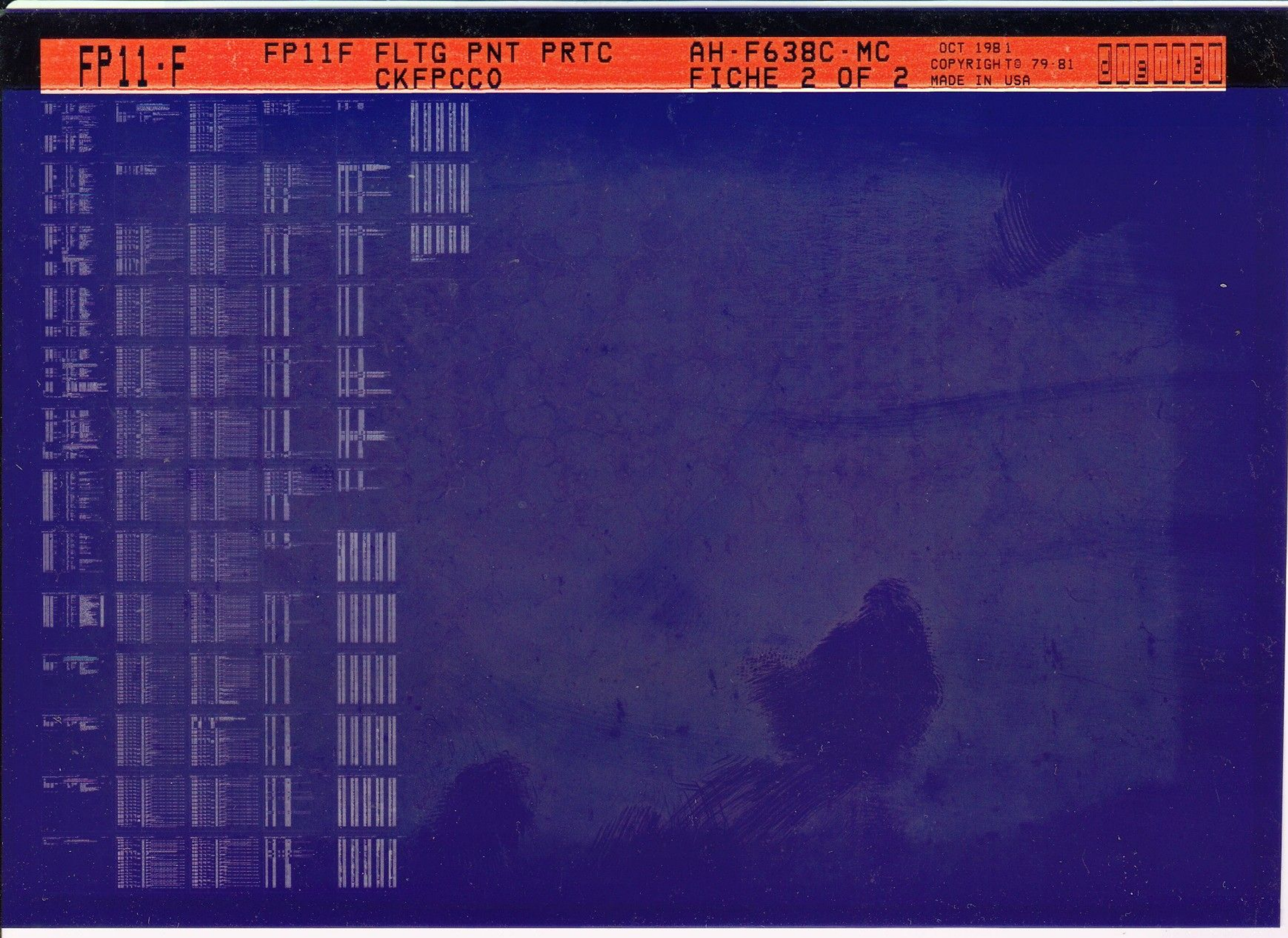
FP11-F FP11F FLTG PNT PRTC CKFPCC0 AH-F638C-MC FICHE 1 OF 2

FP11-F FP11F FLTG PNT PRTC AH-F638C-MC
CKFPCC0 FICHE 2 OF 2



```
                .REM    &
```

IDENTIFICATION

PRODUCT CODE: AC-F636C-MC

PRODUCT NAME: CKFPCC0 FP11F FLTG PNT PRT C

PRODUCT DATE: APRIL, 1981

MAINTAINER: DIAGNOSTIC ENGINEERING

AUTHOR: ANTHONY VEZZA, DAN MILLEVILLE

HISTORY

NO CHANGES TO THE 11/34 FLOATING POINT DIAGNOSTIC PART 'A' WERE FOUND TO BE NEEDED TO ADAPT IT FOR USE ON THE 11/44.

THE FOLLOWING WAS ADDED TO THE 11/34 FLOATING POINT DIAGNOSTIC TO MAKE THE 'B' VERSION COVER THE 11/44:

1. TEST 22 - PROCESSOR LOOKS TO SEE IF APT IS CONTROLLING THE TEST, AND IF IT IS, CHECKS TO SEE IF THE USER HAS SELECTED THIS TEST BY CHECKING BIT 7 IN THE SWITCH REGISTER. IT HAS ALSO BEEN CHANGED SO THAT IF BIT 7 IS *ONE*, THE CODE WILL SELECT THE TEST.

THE FOLLOWING WAS ADDED TO THE 11/34 FLOATING POINT DIAGNOSTIC TO MAKE THE 'C' VERSION COVER THE 11/44:

1. TEST 76 - CHECKS THAT FP PROCESSOR DOESN'T ACCESS D-SPACE UNTIL CONDITIONS WARRANT.

2. TEST 77 TO 106 - CHECKS THAT SR1 MATCHES WHAT ACTUALLY HAPPENED TO THE REGISTER OF THE INSTRUCTION, AND THAT THE VALUE OF AUTO INCREMENT/DECREMENT WAS PROPER.

THE FOLLOWING WAS ADDED TO THE 'C' VERSION TO FURTHER INTENSIFY THE TEST:

1. TEST 77 - A BYTE TABLE OF EXPECTED DATA FOR SR1 CHECKS TO MAKE SURE THAT THE VALUE OF THE INCREMENT/DECREMENT IS PROPER FOR THAT INSTRUCTION.

ALL THREE PARTS WERE RE-RELEASED WITH A NEW SYSMAC THAT CHECKS BIT 0 OF THE CPU ERROR REGISTER (POWER MONITOR BIT). THE ADDITIONS WERE MADE IN THE SCOPE ROUTINE, EXECUTED AT THE BEGINNING OF EACH TEST, AND THE ERROR CALL ROUTINE. IF THE BIT BECOMES SET, AN ERROR IS CALLED FROM THE SCOPE ROUTINE. THE BIT IS CLEARED, AND THE TEST IS CONTINUED. IF THE BIT BECOMES SET IN THE MIDDLE OF A TEST, AND AN ERROR OCCURS FOR ANY REASON, THE ERROR ROUTINE WILL CALL *TWO* ERRORS, THE POWER MONITOR BIT ERROR FIRST, THEN THE ERROR ORIGINALLY CALLED. IN ADDITION, THE $READ ROUTINE NOW CHECKS FOR A RANDOMLY INPUTED ^Q BEFORE A ^S IS TYPED. THIS BECAME NECESSARY WITH CERTAIN DATA CONNECTIONS OF SOME SYSTEMS.

CONTENTS

1. ABSTRACT

THE THREE PROGRAMS:

CKFPAA0 CKFPBA0 CKFPCC0

ARE DESIGN TO DETECT AND REPORT LOGIC FAULTS IN THE PDP 11/44 FP11-F FLOATING POINT PROCESSOR. THE DESIGN IS AN ATTEMPT TO REACH ALL ROM STATES, TAKE ALL BRANCH MICRO TESTS (BUT'S) AND VERIFY ALL THE LOGIC. THEY CONSIST OF 161 (OCT) INDIVIDUAL TESTS SEQUENCED TO DETECT AND ATTEMPT TO IDENTIFY FAULTS WITH A MINIMUM HARDWARE OR SOFTWARE LEVEL. THE TESTS ARE PARTIONED INTO THREE STAND-ALONE PROGRAMS DESCRIBED BELOW.

