DQ11

INTERRUPT TESTS

CZDQCE0

AH-8612E-MC

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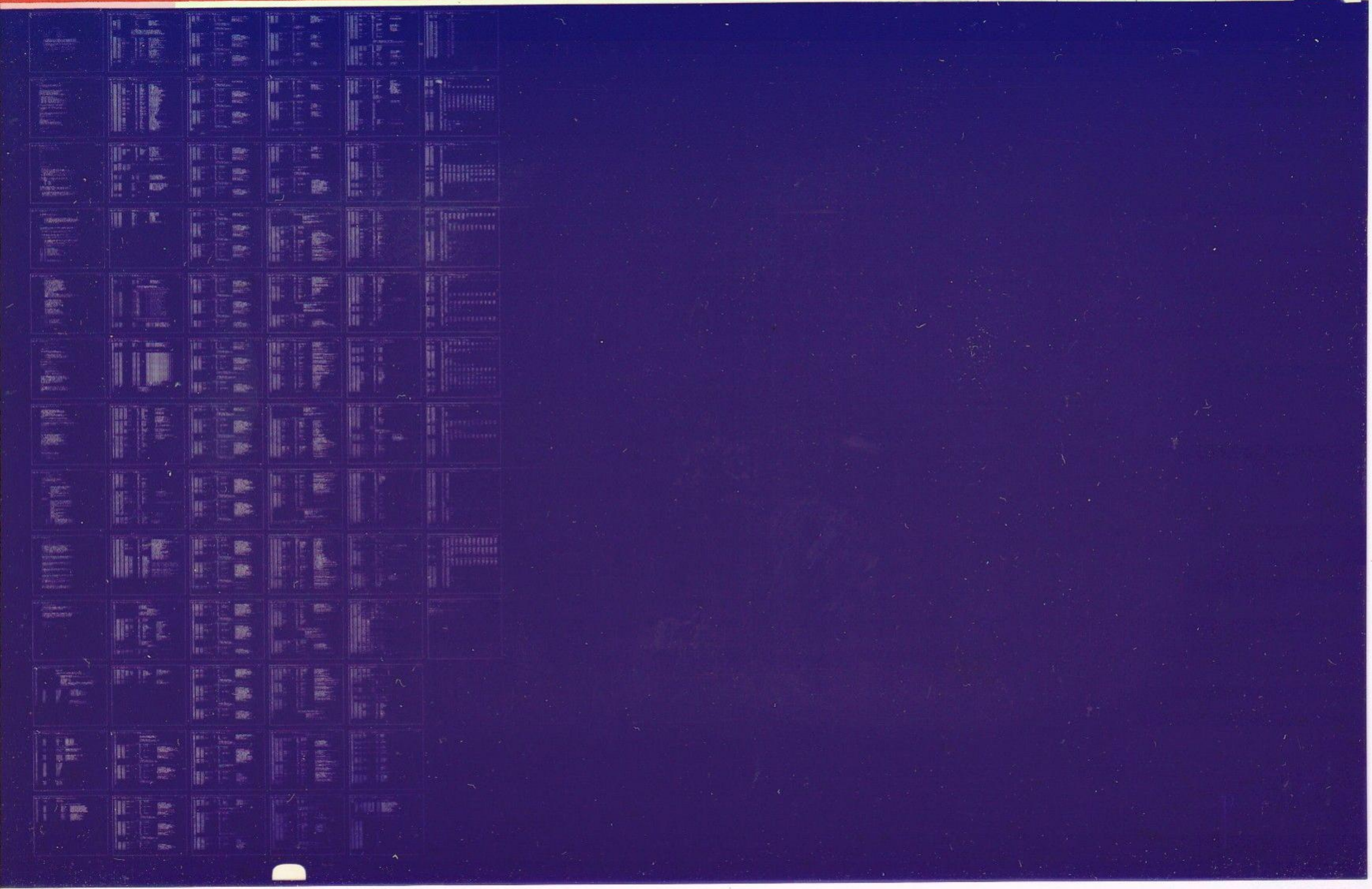
JAN 1979

digital

MADE IN USA



IDENTIFICATION

PRODUCT CODE: AC-8610E-MC

PRODUCT NAME: CZDQCE0 DC11 INTR

DATE: JUNE 1978

MAINTAINER: DIAGNOSTIC GROUP

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1. ABSTRACT

THE FUNCTION OF THE DQ11 DIAGNOSTICS ARE TO
VERIFY THAT THE OPTION OPERATES ACCORDING
TO SPECIFICATIONS.

CURRENTLY THERE ARE SEVEN OFF LINE DIAGNOSTICS THAT ARE
TO BE RUN IN SEQUENCE TO INSURE THAT IF AN
ERROR SHOULD OCCUR IT WILL BE DETECTED
AT AN EARLY STAGE AND INSURING THAT
DIAGNOSIS OF ERROR WILL BE IMMEDIATE TO PROBLEM
NOTE: ADDITIONAL DIAGNOSTICS MAY BE ADDED IN THE FUTURE.

THE SEVEN DIAGNOSTICS ARE:
1. CZDQA [REV] BASIS R/W TEST #1
2. CZDQB [REV] BASIC R/W TEST #2
3. CZDQC [REV] BASIC NPR AND INTERUPT TEST
4. CZDQD [REV] RECEIVER TRANSMITTER EXERCISER TEST
5. CZDQE [REV] MISC. RX AND TX TESTS. PLUS BCC TESTS.
6. CZDQF [REV] CHARACTER DETECT TESTS.
7. CZDQH [REV] CHARACTER LENGTH AND INTERRUPT TESTS.

THERE IS ALSO AN ONLINE TEST TO BE DISCUSED LATER.
1. CZDQO [REV] ONLINE TEST. (ITEP OVERLAY)

AND A PARAMETER INPUT PROGRAM IS AVAILABLE
1. CZDQG [REV] DQ11 TRIAL PROGRAM (PARAMETER INPUT)

2. REQUIREMENTS

2.1 EQUIPMENT

ANY PDP11 FAMILY CPU (WITH MINIMUM 4K MEMORY)-WITH
 OR WITHOUT A HARDWARE SWITCH REGISTER (LOC. 177570)
ASR 33 (OR EQUILIVALENT)
DQ11
SYNC MODEM (ONLY REQUIRED FOR ONLINE TEST)

2.2 STORAGE

PROGRAM WIL_ LOAD AND RUN
IN 4K OF MEMORY.
LOCATION 1400 THRU 1600 ARE ESPECIALLY TO
BE NOTED AND TO BE UNTOUCHED BY OPERATOR
AFTER DQ11 TRIAL PROGRAM HAS BEEN EXECUTED.
OR AFTER THE "AUTO SIZING" HAS BEEN DONE.

3. LOADING PROCEEDURE

3.1 METHOD

ALL PROGRAMS ARE IN ABSOLUTE FORMAT AND

ARE LOADED USING THE ABSOLUTE LOADER.

ABSOLUTE LOADER STARTING ADDRESS *500

MEMORY SIZE	*
4K	17
8K	37
12K	57
16K	77
20K	117
24K	137
28K	157

3.1.1 LOAD THE ADDRESS OF ABS. LOADER (LOC.XXX500)

3.1.2 THEN START

4. STARTING PROCEEDURE

A. LOAD LOC. 200
B. SET SWR TO ZERO FOR ''AUTO SIZING'' OR LEAVE
   LEAVE SWR BIT 7=1 TO USE EXISTING PARAMETERS SET UP
   BY DQ11 TRIAL PROGRAM OR A PREVIOUSLY RUN DQ11 DIAGNOSTIC
   THAT USED THE ''AUTO SIZING''.
    ****REFER TO SECTION 4.1 FOR SOFTWARE SWITCH REGISTER OPERATION
        AND OPTIONS.****
   NOTE:THE SOFTWARE SWITCH REGISTER IS LOCATED AT LOC.176
   SOFTWARE DISPLAY REGISTER IS LOCATED AT LOC.174

C.THEN START
THE PROGRAM WILL TYPE MAINDEC NAME AND PROGRAM NAME
IF THIS WAS THE FIRST START UP OF THE PROGRAM) AND ALSO
THE FOLLOWING:

'MAP OF DQ11 STATUS''

1400	160010
1402	152300
1404	160020
1406	150310

THE ABOVE IS ONLY AN EXAMPLE.
THIS WOULD INDICATE THE STATUS TABLE STARTING AT ADD.
1400 IN THE PROGRAM. THE STATUS TABLE MUST BE VERIFIED BY THE
USER IF AUTO SIZING IS DONE. FOR INFORMATION OF STATUS
TABLE SEE SECTION 8.4 FOR HELP.

****IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
    WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
    SWR-XXXXXX NEW=   (REFER TO SECTION 4.1 FOR OPERATOR'S OPTION)****
    NOTE:IF USING THE SOFTWARE SWITCH REGISTER WHEN A HARDWARE
    SWITCH REGISTER IS AVAILABLE THE PROGRAM WILL NOT
    TYPE OUT THE TITLE.

THE PROGRAM WILL TYPE 'R''
AND PROCEED TO RUN THE DIAGNOSTIC

4.' CONTROL SWITCH SETTINGS

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 SUPPOR'S 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.

SW 15 SET: HALT ON ERROR
SW 14 SET: LOOP ON CURRENT TEST
SW 13 SET: INHIBIT ERROR PRINT OUT
SW 12 SET: INHIBIT TYPE OUT/BELL ON ERROR.
SW 11 SET: INHIBIT ITERATIONS
SW 10 SET: ESCAPE TO NEXT TEST
SW 09 SET: LOOP WITH CURRENT DATA
SW 08 SET: CATCH ERROR AND LOOP ON IT
SW 07 SET: USE PREVIOUS STATUS TABLE. CLR-DO AUTO SIZE.
SW 06 SET:
SW 05 SET:
SW 04 SET:
SW 03 SET:
SW 02 SET: LOCK ON SELECTED TEST
SW 01 SET: RESTART PROGRAM AT SELECTED TEST
SW 00 SET: RESELECT DO'''S DESIRED ACTIVE.

4.1.2 SWITCH REGISTER RESTRICTIONS

SW 00 RESELECT DQ11'S DESIRED ACTIVE.
PLEASE NOTE THAT A MESSAGE IS TYPED
OUT FOR SWITCH REGISTER BEING EQUAL TO DQ11'S
ACTIVE. THIS MEANS IF THE SYSTEM HAS
FOUR DQ11S; BITS 00,01,02,03 WILL
BE SET IN LOC 'DQACTV'. USING THIS
SWITCH ALTERS THAT LOCATION;THEREFORE
IF FOUR DQ11S ARE IN THE SYSTEM
DO NOT SET SWITCHS GREATER THAN
SW 03 IN THE UP POSITION. THIS WOULD BE
A FATAL ERROR. DO NOT SELECT MORE ACTIVE
DQ11S THAN HAS BEEN GIVEN INFORMATION
ABOUT IN TRIAL PROGRAM.

METHOD: A: LOAD ADDRESS 200
B: START WITH SW 00=1
C: PROGRAM WILL TYPE MESSAGE
D: CONTINUE THE BINARY NUMBER OF DQ11'S DESIRED ACTIVE
EXAMPLE: 1=1 DQ11; 3=2 DQ11; 7=3 DQ11; 17=4 DQ11 37-5 DQ11 ETC.
E: NUMBER (IF VALID) WILL BE IN DATA LIGHTS (EXCLUDING 11/05, 11/04, 11/34)
F: CONTINUE WITH ANY OTHER SWITCH SETTINGS DESIRED.

SW 01 IT IS STRONGLY SUGGESTED THAT
AT LEAST ONE PASS HAS BEEN MADE
BEFORE TRYING TO SELECT A TEST
THAT IS NOT IN THE ORDER OF SEQUENCE
THE REASON BEING IS THAT THE
PROGRAM HAS TO CLEAR AREAS AND SET
UP PARAMETERS. ALSO WHEN A TEST IS
SELECTED ALWAYS START AT THE VERY
BEGINNING OF THAT TEST.

SW 09 LOOP ON CURRENT DATA:
THIS SWITCH WILL ONLY WORK IF
CALL 'SCOP1' IS IN THAT TEST.
THE REASON BEING THAT MOST TESTS
DEAL WITH BLOCKS OF DIFFERENT DATA
TO BE SENT OR RECEIVED ALL AT ONCE
THUS IN BLOCK DATA; ONE PATTERN CAN'T BE SINGLED OUT.

4.1.3 SWITCH REGISTER PRIORITYS

ERROR SWITCHES

1. SW 12 DELETE PRINT OUT/BELL ON ERROR.
2. SW 13 DELETE ERROR PRINTOUT.
3. SW 15 HALT ON THE ERROR.
4. SW 08 GOTO BEGINNING OF THE TEST.
5. SW 10 GOTO NEXT TEST ON ERROR.

****HLT (ERROR) ROUTINE SUPPORTS <^G> OPERATION****

SCOPE SWITCHES

1. SW 09 (IF ENABLED BY ''SCOP1'')
2. SW 14
3. SW 11

****SCOPE ROUTINE WILL SUPPORT <^G> OPERATION****

4.2 STARTING ADDRESS

STARTING ADDRESS IS AT 000200
THERE ARE NO OTHER STARTING ADDRESSES
FOR THE DQ11 DIAGNOSTICS PREVIOUSLY MENTIONED

NOTE: IF ADDRESS 000042 IS NON-ZERO
THE PROGRAM ASSUMES IT IS UNDER
ACT11 OR DDP CONTROL AND WILL ACT ACCORDINGLY
AFTER *ALL* AVAILABLE DQ11'S ARE TESTED
THE PROGRAM WILL RETURN TO ''DDP2'' OR ''ACT-11''.

5. OPERATING PROCEDURE

WHEN PROGRAM IS INITIALLY STARTED MESSAGES AS DESCRIBED IN SECTION
FOUR WILL BE PRINTED.

AND PROGRAM WILL BEGIN RUNNING THE
DIAGNOSTIC

5.2 PROGRAM AND/OR OPERATOR ACTION

THE TYPICAL APPROACH SHOULD BE

1. HALT ON ERROR (VIA SW 15 1)
WHEN EVER AN ERROR OCCURS
2. CLEAR SW 15
3. SET SW 14: (LOOP ON THIS TEST)
4. SET SW 13: (INHIBIT ERROR PRINT OUT)

THE TEST NUMBER AND PC WILL BE TYPED OUT AND
POSSIBILY AN ERROR MESSAGE (THIS DEPENDS ON THE TEST)
TO GIVE THE OPERATOR AN IDEA AS TO THE SOURCE OF THE
PROBLEM. IF IT IS NECESSARY TO KNOW MORE INFORMATION
CONCERNING THE ERROR REPORT; LOOK IN THE LISTING
FOR THAT TEST NUMBER WHICH WAS TYPED OUT
AND THEN NOTE THE PC OF THE ERROR REPORT
THIS WAY THE EXACT FUNCTIONING OF THE TEST
CAN BE INTERPEDITED

6. ERRORS

AS DESCRIBED PREVIOUSLY THERE WILL ALWAY BE
A TEST NUMBER AND PC TYPED OUT AT THE TIME OF AN
ERROR (PROVIDING SW 13=0 AND SW 12-0). IN MOST CASES ADDITIONAL
INFORMATION WILL BE SUPPLIED THE THE ERROR MESSAGE
WHICH IS TO GIVE THE OPERATOR AN INDICATION OF THE
ERROR.

6.2 ERROR RECOVERY

IF FOR SOME REASON THE DQ11 SHOULD
'HANG THE BUS'' (GAIN CONTROL OF BUS SO THAT
CONSOLE MANUAL FUNCTIONS ARE INHIBITED) AN INIT
OR POWER DOWN/UP IS NECESSARY FOR OPERATOR
TO REGAIN CONTROL OF CPU.
IF THIS SHOULD HAPPEN; LOOK IN LOCATION
''TSTNO'' (ADDRESS 1226)FOR THE NUMBER OF THE TEST THAT
WAS RUNNING AT THE TIME OF THE CATASTROPHIC
ERROR.
IN THIS WAY THE OPERATOR WILL HAVE AN IDEA AS TO
WHAT THE DQ11 WAS DOING AT THE TIME OF THE ERROR.

6.3 ****HALT RECOVERY WHEN USING SOFTWARE SWITCH REGISTER****

IF THE SOFTWARE SWITCH REGISTER IS TO BE CHANGED AFTER A HALT
THE THE OPERATOR IS REQU.RED TO TYPE A <^G> BEFORE DEPRESSING CONTINUE.
THE FOLLOWING WILL BE TYPED:
SWR-XXXXXX NEW (REFER TO SECTION 4.1 FOR OPERATOR OPTION)

7. RESTRICTIONS

7.1 STARTING RESTRICTIONS

SEE SECTION 4. (PLEASE)

7.2 OPERATING RESTRICTIONS

DQ11 TRIAL PROGRAM MUST BE RUN PRIOR TO THE
FIRST AND ONLY THE FIRST RUNNING OF ANY DQ11 DIAGNOSTIC
NOTE: IF NO PROGRAM OTHER THAN A
DQ11 DIAGNOSTIC WAS LOADED AFTER DQ11 TRIAL OR
IF CORE MEMORY HAS NOT BEEN CHANGED;OR IF THERE
IS NO DQ11 CONFIGURATION CHANGES; THE
DQ11 TRIAL PROGRAM NEED NEVER BE RUN AGAIN.
HOWEVER IF ANY OF THE ABOVE HAVE BEEN VIOLATED
THE DQ11 TRIAL PROGRAM MUST BE RUN AGAIN
BEFORE RUNNING THE DIAGNOSTICS
NOTE: AN ALTERNATIVE TO THE ABOVE IS ATTEMPTING
THE ''AUTO SIZING'' WHEN PROGRAM IS INITIALLY STARTED
WITH SW07=0.

8. MISCELLANEOUS

8.1 EXECUTION TIME

8.2 PASS COMPLETE

WHEN THE DIAGNOSTIC HAS COMPLETED
A PASS THE FOLLOWING IS AN EXAMPLE
OF THE PRINT OUT TO BE EXPECTED.

END PASS AC-8610E-MC CSR: 160000 VEC: 300 PASSES: 000001 ERRORS: 000000

NOTE: THE NUMBERS FOR CSR AND VEC ARE
NOT NECESSARILY THE VALUES FOR THE DEVICE

THEY ARE ONLY FOR THIS EXAMPLE.

8.3 TST' (MINI MONITOR)

THE VERY FIRST 'TEST'' (TST1)
IS *NOT* A TEST OF THE DQ11 HARDWARE
IT IS A MINI-MONITOR USED TO CYCLE DQ11 IN THE
SYSTEM THROUGH THE DIAGNOSTIC.

REMEMBER: TST1 IS NOT A TEST OF DQ11 HARDWARE!!!!!!!

8.4 KEY LOCATIONS

RETURN (1214) CONTAINS THE ADDRESS WHERE PROGRAM WILL RETURN WHEN ITERATION COUNT IS REACHED OR IF LOOP ON TEST IS ASSERTED.

NEXT (1216) CONTAINS THE ADDRESS OF THE NEXT TEST TO BE PEFORMED.

TSTNO (1226) CONTAINS THE NUMBER OF THE TEST NOW BEING PEFORMED.

RUN (1304) THE BIT IN 'RUN'' ALWAYS POINTS ONE PAST THE DQ11 CURRENTLY BEING TESTED.
EXAMPLE:
(RUN) 1304/0000000001000000
MEANS THAT DQ11 NO.05 IS THE DQ11 NOW RUNNING.

DQCR00-DQCR17
DQST00-DQST17
(1400)-(1476)

THESE LOCATIONS CONTAIN THE INFORMATION NEEDED TO TEST UP TO 16 (DECIMAL) DQ11S SEQUENTIALY. THEY CONTAIN THE CSR,VECTOR AND STATUS CONCERNING THE CONFIGURATION OF EACH DQ11.

DQACTV (1500) EACH BIT SET IN THIS LOCATION INDICATES THAT THE ASSOCIATED DQ11 WILL BE TESTED IN TURN.
EXAMPLE:
(DQACTV) 1500/0000000000011111
MEANS THAT DQ11 NO. 00,01,02,03,04
WILL BE TESTED.
EXAMPLE:
(DQACTV) 1500/0000000000010001
MEANS THAT DQ11 NO. 00,04
WILL BE TESTED.

DQCSR (1506) CONTAINS THE RECEIVER CSR OF THE CURRENT DQ11 UNDER TEST.

DQSTAT (1510) CONTAINS THE STATUS OF THE CURRENT DQ11 UNDER TEST.

BIT 15 SET: TWO SYNC CHARS/ONE SYNC CHAR
BIT 14 SET: TEST JUMPER INSTALLED/NOT INSTALLED
BIT 13 SET: BB OPTION INSTALLED/NOT INSTALLED
BIT 12 SET: BA OPTION INSTALLED/NOT INSTALLED
BIT 11 SET: ACTIVE ON FIRST NON-SYNC/ACTIVE AFTER NO. OF SYNC
BIT 10 SET: AB OPTION INSTALLED/NOT INSTALLED
BIT 09 SET: ODD VRC/EVEN VRC

BIT 00-08 VECTOR ''A'' OF DEVICE

8.5 *** METHOD OF AUTO SIZING ***

8.5.1 FINDING THE CONTROL STATUS REGISTER.

WHEN LOOKING FOR THE CSR IT IS NECESSARY TO TAKE CARE
THAT WHEN A CSR IS FOUND THAT IT IS INDEED A DQ11. THAT
IS THE METHOD OF MY MADNESS FOR THIS ROUTINE.
AN ATTEMPT TO CLEAR THE MISC. REGISTER IS TRIED
IF A TIME-OUT TRAP OCCURES POINTERS ARE UPDATED
AND ATTEMPTED AGAIN. IF NO TIME-OUT; THE RECEIVER ''ACTIVE BI'' (BIT 12)
IS SET AND A *COMPARE* FOR BOTH SYNC1 AND SYNC 2 IS DONE
AT THE MISC. REGISTER. IF THEY ARE THERE THIS IS
A DQ11. THE INFORMATION IS STORED AWAY.

8.5.2 ONE SYNC BIT OR TWO?

SINCE TOO MUCH HARDWARE MUST BE TURNED ON TO SENSE THE
PRESENTS OF ONE SYNC OR TWO. THE PROGRAM ASSUMES TWO SYNC
CHARS. NOTE: THIS ASSUMPTION MAY BE ALTERED AFTER AUTO SIZING
BY ALTERING BIT 15 IN APPRIOATE DQSTXX: LOCATION.

8.5.3 ''BB'' OPTION INSTALLED?

TO SENSE FOR THE ''BB'' OPTION THE PROGRAM SELECTS THE
CHARACTER DET. REGISTER AND THE LOADS IN ALL 1'S; IF
ANY ONE OR COMBINATION OF BITS ARE SET THE BB OPTION
IS ASSUMED TO EXIST.

8.5.4 ''AB'' OPTION INSTALLED?

TO SENSE FOR THE ''AB'' OPTION THE PROGRAM SELECTS THE
POLYNOMIAL REGISTER AND WRITES ALL 1'S INTO IT; IF ANY
ONE OR COMBINATION OF BITS ARE SET THE AB OPTION IS ASSUMED
TO EXIST.

8.5.5 ''BA'' OPTION INSTALLED?

TO SENSE FOR ''BA'' OPTION REQUEST TO SEND AND DATA TERMINAL
READY ARE SET; IF EITHER ONE OR BOTH ARE SET THE PROGRAM
ASSUMES THE BA OPTION EXISTES

8.5.6 JUMPER ON END OF CABLE? ***NOTE:CZDQE ONLY***

THE PROGRAM CHECKS TO SEE IF EITHER OR BOTH CLEAR TO
SEND AND CARRIER ARE SET; IF SO THE PROGRAM ASSUMES THE
TEST JUMPER IS ON THE END OF THE CABLE.

8.5.7 ACTIVE ON FIRST NON-SYNC?

SINCE TOO MUCH HARDWARE MUST BE TURNED ON TO SENSE FOR
WHEN THE DQ11 GOES ACTIVE THE PROGRAM ASSUMES ''ACTIVE
ON FIRST NON-SYNC''. NOTE: THIS CAN BE CHANGED BY ALTERING
BIT 11 IN THE APPRIOATE DQSTXX: AFTER AUTO SIZING

8.5.8 SET FOR ODD OR EVEN PARITY?

AS ABOVE TOO MUCH HARDWARE IS NEED TO SENSE WHICH PARITY
WAS SELECTED.SO THE PROGRAM ASSEMES ODD PARITY.
NOTE: THIS CAN BE CHANGED BY ALTERING BIT 9 IN APPRIO-
ATE DQSTXX: LOCATION. AFTER AUTO SIZING

8.5.9 FINDING THE VECTOR.

THE PROGRAM SETS ''PRIMARY DONE'',''SECONDAY DONE'', AND ''INTERUPT ENABLE''
AND LOOKS FOR AN INTERUPT. IF IT INTERUPTS IT IS PICKED
UP AND STORED AWAY. IF NO INTERUPT OCCURES THE PROGRAM
ASSUMES VECTOR =300. THIS PROBLEM WILL BE FIXED IN ONE
OF THE DIAGNOSTICS AND *AUTO SIZING* SHOULD BE REDONE TO
GET THE CORRECT VECTOR.

