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-DZDJC-C-D

PRODUCT NAME: DJ11 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. DZDQG [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 PDP-11 FAMILY CPU (WITH MINIMUM 4K MEMORY)-WITH
OR WITHOUT A HARDWARE SWITCH REGISTER (LOC. 177570)
ASR 33 (OR EQUIVALENT)
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	15031C

THE ABOVE IS ONLY AN EXAMPLE!

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

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

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

4.1 CONTROL SWITCH SETTINGS

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

CONTROL:

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

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

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

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

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

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

SW 15   SET: HALT ON ERROR
SW 14   SET: LOOP ON CURRENT TEST
SW 13   SET: INHIBIT ERROR PRINT OUT
SW 12   SET: INHIBIT TYPE OUT/BELL ON ERROR.
SW 11   SET: INHIBIT ITERATIONS

SW 10 SET: ESCAPE TO NEXT TEST
SW 09 SET: LOOP WITH CURRENT DATA
SW 08 SET: CATCH ERROR AND LOOP ON IT
SW 07 SET: USE PREVICUS 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; 2=2 DQ11; 3=3 DQ11; 17=4 DQ11 37=5 DQ11 ETC.
E: NUMBER (IF VALID) WILL BE IN DATA LIGHTS (EXCLUDING 11/05, 11/04, 11/34)
F: CONTINUE WITH ANY OTHER SWITCH SETTINGS DESIRED.

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

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

4.1.3 SWITCH REGISTER PRIORITYS

ERROR SWITCHES

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

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

SCOPE SWITCHES

1. SW 09 (IF ENABLED BY "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

5. 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.

5.2 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.

5.3 ****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 _OCATIONS 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?
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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          NCN.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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                                                ;TRAPCATCHER 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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000154  000156          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000156  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000160  000162          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000162  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000164  000166          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000166  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000170  000172          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000172  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000174  000176          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000176  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000200  000202          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000202  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000204  000206          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000206  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000210  000212          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000212  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000214  000216          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000216  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000220  000222          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000222  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000224  000226          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000226  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000230  000232          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000232  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000234  000236          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000236  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000240  000242          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000242  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000244  000246          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000246  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000250  000252          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000252  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000254  000256          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000256  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000260  000262          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000262  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000264  000266          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000266  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000270  000272          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000272  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000274  000276          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000276  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000300  000302          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000302  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000304  000306          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000306  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000310  000312          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000312  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000314  000316          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000316  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000320  000322          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000322  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000324  000326          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000326  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
000330  000332          .+2             ;UNEXPECTED TRAP TO THIS LOCATION
000332  000000          HALT            ;EXAMINE STACK TO FIND CAUSE
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763  000334  000336                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
764  000336  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
765  000340  000342                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
766  000342  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
767  000344  000346                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
768  000346  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
769  000350  000352                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
770  000352  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
771  000354  000356                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
772  000356  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
773  000360  000362                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
774  000362  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
775  000364  000366                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
776  000366  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
777  000370  000372                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
778  000372  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
779  000374  000376                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
780  000376  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
781  000400  000402                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
782  000402  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
783  000404  000406                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
784  000406  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
785  000410  000412                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
786  000412  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
787  000414  000416                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
788  000416  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
789  000420  000422                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
790  000422  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
791  000424  000426                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
792  000426  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
793  000430  000432                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
794  000432  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
795  000434  000436                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
796  000436  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
797  000440  000442                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
798  000442  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
799  000444  000446                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
800  000446  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
801  000450  000452                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
802  000452  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
803  000454  000456                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
804  000456  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
805  000460  000462                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
806  000462  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
807  000464  000466                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
808  000466  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
809  000470  000472                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
810  000472  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
811  000474  000476                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
812  000476  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
813  000500  000502                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
814  000502  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
815  000504  000506                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
816  000506  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
817  000510  000512                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
818  000512  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
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   819  000514  000516                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   820  000516  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   821  000520  000522                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   822  000522  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   823  000524  000526                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   824  000526  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   825  000530  000532                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   826  000532  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   827  000534  000536                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   828  000536  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   829  000540  000542                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   830  000542  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   831  000544  000546                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   832  000546  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   833  000550  000552                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   834  000552  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   835  000554  000556                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   836  000556  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   837  000560  000562                    .+2          ;UNEXPECTED TRAP TO THIS LOCATION
   838  000562  000000                    HALT         ;EXAMINE STACK TO FIND CAUSE
   839  000564  000556                    .+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 0
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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                        000220                  .=220
000220  012702  001400          CSRMAP: MOV     #1400,R2        ;CLEAR ALL STATUS TABLE
000224  005022                  1$:     CLR     (R2)+           ;DO CLEAR
000226  022702  001512                  CMP     #1512,R2        ;ALL TABLE DONE
000232  001374                          BNE     .-6             ;BR IF MORE TO GO
000234  005037  001504                  CLR     DQNUM           ;SET NUMBER OF DQ11S TO 0
000240  012702  001400                  MOV     #1400,R2        ;SET TABLE POINTER
000244  012701  160000                  MOV     #160000,R1      ;GET FIRST FLOATING ADDRESS
000250  012737  000614  000004          MOV     #5$,@#4         ;SET FOR TIME OUT TRAP--NO DEVICE--
000256  112761  000012  000005  1$:     MOVB    #12,5(R1)       ;TRY AND SEL MISC REGISTER
000264  005061  000006                  CLR     6(R1)           ;TRY AND CLEAR MISC REG
000270  012711  010000                  MOV     #10000,(R1)     ;TRY AND SET RX ACTIVE
000274  022761  030000  000006          CMP     #30000,6(R1)    ;LOOK FOR SYNC 1 AND SYNC 2
000302  001071                          BNE     2$              ;THIS IS NOT A DQ11 IF I BRANCH
000304  010122                          MOV     R1,(R2)+        ;NOW THIS IS A DQ11 --STORE CSR
000306  052712  100000                  BIS     #SYNBIT,(R2)    ;SET FOR TWO SYNC CHARS
000312  005011                          CLR     (R1)            ;CLEAR DQ ACTIVE BIT
000314  112761  000010  000005          MOVB    #10,5(R1)       ;SEL CHAR DET REGISTER
000322  012761  177777  000006          MOV     #-1,6(R1)       ;WRITE INTO CHAR DET REG
000330  005761  000006                  TST     6(R1)           ;WAS THE REGISTER WRITTEN?
000334  001402                          BEQ     .+6             ;APPERENTLY NO BB OPTION.
000336  052712  020000                  BIS     #BBBIT,(R2)     ;SET FOR BB OPTION
000342  112761  000017  000005          MOVB    #17,5(R1)       ;SEL POLYNO. REGISTER
000350  012761  177777  000006          MOV     #-1,6(R1)       ;WRITE POLYNO.REGISTER
000356  005761  000006                  TST     6(R1)           ;WAS REG WRITTEN??
000362  001402                          BEQ     .+6             ;BR IF NO AB OPTION
000364  052712  002000                  BIS     #ABBIT,(R2)     ;SET FOR AB OPTION
000370  012761  001400  000002          MOV     #1400,2(R1)     ;TRY TO SET .DTR. .RS.
000376  032761  001400  000002          BIT     #1400,2(R1)     ;DID ANY OF THEM SET
000404  001402                          BEQ     .+6             ;BR IF NO BA OPTION
000406  052712  010000                  BIS     #BABIT,(R2)     ;SET FOR BA OPTION
000412  032761  030000  000002          BIT     #30000,2(R1)    ;DID .CS. .CO. SET
000420  001402                          BEQ     .+6             ;BR IF NO JUMPER
000422  052712  040000                  BIS     #JUMBIT,(R2)    ;SET FOR JUMPER
000426  052712  004000                  BIS     #ACTBIT,(R2)    ;SET FOR ACTIVE ON FIRST NON-SYNC
000432  052712  001000                  BIS     #ODDBIT,(R2)    ;SET FOR ODD VRC.......
000436  005722                          TST     (R2)+           ;POP POINTER
000440  005011                          CLR     (R1)            ;CLEAR RCSR
000442  005061  000002                  CLR     2(R1)           ;CLEAR TCSR
000446  005061  000002                  CLR     2(R1)           ;CLEAR AGAIN
000452  005061  000004                  CLR     4(R1)           ;CLEAR ERROR REG
000456  005061  000006                  CLR     6(R1)           ;CLEAR SEC REG
000462  005237  001504                  INC     DQNUM           ;UPDATE NUMBER OF DQ11S
000466  062701  000010          2$:     ADD     #10,R1          ;UPDATE CSR POINTER BY 10.(8)
000472  022701  164000                  CMP     #164000,R1      ;HAVE ALL FLOATING ADDRESSES BEEN CHECKED??
000476  001267                          BNE     1$              ;BR IF NOT ALL DONE
000500  005037  001500                  CLR     DQACTV          ;ZERO ACTIVE DQ11S
000504  005737  001504                  TST     DQNUM           ;WERE ANY DQ11S FOUND
000510  001434                          BEQ     4$              ;HEY BUDDY. NO DQ11S FOUND IN SYSTEM
000512  013701  001504                  MOV     DQNUM,R1        ;SAVE NUMBER OF DQ11S
000516  010137  001276                  MOV     R1,SAVNUM       ;SAVE NUMBER FOR ACT11
000522  000241          3$:     CLC                             ;CLEAR CARRY
000524  006137  001500                  ROL     DQACTV          ;<<<<< ACTIVE ADDRESS
000530  005237  001500                  INC     DQACTV          ;SET BIT 0
000534  005301                          DEC     R1              ;DEC NUMBER OF DQ11S
000536  001371                          BNE     3$              ;BR IF MORE TO GO
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1021  000540  012737  000006  000004          MOV     #6,@#4          ;RESET TIME OUT VECTOR
1022  000546  013737  001500  001522          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  013030                            .SCOPE
1112          104401                    SCOP1=TRAP+1            ;CALL TO LOOP ON CURRENT DATA HANDLER
1113  001316  013150                            .SCOP1
1114          104402                    TYPE=TRAP+2             ;CALL TO TELETYPE OUTPUT ROUTINE
1115  001320  013170                            .TYPE
1116          104403                    INSTR=TRAP+3            ;CALL TO ASCII STRING INPUT ROUTINE
1117  001322  013276                            .INSTR
1118          104404                    INSTER=TRAP+4           ;CALL TO INPUT ERROR HANDLER
1119  001324  013414                            .INSTER
1120          104405                    PARAM=TRAP+5            ;CALL TO NUMERICAL DATA INPUT ROUTINE
1121  001326  013446                            .PARAM
1122          104406                    SAVOS=TRAP+6            ;CALL TO REGISTER SAVE ROUTINE
1123  001330  013662                            .SAVOS
1124          104407                    RESOS=TRAP+7            ;CALL TO REGISTER RESTORE ROUTINE
1125  001332  013722                            .RESOS
1126          104410                    CONVRT=TRAP+10          ;CALL TO DATA OUTPUT ROUTINE
1127  001334  013754                            .CONVRT
1128          104411                    CNVRT=TRAP+11           ;CALL TO DATA OUTPUT ROUNTINE WITHOUT CR/LF.
1129  001336  013760                            .CNVRT
1130          104412                    MSTCLR=TRAP+12          ;CALL TO ISSUE MASTER CLEAR
1131  001340  015620                            .MSTCLR
1132          104413                    MEMCLR=TRAP+13          ;CALL TO CLEAR ALL SCRATCH PAD MEMORIES
1133  001342  015636                            .MEMCLR
1134          104414                    CKSWR=TRAP+14           ;CALL TO ALLOW SWREG TO BE LOADED FROM TTY
1135  001344  014662                            .CKSWR
1136          104415                    CNTLU=TRAP+15           ;CALL TO ALLOW LOADING OF SWREG FROM TTY
1137  001346  014736                            .CNTLU
1138
1139                                    ;****  *****************************************************
1140                                    ;*****************************************************************
1141
1142                                    ;DQ11 VECTOR AND REGISTER INDIRECT POINTERS
1143
1144  001350  000000    DQRVEC: 0               ;POINTER TO DQ11 RECEIVER INTERRUPT VECTOR
1145  001352  000000    DQRLVL: 0               ;POINTER TO DQ11 RECEIVER INTERRUPT SERVICE PS
1146  001354  000000    DQTVEC: 0               ;POINTER TO DQ11 TRANSMITTER INTERRUPT VECTOR
1147  001356  000000    DQTLVL: 0               ;POINTER TO DQ11 TRANSMITTER INTERRUPT SERVICE PS
1148  001360  000000    DQRCSR: 0               ;POINTER TO DQ11 RECEIVER CONTROL REGISTER
1149  001362  000000    DQRCSH: 0               ;POINTER TO HIGH BYTE OF DQ11 RECEIVER CONTROL REGISTER
```

