DQ11

INTERRUPT LOGIC TEST

MD-11-DZDQC-C

EP-DZDQC-C-DL-A

FICHE 1 OF 1

NOV 1976

digital

MADE IN U.S.A.

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZDQC-C-D
PRODUCT NAME: DQ11 INTERUPT LOGIC TESTS
DATE: 21 JUNE 1976
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. DZDQC [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

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                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
                3:      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
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ERROR SWITCHES

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

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

SCOPE SWITCHES

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

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

4.2 STARTING ADDRESS

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

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

5. OPERATING PROCEDURE

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

AND PROGRAM WILL BEGIN RUNNING THE
DIAGNOSTIC

5.2 PROGRAM AND/OR OPERATOR ACTION

THE TYPICAL APPROACH SHOULD BE

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

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

CAN BE INTERPEDITED

6. ERRORS

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

6.2 ERROR RECOVERY

IF FOR SOME REASON THE DQ11 SHOULD
"HANG THE BUS" (GAIN CONTROL OF BUS SO THAT
CONSOLE MANUAL FUNCTIONS ARE INHIBITED) AN INIT
OR POWER DOWN/UP IS NECESSARY FOR OPERATOR
TO REGAIN CONTROL OF CPU.
IF THIS SHOULD HAPPEN; LOOK IN LOCATION
"TSTNO" (ADDRESS 1222)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 PROGRAM OTHER THAN A
DQ11 DIAGNOSTIC WAS LOADED AFTER DQ11 TRIAL OR
IF CORE MEMORY HAS NOT BEEN CHANGED;OR IF THERE
IS NO DQ11 CONFIGURATION CHANGES; THE
DQ11 TRIAL PROGRAM NEED NEVER BE RUN AGAIN.
HOWEVER IF ANY OF THE ABOVE HAVE BEEN VIOLATED
THE DQ11 TRIAL PROGRAM MUST BE RUN AGAIN
BEFORE RUNNING THE DIAGNOSTICS
NOTE: AN ALTERNATIVE TO THE ABOVE IS ATTEMPTING
THE "AUTO SIZING" WHEN PROGRAM IS INITIALLY STARTED
WITH SW07=0.

8. MISCELLANEOUS

8.1 EXECUTION TIME

8.2 PASS COMPLETE

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

END PASS DZDQC-C 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 (1210)	CONTAINS THE ADDRESS WHERE PROGRAM WILL RETURN WHEN ITERATION COUNT IS REACHED OR IF LOOP ON TEST IS ASSERTED.
NEXT (1212)	CONTAINS THE ADDRESS OF THE NEXT TEST TO BE PEFORMED.
TSTNO (1222)	CONTAINS THE NUMBER OF THE TEST NOW BEING PEFORMED.
RUN (1272	THE BIT IN "RUN" ALWAYS POINTS ONE PAST THE DQ11 CURRENTLY BEING TESTED. EXAMPLE: (RUN) 1272/0000000001000000 MEANS THAT DQ11 NO.05 IS THE DQ1. 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

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                        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

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

                                        ;MAINDEC-11-DZDQC-C/<377>/DQ11 INTERRUPT AND NPR LOGIC TEST
                                        ;COPYRIGHT 1975, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754

                                        ;REVISED 21-JUNE-76 BY S. CARPENTER
                                        ;       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-C/<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
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                                ;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                          ABBIT=2000
004000                          ACTBIT=4000
010000                          BABIT=10000
020000                          BBBIT=20000
040000                          JUMBIT=40000
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                001000                  ODDBIT=1000
                100000                  SYNBIT=100000


                                        ;DQ11 SECONDARY REGISTER DEFINATIONS

                000000                  RXBA.P=0        ;RECEIVER BUS ADDRESS PRIMARY.
                000001                  RXWC.P=1        ;RECEIVER WORD COUNT PRIMARY.
                000002                  TXBA.P=2        ;TRANSMITTER BUS ADDRESS PRIMARY.
                000003                  TXWC.P=3        ;TRANSMITTER BUS ADDRESS PRIMARY.
                000004                  RXBA.S=4        ;RECEIVER BUS ADDRESS SECONDARY.
                000005                  RXWC.S=5        ;RECEIVER WORD COUNT SECONDARY.
                000006                  TXBA.S=6        ;TRANSMITTER BUS ADDRESS SECONDARY.
                000007                  TXWC.S=7        ;TRANSMITTER WORD COUNT SECONDARY.

                000010                  CHARDT=10       ;CHARACTER DETECT REGISTER.
                000011                  SYNC.=11        ;SYNC REGISTER.
                000012                  MISC.=12        ;MISCELLANEOUS REGISTER.
                000013                  TX.MUX=13       ;TRANSMITTER MUX REGISTER.
                000014                  SEQ.=14         ;SEQUENCE REGISTER.
                000015                  RX.BCC=15       ;RECEIVER BCC REGISTER.
                000016                  TX.BCC=16       ;TRANSMITTER BCC REGISTER.
                000017                  POLY.=17        ;POLYNOMIAL REGISTER.
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                                        ;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 TPAP 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
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                                        ;STANDARD INTERRUPT VECTORS
                
                000024                  .=24
000024  014564                          .PFAIL                  ;POWER FAIL HANDLER
000026  000340                          340                     ;SERVICE AT LEVEL 7
000030  014234                          .HLT                    ;ERROR HANDLER
000032  000340                          340                     ;SERVICE AT LEVEL 7
000034  014202                          .TRPSRV                 ;GENERAL HANDLER DISPATCH SERVICE
000036  000340                          340                     ;SERVICE AT LEVEL 7
                000046                  .=46
000046  012762                          LOGICAL                 ;ACT HOOKS
                000052                  .=52
000052  000000                          .WORD 0
                                        ;THIS ROUTINE TRIES TO FORCE THE RECEIVER TO INTERUPT
                                        ;TO ITS VECTOR WHERE IT WILL PICK UP THE STATUS LOCATION
                                        ;FOR ITS NEW PC; AND PICK UP AN IOT INSTRUCTION FOR ITS
                                        ;NEW PS. WHEN THE NEW PC IS FETCHED AN IOT INSTRUCTION IS
                                        ;EXECUTED, TRAPPING TO LOCATION 20 WHERE A ROUTINE IS EXECUTED
                                        ;TO TAKE THE PC FROM THE STACK AND US IT AS THE VECTOR ADDRESS
                000056                  .=56
                
000056                                  VECMAP:
000056  010120                  1$:     MOV     R1,(R0)+        ;START FILLING THE VECTOR AREA
000060  012721  000004                  MOV     #4,(R1)+        ;WITH .+2; IOT (4)
000064  022021                          CMP     (R0)+,(R1)+     ;UPDATE THE POINTERS
000066  020127  001000                  CMP     R1,#1000        ;IS ALL FLOATING VECTOR AREA DONE
000072  101771                          BLOS    1$              ;BR IF NOT ALL DONE
000074  012737  000146  000020          MOV     #4$,@#20        ;SET FOR IOT TRAP BY DQ11
000102  013737  001500  001244          MOV     DQACTV,TEMP1    ;GET THE ACTIVE DQ11 S
000110  006037  001244          2$:     ROR     TEMP1           ;ARE YOU ACTIVE.. DQ11
000114  103023                          BCC     5$              ;IF CARRY CLEAR.. NO MORE DQ11S
000116  005037  177776                  CLR     PS              ;CLEAR PS
000122  005722                          TST     (R2)+           ;PUT POINTER TO STATUS TABLE
000124  012772  000340  177776          MOV     #340,@-2(R2)    ;TRY AND SET PRI/SEC DONE AND IE
000132  105200                          INCB    R0              ;DELAY.....
000134  001376                          BNE     .-2             ;.....DELAY
000136  112712  000300                  MOVB    #300,(R2)       ;NO INTERUPT ASSUME 300 FIX IN TEST C
000142  005722                  3$:     TST     (R2)+           ;UPDATE POINTERS
000144  000761                          BR      2$              ;GO DO IT AGAIN
000146  051612                  4$:     BIS     (SP),(R2)       ;ENTERD  BY IOT TRAP BY DQ11
000150  042712  000007                  BIC     #7,(R2)         ;CLEAR UNWANTED BITS
000154  022626                          CMP     (SP)+,(SP)+     ;POP IOT JUNK OFF STACK
000156  012716  000142                  MOV     #3$,(SP)        ;SET RETURN PC ON STACK
000162  000002                          RTI                     ;GO HOME.
000164  000207                  5$:     RTS     PC              ;ALL SIZING IS DONE
                