NOTE THAT ERROR REPORTS IN THESE PROGRAMS ARE BASED UPON THE KNOWLEDGE THAT ALL PREVIOUS TESTS HAVE BEEN RUN AND IN MOST CASE THAT THERE IS ONLY A SINGLE POINT FAULT IN THE FP11-F. IF THE PROGRAMS OR TESTS ARE NOT RUN IN ORDER THEN ERROR MESSAGES MAY NOT BE ACCURATE.

A. CKFPAA0

CKFPAA0 TESTS:

- LDFPS
- STFPS
- CFCC
- SETF, SETD, SETI AND SETL
- STST
- LDF AND LDD (ALL SOURCE MODES)
- STD (MODE 0 AND 1)
- ADDF, ADDD AND SUBD (MOST CONDITIONS)

B. CKFPBA0

CKFPBA0 TESTS:

- ADDF, ADDD AND SUBD (ALL CONDITIONS NOT TESTED IN CKFPAA0)
- CMPD AND CMPF
- DIVD AND DIVF
- MULD AND MULF
- MODD AND MODF

C. CKFPCC0

CKFPCC0 TESTS:

- STF AND STD (ALL MODES)
- STCFD AND STCDF
- CLRD AND CLRF
- NEGF AND NEGD

```
                                ABSF AND ABS
                                TSTF AND TSTD
                                NEGF, ABSF AND TSTF (ALL SOURCE MODES)
                                NEGF, ABSF AND TSTF (ALL SOURCE MODES)
                                LDFPS (ALL SOURCE MODES)
                                LDCIF AND LDCLF
                                LDCID AND LDCLD
                                LDEXP
                                STFPS (ALL DESTINATION MODES)
                                STCFL AND STCFI
                                STCDL AND STCDI
                                STEXP
                                STST
                                I AND D SPACE TESTS (ALL MODES AND REGS 0 AND 7)
                                AUTO INCREMENT/DECREMENT CHECK - SR1 (ALL MODES AND REGS 1 AND 7)


                    2.                  REQUIREMENTS
                                        ------------

                    2.1     EQUIPMENT
                            A  PDP 11/44  WITH CONSOLE  AND  AN FP11-F  FLOATING
                            POINT PROCESSOR. NOTE THAT A SPECIAL INTERRUPTS TEST
                            MODULE  IS  BEING DESIGNED  FOR  USE IN THE MANUFAC-
                            TURING ENVIRONMENT.  WHEN THIS DEVICE IS PRESENT THE
                            PROGRAM CKFPBA0 WILL MAKE USE OF IT TO  TEST THE FPP
                            INTERRUPT ON BUS REQUEST FUNCTIONS.

                    2.2     STORAGE

                            ALL THREE PROGRAM REQUIRE  A  MEMORY  SYSTEM  OF  AT
                            LEAST 16K TO LOAD AND RUN.

                    2.3     PRELIMINARY PROGRAMS

                            THESE THREE DIAGNOSTICS WILL  ASSUME  THAT  THE  PDP
                            11/44 CENTRAL PROCESSOR IS FAULTLESS, THEREFORE WHEN
                            IN DOUBT RUN THE  PDP  11/44  PROCESSOR  DIAGNOSTICS
                            BEFORE THESE FP11-F DIAGNOSTICS.


                    3.                  LOADING PROCEDURE
                                        -----------------

                            THE  PROGRAMS  WILL  BE  SUPPLIED  ON  THE  USUAL
                            DIAGNOSTIC  MEDIA.  REFER  TO  THE  XXDP  OPERATING
                            MANUAL FOR FURTHER INFORMATION.

                    4.                  STARTING PROCEDURE
                                        ------------------

                    4.1     CONTROL SWITCH SETTINGS

                            SEE SECTION 5.1

                    4.2     PROGRAM AND OPERATOR ACTION
```

1. LOAD PROGRAM INTO MEMORY
2. LOAD ADDRESS 200
3. SET CONSOLE SWITCHES (IF CONSOLE IS PRESENT)
4. PRESS START.
   ON FIRST PASS, THE PROGRAM WILL IDENTIFY ITSELF. NOTE THAT IF THERE IS NO PHYSICAL CONSOLE THE PROGRAM WILL REQUEST THE OPERATOR FOR INITIAL VALUE FOR THE SOFTWARE SWITCH REGISTER (SEE SECTION 8.5). OF RUNNING UNDER ACT, APT OR CHAIN THIS DOES NOT APPLY.
5. THE PROGRAM WILL LOOP AND AN END OF PASS AND ERROR SUMMARY WILL BE TYPED AT THE END OF EVERY PASS.

5. OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

THE SWITCH SETTING ARE:

	OCTAL	
SW<15>=1...	100000	HALT ON ERROR
SW<14>=1...	40000	LOOP ON CURRENT TEST
SW<13>=1...	20000	INHIBIT ERROR TYPE OUTS
SW<12>=1...	10000	INHIBIT T-BIT TRAPPING
SW<11>=1...	4000	INHIBIT ITERATIONS
SW<10>=1...	2000	RING TTY BELL ON ERROR
SW<9>=1....	1000	LOOP ON ERROR
SW<8>=1....	400	LOOP ON TEST SPECIFIED IN SW<6> THROUGH SW<0>
SW<7>=1....	200	PRINT ERROR SUMMARY EVEN IF SW<13>=1, THIS APPLIES ONLY TO PROGRAM CKFPAA0.
SW<7>=1....	200	SELECT CORRECT INTERRUPT TEST IN PROGRAM CKFPBA0.

6. ERRORS

6.1 SUMMARIES

IN PROGRAM CKFPAA0 TESTS 1 AND 11 HAVE A SPECIAL ERROR SUMMARY FEATURE. THESE TWO TEST RUN MANY TEST PATTERNS THROUGH THE LOGIC. AFTER AN ERROR IS ENCOUNTERED, ONLY THE FIRST FIVE ERRORS ARE REPORTED (TYPED ON THE TTY). EVERY ERROR THOUGH IS LOGGED AND AN ERROR SUMMARY IS PRINTED WHEN THE TEST IS COMPLETE. NOTE THAT IS SW<13>=1 THIS SUMMARY WILL NOT BE TYPED UNLESS SW<7>=1. IN OTHER WORDS TO GET JUST AN ERROR SUMMARY FROM EITHER OF THESE TWO TESTS 1 AND 11 IN PROGRAM CKFPAA0 BOTH SWITCHES 13 AND 7 MUST = 1.

6. ERROR RECOVERY

SW<15:9>=0... MOST ERRORS WILL CAUSE EXECUTION TO GO TO THE START OF THE NEXT TEST AFTER THE MESSAGE IS TYPED. A FEW TESTS ARE IN SECTIONS. IN THESE TESTS AN ERROR WILL CAUSE EXECUTION TO GO TO THE NEXT SECTION AFTER THE MESSAGE IS TYPED.

SW<15>=1.. THE PROGRAM WILL HALT AFTER TYPING THE ERROR MESSAGE. PRESSING THE CONSOLE CONTINUE WILL CAUSE THE PROGRAM TO CONTINUE AS IF SW<15>=0.

7. RESTRICTIONS

NONE

8. MISCELLANEOUS

8.1 EXECUTION TIMES

LESS THAN 10 SECONDS FOR EACH PROGRAM ON ANY PASS.

8.2 STACK POINTER

THE STACK POINTER IS INITIALIZED TO 1100 IN EACH OF THE THREE PROGRAMS.

8.3 PASS COUNT

THE PROGRAM MAKES ONE PASS FOR EACH END OF PASS MESSAGE TYPED. THE END OF PASS MESSAGE DESCRIBES THE TOTAL NUMBER OF PASSES COMPLETED AND THE TOTAL NUMBER OF ERRORS SINCE THE LAST END OF PASS MESSAGE..

8.4 T-BIT TRAPPING

IF SW<12>=0 EACH PROGRAM WILL RUN WITH TRACE TRAPS ON EVERY OTHER PASS. FIRST PASS WILL NOT ENABLE TRACE TRAPS. NOTE SW<12>=1 DISABLES T-BIT TRAPS.