```
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 JSED
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 ADDRESS POINTER.
1325  002356  005337  001306                  DEC     RUNCNT          ;DEC NUMBER OF TIMES I LOOKED AT ACTIVE.
1326  002362  001360                          BNE     1$              ;BR AND KEEP LOOKING.
1327  002364  012737  000020  001306          MOV     #16.,RUNCNT     ;START RESTORING MY POINTERS.
1328  002372  012737  001400  001300          MOV     #1400,CREAM     ;RESTORE  ADDRESS POINTER
1329  002400  012737  000001  001304          MOV     #1,RUN          ;RESTORE RUN POINTER.
1330  002406  000746                          BR      1$              ;KEEP ON TESTING.
1331  002410  104402                  2$:     TYPE                    ;ALLERT OPERATOR OF FATAL ERROR
1332  002412  015126                          MERR2                   ;NO DQ11 ACTIVE. WHY AM I HERE???
1333  002414  000000                          HALT                    ;YOU MUST RELOAD DQ11 DIAGNOSTIC!!
1334  002416  000776                          BR      .-2             ;STICK HERE ON CONT.
1335  002420  000257                  3$:     CCC                     ;CLEAR CPU COND. CODES
1336  002422  006137  001304                  ROL     RUN             ;UPDATE RUN. ACTIVE DQ11 FOUND.
1337  002426  017737  176646  001536          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  062737  177000  001350          BIC     #177007,DQRVEC
1344  002500  013737  001350  001352          MOV     DQRVEC,DQRLVL   ;GENERATE ADDRESS OF RECEIVER INTERRUPT SERVICE PS
1345  002506  062737  000002  001[illegible]  ADD     #2,DQRLVL
1346  002514  013737  001352  001[illegible]  MOV     DQRLVL,DQTVEC   ;GENERATE ADDRESS OF TRANSMITTER INTERRUPT VECTOR
1347  002522  062737  000002  001354          ADD     #2,DQTVEC
1348  002530  013737  001354  001356          MOV     DQTVEC,DQTLVL   ;GENERATE ADDRESS OF TRANSMITTER INTERRUPT SERVICE PS
1349  002536  062737  000002  001356          ADD     #2,DQTLVL
1350  002544  013737  001360  001362          MOV     DQRCSR,DQRCSH
1351  002552  005237  001362                  INC     DQRCSH          ;GENERATE ADDRESS OF HIGH BYTE
1352  002556  013737  001360  001364          MOV     DQRCSR,DQTCSR   ;GENERATE ADDRESS OF TRANSMITTER CONTROL REGISTER
1353  002564  062737  000002  001364          ADD     #2,DQTCSR
1354  002572  013737  001364  001366          MOV     DQTCSR,DQERR    ;GENERATE ADDRESS OF ERROR REGISTER
1355  002600  062737  000002  001366          ADD     #2,DQERR
1356  002606  013737  001366  001370          MOV     DQERR,DQREG     ;GENERATE ADDRESS OF HIGH BYTE OF ERROR REGISTER
1357  002614  005237  001370                  INC     DQREG
1358  002620  013737  001370  001372          MOV     DQREG,DQSEC     ;GENERATE ADDRESS OF SECONDARY REGISTER
1359  002626  005237  001372                  INC     DQSEC
1360  002634  013737  001372  001374          MOV     DQSEC,DQSECH    ;GENERATE ADDRESS OF HIGH BYTE
1361  002642  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  ST2:   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  176434        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
```

D03


```
 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$: INC     TEMP1           ;0
 1426  003116  001375                     BNE     1$              ;  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  104420                 2$: SCOPE                   ;SCOPE THIS TEST.
```

```
                                        ;INDIVIDUAL INTERRUPT ENABLE TESTS
                                        ;SET SELECTED INTERRUPT ENABLE
                                        ;VERIFY THAT NO INTERRUPT OCCURS

                                        ;INTERRUPT LOGIC TEST
                                        ;SET CHARACTER DETECT INTERRUPT ENABLE
                                        ;VERIFY THAT NO INTERRUPT OCCURS

                                ;  TEST 4
                                ;*************************************************************************
003142  012737  000004  001226  TST4:  MOV     #4,TSTNO
003150  012737  003226  001216        MOV     #TST5,NEXT
003156  104412                       MSTCLR                          ;CLEAR INTERFACE
003160  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
003164  003206                       1$                              ;RECEIVER WILL INTERRUPT TO 1$
003166  003212                       2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
003170  052777  000020  176152        BIS     #BIT4,@DQRCSR           ;SET CHARACTER DETECT INTERRUPT ENABL
003176  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
003202  000240                       NOP                             ;WINDOW FOR INTERRUPTS
003204  000403                       BR      3$
003206  104003                1$:    HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
003210  000401                       BR      3$
003212  104002                2$:    HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
003214  012706  001200        3$:    MOV     #STACK,SP               ;RESTORE STACK
003220  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
003224  104400                4$:    SCOPE                           ;CHECK FOR ITERATIONS, LOOP

                                        ;INTERRUPT LOGIC TEST
                                        ;SET RECEIVE DONE INTERRUPT ENABLE
                                        ;VERIFY THAT NO INTERRUPT OCCURS

                                ;  TEST 5
                                ;*************************************************************************
003226  012737  000005  001226  TST5:  MOV     #5,TSTNO
003234  012737  003312  001216        MOV     #TST6,NEXT
003242  104412                       MSTCLR                          ;CLEAR INTERFACE
003244  004737  016042                JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
003250  003272                       1$                              ;RECEIVER WILL INTERRUPT TO 1$
003252  003276                       2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
003254  052777  000040  176076        BIS     #BIT5,@DQRCSR           ;SET RECEIVE DONE INTERRUPT ENABL
003262  005037  177776                CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
003266  000240                       NOP                             ;WINDOW FOR INTERRUPTS
003270  000403                       BR      3$
003272  104003                1$:    HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
003274  000401                       BR      3$
003276  104002                2$:    HLT     2                       ;UNEXPECTED TRANSMITTER INTERRUPT
003300  012706  001200        3$:    MOV     #STACK,SP               ;RESTORE STACK
003304  004737  016074                JSR     PC,RECAT                ;RESTORE TRAPCATCHER
003310  104400                4$:    SCOPE                           ;CHECK FOR ITERATIONS, LOOP

                                        ;INTERRUPT LOGIC TEST
                                        ;SET ERROR INTERRUPT ENABLE
                                        ;VERIFY THAT NO INTERRUPT OCCURS