                                        ;****SOFTWARE SWITCH REGISTER****
                000174                  .=174
000174  000000                  DISPREG:        0               ;SOFTWARE DISPLAY REGISTER
000176  000000                  SWREG:          0               ;SOFTWARE SWITCH REGISTER
                
                                        ;PROGRAM START
                
                000200                  .=200
000200  000137  001512                  JMP     .START          ;GO TO START OF PROGRAM
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  965            000220                          .=220
  966  000220   012702  001400            CSRMAP: MOV     #1400,R2        ;CLEAR ALL STATUS TABLE
  967  000224   005022                            CLR     (R2)+           ;DO CLEAR
  968  000226   022702  001512                    CMP     #1512,R2        ;ALL TABLE DONE
  969  000232   001374                            BNE     .-6             ;BR IF MORE TO GO
  970  000234   005037  001504                    CLR     DQNUM           ;SET NUMBER OF DQ11S TO 0
  971  000240   012702  001400                    MOV     #1400,R2        ;SET TABLE POINTER
  972  000244   012701  160000                    MOV     #160000,R1      ;GET FIRST FLOATING ADDRESS
  973  000250   012737  000614  000004            MOV     #5$,@#4         ;SET FOR TIME OUT TRAP--NO DEVICE--
  974  000256   112761  000012  000005  1$:       MOVB    #12,5(R1)       ;TRY AND SEL MISC REGISTER
  975  000264   005061  000006                    CLR     6(R1)           ;TRY AND CLEAR MISC REG
  976  000270   012711  010000                    MOV     #10000,(R1)     ;TRY AND SET RX ACTIVE
  977  000274   022761  030000  000006            CMP     #30000,6(R1)    ;LOOK FOR SYNC 1 AND SYNC 2
  978  000302   001071                            BNE     2$              ;THIS IS NOT A DQ11 IF I BRANCH
  979  000304   010122                            MOV     R1,(R2)+        ;NOW THIS IS A DQ11 --STORE CSR
  980  000306   052712  100000                    BIS     #SYNBIT,(R2)    ;SET FOR TWO SYNC CHARS
  981  000312   005011                            CLR     (R1)            ;CLEAR DQ ACTIVE BIT
  982  000314   112761  000010  000005            MOVB    #10,5(R1)       ;SEL CHAR DET REGISTER
  983  000322   012761  177777  000006            MOV     #-1,6(R1)       ;WRITE INTO CHAR DET REG
  984  000330   005761  000006                    TST     6(R1)           ;WAS THE REGISTER WRITTEN?
  985  000334   001402                            BEQ     .+6             ;APPERENTLY NO BB OPTION.
  986  000336   052712  020000                    BIS     #BBBIT,(R2)     ;SET FOR BB OPTION
  987  000342   112761  000017  000005            MOVB    #17,5(R1)       ;SEL POLYNO. REGISTER
  988  000350   012761  177777  000006            MOV     #-1,6(R1)       ;WRITE POLYNO.REGISTER
  989  000356   005761  000006                    TST     6(R1)           ;WAS REG WRITTEN??
  990  000362   001402                            BEQ     .+6             ;BR IF NO AB OPTION
  991  000364   052712  002000                    BIS     #ABBIT,(R2)     ;SET FOR AB OPTION
  992  000370   012761  001400  000002            MOV     #1400,2(R1)     ;TRY TO SET .DTR. .RS.
  993  000376   032761  001400  000002            BIT     #1400,2(R1)     ;DID ANY OF THEM SET
  994  000404   001402                            BEQ     .+6             ;BR IF NO BA OPTION
  995  000406   052712  010000                    BIS     #BABIT,(R2)     ;SET FOR BA OPTION
  996  000412   032761  030000  000002            BIT     #30000,2(R1)    ;DID .CS. .CO. SET
  997  000420   001402                            BEQ     .+6             ;BR IF NO JUMPER
  998  000422   052712  040000                    BIS     #JUMBIT,(R2)    ;SET FOR JUMPER
  999  000426   052712  004000                    BIS     #ACTBIT,(R2)    ;SET FOR ACTIVE ON FIRST NON-SYNC
 1000  000432   052712  001000                    BIS     #ODDBIT,(R2)    ;SET FOR ODD VRC.......
 1001  000436   005722                            TST     (R2)+           ;POP POINTER
 1002  000440   005011                            CLR     (R1)            ;CLEAR RCSR
 1003  000442   005061  000002                    CLR     2(R1)           ;CLEAR TCSR
 1004  000446   005061  000002                    CLR     2(R1)           ;CLEAR AGAIN
 1005  000452   005061  000004                    CLR     4(R1)           ;CLEAR ERROR REG
 1006  000456   005061  000006                    CLR     6(R1)           ;CLEAR SEC REG
 1007  000462   005237  001504                    INC     DQNUM           ;UPDATE NUMBER OF DQ11S
 1008  000466   062701  000010          2$:       ADD     #10,R1          ;UPDATE CSR POINTER BY 10 (8)
 1009  000472   022701  164000                    CMP     #164000,R1      ;HAVE ALL FLOATING ADDRESSES BEEN CHECKED??
 1010  000476   001267                            BNE     1$              ;BR IF NOT ALL DONE
 1011  000500   005037  001500                    CLR     DQACTV          ;ZERO ACTIVE DQ11S
 1012  000504   005737  001504                    TST     DQNUM           ;WERE ANY DQ11S FOUND
 1013  000510   001434                            BEQ     4$              ;HEY BUDDY. NO DQ11S FOUND IN SYSTEM
 1014  000512   013701  001504                    MOV     DQNUM,R1        ;SAVE NUMBER OF DQ11S
 1015  000516   010137  001276                    MOV     R1,SAVNUM       ;SAVE NUMBER FOR ACT11
 1016  000522   000241                  3$:       CLC                     ;CLEAR CARRY
 1017  000524   006137  001500                    ROL     DQACTV          ;<<<<< ACTIVE ADDRESS
 1018  000530   005237  001500                    INC     DQACTV          ;SET BIT 0
 1019  000534   005301                            DEC     R1              ;DEC NUMBER OF DQ11S
 1020  000536   001371                            BNE     3$              ;BR IF MORE TO GO
```

```
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  000602  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-C/<377>/DQ11 INTERRUPT AND NPR LOGIC TEST/<37
1039  001006  042504  026503  030461
1040  001014  042055  042132  041521
1041  001022  041455  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
```

```
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                   SAVO5=TRAP+6            ;CALL TO REGISTER SAVE ROUTINE
1123  001330   013662                          .SAVO5
1124           104407                   RESO5=TRAP+7            ;CALL TO REGISTER RESTORE ROUTINE
1125  001332   013722                          .RESO5
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
```

