DQ11

DQ11 INTERRUPT TESTS

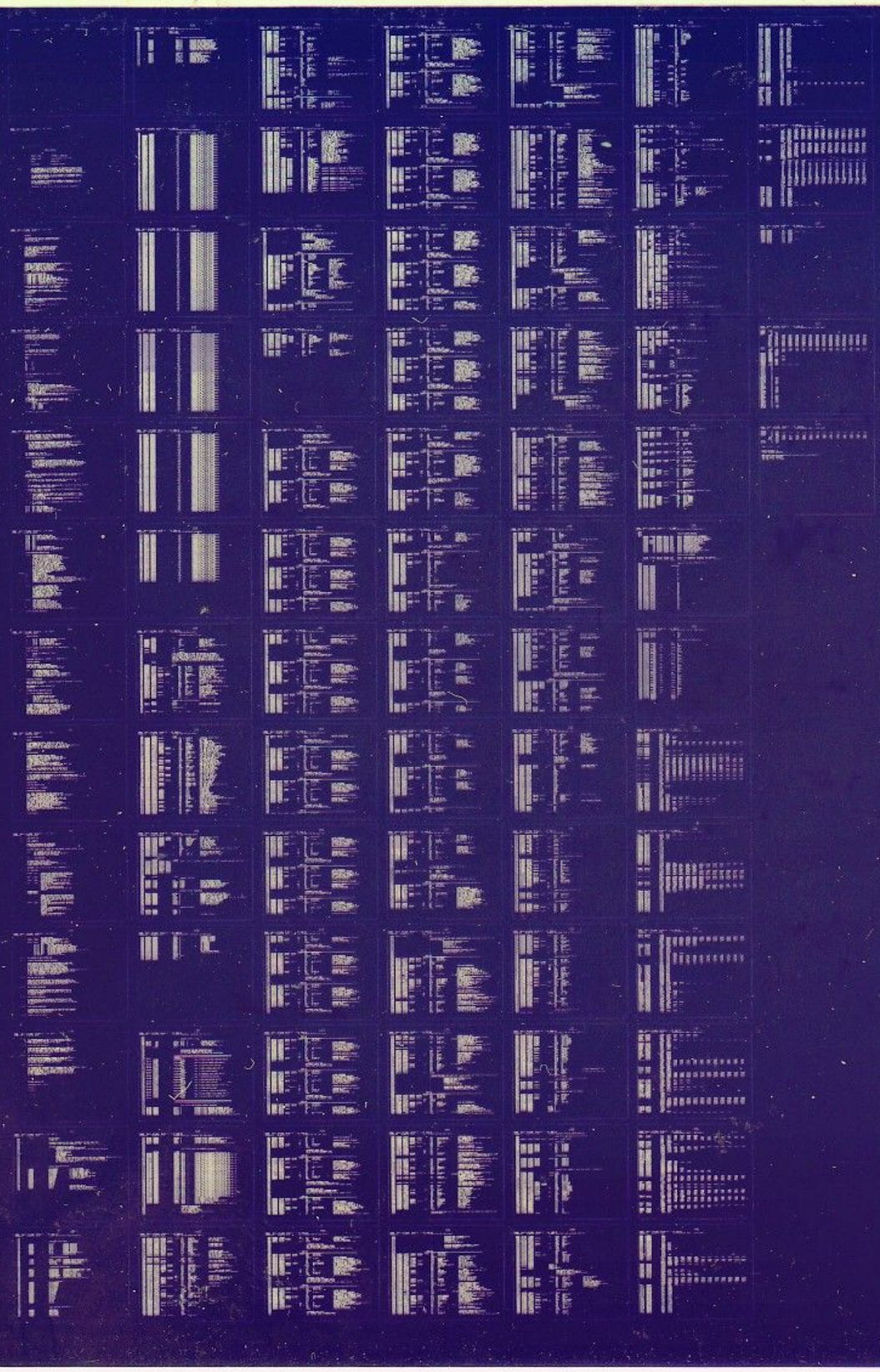
MD-11-DZDQC-D

EP-DZDQC-D-DL-B

FICHE 1 OF 1

APR 1977

MADE IN USA



B01

EOF1DZDQBCSEQ	00010000	770325	PDP10 411	20HDR1DZDQCDSEQ	00010000	770325

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZDQC-D-D

PRODUCT NAME: DQ11 INTERUPT LOGIC TESTS

DATE: MARCH 1977

MAINTAINER: DIAGNOSTIC GROUP

1. ABSTRACT

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

THIS TEST CHECKS ALL POSSIBLE INTERUPTS
VERIFING THAT AN INTERUPT OCCURS WHEN
IT SHOULD AND THAT ONE DOESNT HAPPEN
WHEN IT SHOULDN'T.
ALSO THAT THE INTERUPS OCCUR TO THE
CORRECT VECTOR.
BASIC NPR FUNCTIONS ARE ALSO INCLUDED
IN THIS TEST.

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. DZDQA [REV] BASIS R/W TEST #1
2. DZDQB [REV] BASIC R/W TEST #2
3. DZDQC [REV] BASIC NPR AND INTERUPT TEST
4. DZDQD [REV] RECEIVER TRANSMITTER EXERCISER TEST
5. DZDQE [REV] MISC. RX AND TX TESTS. PLUS BCC TESTS.
6. DZDQF [REV] CHARACTER DETECT TESTS.
7. DZDQH [REV] CHARACTER LENGTH AND INTERRUPT TESTS.

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

AND A PARAMETER INPUT PROGRAM IS AVAILABLE
1. DZDQG [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 WILL 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

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

1) TYPE CONTROL G (↑G); THIS WILL ALLOW THE TTY TO ENTER DATA INTO
   LOC. 176 AT SELECTED POINTS WITHIN THE PROGRAM.

2) THE MACHINE WILL THEN TYPE: SWR=XXXXXXNEW= (XXXXXX IS THE OCTAL CONTENTS
   OF THE SOFTWARE SWITCH REGISTER.)

3) AFTER THE ''NEW='' HAS BEEN TYPED THEN THE OPERATOR CAN DO ONE
   OF THE FOLLOWING AT THE TTY:

   A) TYPE A NUMBER TO BE LOADED INTO LOC. 176 FOLLOWED BY A (CR
      (ONLY NUMBERS BETWEEN 0-7 WILL BE ACCEPTED AND ONLY 6 NUMBERS
      WILL BE ALLOWED)
      IF A (CR) IS THE FIRST KEY DEPRESSED THE SOFTWARE SWITCH
      REGISTER CONTENTS WILL NOT BE CHANGED.

   B) IF A CONTROL U (↑U) IS DEPRESSED THEN THE PROGRAM WILL SEND YOU
      BACK TO STEP 2.

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 DQ11'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 DQ11S 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 CANN'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 "SCOPI")
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 REQUIRED 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 PROGPAM 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 DZDQC-D 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 TST1 (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 BIT" (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?

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

```
                        NON.EX=177320
                        .ENABLE AMA

                        ;MAINDEC-11-DZDQC-D/(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 "MAINDEC-11-DZDQC-D/(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
```

GENERAL DEFINATIONS AND EQUIVALENCIES

```
                                ;REGISTER DEFINITIONS
                                
000000                          R0=%0           ;GENERAL REGISTER
000001                          R1=%1           ;GENERAL REGISTER
000002                          R2=%2           ;GENERAL REGISTER
000003                          R3=%3           ;GENERAL REGISTER
000004                          R4=%4           ;GENERAL REGISTER
000005                          R5=%5           ;GENERAL REGISTER
000006                          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                          A88IT=2000
004000                          ACTBIT=4000
010000                          B88IT=10000
020000                          B+8IT=20000
040000                          JUMBIT=40000
```

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DZDQC   MACY11 27(1006)  22-DEC-76  11:09  PAGE 14
DZDQCD.P11    16-DEC-76 13:26          GENERAL DEFINATIONS AND EQUIVALENCIES

   626          001000                  ODDBIT=1000
   627          100000                  SYNBIT=100000
   628
   629
   630                                          ;DQ11 SECONDARY REGISTER DEFINATIONS
   631
   632          000000                  RXBA.P=0        ;RECEIVER BUS ADDRESS PRIMARY.
   633          000001                  RXWC.P=1        ;RECEIVER WORD COUNT PRIMARY.
   634          000002                  TXBA.P=2        ;TRANSMITTER BUS ADDRESS PRIMARY.
   635          000003                  TXWC.P=3        ;TRANSMITTER BUS ADDRESS PRIMARY.
   636          000004                  RXBA.S=4        ;RECEIVER BUS ADDRESS SECONDARY.
   637          000005                  RXWC.S=5        ;RECEIVER WORD COUNT SECONDARY.
   638          000006                  TXBA.S=6        ;TRANSMITTER BUS ADDRESS SECONDARY.
   639          000007                  TXWC.S=7        ;TRANSMITTER WORD COUNT SECONDARY.
   640
   641          000010                  CHARDT=10       ;CHARACTER DETECT REGISTER.
   642          000011                  SYNC.=11        ;SYNC REGISTER.
   643          000012                  MISC.=12        ;MISCELLANEOUS REGISTER.
   644          000013                  TX.MUX=13       ;TRANSMITTER MUX REGISTER.
   645          000014                  SEQ.=14         ;SEQUENCE REGISTER.
   646          000015                  RX.BCC=15       ;RECEIVER BCC REGISTER.
   647          000016                  TX.BCC=16       ;TRANSMITTER BCC REGISTER.
   648          000017                  POLY.=17        ;POLYNOMIAL REGISTER.
   649
   650
```

```
                                        ;TRAPCATCAER FOR ILLEGAL INTERRUPTS
                        000000          .=0
000000  000002                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000002  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000004  000006                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000006  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000010  000012                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000012  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000014  000016                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000016  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000020  000022                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000022  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000024  000026                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000026  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000030  000032                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000032  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000034  000036                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000036  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000040  000042                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000042  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000044  000046                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000046  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000050  000052                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000052  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000054  000056                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000056  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000060  000062                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000062  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000064  000066                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000066  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000070  000072                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000072  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000074  000076                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000076  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000100  000102                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000102  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000104  000106                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000106  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000110  000112                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000112  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000114  000116                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000116  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000120  000122                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000122  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000124  000126                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000126  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000130  000132                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000132  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000134  000136                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000136  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000140  000142                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000142  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000144  000146                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000146  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
000150  000152                  .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000152  000000                  HALT            ;EXAMINE STACK TO FIND CAUSE
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  707  000154  000156                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  708  000156  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  709  000160  000162                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  710  000162  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  711  000164  000166                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  712  000166  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  713  000170  000172                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  714  000172  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  715  000174  000176                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  716  000176  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  717  000200  000202                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  718  000202  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  719  000204  000206                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  720  000206  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  721  000210  000212                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  722  000212  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  723  000214  000216                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  724  000216  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  725  000220  000222                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  726  000222  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  727  000224  000226                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  728  000226  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  729  000230  000232                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  730  000232  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  731  000234  000236                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  732  000236  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  733  000240  000242                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  734  000242  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  735  000244  000246                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  736  000246  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  737  000250  000252                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  738  000252  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  739  000254  000256                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  740  000256  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  741  000260  000262                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  742  000262  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  743  000264  000266                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  744  000266  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  745  000270  000272                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  746  000272  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  747  000274  000276                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  748  000276  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  749  000300  000302                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  750  000302  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  751  000304  000306                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  752  000306  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  753  000310  000312                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  754  000312  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  755  000314  000316                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  756  000316  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  757  000320  000322                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  758  000322  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  759  000324  000326                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  760  000326  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  761  000330  000332                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  762  000332  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
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763  000334  000336                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
764  000336  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
765  000340  000342                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
766  000342  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
767  000344  000346                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
768  000346  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
769  000350  000352                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
770  000352  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
771  000354  000356                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
772  000356  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
773  000360  000362                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
774  000362  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
775  000364  000366                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
776  000366  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
777  000370  000372                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
778  000372  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
779  000374  000376                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
780  000376  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
781  000400  000402                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
782  000402  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
783  000404  000406                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
784  000406  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
785  000410  000412                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
786  000412  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
787  000414  000416                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
788  000416  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
789  000420  000422                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
790  000422  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
791  000424  000426                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
792  000426  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
793  000430  000432                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
794  000432  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
795  000434  000436                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
796  000436  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
797  000440  000442                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
798  000442  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
799  000444  000446                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
800  000446  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
801  000450  000452                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
802  000452  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
803  000454  000456                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
804  000456  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
805  000460  000462                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
806  000462  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
807  000464  000466                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
808  000466  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
809  000470  000472                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
810  000472  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
811  000474  000476                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
812  000476  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
813  000500  000502                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
814  000502  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
815  000504  000506                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
816  000506  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
817  000510  000512                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
818  000512  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
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  819  000514  000516                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  820  000516  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  821  000520  000522                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  822  000522  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  823  000524  000526                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  824  000526  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  825  000530  000532                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  826  000532  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  827  000534  000536                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  828  000536  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  829  000540  000542                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  830  000542  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  831  000544  000546                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  832  000546  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  833  000550  000552                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  834  000552  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  835  000554  000556                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  836  000556  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  837  000560  000562                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  838  000562  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  839  000564  000566                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  840  000566  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  841  000570  000572                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  842  000572  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  843  000574  000576                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  844  000576  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  845  000600  000602                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  846  000602  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  847  000604  000606                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  848  000606  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  849  000610  000612                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  850  000612  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  851  000614  000616                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  852  000616  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  853  000620  000622                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  854  000622  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  855  000624  000626                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  856  000626  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  857  000630  000632                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  858  000632  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  859  000634  000636                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  860  000636  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  861  000640  000642                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  862  000642  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  863  000644  000646                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  864  000646  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  865  000650  000652                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  866  000652  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  867  000654  000656                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  868  000656  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  869  000660  000662                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  870  000662  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  871  000664  000666                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  872  000666  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
  873  000670  000672                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
  874  000672  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
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  875  000674  000676                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  876  000676  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  877  000700  000702                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  878  000702  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  879  000704  000706                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  880  000706  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  881  000710  000712                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  882  000712  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  883  000714  000716                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  884  000716  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  885  000720  000722                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  886  000722  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  887  000724  000726                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  888  000726  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  889  000730  000732                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  890  000732  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  891  000734  000736                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  892  000736  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  893  000740  000742                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  894  000742  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  895  000744  000746                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  896  000746  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  897  000750  000752                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  898  000752  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  899  000754  000756                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  900  000756  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  901  000760  000762                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  902  000762  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  903  000764  000766                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  904  000766  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  905  000770  000772                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  906  000772  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
  907  000774  000776                .+2             ;UNEXPECTED TRAP TO THIS LOCATION
  908  000776  000000                HALT            ;EXAMINE STACK TO FIND CAUSE
```

ROUTINES USED FOR AUTO SIZING.

```
                                        ;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  151612                  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
000200  000137  001512                  JMP     .START          ;GO TO START OF PROGRAM
```

ROUTINES USED FOR AUTO SIZING.

```
                    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
```

ROUTINES USED FOR AUTO SIZING.

```
1021  000540  012737  000006  000004          MOV     #6,@#4          ;RESET TIME OUT VECTOR
1022  000546  013737  001500  001502          MOV     DQACTV,SAVACT   ;SAVE ACTIVE
1023  000554  012737  000340  000022          MOV     #340,@#22       ;SET IOT TRAP PRIO: TO 7
1024  000562  012702  001400                  MOV     #1400,R2        ;SET TABLE POINTER
1025  000566  012700  000300                  MOV     #300,R0         ;SET VECTOR START
1026  000572  012701  000302                  MOV     #302,R1         ;SET VECTOR+2 START
1027  000576  000137  000056                  JMP     VECMAP          ;GO FIND THE VECTORS
1028  000502  104402                  4$:     TYPE                    ;TYPE MESSAGE
1029  000604  015125                          MERR2                   ;I DIDN'T FIND ANY DQ11S. DON'T USE AUTO SIZE.
1030  000606  005000                          CLR     R0              ;
1031  000610  000000                          HALT                    ;HOW CAN I TEST NO DQ11S
1032  000612  000776                          BR      .-2             ;DON'T LET OPR HIT CONT. SW
1033  000614  012716  000466          5$:     MOV     #2$,(SP)        ;ENTERED BY TIME OUT TRAP
1034  000620  000002                          RTI                     ;GO HOME.
1035
1036
1037          001000                  .=1000
1038  001000  005377  040515  047111  MTITLE: .ASCIZ  <377><12>/MAINDEC-11-DZDQC-D/<377>/DQ11 INTERRUPT AND NPR LOGIC TEST/<37
1039  001006  042504  026503  030461
1040  001014  042055  042132  041521
1041  001022  042055  042377  030521
1042  001030  020061  047111  042524
1043  001036  051122  050125  020124
1044  001044  047101  020104  050116
1045  001052  020122  047514  044507
1046  001060  020103  042524  052123
1047  001066  000377
1048
1049          001200                  .=1200
1050                                          ;INDIRECT POINTERS
1051
1052  001200  177570                  SWR:    177570                  ;SWITCH REGISTER POINTER
1053  001202  177570                  LIGHTS: 177570                  ;DISPLAY REGISTER POINTER
1054  001204  177560                  TKCSR:  177560                  ;TELETYPE KEYBOARD CONTROL REGISTER
1055  001206  177562                  TKDBR:  177562                  ;TELETYPE KEYBOARD DATA BUFFER
1056  001210  177564                  TPCSR:  177564                  ;TELEPRINTER CONTROL REGISTER
1057  001212  177566                  TPDBR:  177566                  ;TELEPRINTER DATA BUFFER
1058
1059                                          ;PROGRAM CONTROL PARAMETERS
1060
1061  001214  000000                  RETURN: 0                       ;SCOPE ADDRESS FOR LOOP ON TEST
1062  001216  000000                  NEXT:   0                       ;ADDRESS OF NEXT TEST TO BE EXECUTED
1063  001220  000000                  LOCK:   0                       ;ADDRESS FOR LOCK ON CURRENT DATA
1064  001222  000003                  ICOUNT: 3                       ;NUMBER OF ITERATIONS THAT CURRENT TEST WILL BE EXECUTED
1065  001224  000000                  LPCNT:  0                       ;NUMBER OF ITEREATIONS COMPLETED
1066  001226  000000                  TSTNO:  0                       ;NUMBER OF TEST IN PROGRESS
1067  001230  000000                  PASCNT: 0                       ;NUMBER OF PASSES COMPLETED
1068  001232  000000                  ERRCNT: 0                       ;TOTAL NUMBER OF ERRORS
1069  001234  000000                  LSTERR: 0                       ;PC OF LAST ERROR CALL
1070
1071                                          ;PROGRAM VARIABLES
1072
1073  001236  000000                  CHAR1:  0
1074  001240  000000                  CHAR2:  0
1075  001242  000000                  CHAR3:  0
1076  001244  000000                  TEMP1:  0                       ;TEMPORARY STORAGE
```

PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

```
  1077  001246  000000          TEMP2:  0                       ;TEMPORARY STORAGE
  1078  001250  000000          TEMP3:  0                       ;TEMPORARY STORAGE
  1079  001252  000000          TEMP4:  0                       ;TEMPORARY STORAGE
  1080  001254  000000          TEMP5:  0                       ;TEMPORARY STORAGE
  1081  001256  000000          SAVR0:  0                       ;R0 STORAGE
  1082  001260  000000          SAVR1:  0                       ;R1 STORAGE
  1083  001262  000000          SAVR2:  0                       ;R2 STORAGE
  1084  001264  000000          SAVR3:  0                       ;R3 STORAGE
  1085  001266  000000          SAVR4:  0                       ;R4 STORAGE
  1086  001270  000000          SAVR5:  0                       ;R5 STORAGE
  1087  001272  000000          SAVSP:  0                       ;STACK POINTER STORAGE
  1088  001274  000000          SAVPC:  0                       ;PROGRAM COUNTER STORAGE
  1089  001276  000000          SAVNUM: 0
  1090  001300  000001          CREAM:  .BLKW   1
  1091  001302  000000          RUNFLG: 0
  1092  001304  000000          RUN:    0
  1093  001306  000000          RUNCNT: 0
```

```
1094
1095                                    ;PROGRAM CONTROL FLAGS
1096
1097  001310  000           INIFLG: .BYTE   0               ;PROGRAM INITIALIZATION FLAG
1098  001311  000           STFLG:  .BYTE   0               ;TEST START FLAG
1099  001312  000           ERRFLG: .BYTE   0               ;ERROR OCCURED FLAG
1100  001313  000           LOKFLG: .BYTE   0               ;LOCK ON CURRENT TEST FLAG
1101          000000          $Y=0
1102
1103                                    ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
1104                                    ;POINTERS TO SUBROUTINES CAN BE FOUND
1105                                    ;IN THE TABLE IMMEDIATLY FOLLOWING THE DEFINITIONS
1106
1107                                ;*********************************************************************
1108                                ;*********************************************************************
1109  001314                        .TRPTAB:
1110          104400                SCOPE=TRAP+0            ;CALL TO SCOPE LOOP AND ITERATION HANDLER
1111  001314  013036                        .SCOPE
1112          104401                SCOP1=TRAP+1            ;CALL TO LOOP ON CURRENT DATA HANDLER
1113  001316  013150                        .SCOP1
1114          104402                TYPE=TRAP+2             ;CALL TO TELETYPE OUTPUT ROUTINE
1115  001320  013170                        .TYPE
1116          104403                INSTR=TRAP+3            ;CALL TO ASCII STRING INPUT ROUTINE
1117  001322  013276                        .INSTR
1118          104404                INSTER=TRAP+4           ;CALL TO INPUT ERROR HANDLER
1119  001324  013414                        .INSTER
1120          104405                PARAM=TRAP+5            ;CALL TO NUMERICAL DATA INPUT ROUTINE
1121  001326  013446                        .PARAM
1122          104406                SAVOS=TRAP+6            ;CALL TO REGISTER SAVE ROUTINE
1123  001330  013662                        .SAVOS
1124          104407                RESOS=TRAP+7            ;CALL TO REGISTER RESTORE ROUTINE
1125  001332  013722                        .RESOS
1126          104410                CONVRT=TRAP+10          ;CALL TO DATA OUTPUT ROUTINE
1127  001334  013754                        .CONVRT
1128          104411                CNVRT=TRAP+11           ;CALL TO DATA OUTPUT ROUNTINE WITHOUT CR/LF.
1129  001336  013760                        .CNVRT
1130          104412                MSTCLR=TRAP+12          ;CALL TO ISSUE MASTER CLEAR
1131  001340  015620                        .MSTCLR
1132          104413                MEMCLR=TRAP+13          ;CALL TO CLEAR ALL SCRATCH PAD MEMORIES
1133  001342  015636                        .MEMCLR
1134          104414                CKSWR=TRAP+14           ;CALL TO ALLOW SWREG TO BE LOADED FROM TTY
1135  001344  014662                        .CKSWR
1136          104415                CNTLU=TRAP+15           ;CALL TO ALLOW LOADING OF SWREG FROM TTY
1137  001346  014736                        .CNTLU
1138
1139                                ;*********************************************************************
1140                                ;*********************************************************************
1141
1142                                    ;DQ11 VECTOR AND REGISTER INDIRECT POINTERS
1143
1144  001350  000000        DQRVEC: 0               ;POINTER TO DQ11 RECEIVER INTERRUPT VECTOR
1145  001352  000000        DQRLVL: 0               ;POINTER TO DQ11 RECEIVER INTERRUPT SERVICE PS
1146  001354  000000        DQTVEC: 0               ;POINTER TO DQ11 TRANSMITTER INTERRUPT VECTOR
1147  001356  000000        DQTLVL: 0               ;POINTER TO DQ11 TRANSMITTER INTERRUPT SERVICE PS
1148  001360  000000        DQRCSR: 0               ;POINTER TO DQ11 RECEIVER CONTROL REGISTER
1149  001362  000000        DQRCSH: 0               ;POINTER TO HIGH BYTE OF DQ11 RECEIVER CONTROL REGISTER
```

PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