                                ;  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$:     HLT     3                       ;UNEXPECTED RECEIVER INTERPUPT
1549  003530  000401                          BR      3$
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$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1554
1555                                          ;INDIVIDUAL INTERRUPT FLAG TESTS
1556                                          ;SET SELECTED INTERRUPT FLAG
1557                                          ;VERIFY THAT NO INTERRUPT OCCURS
1558
1559
1560                                          ;INTERRUPT LOGIC TEST
1561                                          ;SET RECEIVE DONE S INTERRUPT FLAG
1562                                          ;VERIFY THAT NO INTERRJPT OCCURS
1563
1564                                  ;  TEST 11
1565                                  ;*************************************************************************
1566  003546  012737  000011  001226  TST11:  MOV     #11,TSTNO
1567  003554  012737  003632  001216          MOV     #TST12,NEXT
1568  003562  104412                          MSTCLR                          ;CLEAR INTERFACE
1569  003564  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1570  003570  003612                          1$                              ;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$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1789
1790                                            ;INTERRUPT LOGIC TEST
1791                                            ;SET R NON-EX MEM INTERRUPT FLAG
1792                                            ;VERIFY THAT NO INTERRJPT OCCURS
1793
1794                                    ;  TEST 23
1795                                    ;*****************************************************************
1796  004556  012737  000023  001226    TST23:  MOV     #23,TSTNO
1797  004564  012737  004642  001216            MOV     #TST24,NEXT
1798  004572  104412                            MSTCLR                          ;CLEAR INTERFACE
1799  004574  004737  016042                    JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1800  004600  004622                            1$                              ;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
```

```
1939                                                    ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1940
1941                                            ;  TEST 31
1942                                            ;*************************************************************************
1943  005262  012737  000031  001226  TST31:   MOV     #31,TSTNO
1944  005270  012737  005354  001216          MOV     #TST32,NEXT
1945  005276  104412                          MSTCLR                          ;CLEAR INTERFACE
1946  005300  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1947  005304  005336                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1948  005306  005340                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1949  005310  052777  000040  174046          BIS     #BIT5,@DQTCSR           ;SET TRANSMIT DONE INTERRUPT ENABL
1950  005316  052777  000100  174040          BIS     #BIT6,@DQTCSR           ;SET TRANSMIT DONE S INTERRUPT FLAG
1951  005324  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1952  005330  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1953  005332  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1954  005334  000402                          BR      3$                      ;WITH TRANSMIT DONE INTERRUPT ENABL AND
1955                                                                          ;TRANSMIT DONE S INTERRUPT FLAG SET
1956  005336  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1957  005340  000240                  2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
1958  005342  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1959  005346  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1960  005352  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1961
1962                                                    ;INTERRUPT LOGIC TEST
1963                                                    ;SET TRANSMIT DONE INTERRUPT ENABLE
1964                                                    ;SET TRANSMIT DONE P INTERRUPT FLAG
1965                                                    ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1966
1967                                            ;  TEST 32
1968                                            ;*************************************************************************
1969  005354  012737  000032  001226  TST32:   MOV     #32,TSTNO
1970  005362  012737  005446  001216          MOV     #TST33,NEXT
1971  005370  104412                          MSTCLR                          ;CLEAR INTERFACE
1972  005372  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
1973  005376  005430                          1$                              ;RECEIVER WILL INTERRUPT TO 1$
1974  005400  005432                          2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
1975  005402  052777  000040  173754          BIS     #BIT5,@DQTCSR           ;SET TRANSMIT DONE INTERRUPT ENABL
1976  005410  052777  000200  173746          BIS     #BIT7,@DQTCSR           ;SET TRANSMIT DONE P INTERRUPT FLAG
1977  005416  005037  177776                  CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
1978  005422  000240                          NOP                             ;WINDOW FOR INTERRUPTS
1979  005424  104001                          HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
1980  005426  000402                          BR      3$                      ;WITH TRANSMIT DONE INTERRUPT ENABL AND
1981                                                                          ;TRANSMIT DONE P INTERRUPT FLAG SET
1982  005430  104003                  1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
1983  005432  000240                  2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
1984  005434  012706  001200          3$:     MOV     #STACK,SP               ;RESTORE STACK
1985  005440  004737  016074                  JSR     PC,RECAT                ;RESTORE TRAPCATCHER
1986  005444  104400                  4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
1987
1988                                                    ;INTERRUPT LOGIC TEST
1989                                                    ;SET ERROR INTERRUPT ENABLE
1990                                                    ;SET T CLOCK LOSS INTERRUPT FLAG
1991                                                    ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
1992
1993                                            ;  TEST 33
1994                                            ;*************************************************************************
```

```
                                TST33:  MOV     #33,TSTNO
                                        MOV     #TST34,NEXT
                                        MSTCLR                          ;CLEAR INTERFACE
                                        JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
                                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
                                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
                                        BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
                                        BIS     #BIT0,@DQERR            ;SET T CLOCK LOSS INTERRUPT FLAG
                                        CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
                                        NOP                             ;WINDOW FOR INTERRUPTS
                                        HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
                                        BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
                                                                        ;T CLOCK LOSS INTERRUPT FLAG SET
                                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
                                2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
                                3$:     MOV     #STACK,SP               ;RESTORE STACK
                                        JSR     PC,RECAT                ;RESTORE TRAPCATCHER
                                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP

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

                                ;  TEST 34
                                ;*****************************************-*****************************
                                TST34:  MOV     #34,TSTNO
                                        MOV     #TST35,NEXT
                                        MSTCLR                          ;CLEAR INTERFACE
                                        JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
                                        1$                              ;RECEIVER WILL INTERRUPT TO 1$
                                        2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
                                        BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
                                        BIS     #BIT1,@DQERR            ;SET R CLOCK LOSS INTERRUPT FLAG
                                        CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
                                        NOP                             ;WINDOW FOR INTERRUPTS
                                        HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
                                        BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
                                                                        ;R CLOCK LOSS INTERRUPT FLAG SET
                                1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
                                2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
                                3$:     MOV     #STACK,SP               ;RESTORE STACK
                                        JSR     PC,RECAT                ;RESTORE TRAPCATCHER
                                4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP

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

                                ;  TEST
                                ;*****************************************  ************************
                                TST35:  MOV     #35,TSTNO
                                        MOV     #TST36,NEXT
                                        MSTCLR                          ;CLEAR INTERFACE
                                        JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
```

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

```
002107  006060  005037  177776          CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
002108  006064  000240                  NOP                             ;WINDOW FOR INTERRUPTS
002109  006066  104001                  HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
002110  006070  000402                  BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
002111                                                                  ;T NON-EX MEM INTERRUPT FLAG SET
002112  006072  104003          1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
002113  006074  000240          2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
002114  006076  012706  001200  3$:     MOV     #STACK,SP               ;RESTORE STACK
002115  006102  004737  016074          JSR     PC,RECAT                ;RESTORE TRAPCATCHER
002116  006106  104400          4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
002117
002118                                  ;INTERRUPT LOGIC TEST
002119                                  ;SET ERROR INTERRUPT ENABLE
002120                                  ;SET R NON-EX MEM INTERRUPT FLAG
002121                                  ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
002122
002123                          ;  TEST 40
002124                          ;*************************************************************
002125  006110  012737  000040  001226  TST40:  MOV     #40,TSTNO
002126  006116  012737  006202  001216          MOV     #TST41,NEXT
002127  006124  104412                  MSTCLR                          ;CLEAR INTERFACE
002128  006126  004737  016042          JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
002129  006132  006164                  1$                              ;RECEIVER WILL INTERRUPT TO 1$
002130  006134  006166                  2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
002131  006136  052777  000010  173220  BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
002132  006144  052777  000040  173214  BIS     #BIT5,@DQERR            ;SET R NON-EX MEM INTERRUPT FLAG
002133  006152  005037  177776          CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
002134  006156  000240                  NOP                             ;WINDOW FOR INTERRUPTS
002135  006160  104001                  HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
002136  006162  000402                  BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
002137                                                                  ;R NON-EX MEM INTERRUPT FLAG SET
002138  006164  104003          1$:     HLT     3                       ;UNEXPECTED RECEIVER INTERRUPT
002139  006166  000240          2$:     NOP                             ;TRANSMITTER SHOULD INTERRUPT TO HERE
002140  006170  012706  001200  3$:     MOV     #STACK,SP               ;RESTORE STACK
002141  006174  004737  016074          JSR     PC,RECAT                ;RESTORE TRAPCATCHER
002142  006200  104400          4$:     SCOPE                           ;CHECK FOR ITERATIONS, LOOP
002143
002144                                  ;INTERRUPT LOGIC TEST
002145                                  ;SET ERROR INTERRUPT ENABLE
002146                                  ;SET R BCC ERROR INTERRUPT FLAG
002147                                  ;VERIFY THAT AN INTERRUPT OCCURS TO THE CORRECT VECTOR
002148
002149                          ;  TEST 41
002150                          ;*************************************************************
002151  006202  012737  000041  001226  TST41:  MOV     #41,TSTNO
002152  006210  012737  006274  001216          MOV     #TST42,NEXT
002153  006216  104412                  MSTCLR                          ;CLEAR INTERFACE
002154  006220  004737  016042          JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
002155  006224  006256                  1$                              ;RECEIVER WILL INTERRUPT TO 1$
002156  006226  006260                  2$                              ;TRANSMITTER WILL INTERRUPT TO 2$
002157  006230  052777  000010  173126  BIS     #BIT3,@DQTCSR           ;SET ERROR INTERRUPT ENABL
002158  006236  052777  000100  173122  BIS     #BIT6,@DQERR            ;SET R BCC ERROR INTERRUPT FLAG
002159  006244  005037  177776          CLR     PS                      ;SET PROCESSOR PRIORITY TO 0
002160  006250  000240                  NOP                             ;WINDOW FOR INTERRUPTS
002161  006252  104001                  HLT     1                       ;TRANSMITTER DID NOT INTERRUPT
002162  006254  000402                  BR      3$                      ;WITH ERROR INTERRUPT ENABL AND
```

