R06714 BIT RREACT,BRXCSP ;IT SHOULD DROP IMMEDIATELY
2315 R10764 R01401 REQ 688
2316 R10766 104000 HLT ;REACT SHOULD BE CLR
2317 R10770 688:
2318 R10770 105777 R06704 TSTR BRXCSP ;RXDONE
2319 R10774 100401 BMI 698
2320 R10776 104000 HLT ;RXDONE SHOULD STILL BE ASSERTED
2321 R11000 698:
2322 R11000 R12700 R00021 MOV R21,R0 ;EXPECTED DATA
2323 R11004 R17701 R06674 MOV BRXDBUF,R1 ;ACTUAL DATA
2324 R11010 R20001 CMP R0,R1 ;COMPARE EXP VS ACT
2325 R11012 R01401 BEQ 708
2326 R11014 104002 HLT ? ;DATA CHARS SHOULD COMPARE
2327 R11016 708:
2328 R11016 105777 R06656 TSTR BRXCSP ;CHECK RXDONE
2329 R11022 100001 RPL 718
2330 R11024 104000 HLT ;RXDONE SHOULD BE CLR FROM
2331 R11026 718:
2332 ;PREVIOUS READING OF RXDBUF
2333 R11026 104400 SCOPE
2334 ;VERIFY THE MATCH DETECT & DATA RDY FLAGS BY PUMPING
2335 ;IN TWO * SYNC CHARS THRU MAINT DATA BIT
2336 ;WATCH THE RREACT 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 R11030 R12767 R00056 170070 TST46: MOV R46,TSTNO ;SAVE THIS
2348 R11036 R12767 R11352 170052 MOV R47,NEXT ;GO TO THIS IFST WHEN THRU
2349 R11044 R52777 R00400 R06642 BIS RRESET,RTXCSP ;MASTER RESET
2350 R11052 R12777 R30000 R06630 MOV RSYNINT,RPARCSR ;SET THE MODE
2351 R11060 R52777 R00400 R06626 BIS RRESET,RTXCSP ;MASTER RESET
2352
2353 ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2354 R11066 R12777 R64001 R06620 MOV RMTDATA|CLK|MINT|BREAK,RTXCSP
2355
2356 ;SET MODE , * OF BITS,PARITY SENSE,&LOAD SYNC REG
2357 R11074 R12777 R34026 R06606 MOV RSYNINT|SEVEN|NOPARI26,RPARCSR
2358 R11102 R16703 R06576 MOV RXDBUF,R3 ;SET UP FOR ERROR MESSAGE
2359 R11106 R52777 R00020 R06564 BIS RSYNSCH,BRXCSP ;SET SYNC SEARCH
  
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2360 ;POKE CLK TO GET RECEIVER INTO SYNCRIZATION....
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 CLK DOWN
2365 011136 052777 020000 006550 BIS 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 JSP PC,PPOKE
2370 011172 005367 167744 DFC COUNT
2371 011176 001403 BEO 28
2372 ;TEST SYNCNO TO SEE HOW MANY SYNC CHAPS WERE SELECTED
2373 011200 105767 167772 TSTR SYNCNO
2374 011204 105762 BMI 18 ;TWO SYNC CHAPS
2375 011206 105777 006466 28: TSTR 00XCSP ;CHECK PEC DONE BIT
2376 011212 105001 BPL 648
2377 011214 104000 HLT ;RXDONE SHOULD NOT BE ASSERTED
2378 011216 648:
2379 011216 032777 004000 006454 BIT 0REACT,00XCSP
2380 011224 001301 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 JSP PC,PPOKE
2386 011250 105777 006424 TSTR 00XCSP ;CHECK RXDONE
2387 011254 105001 BMI 668
2388 011256 104000 HLT ;RXDONE SHOULD BE ASSERTED
2389 011260 668:
2390 011260 032777 004000 006412 BIT 0REACT,00XCSP
2391 011266 001301 BNE 678
2392 011270 104000 HLT ;REACT SHOULD STILL BE ASSERTED
2393 011272 678:
2394 011272 042777 000020 006400 BIC 0SYNSCH,00XCSP ;CLR SYNC SEARCH
2395 011300 032777 004000 006372 BIT 0REACT,00XCSP ;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 00XCSP ;RXDONE
2400 011316 100401 BMI 698
2401 011320 104000 HLT ;RXDONE SHOULD STILL BE ASSERTED
2402 011322 698:
2403 011322 012700 000021 MOV 021,R0 ;EXPECTED DATA
2404 011326 017701 006352 MOV 00XDBUF,R1 ;ACTUAL DATA
2405 011332 020001 CMP R0,R1 ;COMPARE EXP VS ACT
2406 011334 001401 BFO 708
2407 011336 104002 HLT 2 ;DATA CHARS SHOULD COMPARE
2408 011340 708:
2409 011340 105777 006334 TSTR 00XCSP ;CHECK RXDONE
2410 011344 100301 BPL 718
2411 011346 104001 HLT ;RXDONE SHOULD BE CLR FROM
2412 011350 718:
2413 ;PREVIOUS READING OF 00XDBUF
2414 011350 104000 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                                     ;;MATCH THE RECACT BIT
2418                                     ;;ON THE THIRD * CHARACTER 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 SYNCSCH
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     0TST40,NEXT      ;GO TO THIS TFST WHEN THRU
2430 011366 052777 000400 006320 RIS     0MPESET,0TXCSR   ;MASTER RESET
2431 011374 012777 030000 006300 MOV     0SYNINT,0PARCSP ;SET THE MODE
2432 011402 052777 000400 006300 BIS     0MPESET,0TXCSR   ;MASTER RESET
2433
2434                                     ;SET MAINT DATA,CLK,BREAK,6MAINTENANCE MODE
2435 011410 012777 064001 006276 MOV     0MNTDATA!CLK!MINT!BREAK,0TXCSR
2436
2437                                     ;SET MODE , 8 OF BITS,PARITY SENSE,6LOAD SYNC REG
2438 011416 012777 036026 006264 MOV     0SYNINT!EIGHT!NOPAR!26,0PARCSP
2439 011424 016703 006254 MOV     RXDBUF,R3        ;SET UP FOR ERROR MESSAGE
2440 011430 052777 000020 006242 RIS     0SYNCSCH,0PXCSR  ;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      ;8 OF SHIFTS
2449 011502 012767 000020 167434 MOV     026,TFMP1       ;SYNC CHARACTER
2450 011510 004767 005670 JSR     PC,PPOKE
2451 011514 005367 167427 DFC     COUNT
2452 011520 001403 HFD     28
2453                                     ;TFST SYNCNO TO SEE HOW MANY SYNC CHARS WERE SELECTED
2454 011522 105767 167450 TSTR    SYNCNO
2455 011526 100762 RMI     18               ;TWO SYNC CHARS
2456 011530 165777 006144 28: TSTR    0RXCSR        ;CHECK REC DONE BIT
2457 011534 100001 BPL     648
2458 011536 104000 HLT
2459 011540 648:
2460 011540 032777 004000 006132 BIT     0RECACT,0RXCSR
2461 011546 001001 BNE     658
2462 011550 104000 HLT
2463 011552 658:
2464 011552 012767 000010 167360 MOV     00,,SHIFT
2465 011560 012767 000021 167356 MOV     021,TFMP1       ;ANY CHARACTER
2466 011566 004767 005612 JSR     PC,PPOKE
2467 011572 105777 006102 TSTR    0PXCSR        ;CHECK RXDONE
2468 011576 100001 RMI     668
2469 011600 104000 HLT
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      0REACT,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      RFO      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                                ;PREVIOUS READING OF RXDBUF
2495                                SCOPE
2496                                ;THIS TEST VERIFYS WORD LENGTH SELECT OF THE
2497                                ;RECEIVER SECTION,IT USES THE FRROP FLAGS
2498                                ;TO DETERMINE THAT IT WAS SELECTED CORRECTLY
2499                                ;(OVRRUN,RXERR)
2500                                ;MODF:ISYMOD
2501                                ;LENGTH:FIVE
2502                                ;CHAR:25
2503                                ;;
2504 011674 012767 000060 167224 TST40: MOV      040,TSTNO ;SAVE THIS
2505 011702 012767 012130 167206      MOV      0TST49,NEXT ;GO TO THIS TEST WHEN THRU
2506 011710 052777 000400 005776      BIS      0MRESET,0TXCSR ;MASTER RESET
2507 011716 012777 000000 005764      MOV      0ISYMOD,0PARCSR ;SET THE MODE
2508 011724 052777 000400 005762      HIS      0MRESET,0TXCSR ;MASTER RESET
2509
2510                                ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2511 011732 012777 064001 005754      MOV      0MTDATA|CLK|MINT|BREAK,0TXCSR
2512
2513                                ;SET MODE ,0 OF BITS,PARITY SENSE,&LOAD SYNC REG
2514 011740 012777 000000 005742      MOV      0ISYMOD|FIVE|NOPAR|0,0PARCSR
2515 011746 052777 000020 005724      RIS      0SYNSCH,0RXCSR ;SET SYNC SEARCH
2516                                ;POKE CLK TO GET RECEIVER INTO SYNCRIZATION....