```
1150  001364  000000  DQTCSR: 0              ;POINTER TO DQ11 TRANSMITTER CONTROL REGISTER
1151  001366  000000  DQERR:  0              ;POINTER TO DQ11 ERROR REGISTER
1152  001370  000000  DQREG:  0              ;POINTER TO HIGH BYTE OF ERROR REGISTER
1153  001372  000000  DQSEC:  0              ;POINTER TO DQ11 SECONDARY REGISTER
1154  001374  000000  DQSECH: 0              ;POINTER TO HIGH BYTE OF DQ11 SECONDARY REGISTER
1155
1156
1157
1158                                         ;DQ11 STATUS TABLE AND ADDRESS ASSIGNMENTS
1159
1160          001400  .=1400
1161  001400  000001  DQCR00: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 00
1162  001402  000001  DQST00: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 00
1163  001404  000001  DQCR01: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 01
1164  001406  000001  DQST01: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 01
1165  001410  000001  DQCR02: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 02
1166  001412  000001  DQST02: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 02
1167  001414  000001  DQCR03: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 03
1168  001416  000001  DQST03: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 03
1169  001420  000001  DQCR04: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 04
1170  001422  000001  DQST04: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 04
1171  001424  000001  DQCR05: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 05
1172  001426  000001  DQST05: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 05
1173  001430  000001  DQCR06: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 06
1174  001432  000001  DQST06: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 06
1175  001434  000001  DQCR07: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 07
1176  001436  000001  DQST07: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 07
1177  001440  000001  DQCR10: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 10
1178  001442  000001  DQST10: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 10
1179  001444  000001  DQCR11: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 11
1180  001446  000001  DQST11: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 11
1181  001450  000001  DQCR12: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 12
1182  001452  000001  DQST12: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 12
1183  001454  000001  DQCR13: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 13
1184  001456  000001  DQST13: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 13
1185  001460  000001  DQCR14: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 14
1186  001462  000001  DQST14: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 14
1187  001464  000001  DQCR15: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 15
1188  001466  000001  DQST15: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 15
1189  001470  000001  DQCR16: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 16
1190  001472  000001  DQST16: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 16
1191  001474  000001  DQCR17: .BLKW   1      ;CONTROL STATUS REGISTER FOR DEVICE NO: 17
1192  001476  000001  DQST17: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS FOR DEVICE NO: 17
1193  001500  000001  DQACTV: .BLKW   1      ;HOLD ACTIVE BITS FOR TESTING
1194  001502  000001  SAVACT: .BLKW   1      ;SAVE NUMBER OF ACTIVE DQ11S
1195  001504  000001  DQNUM:  .BLKW   1      ;OCTAL NUMBER OF TOTAL NUMBER OD DQ11S
1196  001506  000001  DQCSR:  .BLKW   1      ;CSR OF DQ11 UNDER TEST
1197  001510  000001  DQSTAT: .BLKW   1      ;VECTOR AND CONFIGURATION STATUS OF DQ11 UNDER TEST
1198
1199                                         ;PROGRAM INITIALIZATION
1200                                         ;LOCK OUT INTERRUPTS
1201                                         ;SET UP PROCESSOR STACK
1202                                         ;SET UP POWER FAIL VECTOR
1203                                         ;CLEAR PROGRAM CONTROL FLAGS AND COUNTS
1204                                         ;TYPE TITLE MESSAGE
1205
```

```
1206  001512  012737  000340  177776  .START: MOV     #340,PS                 ;LOCK OUT INTERRUPTS
1207  001520  012706  001200                  MOV     #STACK,SP               ;SET UP STACK
1208  001524  012737  014564  000024          MOV     #.PFAIL,@#24            ;SET UP POWER FAIL VECTOR
1209  001532  013737  001504  001276          MOV     DQNUM,SAVNUM
1210  001540  105037  001311                  CLRB    STFLG                   ;CLEAR START FLAG
1211  001544  005037  001230                  CLR     PASCNT                  ;CLEAR PASS COUNT
1212  001550  105037  001312                  CLRB    ERRFLG                  ;CLEAR ERROR FLAG
1213  001554  005037  001302                  CLR     RUNFLG
1214  001560  012737  001400  001300          MOV     #1400,CREAM
1215  001566  005037  001232                  CLR     ERRCNT                  ;CLEAR ERROR COUNT
1216  001572  005037  001234                  CLR     LSTERR                  ;CLEAR LAST ERROR POINTER
1217  001576  012737  000001  001226          MOV     #1,TSTNO                ;SET UP FOR TEST 1
1218  001604  012737  001512  001214          MOV     #.START,RETURN          ;SET UP FOR POWER FAIL BEFORE
1219                                                                          ;TESTING STARTS
1220  001612  105737  001310                  TSTB    INIFLG                  ;HAS INITIALIZATION BEEN PERFORMED
1221  001616  001075                          BNE     12$
1222  001620  104402  001000                  TYPE    ,MTITLE                 ;TYPE TITLE MESSAGE
1223  001624  105137  001310                  COMB    INIFLG                  ;IF NOT SET FLAG AND DO
1224
1225  001630  012737  177570  001200          MOV     #DSWR,SWR               ;MOV HARDWARE SWR TO SWR
1226  001636  012737  177570  001202          MOV     #DLIGHTS,LIGHTS         ;MOV DISPLAY LIGHTS TO LIGHTS
1227  001644  013746  000006                  MOV     @#6,-(SP)               ;SAVE VECTORS
1228  001650  013746  000004                  MOV     @#4,-(SP)
1229  001654  012737  001674  000004          MOV     #64$,@#4                        ;SET UP FOR TIMEOUT
1230  001662  022777  177777  177310          CMP     #-1,@SWR                ;REFERENCE HARDWARE SWITCH REGISTER
1231  001670  001402                          BEQ     65$
1232  001672  000407                          BR      66$
1233  001674  022626                  64$:    CMP     (SP)+,(SP)+             ;ADJUST STACK
1234  001676  012737  000176  001200  65$:    MOV     #SWREG,SWR              ;POINT TO SOFTWARE SWITCH REG
1235  001704  012737  000174  001202          MOV     #DISPREG,LIGHTS         ;POINT TO SOFT DISPLAY REG
1236  001712  012637  000004          66$:    MOV     (SP)+,@#4               ;RESTORE VECTORS
1237  001716  012637  000006                  MOV     (SP)+,@#6
1238  001722  005737  000042                  TST     @#42                    ;UNDER MONITOR
1239  001726  001005                          BNE     67$
1240  001730  022737  000176  001200          CMP     #SWREG,SWR              ;IS SWREG USED
1241  001736  001001                          BNE     67$
1242  001740  104415                          CNTLU
1243  001742  105777  177232          67$:    TSTB    @SWR
1244  001746  100402                          BMI     .+6
1245  001750  004737  000220                  JSR     PC,CSRMAP
1246  001754  104402  015412                  TYPE    ,XHEAD
1247  001760  012737  001400  001244          MOV     #1400,TEMP1
1248  001766  017737  177252  001246          MOV     @TEMP1,TEMP2
1249  001774  001406                          BEQ     .+16
1250  001776  104410                          CONVRT
1251  002000  015440                          XSTATQ
1252  002002  062737  000002  001244          ADD     #2,TEMP1
1253  002010  000766                          BR      .-22
1254  002012  032777  000001  177160  12$:    BIT     #1400,@SWR
1255  002020  001424                          BEQ     13$
1256  002022  104402                          TYPE
1257  002024  015333                          MNEW
1258  002026  005000                          CLR     R0
1259  002030  000000                          HALT
1260  002032  104414                          CKSWR
1261  002034  027737  177140  001502          CMP     @SWR,SAVACT
```

```
 1262  002042  101404                          BLOS    11$
 1263  002044  104402                          TYPE
 1264  002046  015174                          MERR3
 1265  002050  000000                          HALT
 1266  002052  000776                          BR      .-2
 1267  002054  017737  177120  001500  11$:    MOV     @SWR,DQACTV
 1268  002062  013700  001500                  MOV     DQACTV,R0
 1269  002066  000000                          HALT
 1270  002070  104414                          CKSWR
 1271  002072  012700  000300          1$:     MOV     #300,R0
 1272  002076  012701  000302                  MOV     #302,R1
 1273  002102  010120                  2$:     MOV     R1,(R0)+
 1274  002104  005021                          CLR     (R1)+
 1275  002106  022021                          CMP     (R0)+,(R1)+
 1276  002110  022700  001000                  CMP     #1000,R0
 1277  002114  001372                          BNE     2$
 1278
 1279                                          ;TEST START AND RESTART
 1280
 1281  002116  012737  000340  177776  .BEGIN: MOV     #340,PS                 ;LOCK OUT INTERRUPTS
 1282  002124  012706  001200                  MOV     #STACK,SP               ;SET UP STACK
 1283  002130  005737  000042                  TST     @#42                    ;IS PROGRAM UNDER MONITOR CONTROL
 1284  002134  001040                          BNE     3$
 1285  002136  104414                          CKSWR                           ;CHECK FOR <↑G>
 1286  002140  032777  000004  177032          BIT     #BIT2,@SWR              ;CHECK FOR LOCK ON TEST
 1287  002146  001411                          BEQ     1$
 1288  002150  104402  015232                  TYPE    ,MLOCK
 1289  002154  012737  000240  013046          MOV     #NOP,TTST
 1290  002162  012737  000240  013050          MOV     #NOP,TTST+2             ;SET UP TO LOCK
 1291  002170  000406                          BR      2$
 1292  002172  013737  013144  013046  1$:     MOV     BRW,TTST
 1293  002200  013737  013146  013050          MOV     BRX,TTST+2              ;LOCK NOT SELECTED, SET UP FOR NORMAL SCOPE LOOP
 1294  002206  032777  000002  176764  2$:     BIT     #SW01,@SWR              ;IF SW01=1, GET STARTING PC
 1295  002214  001410                          BEQ     3$
 1296  002216  104403                          INSTR
 1297  002220  015220                          MTSTPC
 1298  002222  104405                          PARAM
 1299  002224  002254                          TST1
 1300  002226  012442                          TLAST
 1301  002230  001214                          #RETURN
 1302  002232     001                  .BYTE   1
 1303  002233     001                  .BYTE   1
 1304  002234  000403                          BR      4$
 1305  002236  012737  002254  001214  3$:     MOV     #TST1,RETURN            ;START AT TEST 1
 1306  002244  104402  015122          4$:     TYPE    ,MR                     ;TYPE R
 1307  002250  000177  176740                  JMP     @RETURN                 ;START TESTING
 1308                                  ;  TEST 1
 1309                                  ;*************************************************************************
 1310  002254  012737  000001  001226  TST1:   MOV     #1,TSTNO
 1311  002262  012737  002644  001214          MOV     #TST2,RETURN
 1312  002270  012737  002644  001216          MOV     #TST2,NEXT
 1313  002276  105737  001302                  TSTB    RUNFLG          ;IS THIS MY FIRST TIME HERE?
 1314  002302  001010                          BNE     1$              ;BR IF FLAG IS SET
 1315  002304  012737  000001  001304          MOV     #BIT0,RUN       ;SET RUN POINTER.
 1316  002312  012737  000020  001306          MOV     #16.,RUNCNT     ;SET FOR MAX OF 16 DQ11'S PER SYSTEM
 1317  002320  105137  001302                  COMB    RUNFLG          ;SET RUN FLAG
```

```
1318  002324  033737  001304  001500  1$:     BIT     RUN,DQACTV      ;FIND AN ACTIVE DQ11 TO TEST.
1319  002332  001032                          BNE     3$              ;BR IF I FOUND ONE TO TEST.
1320  002334  005737  001500                  TST     DQACTV          ;FIND OUT IF THERE ARE NO DQ11 ACTIVE.
1321  002340  001423                          BEQ     2$              ;BR TO FATAL ERROR. WHY AM I HERE IF NO ACTIVE DQ11'S???
1322  002342  000257                          CCC                     ;CLEAR ALL THE CONDITION CODES OF CPU
1323  002344  006137  001304                  ROL     RUN             ;UPDATE RUN POINTER
1324  002350  062737  000004  001300          ADD     #4,CREAM        ;UPDATE ADDRESS POINTER.
1325  002356  005337  001306                  DEC     RUNCNT          ;DEC NUMBER OF TIMES I LOOKED AT ACTIVE.
1326  002362  001360                          BNE     1$              ;BR AND KEEP LOOKING.
1327  002364  012737  000020  001306          MOV     #16.,RUNCNT     ;START RESTORING MY POINTERS.
1328  002372  012737  001400  001300          MOV     #1400,CREAM     ;RESTORE  ADDRESS POINTER
1329  002400  012737  000001  001304          MOV     #1,RUN          ;RESTORE RUN POINTER.
1330  002406  000746                          BR      1$              ;KEEP ON TESTING.
1331  002410  104402                  2$:     TYPE                    ;ALLERT OPERATOR OF FATAL ERROR
1332  002412  015125                          MERR2                   ;NO DQ11 ACTIVE. WHY AM I HERE???
1333  002414  000000                          HALT                    ;YOU MUST RELOAD DQ11 DIAGNOSTIC!!
1334  002416  000776                          BR      .-2             ;STICK HERE ON CONT.
1335  002420  000257                  3$:     CCC                     ;CLEAR CPU COND. CODES
1336  002422  006137  001304                  ROL     RUN             ;UPDATE RUN. ACTIVE DQ11 FOUND.
1337  002426  017737  176646  001506          MOV     @CREAM,DQCSR    ;PLACE ADDRESSS OF DQ11 AT DQCSR
1338  002434  062737  000002  001300          ADD     #2,CREAM        ;UPDATE ADDRESS POINTER
1339  002442  017737  176632  001510          MOV     @CREAM,DQSTAT   ;PLACE STATUS OF DQ11 AT DQSTAT
1340  002450  062737  000002  001300          ADD     #2,CREAM        ;UPDATE ADDRESS POINTER
1341  002456  013737  001506  001360          MOV     DQCSR,DQRCSR
1342  002464  013737  001510  001350          MOV     DQSTAT,DQRVEC
1343  002472  042737  177007  001350          BIC     #177007,DQRVEC
1344  002500  013737  001350  001352          MOV     DQRVEC,DQRLVL   ;GENERATE ADDRESS OF RECEIVER INTERRUPT SERVICE PS
1345  002506  062737  000002  001352          ADD     #2,DQRLVL
1346  002514  013737  001352  001354          MOV     DQRLVL,DQTVEC   ;GENERATE ADDRESS OF TRANSMITTER INTERRUPT VECTOR
1347  002522  062737  000002  001354          ADD     #2,DQTVEC
1348  002530  013737  001354  001356          MOV     DQTVEC,DQTLVL   ;GENERATE ADDRESS  OF TRANSMITTER INTERRUPT SERVICE PS
1349  002536  062737  000002  001356          ADD     #2,DQTLVL
1350  002544  013737  001360  001362          MOV     DQRCSR,DQRCSH
1351  002552  005237  001362                  INC     DQRCSH          ;GENERATE ADDRESS OF HIGH BYTE
1352  002556  013737  001360  001364          MOV     DQRCSR,DQTCSR   ;GENERATE ADDRESS OF TRANSMITTER CONTROL REGISTER
1353  002564  062737  000002  001364          ADD     #2,DQTCSR
1354  002572  013737  001364  001366          MOV     DQTCSR,DQERR    ;GENERATE ADDRESS OF ERROR REGISTER
1355  002600  062737  000002  001366          ADD     #2,DQERR
1356  002606  013737  001366  001370          MOV     DQERR,DQREG     ;GENERATE ADDRESS OF HIGH BYTE OF ERROR REGISTER
1357  002614  005237  001370                  INC     DQREG
1358  002620  013737  001370  001372          MOV     DQREG,DQSEC     ;GENERATE ADDRESS OF SECONDARY REGISTER
1359  002626  005237  001372                  INC     DQSEC
1360  002632  013737  001372  001374          MOV     DQSEC,DQSECH    ;GENERATE ADDRESS OF HIGH BYTE
1361  002640  005237  001374                  INC     DQSECH
```

```
1362
1363                                        ;STEP MODE VERIFICATION AND CLOCK LOSS TEST
1364                                        ;SET STEP MODE
1365                                        ;SET RECEIVER GO
1366                                        ;SET TRANSMITTER GO
1367                                        ;EXPECTED RESULTS (AFTER DELAY)
1368                                        ;                  TRANSMITTER CLOCK LOSS = 1
1369                                        ;                  RECEIVER CLOCK LOSS = 1
1370                                        ;****NOTE: AS THE "CLOCK UP" OCCURS
1371                                        ;AN "NPR" SHOULD BE EXECUTED.
1372                                        ;THEREFORE IF THE DQ11 IS GOING TO "HANG"
1373                                        ;THE BUS DUE TO NPR'S THIS IS THE
1374                                        ;FIRST TEST IT WILL HAPPEN IN!!****
1375
1376                                    ;  TEST 2
1377                                    ;*************************************************************************
1378  002644  012737  000002  001226  TST2:   MOV     #2,TSTNO
1379  002652  012737  000010  001222          MOV     #10,ICOUNT
1380  002660  012737  003014  001216          MOV     #TST3,NEXT
1381  002666  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS
1382  002674  104413                          MEMCLR                          ;CLEAR MEMORY
1383  002676  104412                          MSTCLR                          ;INIT DQ11
1384  002700  005037  001244                  CLR     TEMP1                   ;ZERO DELAY COUNTER
1385  002704  012737  000010  001246          MOV     #10,TEMP2               ;DELAY 8 X 65535 TIMES
1386  002712  112777  000012  176450          MOVB    #12,@DQREG              ;SELECT MISC REG
1387  002720  012777  000002  176444          MOV     #BIT1,@DQSEC            ;SET AUTO STEP
1388  002726  012777  010001  176424          MOV     #BIT12+BIT0,@DQRCSR     ;SET RX GO!!
1389  002734  012777  000001  176422          MOV     #BIT0,@DQTCSR           ;SET TX GO!!
1390  002742  005277  176424                  INC     @DQSEC                  ;CLOCK UP!!
1391  002746  005377  176420                  DEC     @DQSEC                  ;CLOCK DN!!
1392  002752  005237  001244          1$:     INC     TEMP1                   ;DO THE DELAY....
1393  002756  001375                          BNE     1$                      ;      DELAY.......
1394  002760  042777  010000  176372          BIC     #BIT12,@DQRCSR          ;CLEAR RX ACTIVE
1395  002766  005337  001246                  DEC     TEMP2                   ;DELAY......
1396  002772  001367                          BNE     1$                      ;DELAY.....
1397  002774  012705  000003                  MOV     #3,R5                   ;SET FOR EXPECTED
1398  003000  117704  176362                  MOVB    @DQERR,R4               ;READ THE DQERR REGISTER (SEL4)
1399  003004  020504                          CMP     R5,R4                   ;CLOCK LOSS WORKING??
1400  003006  001401                          BEQ     2$                      ;BR IF YES.
1401  003010  104013                          HLT     13                      ;TX AND RX CLOCK LOSS ERROR
1402  003012  104400          2$:             SCOPE                           ;SCOPE THIS TEST.
1403                                        ;TEST LOOP VERIFICATION
1404                                        ;SET STEP MODE AND TEST LOOP
1405                                        ;SET RECEIVER GO
1406                                        ;SET TRANSMITTER GO
1407                                        ;EXPECTED RESULTS (AFTER DELAY)
1408                                        ;                  TRANSMITTER CLOCK LOSS=0
1409                                        ;                  RECEIVER CLOCK LOSS=0
1410
1411                                    ;  TEST 3
1412                                    ;*************************************************************************
1413  003014  012737  000003  001226  TST3:   MOV     #3,TSTNO
1414  003022  012737  000010  001222          MOV     #10,ICOUNT
1415  003030  012737  003142  001216          MOV     #TST4,NEXT
1416  003036  104413                          MEMCLR
1417  003040  012737  000340  177776          MOV     #340,PS                 ;SET PS =7 LOCK OUT INTERUPTS
```

```
 1418  003046  104412                        MSTCLR                          ;INIT DQ11
 1419  003050  005037  001244                 CLR     TEMP1                   ;SET DELAY COUNTER TO 0
 1420  003054  012737  000010  001246         MOV     #10,TEMP2               ;SET FOR 8 X 65535 TIME DELAY
 1421  003062  112777  000012  176300         MOVB    #12,@DQREG              ;SELECT MISC REGISTER
 1422  003070  012777  000012  176274         MOV     #BIT1+BIT3,@DQSEC       ;SET TESTLOOP AND AUTO/STEP
 1423  003076  012777  000001  176254         MOV     #BIT0,@DQRCSR           ;SET RX GO.
 1424  003104  012777  000001  176252         MOV     #BIT0,@DQTCSR           ;SET TX GO.
 1425  003112  005237  001244          1$:    INC     TEMP1                   ;D
 1426  003116  001375                        BNE     1$                      ; E
 1427  003120  005337  001246                DEC     TEMP2                   ;  L
 1428  003124  001372                        BNE     1$                      ;    A
 1429                                                                        ;      Y
 1430  003126  005005                        CLR     R5                      ;SET EXPECTED
 1431  003130  117704  176232                MOVB    @DQERR,R4               ;GET ACTUAL
 1432  003134  001401                        BEQ     2$                      ;BR IF LOW BYTE OF DQERR IS 0
 1433  003136  104013                        HLT     13                      ;DQ11 ERROR REG NOT 0
 1434  003140  104400          2$:    SCOPE                                   ;SCOPE THIS TEST.
```

```
1435
1436                                        ;INDIVIDUAL INTERRUPT ENABLE TESTS
1437                                        ;SET SELECTED INTERRUPT ENABLE
1438                                        ;VERIFY THAT NO INTERRUPT OCCURS
1439
1440                                        ;INTERRUPT LOGIC TEST
1441                                        ;SET CHARACTER DETECT INTERRUPT ENABLE
1442                                        ;VERIFY THAT NO INTERRUPT OCCURS
1443
1444                                ;  TEST 4
1445                                ;*************************************************************************
1446  003142  012737  000004  001226 TST4:  MOV     #4,TSTNO
1447  003150  012737  003226  001216        MOV     #TST5,NEXT
1448  003156  104412                        MSTCLR                          ;CLEAR INTERFACE
1449  003160  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1450  003164  003206                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1451  003166  003212                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1452  003170  052777  000020  176162        BIS     #BIT4,@DQRCSR           ;SET CHARACTER DETECT INTERRUPT ENABL
1453  003176  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1454  003202  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1455  003204  000403                        BR      3$
1456  003206  104003                 1$:    HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1457  003210  000401                        BR      3$
1458  003212  104002                 2$:    HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1459  003214  012706  001200         3$:    MOV     #STACK,SP               ;RESTORE STACK
1460  003220  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1461  003224  104400                 4$:    SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1462
1463                                        ;INTERRUPT LOGIC TEST
1464                                        ;SET RECEIVE DONE INTERRUPT ENABLE
1465                                        ;VERIFY THAT NO INTERRUPT OCCURS
1466
1467                                ;  TEST 5
1468                                ;*************************************************************************
1469  003226  012737  000005  001226 TST5:  MOV     #5,TSTNO
1470  003234  012737  003312  001216        MOV     #TST6,NEXT
1471  003242  104412                        MSTCLR                          ;CLEAR INTERFACE
1472  003244  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1473  003250  003272                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1474  003252  003276                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1475  003254  052777  000040  176076        BIS     #BIT5,@DQRCSR           ;SET RECEIVE DONE INTERRUPT ENABL
1476  003262  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1477  003266  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1478  003270  000403                        BR      3$
1479  003272  104003                 1$:    HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1480  003274  000401                        BR      3$
1481  003276  104002                 2$:    HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1482  003300  012706  001200         3$:    MOV     #STACK,SP               ;RESTORE STACK
1483  003304  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1484  003310  104400                 4$:    SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1485
1486                                        ;INTERRUPT LOGIC TEST
1487                                        ;SET ERROR INTERRUPT ENABLE
1488                                        ;VERIFY THAT NO INTERRUPT OCCURS
1489
1490                                ;  TEST 6
```

```
1491                                    ;*****************************************************************
1492  003312  012737  000006  001226  TST6:   MOV     #6,TSTNO
1493  003320  012737  003376  001216          MOV     #TST7,NEXT
1494  003326  104412                          MSTCLR                          ;CLEAR INTERFACE
1495  003330  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1496  003334  003356                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1497  003336  003362                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1498  003340  052777  000010  176016          BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
1499  003346  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1500  003352  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1501  003354  000403                          BR      3$
1502  003356  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1503  003360  000401                          BR      3$
1504  003362  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1505  003364  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1506  003370  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1507  003374  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1508
1509                                          ;INTERRUPT LOGIC TEST
1510                                          ;SET DATASET INTERRUPT ENABLE
1511                                          ;VERIFY THAT NO INTERRUPT OCCURS
1512
1513                                  ;  TEST 7
1514                                  ;*****************************************************************
1515  003376  012737  000007  001226  TST7:   MOV     #7,TSTNO
1516  003404  012737  003462  001216          MOV     #TST10,NEXT
1517  003412  104412                          MSTCLR                          ;CLEAR INTERFACE
1518  003414  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1519  003420  003442                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1520  003422  003446                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1521  003424  052777  000020  175732          BIS     #BIT4,@DQTCSR           ;SET DATASET INTERRUPT ENABL
1522  003432  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1523  003436  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1524  003440  000403                          BR      3$
1525  003442  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1526  003444  000401                          BR      3$
1527  003446  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1528  003450  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1529  003454  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1530  003460  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1531
1532                                          ;INTERRUPT LOGIC TEST
1533                                          ;SET TRANSMIT DONE INTERRUPT ENABLE
1534                                          ;VERIFY THAT NO INTERRUPT OCCURS
1535
1536                                  ;  TEST 10
1537                                  ;*****************************************************************
1538  003462  012737  000010  001226  TST10:  MOV     #10,TSTNO
1539  003470  012737  003546  001216          MOV     #TST11,NEXT
1540  003476  104412                          MSTCLR                          ;CLEAR INTERFACE
1541  003500  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1542  003504  003526                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1543  003506  003532                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1544  003510  052777  000040  175646          BIS     #BIT5,@DQTCSR           ;SET TRANSMIT DONE INTERRUPT ENABL
1545  003516  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1546  003522  000240                          NOP                             ;WINDOW FOR INTERRUPTS
```