```
                                                                        ;R BCC ERROR INTER. JPT FLAG SET
006256  104003                  1$:   HLT   3                           ;UNEXPECTED RECEIVER INTERRUPT
006260  000240                  2$:   NOP                               ;TRANSMITTER SHOULD INTERRUPT TO HERE
006262  012706  001200          3$:   MOV   #STACK,SP                   ;RESTORE STACK
006266  004737  016074                JSR   PC,RECAT                    ;RESTORE TRAPCATCHER
006272  104400                  4$:   SCOPE                             ;CHECK FOR ITERATIONS, LOOP

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


                                ;  TEST 42
                                ;*************************************************************************
006274  012737  000042  001226  TST42: MOV   #42,@TSTNO
006302  012737  006366  001216        MOV   #TST43,NEXT
006310  104412                       MSTCLR                            ;CLEAR INTERFACE
006312  004737  016042                JSR   PC,SETV                     ;SET UP INTERRUPT VECTORS
006316  006350                       1$                                ;RECEIVER WILL INTERRUPT TO 1$
006320  006352                       2$                                ;TRANSMITTER WILL INTERRUPT TO 2$
006322  052777  000010  173034        BIS   #BIT3,@DQTCSR               ;SET ERROR INTERRUPT ENABL
006330  052777  000200  173030        BIS   #BIT7,@DQERR                ;SET R VRC ERROR INTERRUPT FLAG
006336  005037  177776                CLR   PS                          ;SET PROCESSOR PRIORITY TO 0
006342  000240                       NOP                               ;WINDOW FOR INTERRUPTS
006344  104001                       HLT   1                           ;TRANSMITTER DID NOT INTERRUPT
006346  000402                       BR    3$                          ;WITH ERROR INTERRUPT ENABL AND
                                                                        ;R VRC ERROR INTERRUPT FLAG SET
006350  104003                  1$:   HLT   3                           ;UNEXPECTED RECEIVER INTERRUPT
006352  000240                  2$:   NOP                               ;TRANSMITTER SHOULD INTERRUPT TO HERE
006354  012706  001200          3$:   MOV   #STACK,SP                   ;RESTORE STACK
006360  004737  016074                JSR   PC,RECAT                    ;RESTORE TRAPCATCHER
006364  104400                  4$:   SCOPE                             ;CHECK FOR ITERATIONS, LOOP

                                      ;TEST THAT THE RECEIVER WILL INTERLPT
                                      ;BEFORE THE TRANSMITTER WHEN
                                      ;THEY ARE BOTH ENABLED AT THE
                                      ;SAME TIME.
                                      ;


                                ;  TEST 43
                                ;*************************************************************************
006366  012737  000043  001226  TST43: MOV   #43,TSTNO
006374  012737  006502  001216        MOV   #TST44,NEXT
006402  104412                       MSTCLR                            ;INIT DQ11
006404  004737  016042                JSR   PC,SETV                     ;SET THE VECTORS
006410  006454                       4$                                ;THIS FOR RX
006412  006456                       2$                                ;THIS FOR TX
006414  012737  000340  177776        MOV   #340,PS                     ;LOCK OUT INTERUPTS
006422  012777  000240  172734        MOV   #240,@DQTCSR                ;SET TX PRI DONE AND IE
006430  012777  000240  172722        MOV   #240,@DQRCSR                ;SET RX PRI DONE AND IE
006436  000240                       NOP                               ;INTERUPT YET.
006440  005037  177776                CLR   PS                          ;ZERO PROC. STATUS
006444  000240                       NOP                               ;WAIT ONE INSTR. TIME
006446  000240                       NOP                               ;
006450  104001                       HLT   1                           ;TX AND RX FAILED TO INTERUPT
006452  104000                       HLT   0                           ;
```

```
                                1$:     BR      3$                      ;GOOD FOR RX
                                2$:     HLT     2                       ;TX SHOULD NOT HAVE INTERUPTED
                                3$:     CLR     @DQRCSR                 ;CLEAR RXCSR
                                        CLR     @DQTCSR                 ; CLEAR TX CSR
                                        MOV     #STACK,SP               ;RESTORE STACK POINTER
                                        JSR     PC,RECAT                ;RESET VECTORS
                                        SCOPE                           ;SCOPE THE TEST

                                        ;VERIFY THAT THE TRANSMITTER INTERUPTS
                                        ;ONLY ONCE WHEN IT IS ENABLED.
                                        ;
                                ;  TEST 44
                                ;*****************************************************************************
006502  012737  000044  001226  TST44:  MOV     #44,TSTNO
006510  012737  006606  001216          MOV     #TST45,NEXT
006516  104412                        MSTCLR
006520  004737  016042                  JSR     PC,SETV
006524  006572                        1$
006526  006576                        2$
006530  012737  000340  177776          MOV     #340,PS
006536  012777  000240  172620          MOV     #240,@DQTCSR
006544  012700  177777                  MOV     #-1,R0
006550  005002                        CLR     R2
006552  005037  177776                  CLR     PS
006556  105202                        INCB    R2
006560  001376                        BNE     .-2
006562  005700                        TST     R0
006564  001401                        BEQ     .+4
006566  104001                        HLT     1
006570  104400                        SCOPE
006572  104003                1$:     HLT     3
006574  000002                        RTI
006576  005100                2$:     COM     R0
006600  001401                        BEQ     .+4
006602  104002                        HLT     2
006604  000002                        RTI
                                        ;VERIFY THAT THE RECEIVER INTERUPTS
                                        ;ONLY ONCE WHEN IT IS ENABLED.
                                        ;
                                ;  TEST 45
                                ;*****************************************************************************
006506  012737  000045  001226  TST45:  MOV     #45,TSTNO
006614  012737  006712  001216          MOV     #TST46,NEXT
006622  104412                        MSTCLR                          ;INIT DQ11
006624  004737  016042                  JSR     PC,SETV                 ;GO AND SET VECTORS
006630  006676                        1$                              ;RX TO 1$
006632  006706                        2$                              ;TX TO 2$
006634  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS
006642  012777  000240  172510          MOV     #240,@DQRCSR            ;SET RX PRI DONE AND IE
006650  012700  177777                  MOV     #-1,R0                  ;SET FOR CKECK
006654  005002                        CLR     R2                      ;ZERO COUNTER
006656  005037  177776                  CLR     PS                      ;ENABLE INTERUPTS
006662  105202                        INCB    R2                      ;START COUNTING
006664  001376                        BNE     .-2                     ;LOOP HERE
006666  005700                        TST     R0                      ;IS CHECKER 0
```

```
                                        BEQ     .+4                     ;BR IF YES
                                        HLT     0                       ;EITHER RX DID NOT INTERUPT; OR MORE THAN ONCE
                                        SCOPE                           ;SCOPE THE TEST
                                1$:     COM     R0                      ;CHECK INTERUPT
                                        BEQ     .+4                     ;BR IF FIRST TIME HERE
                                        HLT     3                       ;RX INTERUPTED MORE THAN ONCE
                                        RTI                             ;GO BACK AND DELAY
                                2$:     HLT     2                       ;UNEXPECTED TX INTERUPT
                                        RTI                             ;RETURN


                                        ;TEST TO SEE IF THE
                                        ;DQ11 TRANSMITTER WILL
                                        ;INTERUPT AT PS LEVEL
                                        ;OF 7 PRIORITY.
                                        ;

                                ;  TEST 46
                                ;*************************************************************************
006712  012737  000046  001226  TST46:  MOV     #46,TSTNO
006720  012737  007014  001216          MOV     #TST47,NEXT
006726  104412                        MSTCLR                          ;INIT DQ11
006730  004737  016042                  JSR     PC,SETV                 ;SET VECTORS
006734  006766                        1$                              ;RX INTERUPTS TO 1$
006736  006772                        2$                              ;TX INTERUPTS TO 2$
006740  012700  177777                MOV     #-1,R0                  ;SET CHECKER
006744  012737  000340  177776        MOV     #340,PS         ;SET PRIORITY
006752  012777  000240  172404        MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
006760  000240                        NOP                             ;
006762  000240                        NOP                             ;
006764  000403                        BR      3$                      ;CONTINUE TEST
006766  104003                1$:     HLT     3                       ;UNEXPECTED RX INTERUPT
006770  000002                        RTI                             ;CONTINUE TEST
006772  005100                2$:     COM     R0                      ;CHECK INTERUPT
006774  012706  001200          3$:     MOV     #STACK,SP               ;SET STACK POINTER
007000  005700                        TST     R0                      ;CHECK INTERUPT POINTER
007002  001001                        BNE     .+4
007004  104002                        HLT     2
007006  005077  172352                CLR     @DQTCSR
007012  104400                        SCOPE


                                        ;TEST TO SEE IF THE
                                        ;DQ11 TRANSMITTER WILL
                                        ;INTERUPT AT PS LEVEL
                                        ;OF 6 PRIORITY.
                                        ;

                                ;  TEST 47
                                ;*************************************************************************
007014  012737  000047  001226  TST47:  MOV     #47,TSTNO
007022  012737  007116  001216          MOV     #TST50,NEXT
007030  104412                        MSTCLR                          ;INIT DQ11
007032  004737  016042                  JSR     PC,SETV                 ;SET VECTORS
007036  007070                        1$                              ;RX INTERUPTS TO 1$
007040  007074                        2$                              ;TX INTERUPTS TO 2$
007042  012700  177777                MOV     #-1,R0                  ;SET CHECKER
```

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