2517 011754 042777 020000 005732      BIC      0CLK,0TXCSR ;POKE CLK DOWN
2518 011762 052777 020000 005724      BIS      0CLK,0TXCSR ;POKE CLK UP
2519                                ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2520 011770 042777 020000 005716      BIC      0CLK,0TXCSR ;POKE CLK DOWN
2521 011776 052777 020000 005710      HIS      0CLK,0TXCSR ;POKE CLK UP
2522 012004 016703 005674      MOV      RXDBUF,R3 ;SET UP FOR ERROR MESSAGE
2523 012010 012700 000025      MOV      025,R0 ;EXPECTED
2524 012014 012767 000007 167116      MOV      07,SHIFT ;0 OF SHIFTS
2525 012022 012767 000152 167114      MOV      0152,TEMP1 ;DATA CHAR
2526 012030 004707 005350      JSP      PC,RPOKE ;SHIFT IN THIS CHAR
2527 012034 105777 005640      TSTB    0RXCSR ;RXDONE ?

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2528 012040 100401      BMI      648
2529 012042 100000      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      BEQ      658
2534 012054 104002      HLT      2      ;RECEIVED DATA DID NOT MATCH
2535      ;EXPECTED DATA - CHECK MAINT DATA
2536      ;OR RECEIVER LOGIC
2537 012056      658:
2538 012056 012767 000007 167054      MOV      07,SHIFT      ;# OF SHIFTS
2539 012064 012767 000152 167052      MOV      0152,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      07,SHIFT      ;# OF SHIFTS
2543 012104 012767 000152 167032      MOV      0152,TEMP1    ;DATA CHAR
2544 012112 004767 005206      JSR      PC,RPOKE      ;SHIFT IN THIS CHAR
2545 012116 012700 100025      MOV      0140000125,R0 ;EXPECTED DATA PLUS
2546      ;RXERR & OVPRUN
2547 012122 017701 005556      MOV      @RXDBUF,R1    ;ACTUAL
2548 012126 020001      CMP      R0,R1      ;COMPARE EXP VS. ACT
2549 012130 001401      BEQ      668
2550 012132 104002      HLT      2      ;SPECIFICALLY LOOK AT RXERR &
2551      ;OVPRUN BITS...THEY BOTH SHOULD BE SET
2552 012134      668:
2553 012134 104002      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 000001 166762 TST49: MOV      049,ISTNO      ;SAVE THIS
2563 012144 012767 012400 166764      MOV      0TST50,NEXT    ;GO TO THIS TPST WHEN THRU
2564 012152 052777 000400 005534      BIS      0MRESET,@TXCSR ;MASTER RESET
2565 012160 012777 000000 005522      MOV      0ISYMOD,@PARCSR ;SET THE MODE
2566 012166 052777 000400 005520      BIS      0MPESET,@TXCSR ;MASTER RESET
2567
2568      ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2569 012174 012777 064001 005512      MOV      0MTDATA|CLK|MINT|BREAK,@TXCSR
2570
2571      ;SET MODE ,# OF BITS,PARITY SENSE,&LOAD SYNC REG
2572 012202 012777 000000 005500      MOV      0ISYMOD|FIVE|NOPAR|0,@PARCSR
2573 012210 052777 000020 005462      BIS      0SYNSCH,@RXCSR  ;SET SYNC SEARCH
2574      ;POKE CLK TO GET RECEIVER INTO SYNCRIZATION....
2575 012216 042777 020000 005470      BIC      0CLK,@TXCSR    ;POKE CLK DOWN
2576 012224 052777 020000 005462      BIS      0CLK,@TXCSR    ;POKE CLK UP
2577      ;POKE CLK TO GET LOGIC INTO SYNCRONIZATION
2578 012232 042777 020000 005454      BIC      0CLK,@TXCSR    ;POKE CLK DOWN
2579 012240 052777 020000 005446      BIS      0CLK,@TXCSR    ;POKE CLK UP
2580 012246 016703 005432      MOV      RXDR'F,R3      ;SET UP FOR ERROR MESSAGE
2581 012252 012700 000012      MOV      012,R0      ;EXPECTED
2582 012256 012767 000007 166654      MOV      07,SHIFT      ;# OF SHIFTS
2583 012264 012767 000124 166652      MOV      0124,TEMP1    ;DATA CHAR

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2584 012272 004767 005106 JSR PC,RPOKE ;SHIFT IN THIS CHAR
2585 012276 105777 005376 ISTB 0RXCSR ;RXDONE ?
2586 012302 100401 RMI 648
2587 012304 104000 HLT ;RXDONE SHOULD BE SET
2588 012306 648:
2589 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 140017 MOV 0140000112,R0 ;EXPECTED DATA PLUS
2604 ;RXERR & OVRUN
2605 01236 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 0MPRES,0TXCSR ;MASTER RESET
2623 012422 012777 000000 005260 MOV 0ISYMOD,0PARCSR ;SET THE MODE
2624 012430 052777 000400 005256 BIS 0MPRES,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|NOPARI0,0PARCSR
2631 012452 052777 000020 005220 BIS 0SYNSCH,0RXCSR ;SET SYNC SEARCH
2632 ;POKE CLK TO GET RECEIVER INTO SYNCHRONIZATION,...
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 SYNCHRONIZATION
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 R12520 012767 040P07 166412      MOV      07,SHIFT          ;# OF SHIFTS
2641 012526 012767 000176 166410      MOV      0176,TEMP1       ;DATA CHAR
2642 R12534 004767 004644              JSP      PC,RPOKE         ;SHIFT IN THIS CHAR
2643 012540 105777 005134              TSTR    0RXCSR ;RXDONE ?
2644 012544 100401              BHI     648
2645 012546 104000              HLT     ;RXDONE SHOULD BE SET
2646 012550
2647 012550 R17701 005130      648:    MOV      0RXDBUF,R1        ;ACTUAL
2648 012554 020001              CMP     R0,R1             ;COMPARE EXPECTED VS. ACTUAL
2649 012556 001401              BLO    658
2650 012560 104002              HLT     2                 ;RECEIVED DATA DID NOT MATCH
2651
2652
2653 012562
2654 012562 012767 000P07 166350      658:    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
2658 012602 012767 000P07 166330      ;NOW SHIFT IN A SECOND CHARACTER WITHOUT READING RXDBUF
2659 012610 012767 000176 166326      MOV      07,SHIFT          ;# OF SHIFTS
2660 012616 004767 004502              MOV      0176,TEMP1       ;DATA CHAR
2661 012622 012700 140037              JSP     PC,RPOKE         ;SHIFT IN THIS CHAR
2662
2663 012626 R17701 005052      MOV      0RXDBUF,R1        ;ACTUAL
2664 012632 020001              CMP     R0,R1             ;COMPARE EXP VS. ACT
2665 012634 001401              RFG    668
2666 012636 104002              HLT     2                 ;SPECIFICALLY LOOK AT RXERR &
2667
2668 012640
2669 012640 104400      668:
2670
2671
2672
2673
2674
2675
2676
2677
2678 012642 R12767 000P63 166256      TST51: MOV      051,TSTNO        ;SAVE THIS
2679 012650 R12767 013104 166240      MOV      0,EOP,NEXT        ;GO TO THIS TEST WHEN THRU
2680 012656 052777 000400 005030      BIS     0MRFSET,0TXCSR    ;MASTER RESFT
2681 012664 R12777 000000 005016      MOV      0ISYMOD,0PARCSP  ;SET THE MODE
2682 012672 052777 000400 005014      BIS     0MRFSET,0TXCSR    ;MASTER RESET
2683
2684
2685 012700 012777 004001 005006      ;SET MAINT DATA,CLK,BREAK,&MAINTENANCE MODE
2686
2687
2688 012706 012777 000000 004774      MOV      0ISYMOD,FIVE|NOPAR|0,0PARCSP
2689 012714 052777 000020 004756      BIS     0SYNSCH,0RXCSR    ;SET SYNC SEARCH
2690
2691 012722 042777 020000 004764      ;POKE CLK TO GET RECEIVER INTO SYNCRIZATION,...