8.5 SOFTWARE SWITCH REGISTER

IF THE USER DESIRES, A SOFTWARE SWITCH REGISTER CAN BE EXAMINED OR MODIFIED AT ANY TIME BY THE USER IF HE TYPES CNTRL/G WHILE THE PROGRAM IS RUNNING. THIS CNTRL/G WILL CAUSE THE CONTENTS OF THE SOFTWARE SWITCH REGISTER TO BE TYPED ON THE TTY AND ASK THE USER FOR A NEW VALUE. WHEN THE USER TYPES A VALUE AND CARRIAGE RETURN THEN THE PROGRAM WILL RESUME TESTING AT THE SAME POINT AT WHICH IT LEFT OFF WHEN THE USER TYPED CNTRL/G. NOTE THAT WHEN NOT RUNNING UNDER ACT, APT OR CHAIN THE USER WILL BE ASKED FOR A SOFTWARE SWITCH REGISTER VALUE AFTER LOADING ADDRESS 200 AND STARTING THE PROGRAM THE FIRST TIME

THE PROGRAM IS RUN AFTER LOADING ONLY IF THE CONSOLE SWITCH REGISTER CONTAINS 177777.

8.6 INTERRUPTS TEST

IN PROGRAM CKFPBA0 THERE IS A SPECIAL TEST FOR CHECKING THE CORRECT FLOWS OF THE FPP. THIS TEST CAN BE RUN ONLY IF A SPECIAL TEST MODULE IS IN THE SYSTEM. THIS MODULE WILL PROBABLY ONLY BE USED IN MANUFACTURING. IF THIS MODULE IS NOT IN THE SYSTEM THIS TEST WILL AUTOMATICALLY BE DESELECTED. IF THIS TEST MODULE IS ON THE SYSTEM AND SW<7>=1 THIS TEST WILL BE RUN. IF SW<7>=0, THIS TEST WILL BE DESELECTED.

8.7 ACT, APT AND XXDP COMPATIBILITY

THESE PROGRAMS ARE FULLY COMPATIBLE WITH:

- APT
- ACT
- XXDP MONITOR AND CHAIN PROGRAMS.

9. PROGRAM DESCRIPTION

TEST 1 — STF WITH ILLEGAL ACCUMULATOR TEST

THIS IS A TEST OF THE ST INSTRUCTION USING ILLEGAL ACCUMULATOR 7, MODE 0.

TEST 2 — FDST MODE 1, FLOATING MODE, TEST

THIS IS A TEST OF THE STF INSTRUCTION USING FDST MODE 1.

TEST 3 — FDST MODE 2 TEST

THIS IS A TEST OF BOTH STF AND STD WITH FDST MODE 2.

TEST 4 — FDST MODE 2, WITH GR7, TEST

THIS IS A TEST OF STF WITH GR7 MODE 2 OR IMMEDIATE MODE.

```
                                TEST 5          FDST MODE 4 TEST
                                ------          ----------------

                                        THIS IS A TEST OF STD WITH FDST MODE 4.

                                TEST 6          FDST MODE 3 TEST
                                ------          ----------------

                                        THIS IS A TEST OF FDST MODE 3 USING STD.

                                TEST 7          FDST MODE 5 TEST
                                ------          ----------------

                                        THIS IS A TEST OF FDST MODE 5 USING STD.

                                TEST 10         FDST MODE 6, INDEX MODE, TEST
                                -------         -----------------------------

                                        THIS IS A TEST OF FDST MODE  6,  INDEX  MODE,  USING
                                        STD.

                                TEST 11         FDST MODE 7, INDEX DEFERRED MODE, TEST
                                -------         -------------------------------------

                                        THIS IS A TEST OF FDST MODE 7, INDEX DEFERRED  MODE,
                                        USING STD.

                                TEST 12         STCFD TEST
                                -------         ----------

                                        THIS IS A TEST OF THE STCFD INSTRUCTION.

                                TEST 13         STCDF TEST
                                -------         ----------

                                        THIS IS A TEST OF THE STCDF INSTRUCTION.

                                TEST 14         STCFD WITH ILLEGAL ACCUMULATOR TEST
                                -------         -----------------------------------

                                        THIS TEST STCFD WITH ILLEGAL AC 6.

                                TEST 15         CLRD TEST
                                -------         ---------

                                        THIS IS A TEST OF THE CRLF AND CLRD INSTRUCTIONS.

                                TEST 16         CLRD WITH ILLEGAL ACCUMULATOR TEST
                                -------         ----------------------------------

                                        THIS IS A TEST OF CLRD WITH ILLEGAL AC7.

                                TEST 17         NEGF, ABSF AND TSTF SOURCE MODE 0 WITH ILLEGAL AC7, TEST
                                -------         ---------------------------------------------------------

                                        THIS IS A TEST OF THE SPECIAL DEST FLOWS  USING  THE
```

```
                                NEGD INST WITH MODE ZERO AND ILLEGAL AC7.

TEST 20         NEGF, ABSF AND TSTF SOURCE MODE 0 TEST
-------         --------------------------------------

                THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                THE NEGD INSTRUCTION IS USED TO TEST MODE 0

TEST 21         NEGF, ABSF AND TSTF SOURCE MODE 1 TEST
-------         --------------------------------------

                THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                THE NEGD INSTRUCTION IS USED TO TEST MODE 1

TEST 22         NEGF, ABSF AND TSTF SOURCE MODE 2 TEST
-------         --------------------------------------

                THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                THE ABSD INSTRUCTION IS USED TO TEST MODE 2

TEST 23         NEGF, ABSF AND TSTF SOURCE MODE 4 TEST
-------         --------------------------------------

                THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                THE ABSD INSTRUCTION IS USED TO TEST MODE 4

TEST 24         NEGF, ABSF AND TSTF SOURCE MODE 3 TEST
-------         --------------------------------------

                THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                THE ABSD INSTRUCTION IS USED TO TEST MODE 3

TEST 25         NEGF, ABSF AND TSTF SOURCE MODE 5 TEST
-------         --------------------------------------

                THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                THE NEGD INSTRUCTION IS USED TO TEST MODE 5

TEST 26         NEGF, ABSF AND TSTF SOURCE MODE 6 TEST
-------         --------------------------------------

                THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                THE ABSD INSTRUCTION IS USED TO TEST MODE 6

TEST 27         NEGF, ABSF AND TSTF SOURCE MODE 7 TEST
-------         --------------------------------------

                THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                THE ABSD INSTRUCTION IS USED TO TEST MODE 6

TEST 30         NEGF, ABSF AND TSTF SOURCE MODE 6, GR7, TEST
-------         --------------------------------------------

                THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                THE NEGD INSTRUCTION IS USED TO TEST MODE 6

TEST 31         NEGF, ABSF AND TSTF SOURCE MODE 7, GR7, TEST
```

```
                        ;-------        ;-----------------------------------------------

                        ;       THIS IS A TEST THE NEGF, ABSF AND TSTF SOURCE FLOWS.
                        ;       THE ABSD INSTRUCTION IS USED TO TEST MODE 7

                        ;TEST 32        SPECIAL DEST, MODE 0, TEST
                        ;-------        ;-------------------------

                        ;       THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                        ;       FLOWS MODE 0 USING THE NEGD INSTR.

                        ;TEST 33        SPECIAL DEST, MODE 1, TEST
                        ;-------        ;-------------------------

                        ;       THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                        ;       FLOWS MODE 1 USING THE NEGD INSTR.

                        ;TEST 34        SPECIAL DEST, MODE 2, TEST
                        ;-------        ;-------------------------
                        ;       THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                        ;       FLOWS MODE 2 USING THE NEGD INSTR.

                        ;TEST 35        SPECIAL DEST, MODE 4, TEST
                        ;-------        ;-------------------------

                        ;       THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                        ;       FLOWS MODE 4 USING THE NEGD INSTR.

                        ;TEST 36        SPECIAL DEST, MODE 3, TEST
                        ;-------        ;-------------------------

                        ;       THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                        ;       FLOWS MODE 3 USING THE NEGD INSTR.

                        ;TEST 37        SPECIAL DEST, MODE 5, TEST
                        ;-------        ;-------------------------

                        ;       THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                        ;       FLOWS MODE 5 USING THE NEGD INSTR.

                        ;TEST 40        SPECIAL DEST, FLOATING MODE 2, TEST
                        ;-------        ;----------------------------------

                        ;       THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                        ;       FLOWS MODE 2 USING THE NEGF INSTR.

                        ;TEST 41        SPECIAL DEST, MODE2, GR7 (IMMEDIATE), TEST
                        ;-------        ;-----------------------------------------

                        ;       THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                        ;       FLOWS MODE 2(IMMEDIATE) USING THE NEGD INSTR.

                        ;TEST 42        SPECIAL DEST, MODE 6, TEST
                        ;-------        ;-------------------------

                        ;       THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                        ;       FLOWS MODE 6 USING THE NEGD INSTR.
```

```
                        TEST 43         SPECIAL DEST, MODE 7, TEST
                        -------         --------------------------

                                THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION
                                FLOWS MODE 7 USING THE NEGD INSTR.

                        TEST 44         NEGD, ABSD AND TSTD TEST
                        -------         ------------------------

                                THIS IS A TEST OF THE NEGD ABSD AND TSTD
                                INSTRUCTIONS.

                        TEST 45         SOURCE MODES, MODE 1 (FL=0), TEST
                        -------         ---------------------------------

                                THIS IS A TEST OF SOURCE MODE 1 USING THE LDFPS
                                INSTRUCTION.

                        TEST 46         SOURCE MODES, MODE 2 (FL=0), TEST
                        -------         ---------------------------------

                                THIS IS A TEST OF SOURCE MODE 2 USING THE LDFPS
                                INSTRUCTION.

                        TEST 47         SOURCE MODES, MODE 4 (FL=0), TEST
                        -------         ---------------------------------

                                THIS IS A TEST OF SOURCE MODE 4 USING THE LDFPS
                                INSTRUCTION.

                        TEST 50         SOURCE MODES, MODE 3 (FL=0), TEST
                        -------         ---------------------------------

                                THIS IS A TEST OF SOURCE MODE 3 USING THE LDFPS
                                INSTRUCTION.

                        TEST 51         SOURCE MODES, MODE 5 (FL=0), TEST
                        -------         ---------------------------------

                                THIS IS A TEST OF SOURCE MODE 5 USING THE LDFPS
                                INSTRUCTION.

                        TEST 52         SOURCE MODES, MODE 6 (FL=0), TEST
                        -------         ---------------------------------

                                THIS IS A TEST OF SOURCE MODE 6 USING THE LDFPS
                                INSTRUCTION.

                        TEST 53         SOURCE MODES, MODE 7 (FL=0), TEST
                        -------         ---------------------------------

                                THIS IS A TEST OF SOURCE MODE 7 USING THE LDFPS
                                INSTRUCTION

                        TEST 54         SOURCE MODES, MODE 2 GR7 (FL=1), TEST
                        -------         -------------------------------------
```

```
                        THIS IS A TEST OF THE LDCLD WITH IMMEDIATE
                        ADDRESSING MODE

                TEST 55         SOURCE MODES, MODE 2 (FL=1), TEST
                -------         ---------------------------------
                        THIS IS A TEST OF THE LDCLD INSTRUCTION WITH MODE 2.

                TEST 56         LDCIF AND LDCLF TEST
                -------         --------------------

                        THIS IS A TEST OF THE LDCIF AND THE LDCLF
                        INSTRUCTIONS.

                TEST 57         LDCID AND LDCLD TEST
                -------         --------------------

                        THIS IS A TEST OF LDCID AND LDCLD

                TEST 60         LDEXP TEST
                -------         ----------

                        THIS IS A TEST OF THE LDEXP INST A SUBROUTINE IS
                        USED TO SET UP OPERANDS, EXECUTE THE LDEXP INST AND
                        CHECK THE RESULTS.

                TEST 61         DESTINATION MODES, MODE 1 (FL=0), TEST
                -------         --------------------------------------

                        THIS IS A TEST OF DESTINATION MODE 1 USING THE STFPS
                        INSTRUCTION

                TEST 62         DESTINATION MODES, MODE 2 (FL=0), TEST
                -------         --------------------------------------

                        THIS IS A TEST OF DESTINATION MODE 2 USING THE STFPS
                        INSTRUCTION

                TEST 63         DESTINATION MODES, MODE 4 (FL=0), TEST
                -------         --------------------------------------

                        THIS IS A TEST OF DESTINATION MODE 4 USING THE STFPS
                        INSTRUCTION

                TEST 64         DESTINATION MODES, MODE 3 (FL=0), TEST
                -------         --------------------------------------

                        THIS IS A TEST OF DESTINATION MODE 3 USING THE STFPS
                        INSTRUCTION

                TEST 65         DESTINATION MODES, MODE 5 (FL=0), TEST
                -------         --------------------------------------

                        THIS IS A TEST OF DESTINATION MODE 5 USING THE STFPS
                        INSTRUCTION

                TEST 66         DESTINATION MODES, MODE 6 (FL=0), TEST
```

```
                        -------         ----------------------------------------

                                THIS IS A TEST OF DESTINATION MODE 6 USING THE STFPS
                                INSTRUCTION

                        TEST 67         DESTINATION MODES, MODE 7 (FL=0), TEST
                        -------         ----------------------
```