```
 2387  007236  004737  016042                    JSR     PC,SETV                 ;SET VECTORS
 2388  007242  007274                            1$                              ;RX INTERUPTS TO 1$
 2389  007244  007300                            2$                              ;TX INTERUPTS TO 2$
 2390  007246  012700  177777                    MOV     #-1,R0                  ;SET CHECKER
 2391  007252  012737  000200  177776            MOV     #200,PS         ;SET PRIORITY
 2392  007260  012777  000240  172076            MOV     #240,@DQTCSR            ;SET PRI DONE AND IE
 2393  007266  000240                            NOP                             ;
 2394  007270  000240                            NOP                             ;
 2395  007272  000403                            BR      3$                      ;CONTINUE TEST
 2396  007274  104003                    1$:     HLT     3                       ;UNEXPECTED RX INTERJPT
 2397  007276  000002                            RTI                             ;CONTINUE TEST
 2398  007300  005100                    2$:     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$:     CLR     R5                      ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2493  007632  013703  001366                    MOV     DQERR,R3                ;ADDRESS OF ERROR REGISTER
2494  007636  117704  171524                    MOVB    @DQERR,R4               ;(R4)TUAL DATA IN ERROR REGISTER
2495  007642  001401                            BEQ     7$
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2496  007644  104006                          HLT     6                       ;ERROR FLAG(S) SET
2497  007646  112777  000000  171514  7$:     MOVB    #0,@DQREG               ;SELECT RECEIVER BUS ADDRESS (PRIMARY,
2498  007654  012702  000000                  MOV     #0,R2           ;ADDRESS OF RECEIVER BUS ADDRESS
2499                                                                  ;SECONDARY REGISTER
2500  007660  013703  001372                  MOV     DQSEC,R3                ;ADDRESS OF SECONDARY REGISTER
2501  007664  012705  017167                  MOV     #RBUFF+1,R5             ;(R5)=EXPECTED DATA IN
2502                                                                  ;RECEIVER BUS ADDRESS (PRIMARY) REGISTER,
2503                                                                  ;RBUFF+1
2504  007670  017704  171476                  MOV     @DQSEC,R4               ;(R4)=ACTUAL DATA IN RECEIVER
2505                                                                  ;BUS ADDRESS REGISTER (PRIMARY)
2506  007674  020504                          CMP     R5,R4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
2507  007676  001401                          BEQ     10$
2508  007700  104007                          HLT     7                       ;BUS ADDRESS ERROR
2509  007702  105277  171462          10$:    INCB    @DQREG                  ;SELECT CHARACTER COUNT ADD.
2510  007706  005202                          INC     R2                      ;UPDATE POINTER
2511  007710  012705  000000                  MOV     #0,R5                   ;SET FOR EXPECTED.
2512  007714  017704  171452                  MOV     @DQSEC,R4               ;READ THE ACTUAL.
2513  007720  020504                          CMP     R5,R4                   ;ARE THEY EQUAL?
2514  007722  001401                          BEQ     11$                     ;BR IF YES
2515  007724  104010                          HLT     10                      ;CHARACTER COUNT ERROR
2516  007726  012705  000000          11$:    MOV     #0,R5           ;SET POINTER.
2517  007732  012703  017166                  MOV     #RBUFF,R3               ;
2518  007736  013704  017166                  MOV     RBUFF,R4                ;
2519  007742  020504                          CMP     R5,R4                   ;EQUAL?
2520  007744  001401                          BEQ     12$                     ;BR IF YES
2521  007746  104011                          HLT     11                      ;
2522  007750  104400          12$:    SCOPE
2523
2524                                          ;TRANSMITTER BASIC NPR LOGIC TEST (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT
2525                                          ;EXPECTED RESULTS
2526                                          ;               TRANSMITTER DONE INTERRUPT OCCURS
2527                                          ;               TRANSMITTER DONE (PRIMARY) = 1
2528                                          ;               TRANSMITTER GO = 0
2529                                          ;               TRANSMITTER P/S = 1
2530                                          ;               NO ERROR FLAGS ARE SET
2531
2532                                          ;               TRANSMITTER BUS ADDRESS (PRIMARY) = TBUFF+1
2533                                          ;               TRANSMITTER CHARACTER COUNT (PRIMARY) = 0
2534                                          ;               CONTENTS OF TRANSMITTER BUFFER = 52525
2535
2536                                  ;  TEST 54
2537                                  ;*************************************************************************
2538  007752  012737  000054  001226  TST54:  MOV     #54,TSTNO
2539  007760  012737  007776  001214          MOV     #1$,RETURN
2540  007766  012737  010272  001216          MOV     #TST55,NEXT
2541  007774  104413                  99$:    MEMCLR
2542  007776  104412                  1$:     MSTCLR
2543  010000  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
2544  010006  012737  052525  017170          MOV     #52525,TBUFF
2545  010014  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
2546  010020  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
2547  010024  010110                          3$                              ;RECEIVER WILL INTERRUPT TO 3$
2548  010026  010112                          4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
2549  010030  004737  016122                  JSR     PC,SETBABC              ;SELECT TRANSMITTER BUS ADDRESS (PRIMARY)
2550  010034     002     000          .BYTE   2,0                     ;LOAD BUS ADDRESS
2551  010036  017170                          TBUFF                           ;SELECT TRANSMITTER CHARACTER COUNT (PRIMARY)
```

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

```
                                        ;               RECEIVER DONE INTERRUPT OCCURS
                                        ;               RECEIVER DONE (SECONDARY) = 1
                                        ;               RECEIVER GO = 0
                                        ;               RECEIVER P/S = 1
                                        ;               NO ERROR FLAGS ARE SET
                                        ;
                                        ;               RECEIVER BUS ADDRESS (SECONDARY) = RBUFF+1
                                        ;               RECEIVER CHARACTER COUNT (SECONDARY) = 0
                                        ;               CONTENTS OF RBUFF = 0
                                    ;  TEST 55
                                    ;*****************************************************************
010272  012737  000055  001226  TST55:  MOV     #55,TSTNO
010300  012737  010704  001216          MOV     #TST56,NEXT
010306  104412                        MSTCLR                          ;ISSUE A MASTER CLEAR.
010310  004737  016006                JSR     PC,SETLOP               ;SET TEST LOOP
010314  105077  171050                CLRB    @DQREG                  ;SELECT RX SA 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$:     DEC     TEMP1                   ;WAIT FOR INTERRUPTS AND NPRS
0105[4  001375                        BNE     2$
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
```

```
2664
2665
2666  010544  017704  170610                MOV     @DQRCSR,R4          ;DONE (SECONDARY)=1, INTERRUPT ENEABLE=1,
2667  010550  042704  177400                BIC     #177400,R4          ;P/S=1
2668  010554  020504                        CMP     R5,R4               ;(R4)=ACTUAL DATA IN RECEIVER CONTROL REGISTER
2669  010556  001401                        BEQ     6$                  ;CLEAR UNWANTED BITS
2670  010560  104004                        HLT     4                   ;ARE EXPECTED AND RECEIVED DATA THE SAME
2671  010562  005005                6$:     CLR     R5                  ;RECEIVER STATUS ERROR
2672  010564  013703  001366                MOV     DQERR,R3            ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
2673  010570  117704  170572                MOVB    @DQERR,R4           ;ADDRESS OF ERROR REGISTER
2674  010574  001401                        BEQ     7$                  ;(R4)TUAL DATA IN ERROR REGISTER
2675  010576  104006                        HLT     6                   ;ERROR FLAG(S) SET
2676  010600  112777  000004  170562  7$:   MOVB    #4,@DQREG           ;SELECT RECEIVER BUS ADDRESS (SECONDARY
2677  010606  012702  000004                MOV     #4,R2           ;ADDRESS OF RECEIVER BUS ADDRESS
2678                                                                  ;SECONDARY REGISTER
2679  010612  013703  001372                MOV     DQSEC,R3            ;ADDRESS OF SECONDARY REGISTER
2680  010616  012705  017167                MOV     #RBUFF+1,R5         ;(R5)=EXPECTED DATA IN
2681                                                                  ;RECEIVER BUS ADDRESS (SECONDARY) REGISTER,
2682                                                                  ;RBUFF+1
2683  010622  017704  170544                MOV     @DQSEC,R4           ;(R4)=ACTUAL DATA IN RECEIVER
2684                                                                  ;BUS ADDRESS REGISTER (SECONDARY)
2685  010626  020504                        CMP     R5,R4               ;ARE EXPECTED AND RECEIVED DATA THE SAME
2686  010630  001401                        BEQ     10$
2687  010632  104007                        HLT     7                   ;BUS ADDRESS ERROR
2688  010634  105277  170530          10$:  INCB    @DQREG
2689  010640  005202                        INC     R2
2690  010642  012705  000000                MOV     #0,R5
2691  010646  017704  170520                MOV     @DQSEC,R4
2692  010652  020504                        CMP     R5,R4
2693  010654  001401                        BEQ     11$
2694  010656  104010                        HLT     10                  ;CHARACTER COUNT ERROR
2695  010660  012705  000000          11$:  MOV     #0,R5
2696  010664  012703  017166                MOV     #RBUFF,R3
2697  010670  013704  017166                MOV     RBUFF,R4
2698  010674  020504                        CMP     R5,R4
2699  010676  001401                        BEQ     QZX
2700  010700  104011                        HLT     11
2701  010702  104400                QZX:    SCOPE
2702
2703                                        ;TRANSMITTER BASIC NPR LOGIC TEST (USING SECONDARY BUS ADDRESS AND CHARACTER COU
2704                                        ;EXPECTED RESULTS
2705                                        ;               TRANSMITTER DONE INTERRUPT OCCURS
2706                                        ;               TRANSMITTER DONE (SECONDARY) = 1
2707                                        ;               TRANSMITTER GO = 0
2708                                        ;               TRANSMITTER P/S = 1
2709                                        ;               NO ERROR FLAGS ARE SET
2710
2711                                        ;               TRANSMITTER BUS ADDRESS (SECONDARY) = TBUFF+1
2712                                        ;               TRANSMITTER CHARACTER COUNT (SECONDARY) = 0
2713                                        ;               CONTENTS OF TRANSMITTER BUFFER = 177777
2714
2715                                        ;  TEST 56
2716                                        ;*****************************************************************************
2717  010704  012737  000056  001226  TST56: MOV     #56,TSTNO
2718  010712  012737  010730  001214        MOV     #1$,RETURN
2719  010720  012737  011330  001216        MOV     #TST57,NEXT
```