2692 012730 052777 020000 004756      ;POKE CLK TO GET LOGIC INTO SYNCRIZATION
2693
2694 012736 042777 020000 004750      HIC     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 01270A 000000      MOV      R0,R0      ;EXPECTED
2698 012762 012767 000007 166150      MOV      R7,SHIFT      ;# OF SHIFTS
2699 012770 012767 000100 166146      MOV      R10R,TEMP1      ;DATA CHAP
2700 012776 004767 004402      JSR      PC,PPOKE      ;SHIFT IN THIS CHAR
2701 013002 105777 004672      TSTB    BRXC6R ;PXDONE ?
2702 013006 100401      BMI     648
2703 013010 104000      HLT     ;PXDONE SHOULD BE SET
2704 013012      648:
2705 013012 017701 004666      MOV      BRXDBUF,R1      ;ACTUAL
2706 013016 020001      CMP     R0,R1      ;COMPARE EXPECTED VS. ACTUAL
2707 013020 001001      BEQ    658
2708 013022 104002      HLT     2      ;RECEIVED DATA DID NOT MATCH
                ;EXPECTED DATA - CHECK MAINT DATA
                ;OR RECEIVER LOGIC
2709
2710
2711 013024      658:
2712 013024 012767 000007 166106      MOV      R7,SHIFT      ;# OF SHIFTS
2713 013032 012767 000100 166104      MOV      R10R,TEMP1      ;DATA CHAP
2714 013040 004767 004300      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      R10R,TEMP1      ;DATA CHAP
2718 013060 004767 004320      JSR      PC,PPOKE      ;SHIFT IN THIS CHAR
2719 013064 012700 140000      MOV      R14R00R10R,R0      ;EXPECTED DATA PLUS
                ;RXERR & OVRRUN
2720
2721 013070 017701 004610      MOV      BRXDBUF,R1      ;ACTUAL
2722 013074 020001      CMP     R0,R1      ;COMPARE EXP VS. ACT
2723 013076 001001      BEQ    668
2724 013100 104002      HLT     2      ;SPECIFICALLY LOOK AT RXERR &
                ;OVRRUN BITS...THEY BOTH SHOULD BE SET
2725
2726 013102      668:
2727 013102 104400      SCOPE
2728

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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 .FOPI: TYPE ;TYPE NAME OF TEST
2737 013106 016246 NEPASS
2738 013110 104410 013347 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 ,MCON ;NO
2745 013140 016700 166052 MOV ACTREG,R0 ;DISPLAY ACTRFG
2746 013144 000000 HALT ;SELECT SOMETHING TO RUN @ ACTREG:
2747 ;SELECT SWITCHES & HIT CONTINUE (PUT SW00 01)
2748 013146 000167 166106 JMP .START ;START OVER AGAIN,.....YOU Deselected EVERYTHING
2749 013152 062767 000010 166024 PUNIT: ADD 010,BASEADD ;NEXT BLOCK (ADDRESSES)
2750 013160 062767 000010 166024 ZERO: ADD 010,BASEIV ;NEXT BLOCK (VECTORS)
2751 013166 000241 CLC
2752 013170 000167 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,ACTRFG ;TO BE TESTED IN THIS PASS ?
2756 013204 001762 BEQ RUNIT ;TEST THIS DEVICE FOR ACTIVE STATUS
2757 013206 004767 000034 JSP PC,REPLAY ;IF NOT ACTIVE, TRY NEXT ADDRESS
2758 013212 000167 0000174 JMP RESTRT ;CALCULATE NEW PARAMETERS
2759 013216 012767 000001 165774 28: MOV 01,ROTADD ;YES IT WAS ACTIVE,TEST THIS DEVICE
2760 ;OKI,NOW SET UP ROTATING
2761 013224 016767 165756 165752 MOV KFEPADD,BASEADD ;POINTER FOR NEXT MULTIPLE PASS
2762 013232 016767 165756 165752 MOV KEEPIV,BASEIV ;RESTORE BASE ADDRESS
2763 013240 004767 000002 JSP 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 02,BASEIV ;CREATE DURIV
2769 013274 016767 165712 004424 MOV BASEIV,DURIS ;CREATE DIIRIS
2770 013302 062767 000002 165702 ADD 02,BASEIV
2771 013310 016767 165676 004412 MOV BASEIV,DUTIV ;CREATE DUTIV
2772 013316 062767 000002 165666 ADD 02,BASEIV
2773 013324 016767 165662 004400 MOV BASEIV,DUTIS ;CRFATE DUTIS
2774 013332 016767 004366 165652 MOV DURIV,BASEIV ;RESTORE
2775 013340 000207 RTS PC
2776
2777 013342 000001 OUTCRY: 1
2778 013344 000 002 .RYTE 6,2
2779 013346 017700 FXCSR
2780
2781 013350 CCC:
2782 013350 005067 165560 CLP LSTFRP ;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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2705 013364 016777 165540 165510      MOV      PASCNT,ALIGHTS      ;DISPLAY PASS COUNT
2706 013372 013701 000042              MOV      0042,P1            ;CHECK FOR ACT-11 OR DDP
2707 013376 001405                      BFO      PESTRT             ;IF NOT, CONTINUE TESTING
2708 013400 000005                      RFSET
2709 013402 004711              LOGICAL: JSF      PC,(R1)
2790 013404 000240                      NOP
2791 013406 000240                      NOP
2792 013410 000240                      NOP
2793 013412 012767 000340 164356  RESTART: MOV      0340,PS      ;PREVENT INTERRUPTS (PRIO: 7)
2794 013420 104413                      CKSWR      ;CHECK FOR "G"
2795 013422 012767 002350 165464      MOV      0TST1,RTRN
2796 013430 000167 160714              JMP      TST1
2797
2798
2799
2800 013434              ;SCOPE LOOP AND INTERATION HANDLER
2801
2802 013434 000424              ;SCOPE:
2803
2804 013436 013746 000004              ;**** START OF CODE FOR THE X OR TESTER *****
2805 013442 012737 013462 000004      RR      48                  ;IF RUNNING ON THE X OR TESTER CHANGE
2806 013450 005737 177000      MOV      004,-(SP)         ;THIS INSTRUCTION TO A "NOP"(NOP=240)
2807 013454 012637 000004      MOV      018,004          ;SAVE CONTENTS OF ERROR VECTOR
2808 013460 000404                      TST      00177000         ;SET FOR TIME OUT
2809 013462 022626              10:    CMP      (SP)+,(SP)+   ;TIME OUT ON X OR ?
2810 013464 012637 000004      MOV      (SP)+,004        ;RESTORE ERROR VECTOR
2811 013470 000403                      RR      28                ;GO TO NEXT TEST
2812 013472 016767 165420 165414  20:    MOV      NEXT,RTRN        ;CLEAR THE STACK AFTER A TIMEOUT
2813 013500 016710 165410      30:    MOV      (SP)+,004        ;RESTORE ERROR VECTOR
2814 013504 000002                      RR      30                ;LOOP ON PRESENT TEST
2815 013506              40:    RTI                    ;SET UP NEXT TEST IN RTRN
2816 013506 104413              ;**** END OF CODE FOR THE X OR TESTER ***** ;SET UP STACK FOR RTI
2817 013510 032777 040000 165362      CKSWR      ;CHECK FOR "G"
2818 013510 001407              TTST:   BEQ      10        ;LOOP ON CURRENT TEST ?
2819 013520 000432                      RR      30
2820 013522 105777 165356      TSTR      0TKCSR          ;TEST TTY FLAG
2821 013526 100027                      RPL      30
2822 013530 017700 165352      MOV      0TKOBR,00       ;CLR DONE BIT
2823 013534 000412                      BR      20                ;IF A TTY KEY IS STRUCK GO TO NEXT TST
2824 013536 032777 004000 165334  10:    BIT      0SW11,0SWR      ;INHIBIT ITERATIONS ?