THIS IS A TEST OF DESTINATION MODE 7 USING THE STFPS INSTRUCTION

TEST 70 DESTINATION MODES, MODE 2 (FL=1), TEST

THIS IS A TEST OF DESTINATION MODE 2 USING STCOL WITH REGISTER 0

TEST 71 DESTINATION MODES, MODE 4 (FL=1), TEST

THIS IS A TEST OF DESTINATION MODE 4 USING STCDL WITH REGISTER 0

TEST 72 STCDI AND STCDL TEST

THIS IS A TEST OF THE STCDI AND STCDL INSTRUCTIONS. NOTE THAT A SUBROUTINE, STCSUB, IS USED TO SET UP THE OPERANDS, EXECUTE THE STC INSTRUCTION AND CHECK THE RESULT.

TEST 73 STCFL AND STCFI TEST

THIS IS A TEST OF STCFL AND STCFI. IT MAKES USE OF THE SAME SUBROUTINE, STCSUB, WHICH WAS USED TO TEST STCDL AND STCDI.

TEST 74 STEXP TEST

THIS IS A TEST OF THE STEXP INSTRUCTION

TEST 75 STST TEST

THIS IS A TEST OF THE STST INSTRUCTION. FIRST AN ILLEGAL FPS OP CODE (INSTRUCTION) IS USED TO ENTER AN ERROR CONDITION IN THE FEC AND FEA. THE STST IS EXECUTED AND THE FEC AND FEA ARE CHECKED

TEST 76 D-SPACE NON-ACCESS TEST

THIS IS A TEST THAT ENABLES D-SPACE, BUT MAKES IT NON-RESIDENT, CAUSING A MEMORY MANAGEMENT TRAP SHOULD IT BE ACCESSED DURING AN INSTRUCTION THAT WILL NOT NORMALLY ACCESS D-SPACE.