```
                                                MEMCLR                  ;ISSUE A MEMORY CLEAR.
                                        1$:     MSTCLR                  ;MASTER CLEAR DQ11
                                                MEMCLR                  ;
                                                MOVB    #12,@DQREG      ;SELECT MISC.REG
                                                MOV     #4010,@DQSEC    ;SET FOR EIGHT BITS AND TEST LOOP
                                                MOVB    #2,@DQREG       ;SEL TX BA PRI.
                                                MOV     #TBUFF,@DQSEC   ;SET BUS ADDRESS
                                                INCB    @DQREG          ;SELECT TX WC PRI.
                                                MOV     #-1,@DQSEC      ;SET FOR ONE CHAR
                                                INC     @DQTCSR         ;SET TX GO!!
                                                MOV     #10,R0          ;SET FOR TIME OUT.
                                                DEC     R0              ;DELAY
                                                BNE     .-2             ;BR IF MORE DELAY
                                                MOV     #204,R5         ;SET FOR EXPECTED.
                                                MOV     @DQTCSR,R4      ;READ THE TX CSR
                                                CMP     R4,R5           ;EXPECTED=ACTUAL?
                                                BEQ     .+4             ;BR IF YES
                                                HLT     5               ;TX STATUS REG ERROR
                                                CLR     @DQTCSR         ;CLEAR ALL BUT P/S BIT
                                                MOV     #340,PS         ;LOCK OUT INTERRUPTS
                                                MOV     #177777,TBUFF   ;SET CHARACTER
                                                MEMCLR                  ;CLEAR INTERFACE MEMORIES
                                                JSR     PC,SETLOP       ;SET MAINTENANCE MODE
                                                JSR     PC,SETV         ;SET UP INTERRUPT VECTORS
                                                3$                      ;RECEIVER WILL INTERRUPT TO 3$
                                                4$                      ;TRANSMITTER WILL INTERRUPT TO 4$
                                                JSR     PC,SETBABC      ;SELECT TRANSMITTER BUS ADDRESS (SECONDARY)
                                                .BYTE   6,0             ;LOAD BUS ADDRESS
                                                TBUFF                   ;SELECT TRANSMITTER CHARACTER COUNT (SECONDARY)
                                                -1                      ;CHARACTER COUNT=1
                                                MOV     #BIT5,@DQTCSR   ;SET TRANSMITTER SECONDARY INTERRUPT ENABLE
                                                BIS     #BIT0,@DQTCSR   ;SET TRANSMITTER GO
                                                CLR     PS              ;ENABLE INTERRUPTS
                                                MOV     #2000,TEMP1     ;SET UP DELAY
                                        2$:     DEC     TEMP1           ;WAIT FOR INTERRUPTS AND NPRS
                                                BNE     2$
                                                MOV     #340,PS         ;LOCK OUT INTERRUPTS
                                                HLT     1               ;TRANSMITTER DID NOT INTERRUPT
                                                BR      5$
                                        3$:     HLT     3               ;UNEXPECTED RECEIVER INTERRUPT
                                        4$:     NOP
                                        5$:     MOV     #STACK,SP       ;RESTORE PROCESSOR STACK
                                                MOV     #140,R5         ;(R5)=EXPECTED DATA IN TRANSMITTER CONTROL REGIS
                                                                        ;DONE (SECONDARY)=1, INTERRUPT ENABLE=1,
                                                                        ;P/S=1
                                                MOV     @DQTCSR,R4      ;(R4)=ACTUAL DATA IN TRANSMITTER CONTROL REGISTE
                                                BIC     #177400,R4      ;CLEAR UNWANTED BITS
                                                CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
                                                BEQ     6$
                                                HLT     5               ;TRANSMITTER STATUS ERROR
                                        6$:     CLR     R5              ;(R5)=EXPECTED DATA IN ERROR REGISTER, 0
                                                MOV     DQERR,R3        ;ADDRESS OF ERROR REGISTER
                                                MOVB    @DQERR,R4       ;(R4)TUAL DATA IN ERROR REGISTER
                                                BEQ     7$
                                                HLT     6               ;ERROR FLAG(S) SET
                                        7$:     MOVB    #6,@DQREG       ;SELECT TRANSMITTER B[illegible] ADDRESS (SECONDARY)
```

```
                                        MOV     #6,R2           ;ADDRESS OF TRANSMITTER BUS ADDRESS
                                                                ;SECONDARY REGISTER
                                        MOV     DQSEC,R3        ;ADDRESS OF SECONDARY REGISTER
                                        MOV     #TBUFF+1,R5     ;(R5)=EXPECTED DATA IN
                                                                ;TRANSMITTER BUS ADDRESS (SECONDARY) REGISTER,
                                                                ;TBUFF+1
                                        MOV     @DQSEC,R4       ;(R4)=ACTUAL DATA IN TRANSMITTER
                                                                ;BUS ADDRESS REGISTER (SECONDARY)
                                        CMP     R5,R4           ;ARE EXPECTED AND RECEIVED DATA THE SAME
                                        BEQ     10$
                                        HLT     7               ;BUS ADDRESS ERROR
                                10$:    INCB    @DQREG
                                        INC     R2
                                        MOV     #0,R5
                                        MOV     @DQSEC,R4
                                        CMP     R5,R4
                                        BEQ     11$
                                        HLT     10              ;CHARACTER COUNT ERROR
                                11$:    MOV     #177777,R5
                                        MOVB    #13.,@DQREG
                                        MOV     #13,R2
                                        MOV     @DQSEC,R4
                                        CMP     R5,R4
                                        BEQ     12$
                                        HLT     12
                                12$:    SCOPE

                                        ;RECEIVER NON-EXISTANT MEMORY TIMEOUT TEST
                                        ; (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT)
                                        ;EXPECTED RESULTS
                                        ;               RECEIVER DONE INTERRUPT OCCURS
                                        ;               RECEIVER DONE (PRIMARY) = 1
                                        ;               RECEIVER CC = 0
                                        ;               RECEIVER P/S = 1
                                        ;               RECEIVER NON EXISTANT MEMORY ERROR FLAG = 1

                                        ;               RECEIVER BUS ADDRESS (PRIMARY) = RBUFF+1
                                        ;               RECEIVER CHARACTER COUNT (PRIMARY) = 0

                                ;  TEST 57
                                ;*************************************************************
011330  012737  000057  001226  TST57:  MOV     #57,TSTNO
011336  012737  011362  001214          MOV     #1$,RETURN
011344  012737  011624  001216          MOV     #TST60,NEXT
011352  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERRUPTS
011360  104413                          MEMCLR                          ;CLEAR INTERFACE MEMORIES
011362  104412                  1$:     MSTCLR                          ;MASTER CLEAR INTERFACE
011364  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
011370  004737  016042                  JSR     PC,SETV                 ;SET UP INTERRUPT VECTORS
011374  011472                          3$                              ;RECEIVER WILL INTERRUPT TO 3$
011376  011474                          4$                              ;TRANSMITTER WILL INTERRUPT TO 4$
011400  004737  016122                  JSR     PC,SETBABC
011404     000     140          .BYTE   0,      140
011406  177320                          NON.EX
011410  177777                          -1
011412  012777  000040  167740          MOV     #BIT5,@DQRCSR           ;SET RECEIVER PRIMARY INTERRUPT ENABLE
```

```
 2832  011430  052777  000001  167732          BIS     #BIT0,@DQRCSR           ;SET RECEIVER GO
 2833  011436  112777  000016  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$:     CLR     R5                      ;(R5)=EXPECTED DATA IN ERROR REGISTER, I
 2853  011526  013703  001366                  MOV     DQERR,R3                ;ADDRESS OF ERROR REGISTER
 2854  011532  017704  167630                  MOV     @DQERR,R4               ;(R4)TUAL DATA IN ERROR REGISTER
 2855  011536  100401                          BMI     7$
 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  104430          11$:    SCOPE
 2877
 2878                                  ;TRANSMITTER NON-EXISTANT MEMORY TIMEOUT TEST
 2879                                  ; (USING PRIMARY BUS ADDRESS AND CHARACTER COUNT)
 2880                                  ;EXPECTED RESULTS
 2881                                  ;               TRANSMITTER DONE INTERRUPT OCCURS
 2882                                  ;               TRANSMITTER DONE (PRIMARY) = 1
 2883                                  ;               TRANSMITTER GO = 0
 2884                                  ;               TRANSMITTER P/S = 1
 2885                                  ;               TRANSMITTER NON EXISTANT MEMORY ERROR FLAG = 1
 2886
 2887                                  ;               TRANSMITTER BUS ADDRESS (PRIMARY) = TBUFF+1
```

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