2825 013544 001006                      BNE      20
2826 013546 005267 165352      INC      LPCNT
2827 013552 026767 165340 165342      CMP      LPCNT,ICOUNT     ;CHECK FOR ITERATION CNT FINISH
2828 013560 101412                      HLOS     30
2829 013562 105007 165436              20:    CLR      FRHFLG
2830 013566 005067 165332      CLP      LPCNT
2831 013572 012767 000005 165322      MOV      05,ICOUNT        ;SET UP ITERATION COUNT
2832 013600 016767 165312 165306      MOV      NEXT,RTRN        ;SET UP NEXT TEST IN RTRN
2833 013606 016710 165302              30:    MOV      RTRN,(SP)       ;SET UP STACK FOR RTI
2834 013612 000002                      RTI
2835 013614 001407              BRW:   1407                ;RESTORE "BEQ 10" INSTRUCTION
2836 013616 000432              BRX:   432                 ;RESTORE "BR 30" INSTRUCTION
2837
2838
2839
2840 013620 104413              ;CHECK FOR FREEZE ON CURRENT DATA
                ;SCOPE: CKSWR      ;CHECK FOR "G"

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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 017625 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 BFC 30
2053 013660 105777 165224 20: TSTB 0TPCSR ;TEST DONE BIT
2054 013664 100375 HPL 20
2055 013666 112577 165220 MOVB (R5)+,0TPDBR ;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 0INRUF,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 0TKDBR,(R4)
2073 013746 142714 000200 BICR 0200,(R4)
2074 013752 121427 000025 CMPB (R4),025 ;IS IT <0U>
2075 013756 001003 HNE 2000
2076 013760 104402 016156 TYPE,MCRLF
2077 013764 000755 BR .INST1
2078 013766 122427 000015 2000: CMPB (R4)+,015
2079 013772 001423 BEQ INSTR2
2080 013774 117777 165106 165110 MOVB 0TKDBR,0TPDBR
2081 014002 105777 165102 20: TSTB 0TPCSR
2082 014006 100375 BPL 20
2083 014010 005303 DFC 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 MOVB
2090 014026 005737 015314 TST 00PDSW
2091 014032 001402 BEQ 4000
2092 014034 104402 016156 TYPE,MCRLF
2093 014040 000727 4000: 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 012567 000162
2907 014100 012567 000157
2908 014104 010566 000004
2909 014110 005005
2910 014112 012704 017034
2911 014116 012714 000015
2912 014122 001020
2913 014124 012127 000000
2914 014130 002415
2915 014132 012127 000067
2916 014136 003012
2917 014140 012714 000000
2918 014144 0152405
2919 014146 012714 000015
2920 010152 001414
2921 014154 006305
2922 014156 006305
2923 014160 006305
2924 014162 000760
2925 014164 012714 000015
2926 014170 001003
2927 014172 005737 015314
2928 014176 001023
2929 014200 004404
2930 014202 000742
2931
2932
2933
2934 014204 020567 000046
2935 014210 001365
2936 014212 020567 000036
2937 014216 003762
2938 014220 036705 000036
2939 014224 001357
2940
2941
2942
2943 014226 016704 000026
2944 014232 010524
2945 014234 002705 000002
2946 014240 005367 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
MOVB (R5)+, ADCNT
MOV R5, 4(SP)
PARAM: CLR R5
MOV 0(INR), R4
CMPB 015, (R4)
BFO PARERR
18: CMPB (R4), 060
BLT PARERR
CMPB (R4), 067
HGT PARERR
BICR 060, (R4)
RISB (R4)+, R5
CMPB 015, (R4)
BFO LIMITS
ASL R5
ASL R5
ASL R5
RR 18
PARERR: CMPB 015, (R4) ;IS FIRST CHARACTER A <CR>
BNE 1208
TST 000000 ;IS CKSWR ROUTINE BEING USED
BNE PARTI
1208: INSTER
RR PARAM
;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 02, R5
DECB ADCNT
BNE 18
PARTI: MOV (SP)+, R4
MOV (SP)+, R5
RTI
LOLIM: 0
HILIM: 0

```

```

2953 014260 000000 DFVADR: 0
2954 014262 000000 LOPITS: 0
2955 014263 000000 ADPCNT=LOPITS+1
2956
2957 ;SAVE PC OF TEST THAT FAILED AND R0-R5
2958
2959 014264 016667 000004 164702 .SAVR5: MOV 4(SP),SAVPC
2960
2961 ;SAVE R0-P5
2962
2963 014272 010567 164672 SVR5: 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 ;PFSSTORE R0-R5
2972
2973 014324 016700 164626 .RFS05: 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 ;CONVVRT 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: MOV (R1)+,CHRCNT
2995 014424 112167 000147 MOV (R1)+,SPACNT
2996 014430 013167 000144 MOV 0(R1)+,BINWRD
2997 014434 016704 000140 26: MOV BINWRD,R4
2998 014440 116705 000132 MOV 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 MOV (R3),R4
3004 014464 006204 ASR R4 ;SHIFT FOR NEXT 0
3005 014466 042704 100000 BIC #100000,R4 ;CLUGE TO STOP BIT 15 PROPAGATING.
3006 014472 006204 ASP R4 ;DITTO
3007 014474 006204 ASP R4 ;DITTO
3008 014476 005305 DEC R5

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3009	014500	001363			BNE	38	
3010	014502	012703	017134		MOV	0MDATA,R3	
3011	014506	114023		48:	MOVB	=(R0),(R3)+	
3012	014510	105367	000062		DECR	CHRCNT	
3013	014514	001374			BNE	48	
3014	014516	105767	000055		TSTB	SPACNT	
3015	014522	001405			REQ	68	
3016	014524	112723	000040	58:	MOVW	0040,(R3)+	
3017	014530	105367	000043		DECR	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	WPDCNT	
3023	014550	001323			HNE	18	
3024	014552	016767	164372	002314	MOV	TFMP3,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					
3032	014576	000000					
3033		014577					
3034	014600	000000					
3035							
3036							
3037							
3038							
3039							
3040							
3041	014602	017605	000000		.SETFLG:MOV	0(SP),R5	
3042	014606	122767	000116	002220	CMPB	0'N,INBUF	;IS IT "N" ?
3043	014614	001002			BNE	18	
3044	014616	105015			CLRB	(R5) 1000	
3045	014620	000406			HR	28	
3046	014622	122767	000131	002204	18:	CMPB	0'Y,INBUF ;IS IT "Y" ?
3047	014630	001005			HNE	38	
3048	014632	112715	177777		MOVW	0-1,(R5)	;377
3049	014636	002716	000002	28:	ADD	02,(SP)	
3050	014642	000002			RTI		
3051	014644	104404		38:	INSTEP		;RETRY
3052	014646	000755			BR	.SETFLG	
3053							
3054							
3055							
3056							
3057							
3058	014650	011616			.TRPSP:MOV	(SP),-(SP)	;GET PC OF RETURN
3059	014652	162716	000002		SUB	02,(SP)	;PC OF TRAP
3060	014656	017616	000000		MOV	0(SP),(SP)	;GET TRP
3061	014662	000316		TPPOK:	ASL	(SP)	;MULTIPLY TRAP ARG BY 2
3062	014664	002716	177001		RIC	0177001,(SP)	;CLEAR UNWANTED BITS
3063	014670	002716	001226		ADD	0,TRPTAR,(SP)	;POINTER TO SUBROUTINE ADDRESS
3064	014674	017616	000000		MOV	0(SP),(SP)	;SUBROUTINE ADDRESS

3065	R1470A	000136			JMP	0(SP)+		;GO TO SUBROUTINE
3066								
3067								;ERROR HANDLER
3068								
3069	R14702	104413			.HLTI	CKSWP		;CHECK FOR "G
3070	014704	032777	020000	164166		BIT	0SW13,0SWP	;INHIBIT ERROR TYPE OUT ?