TEST 77 AUTO INCREMENT/DECREMENT TEST

THIS IS A TEST THAT ENABLES D-SPACE, BUT MAKES IT NON-RESIDENT IN THE AREA OF THE TEST, FORCING A MEMORY MANAGEMENT TRAP FOR EVERY FPP INSTRUCTION IN

```
                                THE TEST. SR1 IS THEN EXAMINED FOR PROPER  CONTENTS.
                                SHOULD  THE FPP INSTRUCTION FAIL TO ABORT,  THE NEXT
                                INSTRUCTION IS  AN  IOT  TRAP, AND CALLS AN ERROR TO
                                ANOUNCE  THE FPP INSTRUCTION'S  FAILING  TO CAUSE AN
                                ABORT, NOT  ALLOWING PROPER EXAMINATION OF SR1.



                        10.                     LISTING
                                                -------&

000444                  MNUMBER=444
000003                  PROGNUM=3
                        .LIST   ME
                        .NLIST  MD
                        .NLIST  MC
                        .NLIST  CND
                        .NLIST  BEX
```

```
                                .MCALL  .HEADER,.SWRHI,.EQUAT,.SETUP,.$CATCH,.$ACT11
                                .MCALL  .$EOP,.$SAVE,.$TYPOCT,.$CMTAG
                                .MCALL  .$TYPDEC,.$TRAP,.$POWER,.$APTHDR,.$APTBLS
                                .MCALL  .$APTYPE,.$READ
                                .MCALL  .EQUIV                          ;REMOVE FOR PDP-10
                        .TITLE  CKFPCC0 FP11F FLTG PNT PRT C
                        ;*COPYRIGHT (C) 1981
                        ;*DIGITAL EQUIPMENT CORP.
                        ;*MAYNARD, MASS. 01754
                        ;*
                        ;*
                        ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
                        ;*PACKAGE (MAINDEC-11-DZQAC-C5), JAN, 1981.
                        ;*
000001                  $TN=1
160000                  $SWR=160000     ;;HALT ON ERROR, LOOP ON TEST, INHIBIT ERROR TYPOUT

000244                  FPVECT=244
000250                  MMVECT=250
177400                  $SWR=177400
000200                  $SWRMSK=200
000011                  TAB=11
000015                  CRLF=15

                        .SBTTL  BASIC DEFINITIONS
                        ;*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
001100                  STACK=  1100
104000                          ERROR=EMT
000004                          SCOPE=IOT
                        ;*MISCELLANEOUS DEFINITIONS
000011                  HT=     11              ;;CODE FOR HORIZONTAL TAB
000012                  LF=     12              ;;CODE FOR LINE FEED
000015                  CR=     15              ;;CODE FOR CARRIAGE RETURN
000200                  CRLF=   200             ;;CODE FOR CARRIAGE RETURN-LINE FEED
177776                  PS=     177776          ;;PROCESSOR STATUS WORD
177776                          PSW=PS
177774                  STKLMT= 177774          ;;STACK LIMIT REGISTER
177772                  PIRQ=   177772          ;;PROGRAM INTERRUPT REQUEST REGISTER
177570                  DSWR=   177570          ;;HARDWARE SWITCH REGISTER
177570                  DDISP=  177570          ;;HARDWARE DISPLAY REGISTER
                        ;*GENERAL PURPOSE 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                  R6=     %6              ;;GENERAL REGISTER
000007                  R7=     %7              ;;GENERAL REGISTER
000006                  SP=     %6              ;;STACK POINTER
000007                  PC=     %7              ;;PROGRAM COUNTER
                        ;*PRIORITY LEVEL DEFINITIONS
000000                  PR0=    0               ;;PRIORITY LEVEL 0
000040                  PR1=    40              ;;PRIORITY LEVEL 1
000100                  PR2=    100             ;;PRIORITY LEVEL 2
000140                  PR3=    140             ;;PRIORITY LEVEL 3
```

BASIC DEFINITIONS

```
                        PR4=    200             ;;PRIORITY LEVEL 4
                        PR5=    240             ;;PRIORITY LEVEL 5
                        PR6=    300             ;;PRIORITY LEVEL 6
                        PR7=    340             ;;PRIORITY LEVEL 7
                        ;*''SWITCH REGISTER'' SWITCH DEFINITIONS
                        SW15=   100000
                        SW14=   40000
                        SW13=   20000
                        SW12=   10000
                        SW11=   4000
                        SW10=   2000
                        SW09=   1000
                        SW08=   400
                        SW07=   200
                        SW06=   100
                        SW05=   40
                        SW04=   20
                        SW03=   10
                        SW02=   4
                        SW01=   2
                        SW00=   1
                            SW9=SW09
                            SW8=SW08
                            SW7=SW07
                            SW6=SW06
                            SW5=SW05
                            SW4=SW04
                            SW3=SW03
                            SW2=SW02
                            SW1=SW01
                            SW0=SW00
                    ;*DATA BIT DEFINITIONS (BIT00 TO BIT15)
                    BIT15=  100000
                    BIT14=  40000
                    BIT13=  20000
                    BIT12=  10000
                    BIT11=  4000
                    BIT10=  2000
                    BIT09=  1000
                    BIT08=  400
                    BIT07=  200
                    BIT06=  100
                    BIT05=  40
                    BIT04=  20
                    BIT03=  10
                    BIT02=  4
                    BIT01=  2
                    BIT00=  1
                            BIT9=BIT09
                            BIT8=BIT08
                            BIT7=BIT07
                            BIT6=BIT06
                            BIT5=BIT05
                            BIT4=BIT04
                            BIT3=BIT03
                            BIT2=BIT02
                            BIT1=BIT01
```