```
1547  003524  000403                          BR      3$
1548  003526  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1549  003530  000401                          BR      3$
1550  003532  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1551  003534  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1552  003540  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1553  003544  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1554
1555                                          ;INDIVIDUAL INTERRUPT FLAG TESTS
1556                                          ;SET SELECTED INTERRUPT FLAG
1557                                          ;VERIFY THAT NO INTERRUPT OCCURS
1558
1559
1560                                          ;INTERRUPT LOGIC TEST
1561                                          ;SET RECEIVE DONE S INTERRUPT FLAG
1562                                          ;VERIFY THAT NO INTERRUPT OCCURS
1563
1564                                  ;  TEST 11
1565                                  ;*************************************************************************
1566  003546  012737  000011  001226  TST11:  MOV     #11,TSTNO
1567  003554  012737  003632  001216          MOV     #TST12,NEXT
1568  003562  104412                          MSTCLR                          ;CLEAR INTERFACE
1569  003564  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1570  003570  003612                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1571  003572  003616                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1572  003574  052777  000100  175556          BIS     #BIT6,@DQRCSR           ;SET RECEIVE DONE S INTERRUPT FLAG
1573  003602  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1574  003606  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1575  003610  000403                          BR      3$
1576  003612  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1577  003614  000401                          BR      3$
1578  003616  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1579  003620  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1580  003624  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1581  003630  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1582
1583                                          ;INTERRUPT LOGIC TEST
1584                                          ;SET RECEIVE DONE P INTERRUPT FLAG
1585                                          ;VERIFY THAT NO INTERRUPT OCCURS
1586
1587                                  ;  TEST 12
1588                                  ;*************************************************************************
1589  003632  012737  000012  001226  TST12:  MOV     #12,TSTNO
1590  003640  012737  003716  001216          MOV     #TST13,NEXT
1591  003646  104412                          MSTCLR                          ;CLEAR INTERFACE
1592  003650  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1593  003654  003676                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1594  003656  003702                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1595  003660  052777  000200  175472          BIS     #BIT7,@DQRCSR           ;SET RECEIVE DONE P INTERRUPT FLAG
1596  003666  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1597  003672  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1598  003674  000403                          BR      3$
1599  003676  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1600  003700  000401                          BR      3$
1601  003702  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1602  003704  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
```

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                        DQ11 INTERUPT AND NPR LOGIC TESTS.

1603  003710  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1604  003714  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1605
1606                                        ;INTERRUPT LOGIC TEST
1607                                        ;SET TRANSMIT DONE S INTERRUPT FLAG
1608                                        ;VERIFY THAT NO INTERRUPT OCCURS
1609
1610                                ;  TEST 13
1611                                ;*************************************************************************
1612  003716  012737  000013  001226 TST13:  MOV     #13,TSTNO
1613  003724  012737  004002  001216        MOV     #TST14,NEXT
1614  003732  104412                       MSTCLR                          ;CLEAR INTERFACE
1615  003734  004737  016042               JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1616  003740  003762                       1$                              ;RECEIVER WILL INTERRUPT TO 1$
1617  003742  003766                       2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1618  003744  052777  000100  175412       BIS     #BIT6,@DQTCSR           ;SET TRANSMIT DONE S INTERRUPT FLAG
1619  003752  005037  177776               CLR     PS                      ;SET PROCESSOR PRIORITY TO C
1620  003756  000240                       NOP                             ;WINDOW FOR INTERRUPTS
1621  003760  000403                       BR      3$
1622  003762  104003                1$:    HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1623  003764  000401                       BR      3$
1624  003766  104002                2$:    HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1625  003770  012706  001200        3$:    MOV     #STACK,SP               ;RESTORE STACK
1626  003774  004737  016074               JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1627  004000  104400                4$:    SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1628
1629                                        ;INTERRUPT LOGIC TEST
1630                                        ;SET RECEIVE DONE S INTERRUPT FLAG
1631                                        ;VERIFY THAT NO INTERRUPT OCCURS
1632
1633                                ;  TEST 14
1634                                ;*************************************************************************
1635  004002  012737  000014  001226 TST14:  MOV     #14,TSTNO
1636  004010  012737  004066  001216        MOV     #TST15,NEXT
1637  004016  104412                       MSTCLR                          ;CLEAR INTERFACE
1638  004020  004737  016042               JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1639  004024  004046                       1$                              ;RECEIVER WILL INTERRUPT TO 1$
1640  004026  004052                       2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1641  004030  052777  000200  175326       BIS     #BIT7,@DQTCSR           ;SET RECEIVE DONE S INTERRUPT FLAG
1642  004036  005037  177776               CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1643  004042  000240                       NOP                             ;WINDOW FOR INTERRUPTS
1644  004044  000403                       BR      3$
1645  004046  104003                1$:    HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1646  004050  000401                       BR      3$
1647  004052  104002                2$:    HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1648  004054  012706  001200        3$:    MOV     #STACK,SP               ;RESTORE STACK
1649  004060  004737  016074               JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1650  004064  104400                4$:    SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1651
1652                                        ;INTERRUPT LOGIC TEST
1653                                        ;SET DATA SET INTERRUPT FLAG
1654                                        ;VERIFY THAT NO INTERRUPT OCCURS
1655
1656                                ;  TEST 15
1657                                ;*************************************************************************
1658  004066  012737  000015  001226 TST15:  MOV     #15,TSTNO
```

```
1659  004074  012737  004152  001216          MOV     #TST16,NEXT
1660  004102  104412                          MSTCLR                          ;CLEAR INTERFACE
1661  004104  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1662  004110  004132                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1663  004112  004136                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1664  004114  052777  100000  175242          BIS     #BIT15,@DQTCSR          ;SET DATA SET INTERRUPT FLAG
1665  004122  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1666  004126  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1667  004130  000403                          BR      3$
1668  004132  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1669  004134  000401                          BR      3$
1670  004136  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1671  004140  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1672  004144  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1673  004150  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1674
1675                                          ;INTERRUPT LOGIC TEST
1676                                          ;SET T CLOCK LOSS INTERRUPT FLAG
1677                                          ;VERIFY THAT NO INTERRUPT OCCURS
1678
1679                                  ;  TEST 16
1680                                  ;*************************************************************************
1681  004152  012737  000016  001226  TST16:  MOV     #16,TSTNO
1682  004160  012737  004236  001216          MOV     #TST17,NEXT
1683  004166  104412                          MSTCLR                          ;CLEAR INTERFACE
1684  004170  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1685  004174  004216                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1686  004176  004222                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1687  004200  052777  000001  175160          BIS     #BIT0,@DQERR            ;SET T CLOCK LOSS INTERRUPT FLAG
1688  004206  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1689  004212  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1690  004214  000403                          BR      3$
1691  004216  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1692  004220  000401                          BR      3$
1693  004222  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1694  004224  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1695  004230  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1696  004234  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1697
1698                                          ;INTERRUPT LOGIC TEST
1699                                          ;SET R CLOCK LOSS INTERRUPT FLAG
1700                                          ;VERIFY THAT NO INTERRUPT OCCURS
1701
1702                                  ;  TEST 17
1703                                  ;*************************************************************************
1704  004236  012737  000017  001226  TST17:  MOV     #17,TSTNO
1705  004244  012737  004322  001216          MOV     #TST20,NEXT
1706  004252  104412                          MSTCLR                          ;CLEAR INTERFACE
1707  004254  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1708  004260  004302                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1709  004262  004306                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1710  004264  052777  000002  175074          BIS     #BIT1,@DQERR            ;SET R CLOCK LOSS INTERRUPT FLAG
1711  004272  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1712  004276  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1713  004300  000403                          BR      3$
1714  004302  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
```

DQ11 INTERUPT AND NPR LOGIC TESTS.

```
1715  004304  000401                        BR      3$
1716  004306  104002                2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1717  004310  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
1718  004314  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1719  004320  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1720
1721                                        ;INTERRUPT LOGIC TEST
1722                                        ;SET T LATENCY INTERRUPT FLAG
1723                                        ;VERIFY THAT NO INTERRUPT OCCURS
1724
1725                                ;  TEST 20
1726                                ;*************************************************************************
1727  004322  012737  000020  001226 TST20:  MOV     #20,TSTNO
1728  004330  012737  004406  001216        MOV     #TST21,NEXT
1729  004336  104412                        MSTCLR                          ;CLEAR INTERFACE
1730  004340  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1731  004344  004366                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1732  004346  004372                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1733  004350  052777  000004  175010        BIS     #BIT2,@DQERR            ;SET T LATENCY INTERRUPT FLAG
1734  004356  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1735  004362  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1736  004364  000403                        BR      3$
1737  004366  104003                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1738  004370  000401                        BR      3$
1739  004372  104002                2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1740  004374  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
1741  004400  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1742  004404  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1743
1744                                        ;INTERRUPT LOGIC TEST
1745                                        ;SET R LATENCY INTERRUPT FLAG
1746                                        ;VERIFY THAT NO INTERRUPT OCCURS
1747
1748                                ;  TEST 21
1749                                ;*************************************************************************
1750  004406  012737  000021  001226 TST21:  MOV     #21,TSTNO
1751  004414  012737  004472  001216        MOV     #TST22,NEXT
1752  004422  104412                        MSTCLR                          ;CLEAR INTERFACE
1753  004424  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1754  004430  004452                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1755  004432  004456                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1756  004434  052777  000010  174724        BIS     #BIT3,@DQERR            ;SET R LATENCY INTERRUPT FLAG
1757  004442  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1758  004446  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1759  004450  000403                        BR      3$
1760  004452  104003                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1761  004454  000401                        BR      3$
1762  004456  104002                2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1763  004460  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
1764  004464  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1765  004470  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1766
1767                                        ;INTERRUPT LOGIC TEST
1768                                        ;SET T NON-EX MEM INTERRUPT FLAG
1769                                        ;VERIFY THAT NO INTERRUPT OCCURS
1770
```

```
                                        ;  TEST 22
                                        ;*************************************************************************
004472  012737  000022  001226  TST22:  MOV     #22,TSTNO
004500  012737  004556  001216           MOV     #TST23,NEXT
004506  104412                           MSTCLR                          ;CLEAR INTERFACE
004510  004737  016042                   JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
004514  004536                           1$                              ;RECEIVER WILL INTERRUPT TO 1$
004516  004542                           2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
004520  052777  000020  174640           BIS     #BIT4,@DQERR            ;SET T NON-EX MEM INTERRUPT FLAG
004526  005037  177776                   CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
004532  000240                           NOP                             ;WINDOW FOR INTERRUPTS
004534  000403                           BR      3$
004536  104003                  1$:      HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
004540  000401                           BR      3$
004542  104002                  2$:      HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
004544  012706  001200           3$:      MOV     #STACK,SP               ;RESTORE STACK
004550  004737  016074                   JSR     PC,RECAT                ;RESTORE TRAPCATCHER
004554  104400                  4$:      SCOPE                           ;CHECK FOR ITERATIONS, LOOP

                                        ;INTERRUPT LOGIC TEST
                                        ;SET R NON-EX MEM INTERRUPT FLAG
                                        ;VERIFY THAT NO INTERRUPT OCCURS

                                        ;  TEST 23
                                        ;*************************************************************************
004556  012737  000023  001226  TST23:  MOV     #23,TSTNO
004564  012737  004642  001216           MOV     #TST24,NEXT
004572  104412                           MSTCLR                          ;CLEAR INTERFACE
004574  004737  016042                   JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
004600  004622                           1$                              ;RECEIVER WILL INTERRUPT TO 1$
004602  004626                           2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
004604  052777  000040  174554           BIS     #BIT5,@DQERR            ;SET R NON-EX MEM INTERRUPT FLAG
004612  005037  177776                   CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
004616  000240                           NOP                             ;WINDOW FOR INTERRUPTS
004620  000403                           BR      3$
004622  104003                  1$:      HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
004624  000401                           BR      3$
004626  104002                  2$:      HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
004630  012706  001200           3$:      MOV     #STACK,SP               ;RESTORE STACK
004634  004737  016074                   JSR     PC,RECAT                ;RESTORE TRAPCATCHER
004640  104400                  4$:      SCOPE                           ;CHECK FOR ITERATIONS, LOOP

                                        ;INTERRUPT LOGIC TEST
                                        ;SET R BCC ERROR INTERRUPT FLAG
                                        ;VERIFY THAT NO INTERRUPT OCCURS

                                        ;  TEST 24
                                        ;*************************************************************************
004642  012737  000024  001226  TST24:  MOV     #24,TSTNO
004650  012737  004726  001216           MOV     #TST25,NEXT
004656  104412                           MSTCLR                          ;CLEAR INTERFACE
004660  004737  016042                   JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
004664  004706                           1$                              ;RECEIVER WILL INTERRUPT TO 1$
004666  004712                           2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
004670  052777  000100  174470           BIS     #BIT6,@DQERR            ;SET R BCC ERROR INTERRUPT FLAG
004676  005037  177776                   CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
```

```
1827  004702  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1828  004704  000403                        BR      3$
1829  004706  104003              1$:       HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1830  004710  000401                        BR      3$
1831  004712  104002              2$:       HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1832  004714  012706  001200      3$:       MOV     #STACK,SP               ;RESTORE STACK
1833  004720  004737  016074              JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1834  004724  104400              4$:       SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1835
1836                                        ;INTERRUPT LOGIC TEST
1837                                        ;SET R VRC ERROR INTERRUPT FLAG
1838                                        ;VERIFY THAT NO INTERRUPT OCCURS
1839
1840                                    ;  TEST 25
1841                                    ;*****************************************************************************
1842  004726  012737  000025  001226  TST25:  MOV     #25,TSTNO
1843  004734  012737  005012  001216          MOV     #TST26,NEXT
1844  004742  104412                        MSTCLR                          ;CLEAR INTERFACE
1845  004744  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1846  004750  004772                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1847  004752  004776                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1848  004754  052777  000200  174404        BIS     #BIT7,@DQERR            ;SET R VRC ERROR INTERRUPT FLAG
1849  004762  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1850  004766  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1851  004770  000403                        BR      3$
1852  004772  104003              1$:       HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1853  004774  000401                        BR      3$
1854  004776  104002              2$:       HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1855  005000  012706  001200      3$:       MOV     #STACK,SP               ;RESTORE STACK
1856  005004  004737  016074              JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1857  005010  104400              4$:       SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1858
1859                                        ;INDIVIDUAL INTERRUPT TESTS
1860                                        ;SET SELECTED INTERRUPT ENABLE AND FLAG
1861                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT ADDRESS
1862
1863
1864                                        ;INTERRUPT LOGIC TEST
1865                                        ;SET CHARACTER DETECT INTERRUPT ENABLE
1866                                        ;SET CHARACTER DETECT INTERRUPT FLAG
1867                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1868
1869                                    ;  TEST 26
1870                                    ;*****************************************************************************
1871  005012  012737  000026  001226  TST26:  MOV     #26,TSTNO
1872  005020  012737  005102  001216          MOV     #TST27,NEXT
1873  005026  104412                        MSTCLR                          ;CLEAR INTERFACE
1874  005030  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1875  005034  005064                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
1876  005036  005066                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1877  005040  052777  000020  174312        BIS     #BIT4,@DQRCSR           ;SET CHARACTER DETECT INTERRUPT ENABL
1878  005046  052777  100000  174304        BIS     #BIT15,@DQRCSR          ;SET CHARACTER DETECT INTERRUPT FLAG
1879  005054  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1880  005060  000240                        NOP                             ;WINDOW FOR INTERRUPTS
1881  005062  104000                        HLT     0                       ;RECEIVER DID NOT INTERRUPT
1882  005064  000401              1$:       BR      3$                      ;RECEIVER SHOULD INTERRUPT TO THIS LOCATION
```

DQ11 INTERUPT AND NPR LOGIC TESTS.

```
1883  005066  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1884  005070  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1885  005074  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1886  005100  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1887
1888                                          ;INTERRUPT LOGIC TEST
1889                                          ;SET RECEIVE DONE INTERRUPT ENABLE
1890                                          ;SET RECEIVE DONE S INTERRUPT FLAG
1891                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1892
1893                                  ;  TEST 27
1894                                  ;*************************************************************************
1895  005102  012737  000027  001226  TST27:  MOV     #27,TSTNO
1896  005110  012737  005172  001216          MOV     #TST30,NEXT
1897  005116  104412                          MSTCLR                          ;CLEAR INTERFACE
1898  005120  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1899  005124  005154                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1900  005126  005156                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1901  005130  052777  000040  174222          BIS     #BIT5,@DQRCSR           ;SET RECEIVE DONE INTERRUPT ENABL
1902  005136  052777  000100  174214          BIS     #BIT6,@DQRCSR           ;SET RECEIVE DONE S INTERRUPT FLAG
1903  005144  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1904  005150  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1905  005152  104000                          HLT     0                       ;RECEIVER DID NOT INTERRUPT
1906  005154  000401                  1$:     BR      3$                      ;RECEIVER SHOULD INTERRUPT TO THIS LOCATION
1907  005156  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1908  005160  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1909  005164  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1910  005170  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1911
1912                                          ;INTERRUPT LOGIC TEST
1913                                          ;SET RECEIVE DONE INTERRUPT ENABLE
1914                                          ;SET RECEIVE DONE P INTERRUPT FLAG
1915                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1916
1917                                  ;  TEST 30
1918                                  ;*************************************************************************
1919  005172  012737  000030  001226  TST30:  MOV     #30,TSTNO
1920  005200  012737  005262  001216          MOV     #TST31,NEXT
1921  005206  104412                          MSTCLR                          ;CLEAR INTERFACE
1922  005210  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1923  005214  005244                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1924  005216  005246                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1925  005220  052777  000040  174132          BIS     #BIT5,@DQRCSR           ;SET RECEIVE DONE INTERRUPT ENABL
1926  005226  052777  000200  174124          BIS     #BIT7,@DQRCSR           ;SET RECEIVE DONE P INTERRUPT FLAG
1927  005234  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1928  005240  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1929  005242  104000                          HLT     0                       ;RECEIVER DID NOT INTERRUPT
1930  005244  000401                  1$:     BR      3$                      ;RECEIVER SHOULD INTERRUPT TO THIS LOCATION
1931  005246  104002                  2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1932  005250  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1933  005254  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1934  005260  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1935
1936                                          ;INTERRUPT LOGIC TEST
1937                                          ;SET TRANSMIT DONE INTERRUPT ENABLE
1938                                          ;SET TRANSMIT DONE S INTERRUPT FLAG
```

DQ11 INTERUPT AND NPR LOGIC TESTS.

```
                                        ;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 IN.E-FACE
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  .74046        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
                                ;*************************************************************************
```

```
1995  005446  012737  000033  001226  TST33:  MOV     #33,TSTNO
1996  005454  012737  005540  001216          MOV     #TST34,NEXT
1997  005462  104412                          MSTCLR                          ;CLEAR INTERFACE
1998  005464  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1999  005470  005522                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
2000  005472  005524                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
2001  005474  052777  000010  173662          BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
2002  005502  052777  000001  173656          BIS     #BIT0,@DQERR            ;SET T CLOCK LOSS INTERRUPT FLAG
2003  005510  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
2004  005514  000240                          NOP                             ;WINDOW FOR INTERRUPTS
2005  005516  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
2006  005520  000402                          BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
2007                                                                          ;T CLOCK LOSS INTERRUPT FLAG SET
2008  005522  104003          1$:             HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
2009  005524  000240          2$:             NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
2010  005526  012706  001200  3$:             MOV     #STACK,SP               ;RESTORE STACK
2011  005532  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
2012  005536  104400          4$:             SCOPE                           ;CHECK FOR ITERATIONS, LOOP
2013
2014                                          ;INTERRUPT LOGIC TEST
2015                                          ;SET ERROR INTERRUPT ENABLE
2016                                          ;SET R CLOCK LOSS INTERRUPT FLAG
2017                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
2018
2019                                  ;  TEST 34
2020                                  ;*****************************************************************************
2021  005540  012737  000034  001226  TST34:  MOV     #34,TSTNO
2022  005546  012737  005632  001216          MOV     #TST35,NEXT
2023  005554  104412                          MSTCLR                          ;CLEAR INTERFACE
2024  005556  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2025  005562  005614                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
2026  005564  005616                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
2027  005566  052777  000010  173570          BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
2028  005574  052777  000002  173564          BIS     #BIT1,@DQERR            ;SET R CLOCK LOSS INTERRUPT FLAG
2029  005602  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
2030  005606  000240                          NOP                             ;WINDOW FOR INTERRUPTS
2031  005610  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
2032  005612  000402                          BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
2033                                                                          ;R CLOCK LOSS INTERRUPT FLAG SET
2034  005614  104003          1$:             HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
2035  005616  000240          2$:             NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
2036  005620  012706  001200  3$:             MOV     #STACK,SP               ;RESTORE STACK
2037  005624  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
2038  005630  104400          4$:             SCOPE                           ;CHECK FOR ITERATIONS, LOOP
2039
2040                                          ;INTERRUPT LOGIC TEST
2041                                          ;SET ERROR INTERRUPT ENABLE
2042                                          ;SET T LATENCY INTERRUPT FLAG
2043                                          ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
2044
2045                                  ;  TEST 35
2046                                  ;*****************************************************************************
2047  005632  012737  000035  001226  TST35:  MOV     #35,TSTNO
2048  005640  012737  005724  001216          MOV     #TST36,NEXT
2049  005646  104412                          MSTCLR                          ;CLEAR INTERFACE
2050  005650  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
```

```
2051  005654  005706                        1$                      ;RECEIVER WILL INTERRUPT TO 1$
2052  005656  005710                        2$                      ;TRANSMITTER WILL INTERRUPT TO 2$
2053  005660  052777  000010  173476        BIS     #BIT3,@DQTCSR   ;SET ERROR INTERRUPT ENABL
2054  005666  052777  000004  173472        BIS     #BIT2,@DQERR    ;SET T LATENCY INTERRUPT FLAG
2055  005674  005037  177776                CLR     PS              ;SET PROCESSOR PRIORITY TO 0
2056  005700  000240                        NOP                     ;WINDOW FOR INTERRUPTS
2057  005702  104001                        HLT     1               ;TRANSMITTER DID NOT INTERRUPT
2058  005704  000402                        BR      3$              ;WITH ERROR INTERRUPT ENABL AND
2059                                                                ;T LATENCY INTERRUPT FLAG SET
2060  005706  104003              1$:       HLT     3               ;UNEXPECTED RECEIVER INTERRUPT
2061  005710  000240              2$:       NOP                     ;TRANSMITTER SHOULD INTERRUPT TO HERE
2062  005712  012706  001200      3$:       MOV     #STACK,SP       ;RESTORE STACK
2063  005716  004737  016074                JSR     PC,RECAT        ;RESTORE TRAPCATCHER
2064  005722  104400              4$:       SCOPE                   ;CHECK FOR ITERATIONS, LOOP
2065
2066                                        ;INTERRUPT LOGIC TEST
2067                                        ;SET ERROR INTERRUPT ENABLE
2068                                        ;SET R LATENCY INTERRUPT FLAG
2069                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
2070
2071                                  ;  TEST 36
2072                                  ;*************************************************************************
2073  005724  012737  000036  001226  TST36:  MOV     #36,TSTNO
2074  005732  012737  006016  001216          MOV     #TST37,NEXT
2075  005740  104412                          MSTCLR                  ;CLEAR INTERFACE
2076  005742  004737  016042                  JSR     PC,SETV         ;SET UP INTERRUPT VECTORS
2077  005746  006000                          1$                      ;RECEIVER WILL INTERRUPT TO 1$
2078  005750  006002                          2$                      ;TRANSMITTER WILL INTERRUPT TO 2$
2079  005752  052777  000010  173404          BIS     #BIT3,@DQTCSR   ;SET ERROR INTERRUPT ENABL
2080  005760  052777  000010  173400          BIS     #BIT3,@DQERR    ;SET R LATENCY INTERRUPT FLAG
2081  005766  005037  177776                  CLR     PS              ;SET PROCESSOR PRIORITY TO 0
2082  005772  000240                          NOP                     ;WINDOW FOR INTERRUPTS
2083  005774  104001                          HLT     1               ;TRANSMITTER DID NOT INTERRUPT
2084  005776  000402                          BR      3$              ;WITH ERROR INTERRUPT ENABL AND
2085                                                                  ;R LATENCY INTERRUPT FLAG SET
2086  006000  104003              1$:         HLT     3               ;UNEXPECTED RECEIVER INTERRUPT
2087  006002  000240              2$:         NOP                     ;TRANSMITTER SHOULD INTERRUPT TO HERE
2088  006004  012706  001200      3$:         MOV     #STACK,SP       ;RESTORE STACK
2089  006010  004737  016074                  JSR     PC,RECAT        ;RESTORE TRAPCATCHER
2090  006014  104400              4$:         SCOPE                   ;CHECK FOR ITERATIONS, LOOP
2091
2092                                        ;INTERRUPT LOGIC TEST
2093                                        ;SET ERROR INTERRUPT ENABLE
2094                                        ;SET T NON-EX MEM INTERRUPT FLAG
2095                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
2096
2097                                  ;  TEST 37
2098                                  ;*************************************************************************
2099  006016  012737  000037  001226  TST37:  MOV     #37,TSTNO
2100  006024  012737  006110  001216          MOV     #TST40,NEXT
2101  006032  104412                          MSTCLR                  ;CLEAR INTERFACE
2102  006034  004737  016042                  JSR     PC,SETV         ;SET UP INTERRUPT VECTORS
2103  006040  006072                          1$                      ;RECEIVER WILL INTERRUPT TO 1$
2104  006042  006074                          2$                      ;TRANSMITTER WILL INTERRUPT TO 2$
2105  006044  052777  000010  173312          BIS     #BIT3,@DQTCSR   ;SET ERROR INTERRUPT ENABL
2106  006052  052777  000020  173306          BIS     #BIT4,@DQERR    ;SET T NON-EX MEM INTERRUPT FLAG
```

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                                        DQ11 INTERUPT AND NPR LOGIC TESTS.