3071	014712	001061				RNF	HALTS	
3072	014714	021667	164214			CMF	(SP),LSTERR	
3073	014720	001401				HEQ	18	
3074	014722	011667	164206			MOV	(SP),LSTERR	
3075	014726	105067	164272			CLFB	ERRPFLG	
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				AND	(R5),P4	
3082	014750	006304				ASL	R4	
3083	014752	042704	177001			RIC	0177001,R4	
3084	014756	062704	017050			ADD	0,ERRTAB,R4	
3085	014762	012467	000004			MOV	(R4)+,ERRMSG	
3086	014766	012467	000006			MOV	(R4)+,DATAHD	
3087	014772	011467	000054			MOV	(R4),DATABP	
3088	014776	105767	164222			TSTR	ERRPFLG	
3089	015002	001403				HEQ	TYPMSG	
3090	015004	005767	000002			TST	DATABP	
3091	015010	001014				BNE	TYPDAT	
3092	015012	104410				TYPMSG:	CONVRT	
3093	015014	015104					ERTAB0	
3094	015016	112767	177777	164200		MOV	0-1,ERRPFLG	
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				RESPEC:	RES05	
3106	015056	005777	164016			HALTS:	TST	0SWP
3107	015062	100005					HPL	EXITER
3108	015064	010006					PUSHR0	
3109	015066	016600	000002				MOV	2(SP),R0
3110	015072	000000					HALT	
3111	015074	012600					POPR0	
3112	015076	104413				EXITER:	CKSWP	
3113	015100	005267	164226				INC	ERRCNT
3114	015104	032777	000000	163766			BIT	0SW00,0SWP
3115	015112	001007					RNF	18
3116	015114	032777	002000	163756			BIT	0SW10,0SWP
3117	015122	001407					HEQ	28
3118	015124	016767	163766	163762			MOV	NEXT,RTR0
3119	015132	012706	001100			18:	MOV	0STACK,SP
3120	015136	000177	163752				JMP	0RTPN

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3121 015142 000002          28: PTI
3122 015144 000001          EPTAB: 1
3123 015146 006          002      ,BYTE 6,2
3124 015150 001174          SAVPC
3125                                ;FNTER 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 010240          MOV      R2,-(SP)
3131 015160 010340          MOV      R3,-(SP)
3132 015162 010440          MOV      R4,-(SP)
3133 015164 010540          MOV      R5,-(SP)
3134 015166 016746 162632  MOV      24,-(SP)
3135 015172 010667 163774  MOV      SP,SAVSP          ;SAVE STACK POINTER
3136 015176 012767 015210 162620 MOV      @PESTANT,24      ;SET UP FOR POWER UP TRAP
3137 015204 000000          HALT
3138 015206 000777          18:  BR      18          ;HALT ON POWER DOWN NORMAL
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      @,PFAIL,24      ;SET UP FOR POWER FAILURE
3150 015236 012767 000340 162532  MOV      @340,PS
3151 015244 012706 001100          MOV      @STACK,SP
3152 015250 005067 001620          CLR      TEMP
3153 015254 005267 001614          18:  INC      TEMP
3154 015260 001375          HNE     18
3155 015262 104410          CONVRT
3156 015264 015306          PFTAB
3157 015266 104402          TYPE
3158 015270 016161          @PFAIL
3159 015272 005067 163726  CLR      EPPFLG
3160 015276 005067 163632  CLR      LSTERR
3161 015302 000177 163606  JMP      @RTPN
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      @042
3174 015322 001042          BNE     OUT
3175 015324 022767 000176 163546  CMP      @SWPEG,SWP          ;SOFTWARE SWITCH REGISTER PRESENT
3176 015332 001036          BNE     OUT          ;NO, GET OUT

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3233	015730	053111	051105	041440		
3234	015736	047117	051124	040117		
3235	015740	051040	043505	051511		
3236	015752	042524	020122	042101		
3237	015760	051104	051505	020523		
3238	015766	000				
3239	015767	075	042504	044526	DEVICE: .ASCIZ	/=DEVICE /
3240	015774	042503	020040	000		
3241	016001	015	044012	053517	MCOW: .ASCIZ	<15><12>/HOW NOW BROWN COW? ...SELECT SOMETHING TO RUN @ACTREG/
3242	016006	047040	053517	041040		
3243	016010	047522	047127	041440		
3244	016022	053517	020077	027056		
3245	016030	051450	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	MRANGE: .ASCIZ	<15><12>/OUT OF RANGE:RFTYPE LAST DEVICE PXCSP ADDRESS-/
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		MON: .ASCIZ	/ ?/
3261	016156	005015	000		MCRLF: .ASCIZ	<15><12>
3262	016161	040	050040	053517	MPFAIL: .ASCIZ	/ POWER FAILURE, PROGRAM RESTART AT TEST IN PROGRESS/
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	MEPASS: .ASCIZ	<15><12>/END OF PASS TAPE A/
3272	016254	043117	050040	051501		
3273	016262	020123	040524	042520		
3274	016270	040440	000			
3275	016273	015	051012	000	MR: .ASCIZ	<15><12>/R/
3276	016277	015	052012	051505	MTSTPC: .ASCIZ	<15><12>/TEST PC-/
3277	016304	020124	041520	000055		
3278	016312	005015	047514	045503	MLOCK: .ASCIZ	<15><12>/LOCK ON SELECTED TEST? (Y OR N)-/
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	MLEVEL: .ASCIZ	<15><12>/DU PRIORITY LEVEL-/
3285	016362	051120	047511	044522		
3286	016370	054524	046040	053105		
3287	016376	046105	000055			
3288	016402	005015	020043	043117	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	050200	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	051000	041505	
3304	016532	045040	046525	042520	
3305	016540	020122	032443	040440	
3306	016546	037516	024040	020131	
3307	016554	051117	047040	020451	
3308	016562	000			
3309	016563	015	044012	020123	MWIRE4: .ASCIZ <15><12>/IS OPT CLR ENABLF JUMPER 04 IN? (Y OR N)-/
3310	016570	050117	020124	040103	
3311	016576	020122	047105	041101	
3312	016604	042514	045040	040525	
3313	016612	042520	020122	032043	
3314	016620	044440	037514	024040	
3315	016626	020131	051117	047040	
3316	016634	020451	000		
3317	016637	015	040412	042522	MFXTJ: .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					.EVFN
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 000240 MDATA: ,BLKB 40
3346 ;.....
3347 ;UTILITIES
3348 ;.....