BASIC DEFINITIONS

```
                        000001                          BIT0=BIT00
                                                ;*BASIC ''CPU'' TRAP VECTOR ADDRESSES
                        000004                  ERRVEC= 4               ;;TIME OUT AND OTHER ERRORS
                        000010                  RESVEC= 10              ;;RESERVED AND ILLEGAL INSTRUCTIONS
                        000014                  TBITVEC=14              ;;''T'' BIT
                        000014                  TRTVEC= 14              ;;TRACE TRAP
                        000014                  BPTVEC= 14              ;;BREAKPOINT TRAP (BPT)
                        000020                  IOTVEC= 20              ;;INPUT/OUTPUT TRAP (IOT) **SCOPE**
                        000024                  PWRVEC= 24              ;;POWER FAIL
                        000030                  EMTVEC= 30              ;;EMULATOR TRAP (EMT) **ERROR**
                        000034                  TRAPVEC=34              ;;''TRAP'' TRAP
                        000060                  TKVEC=  60              ;;TTY KEYBOARD VECTOR
                        000064                  TPVEC=  64              ;;TTY PRINTER VECTOR
                        000240                  PIRQVEC=240             ;;PROGRAM INTERRUPT REQUEST VECTOR
  1621                                                  .SBTTL  FPP REGISTER DEFINITIONS
  1622                  000000                  AC0     =%0
  1623                  000001                  AC1     =%1
  1624                  000002                  AC2     =%2
  1625                  000003                  AC3     =%3
  1626                  000004                  AC4     =%4
  1627                  000005                  AC5     =%5
  1628                  000006                  AC6     =%6
  1629                  000007                  AC7     =%7
  1630                  172300                  KIPDR0  =172300
  1631                  172302                  KIPDR1  =172302
  1632                  172304                  KIPDR2  =172304
  1633                  172306                  KIPDR3  =172306
  1634                  172310                  KIPDR4  =172310
  1635                  172316                  KIPDR7  =172316
  1636                  172340                  KIPAR0  =172340
  1637                  172342                  KIPAR1  =172342
  1638                  172344                  KIPAR2  =172344
  1639                  172346                  KIPAR3  =172346
  1640                  172350                  KIPAR4  =172350
  1641                  172356                  KIPAR7  =172356
  1642                  172320                  KDPDR0  =172320
  1643                  172322                  KDPDR1  =172322
  1644                  172324                  KDPDR2  =172324
  1645                  172326                  KDPDR3  =172326
  1646                  172330                  KDPDR4  =172330
  1647                  172336                  KDPDR7  =172336
  1648                  172360                  KDPAR0  =172360
  1649                  172362                  KDPAR1  =172362
  1650                  172364                  KDPAR2  =172364
  1651                  172366                  KDPAR3  =172366
  1652                  172370                  KDPAR4  =172370
  1653                  172376                  KDPAR7  =172376
  1654                  177572                  MMR0    =177572
  1655                  177574                  SR1     =177574
  1656                  177576                  MMR2    =177576
  1657                  172516                  MMR3    =172516
  1658                  117760                  DATA    =117760
  1659                  000020                  IOTRAP  =000020
  1660
  1662
  1663                                          .SBTTL  TRAP CATCHER
                        000000                          .=0
```

```
                                        ;*ALL UNUSED LOCATIONS FROM 4 - 776 CONTAIN A ".+2,HALT"
                                        ;*SEQUENCE TO CATCH ILLEGAL TRAPS AND INTERRUPTS
                                        ;*LOCATION 0 CONTAINS 0 TO CATCH IMPROPERLY LOADED VECTORS
            000174                              .=174
000174  000000                         DISPREG: .WORD  0                ;;SOFTWARE DISPLAY REGISTER
000176  000000                         SWREG:   .WORD  0                ;;SOFTWARE SWITCH REGISTER
                                        .SBTTL  STARTING ADDRESS(ES)
000200  000137  006116                         JMP     @#START ;;JUMP TO STARTING ADDRESS OF PROGRAM
```

```
  1664                              .SBTTL  COMMON TAGS
                                    ;;*****************************************************************
                                    ;*THIS TABLE CONTAINS VARIOUS COMMON STORAGE LOCATIONS
                                    ;*USED IN THE PROGRAM.
        001100                             .=1100
001100                              $CMTAG:                         ;;START OF COMMON TAGS
001100  000000                             .WORD   0
001102     000                      $TSTNM: .BYTE   0               ;;CONTAINS THE TEST NUMBER
001103     000                      $ERFLG: .BYTE   0               ;;CONTAINS ERROR FLAG
001104  000000                      $ICNT:  .WORD   0               ;;CONTAINS SUBTEST ITERATION COUNT
001106  000000                      $LPADR: .WORD   0               ;;CONTAINS SCOPE LOOP ADDRESS
001110  000000                      $LPERR: .WORD   0               ;;CONTAINS SCOPE RETURN FOR ERRORS
001112  000000                      $ERTTL: .WORD   0               ;;CONTAINS TOTAL ERRORS DETECTED
001114     000                      $ITEMB: .BYTE   0               ;;CONTAINS ITEM CONTROL BYTE
001115     001                      $ERMAX: .BYTE   1               ;;CONTAINS MAX. ERRORS PER TEST
001116  000000                      $ERRPC: .WORD   0               ;;CONTAINS PC OF LAST ERROR INSTRUCTION
001120  000000                      $GDADR: .WORD   0               ;;CONTAINS ADDRESS OF 'GOOD' DATA
001122  000000                      $BDADR: .WORD   0               ;;CONTAINS ADDRESS OF 'BAD' DATA
001124  000000                      $GDDAT: .WORD   0               ;;CONTAINS 'GOOD' DATA
001126  000000                      $BDDAT: .WORD   0               ;;CONTAINS 'BAD' DATA
001130  000000                             .WORD   0               ;;RESERVED--NOT TO BE USED
001132  000000                             .WORD   0
001134     000                      $AUTOB: .BYTE   0               ;;AUTOMATIC MODE INDICATOR
001135     000                      $INTAG: .BYTE   0               ;;INTERRUPT MODE INDICATOR
001136  000000                             .WORD   0
001140  177570                      SWR:    .WORD   DSWR            ;;ADDRESS OF SWITCH REGISTER
001142  177570                      DISPLAY: .WORD  DDISP           ;;ADDRESS OF DISPLAY REGISTER
001144  177560                      $TKS:   177560                  ;;TTY KBD STATUS
001146  177562                      $TKB:   177562                  ;;TTY KBD BUFFER
001150  177564                      $TPS:   177564                  ;;TTY PRINTER STATUS REG. ADDRESS
001152  177566                      $TPB:   177566                  ;;TTY PRINTER BUFFER REG. ADDRESS
001154     000                      $NULL:  .BYTE   0               ;;CONTAINS NULL CHARACTER FOR FILLS
001155     002                      $FILLS: .BYTE   2               ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
001156     012                      $FILLC: .BYTE   12              ;;INSERT FILL CHARS. AFTER A "LINE FEED"
001157     000                      $TPFLG: .BYTE   0               ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
001160  000000                      $REGAD: .WORD   0               ;;CONTAINS THE ADDRESS FROM
                                                                    ;;WHICH  ($REG0) WAS OBTAINED
        000024                             .REPT   $CM3
001162  000000                      $REG0:  .WORD   0               ;;CONTAINS (($REGAD)+0)
001164  000000                      $REG1:  .WORD   0               ;;CONTAINS (($REGAD)+2)
001166  000000                      $REG2:  .WORD   0               ;;CONTAINS (($REGAD)+4)
001170  000000                      $REG3:  .WORD   0               ;;CONTAINS (($REGAD)+6)
001172  000000                      $REG4:  .WORD   0               ;;CONTAINS (($REGAD)+10)
001174  000000                      $REG5:  .WORD   0               ;;CONTAINS (($REGAD)+12)
001176  000000                      $REG6:  .WORD   0               ;;CONTAINS (($REGAD)+14)
001200  000000                      $REG7:  .WORD   0               ;;CONTAINS (($REGAD)+16)
001202  000000                      $REG10: .WORD   0               ;;CONTAINS (($REGAD)+20)
001204  000000                      $REG11: .WORD   0               ;;CONTAINS (($REGAD)+22)
001206  000000                      $REG12: .WORD   0               ;;CONTAINS (($REGAD)+24)
001210  000000                      $REG13: .WORD   0               ;;CONTAINS (($REGAD)+26)
001212  000000                      $REG14: .WORD   0               ;;CONTAINS (($REGAD)+30)
001214  000000                      $REG15: .WORD   0               ;;CONTAINS (($REGAD)+32)
001216  000000                      $REG16: .WORD   0               ;;CONTAINS (($REGAD)+34)
001220  000000                      $REG17: .WORD   0               ;;CONTAINS (($REGAD)+36)
001222  000000                      $REG20: .WORD   0               ;;CONTAINS (($REGAD)+40)
001224  000000                      $REG21: .WORD   0               ;;CONTAINS (($REGAD)+42)
001226  000000                      $REG22: .WORD   0               ;;CONTAINS (($REGAD)+44)
```

```
001230  000000                  $REG23: .WORD   0               ;;CONTAINS (($REGAD)+46)
        000024                  .REPT   24
001232  000000                  $TMP0:  .WORD   0               ;;USER DEFINED
001234  000000                  $TMP1:  .WORD   0               ;;USER DEFINED
001236  000000                  $TMP2:  .WORD   0               ;;USER DEFINED
001240  000000                  $TMP3:  .WORD   0               ;;USER DEFINED
001242  000000                  $TMP4:  .WORD   0               ;;USER DEFINED
001244  000000                  $TMP5:  .WORD   0               ;;USER DEFINED
001246  000000                  $TMP6:  .WORD   0               ;;USER DEFINED
001250  000000                  $TMP7:  .WORD   0               ;;USER DEFINED
001252  000000                  $TMP10: .WORD   0               ;;USER DEFINED
001254  000000                  $TMP11: .WORD   0               ;;USER DEFINED
001256  000000                  $TMP12: .WORD   0               ;;USER DEFINED
001260  000000                  $TMP13: .WORD   0               ;;USER DEFINED
001262  000000                  $TMP14: .WORD   0               ;;USER DEFINED
001264  000000                  $TMP15: .WORD   0               ;;USER DEFINED
001266  000000                  $TMP16: .WORD   0               ;;USER DEFINED
001270  000000                  $TMP17: .WORD   0               ;;USER DEFINED
001272  000000                  $TMP20: .WORD   0               ;;USER DEFINED
001274  000000                  $TMP21: .WORD   0               ;;USER DEFINED