9. PROGRAM DESCRIPTION

CONTAINED WITHIN LISTING

10. LISTING

FOLLOWING

```
                177320          NON.EX=177320
                                .ENABLE AMA

                                ;CZDQCE0/<377>/DQ11 INTERRUPT AND NPR LOGIC TEST
                                ;COPYRIGHT 1975, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754

                                ;REVISED 16-DEC-76 BY R. BLACK
                                ;       A)SUPPORTS SOFTWARE SWITCH REGISTER
                                ;       B)SUPPORTS THE DYNAMIC LOADING OF THE SOFTWARE SWITCH REGISTER
                                ;         BY <^G>.
                                        ;STARTING PROCEDURE
                                        ;LOAD PROGRAM
                                        ;LOAD ADDRESS 000200
                                        ;PRESS START
                                        ;PROGRAM WILL TYPE ''CZDQCE0/<377>/DQ11 INTERRUPT AND NPR LOGIC TEST''
                                        ;PROGRAM WILL TYPE 'R'' TO INDICATE THAT TESTING HAS STARTED
                                        ;AT THE END OF A PASS, PROGRAM WILL TYPE PASS COMPLETE MESSAGE
                                        ;AND THEN RESUME TESTING


                                ;SWITCH REGISTER OPTIONS

        100000                  SW15=100000             ; 1,HALT ON ERROR
        040000                  SW14=40000              ;-1,LOOP ON CURRENT TEST
        020000                  SW13=20000              ; 1,INHIBIT ERROR TYPEOUT
        010000                  SW12=10000              ;-1,DELETE TYPEOUT/BELL ON ERROR.
        004000                  SW11=4000               ;=1,INHIBIT ITERATIONS
        002000                  SW10=2000               ;=1,ESCAPE TO NEXT TEST ON ERROR
        001000                  SW09=1000               ; 1,LOOP WITH CURRENT DATA
        000400                  SW08=400                ;-1,LOOP ON ERROR
        000100                  SW06=100
        000040                  SW05=40
        000020                  SW04=20
        000010                  SW03=10
        000004                  SW02=4                  ;LOCK ON TEST SELECT
        000002                  SW01=2                  ;RESTART PROGRAM AT SELECTED TEST
        000001                  SW00=1                  ;RESELECT DQ11 DESIRED ACTIVE
                                                        ;NOTE: THIS MUST NOT EXCEED ORIGINAL COUNT
```

```
                        ;REGISTER DEFINITIONS
                        
000000                  R0=%0           ;GENERAL REGISTER
000001                  R1=%1           ;GENERAI REGISTER
000002                  R2=%2           ;GENERAL REGISTER
000003                  R3-%3           ;GENERAL REGISTER
000004                  R4=%4           ;GENERAL REGISTER
000005                  R5=%5           ;GENERAL REGISTER
000006                  SP=%6           ;PROCESSOR STACK POINTER
000007                  PC=%7           ;PROGRAM COUNTER
                        
                        ;LOCATION EQUIVALENCIES
                        
177570                  DSWR=   177570  ;HARDWARE SWITCH REGISTER LOC.
177570                  DLIGHTS=177570  ;HARDWARE DISPLAY REGISTER LOC.
177776                  PS=177776       ;PROCESSOR STATUS WORD
001200                  STACK=1200      ;START OF PROCESSOR STACK
                        
                        ;INSTRUCTION DEFINITIONS
                        
005746                  PUSH1SP=5746    ;DECREMENT PROCESSOR STACK 1 WORD
005726                  POP1SP=5726     ;INCREMENT PROCESSOR STACK 1 WORD
010046                  PUSHR0=10046    ;SAVE R0 ON STACK
012600                  POPR0=12600     ;RESTORE R0 FROM STACK
024646                  PUSH2SP=24646   ;DECREMENT STACK TWICE
022626                  POP2SP=22626    ;INCREMENT STACK TWICE
                        .EQUIV  EMT,HLT ;BASIC DEFINITION OF ERROR CALL
                        
                        
100000                  BIT15=100000
040000                  BIT14=40000
020000                  BIT13=20000
010000                  BIT12=10000
004000                  BIT11=4000
002000                  BIT10=2000
001000                  BIT9=1000
000400                  BIT8=400
000200                  BIT7=200
000100                  BIT6=100
000040                  BIT5=40
000020                  BIT4=20
000010                  BIT3=10
000004                  BIT2=4
000002                  BIT1=2
000001                  BIT0=1
                        
                        
                        ;DQ11 OPTIONAL DEFINITIONS
                        
002000                  ABBIT=2000
004000                  ACTBIT=4000
010000                  BABIT=10000
020000                  BBBIT 20000
040000                  JUMBIT-40000
```

```
616          001000                  ODDBIT=1000
617          100000                  SYNBIT=100000
618
619
620                                  ;DQ11 SECONDARY REGISTER DEFINATIONS
621
622          000000                  RXBA.P=0        ;RECEIVER BUS ADDRESS PRIMARY.
623          000001                  RXWC.P=1        ;RECEIVER WORD COUNT PRIMARY.
624          000002                  TXBA.P=2        ;TRANSMITTER BUS ADDRESS PRIMARY.
625          000003                  TXWC.P=3        ;TRANSMITTER BUS ADDRESS PRIMARY.
626          000004                  RXBA.S=4        ;RECEIVER BUS ADDRESS SECONDARY.
627          000005                  RXWC.S=5        ;RECEIVER WORD COUNT SECONDARY.
628          000006                  TXBA.S=6        ;TRANSMITTER BUS ADDRESS SECONDARY.
629          000007                  TXWC.S=7        ;TRANSMITTER WORD COUNT SECONDARY.
630
631          000010                  CHARDT=10       ;CHARACTER DETECT REGISTER.
632          000011                  SYNC.=11        ;SYNC REGISTER.
633          000012                  MISC.-12        ;MISCELLANEOUS REGISTER.
634          000013                  TX.MUX=13       ;TRANSMITTER MUX REGISTER.
635          000014                  SEQ.-14         ;SEQUENCE REGISTER.
636          000015                  RX.BCC=15       ;RECEIVER BCC REGISTER.
637          000016                  TX.BCC=16       ;TRANSMITTER BCC REGISTER.
638          000017                  POLY.=17        ;POLYNOMIAL REGISTER.
639
640
```

```
                                        ;TRAPCATCAEP FOR ILLEGAL INTERRUPTS
000000                          .=0
                                        ;STANDARD INTERRUPT VECTORS

000024                          .=24
000024  014564                          .PFAIL                  ;POWER FAIL HANDLER
000026  000340                          340                     ;SERVICE AT LEVEL 7
000030  014234                          .HLT                    ;ERROR HANDLER
000032  000340                          340                     ;SERVICE AT LEVEL 7
000034  014202                          .TRPSRV                 ;GENERAL HANDLER DISPATCH SERVICE
000036  000340                          340                     ;SERVICE AT LEVEL 7
000046                          . 46
000046  012762                          LOGICAL                 ;ACT HOOKS
000052                          .-52
000052  000000                          .WORD 0
                                ;THIS ROUTINE TRIES TO FORCE THE RECEIVER TO INTERUPT
                                ;TO ITS VECTOR WHERE IT WILL PICK UP THE STATUS LOCATION
                                ;FOR ITS NEW PC; AND PICK UP AN IOT INSTRUCTION FOR ITS
                                ;NEW PS. WHEN THE NEW PC IS FETCHED AN IOT INSTRUCTION IS
                                ;EXECUTED, TRAPPING TO LOCATION 20 WHERE A ROUTINE IS EXECUTED
                                ;TO TAKE THE PC FROM THE STACK AND US IT AS THE VECTOR ADDRESS
000056                          . 56

000056                  VECMAP:
000056  010120          1$:     MOV     R1,(R0)+        ;START FILLING THE VECTOR AREA
000060  012721  000004          MOV     #4,(R1)+        ;WITH .+2; IOT (4)
000064  022021                  CMP     (R0)+,(R1)+     ;UPDATE THE POINTERS
000066  020127  001000          CMP     R1,#1000        ;IS ALL FLOATING VECTOR AREA DONE
000072  101771                  BLOS    1$              ;BR IF NOT ALL DONE
000074  012737  000146  000020  MOV     #4$,@#20        ;SET FOR IOT TRAP BY DQ11
000102  013737  001500  001244  MOV     DQACTV,TEMP1    ;GET THE ACTIVE DQ11 S
000110  006037  001244  2$:     ROR     TEMP1           ;ARE YOU ACTIVE.. DQ11
000114  103023                  BCC     5$              ;IF CARRY CLEAR.. NO MORE DQ11S
000116  005037  177776          CLR     PS              ;CLEAR PS
000122  005722                  TST     (R2)+           ;PUT POINTER TO STATUS TABLE
000124  012772  000340  177776  MOV     #340,@-2(R2)    ;TRY AND SET PRI/SEC DONE AND IE
000132  105200                  INCB    R0              ;DELAY.....
000134  001376                  BNE     .-2             ;.....DELAY
000136  112712  000300          MOVB    #300,(R2)       ;NO INTERUPT ASSUME 300 FIX IN TEST C
000142  005722          3$:     TST     (R2)+           ;UPDATE POINTERS
000144  000761                  BR      2$              ;GO DO IT AGAIN
000146  051612          4$:     BIS     (SP),(R2)       ;ENTERD  BY IOT TRAP BY DQ11
000150  042712  000007          BIC     #7,(R2)         ;CLEAR UNWANTED BITS
000154  022626                  CMP     (SP)+,(SP)+     ;POP IOT JUNK OFF STACK
000156  012716  000142          MOV     #3$,(SP)        ;SET RETURN PC ON STACK
000162  000002                  RTI                     ;GO HOME.
000164  000207          5$:     RTS     PC              ;ALL SIZING IS DONE

                                ;****SOFTWARE SWITCH REGISTER****
000174                          .-174
000174  000000          DISPREG:        0               ;SOFTWARE DISPLAY REGISTER
000176  000000          SWREG:          0               ;SOFTWARE SWITCH REGISTER

                                ;PROGRAM START

000200                          .-200
```

```
                                        JMP     .START          ;GO TO START OF PROGRAM

                    000220              .-220
000220  012702  001400          CSRMAP: MOV     #1400,R2        ;CLEAR ALL STATUS TABLE
000224  005022                          CLR     (R2)+           ;DO CLEAR
000226  022702  001512                  CMP     #1512,R2        ;ALL TABLE DONE
000232  001374                          BNE     .-6             ;BR IF MORE TO GO
000234  005037  001504                  CLR     DQNUM           ;SET NUMBER OF DQ11S TO 0
000240  012702  001400                  MOV     #1400,R2        ;SET TABLE POINTER
000244  012701  160000                  MOV     #160000,R1      ;GET FIRST FLOATING ADDRESS
000250  012737  000614  000004          MOV     #5$,@#4         ;SET FOR TIME OUT TRAP--NO DEVICE--
000256  112761  000012  000005  1$:     MOVB    #12,5(R1)       ;TRY AND SEL MISC REGISTER
000264  005061  000006                  CLR     6(R1)           ;TRY AND CLEAR MISC REG
000270  012711  010000                  MOV     #10000,(R1)     ;TRY AND SET RX ACTIVE
000274  022761  030000  000006          CMP     #30000,6(R1)    ;LOOK FOR SYNC 1 AND SYNC 2
000302  001071                          BNE     2$              ;THIS IS NOT A DQ11 IF I BRANCH
000304  010122                          MOV     R1,(R2)+        ;NOW THIS IS A DQ11 --STORE CSR
000306  052712  100000                  BIS     #SYNBIT,(R2)    ;SET FOR TWO SYNC CHARS
000312  005011                          CLR     (R1)            ;CLEAR DQ ACTIVE BIT
000314  112761  000010  000005          MOVB    #10,5(R1)       ;SEL CHAR DET REGISTER
000322  012761  177777  000006          MOV     #-1,6(R1)       ;WRITE INTO CHAR DET REG
000330  005761  000006                  TST     6(R1)           ;WAS THE REGISTER WRITTEN?
000334  001402                          BEQ     .+6             ;APPERENTLY NO BB OPTION.
000336  052712  020000                  BIS     #BBBIT,(R2)     ;SET FOR BB OPTION
000342  112761  000017  000005          MOVB    #17,5(R1)       ;SEL POLYNO. REGISTER
000350  012761  177777  000006          MOV     #-1,6(R1)       ;WRITE POLYNO.REGISTER
000356  005761  000006                  TST     6(R1)           ;WAS REG WRITTEN??
000362  001402                          BEQ     .+6             ;BR IF NO AB OPTION
000364  052712  002000                  BIS     #ABBIT,(R2)     ;SET FOR AB OPTION
000370  012761  001400  000002          MOV     #1400,2(R1)     ;TRY TO SET .DTR. .RS.
000376  032761  001400  000002          BIT     #1400,2(R1)     ;DID ANY OF THEM SET
000404  001402                          BEQ     .+6             ;BR IF NO BA OPTION
000406  052712  010000                  BIS     #BABIT,(R2)     ;SET FOR BA OPTION
000412  032761  030000  000002          BIT     #30000,2(R1)    ;DID .CS. .CO. SET
000420  001402                          BEQ     .+6             ;BR IF NO JUMPER
000422  052712  040000                  BIS     #JUMBIT,(R2)    ;SET FOR JUMPER
000426  052712  004000                  BIS     #ACTBIT,(R2)    ;SET FOR ACTIVE ON FIRST NON-SYNC
000432  052712  001000                  BIS     #ODDBIT,(R2)    ;SET FOR ODD VRC.......
000436  005722                          TST     (R2)+           ;POP POINTER
000440  005011                          CLR     (R1)            ;CLEAR RCSR
000442  005061  000002                  CLR     2(R1)           ;CLEAR TCSR
000446  005061  000002                  CLR     2(R1)           ;CLEAR AGAIN
000452  005061  000004                  CLR     4(R1)           ;CLEAR ERROR REG
000456  005061  000006                  CLR     6(R1)           ;CLEAR SEC REG
000462  005237  001504                  INC     DQNUM           ;UPDATE NUMBER OF DQ11S
000466  062701  000010          2$:     ADD     #10,R1          ;UPDATE CSR POINTER BY 10 (8)
000472  022701  164000                  CMP     #164000,R1      ;HAVE ALL FLOATING ADDRESSES BEEN CHECKED??
000476  001267                          BNE     1$              ;BR IF NOT ALL DONE
000500  005037  001500                  CLR     DQACTV          ;ZERO ACTIVE DQ11S
000504  005737  001504                  TST     DQNUM           ;WERE ANY DQ11S FOUND
000510  001434                          BEQ     4$              ;HEY BUDDY. NO DQ11S FOUND IN SYSTEM
000512  013701  001504                  MOV     DQNUM,R1        ;SAVE NUMBER OF DQ11S
000516  010137  001276                  MOV     R1,SAVNUM       ;SAVE NUMBER FOR ACT11
000522  000241          3$:     CLC                             ;CLEAR CARRY
000524  006137  001500                  ROL     DQACTV          ;       ACTIVE ADDRESS
000530  005237  001500                  INC     DQACTV          ;SET BIT 0
```

```
000534  005301                  DEC     R1              ;DEC NUMBER OF DQ11S
000536  001371                  BNE     3$              ;BR IF MORE TO GO
000540  012737  000006  000004  MOV     #6,@#4          ;RESET TIME OUT VECTOR
000546  013737  001500  001502  MOV     DQACTV,SAVACT   ;SAVE ACTIVE
000554  012737  000340  000022  MOV     #340,@#22       ;SET IOT TRAP PRIO: TO 7
000562  012702  001400          MOV     #1400,R2        ;SET TABLE POINTER
000566  012700  000300          MOV     #300,R0         ;SET VECTOR START
000572  012701  000302          MOV     #302,R1         ;SET VECTOR+2 START
000576  000137  000056          JMP     VECMAP          ;GO FIND THE VECTORS
000602  104402                  4$:     TYPE            ;TYPE MESSAGE
000604  015125                  MERR2                   ;I DIDN'T FIND ANY DQ11S. DON'T USE AUTO SIZE.
000606  005000                  CLR     R0              ;
000610  000000                  HALT                    ;HOW CAN I TEST NO DQ11S
000612  000776                  BR      .-2             ;DON'T LET OPR HIT CONT. SW
000614  012716  000466          5$:     MOV     #2$,(SP)        ;ENTERED BY TIME OUT TRAP
000620  000002                  RTI                     ;GO HOME.


        001000                  .=1000
001000  005377  055103  050504  MTITLE: .ASCIZ  <377><12>/CZDQCE0/<377>/DQ11 INTERRUPT AND NPR LOGIC TEST/<377>
001006  042503  177460  050504
001014  030461  044440  052116
001022  051105  052522  052120
001030  040440  042116  047040
001036  051120  046040  043517
001044  041511  052040  051505
001052  177524     000


        001200                  . 1200

                                ;INDIRECT POINTERS

001200  177570                  SWR:    177570          ;SWITCH REGISTER POINTER
001202  177570                  LIGHTS: 177570          ;DISPLAY REGISTER POINTER
001204  177560                  TKCSR:  177560          ;TELETYPE KEYBOARD CONTROL REGISTER
001206  177562                  TKDBR:  177562          ;TELETYPE KEYBOARD DATA BUFFER
001210  177564                  TPCSR:  177564          ;TELEPRINTER CONTROL REGISTER
001212  177566                  TPDBR:  177566          ;TELEPRINTER DATA BUFFER

                                ;PROGRAM CONTROL PARAMETERS

001214  000000                  RETURN: 0               ;SCOPE ADDRESS FOR LOOP ON TEST
001216  000000                  NEXT:   0               ;ADDRESS OF NEXT TEST TO BE EXECUTED
001220  000000                  LOCK:   0               ;ADDRESS FOR LOCK ON CURRENT DATA
001222  000003                  ICOUNT: 3               ;NUMBER OF ITERATIONS THAT CURRENT TEST WILL BE EXECUTED
001224  000000                  LPCNT:  0               ;NUMBER OF ITEREATIONS COMPLETED
001226  000000                  TSTNO:  0               ;NUMBER OF TEST IN PROGRESS
001230  000000                  PASCNT: 0               ;NUMBER OF PASSES COMPLETED
001232  000000                  ERRCNT: 0               ;TOTAL NUMBER OF ERRORS
001234  000000                  LSTERR: 0               ;PC OF LAST ERROR CALL

                                ;PROGRAM VARIABLES

001236  000000                  CHAR1:  0
001240  000000                  CHAR2:  0
001242  000000                  CHAR3:  0
001244  000000                  TEMP1:  0               ;TEMPORARY STORAGE
```

```
  809  001246  000000                TEMP2:  0                       ;TEMPORARY STORAGE
  810  001250  000000                TEMP3:  0                       ;TEMPORARY STORAGE
  811  001252  000000                TEMP4:  0                       ;TEMPORARY STORAGE
  812  001254  000000                TEMP5:  0                       ;TEMPORARY STORAGE
  813  001256  000000                SAVR0:  0                       ;R0 STORAGE
  814  001260  000000                SAVR1:  0                       ;R1 STORAGE
  815  001262  000000                SAVR2:  0                       ;R2 STORAGE
  816  001264  000000                SAVR3:  0                       ;R3 STORAGE
  817  001266  000000                SAVR4:  0                       ;R4 STORAGE
  818  001270  000000                SAVR5:  0                       ;R5 STORAGE
  819  001272  000000                SAVSP:  0                       ;STACK POINTER STORAGE
  820  001274  000000                SAVPC:  0                       ;PROGRAM COUNTER STORAGE
  821  001276  000000                SAVNUM: 0
  822  001300  000001                CREAM:  .BLKW   1
  823  001302  000000                RUNFLG: 0
  824  001304  000000                RUN:    0
  825  001306  000000                RUNCNT: 0
```

```
                                        ;PROGRAM CONTROL FLAGS

001310      000         INIFLG: .BYTE   0               ;PROGRAM INITIALIZATION FLAG
001311      000         STFLG:  .BYTE   0               ;TEST START FLAG
001312      000         ERRFLG: .BYTE   0               ;ERROR OCCURED FLAG
001313      000         LOKFLG: .BYTE   0               ;LOCK ON CURRENT TEST FLAG
          000000        $Y=0

                                        ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
                                        ;POINTERS TO SUBROUTINES CAN BE FOUND
                                        ;IN THE TABLE IMMEDIATLY FOLLOWING THE DEFINITIONS

                        ;*****************************************************************
                        ;*****************************************************************
001314                  .TRPTAB:
          104400        SCOPE=TRAP+0            ;CALL TO SCOPE LOOP AND ITERATION HANDLER
001314    013036              .SCOPE
          104401        SCOP1=TRAP+1            ;CALL TO LOOP ON CURRENT DATA HANDLER
001316    013150              .SCOP1
          104402        TYPE=TRAP+2             ;CALL TO TELETYPE OUTPUT ROUTINE
001320    013170              .TYPE
          104403        INSTR=TRAP+3            ;CALL TO ASCII STRING INPUT ROUTINE
001322    013276              .INSTR
          104404        INSTER=TRAP+4           ;CALL TO INPUT ERROR HANDLER
001324    013414              .INSTER
          104405        PARAM=TRAP+5            ;CALL TO NUMERICAL DATA INPUT ROUTINE
001326    013446              .PARAM
          104406        SAV05=TRAP+6            ;CALL TO REGISTER SAVE ROUTINE
001330    013662              .SAV05
          104407        RES05=TRAP+7            ;CALL TO REGISTER RESTORE ROUTINE
001332    013722              .RES05
          104410        CONVRT=TRAP+10          ;CALL TO DATA OUTPUT ROUTINE
001334    013754              .CONVRT
          104411        CNVRT=TRAP+11           ;CALL TO DATA OUTPUT ROUNTINE WITHOUT CR/LF.
001336    013760              .CNVRT
          104412        MSTCLR=TRAP+12          ;CALL TO ISSUE MASTER CLEAR
001340    015620              .MSTCLR
          104413        MEMCLR=TRAP+13          ;CALL TO CLEAR ALL SCRATCH PAD MEMORIES
001342    015636              .MEMCLR
          104414        CKSWR=TRAP+14           ;CALL TO ALLOW SWREG TO BE LOADED FROM TTY
001344    014662              .CKSWR
          104415        CNTLU=TRAP+15           ;CALL TO ALLOW LOADING OF SWREG FROM TTY
001346    014736              .CNTLU

                        ;*****************************************************************
                        ;*****************************************************************

                                        ;DQ11 VECTOR AND REGISTER INDIRECT POINTERS

001350    000000        DQRVEC: 0               ;POINTER TO DQ11 RECEIVER INTERRUPT VECTOR
001352    000000        DQRLVL: 0               ;POINTER TO DQ11 RECEIVER INTERRUPT SERVICE P
001354    000000        DQTVEC: 0               ;POINTER TO DQ11 TRANSMITTER INTERRUPT VECTOR
001356    000000        DQTLVL: 0               ;POINTER TO DQ11 TRANSMITTER INTERRUPT SERVICE PS
001360    000000        DQRCSR: 0               ;POINTER TO DQ11 RECEIVER CONTROL REGISTER
001362    000000        DQRCSH: 0               ;POINTER TO HIGH BYTE OF DQ11 RECEIVER CONTROL REGISTER
```

```
882  001364  000000                DQTCSR: 0               ;POINTER TO DQ11 TRANSMITTER CONTROL REGISTER
883  001366  000000                DQERR:  0               ;POINTER TO DQ11 ERROR REGISTER
884  001370  000000                DQREG:  0               ;POINTER TO HIGH BYTE OF ERROR REGISTER
885  001372  000000                DQSEC:  0               ;POINTER TO DQ11 SECONDARY REGISTER
886  001374  000000                DQSECH: 0               ;POINTER TO HIGH BYTE OF DQ11 SECONDARY REGISTER
887
888
889
890                                        ;DQ11 STATUS TABLE AND ADDRESS ASSIGNMENTS
891
892           001400                .=1400
893  001400  000001                DQCR00: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 00
894  001402  000001                DQST00: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 00
895  001404  000001                DQCR01: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 01
896  001406  000001                DQST01: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 01
897  001410  000001                DQCR02: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 02
898  001412  000001                DQST02: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 02
899  001414  000001                DQCR03: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 03
900  001416  000001                DQST03: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 03
901  001420  000001                DQCR04: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 04
902  001422  000001                DQST04: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 04
903  001424  000001                DQCR05: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 05
904  001426  000001                DQST05: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 05
905  001430  000001                DQCR06: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 06
906  001432  000001                DQST06: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 06
907  001434  000001                DQCR07: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 07
908  001436  000001                DQST07: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 07
909  001440  000001                DQCR10: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 10
910  001442  000001                DQST10: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 10
911  001444  000001                DQCR11: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 11
912  001446  000001                DQST11: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 11
913  001450  000001                DQCR12: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 12
914  001452  000001                DQST12: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 12
915  001454  000001                DQCR13: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 13
916  001456  000001                DQST13: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 13
917  001460  000001                DQCR14: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 14
918  001462  000001                DQST14: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 14
919  001464  000001                DQCR15: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 15
920  001466  000001                DQST15: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 15
921  001470  000001                DQCR16: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 16
922  001472  000001                DQST16: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 16
923  001474  000001                DQCR17: .BLKW   1       ;CONTROL STATUS REGISTER FOR DEVICE NO: 17
924  001476  000001                DQST17: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 17
925  001500  000001                DQACTV: .BLKW   1       ;HOLD ACTIVE BITS FOR TESTING
926  001502  000001                SAVACT: .BLKW   1       ;SAVE NUMBER OF ACTIVE DQ11S
927  001504  000001                DQNUM:  .BLKW   1       ;OCTAL NUMBER OF TOTAL NUMBER OD DQ'1S
928  001506  000001                DQCSR:  .BLKW   1       ;CSR OF DQ11 UNDER TEST
929  001510  000001                DQSTAT: .BLKW   1       ;VECTOR AND CONFIGURATION STATUS OF DQ11 UNDER TEST
930
931                                        ;PROGRAM INITIALIZATION
932                                        ;LOCK OUT INTERRUPTS
933                                        ;SET UP PROCESSOR STACK
934                                        ;SET UP POWER FAIL VECTOR
935                                        ;CLEAR PROGRAM CONTROL FLAGS AND COUNTS
936                                        ;TYPE TITLE MESSAGE
937
```

```
938  001512  012737  000340  177776  .START: MOV     #340,PS                 ;LOCK OUT INTERRUPTS
939  001520  012706  001200                 MOV     #STACK,SP               ;SET UP STACK
940  001524  012737  014564  000024         MOV     #.PFAIL,@#24            ;SET UP POWER FAIL VECTOR
941  001532  013737  001504  001276         MOV     DQNUM,SAVNUM
942  001540  105037  001311                 CLRB    STFLG                   ;CLEAR START FLAG
943  001544  005037  001230                 CLR     PASCNT                  ;CLEAR PASS COUNT
944  001550  105037  001312                 CLRB    ERRFLG                  ;CLEAR ERROR FLAG
945  001554  005037  001302                 CLR     RUNFLG
946  001560  012737  001400  001300         MOV     #1400,CREAM
947  001566  005037  001232                 CLR     ERRCNT                  ;CLEAR ERROR COUNT
948  001572  005037  001234                 CLR     LSTERR                  ;CLEAR LAST ERROR POINTER
949  001576  012737  000001  001226         MOV     #1,TSTNO                ;SET UP FOR TEST 1
950  001604  012737  001512  001214         MOV     #.START,RETURN          ;SET UP FOR POWER FAIL BEFORE
951                                                                          ;TESTING STARTS
952  001612  012737  177570  001200         MOV     #DSWR,SWR               ;MOV HARDWARE SWR TO SWR
953  001620  012737  177570  001202         MOV     #DLIGHTS,LIGHTS         ;MOV DISPLAY LIGHTS TO LIGHTS
954  001626  013746  000006                 MOV     @#6,-(SP)               ;SAVE VECTORS
955  001632  013746  000004                 MOV     @#4,-(SP)
956  001636  012737  001656  000004         MOV     #64$,@#4                        ;SET UP FOR TIMEOUT
957  001644  022777  177777  177326         CMP     #-1,@SWR                ;REFERENCE HARDWARE SWITCH REGISTER
958  001652  001402                         BEQ     65$
959  001654  000407                         BR      66$
960  001656  022626                 64$:    CMP     (SP)+,(SP)+             ;ADJUST STACK
961  001660  012737  000176  001200 65$:    MOV     #SWREG,SWR              ;POINT TO SOFTWARE SWITCH REG
962  001666  012737  000174  001202         MOV     #DISPREG,LIGHTS         ;POINT TO SOFT DISPLAY REG
963  001674  012637  000004         66$:    MOV     (SP)+,@#4               ;RESTORE VECTORS
964  001700  012637  000006                 MOV     (SP)+,@#6
965  001704  005737  000042                 TST     @#42                    ;UNDER MONITOR
966  001710  001014                         BNE     67$
967                                 ;;******THE NEXT 4 LINES OF CODE MOVED TO SOLVE PR#2757 (JUNE 78)******
968  001712  105737  001310                 TSTB    INIFLG                  ;HAS INITIALIZATION BEEN PERFORMED?
969  001716  001035                         BNE     12$                     ;IF YES, BR
970  001720  104402  001000                 TYPE    ,MTITLE                 ;TYPE TITLE MESSAGE
971  001724  105137  001310                 COMB    INIFLG          ;IF NOT SET FLAG AND INIT
972  001730  022737  000176  001200         CMP     #SWREG,SWR              ;IS SWREG USED
973  001736  001001                         BNE     67$
974  001740  104415                         CNTLU
975  001742  105777  177232         67$:    TSTB    @SWR
976  001746  100402                         BMI     .+6
977  001750  004737  000220                 JSR     PC,CSRMAP
978  001754  104402  015412                 TYPE    ,XHEAD
979  001760  012737  001400  001244         MOV     #1400,TEMP1
980  001766  017737  177252  001246         MOV     @TEMP1,TEMP2
981  001774  001406                         BEQ     .+16
982  001776  104410                         CONVRT
983  002000  015440                         XSTATQ
984  002002  062737  000002  001244         ADD     #2,TEMP1
985  002010  000766                         BR      .-22
986  002012  032777  000001  177160 12$:    BIT     #SW00,@SWR
987  002020  001424                         BEQ     1$
988  002022  104402                         TYPE
989  002024  015333                         MNEW
990  002026  005000                         CLR     R0
991  002030  000000                         HALT
992  002032  104414                         CKSWR
993  002034  027737  177140  001502         CMP     @SWR,SAVACT
```

```
  994  002042  101404                          BLOS    11$
  995  002044  104402                          TYPE
  996  002046  015174                          MERR3
  997  002050  000000                          HALT
  998  002052  000776                          BR      .-2
  999  002054  017737  177120  001500  11$:    MOV     @SWR,DQACTV
 1000  002062  013700  001500                  MOV     DQACTV,R0
 1001  002066  000000                          HALT
 1002  002070  104414                          CKSWR
 1003  002072  012700  000300          1$:     MOV     #300,R0
 1004  002076  012701  000302                  MOV     #302,R1
 1005  002102  010120                  2$:     MOV     R1,(R0)+
 1006  002104  005021                          CLR     (R1)+
 1007  002106  022021                          CMP     (R0)+,(R1)+
 1008  002110  022700  001000                  CMP     #1000,R0
 1009  002114  001372                          BNE     2$
 1010
 1011                                          ;TEST START AND RESTART
 1012
 1013  002116  012737  000340  177776  .BEGIN: MOV     #340,PS                 ;LOCK OUT INTERRUPTS
 1014  002124  012706  001200                  MOV     #STACK,SP               ;SET UP STACK
 1015  002130  005737  000042                  TST     @#42                    ;IS PROGRAM UNDER MONITOR CONTROL
 1016  002134  001040                          BNE     3$
 1017  002136  104414                          CKSWR                           ;CHECK FOR <^G>
 1018  002140  032777  000004  177032          BIT     #BIT2,@SWR              ;CHECK FOR LOCK ON TEST
 1019  002146  001411                          BEQ     1$
 1020  002150  104402  015232                  TYPE    ,MLOCK
 1021  002154  012737  000240  013046          MOV     #NOP,TTST
 1022  002162  012737  000240  013050          MOV     #NOP,TTST+2             ;SET UP TO LOCK
 1023  002170  000406                          BR      2$
 1024  002172  013737  013144  013046  1$:     MOV     BRW,TTST
 1025  002200  013737  013146  013050          MOV     BRX,TTST+2              ;LOCK NOT SELECTED, SET UP FOR NORMAL SCOPE LOOP
 1026  002206  032777  000002  176764  2$:     BIT     #SW01,@SWR              ;IF SW01 1, GET STARTING PC
 1027  002214  001410                          BEQ     3$
 1028  002216  104403                          INSTR
 1029  002220  015220                          MTSTPC
 1030  002222  104405                          PARAM
 1031  002224  002254                          TST1
 1032  002226  012442                          TLAST
 1033  002230  001214                          #RETURN
 1034  002232     001                  .BYTE   1
 1035  002233     001                  .BYTE   1
 1036  002234  000403                          BR      4$
 1037  002236  012737  002254  001214  3$:     MOV     #TST1,RETURN            ;START AT TEST 1
 1038  002244  104402  015122          4$:     TYPE    ,MR                     ;TYPE R
 1039  002250  000177  176740                  JMP     @RETURN                 ;START TESTING
 1040                                          ;  TEST 1
 1041                                          ;*************************************************************************
 1042  002254  012737  000001  001226  TST1:   MOV     #1,TSTNO
 1043  002262  012737  002644  001214          MOV     #TST2,RETURN
 1044  002270  012737  002644  001216          MOV     #TST2,NEXT
 1045  002276  105737  001302                  TSTB    RUNFLG          ;IS THIS MY FIRST TIME HERE?
 1046  002302  001010                          BNE     1$              ;BR IF FLAG IS SET
 1047  002304  012737  000001  001304          MOV     #BIT0,RUN       ;SET RUN POINTER.
 1048  002312  012737  000020  001306          MOV     #16.,RUNCNT     ;SET FOR MAX OF 16 DQ11'S PER SYSTEM
 1049  002320  105137  001302                  COMB    RUNFLG          ;SET RUN FLAG
```

```
 1050  002324  033737  001304  001500  1$:     BIT     RUN,DQACTV      ;FIND AN ACTIVE DQ11 TO TEST.
 1051  002332  001032                          BNE     3$              ;BR IF I FOUND ONE TO TEST.
 1052  002334  005737  001500                  TST     DQACTV          ;FIND OUT IF THERE ARE NO DQ11 ACTIVE.
 1053  002340  001423                          BEQ     2$              ;BR TO FATAL ERROR. WHY AM I HERE IF NO ACTIVE DQ11'S???
 1054  002342  000257                          CCC                     ;CLEAR ALL THE CONDITION CODES OF CPU
 1055  002344  006137  001304                  ROL     RUN             ;UPDATE RUN POINTER
 1056  002350  062737  000004  001300          ADD     #4,CREAM        ;UPDATE ADDRESS POINTER.
 1057  002356  005337  001306                  DEC     RUNCNT          ;DEC NUMBER OF TIMES I LOOKED AT ACTIVE.
 1058  002362  001360                          BNE     1$              ;BR AND KEEP LOOKING.
 1059  002364  012737  000020  001306          MOV     #16.,RUNCNT     ;START RESTORING MY POINTERS.
 1060  002372  012737  001400  001300          MOV     #1400,CREAM     ;RESTORE  ADDRESS POINTER
 1061  002400  012737  000001  001304          MOV     #1,RUN          ;RESTORE RUN POINTER.
 1062  002406  000746                          BR      1$              ;KEEP ON TESTING.
 1063  002410  104402                  2$:     TYPE                    ;ALLERT OPERATOR OF FATAL ERROR
 1064  002412  015125                          MERR2                   ;NO DQ11 ACTIVE. WHY AM I HERE???
 1065  002414  000000                          HALT                    ;YOU MUST RELOAD DQ11 DIAGNOSTIC..
 1066  002416  000776                          BR      .-2             ;STICK HERE ON CONT.
 1067  002420  000257                  3$:     CCC                     ;CLEAR CPU COND. CODES
 1068  002422  006137  001304                  ROL     RUN             ;UPDATE RUN. ACTIVE DQ11 FOUND.
 1069  002426  017737  176646  001506          MOV     @CREAM,DQCSR    ;PLACE ADDRESSS OF DQ11 AT DQCSR
 1070  002434  062737  000002  001300          ADD     #2,CREAM        ;UPDATE ADDRESS POINTER
 1071  002442  017737  176632  001510          MOV     @CREAM,DQSTAT   ;PLACE STATUS OF DQ11 AT DQSTAT
 1072  002450  062737  000002  001300          ADD     #2,CREAM        ;UPDATE ADDRESS POINTER
 1073  002456  013737  001506  001360          MOV     DQCSR,DQRCSR
 1074  002464  013737  001510  001350          MOV     DQSTAT,DQRVEC
 1075  002472  042737  177007  001350          BIC     #177007,DQRVEC
 1076  002500  013737  001350  001352          MOV     DQRVEC,DQRLVL   ;GENERATE ADDRESS OF RECEIVER INTERRUPT SERVICE PS
 1077  002506  062737  000002  001352          ADD     #2,DQRLVL
 1078  002514  013737  001352  001354          MOV     DQRLVL,DQTVEC   ;GENERATE ADDRESS OF TRANSMITTER INTERRUPT VECTOR
 1079  002522  062737  000002  001354          ADD     #2,DQTVEC
 1080  002530  013737  001354  001356          MOV     DQTVEC,DQTLVL   ;GENERATE ADDRESS  OF TRANSMITTER INTERRUPT SERVICE PS
 1081  002536  062737  000002  001356          ADD     #2,DQTLVL
 1082  002544  013737  001360  001362          MOV     DQRCSR,DQRCSH
 1083  002552  005237  001362                  INC     DQRCSH          ;GENERATE ADDRESS OF HIGH BYTE
 1084  002556  013737  001360  001364          MOV     DQRCSR,DQTCSR   ;GENERATE ADDRESS OF TRANSMITTER CONTROL REGISTER
 1085  002564  062737  000002  001364          ADD     #2,DQTCSR
 1086  002572  013737  001364  001366          MOV     DQTCSR,DQERR    ;GENERATE ADDRESS OF ERROR REGISTER
 1087  002600  062737  000002  001366          ADD     #2,DQERR
 1088  002606  013737  001366  001370          MOV     DQERR,DQREG     ;GENERATE ADDRESS OF HIGH BYTE OF ERROR REGISTER
 1089  002614  005237  001370                  INC     DQREG
 1090  002620  013737  001370  001372          MOV     DQREG,DQSEC     ;GENERATE ADDRESS OF SECONDARY REGISTER
 1091  002626  005237  001372                  INC     DQSEC
 1092  002632  013737  001372  001374          MOV     DQSEC,DQSECH    ;GENERATE ADDRESS OF HIGH BYTE
 1093  002640  005237  001374                  INC     DQSECH
```

```
1094
1095                                    ;STEP MODE VERIFICATION AND CLOCK LOSS TEST
1096                                    ;SET STEP MODE
1097                                    ;SET RECEIVER GO
1098                                    ;SET TRANSMITTER GO
1099                                    ;EXPECTED RESULTS (AFTER DELAY)
1100                                    ;                TRANSMITTER CLOCK LOSS = 1
1101                                    ;                RECEIVER CLOCK LOSS - 1
1102                                    ;****NOTE: AS THE ''CLOCK UP'' OCCURS
1103                                    ;AN 'NPR'' SHOULD BE EXECUTED.
1104                                    ;THEREFORE IF THE DQ11 IS GOING TO 'HANG''
1105                                    ;THE BUS DUE TO NPR'S THIS IS THE
1106                                    ;FIRST TEST IT WILL HAPPEN IN!!****
1107
1108                                ;  TEST 2
1109                                ;*************************************************************************
1110  002644  012737  000002  001226  TST2:   MOV     #2,TSTNO
1111  002652  012737  000010  001222          MOV     #10,ICOUNT
1112  002660  012737  003014  001216          MOV     #TST3,NEXT
1113  002666  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS
1114  002674  104413                          MEMCLR                          ;CLEAR MEMORY
1115  002676  104412                          MSTCLR                          ;INIT DQ11
1116  002700  005037  001244                  CLR     TEMP1                   ;ZERO DELAY COUNTER
1117  002704  012737  000010  001246          MOV     #10,TEMP2               ;DELAY 8 X 65535 TIMES
1118  002712  112777  000012  176450          MOVB    #12,@DQREG              ;SELECT MISC REG
1119  002720  012777  000002  176444          MOV     #BIT1,@DQSEC            ;SET AUTO STEP
1120  002726  012777  010001  176424          MOV     #BIT12+BIT0,@DQRCSR     ;SET RX GO!!
1121  002734  012777  000001  176422          MOV     #BIT0,@DQTCSR           ;SET TX GO.!
1122  002742  005277  176424                  INC     @DQSEC                  ;CLOCK UP!!
1123  002746  005377  176420                  DEC     @DQSEC                  ;CLOCK DN!!
1124  002752  005237  001244          1$:     INC     TEMP1                   ;DO THE DELAY....
1125  002756  001375                          BNE     1$                      ;     DELAY.......
1126  002760  042777  010000  176372          BIC     #BIT12,@DQRCSR          ;CLEAR RX ACTIVE
1127  002766  005337  001246                  DEC     TEMP2                   ;DELAY......
1128  002772  001367                          BNE     1$                      ;DELAY.....
1129  002774  012705  000003                  MOV     #3,R5                   ;SET FOR EXPECTED
1130  003000  117704  176362                  MOVB    @DQERR,R4               ;READ THE DQERR REGISTER (SEL4)
1131  003004  020504                          CMP     R5,R4                   ;CLOCK LOSS WORKING??
1132  003006  001401                          BEQ     2$                      ;BR IF YES.
1133  003010  104013                          HLT     13                      ;TX AND RX CLOCK LOSS ERROR
1134  003012  104400          2$:             SCOPE                           ;SCOPE THIS TEST.
1135                                    ;TEST LOOP VERIFICATION
1136                                    ;SET STEP MODE AND TEST LOOP
1137                                    ;SET RECEIVER GO
1138                                    ;SET TRANSMITTER GO
1139                                    ;EXPECTED RESULTS (AFTER DELAY)
1140                                    ;                TRANSMITTER CLOCK LOSS-0
1141                                    ;                RECEIVER CLOCK LOSS=0
1142
1143                                ;  TEST 3
1144                                ;*************************************************************************
1145  003014  012737  000003  001226  TST3:   MOV     #3,TSTNO
1146  003022  012737  000010  001222          MOV     #10,ICOUNT
1147  003030  012737  003142  001216          MOV     #TST4,NEXT
1148  003036  104413                          MEMCLR
1149  003040  012737  000340  177776          MOV     #340,PS                 ;SET PS  7 LOCK OUT INTERUPTS
```

```
1150  003046  104412                        MSTCLR                          ;INIT DQ11
1151  003050  005037  001244                CLR     TEMP1                   ;SET DELAY COUNTER TO 0
1152  003054  012737  000010  001246        MOV     #10,TEMP2               ;SET FOR 8 X 65535 TIME DELAY
1153  003062  112777  000012  176300        MOVB    #12,@DQREG              ;SELECT MISC REGISTER
1154  003070  012777  000012  176274        MOV     #BIT1+BIT3,@DQSEC       ;SET TESTLOOP AND AUTO/STEP
1155  003076  012777  000001  176254        MOV     #BIT0,@DQRCSR           ;SET RX GO.
1156  003104  012777  000001  176252        MOV     #BIT0,@DQTCSR           ;SET TX GO.
1157  003112  005237  001244          1$:   INC     TEMP1                   ;D
1158  003116  001375                        BNE     1$                      ; E
1159  003120  005337  001246                DEC     TEMP2                   ;  L
1160  003124  001372                        BNE     1$                      ;   A
1161                                                                        ;    Y
1162  003126  005005                        CLR     R5                      ;SET EXPECTED
1163  003130  117704  176232                MOVB    @DQERR,R4               ;GET ACTUAL
1164  003134  001401                        BEQ     2$                      ;BR IF LOW BYTE OF DQERR IS 0
1165  003136  104013                        HLT     13                      ;DQ11 ERROR REG NOT 0
1166  003140  104400                  2$:   SCOPE                           ;SCOPE THIS TEST.
```

```
1167
1168                                    ;INDIVIDUAL INTERRUPT ENABLE TESTS
1169                                    ;SET SELECTED INTERRUPT ENABLE
1170                                    ;VERIFY THAT NO INTERRUPT OCCURS
1171
1172                                    ;INTERRUPT LOGIC TEST
1173                                    ;SET CHARACTER DETECT INTERRUPT ENABLE
1174                                    ;VERIFY THAT NO INTERRUPT OCCURS
1175
1176                                ;  TEST 4
1177                                ;*************************************************************************
1178  003142  012737  000004  001226 TST4:   MOV     #4,TSTNO
1179  003150  012737  003226  001216         MOV     #TST5,NEXT
1180  003156  104412                        MSTCLR                          ;CLEAR INTERFACE
1181  003160  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1182  003164  003206                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1183  003166  003212                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1184  003170  052777  000020  176162        BIS     #BIT4,@DQRCSR           ;SET CHARACTER DETECT INTERRUPT ENABL
1185  003176  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1186  003202  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1187  003204  000403                        BR      3$
1188  003206  104003                 1$:    HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1189  003210  000401                        BR      3$
1190  003212  104002                 2$:    HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1191  003214  012706  001200         3$:    MOV     #STACK,SP               ;RESTORE STACK
1192  003220  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1193  003224  104400                 4$:    SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1194
1195                                    ;INTERRUPT LOGIC TEST
1196                                    ;SET RECEIVE DONE INTERRUPT ENABLE
1197                                    ;VERIFY THAT NO INTERRUPT OCCURS
1198
1199                                ;  TEST 5
1200                                ;*************************************************************************
1201  003226  012737  000005  001226 TST5:   MOV     #5,TSTNO
1202  003234  012737  003312  001216         MOV     #TST6,NEXT
1203  003242  104412                        MSTCLR                          ;CLEAR INTERFACE
1204  003244  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1205  003250  003272                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1206  003252  003276                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1207  003254  052777  000040  176076        BIS     #BIT5,@DQRCSR           ;SET RECEIVE DONE INTERRUPT ENABL
1208  003262  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1209  003266  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1210  003270  000403                        BR      3$
1211  003272  104003                 1$:    HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1212  003274  000401                        BR      3$
1213  003276  104002                 2$:    HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1214  003300  012706  001200         3$:    MOV     #STACK,SP               ;RESTORE STACK
1215  003304  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1216  003310  104400                 4$:    SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1217
1218                                    ;INTERRUPT LOGIC TEST
1219                                    ;SET ERROR INTERRUPT ENABLE
1220                                    ;VERIFY THAT NO INTERRUPT OCCURS
1221
1222                                ;  TEST 6
```

```
1223                                    ;*************************************************************************