3349
3350 ;THIS UTILITY CALCULATES PRIORITY LEVEL
3351 017174 006367 000044 D'LFV: ASL D'PRT ;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 MOV DUPRT,LESS1 ;MOVE THIS TO LESS1
3357 017226 162767 000012 SUB 01,LESS1 ;CREATE LESS1
3358 017234 042767 000037 RTC 037,LESS1 ;CLEAR TNZVC
3359 017242 000207 RTS PC
3360 017244 000240 D'PRT: LEVELS
3361 017246 000240 LESS1: LEVEL4 ;LEVEL TO ALLOW INTERRUPTS
3362
3363 ;NEW DU ADDRESSES
3364 017250 016767 000120 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,RXDBIF ;XXX2
3369 017302 016767 000074 000400 MOV DUBASE,PARCSR ;XXX2
3370 017310 005267 000066 INC DUBASE
3371 017314 016767 000062 000364 MOV DUBASE,HRXDRAF ;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 000014 000332 MOV DUBASE,TXDBIF ;XXX6
3379 017366 005267 000010 INC DUBASE
3380 017372 016767 000004 000322 MOV DUBASE,HTXDRAF ;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 WPOKE: PIC 0MTDATA,0TXCSR
3388 017412 005967 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 0BIT15,TEMP2 ;CLR BIT 15
3393 017440 056777 161502 HIS TEMP2,0TXCSR ;POKE MAINT DATA
3394 017446 042777 020000 000240 PIC 0CLK,0TXCSR ;POKE CLK
3395 017454 052777 020000 000232 BIS 0CLK,0TXCSR ;
3396 017462 005367 161452 DEC SHIFT
3397 017466 001346 HNE WPOKE
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 ODD01 MOV    TFMP1,TEMP2    ;SAVE TEMP1
3402 017500 005267 161444          CLR    TEMP3
3403 017504 012727 000010          MOV    00,.(PC)+
3404 017510 000000          18:   0
3405 017512 006267 161430          28:   ROR    TEMP2
3406 017516 005567 161426          ADC    TFMP3
3407 017522 005367 177762          DEC    18
3408 017526 001371          HNE   28
3409 017530 006267 161414          POP    TFMP3
3410 017534 103404          PCS   38
3411 017536 052767 000400 161400  HIS   0BIT0,TFMP1    ;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 EVEN01 MOV    TEMP1,TEMP2    ;SAVE TEMP1
3419 017564 005267 161360          CLR    TEMP3
3420 017570 012727 000010          MOV    00,.(PC)+
3421 017574 000000          18:   0
3422 017576 006267 161344          28:   ROR    TFMP2
3423 017602 005567 161342          ADC    TEMP3
3424 017606 005367 177762          DEC    18
3425 017612 001371          HNE   28
3426 017614 006267 161330          POP    TFMP3
3427 017620 103404          BCC   38
3428 017622 052767 000400 161314  HIS   0BIT0,TFMP1    ;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          RTI
3436          ;FRPOP HLT TABLE
3437 017650 017734  .FRPTAB: E40    ;HLT 0 BIT ERROR (GENERAL)
3438 017652 000000          0
3439 017654 000000          0
3440 017656 017752  E41    ;HLT 1 REGISTER ERROR
3441 017660 020121  DH1
3442 017662 020142  DT1
3443 017664 020012  E42    ;HLT 2 RECEIVER FRPOP
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 160000  PXCSP: 160000
3451 017702 160001  MPXCSP: 160001
3452 017704 160002  PXDHUF: 160002
3453 017706 160003  MPXDUF: 160003
3454 017710 160002  PARCSP: 160002
3455 017712 160003  MPARCSP: 160003
3456 017714 160004  TXCSP: 160004
  
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3457 017716 160045 MTXCSR: 160045
3458 017720 160046 TXDRUF: 160046
3459 017722 160047 MTXDBUF: 160047
3460 ;DEFAULT DU VECTORS
3461 017724 000770 DIIRIV: 770 ;REC INTR VECTOR
3462 017726 000772 DIIRIS: 772 ;REC INTR STATUS
3463 017730 000774 DUTIVI: 774 ;XMIT INTR VECTOR
3464 017732 000776 DUTISI: 776 ;XMIT INTR STATUS
3465 ;FRPOP MESSAGES
3466 017734 036440 042440 051122 EM0: .ASCIZ / = ERROR PC/
3467 017742 051117 050040 000103
3468 017750 036440 051040 043509 EM1: .ASCIZ / = REGISTER FRPOP 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 020005 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 045015 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 046503
3484 020101 000412 042522 044507
3485 020112 052123 051105 020040
3486 020120 000
3487 ;DATA HEADERS FOR ERROR MESSAGES
3488 020121 105 050130 041505 DM1: .ASCIZ /EXPECTED ACTUAL/
3489 020126 042524 020104 040440
3490 020134 052103 040525 000114
3491 .FVFN
3492 ;DATA TABLES FOR FRPOP MESSAGES
3493 020142 000003 DT1: 3
3494 020144 000 004 .BYTE 6,4
3495 020146 001164 SAVR3 ;REGISTER
3496 020150 000 004 .BYTE 6,4
3497 020152 001150 SAVR0 ;EXPECTED DATA
3498 020154 000 002 .BYTE 6,2
3499 020156 001160 SAVR1 ;ACTUAL DATA
3500 000001 .FND
```

AAA	002040	9890												
ACTREG	001216	0370	9370	9510	9520	9590	2742	2745	2755					
ADPCNT	014263	29470	29460	29550										
BASEAD	001204	0120	9190	9560	957	9630	9650	27490	27610	2765				
BASEIV	001212	0050	9290	27500	27620	2767	27680	2769	27700	2771	27720	2773	27740	
BRB	001664	930	9400											
BINWRD	014620	29960	2997	30340										
BIT0	002000	7170	1617	1614	1627	1634	1644	1660	1667	1677				
BIT1	002001	6650	693	724	1594									
BIT2	002002	6640	692											
BIT10	002000	6550	683	717										
BIT11	004000	6540	682	1456	1457	1461	1462	1467	1469					
BIT12	010000	6530	681	690	1491	1482	1486	1487	1492	1494				
BIT13	020000	6520	680	697	710									
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	710	3411	3413	3420	3430					
BIT9	001000	6560	684	700										
BREAK	000001	7240	1330	1340	1344	1345	1350	1352	1625	1640	1650	1673	2123	2153
		2102	2273	2354	2435	2511	2569	2627	2685					
BRW	013614	1029	1043	20350										
BRX	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	0510	096											
CNVRT	104411	0450	3106											
CONVFT	104412	0330	2730	3002	3103	3155								
COUNT	001142	7780	22040	22000	22050	22090	23660	23700	24470	24510				
CTS	020000	6800												
DATABP	015052	30070	3000	3101	31040									
DATAHD	015040	30060	3007	31000										
DFVADP	014200	29050	2943	29530										
DFVICF	015767	2739	32390											
DHI	020121	3441	3444	3447	34000									
DISPPE	000174	7450	000											
DLIGHT	177570	6350	000											
DNA	100000	7140	1736											
DNAINT	000000	7210	1600	1609	1413	1414	1419	1421						
DSC	100000	6700	1713											
DSINTE	000040	6000	1270	1271	1275	1276	1281	1283						
DSR	001000	6940												
DSWR	177570	6340	079											
DTR	000002	6920	1140	1149	1153	1154	1159	1165	1170	1003	1955	2045	2094	
DTI	020142	3442	3445	3448	34930									

DUADDP	017250	910	2766	33640										
DUBASE	017402	914	917	27650	3364	33650	3366	33670	3350	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	920	929	27670	2774	34610							
DUTIS	017732	27730	34640											
DUIV	017730	27710	34630											
EIGHT	000000	7090	2176	2156	2430									
EM0	017734	3437	34660											
EM1	017750	3440	34680											
EM2	020012	3443	34740											
EM3	020054	3446	34800											
EPRCNT	001132	7710	0700	31130										
EPPFLG	001224	0170	0690	27030	20290	30750	3000	30940	31590					
EPPMSG	015026	30050	30060											
EPTAB0	015144	3093	31220											
EVFN0	017556	34190												
EVEPAR	001400	7120												
EVPAR	000400	7010												
EXIT0	015076	3107	31120											
FIVE	000000	7060	2105	2514	2572	2630	2600							
FMERR	020000	6070	1773											
HALTS	015056	3071	31060											
HDXEN	000010	7230	1362	1363	1367	1368	1373	1375						
HILIM	014256	20040	2034	20520										
HOLD	001136	7760	1631	1641	1664	1674	1000	1910	1936	1960	1976	1992	2017	2033
		2050	2067	2003	2009									
HPARCS	017712	10090	33720	34550										
HPXCSP	017702	10690	15940	33660	34510									
HPXDBU	017706	10040	33710	34530										