```
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     #SW00,@SWR
1255  002020  001424                          BEQ     1$
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  000207                          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 AD'   S POINTER.
 1325  002356  005337  001306                  DEC     RUNCNT          ;DEC NUMBER O.  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  0013?          MOV     DQRVEC,DQRLVL   ;GENERATE ADDRESS O  RECEIVER INTERRUPT SERVICE PS
 1345  002506  062737  000002  0013?          ADD     #2,DQRLVL
 1346  002514  013737  001352  001 ?4          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   ;GE  .RATE 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
```

```
                                        ;STEP MODE VERIFICATION AND CLOCK LOSS TEST
                                        ;SET STEP MODE
                                        ;SET RECEIVER GO
                                        ;SET TRANSMITTER GO
                                        ;EXPECTED RESULTS (AFTER DELAY)
                                        ;                  TRANSMITTER CLOCK LOSS = 1
                                        ;                  RECEIVER CLOCK LOSS = 1
                                        ;
                                        ;****NOTE: AS THE "CLOCK UP" OCCURS
                                        ;AN "NPR" SHOULD BE EXECUTED.
                                        ;THEREFORE IF THE DQ11 IS GOING TO "HANG"
                                        ;THE BUS DUE TO NPR'S THIS IS THE
                                        ;FIRST TEST IT WILL HAPPEN IN!!****

                                    ;  TEST 2
                                    ;*****************************************************************
002644  012737  000002  001226  TST2:  MOV     #2,TSTNO
002652  012737  000010  001222        MOV     #10,ICOUNT
002660  012737  003014  001216        MOV     #TST3,NEXT
002666  012737  000340  177776        MOV     #340,PS                 ;LOCK OUT INTERUPTS
002674  104413                      MEMCLR                          ;CLEAR MEMORY
002676  104412                      MSTCLR                          ;INIT DQ11
002700  005037  001244              CLR     TEMP1                   ;ZERO DELAY COUNTER
002704  012737  000010  001246      MOV     #10,TEMP2               ;DELAY 9 X 65535 TIMES
002712  112777  000012  176450      MOVB    #12,@DQREG              ;SELECT MISC REG
002720  012777  000002  176444      MOV     #BIT1,@DQSEC            ;SET AUTO STEP
002726  012777  010001  176424      MOV     #BIT12+BIT0,@DQRCSR     ;SET RX GO!!
002734  012777  000001  176422      MOV     #BIT0,@DQTCSR           ;SET TX GO!!
002742  005277  176424              INC     @DQSEC                  ;CLOCK UP!!
002746  005377  176420              DEC     @DQSEC                  ;CLOCK DN!!
002752  005237  001244        1$:   INC     TEMP1                   ;DO THE DELAY....
002756  001375                      BNE     1$                      ;       DELAY.......
002760  042777  010000  176372      BIC     #BIT12,@DQRCSR          ;CLEAR RX ACTIVE
002766  005337  001246              DEC     TEMP2                   ;DELAY......
002772  001367                      BNE     1$                      ;DELAY.....
002774  012705  000003              MOV     #3,R5                   ;SET FOR EXPECTED
003000  117704  176362              MOVB    @DQERR,R4               ;READ THE DQERR REGISTER (SEL4)
003004  020504                      CMP     R5,R4                   ;CLOCK LOSS WORKING??
003006  001401                      BEQ     2$                      ;BR IF YES.
003010  104013                      HLT     13                      ;TX AND RX CLOCK LOSS ERROR
003012  104400              2$:     SCOPE                           ;SCOPE THIS TEST.
                                    ;TEST LOOP VERIFICATION
                                    ;SET STEP MODE AND TEST LOOP
                                    ;SET RECEIVER GO
                                    ;SET TRANSMITTER GO
                                    ;EXPECTED RESULTS (AFTER DELAY)
                                    ;                  TRANSMITTER CLOCK LOSS=0
                                    ;                  RECEIVER CLOCK LOSS=0

                                    ;  TEST 3
                                    ;*****************************************************************
003014  012737  000003  001226  TST3:  MOV     #3,TSTNO
003022  012737  000010  001222        MOV     #10,ICOUNT
003030  012737  003142  001216        MOV     #TST4,NEXT
003036  104413                      MEMCLR
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
```

```
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 0
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
```

```
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
```

```
1771                                    ;  TEST 22
1772                                    ;*****************************************************************
1773  004472  012737  000022  001226    TST22:  MOV     #22,TSTNO
1774  004500  012737  004556  001216            MOV     #TST23,NEXT
1775  004506  104412                            MSTCLR                          ;CLEAR INTERFACE
1776  004510  004737  016042                    JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1777  004514  004536                            1$                              ;RECEIVER WILL INTERRUPT TO 1$
1778  004516  004542                            2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1779  004520  052777  000020  174640            BIS     #BIT4,@DQERR            ;SET T NON-EX MEM INTERRUPT FLAG
1780  004526  005037  177776                    CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1781  004532  000240                            NOP                             ;WINDOW FOR INTERRUPTS
1782  004534  000403                            BR      3$
1783  004536  104003                    1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1784  004540  000401                            BR      3$
1785  004542  104002                    2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1786  004544  012706  001200            3$:     MOV     #STACK,SP               ;RESTORE STACK
1787  004550  004737  016074                    JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1788  004554  104400                    4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1789
1790                                            ;INTERRUPT LOGIC TEST
1791                                            ;SET R NON-EX MEM INTERRUPT FLAG
1792                                            ;VERIFY THAT NO INTERRUPT OCCURS
1793
1794                                    ;  TEST 23
1795                                    ;*****************************************************************
1796  004556  012737  000023  001226    TST23:  MOV     #23,TSTNO
1797  004564  012737  004642  001216            MOV     #TST24,NEXT
1798  004572  104412                            MSTCLR                          ;CLEAR INTERFACE
1799  004574  004737  016042                    JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1800  004600  004622                            1$                              ;RECEIVER WILL INTERRUPT TO 1$
1801  004602  004626                            2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1802  004604  052777  000040  174554            BIS     #BIT5,@DQERR            ;SET R NON-EX MEM INTERRUPT FLAG
1803  004612  005037  177776                    CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1804  004616  000240                            NOP                             ;WINDOW FOR INTERRUPTS
1805  004620  000403                            BR      3$
1806  004622  104003                    1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1807  004624  000401                            BR      3$
1808  004626  104002                    2$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
1809  004630  012706  001200            3$:     MOV     #STACK,SP               ;RESTORE STACK
1810  004634  004737  016074                    JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1811  004640  104400                    4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1812
1813                                            ;INTERRUPT LOGIC TEST
1814                                            ;SET R BCC ERROR INTERRUPT FLAG
1815                                            ;VERIFY THAT NO INTERRUPT OCCURS
1816
1817                                    ;  TEST 24
1818                                    ;*****************************************************************
1819  004642  012737  000024  001226    TST24:  MOV     #24,TSTNO
1820  004650  012737  004726  001216            MOV     #TST25,NEXT
1821  004656  104412                            MSTCLR                          ;CLEAR INTERFACE
1822  004660  004737  016042                    JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1823  004664  004706                            1$                              ;RECEIVER WILL INTERRUPT TO 1$
1824  004666  004712                            2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1825  004670  052777  000100  174470            BIS     #BIT6,@DQERR            ;SET R BCC ERROR INTERRUPT FLAG
1826  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
```

```
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
```

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

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

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

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

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

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

```
 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
```

```
                                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
                                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
005666  052777  000010  173476        BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
005666  052777  000004  173472        BIS     #BIT2,@DQERR            ;SET T LATENCY INTERRUPT FLAG
005674  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
005700  000240                        NOP                             ;WINDOW FOR INTERRUPTS
005702  104001                        HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
005704  000402                        BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
                                                                        ;T LATENCY INTERRUPT FLAG SET
005706  104003                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
005710  000240                2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
005712  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
005716  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
005722  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP

                                        ;INTERRUPT LOGIC TEST
                                        ;SET ERROR INTERRUPT ENABLE
                                        ;SET R LATENCY INTERRUPT FLAG
                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR

                                ;  TEST 36
                                ;*************************************************************************
005724  012737  000036  001226  TST36:  MOV     #36,TSTNO
005732  012737  006016  001216        MOV     #TST37,NEXT
005740  104412                        MSTCLR                          ;CLEAR INTERFACE
005742  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
005746  006000                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
005750  006002                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
005752  052777  000010  173404        BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
005760  052777  000010  173400        BIS     #BIT3,@DQERR            ;SET R LATENCY INTERRUPT FLAG
005766  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
005772  000240                        NOP                             ;WINDOW FOR INTERRUPTS
005774  104001                        HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
005776  000402                        BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
                                                                        ;R LATENCY INTERRUPT FLAG SET
006000  104003                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
006002  000240                2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
006004  012706  001200        3$:     MOV     #STACK,SP               ;RESTORE STACK
006010  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
006014  104400                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP

                                        ;INTERRUPT LOGIC TEST
                                        ;SET ERROR INTERRUPT ENABLE
                                        ;SET T NON-EX MEM INTERRUPT FLAG
                                        ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR

                                ;  TEST 37
                                ;*************************************************************************
006016  012737  000037  001226  TST37:  MOV     #37,TSTNO
006024  012737  006110  001216        MOV     #TST40,NEXT
006032  104412                        MSTCLR                          ;CLEAR INTERFACE
006034  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
006040  006072                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
006042  006074                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
006044  052777  000010  173312        BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
006052  052777  000020  173306        BIS     #BIT4,@DQERR            ;SET T NON-EX MEM INTERRUPT FLAG
```

```
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
```

```
2163                                                                    ;R BCC ERROR INTER..JPT 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 INTERPUPT 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
```

```
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
```

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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
```

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 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
```

```
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$:     MSTCLR
2461  007454  012737  000340  177776            MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2462  007462  012737  000000  017170            MOV     #0,TBUFF
2463  007470  004737  016024                    JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2464  007474  004737  016042                    JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2465  007500  007576                            3$                              ;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$:     DEC     TEMP1                   ;WAIT FOR INTERRUPTS AND NPPS
2478  007564  001375                            BNE     2$
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
2553  010042  012777  000040  171314          MOV     #BIT5,@DQTCSR           ;CHARACTER COUNT=1
2554  010050  052777  000001  171306          BIS     #BIT0,@DQTCSR           ;SET TRANSMITTER PRIMARY INTERRUPT ENABLE
2555  010056  005037  177776                  CLR     PS                      ;SET TRANSMITTER GO
2556  010062  012737  002000  001244          MOV     #2000,TEMP1             ;ENABLE INTERRUPTS
2557  010070  005337  001244          2$:     DEC     TEMP1                   ;SET UP DELAY
2558  010074  001375                          BNE     2$                      ;WAIT FOR INTERRUPTS AND NPRS
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$:     DEC     TEMP1                   ;WAIT FOR INTERRUPTS AND NPRS
0105[6  001375                          BNE     2$
0105[   012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
0105[   104000                          HLT     0                       ;RECEIVER DID NOT INTERRUPT
010530  000401                  3$:     BR      5$
010532  104002                  4$:     HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
010534  012706  001200          5$:     MOV     #STACK,SP               ;RESTORE PROCESSOR STACK
010540  012705  000140                  MOV     #140,R5                 ;(R5)=EXPECTED DATA IN RECEIVER CONTROL REGISTER
```

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

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

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

                                ;  TEST 56
                                ;*****************************************************************
010704  012737  000056  001226  TST56: MOV     #56,TSTNO
010712  012737  010730  001214        MOV     #1$,RETURN
010720  012737  011330  001216        MOV     #TST57,NEXT
```

```
2720  010726  104413                        MEMCLR                  ;ISSUE A MEMORY CLEAR.
2721  010730  104412              1$:       MSTCLR                  ;MASTER CLEAR DQ11
2722  010732  104413                        MEMCLR                  ;
2723  010734  112777  000012  170426        MOVB    #12,@DQREG      ;SELECT MISC.REG
2724  010742  012777  004010  170422        MOV     #4010,@DQSEC    ;SET FOR EIGHT BITS AND TEST LOOP
2725  010750  112777  000002  170412        MOVB    #2,@DQREG       ;SEL TX BA PRI.
2726  010756  012777  017170  170406        MOV     #TBUFF,@DQSEC   ;SET BUS ADDRESS
2727  010764  105277  170400                INCB    @DQREG          ;SELECT TX WC PRI.
2728  010770  012777  177777  170374        MOV     #-1,@DQSEC      ;SET FOR ONE CHAR.
2729  010776  005277  170362                INC     @DQTCSR         ;SET TX GO!!
2730  011002  012700  000010                MOV     #10,R0          ;SET FOR TIME OUT.
2731  011006  005300                        DEC     R0              ;DELAY
2732  011010  001376                        BNE     .-2             ;BR IF MORE DELAY
2733  011012  0.  705  000204                MOV     #204,R5         ;SET FOR EXPECTED.
2734  011016  01.  04  170342                MOV     @DQTCSR,R4      ;READ THE TX CSR
2735  011022  020405                        CMP     R4,R5           ;EXPECTED=ACTUAL?
2736  011024  001401                        BEQ     .+4             ;BR IF YES
2737  011026  104005                        HLT     5               ;TX STATUS REG ERROR
2738  011030  005077  170330                CLR     @DQTCSR         ;CLEAR ALL BUT P/S BIT
2739  011034  012737  000340  177776        MOV     #340,PS         ;LOCK OUT INTERRUPTS
2740  011042  012737  177777  017170        MOV     #177777,TBUFF   ;SET CHARACTER
2741  011050  104413                        MEMCLR                  ;CLEAR INTERFACE MEMORIES
2742  011052  004737  016006                JSR     PC,SETLOP       ;SET MAINTENANCE MODE
2743  011056  004737  016042                JSR     PC,SETV         ;SET UP INTERRUPT VECTORS
2744  011062  011146                        3$                      ;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$:     DEC     TEMP1           ;WAIT FOR INTERRUPTS AND NPRS
2755  011132  0[  375                       BNE     2$
2756  011134  0   37  000340  177776        MOV     #340,PS         ;LOCK OUT INTERRUPTS
2757  011142  10  01                        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$:     MOV     #STACK,SP       ;RESTORE PROCESSOR STACK
2762  011156  012705  000140                MOV     #140,R5         ;(R5)=EXPECTED DATA IN TRANSMITTER CONTROL REGIS
2763                                                                ;DONE (SECONDARY)=', INTERRUPT ENABLE=1,
2764                                                                ;P/S=1
2765  011162  017704  170176                MOV     @DQTCSR,R4      ;(R4)=ACTUAL DATA IN TRANSMITTER CONTROL REGISTE
2766  011166  042704  177400                BIC     #177400,R4      ;CLEAR UNWANTED BITS
2767  011172  020504                        CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
2768  011174  001401                        BEQ     6$
2769  011176  104005                        HLT     5               ;TRANSMITTER STATUS ERROR
2770  011200  005005                6$:     CLR     R5              ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2771  011202  013703  001366                MOV     DQERR,R3        ;ADDRESS OF ERROR REGISTER
2772  011206  117704  170154                MOVB    @DQERR,R4       ;(R4)TUAL DATA IN ERROR REGISTER
2773  011212  [01401                        BEQ     7$
2774  011214  10-006                        HLT     6               ;ERROR FLAG(S) SET
2775  011216  112777  000006  1701'''  7$:  MOVB    #6,@DQREG       ;SELECT TRANSMITTER B'' ADDRESS (SECONDARY)
```