2107  006060  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
2108  006064  000240                        NOP                             ;WINDOW FOR INTERRUPTS
2109  006066  104001                        HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
2110  006070  000402                        BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
2111                                                                        ;T NON-EX MEM INTERRUPT FLAG SET
2112  006072  104003              1$:       HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
2113  006074  000240              2$:       NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
2114  006076  012706  001200      3$:       MOV     #STACK,SP               ;RESTORE STACK
2115  006102  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
2116  006106  104400              4$:       SCOPE                           ;CHECK FOR ITERATIONS, LOOP
2117
2118                                        ;INTERRUPT LOGIC TEST
2119                                        ;SET ERROR INTERRUPT ENABLE
2120                                        ;SET R NON-EX MEM INTERRUPT FLAG
2121                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
2122
2123                                    ;  TEST 40
2124                                    ;*****************************************************************************
2125  006110  012737  000040  001226  TST40:  MOV     #40,TSTNO
2126  006116  012737  006202  001216          MOV     #TST41,NEXT
2127  006124  104412                         MSTCLR                          ;CLEAR INTERFACE
2128  006126  004737  016042                 JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2129  006132  006164                         1$                              ;RECEIVER WILL INTERRUPT TO 1$
2130  006134  006166                         2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
2131  006136  052777  000010  173220        BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
2132  006144  052777  000040  173214        BIS     #BIT5,@DQERR            ;SET R NON-EX MEM INTERRUPT FLAG
2133  006152  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
2134  006156  000240                        NOP                             ;WINDOW FOR INTERRUPTS
2135  006160  104001                        HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
2136  006162  000402                        BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
2137                                                                        ;R NON-EX MEM INTERRUPT FLAG SET
2138  006164  104003              1$:       HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
2139  006166  000240              2$:       NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
2140  006170  012706  001200      3$:       MOV     #STACK,SP               ;RESTORE STACK
2141  006174  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
2142  006200  104400              4$:       SCOPE                           ;CHECK FOR ITERATIONS, LOOP
2143
2144                                        ;INTERRUPT LOGIC TEST
2145                                        ;SET ERROR INTERRUPT ENABLE
2146                                        ;SET R BCC ERROR INTERRUPT FLAG
2147                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
2148
2149                                    ;  TEST 41
2150                                    ;*****************************************************************************
2151  006202  012737  000041  001226  TST41:  MOV     #41,TSTNO
2152  006210  012737  006274  001216          MOV     #TST42,NEXT
2153  006216  104412                         MSTCLR                          ;CLEAR INTERFACE
2154  006220  004737  016042                 JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2155  006224  006256                         1$                              ;RECEIVER WILL INTERRUPT TO 1$
2156  006226  006260                         2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
2157  006230  052777  000010  173126        BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
2158  006236  052777  000100  173122        BIS     #BIT6,@DQERR            ;SET R BCC ERROR INTERRUPT FLAG
2159  006244  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
2160  006250  000240                        NOP                             ;WINDOW FOR INTERRUPTS
2161  006252  104001                        HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
2162  006254  000402                        BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
```

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                                DQ11 INTERUPT AND NPR LOGIC TESTS.

2163                                                                    ;R BCC ERROR INTERRUPT FLAG SET
2164  006256  104003           1$:     HLT     3                      ;UNEXPECTED RECEIVER INTERRUPT
2165  006260  000240           2$:     NOP                            ;TRANSMITTER SHOULD INTERRUPT TO HERE
2166  006262  012706  001200   3$:     MOV     #STACK,SP              ;RESTORE STACK
2167  006266  004737  016074           JSR     PC,RECAT               ;RESTORE TRAPCATCHER
2168  006272  104400           4$:     SCOPE                          ;CHECK FOR ITERATIONS, LOOP
2169
2170                                    ;INTERRUPT LOGIC TEST
2171                                    ;SET ERROR INTERRUPT ENABLE
2172                                    ;SET R VRC ERROR INTERRUPT FLAG
2173                                    ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
2174
2175                                ;  TEST 42
2176                                ;*************************************************************************
2177  006274  012737  000042  001226 TST42:  MOV     #42,TSTNO
2178  006302  012737  006366  001216         MOV     #TST43,NEXT
2179  006310  104412                 MSTCLR                         ;CLEAR INTERFACE
2180  006312  004737  016042         JSR     PC,SETV                ;SET UP INTERRUPT VECTORS
2181  006316  006350                 1$                             ;RECEIVER WILL INTERRUPT TO 1$
2182  006320  006352                 2$                             ;TRANSMITTER WILL INTERRUPT TO 2$
2183  006322  052777  000010  173034         BIS     #BIT3,@DQTCSR  ;SET ERROR INTERRUPT ENABL
2184  006330  052777  000200  173030         BIS     #BIT7,@DQERR   ;SET R VRC ERROR INTERRUPT FLAG
2185  006336  005037  177776                 CLR     PS             ;SET PROCESSOR PRIORITY TO 0
2186  006342  000240                 NOP                            ;WINDOW FOR INTERRUPTS
2187  006344  104001                 HLT     1                      ;TRANSMITTER DID NOT INTERRUPT
2188  006346  000402                 BR      3$                     ;WITH ERROR INTERRUPT ENABL AND
2189                                                                  ;R VRC ERROR INTERRUPT FLAG SET
2190  006350  104003           1$:     HLT     3                      ;UNEXPECTED RECEIVER INTERRUPT
2191  006352  000240           2$:     NOP                            ;TRANSMITTER SHOULD INTERRUPT TO HERE
2192  006354  012706  001200   3$:     MOV     #STACK,SP              ;RESTORE STACK
2193  006360  004737  016074           JSR     PC,RECAT               ;RESTORE TRAPCATCHER
2194  006364  104400           4$:     SCOPE                          ;CHECK FOR ITERATIONS, LOOP
2195
2196                                    ;TEST THAT THE RECEIVER WILL INTERUPT
2197                                    ;BEFORE THE TRANSMITTER WHEN
2198                                    ;THEY ARE BOTH ENABLED AT THE
2199                                    ;SAME TIME.
2200                                    ;
2201
2202                                ;  TEST 43
2203                                ;*************************************************************************
2204  006366  012737  000043  001226 TST43:  MOV     #43,TSTNO
2205  006374  012737  006502  001216         MOV     #TST44,NEXT
2206  006402  104412                 MSTCLR                         ;INIT DQ11
2207  006404  004737  016042         JSR     PC,SETV                ;SET THE VECTORS
2208  006410  006454                 1$                             ;THIS FOR RX
2209  006412  006456                 2$                             ;THIS FOR TX
2210  006414  012737  000340  177776         MOV     #340,PS        ;LOCK OUT INTERUPTS
2211  006422  012777  000240  172734         MOV     #240,@DQTCSR   ;SET TX PRI DONE AND IE
2212  006430  012777  000240  172722         MOV     #240,@DQRCSR   ;SET RX PRI DONE AND IE
2213  006436  000240                 NOP                            ;INTERUPT YET.
2214  006440  005037  177776                 CLR     PS             ;ZERO PROC. STATUS
2215  006444  000240                 NOP                            ;WAIT ONE INSTR. TIME
2216  006446  000240                 NOP                            ;
2217  006450  104001                 HLT     1                      ;TX AND RX FAILED TO INTERUPT
2218  006452  104000                 HLT     0                      ;
```

```
2219  006454  000401                  1$:     BR      3$                      ;GOOD FOR RX
2220  006456  104002                  2$:     HLT     2                       ;TX SHOULD NOT HAVE INTERUPTED
2221  006460  005077  172674          3$:     CLR     @DQRCSR                 ;CLEAR RXCSR
2222  006464  005077  172674                  CLR     @DQTCSR                 ; CLEAR TX CSR
2223  006470  012706  001200                  MOV     #STACK,SP               ;RESTORE STACK POINTER
2224  006474  004737  016074                  JSR     PC,RECAT                ;RESET VECTORS
2225  006500  104400                          SCOPE                           ;SCOPE THE TEST
2226
2227
2228                                          ;VERIFY THAT THE TRANSMITTER INTERUPTS
2229                                          ;ONLY ONCE WHEN IT IS ENABLED.
2230                                          ;
2231                                  ;  TEST 44
2232                                  ;*************************************************************************
2233  006502  012737  000044  001226  TST44:  MOV     #44,TSTNO
2234  006510  012737  006606  001216          MOV     #TST45,NEXT
2235  006516  104412                          MSTCLR
2236  006520  004737  016042                  JSR     PC,SETV
2237  006524  006572                          1$
2238  006526  006576                          2$
2239  006530  012737  000340  177776          MOV     #340,PS
2240  006536  012777  000240  172620          MOV     #240,@DQTCSR
2241  006544  012700  177777                  MOV     #-1,R0
2242  006550  005002                          CLR     R2
2243  006552  005037  177776                  CLR     PS
2244  006556  105202                          INCB    R2
2245  006560  001376                          BNE     .-2
2246  006562  005700                          TST     R0
2247  006564  001401                          BEQ     .+4
2248  006566  104001                          HLT     1
2249  006570  104400                          SCOPE
2250  006572  104003                  1$:     HLT     3
2251  006574  000002                          RTI
2252  006576  005100                  2$:     COM     R0
2253  006600  001401                          BEQ     .+4
2254  006602  104002                          HLT     2
2255  006604  000002                          RTI
2256                                          ;VERIFY THAT THE RECEIVER INTERUPTS
2257                                          ;ONLY ONCE WHEN IT IS ENABLED.
2258                                          ;
2259                                  ;  TEST 45
2260                                  ;*************************************************************************
2261  006606  012737  000045  001226  TST45:  MOV     #45,TSTNO
2262  006614  012737  006712  001216          MOV     #TST46,NEXT
2263  006622  104412                          MSTCLR                          ;INIT DQ11
2264  006624  004737  016042                  JSR     PC,SETV                 ;GO AND SET VECTORS
2265  006630  006676                          1$                              ;RX TO 1$
2266  006632  006706                          2$                              ;TX TO 2$
2267  006634  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS
2268  006642  012777  000240  172510          MOV     #240,@DQRCSR            ;SET RX PRI DONE AND IE
2269  006650  012700  177777                  MOV     #-1,R0                  ;SET FOR CKECK
2270  006654  005002                          CLR     R2                      ;ZERO COUNTER
2271  006656  005037  177776                  CLR     PS                      ;ENABLE INTERUPTS
2272  006662  105202                          INCB    R2                      ;START COUNTING
2273  006664  001376                          BNE     .-2                     ;LOOP HERE
2274  006666  005700                          TST     R0                      ;IS CHECKER 0
```

DQ11 INTERUPT AND NPR LOGIC TESTS.

```
2275  006670  001401                        BEQ     .+4                     ;BR IF YES
2276  006672  104000                        HLT     0                       ;EITHER RX DID NOT INTERUPT; OR MORE THAN ONCE
2277  006674  104400                        SCOPE                           ;SCOPE THE TEST
2278  006676  005100                1$:     COM     R0                      ;CHECK INTERUPT
2279  006700  001401                        BEQ     .+4                     ;BR IF FIRST TIME HERE
2280  006702  104003                        HLT     3                       ;RX INTERUPTED MORE THAN ONCE
2281  006704  000002                        RTI                             ;GO BACK AND DELAY
2282  006706  104002                2$:     HLT     2                       ;UNEXPECTED TX INTERUPT
2283  006710  000002                        RTI                             ;RETURN
2284
2285
2286                                        ;TEST TO SEE IF THE
2287                                        ;DQ11 TRANSMITTER WILL
2288                                        ;INTERUPT AT PS LEVEL
2289                                        ;OF 7 PRIORITY.
2290                                        ;
2291
2292                                ;  TEST 46
2293                                ;*************************************************************************
2294  006712  012737  000046  001226 TST46:  MOV     #46,TSTNO
2295  006720  012737  007014  001216         MOV     #TST47,NEXT
2296  006726  104412                        MSTCLR                          ;INIT DQ11
2297  006730  004737  016042                JSR     PC,SETV                 ;SET VECTORS
2298  006734  006766                        1$                              ;RX INTERUPTS TO 1$
2299  006736  006772                        2$                              ;TX INTERUPTS TO 2$
2300  006740  012700  177777                MOV     #-1,R0                  ;SET CHECKER
2301  006744  012737  000340  177776       MOV     #340,PS         ;SET PRIORITY
2302  006752  012777  000240  172404       MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
2303  006760  000240                        NOP                             ;
2304  006762  000240                        NOP                             ;
2305  006764  000403                        BR      3$                      ;CONTINUE TEST
2306  006766  104003                1$:     HLT     3                       ;UNEXPECTED RX INTERUPT
2307  006770  000002                        RTI                             ;CONTINUE TEST
2308  006772  005100                2$:     COM     R0                      ;CHECK INTERUPT
2309  006774  012706  001200        3$:     MOV     #STACK,SP               ;SET STACK POINTER
2310  007000  005700                        TST     R0                      ;CHECK INTERUPT POINTER
2311  007002  001001                        BNE     .+4
2312  007004  104002                        HLT     2
2313  007006  005077  172352                CLR     @DQTCSR
2314  007012  104400                        SCOPE
2315
2316                                        ;TEST TO SEE IF THE
2317                                        ;DQ11 TRANSMITTER WILL
2318                                        ;INTERUPT AT PS LEVEL
2319                                        ;OF 6 PRIORITY.
2320                                        ;
2321
2322                                ;  TEST 47
2323                                ;*************************************************************************
2324  007014  012737  000047  001226 TST47:  MOV     #47,TSTNO
2325  007022  012737  007116  001216         MOV     #TST50,NEXT
2326  007030  104412                        MSTCLR                          ;INIT DQ11
2327  007032  004737  016042                JSR     PC,SETV                 ;SET VECTORS
2328  007036  007070                        1$                              ;RX INTERUPTS TO 1$
2329  007040  007074                        2$                              ;TX INTERUPTS TO 2$
2330  007042  012700  177777                MOV     #-1,R0                  ;SET CHECKER
```

DQ11 INTERUPT AND NPR LOGIC TESTS.

```
2331  007046  012737  000300  177776          MOV     #300,PS         ;SET PRIORITY
2332  007054  012777  000240  172302          MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
2333  007062  000240                          NOP                             ;
2334  007064  000240                          NOP                             ;
2335  007066  000403                          BR      3$                      ;CONTINUE TEST
2336  007070  104003                  1$:     HLT     3                       ;UNEXPECTED RX INTERUPT
2337  007072  000002                          RTI                             ;CONTINUE TEST
2338  007074  005100                  2$:     COM     R0                      ;CHECK INTERUPT
2339  007076  012706  001200          3$:     MOV     #STACK,SP               ;SET STACK POINTER
2340  007102  005700                          TST     R0                      ;CHECK INTERUPT POINTER
2341  007104  001001                          BNE     .+4
2342  007106  104002                          HLT     2
2343  007110  005077  172250                  CLR     @DQTCSR
2344  007114  104400                          SCOPE
2345
2346                                          ;TEST TO SEE IF THE
2347                                          ;DQ11 TRANSMITTER WILL
2348                                          ;INTERUPT AT PS LEVEL
2349                                          ;OF 5 PRIORITY.
2350                                          ;
2351
2352                                  ;  TEST 50
2353                                  ;*************************************************************************
2354  007116  012737  000050  001226  TST50:  MOV     #50,TSTNO
2355  007124  012737  007220  001216          MOV     #TST51,NEXT
2356  007132  104412                          MSTCLR                          ;INIT DQ11
2357  007134  004737  016042                  JSR     PC,SETV                 ;SET VECTORS
2358  007140  007172                          1$                              ;RX INTERUPTS TO 1$
2359  007142  007176                          2$                              ;TX INTERUPTS TO 2$
2360  007144  012700  177777                  MOV     #-1,R0                  ;SET CHECKER
2361  007150  012737  000240  177776          MOV     #240,PS         ;SET PRIORITY
2362  007156  012777  000240  172200          MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
2363  007164  000240                          NOP                             ;
2364  007166  000240                          NOP                             ;
2365  007170  000403                          BR      3$                      ;CONTINUE TEST
2366  007172  104003                  1$:     HLT     3                       ;UNEXPECTED RX INTERUPT
2367  007174  000002                          RTI                             ;CONTINUE TEST
2368  007176  005100                  2$:     COM     R0                      ;CHECK INTERUPT
2369  007200  012706  001200          3$:     MOV     #STACK,SP               ;SET STACK POINTER
2370  007204  005700                          TST     R0                      ;CHECK INTERUPT POINTER
2371  007206  001001                          BNE     .+4
2372  007210  104002                          HLT     2
2373  007212  005077  172146                  CLR     @DQTCSR
2374  007216  104400                          SCOPE
2375
2376                                          ;TEST TO SEE IF THE
2377                                          ;DQ11 TRANSMITTER WILL
2378                                          ;INTERUPT AT PS LEVEL
2379                                          ;OF 4 PRIORITY.
2380                                          ;
2381
2382                                  ;  TEST 51
2383                                  ;*************************************************************************
2384  007220  012737  000051  001226  TST51:  MOV     #51,TSTNO
2385  007226  012737  007322  001216          MOV     #CHKBA,NEXT
2386  007234  104412                          MSTCLR                          ;INIT DQ11
```

```
2387  007236  004737  016042            JSR     PC,SETV                 ;SET VECTORS
2388  007242  007274                    1$                              ;RX INTERUPTS TO 1$
2389  007244  007300                    2$                              ;TX INTERUPTS TO 2$
2390  007246  012700  177777            MOV     #-1,R0                  ;SET CHECKER
2391  007252  012737  000200  177776    MOV     #200,PS         ;SET PRIORITY
2392  007260  012777  000240  172076    MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
2393  007266  000240                    NOP                             ;
2394  007270  000240                    NOP                             ;
2395  007272  000403                    BR      3$                      ;CONTINUE TEST
2396  007274  104003            1$:     HLT     3                       ;UNEXPECTED RX INTERUPT
2397  007276  000002                    RTI                             ;CONTINUE TEST
2398  007300  005100            2$:     COM     R0                      ;CHECK INTERUPT
2399  007302  012706  001200    3$:     MOV     #STACK,SP               ;SET STACK POINTER
2400  007306  005700                    TST     R0                      ;CHECK INTERUPT POINTER
2401  007310  001401                    BEQ     .+4
2402  007312  104001                    HLT     1
2403  007314  005077  172044            CLR     @DQTCSR
2404  007320  104400                    SCOPE
2405
2406
2407
2408
2409                                    ;IF THE DATA SET CONTROL OPTION IS INSTALLED,
2410                                    ;TEST 52 WILL BE EXECUTED
2411
2412  007322  032737  010000  001510  CHKBA:  BIT     #BABIT,DQSTAT
2413  007330  001435                    BEQ     CHKCA1
2414
2415                                    ;INTERRUPT LOGIC TEST
2416                                    ;SET DATA SET INTERRUPT ENABLE
2417                                    ;SET DATA SET INTERRUPT FLAG
2418                                    ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
2419
2420                            ;  TEST 52
2421                            ;*****************************************************************
2422  007332  012737  000052  001226  TST52:  MOV     #52,TSTNO
2423  007340  012737  007426  001216          MOV     #TST53,NEXT
2424  007346  104412                        MSTCLR                  ;CLEAR INTERFACE
2425  007350  004737  016042                JSR     PC,SETV         ;SET UP INTERRUPT VECTORS
2426  007354  007406                        1$                      ;RECEIVER WILL INTERRUPT TO 1$
2427  007356  007410                        2$                      ;TRANSMITTER WILL INTERRUPT TO 2$
2428  007360  052777  000020  171776        BIS     #BIT4,@DQTCSR   ;SET DATA SET INTERRUPT ENABL
2429  007366  052777  100000  171770        BIS     #BIT15,@DQTCSR  ;SET DATA SET INTERRUPT FLAG
2430  007374  005037  177776                CLR     PS              ;SET PROCESSOR PRIORITY TO 0
2431  007400  000240                        NOP                     ;WINDOW FOR INTERRUPTS
2432  007402  104001                        HLT     1               ;TRANSMITTER DID NOT INTERRUPT
2433  007404  000402                        BR      3$              ;WITH DATA SET INTERRUPT ENABL AND
2434                                                                ;DATA SET INTERRUPT FLAG SET
2435  007406  104003            1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
2436  007410  000240            2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
2437  007412  012706  001200    3$:     MOV     #STACK,SP               ;RESTORE STACK
2438  007416  004737  016074            JSR     PC,RECAT                ;RESTORE TRAPCATCHER
2439  007422  104400            4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
```

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                                        DQ11 INTERUPT AND NPR LOGIC TESTS.

 2440  007424  000240                   CHKCA1: NOP
 2441
 2442                                           ;RECEIVER BASIC NPR LOGIC TEST (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT)
 2443                                           ;EXPECTED RESULTS
 2444                                           ;               RECEIVER DONE INTERRUPT OCCURS
 2445                                           ;               RECEIVER DONE (PRIMARY) = 1
 2446                                           ;               RECEIVER GO = 0
 2447                                           ;               RECEIVER P/S = 1
 2448                                           ;               NO ERROR FLAGS ARE SET
 2449
 2450                                           ;               RECEIVER BUS ADDRESS (PRIMARY) = RBUFF+1
 2451                                           ;               RECEIVER CHARACTER COUNT (PRIMARY) = 0
 2452                                           ;               CONTENTS OF RBUFF = 0
 2453
 2454                                   ;  TEST 53
 2455                                   ;*************************************************************************
 2456  007426  012737  000053  001226   TST53:  MOV     #53,TSTNO
 2457  007434  012737  007450  001214           MOV     #99$,RETURN
 2458  007442  012737  007752  001216           MOV     #TST54,NEXT
 2459  007450  104413                   99$:    MEMCLR
 2460  007452  104412                   1$:     MSTCLR
 2461  007454  012737  000340  177776           MOV     #340,PS                 ;LOCK OUT INTERRUPTS
 2462  007462  012737  000000  017170           MOV     #0,IBUFF
 2463  007470  004737  016024                   JSR     PC,SETMNT               ;SET MAINTENANCE MODE
 2464  007474  004737  016042                   JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
 2465  007500  007576                           3$                              ;RECEIVER WILL INTERRUPT TO 3$
 2466  007502  007600                           4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
 2467  007504  004737  016122                   JSR     PC,SETBABC              ;SELECT RECEIVER BUS ADDRESS (PRIMARY)
 2468  007510     000     000           .BYTE   0,0                     ;LOAD BUS ADDRESS
 2469  007512  017166                           RBUFF                           ;SELECT RECEIVER CHARACTER COUNT (PRIMARY)
 2470  007514  177777                           -1                              ;CHARACTER COUNT=1
 2471  007516  012777  000040  171634           MOV     #BIT5,@DQRCSR           ;SET RECEIVER PRIMARY INTERRUPT ENABLE
 2472  007524  052777  000001  171626           BIS     #BIT0,@DQRCSR           ;SET RECEIVER GO
 2473  007532  112777  000012  171630           MOVB    #12,@DQREG              ;SELECT MISCELLANEOUS REGISTER
 2474  007540  052777  000020  171624           BIS     #BIT4,@DQSEC            ;FORCE RECEIVER INTERRUPT
 2475  007546  005037  177776                   CLR     PS                      ;ENABLE INTERRUPTS
 2476  007552  012737  002000  001244           MOV     #2000,TEMP1             ;SET UP DELAY
 2477  007560  005337  001244           2$:     DEC     TEMP1                   ;WAIT FOR INTERRUPTS AND NPRS
 2478  007564  001375                           BNE     2$
 2479  007566  012737  000340  177776           MOV     #340,PS                 ;LOCK OUT INTERRUPTS
 2480  007574  104000                           HLT     0                       ;RECEIVER DID NOT INTERRUPT
 2481  007576  000401                   3$:     BR      5$
 2482  007600  104002                   4$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
 2483  007602  012706  001200           5$:     MOV     #STACK,SP               ;RESTORE PROCESSOR STACK
 2484  007606  012705  000244                   MOV     #244,R5                 ;(R5)=EXPECTED DATA IN RECEIVER CONTROL REGISTER
 2485                                                                           ;DONE (PRIMARY)=1, INTERRUPT ENEABLE=1,
 2486                                                                           ;P/S=1
 2487  007612  017704  171542                   MOV     @DQRCSR,R4              ;(R4)=ACTUAL DATA IN RECEIVER CONTROL REGISTER
 2488  007616  042704  177400                   BIC     #177400,R4              ;CLEAR UNWANTED BITS
 2489  007622  020504                           CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
 2490  007624  001401                           BEQ     6$
 2491  007626  104004                           HLT     4                       ;RECEIVER STATUS ERROR
 2492  007630  005005                   6$:     CLR     R5                      ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
 2493  007632  013703  001366                   MOV     DQERR,R3                ;ADDRESS OF ERROR REGISTER
 2494  007636  117704  171524                   MOVB    @DQERR,R4               ;(R4)TUAL DATA IN ERROR REGISTER
 2495  007642  001401                           BEQ     7$
```