001276  000000                  $TMP22: .WORD   0               ;;USER DEFINED
001300  000000                  $TMP23: .WORD   0               ;;USER DEFINED
001302  000000                  $TIMES: 0                       ;;MAX. NUMBER OF ITERATIONS
001304  000000                  $ESCAPE:0                       ;;ESCAPE ON ERROR ADDRESS
001306     207     377     377  $BELL:  .ASCIZ  <207><377><377> ;;CODE FOR BELL
001312     077                  $QUES:  .ASCII  /?/             ;;QUESTION MARK
001313     015                  $CRLF:  .ASCII  <15>            ;;CARRIAGE RETURN
001314     012     000          $LF:    .ASCIZ  <12>            ;;LINE FEED
                                ;;*****************************************************************
                                .SBTTL  APT MAILBOX-ETABLE
                                ;;*****************************************************************
                                .EVEN
001316                          $MAIL:                          ;;APT MAILBOX
001316  000000                  $MSGTY: .WORD   AMSGTY          ;;MESSAGE TYPE CODE
001320  000000                  $FATAL: .WORD   AFATAL          ;;FATAL ERROR NUMBER
001322  000000                  $TESTN: .WORD   ATESTN          ;;TEST NUMBER
001324  000000                  $PASS:  .WORD   APASS           ;;PASS COUNT
001326  000000                  $DEVCT: .WORD   ADEVCT          ;;DEVICE COUNT
001330  000000                  $UNIT:  .WORD   AUNIT           ;;I/O UNIT NUMBER
001332  000000                  $MSGAD: .WORD   AMSGAD          ;;MESSAGE ADDRESS
001334  000000                  $MSGLG: .WORD   AMSGLG          ;;MESSAGE LENGTH
001336                          $ETABLE:                        ;;APT ENVIRONMENT TABLE
001336     000                  $ENV:   .BYTE   AENV            ;;ENVIRONMENT BYTE
001337     000                  $ENVM:  .BYTE   AENVM           ;;ENVIRONMENT MODE BITS
001340  000000                  $SWREG: .WORD   ASWREG          ;;APT SWITCH REGISTER
001342  000000                  $USWR:  .WORD   AUSWR           ;;USER SWITCHES
001344  000000                  $CPUOP: .WORD   ACPUOP          ;;CPU TYPE,OPTIONS
                                ;*                              BITS 15-11=CPU TYPE
                                ;*                                      11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
                                ;*                                      11/70=06,PDQ=07,Q=10
                                ;*                              BIT 10=REAL TIME CLOCK
                                ;*                              BIT  9=FLOATING POINT PROCESSOR
                                ;*                              BIT  8=MEMORY MANAGEMENT
001346     000                  $MAMS1: .BYTE   AMAMS1          ;;HIGH ADDRESS,M.S. BYTE
001347     000                  $MTYP1: .BYTE   AMTYP1          ;;MEM. TYPE,BLK#1
                                ;*                              MEM.TYPE BYTE   --  (HIGH BYTE)
                                ;*                                      900 NSEC CORE=001
```

```
                                        ;*                              300 NSEC BIPOLAR=002
                                        ;*                              500 NSEC MOS=003
001350  000000                          $MADR1: .WORD   AMADR1  ;;HIGH ADDRESS,BLK#1
                                        ;*                        MEM.LAST ADDR.=3 BYTES,THIS WORD AND LOW OF ''TYPE'' ABOVE
001352      000                         $MAMS2: .BYTE   AMAMS2  ;;HIGH ADDRESS,M.S. BYTE
001353      000                         $MTYP2: .BYTE   AMTYP2  ;;MEM.TYPE,BLK#2
001354  000000                          $MADR2: .WORD   AMADR2  ;;MEM.LAST ADDRESS,BLK#2
001356      000                         $MAMS3: .BYTE   AMAMS3  ;;HIGH ADDRESS,M.S.BYTE
001357      000                         $MTYP3: .BYTE   AMTYP3  ;;MEM.TYPE,BLK#3
001360  000000                          $MADR3: .WORD   AMADR3  ;;MEM.LAST ADDRESS,BLK#3
001362      000                         $MAMS4: .BYTE   AMAMS4  ;;HIGH ADDRESS,M.S.BYTE
001363      000                         $MTYP4: .BYTE   AMTYP4  ;;MEM.TYPE,BLK#4
001364  000000                          $MADR4: .WORD   AMADR4  ;;MEM.LAST ADDRESS,BLK#4
001366  000000                          $VECT1: .WORD   AVECT1  ;;INTERRUPT VECTOR#1,BUS PRIORITY#1
001370  000000                          $VECT2: .WORD   AVECT2  ;;INTERRUPT VECTOR#2BUS PRIORITY#2
001372  000000                          $BASE:  .WORD   ABASE   ;;BASE ADDRESS OF EQUIPMENT UNDER TEST
001374  000000                          $DEVM:  .WORD   ADEVM   ;;DEVICE MAP
001376  000000                          $CDW1:  .WORD   ACDW1   ;;CONTROLLER DESCRIPTION WORD#1
001400  000000                          $CDW2:  .WORD   ACDW2   ;;CONTROLLER DESCRIPTION WORD#2
001402  000000                          $DDW0:  .WORD   ADDW0   ;;DEVICE DESCRIPTOR WORD#0
001404  000000                          $DDW1:  .WORD   ADDW1   ;;DEVICE DESCRIPTOR WORD#1
001406  000000                          $DDW2:  .WORD   ADDW2   ;;DEVICE DESCRIPTOR WORD#2
001410  000000                          $DDW3:  .WORD   ADDW3   ;;DEVICE DESCRIPTOR WORD#3
001412  000000                          $DDW4:  .WORD   ADDW4   ;;DEVICE DESCRIPTOR WORD#4
001414  000000                          $DDW5:  .WORD   ADDW5   ;;DEVICE DESCRIPTOR WORD#5
001416  000000                          $DDW6:  .WORD   ADDW6   ;;DEVICE DESCRIPTOR WORD#6
001420  000000                          $DDW7:  .WORD   ADDW7   ;;DEVICE DESCRIPTOR WORD#7
001422  000000                          $DDW8:  .WORD   ADDW8   ;;DEVICE DESCRIPTOR WORD#8
001424  000000                          $DDW9:  .WORD   ADDW9   ;;DEVICE DESCRIPTOR WORD#9
001426  000000                          $DDW10: .WORD   ADDW10  ;;DEVICE DESCRIPTOR WORD#10
001430  000000                          $DDW11: .WORD   ADDW11  ;;DEVICE DESCRIPTOR WORD#11
001432  000000                          $DDW12: .WORD   ADDW12  ;;DEVICE DESCRIPTOR WORD#12
001434  000000                          $DDW13: .WORD   ADDW13  ;;DEVICE DESCRIPTOR WORD#13
001436  000000                          $DDW14: .WORD   ADDW14  ;;DEVICE DESCRIPTOR WORD#14
001440  000000                          $DDW15: .WORD   ADDW15  ;;DEVICE DESCRIPTOR WORD#15
001442                                  $ETEND:
```

```
                                        .SBTTL  ERROR POINTER TABLE
                                        ;*THIS TABLE CONTAINS THE INFORMATION FOR EACH ERROR THAT CAN OCCUR.
                                        ;*THE INFORMATION IS OBTAINED BY USING THE INDEX NUMBER FOUND IN
                                        ;*LOCATION $ITEMB. THIS NUMBER INDICATES WHICH ITEM IN THE TABLE IS PERTINENT.
                                        ;*NOTE1:        IF $ITEMB IS 0 THE ONLY PERTINENT DATA IS ($ERRPC).
                                        ;*NOTE2:        EACH ITEM IN THE TABLE CONTAINS 4 POINTERS EXPLAINED AS FOLLOWS:
                                        ;*      EM              ;;POINTS TO THE ERROR MESSAGE
                                        ;*      DH              ;;POINTS TO THE DATA HEADER
                                        ;*      DT              ;;POINTS TO THE DATA
                                        ;*      DF              ;;POINTS TO THE DATA FORMAT
001442                                  $ERRTB:
1668    000444                                  .REPT   MNUMBER
1670 001442 047662  066370  070212              .WORD   EM1,DH1,DT1,DF1     ;ITEM 1
     001452 047736  066460  070232              .WORD   EM2,DH2,DT2,DF2     ;ITEM 2
     001462 047766  066524  070254              .WORD   EM3,DH3,DT3,DF3     ;ITEM 3
     001472 050016  066570  070276              .WORD   EM4,DH4,DT4,DF4     ;ITEM 4
     001502 050077  066633  070320              .WORD   EM5,DH5,DT5,DF5     ;ITEM 5
     001512 050110  066633  070346              .WORD   EM6,DH6,DT6,DF6     ;ITEM 6
     001522 050253  066570  070276              .WORD   EM7,DH7,DT7,DF7     ;ITEM 7
     001532 050275  066633  070320              .WORD   EM10,DH10,DT10,DF10     ;ITEM 10
     001542 050310  066570  070276              .WORD   EM11,DH11,DT11,DF11     ;ITEM 11
     001552 050340  066633  070320              .WORD   EM12,DH12,DT12,DF12     ;ITEM 12
     001562 050352  066644  070346              .WORD   EM13,DH13,DT13,DF13     ;ITEM 13
     001572 050352  066644  070346              .WORD   EM14,DH14,DT14,DF14     ;ITEM 14
     001602 050420  066633  070320              .WORD   EM15,DH15,DT15,DF15     ;ITEM 15
     001612 050432  066704  070360              .WORD   EM16,DH16,DT16,DF16     ;ITEM 16
     001622 050456  066644  070346              .WORD   EM17,DH17,DT17,DF17     ;ITEM 17
     001632 050502  066570  070360              .WORD   EM20,DH20,DT20,DF20     ;ITEM 20
     001642 050520  066633  070320              .WORD   EM21,DH21,DT21,DF21     ;ITEM 21
     001652 050520  066633  070320              .WORD   EM22,DH22,DT22,DF22     ;ITEM 22
     001662 050532  066644  070346              .WORD   EM23,DH23,DT23,DF23     ;ITEM 23
     001672 050557  066570  070360              .WORD   EM24,DH24,DT24,DF24     ;ITEM 24
     001702 050574  066633  070320              .WORD   EM25,DH25,DT25,DF25     ;ITEM 25
     001712 050606  066644  070346              .WORD   EM26,DH26,DT26,DF26     ;ITEM 26
     001722 050633  066570  070360              .WORD   EM27,DH27,DT27,DF27     ;ITEM 27
     001732 050650  066633  070320              .WORD   EM30,DH30,DT30,DF30     ;ITEM 30
     001742 050662  066644  070346              .WORD   EM31,DH31,DT31,DF31     ;ITEM 31
     001752 050706  066570  070360              .WORD   EM32,DH32,DT32,DF32     ;ITEM 32
     001762 050724  066633  070320              .WORD   EM33,DH33,DT33,DF33     ;ITEM 33
     001772 050736  066644  070346              .WORD   EM34,DH34,DT34,DF34     ;ITEM 34
     002002 050763  066570  070360              .WORD   EM35,DH35,DT35,DF35     ;ITEM 35
     002012 051000  066633  070320              .WORD   EM36,DH36,DT36,DF36     ;ITEM 36
     002022 051012  066747  070402              .WORD   EM37,DH37,DT37,DF37     ;ITEM 37
     002032 051072  066747  070402              .WORD   EM40,DH40,DT40,DF40     ;ITEM 40
     002042 051072  067012  070446              .WORD   EM41,DH41,DT41,DF41     ;ITEM 41
     002052 051012  066747  070402              .WORD   EM42,DH42,DT42,DF42     ;ITEM 42
     002062 051072  066747  070402              .WORD   EM43,DH43,DT43,DF43     ;ITEM 43
     002072 051012  066747  070402              .WORD   EM44,DH44,DT44,DF44     ;ITEM 44
     002102 051012  066747  070402              .WORD   EM45,DH45,DT45,DF45     ;ITEM 45
     002112 051072  066747  070402              .WORD   EM46,DH46,DT46,DF46     ;ITEM 46
     002122 051012  066747  070402              .WORD   EM47,DH47,DT47,DF47     ;ITEM 47
     002132 051012  066747  070402              .WORD   EM50,DH50,DT50,DF50     ;ITEM 50
     002142 051551  066747  070402              .WORD   EM51,DH51,DT51,DF51     ;ITEM 51
     002152 051610  066747  070402              .WORD   EM52,DH52,DT52,DF52     ;ITEM 52
     002162 051610  067012  070446              .WORD   EM53,DH53,DT53,DF53     ;ITEM 53
     002172 051551  066747  070402              .WORD   EM54,DH54,DT54,DF54     ;ITEM 54
     002202 051551  066747  070402              .WORD   EM55,DH55,DT55,DF55     ;ITEM 55
```