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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$:    SCOPE
2802
2803                                        ;RECEIVER NON-EXISTANT MEMORY TIMEOUT TEST
2804                                        ; (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT)
2805                                        ;EXPECTED RESULTS
2806                                        ;               RECEIVER DONE INTERRUPT OCCURS
2807                                        ;               RECEIVER DONE (PRIMARY) = 1
2808                                        ;               RECEIVER CC = 0
2809                                        ;               RECEIVER P/S = 1
2810                                        ;               RECEIVER NON EXISTANT MEMORY ERROR FLAG = 1
2811                                        ;
2812                                        ;               RECEIVER BUS ADDRESS (PRIMARY) = RBUFF+1
2813                                        ;               RECEIVER CHARACTER COUNT (PRIMARY) = 0
2814
2815                                        ;  TEST 57
2816                                        ;*************************************************************
2817  011330  012737  000057  001226  TST57: MOV     #57,TSTNO
2818  011336  012737  011362  001214        MOV     #1$,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     #BIT5,@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                       ;ERR^ 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
```

```
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
```

```
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
```

```
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
```

```
                                                ;SAVE PC OF TEST THAT FAILED AND R0-R5
                                                
013662  016637  000004  001274  .SAV05: MOV     4(SP),SAVPC
                                                
                                                ;SAVE R0-R5
                                                
013670  010537  001270          SV05:   MOV     R5,SAVR5
013674  010437  001266                  MOV     R4,SAVR4
013700  010337  001264                  MOV     R3,SAVR3
013704  010237  001262                  MOV     R2,SAVR2
013710  010137  001260                  MOV     R1,SAVR1
013714  010037  001256                  MOV     R0,SAVR0
013720  000002                          RTI
                                                
                                                ;RESTORE R0-R5
                                                
013722  013700  001256          .RES05: MOV     SAVR0,R0
013726  013701  001260                  MOV     SAVR1,R1
013732  013702  001262                  MOV     SAVR2,R2
013736  013703  001264                  MOV     SAVR3,R3
013742  013704  001266                  MOV     SAVR4,R4
013746  013705  001270                  MOV     SAVR5,R5
013752  000002                          RTI
                                                
                                                ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
                                                
013754  104402                  .CONVR: TYPE
013756  015040                          MCRLF
013760  010046                  .CNVRT: MOV     R0,-(SP)
013762  010146                          MOV     R1,-(SP)
013764  010346                          MOV     R3,-(SP)
013766  010446                          MOV     R4,-(SP)
013770  010546                          MOV     R5,-(SP)
013772  017601  000012                  MOV     @12(SP),R1
013776  013737  015514  001250          MOV     TEMP,TEMP3
014004  062766  000002  000012          ADD     #2,12(SP)
014012  012137  014174                  MOV     (R1)+,WRDCNT
014016  112137  014176          1$:     MOVB    (R1)+,CHRCNT
014022  112137  014177                  MOVB    (R1)+,SPACNT
014026  013137  014200                  MOV     @(R1)+,BINWRD
014032  013704  014200          2$:     MOV     BINWRD,R4
014036  113705  014176                  MOVB    CHRCNT,R5
014042  012700  015514                  MOV     #TEMP,R0
014046  010403                  3$:     MOV     R4,R3
014050  042703  177770                  BIC     #177770,R3
014054  062703  000060                  ADD     #060,R3
014060  110320                          MOVB    R3,(R0)+
014062  000241                          CLC
014064  006004                          ROR     R4
014066  000241                          CLC
014070  006004                          ROR     R4
014072  000241                          CLC
014074  006004                          ROR     R4
014076  005305                          DEC     R5
014100  001362                          BNE     3$
014102  012703  015556                  MOV     #MDATA,R3
```

```
 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$:   SAV05
 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: RESO5
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
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TDQC   MACY11 27(732)  24-SEP-76  10:14  PAGE 
..D'3C.P11      GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

 3448  014556  000001                    XTSTN:  1
 3449  014560     003     002                    .BYTE   3,2
 3450  014562  001226                            TSTNO
 3451                                            ;E''TER 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  ,4342                     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  /P      : /
 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
```

```
                                        ;TABLE OF ERROR MESSAGES
                                        ;
                                        ;
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
                                        ;TABLE OF POINTERS FOR ERROR OUTPUT
                                        ;
016744 016170                   .ERRTAB:EM0
016746 000000                           0
016750 000000                           0
016752 016223                           EM1
016754 000000                           0
016756 000000                           0
016760 016261                           EM2
016762 000000                           0
016764 000000                           0
016766 016322                           EM3
016770 000000                           0
016772 000000                           0
016774 016360                           EM4
016776 016634                           DH0
017000 017054                           DT0
017002 016406                           EM5
017004 016634                           DH0
017006 017072                           DT1
017010 016437                           EM6
017012 016634                           DH0
017014 017150                           DT4
017016 016461                           EM7
017020 016675                           DH1
017022 017126                           DT3
017024 016503                           EM10
017026 016675                           DH1
017030 017126                           DT3
017032 016531                           EM11
017034 016634                           DH0
017036 017150                           DT4
017040 016555                           EM12
017042 016675                           DH1
```

```
 3710  017044  017126                              DT3
 3711  017046  016613                              EM13
 3712  017050  016634                              DH0
 3713  017052  017110                              DT2
 3714
 3715                                              ;DATA TABLES FOR ERROR OUTPUT
 3716
 3717  017054  000003                  DT0:        3
 3718  017056     006      004          .BYTE      6,4
 3719  017060  001270                              SAVR5
 3720  017062     006      004          .BYTE      6,4
 3721  017064  001266                              SAVR4
 3722  017066     006      004          .BYTE      6,4
 3723  017070  001360                              DQRCSR
 3724  017072  000003                  DT1:        3
 3725  017074     006      004          .BYTE      6,4
 3726  017076  001270                              SAVR5
 3727  017100     006      004          .BYTE      6,4
 3728  017102  001266                              SAVR4
 3729  017104     006      004          .BYTE      6,4
 3730  017106  001364                              DQTCSR
 3731  017110  000003                  DT2:        3
 3732  017112     003      007          .BYTE      3,7
 3733  017114  001270                              SAVR5
 3734  017116     003      007          .BYTE      3,7
 3735  017120  001266                              SAVR4
 3736  017122     006      000          .BYTE      6,0
 3737  017124  001366                              DQERR
 3738  017126  000004                  DT3:        4
 3739  017130     006      004          .BYTE      6,4
 3740  017132  001270                              SAVR5
 3741  017134     006      004          .BYTE      6,4
 3742  017136  001266                              SAVR4
 3743  017140     006      004          .BYTE      6,4
 3744  017142  001372                              DQSEC
 3745  017144     002      000          .BYTE      2,0
 3746  017146  001262                              SAVR2
 3747  017150  000003                  DT4:        3
 3748  017152     006      004          .BYTE      6,4
 3749  017154  001270                              SAVR5
 3750  017156     006      004          .BYTE      6,4
 3751  017160  001266                              SAVR4
 3752  017162     006      004          .BYTE      6,4
 3753  017164  001264                              SAVR3
 3754  017166  000000                  RBUFF:      0
 3755  017170  000000                  TBUFF:      0
 3756  017172  000000                  ZDATA:      0
 3757          000001                  .END
```

```
ABBIT = 002000            621#   991
ACTBIT= 004000            622#   999
ADRCNT= 013661           3230*  3269*  3278#
BABIT = 010000            623#   995   2412
BBBIT = 020000            624#   986
BINWRD  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
```