```
 2944  012064  005202                        INC     R2
 2945  012066  012705  000000                MOV     #0,R5
 2946  012072  017704  167274                MOV     @DQSEC,R4
 2947  012076  020504                        CMP     R5,R4
 2948  012100  001401                        BEQ     11$
 2949  012102  104010                        HLT     10                      ;CHARACTER COUNT ERROR
 2950  012104  104400              11$:      SCOPE
 2951
 2952                                        ;RECEIVER P/S MASTER CLEAR TEST
 2953                                        ;EXECUTE 1 NPR CYCLE TO FORCE RECEIVER P/S TO A 1
 2954                                        ;ISSUE MASTER CLEAR
 2955                                        ;VERIFY THAT RECEIVER P/S WAS CLEARED
 2956
 2957                                        ;  TEST 61
 2958                                        ;*************************************************************************
 2959  012106  012737  000061  001226  TST61: MOV     #61,TSTNO
 2960  012114  012737  012140  001214        MOV     #1$,RETURN
 2961  012122  012737  012272  001216        MOV     #TST62,NEXT
 2962  012130  012737  000340  177776        MOV     #340,PS                 ;LOCK OUT INTERUPTS.
 2963  012136  104413                        MEMCLR
 2964  012140  104412              1$:       MSTCLR                          ;MASTER CLEAR INTERFACE
 2965  012142  004737  016024                JSR     PC,SETMNT               ;SET MAINTENANCE MODE
 2966  012146  004737  016122                JSR     PC,SETBABC
 2967  012152     000     000          .BYTE   0,0
 2968  012154  017166                        RBUFF
 2969  012156  177777                        -1
 2970  012160  052777  000001  167172        BIS     #BIT0,@DQRCSR
 2971  012166  112777  000012  167174        MOVB    #12,@DQREG              ;SELECT MISC REGISTER
 2972  012174  052777  000020  167170        BIS     #BIT4,@DQSEC            ;FORCE RX NPR
 2973  012202  012737  002000  001244        MOV     #2000,TEMP1             ;SET FOR TIME OUT
 2974  012210  105777  167144          2$:   TSTB    @DQRCSR                 ;PRIMARY DONE UP
 2975  012214  100412                        BMI     3$                      ;BR IF PRI DONE SET.
 2976  012216  005337  001244                DEC     TEMP1                   ;DELAY.....
 2977  012222  001372                        BNE     2$                      ;KEEP WAITING
 2978  012224  017704  167130                MOV     @DQRCSR,R4              ;SAVE THE CSR
 2979  012230  042704  177400                BIC     #177400,R4              ;CLEAR UNWANTED BITS.
 2980  012234  012705  000204                MOV     #204,R5                 ;SET EXPECTED.
 2981  012240  104004                        HLT     4
 2982  012242  104412              3$:       MSTCLR
 2983  012244  032777  000020  167106        BIT     #BIT4,@DQRCSR
 2984  012252  001405                        BEQ     4$
 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 INTEPUPTS.
 3002  012322  104413                          MEMCLR
 3003  012324  104412                  1$:     MSTCLR                          ;MASTER CLEAR INTERFACE
 3004  012326  004737  016024                  JSR     PC,SETMNT               ;SET MAINTENANCE MODE
 3005  012332  004737  016122                  JSR     PC,SETBABC
 3006  012336     002     000          .BYTE   2,0
 3007  012340  017170                          TBUFF
 3008  012342  177777                          -1
 3009  012344  052777  000001  167012          BIS     #BIT0,@DQTCSR
 3010  012352  012737  002000  001244          MOV     #2000,TEMP1             ;SET FOR TIME OUT
 3011  012360  105777  167000          2$:     TSTB    @DQTCSR                 ;PRIMARY DONE UP
 3012  012364  100412                          BMI     3$                      ;BR IF PRI DONE SET.
 3013  012366  005337  001244                  DEC     TEMP1                   ;DELAY.....
 3014  012372  001372                          BNE     2$                      ;KEEP WAITING
 3015  012374  017704  166764                  MOV     @DQTCSR,R4              ;SAVE THE CSR
 3016  012400  042704  177400                  BIC     #177400,R4              ;CLEAR UNWANTED BITS.
 3017  012404  012705  000204                  MOV     #204,R5                 ;SET EXPECTED.
 3018  012410  104005                          HLT     5
 3019  012412  104412                  3$:     MSTCLR
 3020  012414  032777  000020  166742          BIT     #BIT4,@DQTCSR
 3021  012422  001406                          BEQ     4$
 3022  012424  005005                          CLR     R5
 3023  012426  017704  166732                  MOV     @DQTCSR,R4
 3024  012432  042704  177400                  BIC     #177400,R4
 3025  012436  104005                          HLT     5
 3026  012440  104400                  4$:     SCOPE
 3027
 3028                                          ;TRANSMITTER NPR DATA TEST (STEP MODE)
 3029                                          ;EXECUTE 1 TRANSMITTER NPR CYCLE FOR EACH DATA PATTERN 0-177777
 3030                                          ;VERIFY THAT TRANSMITTER BUFFER CONTAINS THE CORRECT DATA
 3031
 3032                                  ;  TEST 63
 3033                                  ;*************************************************************************
 3034  012442  012737  000063  001226  TST63:  MOV     #63,TSTNO
 3035  012450  012737  012510  001214          MOV     #1$,RETURN
 3036  012456  012737  000010  001222          MOV     #10,ICOUNT
 3037  012464  012737  012650  001216          MOV     #.EOP,NEXT
 3038  012472  012737  012532  001220          MOV     #2$,LOCK
 3039  012500  012737  000340  177776          MOV     #340,PS                 ;LOCK OUT INTERUPTS.
 3040  012506  104413                          MEMCLR                          ;CLEAR ALL MEMEORIES
 3041  012510  104412                  1$:     MSTCLR                          ;INITIALIZE DEVICE
 3042  012512  005037  017172                  CLR     ZDATA                   ;CLEAR POINTER
 3043  012516  012700  000000                  MOV     #0,R0                   ;
 3044  012522  013703  001372                  MOV     DQSEC,R3                ;SET FOR ERROR
 3045  012526  012702  000013                  MOV     #13,R2                  ;SET FOR ERROR (TX MUX)
 3046  012532  104412                  2$:     MSTCLR                          ;GIVE ANOTHER MASTER CLEAR
 3047  012534  004737  015770                  JSR     PC,SETSTP               ;
 3048  012540  004737  016122                  JSR     PC,SETBABC              ;SET BUS ADDR. AND WC
 3049  012544     002     000          .BYTE   2,0                             ;
 3050  012546  017170                          TBUFF
 3051  012550  177777                          -1
 3052  012552  013705  017172                  MOV     ZDATA,R5                ;SET EXPECTED
 3053  012556  010537  017170                  MOV     R5,TBUFF                ;LOAD CHARACTER
 3054  012562  012777  000001  166574          MOV     #BIT0,@DQTCSR           ;SET TX GO.
 3055  012570  012737  002000  001244          MOV     #2000,TEMP1             ;SET FOR DELAY
```

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D2DQC   MACY11 27(732)  24-SEP-76  10:14  PAGE 60
D2DQCC.P11      DQ11 INTERUPT AND NPR LOGIC TESTS.

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