```
2496  007644  104006                        HLT     6                       ;ERROR FLAG(S) SET
2497  007646  112777  000000  171514  7$:   MOVB    #0,@DQREG               ;SELECT RECEIVER BUS ADDRESS (PRIMARY)
2498  007654  012702  000000                MOV     #0,R2           ;ADDRESS OF RECEIVER BUS ADDRESS
2499                                                                ;SECONDARY REGISTER
2500  007660  013703  001372                MOV     DQSEC,R3                ;ADDRESS OF SECONDARY REGISTER
2501  007664  012705  017167                MOV     #RBUFF+1,R5             ;(R5)=EXPECTED DATA IN
2502                                                                ;RECEIVER BUS ADDRESS (PRIMARY) REGISTER,
2503                                                                ;RBUFF+1
2504  007670  017704  171476                MOV     @DQSEC,R4               ;(R4)=ACTUAL DATA IN RECEIVER
2505                                                                ;BUS ADDRESS REGISTER (PRIMARY)
2506  007674  020504                        CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
2507  007676  001401                        BEQ     10$
2508  007700  104007                        HLT     7                       ;BUS ADDRESS ERROR
2509  007702  105277  171462          10$:  INCB    @DQREG                  ;SELECT CHARACTER COUNT ADD.
2510  007706  005202                        INC     R2                      ;UPDATE POINTER
2511  007710  012705  000000                MOV     #0,R5                   ;SET FOR EXPECTED.
2512  007714  017704  171452                MOV     @DQSEC,R4               ;READ THE ACTUAL.
2513  007720  020504                        CMP     R5,R4                   ;ARE THEY EQUAL?
2514  007722  001401                        BEQ     11$                     ;BR IF YES
2515  007724  104010                        HLT     10                      ;CHARACTER COUNT ERROR
2516  007726  012705  000000          11$:  MOV     #0,R5           ;SET POINTER.
2517  007732  012703  017166                MOV     #RBUFF,R3               ;
2518  007736  013704  017166                MOV     RBUFF,R4                ;
2519  007742  020504                        CMP     R5,R4                   ;EQUAL?
2520  007744  001401                        BEQ     12$                     ;BR IF YES
2521  007746  104011                        HLT     11                      ;
2522  007750  104400                12$:    SCOPE
2523
2524                                        ;TRANSMITTER BASIC NPR LOGIC TEST (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT
2525                                        ;EXPECTED RESULTS
2526                                        ;               TRANSMITTER DONE INTERRUPT OCCURS
2527                                        ;               TRANSMITTER DONE (PRIMARY) = 1
2528                                        ;               TRANSMITTER GO = 0
2529                                        ;               TRANSMITTER P/S = 1
2530                                        ;               NO ERROR FLAGS ARE SET
2531
2532                                        ;               TRANSMITTER BUS ADDRESS (PRIMARY) = TBUFF+1
2533                                        ;               TRANSMITTER CHARACTER COUNT (PRIMARY) = 0
2534                                        ;               CONTENTS OF TRANSMITTER BUFFER = 52525
2535
2536                                ;  TEST 54
2537                                ;*************************************************************************
2538  007752  012737  000054  001226  TST54:  MOV     #54,TSTNO
2539  007760  012737  007776  001214          MOV     #1$,RETURN
2540  007766  012737  010272  001216          MOV     #TST55,NEXT
2541  007774  104413                99$:    MEMCLR
2542  007776  104412                1$:     MSTCLR
2543  010000  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2544  010006  012737  052525  017170          MOV     #52525,TBUFF
2545  010014  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2546  010020  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2547  010024  010110                          3$                              ;RECEIVER WILL INTERRUPT TO 3$
2548  010026  010112                          4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
2549  010030  004737  016122                  JSR     PC,SETBABC              ;SELECT TRANSMITTER BUS ADDRESS (PRIMARY)
2550  010034     002     000          .BYTE   2,0                     ;LOAD BUS ADDRESS
2551  010036  017170                          TBUFF                           ;SELECT TRANSMITTER CHARACTER COUNT (PRIMARY)
```

```
2552  010040  177777                        -1                      ;CHARACTER COUNT=1
2553  010042  012777  000040  171314        MOV     #BIT5,@DQTCSR   ;SET TRANSMITTER PRIMARY INTERRUPT ENABLE
2554  010050  052777  000001  171306        BIS     #BIT0,@DQTCSR   ;SET TRANSMITTER GO
2555  010056  005037  177776                CLR     PS              ;ENABLE INTERRUPTS
2556  010062  012737  002000  001244        MOV     #2000,TEMP1     ;SET UP DELAY
2557  010070  005337  001244        2$:     DEC     TEMP1           ;WAIT FOR INTERRUPTS AND NPRS
2558  010074  001375                        BNE     2$
2559  010076  012737  000340  177776        MOV     #340,PS         ;LOCK OUT INTERRUPTS
2560  010104  104001                        HLT     1               ;TRANSMITTER DID NOT INTERRUPT
2561  010106  000402                        BR      5$
2562  010110  104003                3$:     HLT     3               ;UNEXPECTED RECEIVER INTERRUPT
2563  010112  000240                4$:     NOP
2564  010114  012706  001200        5$:     MOV     #STACK,SP       ;RESTORE PROCESSOR STACK
2565  010120  012705  000244                MOV     #244,R5         ;(R5)=EXPECTED DATA IN TRANSMITTER CONTROL REGIS
2566                                                                ;DONE (PRIMARY)=1, INTERRUPT ENEABLE=1,
2567                                                                ;P/S=1
2568  010124  017704  171234                MOV     @DQTCSR,R4      ;(R4)=ACTUAL DATA IN TRANSMITTER CONTROL REGISTE
2569  010130  042704  177400                BIC     #177400,R4      ;CLEAR UNWANTED BITS
2570  010134  020504                        CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
2571  010136  001401                        BEQ     6$
2572  010140  104005                        HLT     5               ;TRANSMITTER STATUS ERROR
2573  010142  005005                6$:     CLR     R5              ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2574  010144  013703  001366                MOV     DQERR,R3        ;ADDRESS OF ERROR REGISTER
2575  010150  117704  171212                MOVB    @DQERR,R4       ;(R4)TUAL DATA IN ERROR REGISTER
2576  010154  001401                        BEQ     7$
2577  010156  104006                        HLT     6               ;ERROR FLAG(S) SET
2578  010160  112777  000002  171202  7$:   MOVB    #2,@DQREG       ;SELECT TRANSMITTER BUS ADDRESS (PRIMARY)
2579  010166  012702  000002                MOV     #2,R2           ;ADDRESS OF TRANSMITTER BUS ADDRESS
2580                                                                ;SECONDARY REGISTER
2581  010172  013703  001372                MOV     DQSEC,R3        ;ADDRESS OF SECONDARY REGISTER
2582  010176  012705  017171                MOV     #TBUFF+1,R5     ;(R5)=EXPECTED DATA IN
2583                                                                ;TRANSMITTER BUS ADDRESS (PRIMARY) REGISTER,
2584                                                                ;TBUFF+1
2585  010202  017704  171164                MOV     @DQSEC,R4       ;(R4)=ACTUAL DATA IN TRANSMITTER
2586                                                                ;BUS ADDRESS REGISTER (PRIMARY)
2587  010206  020504                        CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
2588  010210  001401                        BEQ     10$
2589  010212  104007                        HLT     7               ;BUS ADDRESS ERROR
2590  010214  105277  171150        10$:    INCB    @DQREG          ;SELECT CHARACTER COUNT ADD.
2591  010220  005202                        INC     R2              ;UPDATE POINTER
2592  010222  012705  000000                MOV     #0,R5           ;SET FOR EXPECTED.
2593  010226  017704  171140                MOV     @DQSEC,R4       ;READ THE ACTUAL.
2594  010232  020504                        CMP     R5,R4           ;ARE THEY EQUAL?
2595  010234  001401                        BEQ     11$             ;BR IF YES
2596  010236  104010                        HLT     10              ;CHARACTER COUNT ERROR
2597  010240  012705  052525        11$:    MOV     #52525,R5       ;SET POINTER.
2598  010244  112777  000013  171116        MOVB    #13,@DQREG      ;SEL TX MUX REG
2599  010252  012702  000013                MOV     #13,R2          ;SET FOR ERROR
2600  010256  017704  171110                MOV     @DQSEC,R4       ;READ DQSEC
2601  010262  020504                        CMP     R5,R4           ;WAS CHAR GOOD?
2602  010264  001401                        BEQ     12$             ;BR IF OK
2603  010266  104012                        HLT     12              ;INCORRECT CHAR.
2604  010270  104400                12$:    SCOPE
2605
2606                                        ;RECEIVER BASIC NPR LOGIC TEST (USING SECONDARY BUS ADDRESS AND CHARACTER COUNT)
2607                                        ;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
```

```
2664                                                                    ;DONE (SECONDARY)=1, INTERRUPT ENEABLE=1,
2665                                                                    ;P/S=1
2666  010544  017704  170610                MOV     @DQRCSR,R4        ;(R4)=ACTUAL DATA IN RECEIVER CONTROL REGISTER
2667  010550  042704  177400                BIC     #177400,R4        ;CLEAR UNWANTED BITS
2668  010554  020504                        CMP     R5,R4             ;ARE EXPECTED AND RECEIVED DATA THE SAME
2669  010556  001401                        BEQ     6$
2670  010560  104004                        HLT     4                 ;RECEIVER STATUS ERROR
2671  010562  005005                6$:     CLR     R5                ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2672  010564  013703  001366                MOV     DQERR,R3          ;ADDRESS OF ERROR REGISTER
2673  010570  117704  170572                MOVB    @DQERR,R4         ;(R4)TUAL DATA IN ERROR REGISTER
2674  010574  001401                        BEQ     7$
2675  010576  104006                        HLT     6                 ;ERROR FLAG(S) SET
2676  010600  112777  000004  170562  7$:   MOVB    #4,@DQREG         ;SELECT RECEIVER BUS ADDRESS (SECONDARY)
2677  010606  012702  000004                MOV     #4,R2             ;ADDRESS OF RECEIVER BUS ADDRESS
2678                                                                    ;SECONDARY REGISTER
2679  010612  013703  001372                MOV     DQSEC,R3          ;ADDRESS OF SECONDARY REGISTER
2680  010616  012705  017167                MOV     #RBUFF+1,R5       ;(R5)=EXPECTED DATA IN
2681                                                                    ;RECEIVER BUS ADDRESS (SECONDARY) REGISTER,
2682                                                                    ;RBUFF+1
2683  010622  017704  170544                MOV     @DQSEC,R4         ;(R4)=ACTUAL DATA IN RECEIVER
2684                                                                    ;BUS ADDRESS REGISTER (SECONDARY)
2685  010626  020504                        CMP     R5,R4             ;ARE EXPECTED AND RECEIVED DATA THE SAME
2686  010630  001401                        BEQ     10$
2687  010632  104007                        HLT     7                 ;BUS ADDRESS ERROR
2688  010634  105277  170530          10$:  INCB    @DQREG
2689  010640  005202                        INC     R2
2690  010642  012705  000000                MOV     #0,R5
2691  010646  017704  170520                MOV     @DQSEC,R4
2692  010652  020504                        CMP     R5,R4
2693  010654  001401                        BEQ     11$
2694  010656  104010                        HLT     10                ;CHARACTER COUNT ERROR
2695  010660  012705  000000          11$:  MOV     #0,R5
2696  010664  012703  017166                MOV     #RBUFF,R3
2697  010670  013704  017166                MOV     RBUFF,R4
2698  010674  020504                        CMP     R5,R4
2699  010676  001401                        BEQ     QZX
2700  010700  104011                        HLT     11
2701  010702  104400                QZX:    SCOPE
2702
2703                                        ;TRANSMITTER BASIC NPR LOGIC TEST (USING SECONDARY BUS ADDRESS AND CHARACTER COU
2704                                        ;EXPECTED RESULTS
2705                                        ;               TRANSMITTER DONE INTERRUPT OCCURS
2706                                        ;               TRANSMITTER DONE (SECONDARY) = 1
2707                                        ;               TRANSMITTER GO = 0
2708                                        ;               TRANSMITTER P/S = 1
2709                                        ;               NO ERROR FLAGS ARE SET
2710
2711                                        ;               TRANSMITTER BUS ADDRESS (SECONDARY) = TBUFF+1
2712                                        ;               TRANSMITTER CHARACTER COUNT (SECONDARY) = 0
2713                                        ;               CONTENTS OF TRANSMITTER BUFFER = 177777
2714
2715                                    ;  TEST 56
2716                                    ;*************************************************************************
2717  010704  012737  000056  001226  TST56: MOV     #56,TSTNO
2718  010712  012737  010730  001214        MOV     #1$,RETURN
2719  010720  012737  011330  001216        MOV     #TST57,NEXT
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2720  010726  104413                        MEMCLR                  ;ISSUE A MEMORY CLEAR.
2721  010730  104412                1$:     MSTCLR                  ;MASTER CLEAR DQ11
2722  010732  104413                        MEMCLR                  ;
2723  010734  112777  000012  170426        MOVB    #12,@DQREG      ;SELECT MISC.REG
2724  010742  012777  004010  170422        MOV     #4010,@DQSEC    ;SET FOR EIGHT BITS AND TEST LOOP
2725  010750  112777  000002  170412        MOVB    #2,@DQREG       ;SEL TX BA PRI.
2726  010756  012777  017170  170406        MOV     #TBUFF,@DQSEC   ;SET BUS ADDRESS
2727  010764  105277  170400                INCB    @DQREG          ;SELECT TX WC PRI.
2728  010770  012777  177777  170374        MOV     #-1,@DQSEC      ;SET FOR ONE CHAR.
2729  010776  005277  170362                INC     @DQTCSR         ;SET TX GO!!
2730  011002  012700  000010                MOV     #10,R0          ;SET FOR TIME OUT.
2731  011006  005300                        DEC     R0              ;DELAY
2732  011010  001376                        BNE     .-2             ;BR IF MORE DELAY
2733  011012  012705  000204                MOV     #204,R5         ;SET FOR EXPECTED.
2734  011016  017704  170342                MOV     @DQTCSR,R4      ;READ THE TX CSR
2735  011022  020405                        CMP     R4,R5           ;EXPECTED=ACTUAL?
2736  011024  001401                        BEQ     .+4             ;BR IF YES
2737  011026  104005                        HLT     5               ;TX STATUS REG ERROR
2738  011030  005077  170330                CLR     @DQTCSR         ;CLEAR ALL BUT P/S BIT
2739  011034  012737  000340  177776        MOV     #340,PS         ;LOCK OUT INTERRUPTS
2740  011042  012737  177777  017170        MOV     #177777,TBUFF   ;SET CHARACTER
2741  011050  104413                        MEMCLR                  ;CLEAR INTERFACE MEMORIES
2742  011052  004737  016006                JSR     PC,SETLOP       ;SET MAINTENANCE MODE
2743  011056  004737  016042                JSR     PC,SETV         ;SET UP INTERRUPT VECTORS
2744  011062  011146                        3$                      ;RECEIVER WILL INTERRUPT TO 3$
2745  011064  011150                        4$                      ;TRANSMITTER WILL INTERRUPT TO 4$
2746  011066  004737  016122                JSR     PC,SETBABC      ;SELECT TRANSMITTER BUS ADDRESS (SECONDARY)
2747  011072     006     000        .BYTE   6,0                     ;LOAD BUS ADDRESS
2748  011074  017170                        TBUFF                   ;SELECT TRANSMITTER CHARACTER COUNT (SECONDARY)
2749  011076  177777                        -1                      ;CHARACTER COUNT=1
2750  011100  012777  000040  170256        MOV     #BIT5,@DQTCSR   ;SET TRANSMITTER SECONDARY INTERRUPT ENABLE
2751  011106  052777  000001  170250        BIS     #BIT0,@DQTCSR   ;SET TRANSMITTER GO
2752  011114  005037  177776                CLR     PS              ;ENABLE INTERRUPTS
2753  011120  012737  002000  001244        MOV     #2000,TEMP1     ;SET UP DELAY
2754  011126  005337  001244        2$:     DEC     TEMP1           ;WAIT FOR INTERRUPTS AND NPRS
2755  011132  001375                        BNE     2$
2756  011134  012737  000340  177776        MOV     #340,PS         ;LOCK OUT INTERRUPTS
2757  011142  104001                        HLT     1               ;TRANSMITTER DID NOT INTERRUPT
2758  011144  000402                        BR      5$
2759  011146  104003                3$:     HLT     3               ;UNEXPECTED RECEIVER INTERRUPT
2760  011150  000240                4$:     NOP
2761  011152  012706  001200        5$:     MOV     #STACK,SP       ;RESTORE PROCESSOR STACK
2762  011156  012705  000140                MOV     #140,R5         ;(R5)=EXPECTED DATA IN TRANSMITTER CONTROL REGIS
2763                                                                ;DONE (SECONDARY)=1, INTERRUPT ENEABLE=1,
2764                                                                ;P/S=1
2765  011162  017704  170176                MOV     @DQTCSR,R4      ;(R4)=ACTUAL DATA IN TRANSMITTER CONTROL REGISTE
2766  011166  042704  177400                BIC     #177400,R4      ;CLEAR UNWANTED BITS
2767  011172  020504                        CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
2768  011174  001401                        BEQ     6$
2769  011176  104005                        HLT     5               ;TRANSMITTER STATUS ERROR
2770  011200  005005                6$:     CLR     R5              ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2771  011202  013703  001366                MOV     DQERR,R3        ;ADDRESS OF ERROR REGISTER
2772  011206  117704  170154                MOVB    @DQERR,R4       ;(R4)TUAL DATA IN ERROR REGISTER
2773  011212  001401                        BEQ     7$
2774  011214  104006                        HLT     6               ;ERROR FLAG(S) SET
2775  011216  112777  000006  170144  7$:   MOVB    #6,@DQREG       ;SELECT TRANSMITTER BUS ADDRESS (SECONDARY)
```

```
2776  011224  012702  000006                  MOV     #6,R2           ;ADDRESS OF TRANSMITTER BUS ADDRESS
2777                                                                    ;SECONDARY REGISTER
2778  011230  013703  001372                  MOV     DQSEC,R3        ;ADDRESS OF SECONDARY REGISTER
2779  011234  012705  017171                  MOV     #TBUFF+1,R5     ;(R5)=EXPECTED DATA IN
2780                                                                    ;TRANSMITTER BUS ADDRESS (SECONDARY) REGISTER,
2781                                                                    ;TBUFF+1
2782  011240  017704  170126                  MOV     @DQSEC,R4       ;(R4)=ACTUAL DATA IN TRANSMITTER
2783                                                                    ;BUS ADDRESS REGISTER (SECONDARY)
2784  011244  020504                          CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
2785  011246  001401                          BEQ     10$
2786  011250  104007                          HLT     7               ;BUS ADDRESS ERROR
2787  011252  105277  170112          10$:    INCB    @DQREG
2788  011256  005202                          INC     R2
2789  011260  012705  000000                  MOV     #0,R5
2790  011264  017704  170102                  MOV     @DQSEC,R4
2791  011270  020504                          CMP     R5,R4
2792  011272  001401                          BEQ     11$
2793  011274  104010                          HLT     10              ;CHARACTER COUNT ERROR
2794  011276  012705  177777          11$:    MOV     #177777,R5
2795  011302  112777  000013  170060          MOVB    #13,@DQREG
2796  011310  012702  000013                  MOV     #13,R2
2797  011314  017704  170052                  MOV     @DQSEC,R4
2798  011320  020504                          CMP     R5,R4
2799  011322  001401                          BEQ     12$
2800  011324  104012                          HLT     12
2801  011326  104400                  12$:    SCOPE
2802
2803                                          ;RECEIVER NON-EXISTANT MEMORY TIMEOUT TEST
2804                                          ; (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT)
2805                                          ;EXPECTED RESULTS
2806                                          ;               RECEIVER DONE INTERRUPT OCCURS
2807                                          ;               RECEIVER DONE (PRIMARY) = 1
2808                                          ;               RECEIVER GO = 0
2809                                          ;               RECEIVER P/S = 1
2810                                          ;               RECEIVER NON EXISTANT MEMORY ERROR FLAG = 1
2811
2812                                          ;               RECEIVER BUS ADDRESS (PRIMARY) = RBUFF+1
2813                                          ;               RECEIVER CHARACTER COUNT (PRIMARY) = 0
2814
2815                                  ;  TEST 57
2816                                  ;*************************************************************************
2817  011330  012737  000057  001226  TST57:  MOV     #57,TSTNO
2818  011336  012737  011362  001214          MOV     #1$,RETURN
2819  011344  012737  011624  001216          MOV     #TST60,NEXT
2820  011352  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2821  011360  104413                          MEMCLR                          ;CLEAR INTERFACE MEMORIES
2822  011362  104412                  1$:     MSTCLR                          ;MASTER CLEAR INTERFACE
2823  011364  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2824  011370  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2825  011374  011472                          3$                              ;RECEIVER WILL INTERRUPT TO 3$
2826  011376  011474                          4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
2827  011400  004737  016122                  JSR     PC,SETBABC
2828  011404     000     140          .BYTE   0,      140
2829  011406  177320                          NON.EX
2830  011410  177777                          -1
2831  011412  012777  000040  167740          MOV     #BITS,@DQRCSR           ;SET RECEIVER PRIMARY INTERRUPT ENABLE
```

```
2832  011420  052777  000001  167732          BIS     #BIT0,@DQRCSR           ;SET RECEIVER GO
2833  011426  112777  000012  167734          MOVB    #12,@DQREG              ;SELECT MISCELLANEOUS REGISTER
2834  011434  052777  000020  167730          BIS     #BIT4,@DQSEC            ;FORCE RECEIVER INTERRUPT
2835  011442  005037  177776                  CLR     PS                      ;ENABLE INTERRUPTS
2836  011446  012737  002000  001244          MOV     #2000,TEMP1             ;SET UP DELAY
2837  011454  005337  001244          2$:     DEC     TEMP1                   ;WAIT FOR INTERRUPTS AND NPRS
2838  011460  001375                  BNE     2$
2839  011462  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2840  011470  104000                  HLT     0                       ;RECEIVER DID NOT INTERRUPT
2841  011472  000401          3$:     BR      5$
2842  011474  104002          4$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
2843  011476  012706  001200          5$:     MOV     #STACK,SP               ;RESTORE PROCESSOR STACK
2844  011502  012705  000244                  MOV     #244,R5                 ;(R5)=EXPECTED DATA IN RECEIVER CONTROL REGISTER
2845                                                                          ;DONE (PRIMARY)=1, INTERRUPT ENEABLE=1,
2846                                                                          ;P/S=1
2847  011506  017704  167646                  MOV     @DQRCSR,R4              ;(R4)=ACTUAL DATA IN RECEIVER CONTROL REGISTER
2848  011512  042704  177400                  BIC     #177400,R4              ;CLEAR UNWANTED BITS
2849  011516  020504                  CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
2850  011520  001401                  BEQ     6$
2851  011522  104004                  HLT     4                       ;RECEIVER STATUS ERROR
2852  011524  005005          6$:     CLR     R5                      ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2853  011526  013703  001366                  MOV     DQERR,R3                ;ADDRESS OF ERROR REGISTER
2854  011532  017704  167630                  MOV     @DQERR,R4               ;(R4)TUAL DATA IN ERROR REGISTER
2855  011536  100401                  BMI     7$
2856  011540  104006                  HLT     6                       ;ERROR FLAG(S) NOT SET
2857  011542  112777  000000  167620  7$:     MOVB    #0,@DQREG               ;SELECT RECEIVER BUS ADDRESS (PRIMARY)
2858  011550  012702  000000                  MOV     #0,R2                   ;ADDRESS OF RECEIVER BUS ADDRESS
2859                                                                          ;SECONDARY REGISTER
2860  011554  013703  001372                  MOV     DQSEC,R3                ;ADDRESS OF SECONDARY REGISTER
2861  011560  012705  177321                  MOV     #NON.EX+1,R5            ;(R5)=EXPECTED DATA IN
2862                                                                          ;RECEIVER BUS ADDRESS (PRIMARY) REGISTER,
2863                                                                          ;RBUFF+1
2864  011564  017704  167602                  MOV     @DQSEC,R4               ;(R4)=ACTUAL DATA IN RECEIVER
2865                                                                          ;BUS ADDRESS REGISTER (PRIMARY)
2866  011570  020504                  CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
2867  011572  001401                  BEQ     10$
2868  011574  104007                  HLT     7                       ;BUS ADDRESS ERROR
2869  011576  105277  167566          10$:    INCB    @DQREG
2870  011602  005202                  INC     R2
2871  011604  012705  000000                  MOV     #0,R5
2872  011610  017704  167556                  MOV     @DQSEC,R4
2873  011614  020504                  CMP     R5,R4
2874  011616  001401                  BEQ     11$
2875  011620  104010                  HLT     10                      ;CHARACTER COUNT ERROR
2876  011622  104400          11$:    SCOPE
2877
2878                                  ;TRANSMITTER NON-EXISTANT MEMORY TIMEOUT TEST
2879                                  ; (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT)
2880                                  ;EXPECTED RESULTS
2881                                  ;               TRANSMITTER DONE INTERRUPT OCCURS
2882                                  ;               TRANSMITTER DONE (PRIMARY) = 1
2883                                  ;               TRANSMITTER GO = 0
2884                                  ;               TRANSMITTER P/S = 1
2885                                  ;               TRANSMITTER NON EXISTANT MEMORY ERROR FLAG = 1
2886
2887                                  ;               TRANSMITTER BUS ADDRESS (PRIMARY) = TBUFF+1
```