1224  003312  012737  000006  001226    TST6:   MOV     #6,TSTNO
1225  003320  012737  003376  001216            MOV     #TST7,NEXT
1226  003326  104412                    MSTCLR                          ;CLEAR INTERFACE
1227  003330  004737  016042            JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1228  003334  003356                    1$                              ;RECEIVER WILL INTERRUPT TO 1$
1229  003336  003362                    2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1230  003340  052777  000010  176016    BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1231  003346  005037  177776            CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1232  003352  000240                    NOP                             ;WINDOW FOR INTERRUPTS
1233  003354  000403                    BR      3$
1234  003356  104003            1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1235  003360  000401                    BR      3$
1236  003362  104002            2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1237  003364  012706  001200    3$:     MOV     #STACK,SP               ;RESTORE STACK
1238  003370  004737  016074            JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1239  003374  104400            4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1240
1241                                    ;INTERRUPT LOGIC TEST
1242                                    ;SET DATASET INTERRUPT ENABLE
1243                                    ;VERIFY THAT NO INTERRUPT OCCURS
1244
1245                                    ;  TEST 7
1246                                    ;*************************************************************************
1247  003376  012737  000007  001226    TST7:   MOV     #7,TSTNO
1248  003404  012737  003462  001216            MOV     #TST10,NEXT
1249  003412  104412                    MSTCLR                          ;CLEAR INTERFACE
1250  003414  004737  016042            JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1251  003420  003442                    1$                              ;RECEIVER WILL INTERRUPT TO 1$
1252  003422  003446                    2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1253  003424  052777  000020  175732    BIS     #BIT4,@DQTCSR           ;SET DATASET INTERRUPT ENABL
1254  003432  005037  177776            CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1255  003436  000240                    NOP                             ;WINDOW FOR INTERRUPTS
1256  003440  000403                    BR      3$
1257  003442  104003            1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1258  003444  000401                    BR      3$
1259  003446  104002            2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1260  003450  012706  001200    3$:     MOV     #STACK,SP               ;RESTORE STACK
1261  003454  004737  016074            JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1262  003460  104400            4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1263
1264                                    ;INTERRUPT LOGIC TEST
1265                                    ;SET TRANSMIT DONE INTERRUPT ENABLE
1266                                    ;VERIFY THAT NO INTERRUPT OCCURS
1267
1268                                    ;  TEST 10
1269                                    ;*************************************************************************
1270  003462  012737  000010  001226    TST10:  MOV     #10,TSTNO
1271  003470  012737  003546  001216            MOV     #TST11,NEXT
1272  003476  104412                    MSTCLR                          ;CLEAR INTERFACE
1273  003500  004737  016042            JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1274  003504  003526                    1$                              ;RECEIVER WILL INTERRUPT TO 1$
1275  003506  003532                    2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1276  003510  052777  000040  175646    BIS     #BIT5,@DQTCSR           ;SET TRANSMIT DONE INTERRUPT ENABL
1277  003516  005037  177776            CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1278  003522  000240                    NOP                             ;WINDOW FOR INTERRUPTS
```

```
1279  003524  000403                        BR      3$
1280  003526  104003                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1281  003530  000401                        BR      3$
1282  003532  104002                2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1283  003534  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
1284  003540  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1285  003544  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1286
1287                                        ;INDIVIDUAL INTERRUPT FLAG TESTS
1288                                        ;SET SELECTED INTERRUPT FLAG
1289                                        ;VERIFY THAT NO INTERRUPT OCCURS
1290
1291
1292                                        ;INTERRUPT LOGIC TEST
1293                                        ;SET RECEIVE DONE S INTERRUPT FLAG
1294                                        ;VERIFY THAT NO INTERRUPT OCCURS
1295
1296                                    ;  TEST 11
1297                                    ;*************************************************************************
1298  003546  012737  000011  001226    TST11:  MOV     #11,TSTNO
1299  003554  012737  003632  001216            MOV     #TST12,NEXT
1300  003562  104412                            MSTCLR                          ;CLEAR INTERFACE
1301  003564  004737  016042                    JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1302  003570  003612                            1$                              ;RECEIVER WILL INTERRUPT TO 1$
1303  003572  003616                            2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1304  003574  052777  000100  175556            BIS     #BIT6,@DQRCSR           ;SET RECEIVE DONE S INTERRUPT FLAG
1305  003602  005037  177776                    CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1306  003606  000240                            NOP                             ;WINDOW FOR INTERRUPTS
1307  003610  000403                            BR      3$
1308  003612  104003                1$:         HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1309  003614  000401                            BR      3$
1310  003616  104002                2$:         HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1311  003620  012706  001200        3$:         MOV     #STACK,SP               ;RESTORE STACK
1312  003624  004737  016074                    JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1313  003630  104400                4$:         SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1314
1315                                        ;INTERRUPT LOGIC TEST
1316                                        ;SET RECEIVE DONE P INTERRUPT FLAG
1317                                        ;VERIFY THAT NO INTERRUPT OCCURS
1318
1319                                    ;  TEST 12
1320                                    ;*************************************************************************
1321  003632  012737  000012  001226    TST12:  MOV     #12,TSTNO
1322  003640  012737  003716  001216            MOV     #TST13,NEXT
1323  003646  104412                            MSTCLR                          ;CLEAR INTERFACE
1324  003650  004737  016042                    JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1325  003654  003676                            1$                              ;RECEIVER WILL INTERRUPT TO 1$
1326  003656  003702                            2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1327  003660  052777  000200  175472            BIS     #BIT7,@DQRCSR           ;SET RECEIVE DONE P INTERRUPT FLAG
1328  003666  005037  177776                    CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1329  003672  000240                            NOP                             ;WINDOW FOR INTERRUPTS
1330  003674  000403                            BR      3$
1331  003676  104003                1$:         HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1332  003700  000401                            BR      3$
1333  003702  104002                2$:         HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1334  003704  012706  001200        3$:         MOV     #STACK,SP               ;RESTORE STACK
```

```
1335  003710  004737  016074                  JSR     PC,PECAT                ;RESTORE TRAPCATCHER
1336  003714  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1337
1338                                          ;INTERRUPT LOGIC TEST
1339                                          ;SET TRANSMIT DONE S INTERRUPT FLAG
1340                                          ;VERIFY THAT NO INTERRUPT OCCURS
1341
1342                                  ;  TEST 13
1343                                  ;*************************************************************************
1344  003716  012737  000013  001226  TST13:  MOV     #13,TSTNO
1345  003724  012737  004002  001216          MOV     #TST14,NEXT
1346  003732  104412                         MSTCLR                          ;CLEAR INTERFACE
1347  003734  004737  016042                 JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1348  003740  003762                         1$                              ;RECEIVER WILL INTERRUPT TO 1$
1349  003742  003766                         2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1350  003744  052777  000100  175412         BIS     #BIT6,@DQTCSR           ;SET TRANSMIT DONE S INTERRUPT FLAG
1351  003752  005037  177776                 CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1352  003756  000240                         NOP                             ;WINDOW FOR INTERRUPTS
1353  003760  000403                         BR      3$
1354  003762  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1355  003764  000401                         BR      3$
1356  003766  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1357  003770  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1358  003774  004737  016074                 JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1359  004000  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1360
1361                                          ;INTERRUPT LOGIC TEST
1362                                          ;SET RECEIVE DONE S INTERRUPT FLAG
1363                                          ;VERIFY THAT NO INTERRUPT OCCURS
1364
1365                                  ;  TEST 14
1366                                  ;*************************************************************************
1367  004002  012737  000014  001226  TST14:  MOV     #14,TSTNO
1368  004010  012737  004066  001216          MOV     #TST15,NEXT
1369  004016  104412                         MSTCLR                          ;CLEAR INTERFACE
1370  004020  004737  016042                 JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1371  004024  004046                         1$                              ;RECEIVER WILL INTERRUPT TO 1$
1372  004026  004052                         2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1373  004030  052777  000200  175326         BIS     #BIT7,@DQTCSR           ;SET RECEIVE DONE S INTERRUPT FLAG
1374  004036  005037  177776                 CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1375  004042  000240                         NOP                             ;WINDOW FOR INTERRUPTS
1376  004044  000403                         BR      3$
1377  004046  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1378  004050  000401                         BR      3$
1379  004052  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1380  004054  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1381  004060  004737  016074                 JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1382  004064  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1383
1384                                          ;INTERRUPT LOGIC TEST
1385                                          ;SET DATA SET INTERRUPT FLAG
1386                                          ;VERIFY THAT NO INTERRUPT OCCURS
1387
1388                                  ;  TEST 15
1389                                  ;*************************************************************************
1390  004066  012737  000015  001226  TST15:  MOV     #15,TSTNO
```

```
1391  004074  012737  004152  001216          MOV     #TST16,NEXT
1392  004102  104412                          MSTCLR                          ;CLEAR INTERFACE
1393  004104  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1394  004110  004132                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1395  004112  004136                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1396  004114  052777  100000  175242          BIS     #BIT15,@DQTCSR          ;SET DATA SET INTERRUPT FLAG
1397  004122  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1398  004126  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1399  004130  000403                          BR      3$
1400  004132  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1401  004134  000401                          BR      3$
1402  004136  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1403  004140  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1404  004144  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1405  004150  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1406
1407                                          ;INTERRUPT LOGIC TEST
1408                                          ;SET T CLOCK LOSS INTERRUPT FLAG
1409                                          ;VERIFY THAT NO INTERRUPT OCCURS
1410
1411                                  ;  TEST 16
1412                                  ;*************************************************************************
1413  004152  012737  000016  001226  TST16:  MOV     #16,TSTNO
1414  004160  012737  004236  001216          MOV     #TST17,NEXT
1415  004166  104412                          MSTCLR                          ;CLEAR INTERFACE
1416  004170  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1417  004174  004216                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1418  004176  004222                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1419  004200  052777  000001  175160          BIS     #BIT0,@DQERR            ;SET T CLOCK LOSS INTERRUPT FLAG
1420  004206  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1421  004212  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1422  004214  000403                          BR      3$
1423  004216  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1424  004220  000401                          BR      3$
1425  004222  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1426  004224  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1427  004230  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1428  004234  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1429
1430                                          ;INTERRUPT LOGIC TEST
1431                                          ;SET R CLOCK LOSS INTERRUPT FLAG
1432                                          ;VERIFY THAT NO INTERRUPT OCCURS
1433
1434                                  ;  TEST 17
1435                                  ;*************************************************************************
1436  004236  012737  000017  001226  TST17:  MOV     #17,TSTNO
1437  004244  012737  004322  001216          MOV     #TST20,NEXT
1438  004252  104412                          MSTCLR                          ;CLEAR INTERFACE
1439  004254  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1440  004260  004302                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1441  004262  004306                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1442  004264  052777  000002  175074          BIS     #BIT1,@DQERR            ;SET R CLOCK LOSS INTERRUPT FLAG
1443  004272  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1444  004276  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1445  004300  000403                          BR      3$
1446  004302  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
```

```
1447  004304  000401                        BR      3$
1448  004306  104002                2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1449  004310  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
1450  004314  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1451  004320  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1452
1453                                        ;INTERRUPT LOGIC TEST
1454                                        ;SET T LATENCY INTERRUPT FLAG
1455                                        ;VERIFY THAT NO INTERRUPT OCCURS
1456
1457                                ;  TEST 20
1458                                ;*************************************************************************
1459  004322  012737  000020  001226 TST20:  MOV     #20,TSTNO
1460  004330  012737  004406  001216        MOV     #TST21,NEXT
1461  004336  104412                        MSTCLR                          ;CLEAR INTERFACE
1462  004340  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1463  004344  004366                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1464  004346  004372                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1465  004350  052777  000004  175010        BIS     #BIT2,@DQERR            ;SET T LATENCY INTERRUPT FLAG
1466  004356  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1467  004362  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1468  004364  000403                        BR      3$
1469  004366  104003                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1470  004370  000401                        BR      3$
1471  004372  104002                2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1472  004374  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
1473  004400  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1474  004404  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1475
1476                                        ;INTERRUPT LOGIC TEST
1477                                        ;SET R LATENCY INTERRUPT FLAG
1478                                        ;VERIFY THAT NO INTERRUPT OCCURS
1479
1480                                ;  TEST 21
1481                                ;*************************************************************************
1482  004406  012737  000021  001226 TST21:  MOV     #21,TSTNO
1483  004414  012737  004472  001216        MOV     #TST22,NEXT
1484  004422  104412                        MSTCLR                          ;CLEAR INTERFACE
1485  004424  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1486  004430  004452                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1487  004432  004456                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1488  004434  052777  000010  174724        BIS     #BIT3,@DQERR            ;SET R LATENCY INTERRUPT FLAG
1489  004442  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1490  004446  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1491  004450  000403                        BR      3$
1492  004452  104003                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1493  004454  000401                        BR      3$
1494  004456  104002                2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1495  004460  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
1496  004464  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1497  004470  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1498
1499                                        ;INTERRUPT LOGIC TEST
1500                                        ;SET T NON-EX MEM INTERRUPT FLAG
1501                                        ;VERIFY THAT NO INTERRUPT OCCURS
1502
```

```
1503                                    ;  TEST 22
1504                                    ;*****************************************************************************
1505  004472  012737  000022  001226  TST22:  MOV     #22,TSTNO
1506  004500  012737  004556  001216           MOV     #TST23,NEXT
1507  004506  104412                          MSTCLR                          ;CLEAR INTERFACE
1508  004510  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1509  004514  004536                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1510  004516  004542                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1511  004520  052777  000020  174640          BIS     #BIT4,@DQERR            ;SET T NON-EX MEM INTERRUPT FLAG
1512  004526  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1513  004532  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1514  004534  000403                          BR      3$
1515  004536  104003           1$:    HLT     3                               ;UNEXPECTED RECEIVER INTERRUPT
1516  004540  000401                          BR      3$
1517  004542  104002           2$:    HLT     2                               ;UNEXPECTED TRANSMITTER INTERRUPT
1518  004544  012706  001200     3$:    MOV     #STACK,SP                       ;RESTORE STACK
1519  004550  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1520  004554  104400           4$:    SCOPE                                   ;CHECK FOR ITERATIONS, LOOP
1521
1522                                    ;INTERRUPT LOGIC TEST
1523                                    ;SET R NON-EX MEM INTERRUPT FLAG
1524                                    ;VERIFY THAT NO INTERRUPT OCCURS
1525
1526                                    ;  TEST 23
1527                                    ;*****************************************************************************
1528  004556  012737  000023  001226  TST23:  MOV     #23,TSTNO
1529  004564  012737  004642  001216           MOV     #TST24,NEXT
1530  004572  104412                          MSTCLR                          ;CLEAR INTERFACE
1531  004574  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1532  004600  004622                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1533  004602  004626                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1534  004604  052777  000040  174554          BIS     #BIT5,@DQERR            ;SET R NON-EX MEM INTERRUPT FLAG
1535  004612  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1536  004616  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1537  004620  000403                          BR      3$
1538  004622  104003           1$:    HLT     3                               ;UNEXPECTED RECEIVER INTERRUPT
1539  004624  000401                          BR      3$
1540  004626  104002           2$:    HLT     2                               ;UNEXPECTED TRANSMITTER INTERRUPT
1541  004630  012706  001200     3$:    MOV     #STACK,SP                       ;RESTORE STACK
1542  004634  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1543  004640  104400           4$:    SCOPE                                   ;CHECK FOR ITERATIONS, LOOP
1544
1545                                    ;INTERRUPT LOGIC TEST
1546                                    ;SET R BCC ERROR INTERRUPT FLAG
1547                                    ;VERIFY THAT NO INTERRUPT OCCURS
1548
1549                                    ;  TEST 24
1550                                    ;*****************************************************************************
1551  004642  012737  000024  001226  TST24:  MOV     #24,TSTNO
1552  004650  012737  004726  001216           MOV     #TST25,NEXT
1553  004656  104412                          MSTCLR                          ;CLEAR INTERFACE
1554  004660  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1555  004664  004706                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1556  004666  004712                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1557  004670  052777  000100  174470          BIS     #BIT6,@DQERR            ;SET R BCC ERROR INTERRUPT FLAG
1558  004676  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
```

```
1559  004702  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1560  004704  000403                        BR      3$
1561  004706  104003                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1562  004710  000401                        BR      3$
1563  004712  104002                2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1564  004714  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
1565  004720  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1566  004724  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1567
1568                                        ;INTERRUPT LOGIC TEST
1569                                        ;SET R VRC ERROR INTERRUPT FLAG
1570                                        ;VERIFY THAT NO INTERRUPT OCCURS
1571
1572                                ;  TEST 25
1573                                ;*************************************************************************
1574  004726  012737  000025  001226 TST25:  MOV     #25,TSTNO
1575  004734  012737  005012  001216        MOV     #TST26,NEXT
1576  004742  104412                        MSTCLR                          ;CLEAR INTERFACE
1577  004744  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1578  004750  004772                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1579  004752  004776                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1580  004754  052777  000200  174404        BIS     #BIT7,@DQERR            ;SET R VRC ERROR INTERRUPT FLAG
1581  004762  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1582  004766  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1583  004770  000403                        BR      3$
1584  004772  104003                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1585  004774  000401                        BR      3$
1586  004776  104002                2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1587  005000  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
1588  005004  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1589  005010  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1590
1591                                        ;INDIVIDUAL INTERRUPT TESTS
1592                                        ;SET SELECTED INTERRUPT ENABLE AND FLAG
1593                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT ADDRESS
1594
1595
1596                                        ;INTERRUPT LOGIC TEST
1597                                        ;SET CHARACTER DETECT INTERRUPT ENABLE
1598                                        ;SET CHARACTER DETECT INTERRUPT FLAG
1599                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1600
1601                                ;  TEST 26
1602                                ;*************************************************************************
1603  005012  012737  000026  001226 TST26:  MOV     #26,TSTNO
1604  005020  012737  005102  001216        MOV     #TST27,NEXT
1605  005026  104412                        MSTCLR                          ;CLEAR INTERFACE
1606  005030  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1607  005034  005064                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1608  005036  005066                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1609  005040  052777  000020  174312        BIS     #BIT4,@DQRCSR           ;SET CHARACTER DETECT INTERRUPT ENABL
1610  005046  052777  100000  174304        BIS     #BIT15,@DQRCSR          ;SET CHARACTER DETECT INTERRUPT FLAG
1611  005054  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1612  005060  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1613  005062  104000                        HLT     0                       ;RECEIVER DID NOT INTERRUPT
1614  005064  000401                1$:     BR      3$                      ;RECEIVER SHOULD INTERRUPT TO THIS LOCATION
```

```
1615  005066  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1616  005070  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1617  005074  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1618  005100  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1619
1620                                          ;INTERRUPT LOGIC TEST
1621                                          ;SET RECEIVE DONE INTERRUPT ENABLE
1622                                          ;SET RECEIVE DONE S INTERRUPT FLAG
1623                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1624
1625                                  ;  TEST 27
1626                                  ;*************************************************************************
1627  005102  012737  000027  001226  TST27:  MOV     #27,TSTNO
1628  005110  012737  005172  001216          MOV     #TST30,NEXT
1629  005116  104412                          MSTCLR                          ;CLEAR INTERFACE
1630  005120  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1631  005124  005154                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1632  005126  005156                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1633  005130  052777  000040  174222          BIS     #BIT5,@DQRCSR           ;SET RECEIVE DONE INTERRUPT ENABL
1634  005136  052777  000100  174214          BIS     #BIT6,@DQRCSR           ;SET RECEIVE DONE S INTERRUPT FLAG
1635  005144  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1636  005150  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1637  005152  104000                          HLT     0                       ;RECEIVER DID NOT INTERRUPT
1638  005154  000401                  1$:     BR      3$                      ;RECEIVER SHOULD INTERRUPT TO THIS LOCATION
1639  005156  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1640  005160  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1641  005164  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1642  005170  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1643
1644                                          ;INTERRUPT LOGIC TEST
1645                                          ;SET RECEIVE DONE INTERRUPT ENABLE
1646                                          ;SET RECEIVE DONE P INTERRUPT FLAG
1647                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1648
1649                                  ;  TEST 30
1650                                  ;*************************************************************************
1651  005172  012737  000030  001226  TST30:  MOV     #30,TSTNO
1652  005200  012737  005262  001216          MOV     #TST31,NEXT
1653  005206  104412                          MSTCLR                          ;CLEAR INTERFACE
1654  005210  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1655  005214  005244                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1656  005216  005246                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1657  005220  052777  000040  174132          BIS     #BIT5,@DQRCSR           ;SET RECEIVE DONE INTERRUPT ENABL
1658  005226  052777  000200  174124          BIS     #BIT7,@DQRCSR           ;SET RECEIVE DONE P INTERRUPT FLAG
1659  005234  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1660  005240  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1661  005242  104000                          HLT     0                       ;RECEIVER DID NOT INTERRUPT
1662  005244  000401                  1$:     BR      3$                      ;RECEIVER SHOULD INTERRUPT TO THIS LOCATION
1663  005246  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1664  005250  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1665  005254  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1666  005260  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1667
1668                                          ;INTERRUPT LOGIC TEST
1669                                          ;SET TRANSMIT DONE INTERRUPT ENABLE
1670                                          ;SET TRANSMIT DONE S INTERRUPT FLAG
```

```
                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR

                                ;  TEST 31
                                ;*************************************************************************
005262  012737  000031  001226 TST31:  MOV     #31,TSTNO
005270  012737  005354  001216         MOV     #TST32,NEXT
005276  104412                        MSTCLR                          ;CLEAR INTERFACE
005300  004737  016042                 JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
005304  005336                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
005306  005340                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
005310  052777  000040  174046         BIS     #BIT5,@DQTCSR           ;SET TRANSMIT DONE INTERRUPT ENABL
005316  052777  000100  174040         BIS     #BIT6,@DQTCSR           ;SET TRANSMIT DONE S INTERRUPT FLAG
005324  005037  177776                 CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
005330  000240                         NOP                             ;WINDOW FOR INTERRUPTS
005332  104001                         HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
005334  000402                         BR      3$                      ;WITH TRANSMIT DONE INTERRUPT ENABL AND
                                                                       ;TRANSMIT DONE S INTERRUPT FLAG SET
005336  104003                 1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
005340  000240                 2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
005342  012706  001200         3$:     MOV     #STACK,SP               ;RESTORE STACK
005346  004737  016074                 JSR     PC,RECAT                ;RESTORE TRAPCATCHER
005352  104400                 4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP

                                        ;INTERRUPT LOGIC TEST
                                        ;SET TRANSMIT DONE INTERRUPT ENABLE
                                        ;SET TRANSMIT DONE P INTERRUPT FLAG
                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR

                                ;  TEST 32
                                ;*************************************************************************
005354  012737  000032  001226 TST32:  MOV     #32,TSTNO
005362  012737  005446  001216         MOV     #TST33,NEXT
005370  104412                        MSTCLR                          ;CLEAR INTERFACE
005372  004737  016042                 JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
005376  005430                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
005400  005432                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
005402  052777  000040  173754         BIS     #BIT5,@DQTCSR           ;SET TRANSMIT DONE INTERRUPT ENABL
005410  052777  000200  173746         BIS     #BIT7,@DQTCSR           ;SET TRANSMIT DONE P INTERRUPT FLAG
005416  005037  177776                 CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
005422  000240                         NOP                             ;WINDOW FOR INTERRUPTS
005424  104001                         HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
005426  000402                         BR      3$                      ;WITH TRANSMIT DONE INTERRUPT ENABL AND
                                                                       ;TRANSMIT DONE P INTERRUPT FLAG SET
005430  104003                 1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
005432  000240                 2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
005434  012706  001200         3$:     MOV     #STACK,SP               ;RESTORE STACK
005440  004737  016074                 JSR     PC,RECAT                ;RESTORE TRAPCATCHER
005444  104400                 4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP

                                        ;INTERRUPT LOGIC TEST
                                        ;SET ERROR INTERRUPT ENABLE
                                        ;SET T CLOCK LOSS INTERRUPT FLAG
                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR

                                ;  TEST 33
                                ;*************************************************************************
```

```
1727  005446  012737  000033  001226  TST33:  MOV     #33,TSTNO
1728  005454  012737  005540  001216          MOV     #TST34,NEXT
1729  005462  104412                          MSTCLR                          ;CLEAR INTERFACE
1730  005464  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1731  005470  005522                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1732  005472  005524                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1733  005474  052777  000010  173662          BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1734  005502  052777  000001  173656          BIS     #BIT0,@DQERR            ;SET T CLOCK LOSS INTERRUPT FLAG
1735  005510  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1736  005514  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1737  005516  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1738  005520  000402                          BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
1739                                                                          ;T CLOCK LOSS INTERRUPT FLAG SET
1740  005522  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1741  005524  000240                  2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
1742  005526  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1743  005532  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1744  005536  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1745
1746                                          ;INTERRUPT LOGIC TEST
1747                                          ;SET ERROR INTERRUPT ENABLE
1748                                          ;SET R CLOCK LOSS INTERRUPT FLAG
1749                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1750
1751                                  ;  TEST 34
1752                                  ;*************************************************************************
1753  005540  012737  000034  001226  TST34:  MOV     #34,TSTNO
1754  005546  012737  005632  001216          MOV     #TST35,NEXT
1755  005554  104412                          MSTCLR                          ;CLEAR INTERFACE
1756  005556  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1757  005562  005614                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1758  005564  005616                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1759  005566  052777  000010  173570          BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1760  005574  052777  000002  173564          BIS     #BIT1,@DQERR            ;SET R CLOCK LOSS INTERRUPT FLAG
1761  005602  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1762  005606  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1763  005610  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1764  005612  000402                          BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
1765                                                                          ;R CLOCK LOSS INTERRUPT FLAG SET
1766  005614  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1767  005616  000240                  2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
1768  005620  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1769  005624  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1770  005630  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1771
1772                                          ;INTERRUPT LOGIC TEST
1773                                          ;SET ERROR INTERRUPT ENABLE
1774                                          ;SET T LATENCY INTERRUPT FLAG
1775                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1776
1777                                  ;  TEST 35
1778                                  ;*************************************************************************
1779  005632  012737  000035  001226  TST35:  MOV     #35,TSTNO
1780  005640  012737  005724  001216          MOV     #TST36,NEXT
1781  005646  104412                          MSTCLR                          ;CLEAR INTERFACE
1782  005650  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
```

```
1783  005654  005706                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1784  005656  005710                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1785  005660  052777  000010  173476          BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1786  005666  052777  000004  173472          BIS     #BIT2,@DQERR            ;SET T LATENCY INTERRUPT FLAG
1787  005674  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1788  005700  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1789  005702  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1790  005704  000402                          BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
1791                                                                          ;T LATENCY INTERRUPT FLAG SET
1792  005706  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1793  005710  000240                  2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
1794  005712  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1795  005716  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1796  005722  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1797
1798                                          ;INTERRUPT LOGIC TEST
1799                                          ;SET ERROR INTERRUPT ENABLE
1800                                          ;SET R LATENCY INTERRUPT FLAG
1801                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1802
1803                                  ;  TEST 36
1804                                  ;*************************************************************************
1805  005724  012737  000036  001226  TST36:  MOV     #36,TSTNO
1806  005732  012737  006016  001216          MOV     #TST37,NEXT
1807  005740  104412                          MSTCLR                          ;CLEAR INTERFACE
1808  005742  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1809  005746  006000                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1810  005750  006002                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1811  005752  052777  000010  173404          BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1812  005760  052777  000010  173400          BIS     #BIT3,@DQERR            ;SET R LATENCY INTERRUPT FLAG
1813  005766  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1814  005772  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1815  005774  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1816  005776  000402                          BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
1817                                                                          ;R LATENCY INTERRUPT FLAG SET
1818  006000  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1819  006002  000240                  2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
1820  006004  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1821  006010  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1822  006014  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1823
1824                                          ;INTERRUPT LOGIC TEST
1825                                          ;SET ERROR INTERRUPT ENABLE
1826                                          ;SET T NON-EX MEM INTERRUPT FLAG
1827                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1828
1829                                  ;  TEST 37
1830                                  ;*************************************************************************
1831  006016  012737  000037  001226  TST37:  MOV     #37,TSTNO
1832  006024  012737  006110  001216          MOV     #TST40,NEXT
1833  006032  104412                          MSTCLR                          ;CLEAR INTERFACE
1834  006034  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1835  006040  006072                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1836  006042  006074                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1837  006044  052777  000010  173312          BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1838  006052  052777  000020  173306          BIS     #BIT4,@DQERR            ;SET T NON-EX MEM INTERRUPT FLAG
```

```
1839  006060  005037  177776          CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1840  006064  000240                  NOP                             ;WINDOW FOR INTERRUPTS
1841  006066  104001                  HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1842  006070  000402                  BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
1843                                                                  ;T NON-EX MEM INTERRUPT FLAG SET
1844  006072  104003          1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1845  006074  000240          2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
1846  006076  012706  001200  3$:     MOV     #STACK,SP               ;RESTORE STACK
1847  006102  004737  016074          JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1848  006106  104400          4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1849
1850                                  ;INTERRUPT LOGIC TEST
1851                                  ;SET ERROR INTERRUPT ENABLE
1852                                  ;SET R NON-EX MEM INTERRUPT FLAG
1853                                  ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1854
1855                          .  TEST 40
1856                          ;*************************************************************************
1857  006110  012737  000040  001226  TST40:  MOV     #40,TSTNO
1858  006116  012737  006202  001216          MOV     #TST41,NEXT
1859  006124  104412                  MSTCLR                          ;CLEAR INTERFACE
1860  006126  004737  016042          JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1861  006132  006164                  1$                              ;RECEIVER WILL INTERRUPT TO 1$
1862  006134  006166                  2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1863  006136  052777  000010  173220  BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1864  006144  052777  000040  173214  BIS     #BIT5,@DQERR            ;SET R NON-EX MEM INTERRUPT FLAG
1865  006152  005037  177776          CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1866  006156  000240                  NOP                             ;WINDOW FOR INTERRUPTS
1867  006160  104001                  HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1868  006162  000402                  BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
1869                                                                  ;R NON-EX MEM INTERRUPT FLAG SET
1870  006164  104003          1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1871  006166  000240          2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
1872  006170  012706  001200  3$:     MOV     #STACK,SP               ;RESTORE STACK
1873  006174  004737  016074          JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1874  006200  104400          4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1875
1876                                  ;INTERRUPT LOGIC TEST
1877                                  ;SET ERROR INTERRUPT ENABLE
1878                                  ;SET R BCC ERROR INTERRUPT FLAG
1879                                  ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1880
1881                          ;  TEST 41
1882                          ;*************************************************************************
1883  006202  012737  000041  001226  TST41:  MOV     #41,TSTNO
1884  006210  012737  006274  001216          MOV     #TST42,NEXT
1885  006216  104412                  MSTCLR                          ;CLEAR INTERFACE
1886  006220  004737  016042          JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1887  006224  006256                  1$                              ;RECEIVER WILL INTERRUPT TO 1$
1888  006226  006260                  2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1889  006230  052777  000010  173126  BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1890  006236  052777  000100  173122  BIS     #BIT6,@DQERR            ;SET R BCC ERROR INTERRUPT FLAG
1891  006244  005037  177776          CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1892  006250  000240                  NOP                             ;WINDOW FOR INTERRUPTS
1893  006252  104001                  HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1894  006254  000402                  BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
```