```
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)
```

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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$:   CMPB    (R4),#6C
3237  013526  002415                        BLT     PARERR
3238  013530  121427  000067                CMPB    (R4),#67
3239  013534  003012                        BGT     PARERR
3240  013536  142714  000060                BICB    #60,(R4)
3241  013542  152405                        BISB    (R4)+,R5
3242  013544  122714  000015                CMPB    #15,(R4)
3243  013550  001414                        BEQ     LIMITS
3244  013552  006305                        ASL     R5
3245  013554  006305                        ASL     R5
3246  013556  006305                        ASL     R5
3247  013560  000760                        BR      1$
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$:   SAVDS
3389  014312  011605                            MOV     (SP),R5
3390  014314  162705  000002                    SUB     #2,R5
3391  014320  011504                            MOV     (R5),R4
```

```
 3392  014322  006304                          ASL     R4
 3393  014324  061504                          ADD     (R5),R4
 3394  014326  006304                          ASL     R4
 3395  014330  042704  177001                  BIC     #177001,R4
 3396  014334  062704  016744                  ADD     #.ERRTAB,R4
 3397  014340  012437  014432                  MOV     (R4)+,ERRMSG
 3398  014344  012437  014444                  MOV     (R4)+,DATAHD
 3399  014350  011437  014456                  MOV     (R4),DATABP
 3400  014354  105737  001312                  TSTB    ERRFLG
 3401  014360  001403                          BEQ     TYPMSG
 3402  014362  005737  014456                  TST     DATABP
 3403  014366  001027                          BNE     TYPDAT
 3404  014370  104402                  TYPMSG: TYPE
 3405  014372  015317                          MTSTN
 3406  014374  104411                          CNVRT
 3407  014376  014556                          XTSTN
 3408  014400  104402                          TYPE
 3409  014402  015405                          MERRPC
 3410  014404  104411                          CNVRT
 3411  014406  014550                          ERTABO
 3412  014410  104402                          TYPE
 3413  014412  015040                          MCRLF
 3414  014414  112737  177777  001312          MOVB    #-1,ERRFLG
 3415  014422  005737  014432                  TST     ERRMSG
 3416  014426  001402                          BEQ     WRKO.FM
 3417  014430  104402                          TYPE
 3418  014432  000000                  ERRMSG: 0
 3419  014434                          WRKO.FM:
 3420  014434  005737  014444                  TST     DATAHD
 3421  014440  001402                          BEQ     TYPDAT
 3422  014442  104402                          TYPE
 3423  014444  000000                  DATAHD: 0
 3424  014446  005737  014456          TYPDAT: TST     DATABP
 3425  014452  001402                          BEQ     RESREG
 3426  014454  104410                          CONVRT
 3427  014456  000000                  DATABP: 0
 3428  014460  104407                  RESREG: RESOS
 3429  014462  005777  164512          HALTS:  TST     @SWR
 3430  014466  100005                          BPL     EXITER
 3431  014470  010046                          PUSHRO
 3432  014472  016600  000002                  MOV     2(SP),RO
 3433  014476  000000                          HALT
 3434  014500  012600                          POPRO
 3435  014502  104414                  EXITER: CKSWR
 3436  014504  005237  001232                  INC     ERRCNT
 3437  014510  032777  000400  164462          BIT     #SW08,@SWR
 3438  014516  001007                          BNE     1$
 3439  014520  032777  002000  164452          BIT     #SW10,@SWR
 3440  014526  001407                          BEQ     2$
 3441  014530  013737  001216  001214          MOV     NEXT,RETURN
 3442  014536  012706  001200          1$:     MOV     #STACK,SP
 3443  014542  000177  164446                  JMP     @RETURN
 3444  014546  000002                  2$:     RTI
 3445  014550  000001                  ERTABO: 1
 3446  014552     006     J02                  .BYTE   6,2
 3447  014554  001274                          SAVPC
```

```
                                        NXTSTN: 1
014556  000001                                  .BYTE   3,2
014560      003     002                         TSTNO
014562  001225                                  ;ENTER HERE ON POWER FAILURE
014564                                  .PFAIL:
014564  012737  014576  000024                  MOV     #RESTART,24             ;SET UP FOR POWER UP TRAP
014572  000000                                  HALT                            ;HALT ON POWER DOWN NORMAL
014574  000[illegible]                          BR      .

                                                ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
014576                                  RESTAR:
014576  012737  014564  000024                  MOV     #.PFAIL,24              ;SET UP FOR POWER FAILURE
014604  012706  001200                          MOV     #STACK,SP
014610  005037  015514                          CLR     TEMP
014614  005237  015514                          INC     TEMP
014620  001375                                  BNE     .-4
014622  104402                                  TYPE
014624  015542                                  MPFAIL
014626  104411                                  CNVRT
014630  014652                                  PFTAB
014632  005037  001312                          CLR     ERRFLG
014636  005037  001234                          CLR     LSTERR
014642  104412                                  MSTCLR
014644  104413                                  MEMCLR
014646  000177  [illegible]4342                 JMP     @RETURN
014652  000001                          PFTAB:  1
014654      003     002                 .BYTE   3,2
014656  001226                                  TSTNO


                                                ;CHECK SWITCH REGISTER ROUTINE. CHECKS FOR ^G TO ALLOW CHANGING
                                                ;OF LOC.176.
                                                ;LOCATIONS USED:
014660  000000                                  RDSW:   .WORD   0


014662  005737  000042                  .CKSWR: TST     @#42
014666  001042                                  BNE     OUT
014670  022737  000176  001200                  CMP     #SWREG,SWR              ;SOFTWARE SWITCH REGISTER PRESENT
014676  001036                                  BNE     OUT                     ;NO  GET OUT
014700  105777  164300                          TSTB    @TKCSR                  ;YES,WAIT FOR
014704  100033                                  BPL     OUT                     ;READY, GET CHARACTER
014706  017737  164274  013320                  MOV     @TKCDR,.MSG             ;AND STRIP OFF
014714  042737  177600  013320                  BIC     #177600,.MSG            ;THE GARBAGE
014722  122737  000007  013320                  CMPB    #7,.MSG                 ;IS IT A (^G)
014730  001021                                  BNE     OUT
014732  104403  015010                          TYPE,$CNTG
014736  005137  014660                  .CNTLU: COM     @#RDSW
014742  104402  015014                          TYPE,$MSWR
014746  104411  015002                          CNVRT,SWREGC
014752  104403  015023                          INSTR,$MNEW
014756  104405                                  PARAM
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  052377  000107          $CNTG:  .ASCIZ  <377>/^G/
  3514  015014  051[17  051127  020075  $MSWR:  .ASCIZ  <377>/SWR= /
  3515  015022     000
  3516  015023     040  047040  053535  $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  043017  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  015[16  000041
  3541  015[20  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  /ERR...S: /
  3554  015314  020072     000
  3555  015317     377  052377  051505  M...TN: .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     12C  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$:     MOVB    #10,@DQREG
 3610    015720  005077  163446                  CLR     @DQSEC
 3611    015724  112777  000014  163436          MOVB    #14,@DQREG
 3612    015732  005077  163434                  CLR     @DQSEC
 3613    015736  105277  163420                  INCB    @DQRCSH
 3614    015742  005300                          DEC     R0
 3615    015744  001362                          BNE     2$
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 3616  015746  105077  163410                  CLRB    @DQRCSH
 3617  015752  005077  163402                  CLR     @DQRCSR
 3618  015756  005077  163402                  CLR     @DQXTCSR
 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
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                                        ;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 INTEPRUPT/
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   1630   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   3143#
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
```

```
DH:     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*   1879*
                        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*   2729*   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*  1944*
                        1950*  1975*  1976*  2001*  2027*  2053*  2079*  2105*  2131*  2157*  2183*  2222*  2222*
                        2240*  2302*  2313*  2332*  2343*  2362*  2373*  2392*  2403*  2429*  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    016509          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*
```

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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   2921   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*  1443*  1460*  1472*  1483*  1495*  1508*  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*  1933*  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*  2439*  2463*  2464*  2467*
                        2545*  2546*  2549*  2623*  2642*  2643*  2646*  2742*  2743*  2746*  2823*  2824*  2927*
                        2898*  2899*  2902*  2965*  2966*  3004*  3005*  3047*  3048*  3107*  3626*  3632*  3639*
                        3648*  3656*  3670*
PFTAB   014652          3470   3476*
POLY. = 000017           648*
POPRO = 012600           595*  3434
PCP1SP= 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*  1903*  1826*  1849*  1879*  1903*
```

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                    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*
RESOS = 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*   965*   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*  2953*  2960*
                    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   2519*
                    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*  2669
                    2671*  2680*  2685   2690*  2692   2695*  2698   2733*  2735   2762*  2767   2770*  2779*
                    2784   2789*  2791   2794*  2798   2844*  2849   2852*  2861*  2866   2871*  2973   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    1985
                        2012    2038    2064    2090    2116    2142    2168    2194    2225    2249    2277    2314    2344
                        2374    2404    2439    2522    2604    2701    2801    2976    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    2899    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    3663*
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*
SW00  = 000001           568*   1254
SW01  = 000002           567*   1294
SW02  = 000004           566*
SW03  = 000010           565*
SW04  = 000020           564*
SW05  = 000040           563*
SW06  = 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*   1463*   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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```
                          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    2995#   2961    2962#   3030    3001#   3037    3038#
$$MSG=   015033           3501    3516#
$$MSG0=  015014           3499    3514#
$N     = 000063              1#   1308    1313#   1376    1381#   1411    1416#   1444    1449#   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#
                          1917    1821#   1940    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#   2409    2420    2424#   2440    2454    2459#   2535    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 = 000065           2440#
$Y     = 000016              1#   1101#   1110    1112#   1114#   1116#   1119#   1120#   1122#   1124#   1126#   1129#   1130#
                          1132#   1134#   1136#   1138#
.      = 017174           6552#    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    1366    1334    2245    2247    2253    2273    2275    2279
                          2311    2341    2371    2401    2631    2636    2732    2736    3171    3174    3457    3466    3519#
                          3571#   3582#   3584#   3586#
.BEGIN 002116             1281#
.CKSWR 014662             1135    3487#
.CNTLC 014736             1137    3498#
.CNVRT 013760             1129    3308#
.CONSO 013754             1127    3306#
.ECOP  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              916    1208    3454#   3462
.RESCS 013722             1125    3296#
.SAVCS 013662             1123    3282#
.SCOPE 013036             1111    3129#
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.START	001512	963	1206#	1218
.TRPSR	014202	916	3365#	
.TRPTA	001314	1109#	3370	
.TYPE	013170	1115	3161#	

E07


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D2FRNT      1#     534
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          1599    1601    1632    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    2026    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    2550    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    2375
          2913    2915    2925    2930    2942    2949    2981    2988    3018    3025    3060    3065
IDENT       1#
INTST1    136?#    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
NPRTS2    1362#    2605
NPRTS1    1362#    2441    2523
NPRTS2    1362#
NPRTS3    1362#    2951    2990
NPRTS4    1362#    2802    2877
NPRTS5    1362#    3027
ORANGE      1#    1308
PRTOCK    2285#    2296    2316    2346    2375
TESTA1      1#
TESTB1      1#
TESTC1      1#      50
TESTD1      1#
TESTE1      1#
TESTF1      1#
TESTH1      1#
TESTH2      1#
SBEGIN      1#    1278
SBUFFE      1#    3578
SCATCH      1#     651
SCLRVE      1#    1243
SCONVR      1#    3303
SEOP        1#    3071
SGETFL      1#
SGETPA      1#    1296
SHEADE      1#     534
SHLT        1#    3373
SINSTR      1#    3182
SINTMP      1#    3587
SMAINT      1#
SMSG        1#    3519
SPARAM      1#    3220
SPFAIL      1#    3451
SRED        1#    3279
SSCOPE      1#    3126
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SSTART      1#    1198
SSYMBO      1#     551
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$TRPSR	1#	3360													
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	1702	1725	1748	1771	1794	1917	1940	1869	1893	1917	1941	1967	1993	2019	2045
	2071	2097	2123	2149	2175	2202	2231	2259	2292	2322	2352	2382	2420	2454	2538
	2619	2715	2815	2890	2957	2996	3032								
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$VARIA	1#	1036													

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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
        2276  2279  2401  2413  2490  2495  2507  2514  2520  2571  2576  2598  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   969  1000  1452  1475  1498  1521  1544  1572  1535
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        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
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BISB    3241  3600  3663  3664
BIT      993   996  1254  1286  1294  1318  2412  2983  3020  3130  3137  3154  3166  3377  3382
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BITB    3263
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
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BPL     3134  3169  3171  3174  3177  3194  3205  3380  3430  3492
BR       947  1032  1232  1253  1265  1291  1304  1330  1334  1455  1457  1478  1480  1501  1503
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        1692  1713  1715  1736  1738  1759  1761  1782  1784  1805  1807  1828  1830  1851  1953
        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  3132  3136  3200  3209  3216
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DZDQCC.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

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RESET   3105
RETURN  1301
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RTS      953  3626  3632  3638  3648  3655  3670
SUB     3366  3390
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J07


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L07

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

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