```
                                        ;               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
```

```
2944  012064  005202                        INC     R2
2945  012066  012705  000000                MOV     #0,R5
2946  012072  017704  167274                MOV     @DQSEC,R4
2947  012076  020504                        CMP     R5,R4
2948  012100  001401                        BEQ     11$
2949  012102  104010                        HLT     10                      ;CHARACTER COUNT ERROR
2950  012104  104400              11$:      SCOPE
2951
2952                                        ;RECEIVER P/S MASTER CLEAR TEST
2953                                        ;EXECUTE 1 NPR CYCLE TO FORCE RECEIVER P/S TO A 1
2954                                        ;ISSUE MASTER CLEAR
2955                                        ;VERIFY THAT RECEIVER P/S WAS CLEARED
2956
2957                                  ;  TEST 61
2958                                  ;*************************************************************************
2959  012106  012737  000061  001226  TST61:  MOV     #61,TSTNO
2960  012114  012737  012140  001214          MOV     #1$,RETURN
2961  012122  012737  012272  001216          MOV     #TST62,NEXT
2962  012130  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS.
2963  012136  104413                        MEMCLR
2964  012140  104412              1$:       MSTCLR                          ;MASTER CLEAR INTERFACE
2965  012142  004737  016024                JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2966  012146  004737  016122                JSR     PC,SETBABC
2967  012152     000     000          .BYTE   0,0
2968  012154  017166                        RBUFF
2969  012156  177777                        -1
2970  012160  052777  000001  167172        BIS     #BIT0,@DQRCSR
2971  012166  112777  000012  167174        MOVB    #12,@DQREG              ;SELECT MISC REGISTER
2972  012174  052777  000020  167170        BIS     #BIT4,@DQSEC            ;FORCE RX NPR
2973  012202  012737  002000  001244        MOV     #2000,TEMP1             ;SET FOR TIME OUT
2974  012210  105777  167144          2$:   TSTB    @DQRCSR                 ;PRIMARY DONE UP
2975  012214  100412                        BMI     3$                      ;BR IF PRI DONE SET.
2976  012216  005337  001244                DEC     TEMP1                   ;DELAY.....
2977  012222  001372                        BNE     2$                      ;KEEP WAITING
2978  012224  017704  167130                MOV     @DQRCSR,R4              ;SAVE THE CSR
2979  012230  042704  177400                BIC     #177400,R4              ;CLEAR UNWANTED BITS.
2980  012234  012705  000204                MOV     #204,R5                 ;SET EXPECTED.
2981  012240  104004                        HLT     4
2982  012242  104412              3$:       MSTCLR
2983  012244  032777  000020  167106        BIT     #BIT4,@DQRCSR
2984  012252  001406                        BEQ     4$
2985  012254  005005                        CLR     R5
2986  012256  017704  167076                MOV     @DQRCSR,R4
2987  012262  042704  177400                BIC     #177400,R4
2988  012266  104004                        HLT     4
2989  012270  104400              4$:       SCOPE
2990
2991                                        ;TRANSMITTER P/S MASTER CLEAR TEST
2992                                        ;EXECUTE 1 NPR CYCLE TO FORCE TRANSMITTER P/S TO A 1
2993                                        ;ISSUE MASTER CLEAR
2994                                        ;VERIFY THAT TRANSMITTER P/S WAS CLEARED
2995
2996                                  ;  TEST 62
2997                                  ;*************************************************************************
2998  012272  012737  000062  001226  TST62:  MOV     #62,TSTNO
2999  012300  012737  012324  001214          MOV     #1$,RETURN
```

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DZDQC   MACY11 27(1006)  22-DEC-76  11:09  PAGE 59
DZDQCD.P11    16-DEC-76 13:26          DQ11 INTERUPT AND NPR LOGIC TESTS.

  3000  012306  012737  012442  001216          MOV     #TST63,NEXT
  3001  012314  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS.
  3002  012322  104413                          MEMCLR
  3003  012324  104412                  1$:     MSTCLR                          ;MASTER CLEAR INTERFACE
  3004  012326  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
  3005  012332  004737  016122                  JSR     PC,SETBABC
  3006  012336     002     000          .BYTE   2,0
  3007  012340  017170                          TBUFF
  3008  012342  177777                          -1
  3009  012344  052777  000001  167012          BIS     #BIT0,@DQTCSR
  3010  012352  012737  002000  001244          MOV     #2000,TEMP1             ;SET FOR TIME OUT
  3011  012360  105777  167000          2$:     TSTB    @DQTCSR                 ;PRIMARY DONE UP
  3012  012364  100412                          BMI     3$                      ;BR IF PRI DONE SET.
  3013  012366  005337  001244                  DEC     TEMP1                   ;DELAY.....
  3014  012372  001372                          BNE     2$                      ;KEEP WAITING
  3015  012374  017704  166764                  MOV     @DQTCSR,R4              ;SAVE THE CSR
  3016  012400  042704  177400                  BIC     #177400,R4              ;CLEAR UNWANTED BITS.
  3017  012404  012705  000204                  MOV     #204,R5                 ;SET EXPECTED.
  3018  012410  104005                          HLT     5
  3019  012412  104412                  3$:     MSTCLR
  3020  012414  032777  000020  166742          BIT     #BIT4,@DQTCSR
  3021  012422  001406                          BEQ     4$
  3022  012424  005005                          CLR     R5
  3023  012426  017704  166732                  MOV     @DQTCSR,R4
  3024  012432  042704  177400                  BIC     #177400,R4
  3025  012436  104005                          HLT     5
  3026  012440  104400                  4$:     SCOPE
  3027
  3028                                          ;TRANSMITTER NPR DATA TEST (STEP MODE)
  3029                                          ;EXECUTE 1 TRANSMITTER NPR CYCLE FOR EACH DATA PATTERN 0-177777
  3030                                          ;VERIFY THAT TRANSMITTER BUFFER CONTAINS THE CORRECT DATA
  3031
  3032                                  ;  TEST 63
  3033                                  ;*************************************************************************
  3034  012442  012737  000063  001226  TST63:  MOV     #63,TSTNO
  3035  012450  012737  012510  001214          MOV     #1$,RETURN
  3036  012456  012737  000010  001222          MOV     #10,ICOUNT
  3037  012464  012737  012650  001216          MOV     #.EOP,NEXT
  3038  012472  012737  012532  001220          MOV     #2$,LOCK
  3039  012500  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS.
  3040  012506  104413                          MEMCLR                          ;CLEAR ALL MEMEORIES
  3041  012510  104412                  1$:     MSTCLR                          ;INITIALIZE DEVICE
  3042  012512  005037  017172                  CLR     ZDATA                   ;CLEAR POINTER
  3043  012516  012700  000000                  MOV     #0,R0           ;
  3044  012522  013703  001372                  MOV     DQSEC,R3                ;SET FOR ERROR
  3045  012526  012702  000013                  MOV     #13,R2                  ;SET FOR ERROR (TX MUX)
  3046  012532  104412                  2$:     MSTCLR                          ;GIVE ANOTHER MASTER CLEAR
  3047  012534  004737  015770                  JSR     PC,SETSTP               ;
  3048  012540  004737  016122                  JSR     PC,SETBABC              ;SET BUS ADDR. AND WC
  3049  012544     002     000          .BYTE   2,0                             ;
  3050  012546  017170                          TBUFF
  3051  012550  177777                          -1
  3052  012552  013705  017172                  MOV     ZDATA,R5                ;SET EXPECTED
  3053  012556  010537  017170                  MOV     R5,TBUFF                ;LOAD CHARACTER
  3054  012562  012777  000001  166574          MOV     #BIT0,@DQTCSR           ;SET TX GO.
  3055  012570  012737  002000  001244          MOV     #2000,TEMP1             ;SET FOR DELAY
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DZDQC   MACY11 27(1006)  22-DEC-76  11:09  PAGE 60
DZDQCD.P11    16-DEC-76 13:26          DQ11 INTERUPT AND NPR LOGIC TESTS.

  3056  012576  105777  166562          3$:     TSTB    @DQTCSR                 ;TX PRI DONE?
  3057  012602  100404                          BMI     4$                      ;BR IF YES
  3058  012604  005337  001244                  DEC     TEMP1                   ;DELAY.
  3059  012610  001372                          BNE     3$                      ;KEEP DELAYING
  3060  012612  104003                          HLT     3                       ;TX PRI DONE FAILED TO SET
  3061  012614  112777  000013  166546  4$:     MOVB    #13,@DQREG              ;SELECT TX MUX REG.
  3062  012622  017704  166544                  MOV     @DQSEC,R4               ;READ MUX
  3063  012626  020504                          CMP     R5,R4                   ;GOOD CHARACTER?
  3064  012630  001401                          BEQ     5$                      ;BR IF GOOD
  3065  012632  104012                          HLT     12              ;DATA COMPARISON ERROR
  3066  012634  104401                  5$:     SCOP1                           ;LOCK ON DATA (SW09=1)
  3067  012636  005237  017172                  INC     ZDATA                   ;UPDATE CHARACTER
  3068  012642  005300                          DEC     R0                      ;UPDATE COUNTER
  3069  012644  001332                          BNE     2$                      ;GO DO MORE CHARACTERS
  3070  012646  104400                  6$:     SCOPE                           ;SCOPE THIS TEST.
  3071
  3072                                          ;END OF PASS
  3073                                          ;TYPE NAME OF TEST
  3074                                          ;UPDATE PASS COUNT
  3075                                          ;CHECK FOR EXIT TO ACT-11
  3076                                          ;RESTART TEST
  3077
  3078  012650  005037  001234          .EOP:   CLR     LSTERR                  ;CLEAR LAST ERROR PC
  3079  012654  005037  001312                  CLR     ERRFLG                  ;CLEAR ERROR FLAG
  3080  012660  005237  001230                  INC     PASCNT                  ;UPDATE PASS COUNT
  3081  012664  104402                          TYPE
  3082  012666  015100                          MEPASS
  3083  012670  104402                          TYPE
  3084  012672  015261                          MCSRX
  3085  012674  104411                          CNVRT
  3086  012676  013006                          XCSR
  3087  012700  104402                          TYPE
  3088  012702  015267                          MVECX
  3089  012704  104411                          CNVRT
  3090  012706  013014                          XVEC
  3091  012710  104402                          TYPE
  3092  012712  015275                          MPASSX
  3093  012714  104411                          CNVRT
  3094  012716  013022                          XPASS
  3095  012720  104402                          TYPE
  3096  012722  015306                          MERRX
  3097  012724  104411                          CNVRT
  3098  012726  013030                          XERR
  3099  012730  013777  001230  166244          MOV     PASCNT,@LIGHTS          ;DISPLAY PASS COUNT
  3100  012736  005337  001276                  DEC     SAVNUM
  3101  012742  001013                          BNE     RESTRT
  3102  012744  013737  001504  001276          MOV     DQNUM,SAVNUM
  3103  012752  013701  000042                  MOV     @#42,R1                 ;CHECK FOR ACT-11 OR DDP
  3104  012756  001405                          BEQ     RESTRT                  ;IF NOT, CONTINUE TESTING
  3105  012760  000005                          RESET
  3106  012762                          LOGICAL:
  3107  012762  004711                          JSR     PC,(R1)
  3108  012764  000240                          NOP
  3109  012766  000240                          NOP
  3110  012770  000240                          NOP
  3111  012772  104414                  RESTRT: CKSWR
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                                        END OF PASS RCUTINE

 3112  012774  012737  002254  001214          MOV     #TST1,RETURN
 3113  013002  000137  002254                  JMP     TST1
 3114  013006  000001                  XCSR:   1
 3115  013010     006     002                  .BYTE   6,2
 3116  013012  001360                          DQRCSR
 3117  013014  000001                  XVEC:   1
 3118  013016     003     002                  .BYTE   3,2
 3119  013020  001350                          DQRVEC
 3120  013022  000001                  XPASS:  1
 3121  013024     006     002                  .BYTE   6,2
 3122  013026  001230                          PASCNT
 3123  013030  000001                  XERR:   1
 3124  013032     006     002                  .BYTE   6,2
 3125  013034  001232                          ERRCNT
 3126
 3127                                          ;SCOPE LOOP AND INTERATION HANDLER
 3128
 3129  013036  104414                  .SCOPE: CKSWR
 3130  013040  032777  040000  166132          BIT     #BIT14,@SWR
 3131  013046  001407                  TTST:   BEQ     1$
 3132  013050  000432                          BR      3$
 3133  013052  105777  166126                  TSTB    @TKCSR
 3134  013056  100027                          BPL     3$
 3135  013060  017700  166122                  MOV     @TKDBR,R0
 3136  013064  000412                          BR      2$
 3137  013066  032777  004000  166104  1$:     BIT     #SW11,@SWR
 3138  013074  001006                          BNE     2$
 3139  013076  005237  001224                  INC     LPCNT
 3140  013102  023737  001224  001222          CMP     LPCNT,ICOUNT
 3141  013110  001012                          BNE     3$
 3142  013112  105037  001312          2$:     CLRB    ERRFLG
 3143  013116  005037  001224                  CLR     LPCNT
 3144  013122  012737  000012  001222          MOV     #10.,ICOUNT
 3145  013130  013737  001216  001214          MOV     NEXT,RETURN
 3146  013136  013716  001214          3$:     MOV     RETURN,(SP)
 3147  013142  000002                          RTI
 3148  013144  001407                  BRW:    1407
 3149  013146  000432                  BRX:    432
 3150
 3151                                          ;CHECK FOR FREEZE ON CURRENT DATA
 3152
 3153  013150  104414                  .SCOP1: CKSWR
 3154  013152  032777  001000  166020          BIT     #SW09,@SWR
 3155  013160  001402                          BEQ     1$
 3156  013162  013716  001220                  MOV     LOCK,(SP)
 3157  013166  000002                  1$:     RTI
 3158
 3159                                          ;TELETYPE OUTPUT ROUTINE
 3160
 3161  013170  010546                  .TYPE:  MOV     R5,-(SP)
 3162  013172  017605  000002                  MOV     @2(SP),R5
 3163  013176  062766  000002  000002          ADD     #2,2(SP)
 3164  013204  005737  014660          1$:     TST     @#RDSW
 3165  013210  001004                          BNE     300$
 3166  013212  032777  010000  165760          BIT     #SW12,@SWR
 3167  013220  001024                          BNE     3$
```

```
3168  013222  105715                  300$:   TSTB    (R5)
3169  013224  100014                          BPL     2$
3170  013226  105777  165756                  TSTB    @TPCSR
3171  013232  100375                          BPL     .-4
3172  013234  012777  000015  165750          MOV     #15,@TPDBR
3173  013242  105777  165742                  TSTB    @TPCSR
3174  013246  100375                          BPL     .-4
3175  013250  012777  000012  165734          MOV     #12,@TPDBR
3176  013256  105777  165726          2$:     TSTB    @TPCSR
3177  013262  100375                          BPL     2$
3178  013264  112577  165722                  MOVB    (R5)+,@TPDBR
3179  013270  001345                          BNE     1$
3180  013272  012605                  3$:     MOV     (SP)+,R5
3181  013274  000002                          RTI
3182
3183                                          ;ASCII STRING INPUT ROUTINE
3184
3185  013276  010346                  .INSTR: MOV     R3,-(SP)
3186  013300  010446                          MOV     R4,-(SP)
3187  013302  017637  000004  013320          MOV     @4(SP),.MSG
3188  013310  062766  000002  000004          ADD     #2,4(SP)
3189  013316  104402                  .INST1: TYPE
3190  013320  000000                  .MSG:   0
3191  013322  012704  015452                  MOV     #INBUF,R4
3192  013326  012703  000007                  MOV     #7,R3
3193  013332  105777  165646          1$:     TSTB    @TKCSR
3194  013336  100375                          BPL     1$
3195  013340  117714  165642                  MOVB    @TKDBR,(R4)
3196  013344  142714  000200                  BICB    #200,(R4)
3197  013350  121427  000025                  CMPB    (R4),#25                ;IS IT <^G>
3198  013354  001003                          BNE     200$
3199  013356  104402  015040                  TYPE,MCRLF
3200  013362  000755                          BR      .INST1
3201  013364  122427  000015          200$:   CMPB    (R4)+,#15
3202  013370  001423                          BEQ     INSTR2
3203  013372  117777  165610  165612          MOVB    @TKDBR,@TPDBR
3204  013400  105777  165604          2$:     TSTB    @TPCSR
3205  013404  100375                          BPL     2$
3206  013406  005303                          DEC     R3
3207  013410  001350                          BNE     1$
3208  013412  000402                          BR      .INSTG
3209  013414  010346                  .INSTE: MOV     R3,-(SP)
3210  013416  010446                          MOV     R4,-(SP)
3211  013420  104402                  .INSTG: TYPE
3212  013422  015034                          MQM
3213  013424  005737  014660                  TST     @#RDSW
3214  013430  001402                          BEQ     400$
3215  013432  104402  015040                  TYPE,MCRLF
3216  013436  000727                  400$:   BR      .INST1
3217  013440  012604                  INSTR2: MOV     (SP)+,R4
3218  013442  012603                          MOV     (SP)+,R3
3219  013444  000002                          RTI
3220
3221                                          ;CONVERT ASCII STRING TO OCTAL
3222
3223  013446  010546                  .PARAM: MOV     R5,-(SP)
```

```
3224  013450  010446                      MOV     R4,-(SP)
3225  013452  016605  000004              MOV     4(SP),R5
3226  013456  012537  013652              MOV     (R5)+,LOLIM
3227  013462  012537  013654              MOV     (R5)+,HILIM
3228  013466  012537  013656              MOV     (R5)+,DEVADR
3229  013472  112537  013660              MOVB    (R5)+,LOBITS
3230  013476  112537  013661              MOVB    (R5)+,ADRCNT
3231  013502  010566  000004              MOV     R5,4(SP)
3232  013506  005005              PARAM1: CLR     R5
3233  013510  012704  015452              MOV     #INBUF,R4
3234  013514  122714  000015              CMPB    #15,(R4)
3235  013520  001420                      BEQ     PARERR
3236  013522  121427  000060      1$:     CMPB    (R4),#60
3237  013526  002415                      BLT     PARERR
3238  013530  121427  000067              CMPB    (R4),#67
3239  013534  003012                      BGT     PARERR
3240  013536  142714  000060              BICB    #60,(R4)
3241  013542  152405                      BISB    (R4)+,R5
3242  013544  122714  000015              CMPB    #15,(R4)
3243  013550  001414                      BEQ     LIMITS
3244  013552  006305                      ASL     R5
3245  013554  006305                      ASL     R5
3246  013556  006305                      ASL     R5
3247  013560  000760                      BR      1$
3248  013562  122714  000015      PARERR: CMPB    #15,(R4)        ;IS FIRST CHARACTER A <CR>
3249  013566  001003                      BNE     120$
3250  013570  005737  014660              TST     @#RDSW          ;IS CKSWR ROUTINE BEING USED
3251  013574  001023                      BNE     PARTI
3252  013576  104404              120$:   INSTER
3253  013600  000742                      BR      PARAM1
3254
3255                                      ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
3256
3257  013602  020537  013654      LIMITS: CMP     R5,HILIM
3258  013606  101365                      BHI     PARERR
3259  013610  020537  013652              CMP     R5,LOLIM
3260  013614  103762                      BLO     PARERR
3261  013616  133705  013660              BITB    LOBITS,R5
3262  013622  001357                      BNE     PARERR
3263
3264                                      ;STORE NUMBER AT SPECIFIED ADDRESS
3265
3266  013624  013704  013656              MOV     DEVADR,R4
3267  013630  010524              1$:     MOV     R5,(R4)+
3268  013632  062705  000002              ADD     #2,R5
3269  013636  105337  013661              DECB    ADRCNT
3270  013642  001372                      BNE     1$
3271  013644  012604              PARTI:  MOV     (SP)+,R4
3272  013646  012605                      MOV     (SP)+,R5
3273  013650  000002                      RTI
3274  013652  000000              LOLIM:  0
3275  013654  000000              HILIM:  0
3276  013656  000000              DEVADR: 0
3277  013660  000000              LOBITS: 0
3278          013661              ADRCNT=LOBITS+1
3279
```

```
3280                                            ;SAVE PC OF TEST THAT FAILED AND R0-R5
3281
3282  013662  016637  000004  001274  .SAV05: MOV     4(SP),SAVPC
3283
3284                                            ;SAVE R0-R5
3285
3286  013670  010537  001270          SV05:   MOV     R5,SAVR5
3287  013674  010437  001266                  MOV     R4,SAVR4
3288  013700  010337  001264                  MOV     R3,SAVR3
3289  013704  010237  001262                  MOV     R2,SAVR2
3290  013710  010137  001260                  MOV     R1,SAVR1
3291  013714  010037  001256                  MOV     R0,SAVR0
3292  013720  000002                          RTI
3293
3294                                            ;RESTORE R0-R5
3295
3296  013722  013700  001256          .RES05: MOV     SAVR0,R0
3297  013726  013701  001260                  MOV     SAVR1,R1
3298  013732  013702  001262                  MOV     SAVR2,R2
3299  013736  013703  001264                  MOV     SAVR3,R3
3300  013742  013704  001266                  MOV     SAVR4,R4
3301  013746  013705  001270                  MOV     SAVR5,R5
3302  013752  000002                          RTI
3303
3304                                            ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
3305
3306  013754  104402                  .CONVR: TYPE
3307  013756  015040                          MCRLF
3308  013760  010046                  .CNVRT: MOV     R0,-(SP)
3309  013762  010146                          MOV     R1,-(SP)
3310  013764  010346                          MOV     R3,-(SP)
3311  013766  010446                          MOV     R4,-(SP)
3312  013770  010546                          MOV     R5,-(SP)
3313  013772  017601  000012                  MOV     @12(SP),R1
3314  013776  013737  015514  001250          MOV     TEMP,TEMP3
3315  014004  062766  000002  000012          ADD     #2,12(SP)
3316  014012  012137  014174                  MOV     (R1)+,WRDCNT
3317  014016  112137  014176          1$:     MOVB    (R1)+,CHRCNT
3318  014022  112137  014177                  MOVB    (R1)+,SPACNT
3319  014026  013137  014200                  MOV     @(R1)+,BINWRD
3320  014032  013704  014200          2$:     MOV     BINWRD,R4
3321  014036  113705  014176                  MOVB    CHRCNT,R5
3322  014042  012700  015514                  MOV     #TEMP,R0
3323  014046  010403                  3$:     MOV     R4,R3
3324  014050  042703  177770                  BIC     #177770,R3
3325  014054  062703  000060                  ADD     #060,R3
3326  014060  110320                          MOVB    R3,(R0)+
3327  014062  000241                          CLC
3328  014064  006004                          ROR     R4
3329  014066  000241                          CLC
3330  014070  006004                          ROR     R4
3331  014072  000241                          CLC
3332  014074  006004                          ROR     R4
3333  014076  005305                          DEC     R5
3334  014100  001362                          BNE     3$
3335  014102  012703  015556                  MOV     #MDATA,R3
```

GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

```
3336  014106  114023                    4$:     MOVB    -(R0),(R3)+
3337  014110  105337  014176                    DECB    CHRCNT
3338  014114  001374                    BNE     4$
3339  014116  105737  014177                    TSTB    SPACNT
3340  014122  001405                    BEQ     6$
3341  014124  112723  000040            5$:     MOVB    #040,(R3)+
3342  014130  105337  014177                    DECB    SPACNT
3343  014134  001373                    BNE     5$
3344  014136  105013                    6$:     CLRB    (R3)
3345  014140  104402                    TYPE
3346  014142  015556                    MDATA
3347  014144  005337  014174                    DEC     WRDCNT
3348  014150  001322                    BNE     1$
3349  014152  013737  001250  015514            MOV     TEMP3,TEMP
3350  014160  012605                    MOV     (SP)+,R5
3351  014162  012604                    MOV     (SP)+,R4
3352  014164  012603                    MOV     (SP)+,R3
3353  014166  012601                    MOV     (SP)+,R1
3354  014170  012600                    MOV     (SP)+,R0
3355  014172  000002                    RTI
3356  014174  000000            WRDCNT: 0
3357  014176  000000            CHRCNT: 0
3358          014177            SPACNT=CHRCNT+1
3359  014200  000000            BINWRD: 0
3360                                    ;TRAP DISPATCH SERVICE
3361                                    ;ARGUMENT OF TRAP IS EXTRACTED
3362                                    ;AND USED AS OFFSET TO OBTAIN POINTER
3363                                    ;TO SELECTED SUBROUTINE
3364
3365  014202  011646            .TRPSR: MOV     (SP),-(SP)          ;GET PC OF RETURN
3366  014204  162716  000002            SUB     #2,(SP)             ;=PC OF TRAP
3367  014210  017616  000000            MOV     @(SP),(SP)          ;GET TRP
3368  014214  006316            TRPOK:  ASL     (SP)                ;MULTIPLY TRAP ARG BY 2
3369  014216  042716  177001            BIC     #177001,(SP)        ;CLEAR UNWANTED BITS
3370  014222  062716  001314            ADD     #.TRPTAB,(SP)       ;POINTER TO SUBROUTINE ADDRESS
3371  014226  017616  000000            MOV     @(SP),(SP)          ;SUBROUTINE ADDRESS
3372  014232  000136                    JMP     @(SP)+              ;GO TO SUBROUTINE
3373
3374                                    ;ERROR HANDLER
3375
3376  014234  104414            .HLT:   CKSWR
3377  014236  032777  010000  164734            BIT     #SW12,@SWR
3378  014244  001406                    BEQ     XBX
3379  014246  105777  164736                    TSTB    @TPCSR
3380  014252  100003                    BPL     XBX
3381  014254  112777  000207  164730            MOVB    #207,@TPDBR
3382  014262  032777  020000  164710    XBX:    BIT     #SW13,@SWR
3383  014270  001074                    BNE     HALTS
3384  014272  021637  001234                    CMP     (SP),LSTERR
3385  014276  001404                    BEQ     1$
3386  014300  011637  001234                    MOV     (SP),LSTERR
3387  014304  105037  001312                    CLRB    ERRFLG
3388  014310  104406                    1$:     SAVOS
3389  014312  011605                    MOV     (SP),R5
3390  014314  162705  000002                    SUB     #2,R5
3391  014320  011504                    MOV     (R5),R4
```

```
3392  014322  006304                          ASL     R4
3393  014324  061504                          ADD     (R5),R4
3394  014326  006304                          ASL     R4
3395  014330  042704  177001                  BIC     #177001,R4
3396  014334  062704  016744                  ADD     #.ERRTAB,R4
3397  014340  012437  014432                  MOV     (R4)+,ERRMSG
3398  014344  012437  014444                  MOV     (R4)+,DATAHD
3399  014350  011437  014456                  MOV     (R4),DATABP
3400  014354  105737  001312                  TSTB    ERRFLG
3401  014360  001403                          BEQ     TYPMSG
3402  014362  005737  014456                  TST     DATABP
3403  014366  001027                          BNE     TYPDAT
3404  014370  104402                  TYPMSG: TYPE
3405  014372  015317                          MTSTN
3406  014374  104411                          CNVRT
3407  014376  014556                          XTSTN
3408  014400  104402                          TYPE
3409  014402  015405                          MERRPC
3410  014404  104411                          CNVRT
3411  014406  014550                          ERTABO
3412  014410  104402                          TYPE
3413  014412  015040                          MCRLF
3414  014414  112737  177777  001312          MOVB    #-1,ERRFLG
3415  014422  005737  014432                  TST     ERRMSG
3416  014426  001402                          BEQ     WRKO.FM
3417  014430  104402                          TYPE
3418  014432  000000                  ERRMSG: 0
3419  014434                          WRKO.FM:
3420  014434  005737  014444                  TST     DATAHD
3421  014440  001402                          BEQ     TYPDAT
3422  014442  104402                          TYPE
3423  014444  000000                  DATAHD: 0
3424  014446  005737  014456          TYPDAT: TST     DATABP
3425  014452  001402                          BEQ     RESREG
3426  014454  104410                          CONVRT
3427  014456  000000                  DATABP: 0
3428  014460  104407                  RESREG: RESOS
3429  014462  005777  164512          HALTS:  TST     @SWR
3430  014466  100005                          BPL     EXITER
3431  014470  010046                          PUSHRO
3432  014472  016600  000002                  MOV     2(SP),RO
3433  014476  000000                          HALT
3434  014500  012600                          POPRO
3435  014502  104414                  EXITER: CKSWR
3436  014504  005237  001232                  INC     ERRCNT
3437  014510  032777  000400  164462          BIT     #SW08,@SWR
3438  014516  001007                          BNE     1$
3439  014520  032777  002000  164452          BIT     #SW10,@SWR
3440  014526  001407                          BEQ     2$
3441  014530  013737  001216  001214          MOV     NEXT,RETURN
3442  014536  012706  001200          1$:     MOV     #STACK,SP
3443  014542  000177  164446                  JMP     @RETURN
3444  014546  000002                  2$:     RTI
3445  014550  000001                  ERTABO: 1
3446  014552     006     002                  .BYTE   6,2
3447  014554  001274                          SAVPC
```

```
                                        GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

 3448  014556  000001                   XTSTN:  1
 3449  014560     003      002                  .BYTE   3,2
 3450  014562  001226                           TSTNO
 3451                                           ;ENTER HERE ON POWER FAILURE
 3452                                    .
 3453
 3454  014564                           .PFAIL:
 3455  014564  012737  014576  000024           MOV     #RESTART,24             ;SET UP FOR POWER UP TRAP
 3456  014572  000000                           HALT                            ;HALT ON POWER DOWN NORMAL
 3457  014574  000777                           BR      .
 3458
 3459                                           ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
 3460
 3461  014576                           RESTAR:
 3462  014576  012737  014564  000024           MOV     #.PFAIL,24              ;SET UP FOR POWER FAILURE
 3463  014604  012706  001200                   MOV     #STACK,SP
 3464  014610  005037  015514                   CLR     TEMP
 3465  014614  005237  015514                   INC     TEMP
 3466  014620  001375                           BNE     .-4
 3467  014622  104402                           TYPE
 3468  014624  015042                           MPFAIL
 3469  014626  104411                           CNVRT
 3470  014630  014652                           PFTAB
 3471  014632  005037  001312                   CLR     ERRFLG
 3472  014636  005037  001234                   CLR     LSTERR
 3473  014642  104412                           MSTCLR
 3474  014644  104413                           MEMCLR
 3475  014646  000177  164342                   JMP     @RETURN
 3476  014652  000001                   PFTAB:  1
 3477  014654     003      002          .BYTE   3,2
 3478  014656  001226                           TSTNO
 3479
 3480
 3481                                           ;CHECK SWITCH REGISTER ROUTINE. CHECKS FOR ↑G TO ALLOW CHANGING
 3482                                           ;OF LOC.176.
 3483                                           ;LOCATIONS USED:
 3484  014660  000000                           RDSW:   .WORD   0
 3485
 3486
 3487  014662  005737  000042           .CKSWR: TST     @#42
 3488  014666  001042                           BNE     OUT
 3489  014670  022737  000176  001200           CMP     #SWREG,SWR              ;SOFTWARE SWITCH REGISTER PRESENT
 3490  014676  001036                           BNE     OUT                     ;NO, GET OUT
 3491  014700  105777  164300                   TSTB    @TKCSR                  ;YES,WAIT FOR
 3492  014704  100033                           BPL     OUT                     ;READY, GET CHARACTER
 3493  014706  017737  164274  013320           MOV     @TKDBR,.MSG             ;AND STRIP OFF
 3494  014714  042737  177600  013320           BIC     #177600,.MSG            ;THE GARBAGE
 3495  014722  122737  000007  013320           CMPB    #7,.MSG                 ;IS IT A <↑G>
 3496  014730  001021                           BNE     OUT
 3497  014732  104402  015010                   TYPE,$CNTG
 3498  014736  005137  014660           .CNTLU: COM     @#RDSW
 3499  014742  104402  015014                   TYPE,$MSWR
 3500  014746  104411  015002                   CNVRT,SWREGC
 3501  014752  104403  015023                   INSTR,$MNEW
 3502  014756  104405                           PARAM
 3503  014760  000000                           0
```

```
3504  014762  177777                        177777
3505  014764  000176                        SWREG
3506  014766     000     001        .BYTE    0,1
3507  014770  104402  015040                TYPE,MCRLF
3508  014774  005037  014660        OUT:    CLR     @#RDSW
3509  015000  000002                        RTI
3510  015002  000001                SWREGC: 1
3511  015004     006     002        .BYTE   6,2
3512  015006  000176                        SWREG
3513  015010  057377  000107        $CNTG:  .ASCIZ  <377>/↑G/
3514  015014  051777  051127  020075 $MSWR:  .ASCIZ  <377>/SWR= /
3515  015022     000
3516  015023     040  047040  053505 $MNEW:  .ASCIZ  /  NEW= /
3517  015030  020075     000
3518          015034                .EVEN
3519  015034  020040  000077        MQM:    .ASCIZ  /  ?/
3520  015040  000377                MCRLF:  .ASCIZ   <377>
3521  015042  050377  051127  043040 MPFAIL: .ASCIZ  <377>/PWR FAILED. RESTART AT TEST /
3522  015050  044501  042514  027104
3523  015056  051040  051505  040524
3524  015064  052122  040440  020124
3525  015072  042524  052123  000040
3526  015100  042777  042116  050040 MEPASS: .ASCIZ  <377>/END PASS DZDQC  /
3527  015106  051501  020123  055104
3528  015114  050504  020103  000040
3529  015122  051377     000        MR:     .ASCIZ  <377>/R/
3530  015125     377  051120  043517 MERR2:  .ASCIZ  <377>/PROGRAM INDICATES NO DEVICES PRESENT./
3531  015132  040522  020115  047111
3532  015140  044504  040503  042524
3533  015146  020123  047516  042040
3534  015154  053105  041511  051505
3535  015162  050040  042522  042523
3536  015170  052116  000056
3537  015174  044777  051516  043125 MERR3:  .ASCIZ  <377>/INSUFFICIENT DATA!/
3538  015202  044506  044503  047105
3539  015210  020124  040504  040524
3540  015216  000041
3541  015220  052377  051505  020124 MTSTPC: .ASCIZ  <377>/TEST PC-/
3542  015226  041520  000055
3543  015232  046377  041517  020113 MLOCK:  .ASCIZ  <377>/LOCK ON SELECTED TEST/
3544  015240  047117  051440  046105
3545  015246  041505  042524  020104
3546  015254  042524  052123     000
3547  015261     103  051123  020072 MCSRX:  .ASCIZ   /CSR: /
3548  015266     000
3549  015267     126  041505  020072 MVECX:  .ASCIZ  /VEC: /
3550  015274     000
3551  015275     120  051501  042523 MPASSX: .ASCIZ  /PASSES: /
3552  015302  035123  000040
3553  015306  051105  047522  051522 MERRX:  .ASCIZ  /ERRORS: /
3554  015314  020072     000
3555  015317     377  052377  051505 MTSTN:  .ASCIZ  <377><377> /TEST NO: /
3556  015324  020124  047516  020072
3557  015332     000
3558  015333     377  042523  020124 MNEW:   .ASCIZ  <377>/SET SWITCH REG TO DQ11'S DESIRED ACTIVE./
3559  015340  053523  052111  044103
```

```
3560  015346  051040  043505  052040
3561  015354  020117  050504  030461
3562  015362  051447  042040  051505
3563  015370  051111  042105  040440
3564  015376  052103  053111  027105
3565  015404     000
3566  015405     120  035103  000040  MERRPC: .ASCIZ  /PC: /
3567  015412  046777  050101  047440  XHEAD:  .ASCIZ  <377>/MAP OF DQ11 STATUS/<377>
3568  015420  020106  050504  030461
3569  015426  051440  040524  052524
3570  015434  177523     000
3571          015440                  .EVEN
3572  015440  000002                  XSTATQ: 2
3573  015442     006     003                  .BYTE   6,3
3574  015444  001244                          TEMP1
3575  015446     006     002                  .BYTE   6,2
3576  015450  001246                          TEMP2
3577                                  .EVEN
3578
3579                                          ;BUFFERS FOR INPUT-OUTPUT
3580
3581  015452  000000                  INBUF:  0
3582          015514                  .=.+40
3583  015514  000000                  TEMP:   0
3584          015556                  .=.+40
3585  015556  000000                  MDATA:  0
3586          015620                  .=.+40
3587
3588                                          ;MASTER CLEAR DQ11 INTERFACE
3589
3590  015620                          .MSTCLR:
3591  015620  112777  000012  163542          MOVB    #12,@DQREG
3592  015626  012777  000040  163536          MOV     #BIT5,@DQSEC
3593  015634  000002                          RTI
3594
3595                                          ;CLEAR INTERFACE MEMORIES
3596
3597  015636                          .MEMCLR:
3598  015636  105077  163526                  CLRB    @DQREG
3599  015642  012700  000020                  MOV     #16.,R0
3600  015646  152777  000020  163514  1$:     BISB    #BIT4,@DQREG
3601  015654  142777  000140  163506          BICB    #140,@DQREG
3602  015662  005077  163504                  CLR     @DQSEC
3603  015666  105277  163476                  INCB    @DQREG
3604  015672  005300                          DEC     R0
3605  015674  001364                          BNE     1$
3606  015676  105077  163466                  CLRB    @DQREG
3607  015702  105077  163454                  CLRB    @DQRCSH
3608  015706  012700  000020                  MOV     #16.,R0
3609  015712  112777  000010  163450  2$:     MOVB    #10,@DQREG
3610  015720  005077  163446                  CLR     @DQSEC
3611  015724  112777  000014  163436          MOVB    #14,@DQREG
3612  015732  005077  163434                  CLR     @DQSEC
3613  015736  105277  163420                  INCB    @DQRCSH
3614  015742  005300                          DEC     R0
3615  015744  001362                          BNE     2$
```

```
3616  015746  105077  163410                  CLRB    @DQRCSH
3617  015752  005077  163402                  CLR     @DQRCSR
3618  015756  005077  163402                  CLR     @DQTCSR
3619  015762  005077  163400                  CLR     @DQERR
3620  015766  000002                          RTI
3621
3622                                          ;SET STEP MODE
3623
3624  015770  112777  000012  163372  SETSTP: MOVB    #12,@DQREG
3625  015776  052777  000002  163366          BIS     #BIT1,@DQSEC
3626  016004  000207                          RTS     PC
3627
3628                                          ;SET TEST LOOP
3629
3630  016006  112777  000012  163354  SETLOP: MOVB    #12,@DQREG
3631  016014  052777  000010  163350          BIS     #BIT3,@DQSEC
3632  016022  000207                          RTS     PC
3633
3634                                          ;SET MAINTENANCE MODE
3635
3636  016024  112777  000012  163336  SETMNT: MOVB    #12,@DQREG
3637  016032  052777  000012  163332          BIS     #BIT1+BIT3,@DQSEC
3638  016040  000207                          RTS     PC
3639
3640                                          ;SET INTERRUPT VECTORS
3641
3642  016042  011605                  SETV:   MOV     (SP),R5
3643  016044  012577  163300                  MOV     (R5)+,@DQRVEC
3644  016050  012777  000340  163274          MOV     #340,@DQRLVL
3645  016056  012577  163272                  MOV     (R5)+,@DQTVEC
3646  016062  012777  000340  163266          MOV     #340,@DQTLVL
3647  016070  010516                          MOV     R5,(SP)
3648  016072  000207                          RTS     PC
3649
3650                                          ;RESTORE TRAPCATCHER
3651
3652  016074  013777  001352  163246  RECAT:  MOV     DQRLVL,@DQRVEC
3653  016102  005077  163244                  CLR     @DQRLVL
3654  016106  013777  001356  163240          MOV     DQTLVL,@DQTVEC
3655  016114  005077  163236                  CLR     @DQTLVL
3656  016120  000207                          RTS     PC
3657
3658                                          ;SET UP BUS ADDRESS AND CHARACTER COUNTS
3659                                          ;FOR SELECTED FUNCTION
3660
3661  016122  011605                  SETBABC:MOV     (SP),R5
3662  016124  112577  163240                  MOVB    (R5)+,@DQREG
3663  016130  152777  000020  163232          BISB    #BIT4,@DQREG
3664  016136  152577  163226                  BISB    (R5)+,@DQREG
3665  016142  012577  163224                  MOV     (R5)+,@DQSEC
3666  016146  142777  000040  163214          BICB    #BIT5,@DQREG
3667  016154  105277  163210                  INCB    @DQREG
3668  016160  012577  163206                  MOV     (R5)+,@DQSEC
3669  016164  010516                          MOV     R5,(SP)
3670  016166  000207                          RTS     PC
3671
```

```
3672
3673                                                    ;TABLE OF ERROR MESSAGES
3674
3675  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

3676                                                    ;TABLE OF POINTERS FOR ERROR OUTPUT
3677
3678  016744  016170                      .ERRTAB:EM0
3679  016746  000000                              0
3680  016750  000000                              0
3681  016752  016223                              EM1
3682  016754  000000                              0
3683  016756  000000                              0
3684  016760  016261                              EM2
3685  016762  000000                              0
3686  016764  000000                              0
3687  016766  016322                              EM3
3688  016770  000000                              0
3689  016772  000000                              0
3690  016774  016360                              EM4
3691  016776  016634                              DH0
3692  017000  017054                              DT0
3693  017002  016406                              EM5
3694  017004  016634                              DH0
3695  017006  017072                              DT1
3696  017010  016437                              EM6
3697  017012  016634                              DH0
3698  017014  017150                              DT4
3699  017016  016461                              EM7
3700  017020  016675                              DH1
3701  017022  017126                              DT3
3702  017024  016503                              EM10
3703  017026  016675                              DH1
3704  017030  017126                              DT3
3705  017032  016531                              EM11
3706  017034  016634                              DH0
3707  017036  017150                              DT4
3708  017040  016555                              EM12
3709  017042  016675                              DH1
```

GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

```
                                                DT3
                                                EM13
                                                DH0
                                                DT2

                                                ;DATA TABLES FOR ERROR OUTPUT

017054  000003                        DT0:    3
017056      006     004                 .BYTE   6,4
017060  001270                                SAVR5
017062      006     004                 .BYTE   6,4
017064  001266                                SAVR4
017066      006     004                 .BYTE   6,4
017070  001360                                DQRCSR
017072  000003                        DT1:    3
017074      006     004                 .BYTE   6,4
017076  001270                                SAVR5
017100      006     004                 .BYTE   6,4
017102  001266                                SAVR4
017104      006     004                 .BYTE   6,4
017106  001364                                DQTCSR
017110  000003                        DT2:    3
017112      003     007                 .BYTE   3,7
017114  001270                                SAVR5
017116      003     007                 .BYTE   3,7
017120  001266                                SAVR4
017122      006     000                 .BYTE   6,0
017124  001366                                DQERR
017126  000004                        DT3:    4
017130      006     004                 .BYTE   6,4
017132  001270                                SAVR5
017134      006     004                 .BYTE   6,4
017136  001266                                SAVR4
017140      006     004                 .BYTE   6,4
017142  001372                                DQSEC
017144      002     000                 .BYTE   2,0
017146  001262                                SAVR2
017150  000003                        DT4:    3
017152      006     004                 .BYTE   6,4
017154  001270                                SAVR5
017156      006     004                 .BYTE   6,4
017160  001266                                SAVR4
017162      006     004                 .BYTE   6,4
017164  001264                                SAVR3
017166  000000                        RBUFF:  0
017170  000000                        TBUFF:  0
017172  000000                        ZDATA:  0
        000001                        .END
```

CROSS REFERENCE TABLE -- USER SYMBOLS

```
ABBIT = 002000            621#   991
ACTBIT= 004000            622#   999
ADRCNT= 013661           3230*  3269*  3278#
BABIT = 010000            623#   995   2412
BBBIT = 020000            624#   986
BINBRD  014200           3319*  3320   3359#
BIT0  = 000001            616#  1315   1388   1389   1423   1424   1676   1677   1678   1687   1690   1990   1991
                         2002   2005   2472   2554   2628   2651   2751   2832   2907   2970   3009   3054
BIT1  = 000002            615#  1387   1422   1699   1700   1701   1710   1713   2016   2017   2028   2031   3625
                         3637
BIT10 = 002000            606#
BIT11 = 004000            605#
BIT12 = 010000            604#  1388   1394   2628
BIT13 = 020000            603#
BIT14 = 040000            602#  3130
BIT15 = 100000            601#  1653   1654   1655   1664   1667   1866   1867   1878   1881   2417   2418   2429
                         2432
BIT2  = 000004            614#  1286   1722   1723   1724   1733   1736   2042   2043   2054   2057
BIT3  = 000010            613#  1422   1487   1488   1489   1498   1501   1745   1746   1747   1756   1759   1989
                         1991   2001   2005   2015   2017   2027   2031   2041   2043   2053   2057   2067   2068
                         2069   2079   2080   2083   2093   2095   2105   2109   2119   2121   2131   2135   2145
                         2147   2157   2161   2171   2173   2183   2187   3631   3637
BIT4  = 000020            612#  1441   1442   1443   1452   1455   1510   1511   1512   1521   1524   1768   1769
                         1770   1779   1782   1865   1867   1877   1881   2094   2095   2106   2109   2416   2418
                         2428   2432   2474   2653   2834   2972   2983   3020   3600   3663
BIT5  = 000040            611#  1464   1465   1466   1475   1478   1533   1534   1535   1544   1547   1791   1792
                         1793   1802   1805   1889   1891   1901   1905   1913   1915   1925   1929   1937   1939
                         1949   1953   1963   1965   1975   1979   2120   2121   2132   2135   2471   2553   2650
                         2750   2831   2906   3592   3666
BIT6  = 000100            610#  1561   1562   1563   1572   1575   1607   1608   1609   1618   1621   1814   1815
                         1816   1825   1828   1890   1891   1902   1905   1938   1939   1950   1953   2146   2147
                         2158   2161
BIT7  = 000200            609#  1584   1585   1586   1595   1598   1630   1631   1632   1641   1644   1837   1838
                         1839   1848   1851   1914   1915   1926   1929   1964   1965   1976   1979   2172   2173
                         2184   2187
BIT8  = 000400            608#
BIT9  = 001000            607#
BRW     013144           1292   3148#
BRX     013146           1293   3149#
CHARDT= 000010            641#
CHAR1   001236           1073#
CHAR2   001240           1074#
CHAR3   001242           1075#
CHKBA   007322           2385   2412#
CHKCA1  007424           2413   2440#
CHRCNT  014176           3317*  3321   3337*  3357#  3358
CKSWR = 104414           1134#  1260   1270   1285   3111   3129   3153   3376   3435
CNTLU = 104415           1136#  1242
CNVRT = 104411           1128#  3085   3089   3093   3097   3406   3410   3469   3500
CONVRT= 104410           1126#  1250   3426
CREAM   001300           1090#  1214*  1324*  1328*  1337   1338*  1339   1340*
CSRMAP  000220            966#  1245
DATABP  014456           3399*  3402   3424   3427#
DATAHD  014444           3398*  3420   3423#
DEVADR  013656           3228*  3266   3276#
DHD     016634           3675*  3691   3694   3697   3706   3712
```

DZDQCD.P11 16-DEC-76 13:26 CROSS REFERENCE TABLE -- USER SYMBOLS

```
DH1     016675          3675#   3700    3703    3709
DISPRE  000174           957#   1235
DLIGHT= 177570           586#   1226
DQACTV  001500           937    1011*   1017*   1018*   1022    1193*   1267*   1268    1318    1320
DQCR00  001400          1161#
DQCR01  001404          1163#
DQCR02  001410          1165#
DQCR03  001414          1167#
DQCR04  001420          1169#
DQCR05  001424          1171#
DQCR06  001430          1173#
DQCR07  001434          1175#
DQCR10  001440          1177#
DQCR11  001444          1179#
DQCR12  001450          1181#
DQCR13  001454          1183#
DQCR14  001460          1185#
DQCR15  001464          1187#
DQCR16  001470          1189#
DQCR17  001474          1191#
DQCSR   001506          1196#   1337*   1341
DQERR   001366          1151#   1354*   1355*   1356    1398    1431    1687*   1710*   1733*   1756*   1779*   1802*   1825*
                        1848*   2002*   2028*   2054*   2080*   2106*   2132*   2158*   2184*   2493    2494    2574    2575
                        2672    2673    2771    2772    2853    2854    2927    2928    3619*   3737
DQNUM   001504           970*   1007*   1012    1014    1195#   1209    3102
DQRCSH  001362          1149#   1350*   1351*   3607*   3613*   3616*
DQRCSR  001360          1148#   1341*   1350    1352    1388*   1394*   1423*   1452*   1475*   1572*   1595*   1877*   1878*
                        1901*   1902*   1925*   1926*   2212*   2221*   2268*   2471*   2472*   2487    2628*   2633    2638*
                        2650*   2651*   2666    2831*   2832*   2847    2970*   2974    2978    2983    2986    3116    3617*
                        3723
DQREG   001370          1152#   1356*   1357*   1358    1386*   1421*   2473*   2497*   2509*   2578*   2590*   2598*   2624*
                        2626*   2652*   2676*   2688*   2723*   2725*   2727*   2775*   2787*   2795*   2833*   2857*   2869*
                        2931*   2943*   2971*   3061*   3591*   3598*   3600*   3601*   3603*   3606*   3609*   3611*   3624*
                        3630*   3636*   3662*   3663*   3664*   3666*   3667*
DQRLVL  001352          1145#   1344*   1345*   1346    3644*   3652    3653*
DQRVEC  001350          1144#   1342*   1343*   1344    3119    3643*   3652*
DQSEC   001372          1153#   1358*   1359*   1360    1387*   1390*   1391*   1422*   2474*   2500    2504    2512    2581
                        2585    2593    2600    2625*   2627*   2653*   2679    2683    2691    2724*   2726*   2728*   2778
                        2782    2790    2797    2834*   2860    2864    2872    2934    2938    2946    2972*   3044    3062
                        3592*   3602*   3610*   3612*   3625*   3631*   3637*   3665*   3668*   3744
DQSTCH  001374          1154#   1360*   1361*
DQSTAT  001510          1197#   1339*   1342    2412
DQSTO0  001402          1162#
DQSTO1  001406          1164#
DQSTO2  001412          1166#
DQSTO3  001416          1168#
DQSTO4  001422          1170#
DQSTO5  001426          1172#
DQSTO6  001432          1174#
DQSTO7  001436          1176#
DQST10  001442          1178#
DQST11  001446          1180#
DQST12  001452          1182#
DQST13  001456          1184#
DQST14  001462          1186#
DQST15  001466          1188#
```