```
DHI     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    2933    2946    2972*   3044    3062
                        3592*   3602*   3610*   3612*   3625*   3631*   3637*   3665*   3663*   3744
DQSECH  001374          1154#   1360*   1361*
DQSTAT  001510          1197#   1339*   1342    2412
DQST00  001402          1162#
DQST01  001406          1164#
DQST02  001412          1166#
DQST03  001416          1168#
DQST04  001422          1170#
DQST05  001426          1172#
DQST06  001432          1174#
DQST07  001436          1176#
DQST10  001442          1178#
DQST11  001446          1180#
DQST12  001452          1182#
DQST13  001456          1184#
DQST14  001462          1186#
DQST15  001466          1188#
```

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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#
ERTABO  014550          3411    3445#
EXITER  014502          3430    3435#
HALTS   014462          3383    3429#
HILIM   013654          3227*   3257    3275#
ICOUNT  001222          1064#   1379*   1414*   3036*   3140    3144*
INBUF   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  012762           919    3106#
LOKFLG  001313          1100#
LOLIM   013652          3226*   3259    3274#
LPCNT   001224          1065#   3139*   3140    3143*
```

DZDQCC.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
LSTERR  001234          1069#  1216*  3078*  3384   3386*  3472*
MCRLF   015040          3199   3215   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   2382   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
ODDBIT= 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
PC     =%000007          581#   953*  1245*  1449*  1460*  1472*  1483*  1495*  1506*  1518*  1529*  1541*  1552*
                        1569*  1580*  1592*  1603*  1615*  1626*  1638*  1649*  1661*  1672*  1684*  1695*  1707*
                        1718*  1730*  1741*  1753*  1764*  1776*  1787*  1799*  1810*  1822*  1833*  1845*  1856*
                        1874*  1885*  1898*  1909*  1922*  1933*  1946*  1959*  1972*  1985*  1998*  2011*  2024*
                        2037*  2050*  2063*  2076*  2089*  2102*  2115*  2128*  2141*  2154*  2167*  2180*  2193*
                        2207*  2224*  2236*  2264*  2297*  2327*  2357*  2387*  2425*  2438*  2463*  2464*  2467*
                        2545*  2546*  2549*  2623*  2642*  2643*  2646*  2742*  2743*  2746*  2823*  2824*  2827*
                        2898*  2899*  2902*  2965*  2966*  3004*  3005*  3047*  3048*  3107*  3626*  3632*  3638*
                        3648*  3656*  3670*
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*
```

DZDQCC.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
                    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#
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#
RESO5 = 104407      1124#   3428
RETURN  001214      1061#   1218*   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#
R0    =%000000       574#    931*    933     943*   1025*   1030*   1258*   1268*   1271*   1273*   1275    1276    2241*
                    2246    2252*   2269*   2274    2278*   2300*   2308*   2310    2330*   2338*   2340    2360*   2368*
                    2370    2390*   2398*   2400    2629*   2630*   2730*   2731*   3043*   3068*   3135*   3291    3296*
                    3308    3322*   3326*   3336    3354*   3432*   3599*   3604*   3608*   3614*
R1    =%000001       575#    931     932*    933     934     972*    974*    975*    976*    977     979     981*    982*
                     983*    984     987*    988*    989     992*    993     996    1002*   1003*   1004*   1005*   1006*
                    1008*   1009    1014*   1015    1019*   1026*   1272*   1273    1274*   1275    3103*   3107    3290
                    3297*   3309    3313*   3316    3317    3318    3319    3353*
R2    =%000002       576#    941     942*    945*    946     948*    949*    966*    967*    968     971*    979*    980*
                     986*    991*    995*    998*    999*   1000*   1001    1024*   2242*   2244*   2270*   2272*   2498*
                    2510*   2579*   2591*   2599*   2677*   2689*   2776*   2788*   2796*   2858*   2870*   2932*   2944*
                    3045*   3289    3298*
R3    =%000003       577#   2493*   2500*   2517*   2574*   2581*   2672*   2679*   2696*   2771*   2778*   2853*   2860*
                    2927*   2934*   3044*   3185    3192*   3206*   3209    3218*   3288    3299*   3310    3323*   3324*
                    3325*   3326    3335*   3336*   3341*   3344*   3352*
R4    =%000004       578#   1398*   1399    1431*   2487*   2488*   2489    2494*   2504*   2506    2512*   2513    2518*
                    2519    2568*   2569*   2570    2575*   2585*   2587    2593*   2594    2600*   2601    2633*   2634*
                    2635    2666*   2667*   2668    2673*   2683*   2685    2691*   2692    2697*   2698    2734*   2735
                    2765*   2766*   2767    2772*   2782*   2784    2790*   2791    2797*   2798    2847*   2848*   2849
                    2854*   2864*   2866    2872*   2873    2921*   2922*   2923    2928*   2938*   2940    2946*   2947
                    2978*   2979*   2986*   2987*   3015*   3016*   3023*   3024*   3062*   3063    3186    3191*   3195*
                    3196*   3197    3201    3210    3217*   3224    3233*   3234    3236    3238    3240*   3241    3242
                    3248    3266*   3267*   3271*   3287    3300*   3311    3320*   3323    3328*   3330*   3332*   3351*
                    3391*   3392*   3393*   3394*   3395*   3396*   3397    3398    3399
R5    =%000005       579#   1397*   1399    1430*   2484*   2489    2492*   2501*   2506    2511*   2513    2516*   2519
                    2565*   2570    2573*   2582*   2587    2592*   2594    2597*   2601    2632*   2635    2663*   2668
                    2671*   2680*   2685    2690*   2692    2695*   2698    2733*   2735    2762*   2767    2770*   2779*
                    2784    2789*   2791    2794*   2798    2844*   2849    2852*   2861*   2866    2871*   2873    2918*
                    2923    2926*   2935*   2940    2945*   2947    2980*   2985*   3017*   3022*   3052*   3053    3063
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                    3161    3162*   3168    3178    3180*   3223    3225*   3226    3227    3228    3229    3230    3231
                    3232*   3241*   3244*   3245*   3246*   3257    3259    3261    3267    3268*   3272*   3286    3301*
                    3312    3321*   3333*   3350*   3389*   3390*   3391    3393    3642*   3643    3645    3647    3661*
                    3662    3664    3665    3668    3669
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#
SAVO5 = 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#
SP     =%000006      580#     948     950     951*   1033*   1207*   1227*   1228*   1233    1236    1237    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*   3146*   3156*   3161*   3162    3163*   3180    3185*   3186*   3187    3188*
                    3209*   3210*   3217    3218    3223*   3224*   3225    3231*   3271    3272    3282    3308*   3309*
                    3310*   3311*   3312*   3313    3315*   3350    3351    3352    3353    3354    3365*   3366*   3367*
                    3368*   3369*   3370*   3371*   3372    3384    3386    3389    3432    3442*   3463*   3642    3647*
                    3661    3669*
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*
SVO5    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#
SWO0  = 000001       568#   1254
SWO1  = 000002       567#   1294
SWO2  = 000004       566#
SWO3  = 000010       565#
SWO4  = 000020       564#
SWO5  = 000040       563#
SWO6  = 000100       562#
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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#
TST32   005354           1944   1969#
TST33   005446           1970   1995#
TST34   005540           1996   2021#
TST35   005632           2022   2047#
TST36   005724           2048   2073#
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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    003286          1447    1469#
TST50   007116          2325    2354#
TST51   007220          2355    2384#
TST52   007332          2422#
TST53   007426          2423    2456#