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1895
1896  006256  104003                  1$:     HLT     3                       ;R BCC ERROR INTERRUPT FLAG SET
1897  006260  000240                  2$:     NOP                             ;UNEXPECTED RECEIVER INTERRUPT
1898  006262  012706  001200          3$:     MOV     #STACK,SP               ;TRANSMITTER SHOULD INTERRUPT TO HERE
1899  006266  004737  016074                  JSR     PC,RECAT                ;RESTORE STACK
1900  006272  104400                  4$:     SCOPE                           ;RESTORE TRAPCATCHER
1901                                                                          ;CHECK FOR ITERATIONS, LOOP
1902                                          ;INTERRUPT LOGIC TEST
1903                                          ;SET ERROR INTERRUPT ENABLE
1904                                          ;SET R VRC ERROR INTERRUPT FLAG
1905                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1906
1907                                  ;  TEST 42
1908                                  ;*************************************************************************
1909  006274  012737  000042  001226  TST42:  MOV     #42,TSTNO
1910  006302  012737  006366  001216          MOV     #TST43,NEXT
1911  006310  104412                          MSTCLR                          ;CLEAR INTERFACE
1912  006312  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1913  006316  006350                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1914  006320  006352                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1915  006322  052777  000010  173034          BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1916  006330  052777  000200  173030          BIS     #BIT7,@DQERR            ;SET R VRC ERROR INTERRUPT FLAG
1917  006336  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1918  006342  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1919  006344  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1920  006346  000402                          BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
1921                                                                          ;R VRC ERROR INTERRUPT FLAG SET
1922  006350  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1923  006352  000240                  2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
1924  006354  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1925  006360  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1926  006364  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1927
1928                                          ;TEST THAT THE RECEIVER WILL INTERUPT
1929                                          ;BEFORE THE TRANSMITTER WHEN
1930                                          ;THEY ARE BOTH ENABLED AT THE
1931                                          ;SAME TIME.
1932                                          ;
1933
1934                                  ;  TEST 43
1935                                  ;*************************************************************************
1936  006366  012737  000043  001226  TST43:  MOV     #43,TSTNO
1937  006374  012737  006502  001216          MOV     #TST44,NEXT
1938  006402  104412                          MSTCLR                          ;INIT DQ11
1939  006404  004737  016042                  JSR     PC,SETV                 ;SET THE VECTORS
1940  006410  006454                          1$                              ;THIS FOR RX
1941  006412  006456                          2$                              ;THIS FOR TX
1942  006414  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS
1943  006422  012777  000240  172734          MOV     #240,@DQTCSR            ;SET TX PRI DONE AND IE
1944  006430  012777  000240  172722          MOV     #240,@DQRCSR            ;SET RX PRI DONE AND IE
1945  006436  000240                          NOP                             ;INTERUPT YET.
1946  006440  005037  177776                  CLR     PS                      ;ZERO PROC. STATUS
1947  006444  000240                          NOP                             ;WAIT ONE INSTR. TIME
1948  006446  000240                          NOP                             ;
1949  006450  104001                          HLT     1                       ;TX AND RX FAILED TO INTERUPT
1950  006452  104000                          HLT     0                       ;
```