DZDQCD.P11 16-DEC-76 13:26 CROSS REFERENCE TABLE -- USER SYMBOLS

```
DQST16  001472          1190#
DQST17  001476          1192#
DQTCSR  001364          1150#  1352*  1353*  1354   1389*  1424*  1498*  1521*  1544*  1618*  1641*  1664*  1949*
                        1950*  1975*  1976*  2001*  2027*  2053*  2079*  2105*  2131*  2157*  2183*  2211*  2222*
                        2240*  2302*  2313*  2332*  2343*  2362*  2373*  2392*  2403*  2428*  2429*  2553*  2554*
                        2568   2729*  2734   2738*  2750*  2751*  2765   2906*  2907*  2921   3009*  3011   3015
                        3020   3023   3054*  3056   3618*  3730
DQTLVL  001356          1147#  1348*  1349*  3646*  3654   3655*
DQTVEC  001354          1146#  1346*  1347*  1348   3645*  3654*
DSWR  = 177570           585#  1225
DT0     017054          3692   3717#
DT1     017072          3695   3724#
DT2     017110          3713   3731#
DT3     017126          3701   3704   3710   3738#
DT4     017150          3698   3707   3747#
DUMMY = ****** U        1442   1443   1453   1455   1465   1466   1476   1478   1488   1489   1499   1501   1511
                        1512   1522   1524   1534   1535   1545   1547   1561   1562   1563   1572   1575   1584
                        1585   1586   1595   1598   1607   1608   1609   1618   1621   1630   1631   1632   1641
                        1644   1653   1654   1655   1664   1667   1676   1677   1678   1687   1690   1699   1700
                        1701   1710   1713   1722   1723   1724   1733   1736   1745   1746   1747   1756   1759
                        1768   1769   1770   1779   1782   1791   1792   1793   1802   1805   1814   1815   1816
                        1825   1828   1837   1838   1839   1848   1851
EM0     016170          3675#  3678
EM1     016223          3675#  3681
EM10    016503          3675#  3702
EM11    016531          3675#  3705
EM12    016555          3675#  3708
EM13    016613          3675#  3711
EM2     016261          3675#  3684
EM3     016322          3675#  3687
EM4     016360          3675#  3690
EM5     016406          3675#  3693
EM6     016437          3675#  3696
EM7     016461          3675#  3699
ERRCNT  001232          1068#  1215*  3125   3436*
ERRFLG  001312          1099#  1212*  3079*  3142*  3387*  3400   3414*  3471*
ERRMSG  014432          3397*  3415   3418#
ERTA30  014550          3411   3445#
EXITER  014502          3430   3435#
HALTS   014462          3383   3429#
HILIM   013654          3227*  3257   3275#
ICOUNT  001222          1064#  1379*  1414*  3036*  3140   3144*
INT_F   015452          3191   3233   3581#
INIFLG  001310          1097#  1220   1223*
INSTER= 104404          1118#  3252
INSTR = 104403          1116#  1296   3501
INSTR2  013440          3202   3217#
JUMBIT= 040000           625#   998
LIGHTS  001202          1053#  1226*  1235*  3099*
LIMITS  013602          3243   3257#
LOBITS  013660          3229*  3261   3277#  3278
LOCK    001220          1063#  3038*  3156
LOGICA  0.2762           919   3106#
LOKFLG  001313          1100#
LOLIM   013652          3226*  3259   3274#
LPCNT   001224          1065#  3139*  3140   3143*
```

DZDQCD.P11 16-DEC-76 13:26 CROSS REFERENCE TABLE -- USER SYMBOLS

```
LSTERR  001234          1069#  1216#  3078#  3384   3386#  3472#
MCRLF   015040          3199   3214#  3307   3413   3507   3520#
MCSRX   015261          3084   3547#
MDATA   015556          3335   3346   3585#
MEMCLR= 104413          1132#  1382   1416   2459   2541   2641   2720   2722   2741   2821   2896   2963   3002
                        3040   3474
MEPASS  015100          3082   3526#
MERRPC  015405          3409   3566#
MERRX   015306          3096   3553#
MERR2   015125          1029   1332   3530#
MERR3   015174          1264   3537#
MISC. = 000012           643#
MLOCK   015232          1288   3543#
MNEW    015333          1257   3558#
MPASSX  015275          3092   3551#
MPFAIL  015042          3468   3521#
MQM     015034          3212   3519#
MR      015122          1306   3529#
MSTCLR= 104412          1130#  1383   1418   1448   1471   1494   1517   1540   1568   1591   1614   1637   1660
                        1683   1706   1729   1752   1775   1798   1821   1844   1873   1897   1921   1945   1971
                        1997   2023   2049   2075   2101   2127   2153   2179   2206   2235   2263   2296   2326
                        2356   2386   2424   2460   2542   2622   2721   2822   2897   2964   2982   3003   3019
                        3041   3046   3473
MTITLE  001000          1038#  1222
MTSTN   015317          3405   3555#
MTSTPC  015220          1297   3541#
MVECX   015267          3088   3549#
NEXT    001216          1062#  1312#  1380#  1415#  1447#  1470#  1493#  1516#  1539#  1567#  1590#  1613#  1636#
                        1659#  1682#  1705#  1728#  1751#  1774#  1797#  1820#  1843#  1872#  1896#  1920#  1944#
                        1970#  1996#  2022#  2048#  2074#  2100#  2126#  2152#  2178#  2205#  2234#  2262#  2295#
                        2325#  2355#  2385#  2423#  2458#  2540#  2621#  2719#  2819#  2894#  2961#  3000#  3037#
                        3145   3441
NON.EX= 177320           532#  2829   2861   2904   2935
OOOBIT= 001000           626#  1000
OUT     014774          3488   3490   3492   3496   3508#
PARAM = 104405          1120#  1298   3502
PARAM1  013506          3232#  3253
PARERR  013562          3235   3237   3239   3248#  3258   3260   3262
PARTI   013644          3251   3271#
PASCNT  001230          1067#  1211#  3080#  3099   3122
PFTAB   014652          3470   3476#
POLY. = 000017           648#
POPRO = 012600           595#  3434
POP1SP= 005726           593#
POP2SP= 022626           597#
PS    = 177776           587#   940#  1206#  1281#  1381#  1417#  1453#  1476#  1499#  1522#  1545#  1573#  1596#
                        1619#  1642#  1665#  1688#  1711#  1734#  1757#  1780#  1803#  1826#  1849#  1879#  1903#
                        1927#  1951#  1977#  2003#  2029#  2055#  2081#  2107#  2133#  2159#  2185#  2210#  2214#
                        2239#  2243#  2267#  2271#  2301#  2331#  2361#  2391#  2430#  2461#  2475#  2479#  2543#
                        2555#  2559#  2639#  2654#  2658#  2739#  2752#  2756#  2820#  2835#  2839#  2895#  2908#
                        2912#  2962#  3001#  3039#
PUSHRO= 010046           594#  3431
PUSH1S= 005746           592#
PUSH2S= 024646           596#
QZX     010702          2699   2701#
RBUFF   017166          2469   2501   2517   2518   2625   2648   2680   2696   2697   2968   3754#
```

CROSS REFERENCE TABLE -- USER SYMBOLS

```
RDSW    014660          3164    3213    3250    3484#   3498*   3508*
RECAT   016074          1460    1483    1506    1529    1552    1580    1603    1626    1649    1672    1695    1718    1741
                        1764    1787    1810    1833    1856    1885    1909    1933    1959    1985    2011    2037    2063
                        2089    2115    2141    2167    2193    2224    2438    3652#
RESREG  014460          3425    3428#
RESTAR  014576          3455    3461#
RESTRT  012772          3101    3104    3111#
RESOS = 104407          1124#   3428
RETURN  001214          1061#   1218*   1301    1305*   1307    1311*   2457*   2539*   2718*   2818*   2893*   2960*   2999*
                        3035*   3112*   3145*   3146    3441*   3443    3475
RUN     001304          1092#   1315*   1318    1323*   1329*   1336*
RUNCNT  001306          1093#   1316*   1325*   1327*
RUNFLG  001302          1091#   1213*   1313    1317*
RXBA.P= 000000           632#
RXBA.S= 000004           636#
RXWC.P= 000001           633#
RXWC.S= 000005           637#
RX.BCC= 000015           646#
SAVACT  001502          1022*   1194#   1261
SAVNUM  001276          1015*   1089#   1209*   3100*   3102*
SAVPC   001274          1088#   3282*   3447
SAVR0   001256          1081#   3291*   3296
SAVR1   001260          1082#   3290*   3297
SAVR2   001262          1083#   3289*   3298    3746
SAVR3   001264          1084#   3288*   3299    3753
SAVR4   001266          1085#   3287*   3300    3721    3728    3735    3742    3751
SAVR5   001270          1086#   3286*   3301    3719    3726    3733    3740    3749
SAVSP   001272          1087#
SAVOS = 104406          1122#   3388
SCOPE = 104400          1110#   1402    1434    1461    1484    1507    1530    1553    1581    1604    1627    1650    1673
                        1696    1719    1742    1765    1788    1811    1834    1857    1886    1910    1934    1960    1986
                        2012    2038    2064    2090    2116    2142    2168    2194    2225    2249    2277    2314    2344
                        2374    2404    2439    2522    2604    2701    2801    2876    2950    2989    3026    3070
SCOP1 = 104401          1112#   3066
SEQ.  = 000014           645#
SETBAB  016122          2467    2549    2646    2746    2827    2902    2966    3005    3048    3661#
SETLOP  016006          2623    2742    3630#
SETMNT  016024          2463    2545    2642    2823    2898    2965    3004    3636#
SETSTP  015770          3047    3624#
SETV    016042          1449    1472    1495    1518    1541    1569    1592    1615    1638    1661    1684    1707    1730
                        1753    1776    1799    1822    1845    1874    1898    1922    1946    1972    1998    2024    2050
                        2076    2102    2128    2154    2180    2207    2236    2264    2297    2327    2357    2387    2425
                        2464    2546    2643    2743    2824    2899    3642#
SPACNT= 014177          3318*   3339    3342*   3358#
STACK = 001200           588#   1207    1282    1459    1482    1505    1528    1551    1579    1602    1625    1648    1671
                        1694    1717    1740    1763    1786    1809    1832    1855    1884    1908    1932    1958    1984
                        2010    2036    2062    2088    2114    2140    2166    2192    2223    2309    2339    2369    2399
                        2437    2483    2564    2662    2761    2843    2917    3442    3463
STFLG   001311          1098#   1210*
SVOS    013670          3286#
SWR     001200          1052#   1225*   1230    1234*   1240    1243    1254    1261    1267    1286    1294    3130    3137
                        3154    3166    3377    3382    3429    3437    3439    3489
SWREG   000176           958#   1234    1240    3489    3505    3512
SWREGC  015002          3500    3510#
SW00 = 000001            568#   1254
SW01 = 000002            567#   1294
```

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```
SW02  = 000004            566#
SW03  = 000010            565#
SW04  = 000020            564#
SW05  = 000040            563#
SW06  = 000100            562#
SW08  = 000400            561#   3437
SW09  = 001000            560#   3154
SW10  = 002000            559#   3439
SW11  = 004000            558#   3137
SW12  = 010000            557#   3166    3377
SW13  = 020000            556#   3382
SW14  = 040000            555#
SW15  = 100000            554#
SYNBIT= 100000            627#    980
SYNC. = 000011            642#
TBUFF   017170           2462#   2544#   2551    2582    2640#   2726    2740#   2748    2779    3007    3050    3053#   3755#
TEMP    015514           3314    3322    3349#   3464#   3465#   3583#
TEMP1   001244            937#    938#   1076#   1247#   1248    1252#   1384#   1392#   1419#   1425#   2476#   2477#   2556#
                         2557#   2655#   2656#   2753#   2754#   2836#   2837#   2909#   2910#   2973#   2976#   3010#   3013#
                         3055#   3058#   3574
TEMP2   001246           1077#   1248#   1385#   1395#   1420#   1427#   3576
TEMP3   001250           1078#   3314#   3349
TEMP4   001252           1079#
TEMP5   001254           1080#
TKCSR   001204           1054#   3133    3193    3491
TKDBR   001206           1055#   3135    3195    3203    3493
TLAST = 012442           1300    3072#
TPCSR   001210           1056#   3170    3173    3176    3204    3379
TPDBR   001212           1057#   3172#   3175#   3178#   3203#   3381#
TRPOK   014214           3368#
TSTNO   001226           1066#   1217#   1310#   1378#   1413#   1446#   1469#   1492#   1515#   1538#   1566#   1589#   1612#
                         1635#   1658#   1681#   1704#   1727#   1750#   1773#   1796#   1819#   1842#   1871#   1895#   1919#
                         1943#   1969#   1995#   2021#   2047#   2073#   2099#   2125#   2151#   2177#   2204#   2233#   2261#
                         2294#   2324#   2354#   2384#   2422#   2456#   2538#   2620#   2717#   2817#   2892#   2959#   2998#
                         3034#   3450    3478
TST1    002254           1299    1305    1310#   3112    3113
TST10   003462           1516    1538#
TST11   003546           1539    1566#
TST12   003632           1567    1589#
TST13   003716           1590    1612#
TST14   004002           1613    1635#
TST15   004066           1636    1658#
TST16   004152           1659    1681#
TST17   004236           1682    1704#
TST2    002644           1311    1312    1378#
TST20   004322           1705    1727#
TST21   004406           1728    1750#
TST22   004472           1751    1773#
TST23   004556           1774    1796#
TST24   004642           1797    1819#
TST25   004726           1820    1842#
TST26   005012           1843    1871#
TST27   005102           1872    1895#
TST3    003014           1380    1413#
TST30   005172           1896    1919#
TST31   005262           1920    1943#
```

CROSS REFERENCE TABLE -- USER SYMBOLS

```
TST32   005354            1944    1969#
TST33   005446            1970    1995#
TST34   005540            1996    2021#
TST35   005632            2022    2047#
TST36   005724            2048    2073#
TST37   006016            2074    2099#
TST4    003142            1415    1446#
TST40   006110            2100    2125#
TST41   006202            2126    2151#
TST42   006274            2152    2177#
TST43   006366            2178    2204#
TST44   006502            2205    2233#
TST45   006606            2234    2261#
TST46   006712            2262    2294#
TST47   007014            2295    2324#
TST5    003226            1447    1469#
TST50   007116            2325    2354#
TST51   007220            2355    2384#
TST52   007332            2422#
TST53   007426            2423    2456#
TST54   007752            2458    2538#
TST55   010272            2540    2620#
TST56   010704            2621    2717#
TST57   011330            2719    2817#
TST6    003312            1470    1492#
TST60   011624            2819    2892#
TST61   012106            2894    2959#
TST62   012272            2961    2998#
TST63   012442            3000    3034#   3072
TST64 = ****** U          3037
TST7    003376            1493    1515#
TTST    013046            1289*   1290*   1292*   1293*   3131#
TXBA.P= 000002             634#
TXBA.S= 000006             638#
TXMC.P= 000003             635#
TXMC.S= 000007             639#
TX.BCC= 000016             647#
TX.MUX= 000013             644#
TYPDAT  014446            3403    3421    3424#
TYPE  = 104402            1028    1114#   1222    1246    1256    1263    1288    1306    1331    3081    3083    3087    3091
                          3095    3189    3199    3211    3215    3306    3345    3404    3408    3412    3417    3422    3467
                          3497    3499    3507
TYPMSG  014370            3401    3404#
VECMAP  000056             930#   1027
WRDCNT  014174            3316*   3347*   3356#
WRKO.F  014434            3416    3419#
XBX     014262            3378    3380    3382#
XCSR    013006            3086    3114#
XERR    013030            3098    3123#
XHEAD   015412            1246    3567#
XPASS   013022            3094    3120#
XSTATO  015440            1251    3572#
XTSTN   014556            3407    3448#
XVEC    013014            3090    3117#
ZDATA   017172            3042*   3052    3067*   3756#
$CNTG   015010            3497    3513#
```

CROSS REFERENCE TABLE -- USER SYMBOLS

```
$E      = 000065          1#  1312  1313#  1380  1381#  1415  1416#  1447  1448#  1470  1471#  1493  1494#
                       1516  1517#  1539  1540#  1567  1568#  1590  1591#  1613  1614#  1636  1637#  1659
                       1660#  1682  1683#  1705  1706#  1728  1729#  1751  1752#  1774  1775#  1797  1798#
                       1820  1821#  1843  1844#  1872  1873#  1896  1897#  1920  1921#  1944  1945#  1970
                       1971#  19[illegible]  1997#  2022  2023#  2048  2049#  2074  2075#  2100  2101#  2126  2127#
                       2152  2153#  2178  2179#  2205  2206#  2234  2235#  2262  2263#  2295  2296#  2325
                       2326#  2355  2356#  2386#  2423  2424#  2458  2459#  2540  2541#  2621  2622#  2719
                       2720#  2819  2820#  2894  2895#  2961  2962#  3000  3001#  3037  3039#
$MNEW   015023        3501  3516#
$MSWR   015014        3499  3514#
$N      = 000063          1#  1308  1313#  1376  1381#  1411  1416#  1444  1448#  1467  1471#  1490  1494#
                       1513  1517#  1536  1540#  1564  1568#  1587  1591#  1610  1614#  1633  1637#  1656
                       1660#  1679  1683#  1702  1706#  1725  1729#  1748  1752#  1771  1775#  1794  1798#
                       1817  1821#  1840  1844#  1869  1873#  1893  1897#  1917  1921#  1941  1945#  1967
                       1971#  1993  1997#  2019  2023#  2045  2049#  2071  2075#  2097  2101#  2123  2127#
                       2149  2153#  2175  2179#  2202  2206#  2231  2235#  2259  2263#  2292  2296#  2322
                       2326#  2352  2356#  2382  2386#  2408  2420  2424#  2440  2454  2459#  2536  2541#
                       2618  2622#  2715  2720#  2815  2820#  2890  2895#  2957  2962#  2996  3001#  3027
                       3032  3039#  3072#
$N1     = 000063      2408#  2440#  3027#
$N2     = 000064      2440#  3027#
$N3     = 000057      2440#
$Y      = 000016          1#  1101#  1110  1112#  1114#  1116#  1118#  1120#  1122#  1124#  1126#  1128#  1130#
                       1132#  1134#  1136#  1138#
.       = 017174        652#  653  655  657  659  661  663  665  667  669  671  673  675
                        677  679  681  683  685  687  689  691  693  695  697  699  701
                        703  705  707  709  711  713  715  717  719  721  723  725  727
                        729  731  733  735  737  739  741  743  745  747  749  751  753
                        755  757  759  761  763  765  767  769  771  773  775  777  779
                        781  783  785  787  789  791  793  795  797  799  801  803  805
                        807  809  811  813  815  817  819  821  823  825  827  829  831
                        833  835  837  839  841  843  845  847  849  851  853  855  857
                        859  861  863  865  867  869  871  873  875  877  879  881  883
                        885  887  889  891  893  895  897  899  901  903  905  907  911#
                        918#  920#  928#  944  956#  962#  965#  969  985  990  994  997  1032
                       1037#  1049#  1090#  1160#  1161#  1162#  1163#  1164#  1165#  1166#  1167#  1168#  1169#
                       1170#  1171#  1172#  1173#  1174#  1175#  1176#  1177#  1178#  1179#  1180#  1181#  1182#
                       1183#  1184#  1185#  1186#  1187#  1188#  1189#  1190#  1191#  1192#  1193#  1194#  1195#
                       1196#  1197#  1244  1249  1253  1266  1334  2245  2247  2253  2273  2275  2279
                       2311  2341  2371  2401  2631  2636  2732  2736  3171  3174  3457  3466  3518#
                       3571#  3582#  3584#  3586#
.BEGIN  002116        1281#
.CKSWR  014662        1135  3487#
.CNTLU  014736        1137  3498#
.CNVRT  013760        1129  3308#
.CONVR  013754        1127  3306#
.EOP    012650        3037  3078#
.ERRTA  016744        3396  3678#
.HLT    014234         914  3376#
.INSTE  013414        1119  3209#
.INSTG  013420        3208  3211#
.INSTR  013276        1117  3185#
.INST1  013316        3189#  3200  3216
.MEMCL  015636        1133  3597#
.MSG    013320        3187*  3190#  3493*  3494*  3495
.MSTCL  015620        1131  3590#
```

CROSS REFERENCE TABLE -- USER SYMBOLS

```
.PARAM  013446            1121    3223#
.PFAIL  014564             912    1208    3454#   3462
.RESOS  013722            1125    3296#
.SAVOS  013662            1123    3282#
.SCOPE  013036            1111    3129#
.SCOP1  013150            1113    3153#
.START  001512             963    1206#   1218
.TRPSR  014202             916    3365#
.TRPTA  001314            1109#   3370
.TYPE   013170            1115    3161#
```

DZDQCD.P11 16-DEC-76 13:26 CROSS REFERENCE TABLE -- MACRO NAMES

```
COMMEN  2408#
DQEND      1#  3071
DQFRNT     1#   534
HLT      598#  1401  1433  1456  1458  1479  1481  1502  1504  1525  1527  1548  1550  1576  1578
        1599   1601  1622  1624  1645  1647  1668  1670  1691  1693  1714  1716  1737  1739  1760
        1762   1783  1785  1806  1808  1829  1831  1852  1854  1881  1883  1905  1907  1929  1931
        1953   1956  1979  1982  2005  2008  2031  2034  2057  2060  2083  2086  2109  2112  2135
        2138   2161  2164  2187  2190  2217  2218  2220  2248  2250  2254  2276  2280  2282  2306
        2312   2336  2342  2366  2372  2396  2402  2432  2435  2480  2482  2491  2496  2508  2515
        2521   2560  2562  2572  2577  2589  2596  2603  2637  2659  2661  2670  2675  2687  2694
        2700   2737  2757  2759  2769  2774  2786  2793  2800  2840  2842  2851  2856  2868  2875
        2913   2915  2925  2930  2942  2949  2981  2988  3018  3025  3060  3065
IDENT      1#
INTST1  1362#  1439  1462  1485  1508  1531  1559  1582  1605  1628  1651  1674  1697  1720  1743
        1766   1789  1812  1835  1863  1887  1911  1935  1961  1987  2013  2039  2065  2091  2117
        2143   2169  2414
NPRTSX  1362#  2702
NPRTSZ  1362#  2605
NPRTS1  1362#  2441  2523
NPRTS2  1362#
NPRTS3  1362#  2951  2990
NPRTS4  1362#  2802  2877
NPRTS5  1362#  3027
ORANGE     1#  1308
PRIOCK  2285#  2286  2316  2346  2376
TESTA1     1#
TESTB1     1#
TESTC1     1#    50
TESTD1     1#
TESTE1     1#
TESTF1     1#
TESTH1     1#
TESTH2     1#
$BEGIN     1#  1278
$BUFFE     1#  3578
$CATCH     1#   651
$CLRVE     1#  1243
$CONVR     1#  3303
$EOP       1#  3071
$GETFL     1#
$GETPA     1#  1296
$HEADE     1#   534
$HLT       1#  3373
$INSTR     1#  3182
$INTNP     1#  3587
$MAINT     1#
$MSG       1#  3519
$PARAM     1#  3220
$PFAIL     1#  3451
$REG       1#  3279
$SCOPE     1#  3126
$SCOP1     1#  3150
$SETFL     1#
$SETVE     1#   909
$START     1#  1198
$SYMBO     1#   551
```

```
DZDQC   MACY11 27(1006)  22-DEC-76  11:09  PAGE 85
DZDQCD.P11    16-DEC-76 13:26          CROSS REFERENCE TABLE -- MACRO NAMES

$TRAPS       1#   1101
$TRPDE       1#   1110    1112    1114    1116    1118    1120    1122    1124    1126    1128    1130    1132    1134    1136
$TRPSR       1#   3360
$TSTN        1#   1308    1376    1411    1444    1467    1490    1513    1536    1564    1587    1610    1633    1656    1679
          1702    1725    1748    1771    1794    1817    1840    1869    1893    1917    1941    1967    1993    2019    2045
          2071    2097    2123    2149    2175    2202    2231    2259    2292    2322    2352    2382    2420    2454    2536
          2618    2715    2815    2890    2957    2996    3032
$TYPE        1#   3158
$VARIA       1#   1036


. ABS.  017174     000


 ERRORS DETECTED:  0
 DEFAULT GLOBALS GENERATED:  0

 MULE:DZDQCD.BIN,MULE:DZDQCD.SEQ/SOL/CRF=DSKZ:UNIV.P11,DSKZ:DZDQCD.P11
 RUN-TIME: 29 43 3 SECONDS
 RUN-TIME RATIO: 243/77=3.1
 CORE USED:  24K  (47 PAGES)
```