TST54   007752          2488    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#
TXWC.P= 000003           635#
TXWC.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#
XSTATQ  015440          1251    3572#
XTSTN   014556          3407    3448#
XVEC    013014          3090    3117#
ZDATA   017172          3042*   3052    3067*   3756#
$CNTG   015010          3497    3513#
$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#   1996    1997#   2022    2023#   2048    2049#   2074    2075#   2100    2101    2125    2127#
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                    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    3038#
$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#
.CNVPT  013760      1129    3308#
.CON.R  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#
.INSTI  013316      3189#   3200    3216
.MEMCL  015636      1133    3597#
.MSG    013320      3187*   3190#   3493*   3494*   3495
.MSTCL  015620      1131    3590#
.PARAM  013446      1121    3223#
.PFAIL  014564       912    1208    3454#   3462
.RESOS  013722      1125    3296#
.SAVOS  013662      1123    3282#
.SCOPE  013036      1111    3129#
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DZDQC   MACY11 27(732)  24-SEP-76  10:14  PAGE 83
DZDQCC.P11      CROSS REFERENCE TABLE -- USER SYMBOLS

.SCOP1  013150          1113    3153#
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.TRPSR  014202           916    3365#
.TRPTA  001314          1109*   3370
.TYPE   013170          1115    3161#
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DQFRNT     1*   534
HLT      598*  1401  1433  1456  1459  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
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F07


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$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
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          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
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DZDQCC.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

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        3370  3393  3396
ASL     3244  3245  3246  3368  3392  3394
BCC      939
BEQ      985   990   994   997  1013  1231  1249  1255  1287  1295  1321  1400  1432  2247  2253
        2275  2279  2401  2413  2490  2495  2507  2514  2520  2571  2576  2588  2595  2602  2636
        2669  2674  2686  2693  2699  2736  2768  2773  2785  2792  2799  2850  2867  2874  2924
        2941  2948  2984  3021  3064  3104  3131  3155  3202  3214  3235  3243  3340  3378  3385
        3401  3416  3421  3425  3440
BGT     3239
BHI     3258
BIC      949  1343  1394  2488  2569  2634  2667  2766  2848  2922  2979  2987  3016  3024  3324
        3369  3395  3494
BICB    3196  3240  3601  3666
BIS      948   980   986   991   995   998   999  1000  1452  1475  1498  1521  1544  1572  1595
        1618  1641  1664  1687  1710  1733  1756  1779  1802  1825  1848  1877  1878  1901  1902
        1925  1926  1949  1950  1975  1976  2001  2002  2027  2028  2053  2054  2079  2080  2105
        2106  2131  2132  2157  2158  2183  2184  2428  2429  2472  2474  2554  2628  2651  2653
        2751  2832  2834  2907  2970  2972  3009  3625  3631  3637
BISB    3241  3600  3663  3664
BIT      993   996  1254  1286  1294  1318  2412  2983  3020  3130  3137  3154  3166  3377  3382
        3437  3439
BITB    3261
BLO     3260
BLOS     935  1262
BLT     3237
BMI     1244  2855  2929  2975  3012  3057
BNE      944   969   978  1010  1020  1221  1239  1241  1277  1284  1314  1319  1326  1393  1396
        1426  1428  2245  2273  2311  2341  2371  2478  2558  2631  2657  2732  2755  2838  2911
        2977  3014  3059  3069  3101  3138  3141  3165  3167  3179  3198  3207  3249  3251  3262
        3270  3334  3338  3343  3348  3383  3403  3438  3466  3488  3490  3496  3605  3615
BPL     3134  3169  3171  3174  3177  3194  3205  3380  3430  3492
BR       947  1032  1232  1253  1266  1291  1304  1330  1334  1455  1457  1478  1480  1501  1503
        1524  1526  1547  1549  1575  1577  1598  1600  1621  1623  1644  1646  1667  1669  1690
        1692  1713  1715  1736  1738  1759  1761  1782  1784  1805  1807  1828  1830  1851  1853
        1882  1906  1930  1954  1980  2006  2032  2058  2084  2110  2136  2162  2188  2219  2305
        2335  2365  2395  2433  2481  2561  2660  2758  2841  2914  3122  3136  3200  3208  3216
        3247  3253  3457
CCC     1322  1335
CLC     1016  3327  3329  3331
CLR      940   967   970   975   981  1002  1003  1004  1005  1006  1011  1030  1211  1213  1215
        1216  1258  1274  1384  1419  1430  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  2214  2221  2222  2242  2243  2270  2271  2313
        2343  2373  2403  2430  2475  2492  2555  2573  2638  2654  2671  2738  2752  2770  2835
        2852  2908  2926  2985  3022  3042  3078  3079  3143  3232  3464  3471  3472  3508  3602
        3610  3612  3617  3618  3619  3653  3655
CLRB    1210  1212  2624  3142  3344  3387  3598  3606  3607  3616
CMP      933   934   950   968   977  1009  1230  1233  1240  1261  1275  1276  1399  2489  2506
        2513  2519  2570  2587  2594  2601  2635  2668  2685  2692  2698  2735  2767  2784  2791
        2798  2849  2866  2873  2923  2940  2947  3063  3140  3257  3259  3384  3489
CMPB    3197  3201  3234  3236  3238  3242  3248  3495
COM     2252  2278  2308  2338  2368  2398  3498
COMB    1223  1317
DEC     1019  1325  1391  1395  1427  2477  2557  2630  2656  2731  2754  2837  2910  2976  3013
        3058  3068  3100  3206  3333  3347  3604  3614
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DZDQCC.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

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DECB     3269    3337    3342
EMT       598
HALT      654     656     658     660     662     664     666     668     670     672     674     676     678     680     682
          684     686     688     690     692     694     696     698     700     702     704     706     708     710     712
          714     716     718     720     722     724     726     728     730     732     734     736     738     740     742
          744     746     748     750     752     754     756     758     760     762     764     766     768     770     772
          774     776     778     780     782     784     786     788     790     792     794     796     798     800     802
          804     806     808     810     812     814     816     818     820     822     824     826     828     830     832
          834     836     838     840     842     844     846     848     850     852     854     856     858     860     862
          864     866     868     870     872     874     876     878     890     882     884     886     888     890     892
          894     896     898     900     902     904     906     908    1031    1259    1265    1269    1333    3433    3456
INC      1007    1018    1351    1357    1359    1361    1390    1392    1425    2510    2591    2689    2729    2788    2870
         2944    3067    3080    3139    3436    3465
INCB      943    2244    2272    2509    2590    2626    2688    2727    2787    2869    2943    3603    3613    3667
JMP       963    1027    1307    3113    3372    3443    3475
JSR      1245    1449    1460    1472    1483    1495    1506    1518    1529    1541    1552    1569    1580    1592    1603
         1615    1626    1638    1649    1661    1672    1684    1695    1707    1718    1730    1741    1753    1764    1776
         1787    1799    1810    1822    1833    1845    1856    1874    1885    1898    1909    1922    1933    1946    1959
         1972    1985    1998    2011    2024    2037    2050    2063    2076    2089    2102    2115    2128    2141    2154
         2167    2180    2193    2207    2224    2236    2264    2297    2327    2357    2387    2425    2438    2463    2464
         2467    2545    2546    2549    2623    2642    2643    2646    2742    2743    2746    2823    2824    2827    2898
         2899    2902    2965    2966    3004    3005    3047    3048    3107
MOV       931     932     936     937     942     951     966     971     972     973     976     979     983     988     992
         1014    1015    1021    1022    1023    1024    1025    1026    1033    1206    1207    1208    1209    1214    1217