```
1951  006454  000401                  1$:     BR      3$                      ;GOOD FOR RX
1952  006456  104002                  2$:     HLT     2                       ;TX SHOULD NOT HAVE INTERUPTED
1953  006460  005077  172674          3$:     CLR     @DQRCSR                 ;CLEAR RXCSR
1954  006464  005077  172674                  CLR     @DQTCSR                 ; CLEAR TX CSR
1955  006470  012706  001200                  MOV     #STACK,SP               ;RESTORE STACK POINTER
1956  006474  004737  016074                  JSR     PC,RECAT                ;RESET VECTORS
1957  006500  104400                          SCOPE                           ;SCOPE THE TEST
1958
1959
1960                                          ;VERIFY THAT THE TRANSMITTER INTERUPTS
1961                                          ;ONLY ONCE WHEN IT IS ENABLED.
1962                                          ;
1963                                  ;  TEST 44
1964                                  ;*****************************************************************
1965  006502  012737  000044  001226  TST44:  MOV     #44,TSTNO
1966  006510  012737  006606  001216          MOV     #TST45,NEXT
1967  006516  104412                          MSTCLR
1968  006520  004737  016042                  JSR     PC,SETV
1969  006524  006572                          1$
1970  006526  006576                          2$
1971  006530  012737  000340  177776          MOV     #340,PS
1972  006536  012777  000240  172620          MOV     #240,@DQTCSR
1973  006544  012700  177777                  MOV     #-1,R0
1974  006550  005002                          CLR     R2
1975  006552  005037  177776                  CLR     PS
1976  006556  105202                          INCB    R2
1977  006560  001376                          BNE     .-2
1978  006562  005700                          TST     R0
1979  006564  001401                          BEQ     .+4
1980  006566  104001                          HLT     1
1981  006570  104400                          SCOPE
1982  006572  104003                  1$:     HLT     3
1983  006574  000002                          RTI
1984  006576  005100                  2$:     COM     R0
1985  006600  001401                          BEQ     .+4
1986  006602  104002                          HLT     2
1987  006604  000002                          RTI
1988                                          ;VERIFY THAT THE RECEIVER INTERUPTS
1989                                          ;ONLY ONCE WHEN IT IS ENABLED.
1990                                          ;
1991                                  ;  TEST 45
1992                                  ;*****************************************************************
1993  006606  012737  000045  001226  TST45:  MOV     #45,TSTNO
1994  006614  012737  006712  001216          MOV     #TST46,NEXT
1995  006622  104412                          MSTCLR                          ;INIT DQ11
1996  006624  004737  016042                  JSR     PC,SETV                 ;GO AND SET VECTORS
1997  006630  006676                          1$                              ;RX TO 1$
1998  006632  006706                          2$                              ;TX TO 2$
1999  006634  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS
2000  006642  012777  000240  172510          MOV     #240,@DQRCSR            ;SET RX PRI DONE AND IE
2001  006650  012700  177777                  MOV     #-1,R0                  ;SET FOR CKECK
2002  006654  005002                          CLR     R2                      ;ZERO COUNTER
2003  006656  005037  177776                  CLR     PS                      ;ENABLE INTERUPTS
2004  006662  105202                          INCB    R2                      ;START COUNTING
2005  006664  001376                          BNE     .-2                     ;LOOP HERE
2006  006666  005700                          TST     R0                      ;IS CHECKER 0
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2007  006670  001401                        BEQ     .+4                     ;BR IF YES
2008  006672  104000                        HLT     0                       ;EITHER RX DID NOT INTERUPT; OR MORE THAN ONCE
2009  006674  104400                        SCOPE                           ;SCOPE THE TEST
2010  006676  005100                1$:     COM     R0                      ;CHECK INTERUPT
2011  006700  001401                        BEQ     .+4                     ;BR IF FIRST TIME HERE
2012  006702  104003                        HLT     3                       ;RX INTERUPTED MORE THAN ONCE
2013  006704  000002                        RTI                             ;GO BACK AND DELAY
2014  006706  104002                2$:     HLT     2                       ;UNEXPECTED TX INTERUPT
2015  006710  000002                        RTI                             ;RETURN
2016
2017
2018                                        ;TEST TO SEE IF THE
2019                                        ;DQ11 TRANSMITTER WILL
2020                                        ;INTERUPT AT PS LEVEL
2021                                        ;OF 7 PRIORITY.
2022                                        ;
2023
2024                                ;  TEST 46
2025                                ;*************************************************************************
2026  006712  012737  000046  001226  TST46:  MOV     #46,TSTNO
2027  006720  012737  007014  001216          MOV     #TST47,NEXT
2028  006726  104412                        MSTCLR                          ;INIT DQ11
2029  006730  004737  016042                JSR     PC,SETV                 ;SET VECTORS
2030  006734  006766                        1$                              ;RX INTERUPTS TO 1$
2031  006736  006772                        2$                              ;TX INTERUPTS TO 2$
2032  006740  012700  177777                MOV     #-1,R0                  ;SET CHECKER
2033  006744  012737  000340  177776        MOV     #340,PS         ;SET PRIORITY
2034  006752  012777  000240  172404        MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
2035  006760  000240                        NOP                             ;
2036  006762  000240                        NOP                             ;
2037  006764  000403                        BR      3$                      ;CONTINUE TEST
2038  006766  104003                1$:     HLT     3                       ;UNEXPECTED RX INTERUPT
2039  006770  000002                        RTI                             ;CONTINUE TEST
2040  006772  005100                2$:     COM     R0                      ;CHECK INTERUPT
2041  006774  012706  001200        3$:     MOV     #STACK,SP               ;SET STACK POINTER
2042  007000  005700                        TST     R0                      ;CHECK INTERUPT POINTER
2043  007002  001001                        BNE     .+4
2044  007004  104002                        HLT     2
2045  007006  005077  172352                CLR     @DQTCSR
2046  007012  104400                        SCOPE
2047
2048                                        ;TEST TO SEE IF THE
2049                                        ;DQ11 TRANSMITTER WILL
2050                                        ;INTERUPT AT PS LEVEL
2051                                        ;OF 6 PRIORITY.
2052                                        ;
2053
2054                                ;  TEST 47
2055                                ;*************************************************************************
2056  007014  012737  000047  001226  TST47:  MOV     #47,TSTNO
2057  007022  012737  007116  001216          MOV     #TST50,NEXT
2058  007030  104412                        MSTCLR                          ;INIT DQ11
2059  007032  004737  016042                JSR     PC,SETV                 ;SET VECTORS
2060  007036  007070                        1$                              ;RX INTERUPTS TO 1$
2061  007040  007074                        2$                              ;TX INTERUPTS TO 2$
2062  007042  012700  177777                MOV     #-1,R0                  ;SET CHECKER
```

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2063  007046  012737  000300  177776          MOV     #300,PS         ;SET PRIORITY
2064  007054  012777  000240  172302          MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
2065  007062  000240                          NOP                             ;
2066  007064  000240                          NOP                             ;
2067  007066  000403                          BR      3$                      ;CONTINUE TEST
2068  007070  104003                  1$:     HLT     3                       ;UNEXPECTED RX INTERUPT
2069  007072  000002                          RTI                             ;CONTINUE TEST
2070  007074  005100                  2$:     COM     R0                      ;CHECK INTERUPT
2071  007076  012706  001200          3$:     MOV     #STACK,SP               ;SET STACK POINTER
2072  007102  005700                          TST     R0                      ;CHECK INTERUPT POINTER
2073  007104  001001                          BNE     .+4
2074  007106  104002                          HLT     2
2075  007110  005077  172250                  CLR     @DQTCSR
2076  007114  104400                          SCOPE
2077
2078                                          ;TEST TO SEE IF THE
2079                                          ;DQ11 TRANSMITTER WILL
2080                                          ;INTERUPT AT PS LEVEL
2081                                          ;OF 5 PRIORITY.
2082                                          ;
2083
2084                                  ;  TEST 50
2085                                  ;*************************************************************************
2086  007116  012737  000050  001226  TST50:  MOV     #50,TSTNO
2087  007124  012737  007220  001216          MOV     #TST51,NEXT
2088  007132  104412                          MSTCLR                          ;INIT DQ11
2089  007134  004737  016042                  JSR     PC,SETV                 ;SET VECTORS
2090  007140  007172                          1$                              ;RX INTERUPTS TO 1$
2091  007142  007176                          2$                              ;TX INTERUPTS TO 2$
2092  007144  012700  177777                  MOV     #-1,R0                  ;SET CHECKER
2093  007150  012737  000240  177776          MOV     #240,PS         ;SET PRIORITY
2094  007156  012777  000240  172200          MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
2095  007164  000240                          NOP                             ;
2096  007166  000240                          NOP                             ;
2097  007170  000403                          BR      3$                      ;CONTINUE TEST
2098  007172  104003                  1$:     HLT     3                       ;UNEXPECTED RX INTERUPT
2099  007174  000002                          RTI                             ;CONTINUE TEST
2100  007176  005100                  2$:     COM     R0                      ;CHECK INTERUPT
2101  007200  012706  001200          3$:     MOV     #STACK,SP               ;SET STACK POINTER
2102  007204  005700                          TST     R0                      ;CHECK INTERUPT POINTER
2103  007206  001001                          BNE     .+4
2104  007210  104002                          HLT     2
2105  007212  005077  172146                  CLR     @DQTCSR
2106  007216  104400                          SCOPE
2107
2108                                          ;TEST TO SEE IF THE
2109                                          ;DQ11 TRANSMITTER WILL
2110                                          ;INTERUPT AT PS LEVEL
2111                                          ;OF 4 PRIORITY.
2112                                          ;
2113
2114                                  ;  TEST 51
2115                                  ;*************************************************************************
2116  007220  012737  000051  001226  TST51:  MOV     #51,TSTNO
2117  007226  012737  007322  001216          MOV     #CHKBA,NEXT
2118  007234  104412                          MSTCLR                          ;INIT DQ11
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2119  007236  004737  016042                  JSR     PC,SETV                 ;SET VECTORS
2120  007242  007274                          1$                              ;RX INTERUPTS TO 1$
2121  007244  007300                          2$                              ;TX INTERUPTS TO 2$
2122  007246  012700  177777                  MOV     #-1,R0                  ;SET CHECKER
2123  007252  012737  000200  177776          MOV     #200,PS         ;SET PRIORITY
2124  007260  012777  000240  172076          MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
2125  007266  000240                          NOP                             ;
2126  007270  000240                          NOP                             ;
2127  007272  000403                          BR      3$                      ;CONTINUE TEST
2128  007274  104003                  1$:     HLT     3                       ;UNEXPECTED RX INTERUPT
2129  007276  000002                          RTI                             ;CONTINUE TEST
2130  007300  005100                  2$:     COM     R0                      ;CHECK INTERUPT
2131  007302  012706  001200          3$:     MOV     #STACK,SP               ;SET STACK POINTER
2132  007306  005700                          TST     R0                      ;CHECK INTERUPT POINTER
2133  007310  001401                          BEQ     .+4
2134  007312  104001                          HLT     1
2135  007314  005077  172044                  CLR     @DQTCSR
2136  007320  104400                          SCOPE
2137
2138
2139
2140
2141                                          ;IF THE DATA SET CONTROL OPTION IS INSTALLED,
2142                                          ;TEST 52 WILL BE EXECUTED
2143
2144  007322  032737  010000  001510  CHKBA:  BIT     #BABIT,DQSTAT
2145  007330  001435                          BEQ     CHKCA1
2146
2147                                          ;INTERRUPT LOGIC TEST
2148                                          ;SET DATA SET INTERRUPT ENABLE
2149                                          ;SET DATA SET INTERRUPT FLAG
2150                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
2151
2152                                  ;  TEST 52
2153                                  ;*************************************************************************
2154  007332  012737  000052  001226  TST52:  MOV     #52,TSTNO
2155  007340  012737  007426  001216          MOV     #TST53,NEXT
2156  007346  104412                          MSTCLR                          ;CLEAR INTERFACE
2157  007350  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2158  007354  007406                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
2159  007356  007410                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
2160  007360  052777  000020  171776          BIS     #BIT4,@DQTCSR           ;SET DATA SET INTERRUPT ENABL
2161  007366  052777  100000  171770          BIS     #BIT15,@DQTCSR          ;SET DATA SET INTERRUPT FLAG
2162  007374  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
2163  007400  000240                          NOP                             ;WINDOW FOR INTERRUPTS
2164  007402  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
2165  007404  000402                          BR      3$                      ;WITH DATA SET INTERRUPT ENABL AND
2166                                                                          ;DATA SET INTERRUPT FLAG SET
2167  007406  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
2168  007410  000240                  2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
2169  007412  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
2170  007416  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
2171  007422  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
```

```
2172  007424  000240                  CHKCA1: NOP
2173
2174                                          ;RECEIVER BASIC NPR LOGIC TEST (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT)
2175                                          ;EXPECTED RESULTS
2176                                          ;               RECEIVER DONE INTERRUPT OCCURS
2177                                          ;               RECEIVER DONE (PRIMARY) = 1
2178                                          ;               RECEIVER GO = 0
2179                                          ;               RECEIVER P/S = 1
2180                                          ;               NO ERROR FLAGS ARE SET
2181
2182                                          ;               RECEIVER BUS ADDRESS (PRIMARY)   RBUFF+1
2183                                          ;               RECEIVER CHARACTER COUNT (PRIMARY)   0
2184                                          ;               CONTENTS OF RBUFF = 0
2185
2186                                  ;  TEST 53
2187                                  ;*************************************************************************
2188  007426  012737  000053  001226  ST53:   MOV     #53,TSTNO
2189  007434  012737  007450  001214          MOV     #99$,RETURN
2190  007442  012737  007752  001216          MOV     #TST54,NEXT
2191  007450  104413                  99$:    MEMCLR
2192  007452  104412                  1$:     MSTCLR
2193  007454  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2194  007462  012737  000000  017170          MOV     #0,TBUFF
2195  007470  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2196  007474  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2197  007500  007576                          3$                              ;RECEIVER WILL INTERRUPT TO 3$
2198  007502  007600                          4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
2199  007504  004737  016122                  JSR     PC,SETBABC              ;SELECT RECEIVER BUS ADDRESS (PRIMARY)
2200  007510     000     000          .BYTE   0,0                     ;LOAD BUS ADDRESS
2201  007512  017166                          RBUFF                           ;SELECT RECEIVER CHARACTER COUNT (PRIMARY)
2202  007514  177777                          -1                              ;CHARACTER COUNT 1
2203  007516  012777  000040  171634          MOV     #BIT5,@DQRCSR           ;SET RECEIVER PRIMARY INTERRUPT ENABLE
2204  007524  052777  000001  171626          BIS     #BIT0,@DQRCSR           ;SET RECEIVER GO
2205  007532  112777  000012  171630          MOVB    #12,@DQREG              ;SELECT MISCELLANEOUS REGISTER
2206  007540  052777  000020  171624          BIS     #BIT4,@DQSEC            ;FORCE RECEIVER INTERRUPT
2207  007546  005037  177776                  CLR     PS                      ;ENABLE INTERRUPTS
2208  007552  012737  002000  001244          MOV     #2000,TEMP1             ;SET UP DELAY
2209  007560  005337  001244          2$:     DEC     TEMP1                   ;WAIT FOR INTERRUPTS AND NPRS
2210  007564  001375                  BNE     2$
2211  007566  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2212  007574  104000                  HLT     0                               ;RECEIVER DID NOT INTERRUPT
2213  007576  000401                  3$:     BR      5$
2214  007600  104002                  4$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
2215  007602  012706  001200          5$:     MOV     #STACK,SP               ;RESTORE PROCESSOR STACK
2216  007606  012705  000244                  MOV     #244,R5                 ;(R5)=EXPECTED DATA IN RECEIVER CONTROL REGISTER
2217                                          ;DONE (PRIMARY)=1, INTERRUPT ENEABLE-1,
2218                                          ;P/S=1
2219  007612  017704  171542                  MOV     @DQRCSR,R4              ;(R4)=ACTUAL DATA IN RECEIVER CONTROL REGISTER
2220  007616  042704  177400                  BIC     #177400,R4              ;CLEAR UNWANTED BITS
2221  007622  020504                  CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
2222  007624  001401                  BEQ     6$
2223  007626  104004                  HLT     4                       ;RECEIVER STATUS ERROR
2224  007630  005005                  6$:     CLR     R5                      ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2225  007632  013703  001366                  MOV     DQERR,R3                ;ADDRESS OF ERROR REGISTER
2226  007636  117704  171524                  MOVB    @DQERR,R4               ;(R4)TUAL DATA IN ERROR REGISTER
2227  007642  001401                  BEQ     7$
```

```
2228  007644  104006                          HLT     6                       ;ERROR FLAG(S) SET
2229  007646  112777  000000  171514  7$:     MOVB    #0,@DQREG               ;SELECT RECEIVER BUS ADDRESS (PRIMARY)
2230  007654  012702  000000                  MOV     #0,R2           ;ADDRESS OF RECEIVER BUS ADDRESS
2231                                                                  ;SECONDARY REGISTER
2232  007660  013703  001372                  MOV     DQSEC,R3                ;ADDRESS OF SECONDARY REGISTER
2233  007664  012705  017167                  MOV     #RBUFF+1,R5             ;(R5)=EXPECTED DATA IN
2234                                                                  ;RECEIVER BUS ADDRESS (PRIMARY) REGISTER,
2235                                                                  ;RBUFF+1
2236  007670  017704  171476                  MOV     @DQSEC,R4               ;(R4)=ACTUAL DATA IN RECEIVER
2237                                                                  ;BUS ADDRESS REGISTER (PRIMARY)
2238  007674  020504                          CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
2239  007676  001401                          BEQ     10$
2240  007700  104007                          HLT     7                       ;BUS ADDRESS ERROR
2241  007702  105277  171462          10$:    INCB    @DQREG                  ;SELECT CHARACTER COUNT ADD.
2242  007706  005202                          INC     R2                      ;UPDATE POINTER
2243  007710  012705  000000                  MOV     #0,R5                   ;SET FOR EXPECTED.
2244  007714  017704  171452                  MOV     @DQSEC,R4               ;READ THE ACTUAL.
2245  007720  020504                          CMP     R5,R4                   ;ARE THEY EQUAL?
2246  007722  001401                          BEQ     11$                     ;BR IF YES
2247  007724  104010                          HLT     10                      ;CHARACTER COUNT ERROR
2248  007726  012705  000000          1 $:    MOV     #0,R5           ;SET POINTER.
2249  007732  012703  017166                  MOV     #RBUFF,R3               ;
2250  007736  013704  017166                  MOV     RBUFF,R4                ;
2251  007742  020504                          CMP     R5,R4                   ;EQUAL?
2252  007744  001401                          BEQ     12$                     ;BR IF YES
2253  007746  104011                          HLT     11                      ;
2254  007750  104400          12$:    SCOPE
2255
2256                                          ;TRANSMITTER BASIC NPR LOGIC TEST (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT
2257                                          ;EXPECTED RESULTS
2258                                          ;               TRANSMITTER DONE INTERRUPT OCCURS
2259                                          ;               TRANSMITTER DONE (PRIMARY) - 1
2260                                          ;               TRANSMITTER GO = 0
2261                                          ;               TRANSMITTER P/S = 1
2262                                          ;               NO ERROR FLAGS ARE SET
2263
2264                                          ;               TRANSMITTER BUS ADDRESS (PRIMARY) - TBUFF+1
2265                                          ;               TRANSMITTER CHARACTER COUNT (PRIMARY)   0
2266                                          ;               CONTENTS OF TRANSMITTER BUFFER   52525
2267
2268                                  ;  TEST 54
2269                                  ;*************************************************************************
2270  007752  012737  000054  001226  TST54:  MOV     #54,TSTNO
2271  007760  012737  007776  001214          MOV     #1$,RETURN
2272  007766  012737  010272  001216          MOV     #TST55,NEXT
2273  007774  104413                  99$:    MEMCLR
2274  007776  104412                  1$:     MSTCLR
2275  010000  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2276  010006  012737  052525  017170          MOV     #52525,TBUFF
2277  010014  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2278  010020  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2279  010024  010110                          3$                              ;RECEIVER WILL INTERRUPT TO 3$
2280  010026  010112                          4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
2281  010030  004737  016122                  JSR     PC,SETBABC              ;SELECT TRANSMITTER BUS ADDRESS (PRIMARY)
2282  010034     002     000          .BYTE   2,0                     ;LOAD BUS ADDRESS
2283  010036  017170                          TBUFF                           ;SELECT TRANSMITTER CHARACTER COUNT (PRIMARY)
```

```
2284  010040  177777                        -1                      ;CHARACTER COUNT 1
2285  010042  012777  000040  171314        MOV     #BIT5,@DQTCSR   ;SET TRANSMITTER PRIMARY INTERRUPT ENABLE
2286  010050  052777  000001  171306        BIS     #BIT0,@DQTCSR   ;SET TRANSMITTER GO
2287  010056  005037  177776                CLR     PS              ;ENABLE INTERRUPTS
2288  010062  012737  002000  001244        MOV     #2000,TEMP1     ;SET UP DELAY
2289  010070  005337  001244        2$:     DEC     TEMP1           ;WAIT FOR INTERRUPTS AND NPRS
2290  010074  001375                        BNE     2$
2291  010076  012737  000340  177776        MOV     #340,PS         ;LOCK OUT INTERRUPTS
2292  010104  104001                        HLT     1               ;TRANSMITTER DID NOT INTERRUPT
2293  010106  000402                        BR      5$
2294  010110  104003                3$:     HLT     3               ;UNEXPECTED RECEIVER INTERRUPT
2295  010112  000240                4$:     NOP
2296  010114  012706  001200        5$:     MOV     #STACK,SP       ;RESTORE PROCESSOR STACK
2297  010120  012705  000244                MOV     #244,R5         ;(R5)=EXPECTED DATA IN TRANSMITTER CONTROL REGIS
2298                                                                ;DONE (PRIMARY)=1, INTERRUPT ENEABLE 1,
2299                                                                ;P/S=1
2300  010124  017704  171234                MOV     @DQTCSR,R4      ;(R4)=ACTUAL DATA IN TRANSMITTER CONTROL REGISTE
2301  010130  042704  177400                BIC     #177400,R4      ;CLEAR UNWANTED BITS
2302  010134  020504                        CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
2303  010136  001401                        BEQ     6$
2304  010140  104005                        HLT     5               ;TRANSMITTER STATUS ERROR
2305  010142  005005                6$:     CLR     R5              ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2306  010144  013703  001366                MOV     DQERR,R3        ;ADDRESS OF ERROR REGISTER
2307  010150  117704  171212                MOVB    @DQERR,R4       ;(R4)TUAL DATA IN ERROR REGISTER
2308  010154  001401                        BEQ     7$
2309  010156  104006                        HLT     6               ;ERROR FLAG(S) SET
2310  010160  112777  000002  171202  7$:   MOVB    #2,@DQREG       ;SELECT TRANSMITTER BUS ADDRESS (PRIMARY)
2311  010166  012702  000002                MOV     #2,R2           ;ADDRESS OF TRANSMITTER BUS ADDRESS
2312                                                                ;SECONDARY REGISTER
2313  010172  013703  001372                MOV     DQSEC,R3        ;ADDRESS OF SECONDARY REGISTER
2314  010176  012705  017171                MOV     #TBUFF+1,R5     ;(R5)=EXPECTED DATA IN
2315                                                                ;TRANSMITTER BUS ADDRESS (PRIMARY) REGISTER,
2316                                                                ;TBUFF+1
2317  010202  017704  171164                MOV     @DQSEC,R4       ;(R4)=ACTUAL DATA IN TRANSMITTER
2318                                                                ;BUS ADDRESS REGISTER (PRIMARY)
2319  010206  020504                        CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
2320  010210  001401                        BEQ     10$
2321  010212  104007                        HLT     7               ;BUS ADDRESS ERROR
2322  010214  105277  171150        10$:    INCB    @DQREG          ;SELECT CHARACTER COUNT ADD.
2323  010220  005202                        INC     R2              ;UPDATE POINTER
2324  010222  012705  000000                MOV     #0,R5           ;SET FOR EXPECTED.
2325  010226  017704  171140                MOV     @DQSEC,R4       ;READ THE ACTUAL.
2326  010232  020504                        CMP     R5,R4           ;ARE THEY EQUAL?
2327  010234  001401                        BEQ     11$             ;BR IF YES
2328  010236  104010                        HLT     10              ;CHARACTER COUNT ERROR
2329  010240  012705  052525        11$:    MOV     #52525,R5       ;SET POINTER.
2330  010244  112777  000013  171116        MOVB    #13,@DQREG      ;SEL TX MUX REG
2331  010252  012702  000013                MOV     #13,R2          ;SET FOR ERROR
2332  010256  017704  171110                MOV     @DQSEC,R4       ;READ DQSEC
2333  010262  020504                        CMP     R5,R4           ;WAS CHAR GOOD?
2334  010264  001401                        BEQ     12$             ;BR IF OK
2335  010266  104012                        HLT     12              ;INCORRECT CHAR.
2336  010270  104400                12$:    SCOPE
2337
2338                                        ;RECEIVER BASIC NPR LOGIC TEST (USING SECONDARY BUS ADDRESS AND CHARACTER COUNT)
2339                                        ;EXPECTED RESULTS
```

```
                                        ;               RECEIVER DONE INTERRUPT OCCURS
                                        ;               RECEIVER DONE (SECONDARY) - 1
                                        ;               RECEIVER GO = 0
                                        ;               RECEIVER P/S - 1
                                        ;               NO ERROR FLAGS ARE SET
                                        ;
                                        ;               RECEIVER BUS ADDRESS (SECONDARY) - RBUFF+1
                                        ;               RECEIVER CHARACTER COUNT (SECONDARY)   0
                                        ;               CONTENTS OF RBUFF = 0

                                ;  TEST 55
                                ;*****************************************************************
010272  012737  000055  001226  TST55:  MOV     #55,TSTNO
010300  012737  010704  001216          MOV     #TST56,NEXT
010306  104412                        MSTCLR                          ;ISSUE A MASTER CLEAR.
010310  004737  016006                  JSR     PC,SETLOP               ;SET TEST LOOP
010314  105077  171050                  CLRB    @DQREG                  ;SELECT RX BA PRI.
010320  012777  017166  171044          MOV     #RBUFF,@DQSEC           ;SET RX BA
010326  105277  171036                  INCB    @DQREG                  ;SELECT RX WC PRI.
010332  012777  177777  171032          MOV     #-1,@DQSEC              ;SET FOR ONE CHAR.
010340  052777  010001  171012          BIS     #BIT12+BIT0,@DQRCSR     ;SET ACTIVE AND GO..
010346  012700  007000                  MOV     #7000,R0                ;SET FOR TIME OUT DELAY
010352  005300                          DEC     R0                      ;DELAY.....
010354  001376                          BNE     .-2                     ;     DONE?
010356  012705  000204                  MOV     #204,R5                 ;SET EXPECTED. PRI. DONE AND P/S
010362  017704  170772                  MOV     @DQRCSR,R4              ;READ RX CSR.
010366  042704  177400                  BIC     #177400,R4              ;MASK UNWANTED BITS.
010372  020405                          CMP     R4,R5                   ;IS IT CORRECT?
010374  001401                          BEQ     .+4                     ;BR IF YES.
010376  104004                          HLT     4                       ;RECEIVER STATUS ERROR.
010400  005077  170754                  CLR     @DQRCSR                 ;CLEAR ALL BUT RX P/S
010404  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
010412  012737  000000  017170          MOV     #0,TBUFF
010420  104413                  1$:     MEMCLR                          ;CLEAR INTERFACE MEMORIES
010422  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
010426  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
010432  010530                          3$                              ;RECEIVER WILL INTERRUPT TO 3$
010434  010532                          4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
010436  004737  016122                  JSR     PC,SETBABC              ;SELECT RECEIVER BUS ADDRESS (SECONDARY)
010442     004     000          .BYTE   4,0                     ;LOAD BUS ADDRESS
010444  017166                          RBUFF                           ;SELECT RECEIVER CHARACTER COUNT (SECONDARY)
010446  177777                          -1                              ;CHARACTER COUNT-1
010450  012777  000040  170702          MOV     #BIT5,@DQRCSR           ;SET RECEIVER SECONDARY INTERRUPT ENABLE
010456  052777  000001  170674          BIS     #BIT0,@DQRCSR           ;SET RECEIVER GO
010464  112777  000012  170676          MOVB    #12,@DQREG              ;SELECT MISCELLANEOUS REGISTER
010472  052777  000020  170672          BIS     #BIT4,@DQSEC            ;FORCE RECEIVER INTERRUPT
010500  005037  177776                  CLR     PS                      ;ENABLE INTERRUPTS
010504  012737  002000  001244          MOV     #2000,TEMP1             ;SET UP DELAY
010512  005337  001244          2$:     DEC     TEMP1                   ;WAIT FOR INTERRUPTS AND NPRS
010516  001375                          BNE     2$
010520  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
010526  104000                          HLT     0                       ;RECEIVER DID NOT INTERRUPT
010530  000401                  3$:     BR      5$
010532  104002                  4$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
010534  012706  001200          5$:     MOV     #STACK,SP               ;RESTORE PROCESSOR STACK
010540  012705  000140                  MOV     #140,R5                 ;(R5)=EXPECTED DATA IN RECEIVER CONTROL REGISTER
```

```
                                                                ;DONE (SECONDARY)=1, INTERRUPT ENEABLE=1,
                                                                ;P/S=1
010544  017704  170610          MOV     @DQRCSR,R4            ;(R4)=ACTUAL DATA IN RECEIVER CONTROL REGISTER
010550  042704  177400          BIC     #177400,R4            ;CLEAR UNWANTED BITS
010554  020504                  CMP     R5,R4                 ;ARE EXPECTED AND RECEIVED DATA THE SAME
010556  001401                  BEQ     6$
010560  104004                  HLT     4                     ;RECEIVER STATUS ERROR
010562  005005          6$:     CLR     R5                    ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
010564  013703  001366          MOV     DQERR,R3              ;ADDRESS OF ERROR REGISTER
010570  117704  170572          MOVB    @DQERR,R4             ;(R4)TUAL DATA IN ERROR REGISTER
010574  001401                  BEQ     7$
010576  104006                  HLT     6                     ;ERROR FLAG(S) SET
010600  112777  000004  170562  7$:     MOVB    #4,@DQREG     ;SELECT RECEIVER BUS ADDRESS (SECONDARY)
010606  012702  000004          MOV     #4,R2         ;ADDRESS OF RECEIVER BUS ADDRESS
                                                                ;SECONDARY REGISTER
010612  013703  001372          MOV     DQSEC,R3              ;ADDRESS OF SECONDARY REGISTER
010616  012705  017167          MOV     #RBUFF+1,R5           ;(R5)=EXPECTED DATA IN
                                                                ;RECEIVER BUS ADDRESS (SECONDARY) REGISTER,
                                                                ;RBUFF+1
010622  017704  170544          MOV     @DQSEC,R4             ;(R4)=ACTUAL DATA IN RECEIVER
                                                                ;BUS ADDRESS REGISTER (SECONDARY)
010626  020504                  CMP     R5,R4                 ;ARE EXPECTED AND RECEIVED DATA THE SAME
010630  001401                  BEQ     10$
010632  104007                  HLT     7                     ;BUS ADDRESS ERROR
010634  105277  170530          10$:    INCB    @DQREG
010640  005202                  INC     R2
010642  012705  000000          MOV     #0,R5
010646  017704  170520          MOV     @DQSEC,R4
010652  020504                  CMP     R5,R4
010654  001401                  BEQ     11$
010656  104010                  HLT     10                    ;CHARACTER COUNT ERROR
010660  012705  000000          11$:    MOV     #0,R5
010664  012703  017166          MOV     #RBUFF,R3
010670  013704  017166          MOV     RBUFF,R4
010674  020504                  CMP     R5,R4
010676  001401                  BEQ     QZX
010700  104011                  HLT     11
010702  104400          QZX:    SCOPE

                                ;TRANSMITTER BASIC NPR LOGIC TEST (USING SECONDARY BUS ADDRESS AND CHARACTER COU
                                ;EXPECTED RESULTS
                                ;               TRANSMITTER DONE INTERRUPT OCCURS
                                ;               TRANSMITTER DONE (SECONDARY)   1
                                ;               TRANSMITTER GO = 0
                                ;               TRANSMITTER P/S = 1
                                ;               NO ERROR FLAGS ARE SET

                                ;               TRANSMITTER BUS ADDRESS (SECONDARY) - TBUFF+1
                                ;               TRANSMITTER CHARACTER COUNT (SECONDARY) = 0
                                ;               CONTENTS OF TRANSMITTER BUFFER - 177777

                                ;  TEST 56
                                ;*****************************************************************
010704  012737  000056  001226  TST56:  MOV     #56,TSTNO
010712  012737  010730  001214          MOV     #.$,RETURN
010720  012737  011330  001216          MOV     #TST57,NEXT
```

```
2452  010726  104413                        MEMCLR                  ;ISSUE A MEMORY CLEAR.
2453  010730  104412              1$:       MSTCLR                  ;MASTER CLEAR DQ11
2454  010732  104413                        MEMCLR                  ;
2455  010734  112777  000012  170426        MOVB    #12,@DQREG      ;SELECT MISC.REG
2456  010742  012777  004010  170422        MOV     #4010,@DQSEC    ;SET FOR EIGHT BITS AND TEST LOOP
2457  010750  112777  000002  170412        MOVB    #2,@DQREG       ;SEL TX BA PRI.
2458  010756  012777  017170  170406        MOV     #TBUFF,@DQSEC   ;SET BUS ADDRESS
2459  010764  105277  170400                INCB    @DQREG          ;SELECT TX WC PRI.
2460  010770  012777  177777  170374        MOV     #-1,@DQSEC      ;SET FOR ONE CHAR.
2461  010776  005277  170362                INC     @DQTCSR         ;SET TX GO..
2462  011002  012700  000010                MOV     #10,R0          ;SET FOR TIME OUT.
2463  011006  005300                        DEC     R0              ;DELAY
2464  011010  001376                        BNE     .-2             ;BR IF MORE DELAY
2465  011012  012705  000204                MOV     #204,R5         ;SET FOR EXPECTED.
2466  011016  017704  170342                MOV     @DQTCSR,R4      ;READ THE TX CSR
2467  011022  020405                        CMP     R4,R5           ;EXPECTED=ACTUAL?
2468  011024  001401                        BEQ     .+4             ;BR IF YES
2469  011026  104005                        HLT     5               ;TX STATUS REG ERROR
2470  011030  005077  170330                CLR     @DQTCSR         ;CLEAR ALL BUT P/S BIT
2471  011034  012737  000340  177776        MOV     #340,PS         ;LOCK OUT INTERRUPTS
2472  011042  012737  177777  017170        MOV     #177777,TBUFF   ;SET CHARACTER
2473  011050  104413                        MEMCLR                  ;CLEAR INTERFACE MEMORIES
2474  011052  004737  016006                JSR     PC,SETLOP       ;SET MAINTENANCE MODE
2475  011056  004737  016042                JSR     PC,SETV         ;SET UP INTERRUPT VECTORS
2476  011062  011146                        3$                      ;RECEIVER WILL INTERRUPT TO 3$
2477  011064  011150                        4$                      ;TRANSMITTER WILL INTERRUPT TO 4$
2478  011066  004737  016122                JSR     PC,SETBABC      ;SELECT TRANSMITTER BUS ADDRESS (SECONDARY)
2479  011072     006     000        .BYTE   6,0                     ;LOAD BUS ADDRESS
2480  011074  017170                        TBUFF                   ;SELECT TRANSMITTER CHARACTER COUNT (SECONDARY)
2481  011076  177777                        -1                      ;CHARACTER COUNT=1
2482  011100  012777  000040  170256        MOV     #BIT5,@DQTCSR   ;SET TRANSMITTER SECONDARY INTERRUPT ENABLE
2483  011106  052777  000001  170250        BIS     #BIT0,@DQTCSR   ;SET TRANSMITTER GO
2484  011114  005037  177776                CLR     PS              ;ENABLE INTERRUPTS
2485  011120  012737  002000  001244        MOV     #2000,TEMP1     ;SET UP DELAY
2486  011126  005337  001244        2$:     DEC     TEMP1           ;WAIT FOR INTERRUPTS AND NPRS
2487  011132  001375                        BNE     2$
2488  011134  012737  000340  177776        MOV     #340,PS         ;LOCK OUT INTERRUPTS
2489  011142  104001                        HLT     1               ;TRANSMITTER DID NOT INTERRUPT
2490  011144  000402                        BR      5$
2491  011146  104003              3$:       HLT     3               ;UNEXPECTED RECEIVER INTERRUPT
2492  011150  000240              4$:       NOP
2493  011152  012706  001200        5$:     MOV     #STACK,SP       ;RESTORE PROCESSOR STACK
2494  011156  012705  000140                MOV     #140,R5         ;(R5)=EXPECTED DATA IN TRANSMITTER CONTROL REGIS
2495                                                                ;DONE (SECONDARY)-1, INTERRUPT ENFABLE 1,
2496                                                                ;P/S=1
2497  011162  017704  170176                MOV     @DQTCSR,R4      ;(R4)=ACTUAL DATA IN TRANSMITTER CONTROL REGISTE
2498  011166  042704  177400                BIC     #177400,R4      ;CLEAR UNWANTED BITS
2499  011172  020504                        CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
2500  011174  001401                        BEQ     6$
2501  011176  104005                        HLT     5               ;TRANSMITTER STATUS ERROR
2502  011200  005005              6$:       CLR     R5              ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2503  011202  013703  00136c                MOV     DQERR,R3        ;ADDRESS OF ERROR REGISTER
2504  011206  117704  170154                MOVB    @DQERR,R4       ;(R4)TUAL DATA IN ERROR REGISTER
2505  011212  001401                        BEQ     7$
2506  011214  104006                        HLT     6               ;ERROR FLAG(S) SET
2507  011216  112777  000006  170144  7$:   MOVB    #6,@DQREG       ;SELECT TRANSMITTER BUS ADDRESS (SECONDARY)
```

```
2508  011224  012702  000006                  MOV     #6,R2           ;ADDRESS OF TRANSMITTER BUS ADDRESS
2509                                                                    ;SECONDARY REGISTER
2510  011230  013703  001372                  MOV     DQSEC,R3        ;ADDRESS OF SECONDARY REGISTER
2511  011234  012705  017171                  MOV     #TBUFF+1,R5     ;(R5)=EXPECTED DATA IN
2512                                                                    ;TRANSMITTER BUS ADDRESS (SECONDARY) REGISTER,
2513                                                                    ;TBUFF+1
2514  011240  017704  170126                  MOV     @DQSEC,R4       ;(R4)=ACTUAL DATA IN TRANSMITTER
2515                                                                    ;BUS ADDRESS REGISTER (SECONDARY)
2516  011244  020504                          CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
2517  011246  001401                          BEQ     10$
2518  011250  104007                          HLT     7               ;BUS ADDRESS ERROR
2519  011252  105277  170112          10$:    INCB    @DQREG
2520  011256  005202                          INC     R2
2521  011260  012705  000000                  MOV     #0,R5
2522  011264  017704  170102                  MOV     @DQSEC,R4
2523  011270  020504                          CMP     R5,R4
2524  011272  001401                          BEQ     11$
2525  011274  104010                          HLT     10              ;CHARACTER COUNT ERROR
2526  011276  012705  177777          11$:    MOV     #177777,R5
2527  011302  112777  000013  170060          MOVB    #13,@DQREG
2528  011310  012702  000013                  MOV     #13,R2
2529  011314  017704  170052                  MOV     @DQSEC,R4
2530  011320  020504                          CMP     R5,R4
2531  011322  001401                          BEQ     12$
2532  011324  104012                          HLT     12
2533  011326  104400                  12$:    SCOPE
2534
2535                                          ;RECEIVER NON-EXISTANT MEMORY TIMEOUT TEST
2536                                          ; (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT)
2537                                          ;EXPECTED RESULTS
2538                                          ;               RECEIVER DONE INTERRUPT OCCURS
2539                                          ;               RECEIVER DONE (PRIMARY)   1
2540                                          ;               RECEIVER GO = 0
2541                                          ;               RECEIVER P/S = 1
2542                                          ;               RECEIVER NON EXISTANT MEMORY ERROR FLAG   1
2543
2544                                          ;               RECEIVER BUS ADDRESS (PRIMARY) - RBUFF+1
2545                                          ;               RECEIVER CHARACTER COUNT (PRIMARY)   0
2546
2547                                  ;  TEST 57
2548                                  ;*************************************************************************
2549  011330  012737  000057  001226  TST57:  MOV     #57,TSTNO
2550  011336  012737  011362  001214          MOV     #1$,RETURN
2551  011344  012737  011624  001216          MOV     #TST60,NEXT
2552  011352  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2553  011360  104413                          MEMCLR                          ;CLEAR INTERFACE MEMORIES
2554  011362  104412                  1$:     MSTCLR                          ;MASTER CLEAR INTERFACE
2555  011364  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2556  011370  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2557  011374  011472                          3$                              ;RECEIVER WILL INTERRUPT TO 3$
2558  011376  011474                          4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
2559  011400  004737  016122                  JSR     PC,SETBABC
2560  011404     000     140          .BYTE   0,      140
2561  011406  177320                          NON.EX
2562  011410  177777                          -1
2563  011412  012777  000040  167740          MOV     #BIT5,@DQRCSR           ;SET RECEIVER PRIMARY INTERRUPT ENABLE
```

```
2564  011420  052777  000001  167732          BIS     #BIT0,@DQRCSR           ;SET RECEIVER GO
2565  011426  112777  000012  167734          MOVB    #12,@DQREG              ;SELECT MISCELLANEOUS REGISTER
2566  011434  052777  000020  167730          BIS     #BIT4,@DQSEC            ;FORCE RECEIVER INTERRUPT
2567  011442  005037  177776                  CLR     PS                      ;ENABLE INTERRUPTS
2568  011446  012737  002000  001244          MOV     #2000,TEMP1             ;SET UP DELAY
2569  011454  005337  001244          2$:     DEC     TEMP1                   ;WAIT FOR INTERRUPTS AND NPRS
2570  011460  001375                          BNE     2$
2571  011462  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2572  011470  104000                          HLT     0                       ;RECEIVER DID NOT INTERRUPT
2573  011472  000401                  3$:     BR      5$
2574  011474  104002                  4$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
2575  011476  012706  001200          5$:     MOV     #STACK,SP               ;RESTORE PROCESSOR STACK
2576  011502  012705  000244                  MOV     #244,R5                 ;(R5)=EXPECTED DATA IN RECEIVER CONTROL RECISTER
2577                                                                          ;DONE (PRIMARY)=1, INTERRUPT ENEABLE-1,
2578                                                                          ;P/S=1
2579  011506  017704  167646                  MOV     @DQRCSR,R4              ;(R4)=ACTUAL DATA IN RECEIVER CONTROL REGISTER
2580  011512  042704  177400                  BIC     #177400,R4              ;CLEAR UNWANTED BITS
2581  011516  020504                          CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
2582  011520  001401                          BEQ     6$
2583  011522  104004                          HLT     4                       ;RECEIVER STATUS ERROR
2584  011524  005005                  6$:     CLR     R5                      ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2585  011526  013703  001366                  MOV     DQERR,R3                ;ADDRESS OF ERROR REGISTER
2586  011532  017704  167630                  MOV     @DQERR,R4               ;(R4)TUAL DATA IN ERROR REGISTER
2587  011536  100401                          BMI     7$
2588  011540  104006                          HLT     6                       ;ERROR FLAG(S) NOT SET
2589  011542  112777  000000  167620  7$:     MOVB    #0,@DQREG               ;SELECT RECEIVER BUS ADDRESS (PRIMARY)
2590  011550  012702  000000                  MOV     #0,R2                   ;ADDRESS OF RECEIVER BUS ADDRESS
2591                                                                          ;SECONDARY REGISTER
2592  011554  013703  001372                  MOV     DQSEC,R3                ;ADDRESS OF SECONDARY REGISTER
2593  011560  012705  177321                  MOV     #NON.EX+1,R5            ;(R5)=EXPECTED DATA IN
2594                                                                          ;RECEIVER BUS ADDRESS (PRIMARY) REGISTER,
2595                                                                          ;RBUFF+1
2596  011564  017704  167602                  MOV     @DQSEC,R4               ;(R4)=ACTUAL DATA IN RECEIVER
2597                                                                          ;BUS ADDRESS REGISTER (PRIMARY)
2598  011570  020504                          CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
2599  011572  001401                          BEQ     10$
2600  011574  104007                          HLT     7                       ;BUS ADDRESS ERROR
2601  011576  105277  167566          10$.    INCB    @DQREG
2602  011602  005202                          INC     R2
2603  011604  012705  000000                  MOV     #0,R5
2604  011610  017704  167556                  MOV     @DQSEC,R4
2605  011614  020504                          CMP     R5,R4
2606  011616  001401                          BEQ     11$
2607  011620  104010                          HLT     10                      ;CHARACTER COUNT ERROR
2608  011622  104400          11$:    SCOPE
2609
2610                                          ;TRANSMITTER NON-EXISTANT MEMORY TIMEOUT TEST
2611                                          ; (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT)
2612                                          ;EXPECTED RESULTS
2613                                          ;               TRANSMITTER DONE INTERRUPT OCCURS
2614                                          ;               TRANSMITTER DONE (PRIMARY)   1
2615                                          ;               TRANSMITTER GO - 0
2616                                          ;               TRANSMITTER P/S = 1
2617                                          ;               TRANSMITTER NON EXISTANT MEMORY ERROR FLAG   1
2618
2619                                          ;               TRANSMITTER BUS ADDRESS (PRIMARY)   TBUFF+1
```