HTXCSP	017716	11140	16050	33760	34570									
HTXDBU	017722	11290	33000	34590										
ICOUNT	001122	7470	2027	20310										
INBU0	017034	902	906	2060	2910	3042	3046	33430						
INIFLG	001222	0150	075	0700										
INSTER	104401	0350	1000	2029	3051									
ITP	104403	0330	909	920	930	941	946	976	990	1003	1007	1011	1015	1034
		1047	3107											
INSTR2	014042	2079	20940											
ISYMOD	000000	7050	2149	2156	2507	2514	2565	2572	2623	2630	2601	2600		
JMPRY	001203	7000	1010	1656	1072									
KEEPAD	001206	0030	9170	919	963	965	2761							
KEEPIV	001214	0060	9200	2762										
LASTAD	001210	0040	946	957	971									
LFSS1	017246	33560	33570	33500	33610									
LEVEL0	000000	6750												
LEVEL1	000000	6740												
LEVEL2	000100	6730												
LEVEL3	000100	6720												
LEVEL4	000200	6710	3361											
LEVEL5	000240	6700	3360											
LEVEL6	000300	6690												
LEVEL7	000340	6680	1065	1000	1095	1110	1125	1553						
LIGHTS	001102	7560	0000	0000	27050									

LIMITS	#14204	2920	29340																
LOBITS	#14267	29060	2930	29540	2955														
LOCK	#01120	7600	2043																
LOGICA	#13407	27090																	
LOKFLG	#01225	0100	1037	1030															
LOLIM	#14754	29030	2936	29510															
LPCNT	#01124	7600	0660	20260	2027	20300													
LSTERR	#01134	7720	0710	27020	3072	30740	31600												
MASK1	#07236	19430																	
MASK2	#07254	19490																	
MASK3	#07304	19030																	
MCON	#16001	2744	32410																
MCRLF	#16150	2076	2002	2904	3193	32610													
MDATA	#17134	3010	3021	33450															
MEPASS	#16246	2737	32710																
MEXT	#10000	7200	1650	1673															
MEXTJ	#16037	1016	33170																
MINT	#04000	7270	1625	1640	2123	2153	2192	2273	2354	2435	2511	2569	2627	2605					
MLASTD	#15700	942	32300																
MLEVFL	#16355	977	32040																
MLOCK	#16312	1035	32700																
MMULT	#15627	931	32220																
MPFAIL	#16161	3150	32620																
MQM	#16152	2009	32600																
MP	#16273	1057	32750																
MPANGE	#16071	967	32510																
MPEGAD	#15546	910	32130																
MPESET	#00400	7100	1160	1103	1226	1259	1282	1305	1320	1351	1374	1397	1420	1443					
		1440	1493	1516	1539	1573	1574	1570	1579	1589	1604	1639	1672	1600					
		1700	1712	1724	1735	1747	1760	1772	1704	1796	1800	1836	1850	1867					
		2110	2120	2140	2150	2107	2109	2200	2270	2349	2351	2430	2432	2500					
		2500	2564	2506	2622	2624	2600	2602											
MSYNC	#16402	991	32000																
MTDATA	#00000	7150	1527	1529	1532	1533	1530	1540	1625	1630	1630	1650	1663	1671					
		2123	2153	2102	2273	2354	2435	2511	2569	2627	2605	3307							
MTITLE	#15372	077	32050																
MTSTPC	#16277	1040	32760																
LTD	#01202	7070	933	034	1026	2740													
LECTO	#15524	921	32100																
MIRE4	#16563	1012	33090																
MWIPES	#16516	1000	33020																
MWIRE6	#16450	1004	32950																
NEXT	#01116	7650	10630	10700	10930	11000	11230	11300	11470	11000	12130	12460	12690	12920					
		13150	13300	13610	13840	14070	14300	14550	14800	15030	15260	15490	15720	15000					
		16240	16530	16070	16090	17110	17230	17340	17460	17590	17710	17830	17950	18060					
		10340	10490	10650	21170	21470	21060	22670	23000	24290	25050	25630	26210	26790					
		2012	2032	3110															
NOPAR	#00000	7100	2126	2156	2195	2276	2357	2430	2514	2572	2630	2600							
ODDPAR	#01000	7110																	
ODOR	#17472	34010																	
ONCE	#01362	076	0790																
OPTCLR	#01201	7960	1014	1163	1196	1229	1556	1590	1811										
OUT	#15433	3174	3176	3170	3102	31040													
OUTCRY	#13362	2730	27770																
OUTMUL	#02024	939	964	0750															
OUT1	#07706	1075	2009	2061	21100														

OUT2	#07432	1920	20120											
OUT3	#07562	1930	20620											
OVRRUN	#040000	6960	1705											
PARAM	#144405	0370	911	922	943	960	970	1049	3100					
PAPAM1	#14110	20000	2930											
PARCSP	#17710	10960	21190	21260	21490	21560	21000	21950	22600	22760	23500	23570	24310	24300
		25070	25140	25650	25720	26230	26300	26810	26800	33690	34540			
PAREN	#031000	7000												
PARER	#010000	6900	1761											
PAPEPP	#14164	2012	2914	2916	29250	2935	2937	2939						
PARTI	#14246	2920	29400											
PASCNT	#01130	7700	8600	27040	2705									
PFTAB	#15306	3156	31620											
POPR0	#12600	6440	3111											
POP1SP	#05726	6420												
POP2SP	#22626	6460												
PS	#17776	6360	8630	10220	15530	27930	31500							
PUSHR0	#10000	6430	3100											
PUSH1S	#05746	6410												
PUSH2S	#24646	6450												
PDSW	#15314	2090	2927	31700	31040	31940								
REACT	#04000	6020	1701	2127	2132	2137	2157	2162	2167	2217	2220	2233	2290	2309
		2314	2379	2300	2305	2460	2471	2476						
REPLAY	#13246	2757	2743	27650										
RFSREG	#15054	3102	31050											
RFSTAR	#15210	3136	31420											
PESTRT	#13412	2750	2707	27030										
RES05	#104007	0410	3105											
RING	#040000	6790												
RINTFN	#00100	6070	1293	1294	1290	1299	1304	1306						
ROTADD	#01220	0100	9300	9500	952	9540	959	9620	27520	2755	27590			
RPOKE	#17404	2207	2223	2200	2304	2360	2305	2450	2466	2526	2540	2544	2504	2590
		2602	2642	2656	2660	2700	2714	2710	33070	3397				
RTRN	#01114	7640	0730	1052	10560	1050	27050	20120	2013	20320	2033	31100	3120	3161
		3164												
RTS	#00000	6910	1101	1102	1106	1107	1192	1100	1203	1905	1971	2020	2070	
RUNA	#00000	1	52	69	135	576								
RUNB	#000000 II	20	57	69	130	501								
RUNC	#000000 II	20	57	69	130	501								
RUND	#000000 II	20	57	69	130	501								
RUNE	#000000 U	20	57	72	130	501								
RUNF	#000000 U	20	57	72	130	501								
RUNIT	#13152	2743	27490	2756										
RXCSP	#17700	10660	11400	1149	11530	1154	11590	1165	1170	11010	1102	11060	1107	11920
		1190	1203	1210	1215	12100	1220	12250	1231	1236	12470	1240	12520	1253
		12500	1260	12700	1271	12750	1276	12810	1283	12930	1294	12980	1299	13040
		1306	13160	1317	13210	1322	13270	1329	15500	1554	15920	1593	1595	15990
		1600	1609	1701	1713	18070	1809	1810	18660	1877	1870	18830	1894	1899
		19050	1916	1921	19310	1942	1940	19550	1966	19710	1902	19070	1990	2003
		20120	2023	20200	2039	20450	2056	20620	2073	20700	2009	20940	2105	2127
		21310	2132	21360	2137	2157	21610	2162	21660	2167	21970	2213	2217	2224
		2220	22320	2233	2237	2247	22700	2294	2290	2305	2309	23130	2314	2310
		2320	23590	2375	2379	2306	2390	23940	2395	2399	2409	24400	2456	2460
		2467	2471	24750	2476	2400	2490	25150	2527	25730	2505	26310	2643	26090
		2701	2770	33640	34500									
RXDBUF	#17704	10010	1700	1750	1761	1773	1705	1797	1051	1052	2196	2242	2277	2323

	2358	2404	2439	2485	2522	2531	2547	2580	2589	2605	2638	2647	2663
	2496	2705	2721	3360*	3452*								
RXDONE = 000200	6860	1689											
RXERF = 100000	6950	1797											
SAVPC = 001174	7010	2959*	3124										
SAV00 = 001156	7040	2968*	2973	3497									
SAV01 = 001164	7050	2967*	2974	3499									
SAV02 = 001167	7060	2966*	2975										
SAV03 = 001164	7070	2965*	2976	3495									
SAV04 = 001166	7080	2964*	2977										
SAV05 = 001170	7090	2963*	2978										
SAVSP = 001172	7000	3135*	3142										
SAV05 = 104406	8390	3076											
SCOPE = 104400	8270	1074	1089	1104	1119	1134	1142	1175	1200	1241	1264	1287	1310
	1333	1356	1379	1422	1425	1448	1473	1498	1521	1544	1567	1584	1610