         1218    1225    1226    1227    1228    1229    1234    1235    1236    1237    1247    1248    1267    1268    1271
         1272    1273    1281    1282    1289    1290    1292    1293    1305    1310    1311    1312    1315    1316    1327
         1328    1329    1337    1339    1341    1342    1344    1346    1348    1350    1352    1354    1356    1358    1360
         1378    1379    1380    1381    1385    1387    1388    1389    1397    1413    1414    1415    1417    1420    1422
         1423    1424    1446    1447    1459    1469    1470    1482    1492    1493    1505    1515    1516    1528    1538
         1539    1551    1566    1567    1579    1589    1590    1602    1612    1613    1625    1635    1636    1648    1658
         1659    1671    1681    1682    1694    1704    1705    1717    1727    1728    1740    1750    1751    1763    1773
         1774    1786    1796    1797    1809    1819    1820    1832    1842    1843    1855    1871    1872    1884    1895
         1896    1908    1919    1920    1932    1943    1944    1958    1969    1970    1984    1995    1996    2010    2021
         2022    2036    2047    2048    2062    2073    2074    2088    2099    2100    2114    2125    2126    2140    2151
         2152    2166    2177    2178    2192    2204    2205    2210    2211    2212    2223    2233    2234    2239    2240
         2241    2261    2262    2267    2268    2269    2294    2295    2300    2301    2302    2309    2324    2325    2330
         2331    2332    2339    2354    2355    2360    2361    2362    2369    2384    2385    2390    2391    2392    2399
         2422    2423    2437    2456    2457    2458    2461    2462    2471    2476    2479    2483    2484    2487    2493
         2498    2500    2501    2504    2511    2512    2516    2517    2518    2538    2539    2540    2543    2544    2553
         2556    2559    2564    2565    2568    2574    2579    2581    2582    2585    2592    2593    2597    2599    2600
         2620    2621    2625    2627    2629    2632    2633    2639    2640    2650    2655    2658    2662    2663    2666
         2672    2677    2679    2680    2683    2690    2691    2695    2696    2697    2717    2718    2719    2724    2726
         2728    2730    2733    2734    2739    2740    2750    2753    2756    2761    2762    2765    2771    2776    2778
         2779    2782    2789    2790    2794    2796    2797    2817    2818    2819    2820    2831    2836    2839    2843
         2844    2847    2853    2854    2858    2860    2861    2864    2871    2872    2892    2893    2894    2895    2906
         2909    2912    2917    2918    2921    2927    2928    2932    2934    2935    2938    2945    2946    2959    2960
         2961    2962    2973    2978    2980    2986    2998    2999    3000    3001    3010    3015    3017    3023    3034
         3035    3036    3037    3038    3039    3043    3044    3045    3052    3053    3054    3055    3062    3099    3102
         3103    3112    3135    3144    3145    3146    3156    3161    3162    3172    3175    3180    3185    3186    3187
         3191    3192    3209    3210    3217    3218    3223    3224    3225    3226    3227    3228    3231    3233    3266
         3267    3271    3272    3282    3286    3287    3288    3289    3290    3291    3296    3297    3298    3299    3300
         3301    3308    3309    3310    3311    3312    3313    3314    3316    3319    3320    3322    3323    3335    3349
         3350    3351    3352    3353    3354    3365    3367    3371    3386    3389    3391    3397    3398    3399    3432
         3441    3442    3455    3462    3463    3493    3592    3599    3608    3642    3643    3644    3645    3646    3647
         3652    3654    3661    3665    3668    3669
MOVB      945     974     982     987    1386    1398    1421    1431    2473    2494    2497    2575    2578    2598    2652
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```
                2673  2676  2723  2725  2772  2775  2795  2833  2857  2931  2971  3061  3178  3195  3203
                3229  3230  3317  3318  3321  3326  3336  3341  3381  3414  3591  3609  3611  3624  3630
                3636  3662
NOP             1289  1290  1454  1477  1500  1523  1546  1574  1597  1620  1643  1666  1689  1712  1735
                1758  1781  1804  1827  1850  1880  1904  1928  1952  1957  1978  1983  2004  2009  2030
                2035  2056  2061  2082  2087  2108  2113  2134  2139  2160  2165  2196  2191  2213  2215
                2216  2303  2304  2333  2334  2363  2364  2393  2394  2431  2436  2440  2563  2760  2916
                3108  3109  3110
RESET           3105
RETURN          1301
ROL             1017  1323  1336
ROR              939  3328  3330  3332
RTI              953  1034  2251  2255  2281  2283  2307  2337  2367  2397  3147  3157  3181  3219  3273
                3292  3302  3355  3444  3509  3593  3620
RTS              953  3626  3632  3638  3648  3656  3670
SUB             3366  3390
TRAP            1110  1112  1114  1116  1118  1120  1122  1124  1126  1128  1130  1132  1134  1136
TST              941   946   984   989  1001  1012  1238  1283  1320  2246  2274  2310  2340  2370  2400
                3164  3213  3250  3402  3415  3420  3424  3429  3487
TSTB            1220  1243  1313  2974  3011  3056  3133  3168  3170  3173  3176  3193  3204  3339  3379
                3400  3491
.ASCIZ          1038  3513  3514  3516  3519  3520  3521  3526  3529  3530  3537  3541  3543  3547  3549
                3551  3553  3555  3558  3566  3567  3675
.BLKW           1090  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
.BYTE           1097  1098  1099  1100  1302  1303  2468  2550  2647  2747  2828  2903  2967  3006  3049
                3115  3118  3121  3124  3446  3449  3477  3511  3573  3575  3718  3720  3722  3725
                3727  3729  3732  3734  3736  3739  3741  3743  3745  3748  3750  3752
.ENABL           533   551
.END            3757
.ENDC           1313  1381  1416  1448  1455  1459  1471  1478  1482  1494  1501  1505  1517  1524  1528
                1540  1547  1551  1568  1575  1579  1591  1598  1602  1614  1621  1625  1637  1644  1648
                1660  1667  1671  1683  1690  1694  1706  1713  1717  1729  1736  1740  1752  1759  1763
                1775  1782  1786  1798  1805  1809  1821  1828  1832  1844  1851  1855  1873  1882  1884
                1897  1906  1908  1921  1930  1932  1945  1956  1958  1971  1982  1984  1997  2008  2010
                2023  2034  2036  2049  2060  2062  2075  2086  2088  2101  2112  2114  2127  2138  2140
                2153  2164  2166  2179  2190  2192  2206  2235  2263  2296  2313  2326  2343  2356  2373
                2386  2401  2403  2424  2435  2437  2459  2522  2541  2604  2622  2701  2720  2801  2820
                2876  2895  2950  2962  2990  3001  3027  3038
.EQUIV           598
.EVEN           3518  3571  3577  3675
.IF             1312  1380  1415  1447  1455  1470  1478  1493  1501  1516  1524  1539  1547  1567  1575
                1590  1598  1613  1621  1636  1644  1659  1667  1682  1690  1705  1713  1728  1736  1751
                1759  1774  1782  1797  1805  1820  1828  1843  1851  1872  1881  1882  1884  1896  1905
                1906  1908  1920  1929  1930  1932  1944  1953  1958  1970  1979  1982  1996  2005  2008
                2022  2031  2034  2048  2057  2060  2074  2083  2086  2100  2109  2112  2126  2135  2139
                2152  2161  2164  2178  2187  2190  2205  2234  2262  2295  2311  2313  2325  2341  2343
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DZDQCC.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

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.TITLE   551
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DZDQCC.P11      CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

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 ERRORS DETECTED:  0
 DEFAULT GLOBALS GENERATED:  0

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 RUN-TIME RATIO: 140/78=1.7
 CORE USED:  24K  (47 PAGES)
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L07

Spooler runtime 14 Seconds, 421 KCS, 381 disk reads, 3 disk writes, 88 pages

[redacted] Date 14-Oct-76 [redacted] Monitor [redacted]