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                                        ;               TRANSMITTER CHARACTER COUNT (PRIMARY)   0
                                        ;  TEST 60
                                        ;*************************************************************************
011624 012737 000060 001226 TST60:  MOV     #60,TSTNO
011632 012737 011656 001214         MOV     #1$,RETURN
011640 012737 012106 001216         MOV     #TST61,NEXT
011646 012737 000340 177776         MOV     #340,PS                 ;LOCK OUT INTERRUPTS
011654 104413                       MEMCLR                          ;CLEAR INTERFACE MEMORIES
011656 104412                1$:    MSTCLR                          ;MASTER CLEAR INTERFACE
011660 004737 016024                JSR     PC,SETMNT               ;SET MAINTENANCE MODE
011664 004737 016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
011670 011754                       3$                              ;RECEIVER WILL INTERRUPT TO 3$
011672 011756                       4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
011674 004737 016122                JSR     PC,SETBABC
011700     002     140      .BYTE   2,      140
011702 177320                       NON.EX
011704 177777                       -1
011706 012777 000040 167450         MOV     #BIT5,@DQTCSR           ;SET TRANSMITTER PRIMARY INTERRUPT ENABLE
011714 052777 000001 167442         BIS     #BIT0,@DQTCSR           ;SET TRANSMITTER GO
011722 005037 177776                CLR     PS                      ;ENABLE INTERRUPTS
011726 012737 002000 001244         MOV     #2000,TEMP1             ;SET UP DELAY
011734 005337 001244         2$:    DEC     TEMP1                   ;WAIT FOR INTERRUPTS AND NPRS
011740 001375                       BNE     2$
011742 012737 000340 177776         MOV     #340,PS                 ;LOCK OUT INTERRUPTS
011750 104001                       HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
011752 000402                       BR      5$
011754 104003                3$:    HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
011756 000240                4$:    NOP
011760 012706 001200         5$:    MOV     #STACK,SP               ;RESTORE PROCESSOR STACK
011764 012705 000244                MOV     #244,R5                 ;(R5)=EXPECTED DATA IN TRANSMITTER CONTROL REGIS
                                                                    ;DONE (PRIMARY)-1, INTERRUPT ENEABLE 1,
                                                                    ;P/S=1
011770 017704 167370                MOV     @DQTCSR,R4              ;(R4)-ACTUAL DATA IN TRANSMITTER CONTROL REGISTE
011774 042704 177400                BIC     #177400,R4              ;CLEAR UNWANTED BITS
012000 020504                       CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
012002 001401                       BEQ     6$
012004 104005                       HLT     5                       ;TRANSMITTER STATUS ERROR
012006 005005                6$:    CLR     R5                      ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
012010 013703 001366                MOV     DQERR,R3                ;ADDRESS OF ERROR REGISTER
012014 017704 167346                MOV     @DQERR,R4               ;(R4)TUAL DATA IN ERROR REGISTER
012020 100401                       BMI     7$
012022 104006                       HLT     6                       ;ERROR FLAG(S) NOT SET
012024 112777 000002 167336  7$:    MOVB    #2,@DQREG               ;SELECT TRANSMITTER BUS ADDRESS (PRIMARY)
012032 012702 000002                MOV     #2,R2                   ;ADDRESS OF TRANSMITTER BUS ADDRESS
                                                                    ;SECONDARY REGISTER
012036 013703 001372                MOV     DQSEC,R3                ;ADDRESS OF SECONDARY REGISTER
012042 012705 177321                MOV     #NON.EX+1,R5            ;(R5)=EXPECTED DATA IN
                                                                    ;TRANSMITTER BUS ADDRESS (PRIMARY) REGISTER,
                                                                    ;TBUFF+1
012046 017704 167320                MOV     @DQSEC,R4               ;(R4)=ACTUAL DATA IN TRANSMITTER
                                                                    ;BUS ADDRESS REGISTER (PRIMARY)
012052 020504                       CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
012054 001401                       BEQ     10$
012056 104007                       HLT     7                       ;BUS ADDRESS ERROR
012060 105277 167304         10$:   INCB    @DQREG
```

```
2676  012064  005202                          INC     R2
2677  012066  012705  000000                  MOV     #0,R5
2678  012072  017704  167274                  MOV     @DQSEC,R4
2679  012076  020504                          CMP     R5,R4
2680  012100  001401                          BEQ     11$
2681  012102  104010                          HLT     10                      ;CHARACTER COUNT ERROR
2682  012104  104400                  11$:    SCOPE
2683
2684                                          ;RECEIVER P/S MASTER CLEAR TEST
2685                                          ;EXECUTE 1 NPR CYCLE TO FORCE RECEIVER P/S TO A 1
2686                                          ;ISSUE MASTER CLEAR
2687                                          ;VERIFY THAT RECEIVER P/S WAS CLEARED
2688
2689                                  ;  TEST 61
2690                                  ;*************************************************************************
2691  012106  012737  000061  001226  TST61:  MOV     #61,TSTNO
2692  012114  012737  012140  001214          MOV     #1$,RETURN
2693  012122  012737  012272  001216          MOV     #TST62,NEXT
2694  012130  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS.
2695  012136  104413                          MEMCLR
2696  012140  104412                  1$:     MSTCLR                          ;MASTER CLEAR INTERFACE
2697  012142  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2698  012146  004737  016122                  JSR     PC,SETBABC
2699  012152     000     000          .BYTE   0,0
2700  012154  017166                          RBUFF
2701  012156  177777                          -1
2702  012160  052777  000001  167172          BIS     #BIT0,@DQRCSR
2703  012166  112777  000012  167174          MOVB    #12,@DQREG              ;SELECT MISC REGISTER
2704  012174  052777  000020  167170          BIS     #BIT4,@DQSEC            ;FORCE RX NPR
2705  012202  012737  002000  001244          MOV     #2000,TEMP1             ;SET FOR TIME OUT
2706  012210  105777  167144          2$:     TSTB    @DQRCSR                 ;PRIMARY DONE UP
2707  012214  100412                          BMI     3$                      ;BR IF PRI DONE SET.
2708  012216  005337  001244                  DEC     TEMP1                   ;DELAY.......
2709  012222  001372                          BNE     2$                      ;KEEP WAITING
2710  012224  017704  167130                  MOV     @DQRCSR,R4              ;SAVE THE CSR
2711  012230  042704  177400                  BIC     #177400,R4              ;CLEAR UNWANTED BITS.
2712  012234  012705  000204                  MOV     #204,R5                 ;SET EXPECTED.
2713  012240  104004                          HLT     4
2714  012242  104412                  3$:     MSTCLR
2715  012244  032777  000020  167106          BIT     #BIT4,@DQRCSR
2716  012252  001406                          BEQ     4$
2717  012254  005005                          CLR     R5
2718  012256  017704  167076                  MOV     @DQRCSR,R4
2719  012262  042704  177400                  BIC     #177400,R4
2720  012266  104004                          HLT     4
2721  012270  104400                  4$:     SCOPE
2722
2723                                          ;TRANSMITTER P/S MASTER CLEAR TEST
2724                                          ;EXECUTE 1 NPR CYCLE TO FORCE TRANSMITTER P/S TO A 1
2725                                          ;ISSUE MASTER CLEAR
2726                                          ;VERIFY THAT TRANSMITTER P/S WAS CLEARED
2727
2728                                  ;  TEST 62
2729                                  ;*************************************************************************
2730  012272  012737  000062  001226  TST62:  MOV     #62,TSTNO
2731  012300  012737  012324  001214          MOV     #1$,RETURN
```