	1647	1690	1694	1706	1710	1729	1741	1754	1766	1778	1790	1802	1820
	1843	1857	2110	2141	2171	2252	2333	2414	2495	2553	2611	2669	2727
	8290												
SCOPE = 104401	7220	1305	1306	1390	1391	1396	1398						
SENO = 000020	7950	1010	1929										
SEFEC = 001200	8470	937	1005	1009	1013	1017	1036						
SFTFLG = 104412	7000	2357											
SEVEN = 004000	7040	1006	1927										
SEXMIT = 001177	7770	2205*	2221*	2286*	2302*	2367*	2383*	2440*	2464*	2524*	2538*	2542*	2582*
SHIFT = 001140	2596*	2600*	2640*	2654*	2658*	2690*	2712*	2716*	3396*				
	7070	2276											
SIX = 002000	2995*	3014	3017*	3033*									
SPACNT = 014577	6030												
SPD = 002000	6370	064	1023	3119	3151								
STACK = 001120	6900	1714	1715	1719	1220	1225	1231	1236	1931	1987	2012	2062	
STD = 000010	8160	867*											
STFLG = 001223	6050	1316	1317	1321	1322	1327	1329						
STPSYN = 000400	2963*												
SV05 = 014272	7550	079*	084	088*	094	097	1032	1045	2017	2024	2041	3070	3106
SWR = 001100	3114	3116	3175										
	7460	000	094	3175	3191	3198							
SWREG = 000176	3306	3196*											
SWREGC = 015436	6170	097											
SW00 = 000001	6160	1045											
SW01 = 000002	6150												
SW02 = 000004	6140												
SW03 = 000013	6130												
SW04 = 000020	6120												
SW05 = 000040	6110												
SW06 = 000100	6100	3114											
SW07 = 000400	6090	2041											
SW08 = 001000	6080	3116											
SW09 = 002000	6070	2024											
SW10 = 004000	6060												
SW11 = 010000	6050	3070											
SW12 = 020000	6040	2017											
SW13 = 040000	6030												
SW14 = 100000	7930	094*	990*	2211	2292	2373	2454						
SYNCH = 001176	7040	2119	2126										
SYNXT = 020000	7230	2100	2195	2269	2276	2350	2357	2431	2438				
SYNINT = 030000	6090	1247	1248	1252	1253	1258	1260	2131	2136	2161	2166	2197	2232
SYNSCH = 000020													

		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	22070	23030	23600	23040	24490	24650	25250	25390	25430	25030
		25970	26010	26410	26550	26500	26090	27130	27170	33090	3401	34110	34130	3410
		34200	34300											
TEMP2	001146	7000	33000	33000	33910	33920	3393	34010	34050	34100	34220			
TEMP3	001150	7010	29910	3024	34020	34060	34090	34190	34230	34260				
TEMP4	001152	7020												
TEMP5	001154	7030												
TKCSR	001104	7570	2020	2070	3177									
TKDRR	001106	7500	2022	2072	2000	3179								
TLAST	012642	1051	27300											
TFCSR	001110	7500	2053	2001										
TPDBR	001112	7600	20550	20000										
TPPOK	014662	30610												
TPPREG	017642	1064	1079	1094	1109	1124	34330							
TSTNO	001120	7690	0720	10620	10770	10920	11070	11220	11370	11460	11790	12120	12450	12600
		12910	13140	13370	13600	13830	14060	14290	14560	14790	15020	15250	15480	15710
		15070	16230	16520	16060	16900	17100	17220	17330	17450	17500	17700	17820	17940
		10050	10330	10400	10640	21160	21460	21050	22660	23470	24200	25040	25620	26200
		26700												
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	1394	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	16960											
TST29	006116	1697	16900											
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	1750	17700											
TST36	006450	1771	17020											
TST37	006506	1703	17040											
TST38	006544	1795	10050											
TST39	006652	1006	10330											
TST4	002612	1093	11070											

CROSS REFERENCE TABLE -- USER SYMBOLS

BN	= 000063	5070	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	1303	13050	1406	14080	1429	14310	1454	14560
		1479	14010	1502	15040	1525	15270	1540	15500	1571	15730	1507	15090	1623
		16250	1652	16540	1606	16080	1699	17000	1710	17120	1722	17240	1733	17350
		1745	17470	1750	17600	1770	17720	1702	17040	1794	17960	1805	18070	1833
		10350	1040	10500	1064	10660	2116	21180	2146	21480	2105	21070	2266	22680
		2347	23490	2420	24300	2504	25060	2562	25640	2620	26220	2670	26800	27300
BY	= 000015	0190	027	0290	0310	0330	0350	0370	0390	0410	0430	0450	0470	0490
		0510	0530											
.	= 020160	7310	7340	7440	7510	1140	1561	1565	1597	1602	1610	1616	1620	1635
		1645	1641	1660	1670	1726	1752	1817	1824	1841	1855	1873	1881	1897
		1902	1910	1924	1946	1952	1969	1905	2001	2006	2026	2043	2059	2076
		2092	2100	32040	33430	33440	33450							
.BEGIN	002156	099	10220											
.CKS=R	015316	050	31730											
.CNTL"	015372	052	31040											
.CNVRT	014362	016	29050											
.CONVR	014356	044	29030											
.EOP	013104	2670	27360											
.ERRTA	017650	3004	34370											
.HLT	014702	737	30690											
.INSTE	014016	036	20060											
.INSTG	014022	2005	20000											
.INSTR	013700	034	20620											
.INST1	013720	20660	2077	2003										
.MSG	013722	20640	20670	31790	31000	3101								
.PAPAM	014050	030	29000											
.PFAIL	015152	735	065	31200	3149									
.PES05	014324	042	29730											
.SAV05	014264	040	29590											
.SCOPE	013434	070	20000											
.SCOPI	013620	030	20400											
.SETFL	014602	040	30410	3052										
.START	001260	717	0630	073	2740									
.TPPSP	014650	739	30500											
.TRPTA	001226	0240	3063											
.TYPE	013640	032	20400											

CROSS REFERENCE TABLE -- MACRO NAMES

HLT	0470	1060	1071	1083	1096	1098	1101	1113	1116	1120	1131	1141	1151	1156	1167
	1172	1184	1189	1200	1205	1217	1222	1233	1230	1250	1255	1262	1273	1270	1285
	1296	1301	1300	1319	1324	1331	1342	1347	1354	1365	1370	1377	1380	1393	1400
	1411	1416	1423	1434	1439	1446	1459	1464	1471	1484	1489	1496	1507	1512	1519
	1530	1535	1542	1562	1566	1576	1581	1590	1603	1611	1617	1629	1636	1646	1662
	1669	1679	1691	1703	1715	1727	1730	1753	1763	1775	1787	1799	1810	1828	1842
	1856	1882	1890	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	2450	2462	2469	2473	2478	2482	2480	2492	2529	2534	2550	2507
	2592	2600	2645	2650	2666	2703	2700	2724							
PRGEND	5070	2729													
PPGFRT	5070	500													
PUSSYF	5070														
RSETUP	5070	2110	2140	2107	2260	2349	2430	2506	2564	2622	2600				
TSETUP	5070														
%REGIN	5070	1019													
%BINAP	5070														
%BUFFE	5070	3360													
%CABIE	5070	1004	1906	1932	1956	1972	1980	2013	2029	2046	2063	2079	2095		
%CATCH	5070	730													
%CLPVE	5070	079													
%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													
%POKE	5070														
%POKER	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	1570	1589	1604	1639	1672	1690	1700	1712	1724	1735	1747	1760	1772
	1784	1796	1800	1836	1850	1867	2110	2120	2140	2150	2187	2189	2260	2270	2349
	2351	2430	2432	2506	2500	2544	2566	2627	2624	2600	2602				
%RXACT	5070	2112	2142												
%SCOPF	5070	2797													
%SCOPI	5070	2037													
%SETFL	5070	3035													
%SETVE	5070	731													
%START	5070	055													
%STRIP	5070														

DZDUA-B MACY11 27(1006) 17-AUG-76 08117 PAGE 00
 DZDUAD.P11 04-AUG-76 00100 CROSS REFERENCE TABLE -- MACRO NAMES

SSYMB0	5070	600													
SSYNCR	5070	2197	2270	2350	2440	2515	2573	2631	2609						
STRAPS	5070	019													
STRPAR	5070														
STRPDF	5070	027	029	031	033	035	037	039	041	043	045	047	049	051	
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	1597	1623	1652	1686	1690
	1710	1722	1733	1745	1750	1770	1782	1794	1805	1833	1848	1864	2110	2146	2105
	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/SCL=HELLO,P11/EQ:RUNA,PAPA,P11,KEFT,P11,DZDUAD,P11
 RUN-TIME: 74 36 3 SECONDS
 RUN-TIME RATIO: 01/64=1.2
 CORE USED: 10K (36 PAGES)