```
2732  012306  012737  012442  001216          MOV     #TST63,NEXT
2733  012314  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS.
2734  012322  104413                          MEMCLR
2735  012324  104412                  1$:     MSTCLR                          ;MASTER CLEAR INTERFACE
2736  012326  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2737  012332  004737  016122                  JSR     PC,SETBABC
2738  012336     002     000          .BYTE   2,0
2739  012340  017170                          TBUFF
2740  012342  177777                          -1
2741  012344  052777  000001  167012          BIS     #BIT0,@DQTCSR
2742  012352  012737  002000  001244          MOV     #2000,TEMP1             ;SET FOR TIME OUT
2743  012360  105777  167000          2$:     TSTB    @DQTCSR                 ;PRIMARY DONE UP
2744  012364  100412                          BMI     3$                      ;BR IF PRI DONE SET.
2745  012366  005337  001244                  DEC     TEMP1                   ;DELAY.....
2746  012372  001372                          BNE     2$                      ;KEEP WAITING
2747  012374  017704  166764                  MOV     @DQTCSR,R4              ;SAVE THE CSR
2748  012400  042704  177400                  BIC     #177400,R4              ;CLEAR UNWANTED BITS.
2749  012404  012705  000204                  MOV     #204,R5                 ;SET EXPECTED.
2750  012410  104005                          HLT     5
2751  012412  104412                  3$:     MSTCLR
2752  012414  032777  000020  166742          BIT     #BIT4,@DQTCSR
2753  012422  001406                          BEQ     4$
2754  012424  005005                          CLR     R5
2755  012426  017704  166732                  MOV     @DQTCSR,R4
2756  012432  042704  177400                  BIC     #177400,R4
2757  012436  104005                          HLT     5
2758  012440  104400                  4$:     SCOPE
2759
2760                                          ;TRANSMITTER NPR DATA TEST (STEP MODE)
2761                                          ;EXECUTE 1 TRANSMITTER NPR CYCLE FOR EACH DATA PATTERN 0-177777
2762                                          ;VERIFY THAT TRANSMITTER BUFFER CONTAINS THE CORRECT DATA
2763
2764                                  ;  TEST 63
2765                                  ;*************************************************************************
2766  012442  012737  000063  001226  TST63:  MOV     #63,TSTNO
2767  012450  012737  012510  001214          MOV     #1$,RETURN
2768  012456  012737  000010  001222          MOV     #10,ICOUNT
2769  012464  012737  012650  001216          MOV     #.EOP,NEXT
2770  012472  012737  012532  001220          MOV     #2$,LOCK
2771  012500  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS.
2772  012506  104413                          MEMCLR                          ;CLEAR ALL MEMEORIES
2773  012510  104412                  1$:     MSTCLR                          ;INITIALIZE DEVICE
2774  012512  005037  017172                  CLR     ZDATA                   ;CLEAR POINTER
2775  012516  012700  000000                  MOV     #0,R0           ;
2776  012522  013703  001372                  MOV     DQSEC,R3                ;SET FOR ERROR
2777  012526  012702  000013                  MOV     #13,R2                  ;SET FOR ERROR (TX MUX)
2778  012532  104412                  2$:     MSTCLR                          ;GIVE ANOTHER MASTER CLEAR
2779  012534  004737  015770                  JSR     PC,SETSTP               ;
2780  012540  004737  016122                  JSR     PC,SETBABC              ;SET BUS ADDR. AND WC
2781  012544     002     000          .BYTE   2,0                             ;
2782  012546  017170                          TBUFF
2783  012550  177777                          -1
2784  012552  013705  017172                  MOV     ZDATA,R5                ;SET EXPECTED
2785  012556  010537  017170                  MOV     R5,TBUFF                ;LOAD CHARACTER
2786  012562  012777  000001  166574          MOV     #BIT0,@DQTCSR           ;SET TX GO.
2787  012570  012737  002000  001244          MOV     #2000,TEMP1             ;SET FOR DELAY
```

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2788  012576  105777  166562          3$:     TSTB    @DQTCSR                 ;TX PRI DONE?
2789  012602  100404                          BMI     4$                      ;BR IF YES
2790  012604  005337  001244                  DEC     TEMP1                   ;DELAY.
2791  012610  001372                          BNE     3$                      ;KEEP DELAYING
2792  012612  104003                          HLT     3                       ;TX PRI DONE FAILED TO SET
2793  012614  112777  000013  166546  4$:     MOVB    #13,@DQREG              ;SELECT TX MUX REG.
2794  012622  017704  166544                  MOV     @DQSEC,R4               ;READ MUX
2795  012626  020504                          CMP     R5,R4                   ;GOOD CHARACTER?
2796  012630  001401                          BEQ     5$                      ;BR IF GOOD
2797  012632  104012                          HLT     12              ;DATA COMPARISON ERROR
2798  012634  104401                  5$:     SCOP1                           ;LOCK ON DATA (SW09-1)
2799  012636  005237  017172                  INC     ZDATA                   ;UPDATE CHARACTER
2800  012642  005300                          DEC     R0                      ;UPDATE COUNTER
2801  012644  001332                          BNE     2$                      ;GO DO MORE CHARACTERS
2802  012646  104400                  6$:     SCOPE                           ;SCOPE THIS TEST.
2803
2804                                          ;END OF PASS
2805                                          ;TYPE NAME OF TEST
2806                                          ;UPDATE PASS COUNT
2807                                          ;CHECK FOR EXIT TO ACT-11
2808                                          ;RESTART TEST
2809
2810  012650  005037  001234          .EOP:   CLR     LSTERR                  ;CLEAR LAST ERROR PC
2811  012654  005037  001312                  CLR     ERRFLG                  ;CLEAR ERROR FLAG
2812  012660  005237  001230                  INC     PASCNT                  ;UPDATE PASS COUNT
2813  012664  104402                          TYPE
2814  012666  015100                          MEPASS
2815  012670  104402                          TYPE
2816  012672  015261                          MCSRX
2817  012674  104411                          CNVRT
2818  012676  013006                          XCSR
2819  012700  104402                          TYPE
2820  012702  015267                          MVECX
2821  012704  104411                          CNVRT
2822  012706  013014                          XVEC
2823  012710  104402                          TYPE
2824  012712  015275                          MPASSX
2825  012714  104411                          CNVRT
2826  012716  013022                          XPASS
2827  012720  104402                          TYPE
2828  012722  015306                          MERRX
2829  012724  10441?                          CNVRT
2830  012726  013030                          XERR
2831  012730  013777  00?230  166244          MOV     PASCNT,@LIGHTS          ;DISPLAY PASS COUNT
2832  012736  005337  001276                  DEC     SAVNUM
2833  012742  001013                          BNE     RESTRT
2834  012744  013737  001504  001276          MOV     DQNUM,SAVNUM
2835  012752  013701  000042                  MOV     @#42,R1                 ;CHECK FOR ACT-11 OR DDP
2836  012756  001405                          BEQ     RESTRT                  ;IF NOT, CONTINUE TESTING
2837  012760  000005                          RESET
2838  012762                          LOGICAL:
2839  012762  004711                          JSR     PC,(R1)
2840  012764  000240                          NOP
2841  012766  000240                          NOP
2842  012770  000240                          NOP
2843  012772  104414                  RESTRT: CKSWR
```

```
 2844  012774  012737  002254  001214          MOV     #TST1,RETURN
 2845  013002  000137  002254                  JMP     TST1
 2846  013006  000001                  XCSR:   1
 2847  013010     006     002                  .BYTE   6,2
 2848  013012  001360                          DQRCSR
 2849  013014  000001                  XVEC:   1
 2850  013016     003     002                  .BYTE   3,2
 2851  013020  001350                          DQRVEC
 2852  013022  000001                  XPASS:  1
 2853  013024     006     002                  .BYTE   6,2
 2854  013026  001230                          PASCNT
 2855  013030  000001                  XERR:   1
 2856  013032     006     002                  .BYTE   6,2
 2857  013034  001232                          ERRCNT
 2858
 2859                                          ;SCOPE LOOP AND INTERATION HANDLER
 2860
 2861  013036  104414                  .SCOPE: CKSWR
 2862  013040  032777  040000  166132          BIT     #BIT14,@SWR
 2863  013046  001407                  TTST:   BEQ     1$
 2864  013050  000432                          BR      3$
 2865  013052  105777  166126                  TSTB    @TKCSR
 2866  013056  100027                          BPL     3$
 2867  013060  017700  166122                  MOV     @TKDBR,R0
 2868  013064  000412                          BR      2$
 2869  013066  032777  004000  166104  1$:     BIT     #SW11,@SWR
 2870  013074  001006                          BNE     2$
 2871  013076  005237  001224                  INC     LPCNT
 2872  013102  023737  001224  001222          CMP     LPCNT,ICOUNT
 2873  013110  001012                          BNE     3$
 2874  013112  105037  001312          2$:     CLRB    ERRFLG
 2875  013116  005037  001224                  CLR     LPCNT
 2876  013122  012737  000012  001222          MOV     #10.,ICOUNT
 2877  013130  013737  001216  001214          MOV     NEXT,RETURN
 2878  013136  013716  001214          3$:     MOV     RETURN,(SP)
 2879  013142  000002                          RTI
 2880  013144  001407                  BRW:    1407
 2881  013146  000432                  BRX:    432
 2882
 2883                                          ;CHECK FOR FREEZE ON CURRENT DATA
 2884
 2885  013150  104414                  .SCOP1: CKSWR
 2886  013152  032777  001000  166020          BIT     #SW09,@SWR
 2887  013160  001402                          BEQ     1$
 2888  013162  013716  001220                  MOV     LOCK,(SP)
 2889  013166  000002                  1$:     RTI
 2890
 2891                                          ;TELETYPE OUTPUT ROUTINE
 2892
 2893  013170  010546                  .TYPE:  MOV     R5,-(SP)
 2894  013172  017605  000002                  MOV     @2(SP),R5
 2895  013176  062766  000002  000002          ADD     #2,2(SP)
 2896  013204  005737  014660          1$:     TST     @#RDSW
 2897  013210  001004                          BNE     300$
 2898  013212  032777  010000  165760          BIT     #BIT12,@SWR
 2899  013220  001024                          BNE     3$
```

```
2900  013222  105715                  300$:   TSTB    (R5)
2901  013224  100014                          BPL     2$
2902  013226  105777  165756                  TSTB    @TPCSR
2903  013232  100375                          BPL     .-4
2904  013234  012777  000015  165750          MOV     #15,@TPDBR
2905  013242  105777  165742                  TSTB    @TPCSR
2906  013246  100375                          BPL     .-4
2907  013250  012777  000012  165734          MOV     #12,@TPDBR
2908  013256  105777  165726          2$:     TSTB    @TPCSR
2909  013262  100375                          BPL     2$
2910  013264  112577  165722                  MOVB    (R5)+,@TPDBR
2911  013270  001345                          BNE     1$
2912  013272  012605                  3$:     MOV     (SP)+,R5
2913  013274  000002                          RTI
2914
2915                                          ;ASCII STRING INPUT ROUTINE
2916
2917  013276  010346                  .INSTR: MOV     R3,-(SP)
2918  013300  010446                          MOV     R4,-(SP)
2919  013302  017637  000004  013320          MOV     @4(SP),.MSG
2920  013310  062766  000002  000004          ADD     #2,4(SP)
2921  013316  104402                  .INST1: TYPE
2922  013320  000000                  .MSG:   0
2923  013322  012704  015452                  MOV     #INBUF,R4
2924  013326  012703  000007                  MOV     #7,R3
2925  013332  105777  165646          1$:     TSTB    @TKCSR
2926  013336  100375                          BPL     1$
2927  013340  117714  165642                  MOVB    @TKDBR,(R4)
2928  013344  142714  000200                  BICB    #200,(R4)
2929  013350  121427  000025                  CMPB    (R4),#25                ;IS IT <^G>
2930  013354  001003                          BNE     200$
2931  013356  104402  015040                  TYPE,MCRLF
2932  013362  000755                          BR      .INST1
2933  013364  122427  000015          200$:   CMPB    (R4)+,#15
2934  013370  001423                          BEQ     INSTR2
2935  013372  117777  165610  165612          MOVB    @TKDBR,@TPDBR
2936  013400  105777  165604          2$:     TSTB    @TPCSR
2937  013404  100375                          BPL     2$
2938  013406  005303                          DEC     R3
2939  013410  001350                          BNE     1$
2940  013412  000402                          BR      .INSTG
2941  013414  010346                  .INSTE: MOV     R3,-(SP)
2942  013416  010446                          MOV     R4,-(SP)
2943  013420  104402                  .INSTG: TYPE
2944  013422  015034                          MOM
2945  013424  005737  014660                  TST     @#RDSW
2946  013430  001402                          BEQ     400$
2947  013432  104402  015040                  TYPE,MCRLF
2948  013436  000727                  400$:   BR      .INST1
2949  013440  012604                  INSTR2: MOV     (SP)+,R4
2950  013442  012603                          MOV     (SP)+,R3
2951  013444  000002                          RTI
2952
2953                                          ;CONVERT ASCII STRING TO OCTAL
2954
2955  013446  010546                  .PARAM: MOV     R5,-(SP)
```

```
2956  013450  010446                        MOV     R4,-(SP)
2957  013452  016605  000004                MOV     4(SP),R5
2958  013456  012537  013652                MOV     (R5)+,LOLIM
2959  013462  012537  013654                MOV     (R5)+,HILIM
2960  013466  012537  013656                MOV     (R5)+,DEVADR
2961  013472  112537  013660                MOVB    (R5)+,LOBITS
2962  013476  112537  013661                MOVB    (R5)+,ADRCNT
2963  013502  010566  000004                MOV     R5,4(SP)
2964  013506  005005                PARAM1: CLR     R5
2965  013510  012704  015452                MOV     #INBUF,R4
2966  013514  122714  000015                CMPB    #15,(R4)
2967  013520  001420                        BEQ     PARERR
2968  013522  121427  000060        1$:     CMPB    (R4),#60
2969  013526  002415                        BLT     PARERR
2970  013530  121427  000067                CMPB    (R4),#67
2971  013534  003012                        BGT     PARERR
2972  013536  142714  000060                BICB    #60,(R4)
2973  013542  152405                        BISB    (R4)+,R5
2974  013544  122714  000015                CMPB    #15,(R4)
2975  013550  001414                        BEQ     LIMITS
2976  013552  006305                        ASL     R5
2977  013554  006305                        ASL     R5
2978  013556  006305                        ASL     R5
2979  013560  000760                        BR      1$
2980  013562  122714  000015        PARERR: CMPB    #15,(R4)        ;IS FIRST CHARACTER A <CR>
2981  013566  001003                        BNE     120$
2982  013570  005737  014660                TST     @#RDSW          ;IS CKSWR ROUTINE BEING USED
2983  013574  001023                        BNE     PARTI
2984  013576  104404                120$:   INSTER
2985  013600  000742                        BR      PARAM1
2986
2987                                        ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
2988
2989  013602  020537  013654        LIMITS: CMP     R5,HILIM
2990  013606  101365                        BHI     PARERR
2991  013610  020537  013652                CMP     R5,LOLIM
2992  013614  103762                        BLO     PARERR
2993  013616  133705  013660                BITB    LOBITS,R5
2994  013622  001357                        BNE     PARERR
2995
2996                                        ;STORE NUMBER AT SPECIFIED ADDRESS
2997
2998  013624  013704  013656                MOV     DEVADR,R4
2999  013630  010524                1$:     MOV     R5,(R4)+
3000  013632  062705  000002                ADD     #2,R5
3001  013636  105337  013661                DECB    ADRCNT
3002  013642  001372                        BNE     1$
3003  013644  012604                PARTI:  MOV     (SP)+,R4
3004  013646  012605                        MOV     (SP)+,R5
3005  013650  000002                        RTI
3006  013652  000000                LOLIM:  0
3007  013654  000000                HILIM:  0
3008  013656  000000                DEVADR: 0
3009  013660  000000                LOBITS: 0
3010          013661                ADRCNT=LOBITS+1
3011
```

```
3012                                            ;SAVE PC OF TEST THAT FAILED AND R0-R5
3013
3014  013662  016637  000004  001274  .SAV05: MOV     4(SP),SAVPC
3015
3016                                            ;SAVE R0-R5
3017
3018  013670  010537  001270          SV05:   MOV     R5,SAVR5
3019  013674  010437  001266                  MOV     R4,SAVR4
3020  013700  010337  001264                  MOV     R3,SAVR3
3021  013704  010237  001262                  MOV     R2,SAVR2
3022  013710  010137  001260                  MOV     R1,SAVR1
3023  013714  010037  001256                  MOV     R0,SAVR0
3024  013720  000002                          RTI
3025
3026                                            ;RESTORE R0-R5
3027
3028  013722  013700  001256          .RES05: MOV     SAVR0,R0
3029  013726  013701  001260                  MOV     SAVR1,R1
3030  013732  013702  001262                  MOV     SAVR2,R2
3031  013736  013703  001264                  MOV     SAVR3,R3
3032  013742  013704  001266                  MOV     SAVR4,R4
3033  013746  013705  001270                  MOV     SAVR5,R5
3034  013752  000002                          RTI
3035
3036                                            ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
3037
3038  013754  104402                  .CONVR: TYPE
3039  013756  015040                          MCRLF
3040  013760  010046                  .CNVRT: MOV     R0,-(SP)
3041  013762  010146                          MOV     R1,-(SP)
3042  013764  010346                          MOV     R3,-(SP)
3043  013766  010446                          MOV     R4,-(SP)
3044  013770  010546                          MOV     R5,-(SP)
3045  013772  017601  000012                  MOV     @12(SP),R1
3046  013776  013737  015514  001250          MOV     TEMP,TEMP3
3047  014004  062766  000002  000012          ADD     #2,12(SP)
3048  014012  012137  014174                  MOV     (R1)+,WRDCNT
3049  014016  112137  014176          1$:     MOVB    (R1)+,CHRCNT
3050  014022  112137  014177                  MOVB    (R1)+,SPACNT
3051  014026  013137  014200                  MOV     @(R1)+,BINWRD
3052  014032  013704  014200          2$.     MOV     BINWRD,R4
3053  014036  113705  014176                  MOVB    CHRCNT,R5
3054  014042  012700  015514                  MOV     #TEMP,R0
3055  014046  010403                  3$:     MOV     R4,R3
3056  014050  042703  177770                  BIC     #177770,R3
3057  014054  062703  000060                  ADD     #060,R3
3058  014060  110320                          MOVB    R3,(R0)+
3059  014062  000241                          CLC
3060  014064  006004                          ROR     R4
3061  014066  000241                          CLC
3062  014070  006004                          ROR     R4
3063  014072  000241                          CLC
3064  014074  006004                          ROR     R4
3065  014076  005305                          DEC     R5
3066  014100  001362                          BNE     3$
3067  014102  012703  015556                  MOV     #MDATA,R3
```

```
3068  014106  114023                    4$:     MOVB    -(R0),(R3)+
3069  014110  105337  014176                    DECB    CHRCNT
3070  014114  001374                            BNE     4$
3071  014116  105737  014177                    TSTB    SPACNT
3072  014122  001405                            BEQ     6$
3073  014124  112723  00004C            5$:     MOVB    #040,(R3)+
3074  014130  105337  014177                    DECB    SPACNT
3075  014134  001373                            BNE     5$
3076  014136  105013                    6$:     CLRB    (R3)
3077  014140  104402                            TYPE
3078  014142  015556                            MDATA
3079  014144  005337  014174                    DEC     WRDCNT
3080  014150  001322                            BNE     1$
3081  014152  013737  001250  015574            MOV     TEMP3,TEMP
3082  014160  012605                            MOV     (SP)+,R5
3083  014162  012604                            MOV     (SP)+,R4
3084  014164  012603                            MOV     (SP)+,R3
3085  014166  012601                            MOV     (SP)+,R1
3086  014170  012600                            MOV     (SP)+,R0
3087  014172  000002                            RTI
3088  014174  000000                    WRDCNT: 0
3089  014176  000000                    CHRCNT: 0
3090          014177                    SPACNT=CHRCNT+1
3091  014200  000000                    BINWRD: 0
3092                                            ;TRAP DISPATCH SERVICE
3093                                            ;ARGUMENT OF TRAP IS EXTRACTED
3094                                            ;AND USED AS OFFSET TO OBTAIN POINTER
3095                                            ;TO SELECTED SUBROUTINE
3096
3097  014202  011646                    .TRPSR: MOV     (SP),-(SP)          ;GET PC OF RETURN
3098  014204  162716  000002                    SUB     #2,(SP)             ; PC OF TRAP
3099  014210  017616  000000                    MOV     @(SP),(SP)          ;GET TRP
3100  014214  006316                    TRPOK:  ASL     (SP)                ;MULTIPLY TRAP ARG BY 2
3101  014216  042716  177001                    BIC     #177001,(SP)        ;CLEAR UNWANTED BITS
3102  014222  062716  001314                    ADD     #.TRPTAB,(SP)       ;POINTER TO SUBROUTINE ADDRESS
3103  014226  017616  000000                    MOV     @(SP),(SP)          ;SUBROUTINE ADDRESS
3104  014232  000136                            JMP     @(SP)+              ;GO TO SUBROUTINE
3105
3106                                            ;ERROR HANDLER
3107
3108  014234  104414                    .HLT:   CKSWR
3109  014236  032777  010000  164734            BIT     #SW12,@SWR
3110  014244  001406                            BEQ     XBX
3111  014246  105777  164736                    TSTB    @TPCSR
3112  014252  100003                            BPL     XBX
3113  014254  112777  000207  164730            MOVB    #207,@TPDBR
3114  014262  032777  020000  164710    XBX:    BIT     #SW13,@SWR
3115  014270  001074                            BNE     HALTS
3116  014272  021637  001234                    CMP     (SP),LSTERR
3117  014276  001404                            BEQ     1$
3118  014300  011637  001234                    MOV     (SP),LSTERR
3119  014304  105037  001312                    CLRB    ERRFLG
3120  014310  104406                    1$:     SAV05
3121  014312  011605                            MOV     (SP),R5
3122  014314  162705  000002                    SUB     #2,R5
3123  014320  011504                            MOV     (R5),R4
```

```
3124  014322  006304                          ASL     R4
3125  014324  061504                          ADD     (R5),R4
3126  014326  006304                          ASL     R4
3127  014330  042704  177001                  BIC     #177001,R4
3128  014334  062704  016744                  ADD     #.ERRTAB,R4
3129  014340  012437  014432                  MOV     (R4)+,ERRMSG
3130  014344  012437  014444                  MOV     (R4)+,DATAHD
3131  014350  011437  014456                  MOV     (R4),DATABP
3132  014354  105737  001312                  TSTB    ERRFLG
3133  014360  001403                          BEQ     TYPMSG
3134  014362  005737  014456                  TST     DATABP
3135  014366  001027                          BNE     TYPDAT
3136  014370  104402                TYPMSG:   TYPE
3137  014372  015317                          MTSTN
3138  014374  104411                          CNVRT
3139  014376  014556                          XTSTN
3140  014400  104402                          TYPE
3141  014402  015405                          MERRPC
3142  014404  104411                          CNVRT
3143  014406  014550                          ERTABO
3144  014410  104402                          TYPE
3145  014412  015040                          MCRLF
3146  014414  112737  177777  001312          MOVB    #-1,ERRFLG
3147  014422  005737  014432                  TST     ERRMSG
3148  014426  001402                          BEQ     WRKO.FM
3149  014430  104402                          TYPE
3150  014432  000000                ERRMSG:   0
3151  014434                      WRKO.FM:
3152  014434  005737  014444                  TST     DATAHD
3153  014440  001402                          BEQ     TYPDAT
3154  014442  104402                          TYPE
3155  014444  000000                DATAHD:   0
3156  014446  005737  014456      TYPDAT:     TST     DATABP
3157  014452  001402                          BEQ     RESREG
3158  014454  104410                          CONVRT
3159  014456  000000                DATABP:   0
3160  014460  104407                RESREG:   RESOS
3161  014462  005777  164512      HALTS:    TST     @SWR
3162  014466  100005                          BPL     EXITER
3163  014470  010046                          PUSHRO
3164  014472  016600  000002                  MOV     2(SP),RO
3165  014476  000000                          HALT
3166  014500  012600                          POPRO
3167  014502  104414                EXITER:   CKSWR
3168  014504  005237  001232                  INC     ERRCNT
3169  014510  032777  000400  164462          BIT     #SW08,@SWR
3170  014516  001007                          BNE     1$
3171  014520  032777  002000  164442          BIT     #SW10,@SWR
3172  014526  001407                          BEQ     2$
3173  014530  013737  001216  001214          MOV     NEXT,RETURN
3174  014536  012706  001200          1$:     MOV     #STACK,SP
3175  014542  000177  164446                  JMP     @RETURN
3176  014546  000002                2$:       RTI
3177  014550  000001                ERTABO:   1
3178  014552     006     002                  .BYTE   6,2
3179  014554  001274                          SAVPC
```

```
3180  014556  000001                  XTSTN:  1
3181  014560     003     002                  .BYTE   3,2
3182  014562  001226                          TSTNO
3183                                          ;ENTER HERE ON POWER FAILURE
3184
3185
3186  014564                          .PFAIL:
3187  014564  012737  014576  000024          MOV     #RESTART,24             ;SET UP FOR POWER UP TRAP
3188  014572  000000                          HALT                            ;HALT ON POWER DOWN NORMAL
3189  014574  000777                          BR      .
3190
3191                                          ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
3192
3193  014576                          RESTAR:
3194  014576  012737  014564  000024          MOV     #.PFAIL,24              ;SET UP FOR POWER FAILURE
3195  014604  012706  001200                  MOV     #STACK,SP
3196  014610  005037  015514                  CLR     TEMP
3197  014614  005237  015514                  INC     TEMP
3198  014620  001375                          BNE     .-4
3199  014622  104402                          TYPE
3200  014624  015042                          MPFAIL
3201  014626  104411                          CNVRT
3202  014630  014652                          PFTAB
3203  014632  005037  001312                  CLR     ERRFLG
3204  014636  005037  001234                  CLR     LSTERR
3205  014642  104412                          MSTCLR
3206  014644  104413                          MEMCLR
3207  014646  000177  164342                  JMP     @RETURN
3208  014652  000001                  PFTAB:  1
3209  014654     003     002          .BYTE   3,2
3210  014656  001226                          TSTNO
3211
3212
3213                                          ;CHECK SWITCH REGISTER ROUTINE. CHECKS FOR ^G TO ALLOW CHANGING
3214                                          ;OF LOC.176.
3215                                          ;LOCATIONS USED:
3216  014660  000000                  RDSW:   .WORD   0
3217
3218
3219  014662  005737  000042          .CKSWR: TST     @#42
3220  014666  001042                          BNE     OUT
3221  014670  022737  000176  001200          CMP     #SWREG,SWR              ;SOFTWARE SWITCH REGISTER PRESENT
3222  014676  001036                          BNE     OUT                     ;NO, GET OUT
3223  014700  105777  164300                  TSTB    @TKCSR                  ;YES,WAIT FOR
3224  014704  100033                          BPL     OUT                     ;READY, GET CHARACTER
3225  014706  017737  164274  013320          MOV     @TKDBR,.MSG             ;AND STRIP OFF
3226  014714  042737  177600  013320          BIC     #177600,.MSG            ;THE GARBAGE
3227  014722  122737  000007  013320          CMPB    #7,.MSG                 ;IS IT A <^G>
3228  014730  001021                          BNE     OUT
3229  014732  104402  015010                  TYPE,$CNTG
3230  014736  005137  014660          .CNTLU: COM     @#RDSW
3231  014742  104402  015014                  TYPE,$MSWR
3232  014746  104411  015002                  CNVRT,SWREGC
3233  014752  104403  015023                  INSTR,$MNEW
3234  014756  104405                          PARAM
3235  014760  000000                          C
```

```
3236  014762 177777                        177777
3237  014764 000176                        SWREG
3238  014766    000     001        .BYTE          0,1
3239  014770 104402  015040                TYPE,MCRLF
3240  014774 005037  014660        OUT:    CLR     @#RDSW
3241  015000 000002                        RTI
3242  015002 000001                SWREGC: 1
3243  015004    006     002        .BYTE   6,2
3244  015006 000176                        SWREG
3245  015010 057377  000107        $CNTG:  .ASCIZ  <377>/^G/
3246  015014 051777  051127 020075 $MSWR:  .ASCIZ  <377>/SWR  /
3247  015022    000
3248  015023    040  047040 053505 $MNEW:  .ASCIZ  /  NEW= /
3249  015030 020075     000
3250           015034               .EVEN
3251  015034 020040  000077        MQM:    .ASCIZ  /  ?/
3252  015040 000377                MCRLF:  .ASCIZ   <377>
3253  015042 050377  051127 043040 MPFAIL: .ASCIZ  <377>/PWR FAILED. RESTART AT TEST /
3254  015050 044501  042514 027104
3255  015056 051040  051505 040524
3256  015064 052122  040440 020124
3257  015072 042524  052123 000040
3258  015100 042777  042116 050040 MEPASS: .ASCIZ  <377>/END PASS CZDQC  /
3259  015106 051501  020123 055103
3260  015114 050504  020103 000040
3261  015122 051377     000        MR:     .ASCIZ  <377>/R/
3262  015125    377  051120 043517 MERR2:  .ASCIZ  <377>/PROGRAM INDICATES NO DEVICES PRESENT./
3263  015132 040522  020115 047111
3264  015140 044504  040503 042524
3265  015146 020123  047516 042040
3266  015154 053105  041511 051505
3267  015162 050040  042522 042523
3268  015170 052116  000056
3269  015174 044777  051516 043125 MERR3:  .ASCIZ  <377>/INSUFFICIENT DATA./
3270  015202 044506  044503 047105
3271  015210 020124  040504 040524
3272  015216 000041
3273  015220 052377  051505 020124 MTSTPC: .ASCIZ  <377>/TEST PC-/
3274  015226 041520  000055
3275  015232 046377  041517 020113 MLOCK:  .ASCIZ  <377>/LOCK ON SELECTED TEST/
3276  015240 047117  051440 046105
3277  015246 041505  042524 020104
3278  015254 042524  052123    000
3279  015261    103  051123 020072 MCSRX:  .ASCIZ   /CSR: /
3280  015266    000
3281  015267    126  041505 020072 MVECX:  .ASCIZ  /VEC: /
3282  015274    000
3283  015275    120  051501 042523 MPASSX: .ASCIZ  /PASSES: /
3284  015302 035123  000040
3285  015306 051105  047522 051522 MERRX:  .ASCIZ  /ERRORS: /
3286  015314 020072     000
3287  015317    377  052377 051505 MTSTN:  .ASCIZ  <377><377> /TEST NO: /
3288  015324 020124  047516 020072
3289  015332    000
3290  015333    377  042523 020124 MNEW:   .ASCIZ  <377>/SET SWITCH REG TO DQ11'S DESIRED ACTIVE./
3291  015340 053523  052111 044103
```

```
3292  015346  051040  043505  052040
3293  015354  020117  050504  030461
3294  015362  051447  042040  051505
3295  015370  051111  042105  040440
3296  015376  052103  053111  027105
3297  015404     000
3298  015405     120  035103  000040  MERRPC: .ASCIZ  /PC: /
3299  015412  046777  050101  047440  XHEAD:  .ASCIZ  <377>/MAP OF DQ11 STATUS/<377>
3300  015420  020106  050504  030461
3301  015426  051440  040524  052524
3302  015434  177523     000
3303          015440              .EVEN
3304  015440  000002              XSTATQ: 2
3305  015442     006     003              .BYTE   6,3
3306  015444  001244              TEMP1
3307  015446     006     002              .BYTE   6,2
3308  015450  001246              TEMP2
3309                              .EVEN
3310
3311                                       ;BUFFERS FOR INPUT-OUTPUT
3312
3313  015452  000000              INBUF:  0
3314          015514              .-.+40
3315  015514  000000              TEMP:   0
3316          015556              . .+40
3317  015556  000000              MDATA:  0
3318          015620              . .+40
3319
3320                                       ;MASTER CLEAR DQ11 INTERFACE
3321
3322  015620                      .MSTCLR:
3323  015620  112777  000012  163542       MOVB    #12,@DQREG
3324  015626  012777  000040  163536       MOV     #BIT5,@DQSEC
3325  015634  000002              RTI
3326
3327                                       ;CLEAR INTERFACE MEMORIES
3328
3329  015636                      .MEMCLR:
3330  015636  105077  163526              CLRB    @DQREG
3331  015642  012700  000020              MOV     #16.,R0
3332  015646  152777  000020  163514  1$: BISB    #BIT4,@DQREG
3333  015654  142777  000140  163506       BICB    #140,@DQREG
3334  015662  005077  163504              CLR     @DQSEC
3335  015666  105277  163476              INCB    @DQREG
3336  015672  005300                      DEC     R0
3337  015674  001364                      BNE     1$
3338  015676  105077  163466              CLRB    @DQREG
3339  015702  105077  163454              CLRB    @DQRCSH
3340  015706  012700  000020              MOV     #16.,R0
3341  015712  112777  000010  163450  2$: MOVB    #10,@DQREG
3342  015720  005077  163446              CLR     @DQSEC
3343  015724  112777  000014  163436       MOVB    #14,@DQREG
3344  015732  005077  163434              CLR     @DQSEC
3345  015736  105277  163420              INCB    @DQRCSH
3346  015742  005300                      DEC     R0
3347  015744  001362                      BNE     2$
```

```
3348  015746  105077  163410                  CLRB    @DQRCSH
3349  015752  005077  163402                  CLR     @DQRCSR
3350  015756  005077  163402                  CLR     @DQTCSR
3351  015762  005077  163400                  CLR     @DQERR
3352  015766  000002                          RTI
3353
3354                                          ;SET STEP MODE
3355
3356  015770  112777  000012  163372  SETSTP: MOVB    #12,@DQREG
3357  015776  052777  000002  163366          BIS     #BIT1,@DQSEC
3358  016004  000207                          RTS     PC
3359
3360                                          ;SET TEST LOOP
3361
3362  016006  112777  000012  163354  SETLOP: MOVB    #12,@DQREG
3363  016014  052777  000010  163350          BIS     #BIT3,@DQSEC
3364  016022  000207                          RTS     PC
3365
3366                                          ;SET MAINTENANCE MODE
3367
3368  016024  112777  000012  163336  SETMNT: MOVB    #12,@DQREG
3369  016032  052777  000012  163332          BIS     #BIT1+BIT3,@DQSEC
3370  016040  000207                          RTS     PC
3371
3372                                          ;SET INTERRUPT VECTORS
3373
3374  016042  011605                  SETV:   MOV     (SP),R5
3375  016044  012577  163300                  MOV     (R5)+,@DQRVEC
3376  016050  012777  000340  163274          MOV     #340,@DQRLVL
3377  016056  012577  163272                  MOV     (R5)+,@DQTVEC
3378  016062  012777  000340  163266          MOV     #340,@DQTLVL
3379  016070  010516                          MOV     R5,(SP)
3380  016072  000207                          RTS     PC
3381
3382                                          ;RESTORE TRAPCATCHER
3383
3384  016074  013777  001352  163246  RECAT:  MOV     DQRLVL,@DQRVEC
3385  016102  005077  163244                  CLR     @DQRLVL
3386  016106  013777  001356  163240          MOV     DQTLVL,@DQTVEC
3387  016114  005077  163236                  CLR     @DQTLVL
3388  016120  000207                          RTS     PC
3389
3390                                          ;SET UP BUS ADDRESS AND CHARACTER COUNTS
3391                                          ;FOR SELECTED FUNCTION
3392
3393  016122  011605                  SETBABC:MOV     (SP),R5
3394  016124  112577  163240                  MOVB    (R5)+,@DQREG
3395  016130  152777  000020  163232          BISB    #BIT4,@DQREG
3396  016136  152577  163226                  BISB    (R5)+,@DQREG
3397  016142  012577  163224                  MOV     (R5)+,@DQSEC
3398  016146  142777  000040  163214          BICB    #BIT5,@DQREG
3399  016154  105277  163210                  INCB    @DQREG
3400  016160  012577  163206                  MOV     (R5)+,@DQSEC
3401  016164  010516                          MOV     R5,(SP)
3402  016166  000207                          RTS     PC
3403
```

```
3404
3405                                            ;TABLE OF ERROR MESSAGES
3406
3407  016170  042522  042503  053111  EM0:    .ASCIZ  /RECEIVER DID NOT INTERRUPT/
      016223     124  040522  051516  EM1:    .ASCIZ  /TRANSMITTER DID NOT INTERRUPT/
      016261     125  042516  050130  EM2:    .ASCIZ  /UNEXPECTED TRANSMITTER INTERRUPT/
      016322  047125  054105  042520  EM3:    .ASCIZ  /UNEXPECTED RECEIVER INTERRUPT/
      016360  042522  042503  053111  EM4:    .ASCIZ  /RECEIVER STATUS ERROR/
      016406  051124  047101  046523  EM5:    .ASCIZ  /TRANSMITTER STATUS ERROR/
      016437     105  051122  051117  EM6:    .ASCIZ  /ERROR FLAG(S) SET/
      016461     102  051525  040440  EM7:    .ASCIZ  /BUS ADDRESS ERROR/
      016503     103  040510  040522  EM10:   .ASCIZ  /CHARACTER COUNT ERROR/
      016531     122  041505  044505  EM11:   .ASCIZ  /RECEIVED DATA ERROR/
      016555     124  040522  051516  EM12:   .ASCIZ  /TRANSMITTER BUFFER DATA ERROR/
      016613     103  047514  045503  EM13:   .ASCIZ  /CLOCK LOSS ERROR/

                                            ;TABLE OF DATA HEADERS

      016634  042777  050130  041505  DH0:    .ASCIZ  <377>/EXPECTED  RECEIVED  REG ADDRESS/
      016675     377  054105  042520  DH1:    .ASCIZ  <377>/EXPECTED  RECEIVED  SEC ADR   SEC REG/
                                      .EVEN

3408                                            ;TABLE OF POINTERS FOR ERROR OUTPUT
3409
3410  016744  016170                .ERRTAB:EM0
3411  016746  000000                        0
3412  016750  000000                        0
3413  016752  016223                        EM1
3414  016754  000000                        0
3415  016756  000000                        0
3416  016760  016261                        EM2
3417  016762  000000                        0
3418  016764  000000                        0
3419  016766  016322                        EM3
3420  016770  000000                        0
3421  016772  000000                        0
3422  016774  016360                        EM4
3423  016776  016634                        DH0
3424  017000  017054                        DT0
3425  017002  016406                        EM5
3426  017004  016634                        DH0
3427  017006  017072                        DT1
3428  017010  016437                        EM6
3429  017012  016634                        DH0
3430  017014  017150                        DT4
3431  017016  016461                        EM7
3432  017020  016675                        DH1
3433  017022  017126                        DT3
3434  017024  016503                        EM10
3435  017026  016675                        DH1
3436  017030  017126                        DT3
3437  017032  016531                        EM11
3438  017034  016634                        DH0
3439  017036  017150                        DT4
3440  017040  016555                        EM12
3441  017042  016675                        DH1
```

```
3442  017044  017126                        DT3
3443  017046  016613                        EM13
3444  017050  016634                        DH0
3445  017052  017110                        DT2
3446
3447                                        ;DATA TABLES FOR ERROR OUTPUT
3448
3449  017054  000003              DT0:      3
3450  017056     006      004     .BYTE     6,4
3451  017060  001270                        SAVR5
3452  017062     006      004     .BYTE     6,4
3453  017064  001266                        SAVR4
3454  017066     006      004     .BYTE     6,4
3455  017070  001360                        DQRCSR
3456  017072  000003              DT1:      3
3457  017074     006      004     .BYTE     6,4
3458  017076  001270                        SAVR5
3459  017100     006      004     .BYTE     6,4
3460  017102  001266                        SAVR4
3461  017104     006      004     .BYTE     6,4
3462  017106  001364                        DQTCSR
3463  017110  000003              DT2:      3
3464  017112     003      007     .BYTE     3,7
3465  017114  001270                        SAVR5
3466  017116     003      007     .BYTE     3,7
3467  017120  001266                        SAVR4
3468  017122     006      000     .BYTE     6,0
3469  017124  001366                        DQERR
3470  017126  000004              DT3:      4
3471  017130     006      004     .BYTE     6,4
3472  017132  001270                        SAVR5
3473  017134     006      004     .BYTE     6,4
3474  017136  001266                        SAVR4
3475  017140     006      004     .BYTE     6,4
3476  017142  001372                        DQSEC
3477  017144     002      000     .BYTE     2,0
3478  017146  001262                        SAVR2
3479  017150  000003              DT4:      3
3480  017152     006      004     .BYTE     6,4
3481  017154  001270                        SAVR5
3482  017156     006      004     .BYTE     6,4
3483  017160  001266                        SAVR4
3484  017162     006      004     .BYTE     6,4
3485  017164  001264                        SAVR3
3486  017166  000000              RBUFF:    0
3487  017170  000000              TBUFF:    0
3488  017172  000000              ZDATA:    0
3489          000001              .END
```

```
ABBIT = 002000   611#   725
ACTBIT= 004000   612#   733
ADRCNT= 013661  2962*  3001*  3010#
BABIT = 010000   613#   729  2144
BBBIT = 020000   614#   720
BINWRD  014200  3051*  3052  3091#
BIT0  - 000001   606#  1047  1120  1121  1155  1156  1408  1409  1410  1419  1422  1722  1723
                1734  1737  2204  2286  2360  2383  2483  2564  2639  2702  2741  2786
BIT1  = 000002   605#  1119  1154  1431  1432  1433  1442  1445  1748  1749  1760  1763  3357
                3369
BIT10 = 002000   596#
BIT11 = 004000   595#
BIT12 = 010000   594#  1120  1126  2360
BIT13 = 020000   593#
BIT14 = 040000   592#  2862
BIT15 = 100000   591#  1385  1386  1387  1396  1399  1598  1599  1610  1613  2149  2150  2161
                2164
BIT2  = 000004   604#  1018  1454  1455  1456  1465  1468  1774  1775  1786  1789
BIT3  = 000010   603#  1154  1219  1220  1221  1230  1233  1477  1478  1479  1488  1491  1721
                1723  1733  1737  1747  1749  1759  1763  1773  1775  1785  1789  1799  1800
                1801  1811  1812  1815  1825  1827  1837  1841  1851  1853  1863  1867  1877
                1879  1889  1893  1903  1905  1915  1919  3363  3369
BIT4    000020   602#  1173  1174  1175  1184  1187  1242  1243  1244  1253  1256  1500  1501
                1502  1511  1514  1597  1599  1609  1613  1826  1827  1838  1841  2148  2150
                2160  2164  2206  2385  2566  2704  2715  2752  3332  3395
BIT5  - 000040   601#  1196  1197  1198  1207  1210  1265  1266  1267  1276  1279  1523  1524
                1525  1534  1537  1621  1623  1633  1637  1645  1647  1657  1661  1669  1671
                1681  1685  1695  1697  1707  1711  1852  1853  1864  1867  2203  2285  2382
                2482  2563  2638  3324  3398
BIT6  - 000100   600#  1293  1294  1295  1304  1307  1339  1340  1341  1350  1353  1546  1547
                1548  1557  1560  1622  1623  1634  1637  1670  1671  1682  1685  1878  1879
                1890  1893
BIT7  = 000200   599#  1316  1317  1318  1327  1330  1362  1363  1364  1373  1376  1569  1570
                1571  1580  1583  1646  1647  1658  1661  1696  1697  1708  1711  1904  1905
                1916  1919
BIT8    000400   598#
BIT9  - 001000   597#
BRW     013144  1024  2880#
BRX     013146  1025  2881#
CHARDT= 000010   631#
CHAR1   001236   805#
CHAR2   001240   806#
CHAR3   001242   807#
CHKBA   007322  2117  2144#
CHKCA1  007424  2145  2172#
CHRCNT  014176  3049*  3053  3069*  3089#  3090
CKSWR = 104414   866#   992  1002  1017  2843  2861  2885  3108  3167
CNTLU = 104415   868#   974
CNVRT = 104411   860#  2817  2821  2825  2829  3138  3142  3201  3232
CONVRT= 104410   858#   982  3158
CREAM   001300   822#   946*  1056*  1060*  1069  1070*  1071  1072*
CSRMAP  000220   700#   977
DATABP  014456  3131*  3134  3156  3159#
DATAHD  014444  3130*  3152  3155#
DEVADR  013656  2960*  2998  3008#
DH0     016634  3407#  3423  3426  3429  3438  3444
```

```
DH1     016675  3407#  3432   3435   3441
DISPRE  000174   691#   962
DLIGHT= 177570   576#   953
DQACTV  001500   671    745*   751*   752*   756    925#   999*   1000   1050   1052
DQCR00  001400   893#
DQCR01  001404   895#
DQCR02  001410   897#
DQCR03  001414   899#
DQCR04  001420   901#
DQCR05  001424   903#
DQCR06  001430   905#
DQCR07  001434   907#
DQCR10  001440   909#
DQCR11  001444   911#
DQCR12  001450   913#
DQCR13  001454   915#
DQCR14  001460   917#
DQCR15  001464   919#
DQCR16  001470   921#
DQCR17  001474   923#
DQCSR   001506   928#  1069*  1073
DQERR   001366   883#  1086*  1087*  1088   1130   1163   1419*  1442*  1465*  1488*  1511*  1534*  1557*
                1580*  1734*  1760*  1786*  1812*  1838*  1864*  1890*  1916*  2225   2226   2306   2307
                2404   2405   2503   2504   2585   2586   2659   2660   3351*  3469
DQNUM   001504   704*   741*   746    748    927#   941    2834
DQRCSH  001362   881#  1082*  1083*  3339*  3345*  3348*
DQRCSR  001360   880#  1073*  1082   1084   1120*  1126*  1155*  1184*  1207*  1304*  1327*  1609*  1610*
                1633*  1634*  1657*  1658*  1944*  1953*  2000*  2203*  2204*  2219   2360*  2365   2370*
                2382*  2383*  2398   2563*  2564*  2579   2702*  2706   2710   2715   2718   2848   3349*
                3455
DQREG   001370   884#  1088*  1089*  1090   1118*  1153*  2205*  2229*  2241*  2310*  2322*  2330*  2356*
                2358*  2384*  2408*  2420*  2455*  2457*  2459*  2507*  2519*  2527*  2565*  2589*  2601*
                2663*  2675*  2703*  2793*  3323*  3330*  3332*  3333*  3335*  3338*  3341*  3343*  3356*
                3362*  3368*  3394*  3395*  3396*  3398*  3399*
DQRLVL  001352   877#  1076*  1077*  1078   3376*  3384   3385*
DQRVEC  001350   876#  1074*  1075*  1076   2851   3375*  3384*
DQSEC   001372   885#  1090*  1091*  1092   1119*  1122*  1123*  1154*  2206*  2232   2236   2244   2313
                2317   2325   2332   2357*  2359*  2385*  2411   2415   2423   2456*  2458*  2460*  2510
                2514   2522   2529   2566*  2592   2596   2604   2666   2670   2678   2704*  2776   2794
                3324*  3334*  3342*  3344*  3357*  3363*  3369*  3397*  3400*  3476
DQSECH  001374   886#  1092*  1093*
DQSTAT  001510   929#  1071*  1074   2144
DQST00  001402   894#
DQST01  001406   896#
DQST02  001412   898#
DQST03  001416   900#
DQST04  001422   902#
DQST05  001426   904#
DQST06  001432   906#
DQST07  001436   908#
DQST10  001442   910#
DQST11  001446   912#
DQST12  001452   914#
DQST13  001456   916#
DQST14  001462   918#
DQST15  001466   920#
```

```
DQST16  001472          922#
DQST17  001476          924#
DQTCSR  001364          882# 1084* 1085* 1086  1121* 1156* 1230* 1253* 1276* 1350* 1373* 1396* 1681*
                       1682* 1707* 1708* 1733* 1759* 1785* 1811* 1837* 1863* 1889* 1915* 1943* 1954*
                       1972* 2034* 2045* 2064* 2075* 2094* 2105* 2124* 2135* 2160* 2161* 2285* 2286*
                       2300  2461* 2466  2470* 2482* 2483* 2497  2638* 2639* 2653  2741* 2743  2747
                       2752  2755  2786* 2788  3350* 3462
DQTLVL  001356          879# 1080* 1081* 3378* 3386  3387*
DQTVEC  001354          878# 1078* 1079* 1080  3377* 3386*
DSWR  = 177570          575#  952
DT0     017054         3424  3449#
DT1     017072         3427  3456#
DT2     017110         3445  3463#
DT3     017126         3433  3436  3442  3470#
DT4     017150         3430  3439  3479#
DUMMY   ****** U       1174  1175  1185  1187  1197  1198  1208  1210  1220  1221  1231  1233  1243
                       1244  1254  1256  1266  1267  1277  1279  1293  1294  1295  1304  1307  1316
                       1317  1318  1327  1330  1339  1340  1341  1350  1353  1362  1363  1364  1373
                       1376  1385  1386  1387  1396  1399  1408  1409  1410  1419  1422  1431  1432
                       1433  1442  1445  1454  1455  1456  1465  1468  1477  1478  1479  1488  1491
                       1500  1501  1502  1511  1514  1523  1524  1525  1534  1537  1546  1547  1548
                       1557  1560  1569  1570  1571  1580  1583
EM0     016170         3407# 3410
EM1     016223         3407# 3413
EM10    016503         3407# 3434
EM11    016531         3407# 3437
EM12    016555         3407# 3440
EM13    016613         3407# 3443
EM2     016261         3407# 3416
EM3     016322         3407# 3419
EM4     016360         3407# 3422
EM5     016406         3407# 3425
EM6     016437         3407# 3428
EM7     016461         3407# 3431
ERRCNT  001232          800#  947*  2857  3168*
ERRFLG  001312          831#  944*  2811* 2874* 3119* 3132  3146* 3203*
ERRMSG  014432         3129* 3147  3150#
ERTABO  014550         3143  3177#
EXITER  014502         3162  3167#
HALTS   014462         3115  3161#
HILIM   013654         2959* 2989  3007#
ICOUNT  001222          796# 1111* 1146* 2768* 2872  2876*
INBUF   015452         2923  2965  3313#
INIFLG  001310          829#  968   971*
INSTER= 104404          850# 2984
INSTR = 104403          848# 1028  3233
INSTR2  013440         2934  2949#
JUMBIT- 040000          615#  732
LIGHTS  001202          785#  953*  962* 2831*
LIMITS  013602         2975  2989#
LOBITS  013660         2961* 2993  3009# 3010
LOCK    001220          795# 2770* 2888
LOGICA  012762          653  2838#
LOKFLG  001313          832#
LOLIM   013652         2958* 2991  3006#
LPCNT   001224          797# 2871* 2872  2875*
```

```
LSTERR  001234   801#  948*  2810*  3116  3118*  3204*
MCRLF   015040  2931  2947  3039  3145  3239  3252#
MCSRX   015261  2816  3279#
MDATA   015556  3067  3078  3317#
MEMCLR= 104413   864#  1114  1148  2191  2273  2373  2452  2454  2473  2553  2628  2695  2734
                2772  3206
MEPASS  015100  2814  3258#
MERRPC  015405  3141  3298#
MERRX   015306  2828  3285#
MERR2   015125   763  1064  3262#
MERR3   015174   996  3269#
MISC. = 000012   633#
MLOCK   015232  1020  3275#
MNEW    015333   989  3290#
MPASSX  015275  2824  3283#
MPFAIL  015042  3200  3253#
MQM     015034  2944  3251#
MR      015122  1038  3261#
MSTCLR  104412   862#  1115  1150  1180  1203  1226  1249  1272  1300  1323  1346  1369  1392
                1415  1438  1461  1484  1507  1530  1553  1576  1605  1629  1653  1677  1703
                1729  1755  1781  1807  1833  1859  1885  1911  1938  1967  1995  2028  2058
                2088  2118  2156  2192  2274  2354  2453  2554  2629  2696  2714  2735  2751
                2773  2778  3205
MTITLE  001000   772#  970
MTSTN   015317  3137  3287#
MTSTPC  015220  1029  3273#
MVECX   015267  2820  3281#
NEXT    001216   794#  1044*  1112*  1147*  1179*  1202*  1225*  1248*  1271*  1299*  1322*  1345*  1368*
                1391*  1414*  1437*  1460*  1483*  1506*  1529*  1552*  1575*  1604*  1628*  1652*  1676*
                1702*  1728*  1754*  1780*  1806*  1832*  1858*  1884*  1910*  1937*  1966*  1994*  2027*
                2057*  2087*  2117*  2155*  2190*  2272*  2353*  2451*  2551*  2626*  2693*  2732*  2769*
                2877  3173
NON.EX  177320   522#  2561  2593  2636  2667
ODDBIT- 001000   616#  734
OUT     014774  3220  3222  3224  3228  3240#
PARAM - 104405   852#  1030  3234
PARAM1  013506  2964#  2985
PARERR  013562  2967  2969  2971  2980#  2990  2992  2994
PARTI   013644  2983  3003#
PASCNT  001230   799#  943*  2812*  2831  2854
PFTAB   014652  3202  3208#
POLY.   000017   638#
POPR0 - 012600   585#  3166
POP1SP- 005726   583#
POP2SP- 022626   587#
PS      177776   577#  674*  938*  1013*  1113*  1149*  1185*  1208*  1231*  1254*  1277*  1305*  1328*
                1351*  1374*  1397*  1420*  1443*  1466*  1489*  1512*  1535*  1558*  1581*  1611*  1635*
                1659*  1683*  1709*  1735*  1761*  1787*  1813*  1839*  1865*  1891*  1917*  1942*  1946*
                1971*  1975*  1999*  2003*  2033*  2063*  2093*  2123*  2162*  2193*  2207*  2211*  2275*
                2287*  2291*  2371*  2386*  2390*  2471*  2484*  2488*  2552*  2567*  2571*  2627*  2640*
                2644*  2694*  2733*  2771*
PUSHR0  010046   584#  3163
PUSH1S  005746   582#
PUSH2S= 024646   586#
QZX     010702  2431  2433#
RBUFF   017166  2201  2233  2249  2250  2357  2380  2412  2428  2429  2700  3486#
```

```
RDSW    014660          2896    2945    2982    3216#   3230*   3240*
RECAT   016074          1192    1215    1238    1261    1284    1312    1335    1358    1381    1404    1427    1450    1473
                        1496    1519    1542    1565    1588    1617    1641    1665    1691    1717    1743    1769    1795
                        1821    1847    1873    1899    1925    1956    2170    3384#
RESREG  014460          3157    3160#
RESTAR  014576          3187    3193#
RESTRT  012772          2833    2836    2843#
RES05 = 104407           856#   3160
RETURN  001214           793#    950*   1033    1037*   1039    1043*   2189*   2271*   2450*   2550*   2625*   2692*   2731*
                        2767*   2844*   2877*   2878    3173*   3175    3207
RUN     001304           824#   1047*   1050    1055*   1061*   1068*
RUNCNT  001306           825#   1048*   1057*   1059*
RUNFLG  001302           823#    945*   1045    1049*
RXBA.P= 000000           622#
RXBA.S= 000004           626#
RXWC.P= 000001           623#
RXWC.S= 000005           627#
RX.BCC= 000015           636#
SAVACT  001502           756*    326#    993
SAVNUM  001276           749*    821#    941*   2832*   2834*
SAVPC   001274           820#   3014*   3179
SAVR0   001256           813#   3023*   3028
SAVR1   001260           814#   3022*   3029
SAVR2   001262           815#   3021*   3030    3478
SAVR3   001264           816#   3020*   3031    3485
SAVR4   001266           817#   3019*   3032    3453    3460    3467    3474    3483
SAVR5   001270           818#   3018*   3033    3451    3458    3465    3472    3481
SAVSP   001272           819#
SAV05 = 104406           854#   3120
SCOPE = 104400           842#   1134    1166    1193    1216    1239    1262    1285    1313    1336    1359    1382    1405
                        1428    1451    1474    1497    1520    1543    1566    1589    1618    1642    1666    1692    1718
                        1744    1770    1796    1822    1848    1874    1900    1926    1957    1981    2009    2046    2076
                        2106    2136    2171    2254    2336    2433    2533    2608    2682    2721    2758    2802
SCOP1 = 104401           844#   2798
SEQ.    000014           635#
SETBAB  016122          2199    2281    2378    2478    2559    2634    2698    2737    2780    3393#
SETLOP  016006          2355    2474    3362#
SETMNT  016024          2195    2277    2374    2555    2630    2697    2736    3368#
SETSTP  015770          2779    3356#
SETV    016042          1181    1204    1227    1250    1273    1301    1324    1347    1370    1393    1416    1439    1462
                        1485    1508    1531    1554    1577    1606    1630    1654    1678    1704    1730    1756    1782
                        1808    1834    1860    1886    1912    1939    1968    1996    2029    2059    2089    2119    2157
                        2196    2278    2375    2475    2556    2631    3374#
SPACNT= 014177          3050*   3071    3074*   3090#
STACK   001200           578#    939    1014    1191    1214    1237    1260    1283    1311    1334    1357    1380    1403
                        1426    1449    1472    1495    1518    1541    1564    1587    1616    1640    1664    1690    1716
                        1742    1768    1794    1820    1846    1872    1898    1924    1955    2041    2071    2101    2131
                        2169    2215    2296    2394    2493    2575    2649    3174    3195
STFLG   001311           830#    942*
SV05    013670          3018#
SWR     001200           784#    952*    957     961*    972     975     986     993     999    1018    1026    2862    2869
                        2886    2898    3109    3114    3161    3169    3171    3221
SWREG   000176           692#    961     972    3221    3237    3244
SWREGC  015002          3232    3242#
SW00    000001           558#    986
SW01    000002           557#   1026
```

```
SW02  = 000004            556#
SW03  = 000010            555#
SW04  = 000020            554#
SW05  = 000040            553#
SW06  = 000100            552#
SW08  = 000400            551#   3169
SW09  = 001000            550#   2886
SW10  = 002000            549#   3171
SW11  = 004000            548#   2869
SW12  = 010000            547#   2898   3109
SW13  = 020000            546#   3114
SW14  = 040000            545#
SW15  = 100000            544#
SYNBIT= 100000            617#    714
SYNC. = 000011            632#
TBUFF   017170           2194*  2276*  2283   2314   2372*  2458   2472*  2480   2511   2739   2782   2785*  3487#
TEMP    015514           3046   3054   3081*  3196*  3197*  3315#
TEMP1   001244            671*   672*   808#   979*   980    984*  1116*  1124*  1151*  1157*  2208*  2209*  2288*
                         2289*  2387*  2388*  2485*  2486*  2568*  2569*  2641*  2642*  2705*  2708*  2742*  2745*
                         2787*  2790*  3306
TEMP2   001246            809#   980*   117*  1127*  1152*  1159*  3308
TEMP3   001250            810#  3046*  3081
TEMP4   001252            811#
TEMP5   001254            812#
TKCSR   001204            786#  2865   2925   3223
TKDBR   001206            787#  2867   2927   2935   3225
TLAST   012442           1032   2804#
TPCSR   001210            788#  2902   2905   2908   2936   3111
TPDBR   001212            789#  2904*  2907*  2910*  2935*  3113*
TRPOK   014214           3100#
TSTNO   001226            798#   949*  1042*  1110*  1145*  1178*  1201*  1224*  1247*  1270*  1298*  1321*  1344*
                         1367*  1390*  1413*  1436*  1459*  1482*  1505*  1528*  1551*  1574*  1603*  1627*  1651*
                         1675*  1701*  1727*  1753*  1779*  1805*  1831*  1857*  1883*  1909*  1936*  1965*  1993*
                         2026*  2056*  2086*  2116*  2154*  2188*  2270*  2352*  2449*  2549*  2624*  2691*  2730*
                         2766*  3182   3210
TST1    002254           1031   1037   1042#  2844   2845
TST10   003462           1248   1270#
TST11   003546           1271   1298#
TST12   003632           1299   1321#
TST13   003716           1322   1344#
TST14   004002           1345   1367#
TST15   004066           1368   1390#
TST16   004152           1391   1413#
TST17   004236           1414   1436#
TST2    002644           1043   1044   1110#
TST20   004322           1437   1459#
TST21   004406           1460   1482#
TST22   004472           1483   1505#
TST23   004556           1506   1528#
TST24   004642           1529   1551#
TST25   004726           1552   1574#
TST26   005012           1575   1603#
TST27   005102           1604   1627#
TST3    003014           1112   1145#
TST30   005172           1628   1651#
TST31   005262           1652   1675#
```

```
TST32   005354            1676    1701#
TST33   005446            1702    1727#
TST34   005540            1728    1753#
TST35   005632            1754    1779#
TST36   005724            1780    1805#
TST37   006016            1806    1831#
TST4    003142            1147    1178#
TST40   006110            1832    1857#
TST41   006202            1858    1883#
TST42   006274            1884    1909#
TST43   006366            1910    1936#
TST44   006502            1937    1965#
TST45   006606            1966    1993#
TST46   006712            1994    2026#
TST47   007014            2027    2056#
TST5    003226            1179    1201#
TST50   007116            2057    2086#
TST51   007220            2087    2116#
TST52   007332            2154#
TST53   007426            2155    2188#
TST54   007752            2190    2270#
TST55   010272            2272    2352#
TST56   010704            2353    2449#
TST57   011330            2451    2549#
TST6    003312            1202    1224#
TST60   011624            2551    2624#
TST61   012106            2626    2691#
TST62   012272            2693    2730#
TST63   012442            2732    2766#   2804
TST64 - ****** U          2769
TST7    003376            1225    1247#
TTST    013046            1021*   1022*   1024*   1025*   2863#
TXBA.P= 000002             624#
TXBA.S- 000006             628#
TXWC.P- 000003             625#
TXWC.S- 000007             629#
TX.BCC- 000016             637#
TX.MUX- 000013             634#
TYPDAT  014446            3135    3153    3156#
TYPE    104402             762     846#    970     978     988     995    1020    1038    1063    2813    2815    2819    2823
                          2827    2921    2931    2943    2947    3038    3077    3136    3140    3144    3149    3154    3199
                          3229    3231    3239
TYPMSG  014370            3133    3136#
VECMAP  000056             664#    761
WRDCNT  014174            3048*   3079*   3088#
WRKO.F  014434            3148    3151#
XBX     014262            3110    3112    3114#
XCSR    013006            2818    2846#
XERR    013030            2830    2855#
XHEAD   015412             978    3299#
XPASS   013022            2826    2852#
XSTATQ  015440             983    3304#
XTSTN   014556            3139    3180#
XVEC    013014            2822    2849#
ZDATA   017172            2774*   2784    2799*   3488#
$CNTG   015010            3229    3245#
```

```
$E      = 000065        1#   1044  1045#  1112  1113#  1147  1148#  1179  1180#  1202  1203#  1225  1226#
                     1248  1249#  1271  1272#  1299  1300#  1322  1323#  1345  1346#  1368  1369#  1391
                     1392#  1414  1415#  1437  1438#  1460  1461#  1483  1484#  1506  1507#  1529  1530#
                     1552  1553#  1575  1576#  1604  1605#  1628  1629#  1652  1653#  1676  1677#  1702
                     1703#  1728  1729#  1754  1755#  1780  1781#  1806  1807#  1832  1833#  1858  1859#
                     1884  1885#  1910  1911#  1937  1938#  1966  1967#  1994  1995#  2027  2028#  2057
                     2058#  2087  2088#  2118#  2155  2156#  2190  2191#  2272  2273#  2353  2354#  2451
                     2452#  2551  2552#  2626  2627#  2693  2694#  2732  2733#  2769  2771#
$MNEW   015023       3233  3248#
$MSWR   015014       3231  3246#
$N      - 000063        1#   1040  1045#  1108  1113#  1143  1148#  1176  1180#  1199  1203#  1222  1226#
                     1245  1249#  1268  1272#  1296  1300#  1319  1323#  1342  1346#  1365  1369#  1388
                     1392#  1411  1415#  1434  1438#  1457  1461#  1480  1484#  1503  1507#  1526  1530#
                     1549  1553#  1572  1576#  1601  1605#  1625  1629#  1649  1653#  1673  1677#  1699
                     1703#  1725  1729#  1751  1755#  1777  1781#  1803  1807#  1829  1833#  1855  1859#
                     1881  1885#  1907  1911#  1934  1938#  1963  1967#  1991  1995#  2024  2028#  2054
                     2058#  2084  2088#  2114  2118#  2140  2152  2156#  2172  2186  2191#  2268  2273#
                     2350  2354#  2447  2452#  2547  2552#  2622  2627#  2689  2694#  2728  2733#  2759
                     2764  2771#  2804#
$N1     = 000063     2140#  2172#  2759#
$N2     = 000064     2172#  2759#
$N3     = 000057     2172#
$Y      = 000016        1#   833#  842  844#  846#  848#  850#  852#  854#  856#  858#  860#  862#
                      864#  866#  868#  870#
.       017174       642#  643  645#  652#  654#  662#  678  690#  696#  699#  703  719  724
                      728  731  766  771#  781#  822#  892#  893#  894#  895#  896#  897#  898#
                      899#  900#  901#  902#  903#  904#  905#  906#  907#  908#  909#  910#  911#
                      912#  913#  914#  915#  916#  917#  918#  919#  920#  921#  922#  923#  924#
                      925#  926#  927#  928#  929#  976  981  985  998  1066  1977  1979  1985
                     2005  2007  2011  2043  2073  2103  2133  2363  2368  2464  2468  2903  2906
                     3189  3198  3250#  3303#  3314#  3316#  3318#
.BEGIN  002116       1013#
.CKSWR  014662        867  3219#
.CNTLU  014736        869  3230#
.CNVRT  013760        861  3040#
.CONVR  013754        859  3038#
.EOP    012650       2769  2810#
.ERRTA  016744       3128  3410#
.HLT    014234        648  3108#
.INSTE  013414        851  2941#
.INSTG  013420       2940  2943#
.INSTR  013276        849  2917#
.INST1  013316       2921#  2932  2948
.MEMCL  015636        865  3329#
.MSG    013320       2919*  2922#  3225*  3226*  3227
.MSTCL  015620        863  3322#
.PARAM  013446        853  2955#
.PFAIL  014564        646   940  3186#  3194
.RESOS  013722        857  3028#
.SAVOS  013662        855  3014#
.SCOPE  013036        843  2861#
.SCOP1  013150        845  2885#
.START  001512        697   938#  950
.TRPSR  014202        650  3097#
.TRPTA  001314        841#  3102
.TYPE   013170        847  2893#
```

. ABS. 017174 000

ERRORS DETECTED: 0

DSKZ:CZDQCE,DSKZ:CZDQCE.SEQ=DSKZ:CZDQXX.MAC,DSKZ:CZDQCE.P11
RUN-TIME: 10 14 1 SECONDS
RUN-TIME RATIO: 66/25=2.6
CORE USED: 23K (45 PAGES)

DOCUMENT PAGES: 75