ERROR POINTER TABLE

```
002212  051610  066747  070402          .WORD   EM56,DH56,DT56,DF56      ;ITEM 56
002222  051610  066747  070402          .WORD   EM57,DH57,DT57,DF57      ;ITEM 57
002232  051551  066747  070402          .WORD   EM60,DH60,DT60,DF60      ;ITEM 60
002242  051610  066747  070402          .WORD   EM61,DH61,DT61,DF61      ;ITEM 61
002252  052305  0 5460  070360          .WORD   EM62,DH62,DT62,DF62      ;ITEM 62
002262  052403  066524  070360          .WORD   EM63,DH63,DT63,DF63      ;ITEM 63
002272  052420  066633  070320          .WORD   EM64,DH64,DT64,DF64      ;ITEM 64
002302  052470  066460  070360          .WORD   EM65,DH65,DT65,DF65      ;ITEM 65
002312  052514  066570  070276          .WORD   EM66,DH66,DT66,DF66      ;ITEM 66
002322  052542  066460  070276          .WORD   EM67,DH67,DT67,DF67      ;ITEM 67
002332  052624  066524  070276          .WORD   EM70,DH70,DT70,DF70      ;ITEM 70
002342  052647  066633  070522          .WORD   EM71,DH71,DT71,DF71      ;ITEM 71
002352  052664  066460  070276          .WORD   EM72,DH72,DT72,DF72      ;ITEM 72
002362  052700  066633  070556          .WORD   EM73,DH73,DT73,DF73      ;ITEM 73
002372  052714  066570  070276          .WORD   EM74,DH74,DT74,DF74      ;ITEM 74
002402  052730  066460  070232          .WORD   EM75,DH75,DT75,DF75      ;ITEM 75
002412  052744  066644  070346          .WORD   EM76,DH76,DT76,DF76      ;ITEM 76
002422  053017  066633  070556          .WORD   EM77,DH77,DT77,DF77      ;ITEM 77
002432  053032  066570  070276          .WORD   EM100,DH100,DT100,DF100  ;ITEM 100
002442  053046  066460  070232          .WORD   EM101,DH101,DT101,DF101  ;ITEM 101
002452  053062  066644  070346          .WORD   EM102,DH102,DT102,DF102  ;ITEM 102
002462  053105  066633  070556          .WORD   EM103,DH103,DT103,DF103  ;ITEM 103
002472  053120  066570  070276          .WORD   EM104,DH104,DT104,DF104  ;ITEM 104
002502  053134  066460  070232          .WORD   EM105,DH105,DT105,DF105  ;ITEM 105
002512  053150  066644  070346          .WORD   EM106,DH106,DT106,DF106  ;ITEM 106
002522  053174  066644  070346          .WORD   EM107,DH107,DT107,DF107  ;ITEM 107
002532  053210  066633  070556          .WORD   EM110,DH110,DT110,DF110  ;ITEM 110
002542  053224  066570  070276          .WORD   EM111,DH111,DT111,DF111  ;ITEM 111
002552  053240  066460  070232          .WORD   EM112,DH112,DT112,DF112  ;ITEM 112
002562  053254  066644  070346          .WORD   EM113,DH113,DT113,DF113  ;ITEM 113
002572  053300  066633  070556          .WORD   EM114,DH114,DT114,DF114  ;ITEM 114
002602  053314  066570  070276          .WORD   EM115,DH115,DT115,DF115  ;ITEM 115
002612  053330  066460  070232          .WORD   EM116,DH116,DT116,DF116  ;ITEM 116
002622  053344  066644  070346          .WORD   EM117,DH117,DT117,DF117  ;ITEM 117
002632  053367  066633  070556          .WORD   EM120,DH120,DT120,DF120  ;ITEM 120
002642  053402  066570  070276          .WORD   EM121,DH121,DT121,DF121  ;ITEM 121
002652  053416  066460  070232          .WORD   EM122,DH122,DT122,DF122  ;ITEM 122
002662  053432  066644  070346          .WORD   EM123,DH123,DT123,DF123  ;ITEM 123
002672  053456  066633  070556          .WORD   EM124,DH124,DT124,DF124  ;ITEM 124
002702  053472  066570  070276          .WORD   EM125,DH125,DT125,DF125  ;ITEM 125
002712  053506  066460  070232          .WORD   EM126,DH126,DT126,DF126  ;ITEM 126
002722  053522  066644  070346          .WORD   EM127,DH127,DT127,DF127  ;ITEM 127
002732  053546  066633  070556          .WORD   EM130,DH130,DT130,DF130  ;ITEM 130
002742  053562  066460  070232          .WORD   EM131,DH131,DT131,DF131  ;ITEM 131
002752  053576  066644  070346          .WORD   EM132,DH132,DT132,DF132  ;ITEM 132
002762  053623  066633  070556          .WORD   EM133,DH133,DT133,DF133  ;ITEM 133
002772  053636  066460  070232          .WORD   EM134,DH134,DT134,DF134  ;ITEM 134
003002  053652  066633  070320          .WORD   EM135,DH135,DT135,DF135  ;ITEM 135
003012  053722  066633  070320          .WORD   EM136,DH136,DT136,DF136  ;ITEM 136
003022  053736  066460  070360          .WORD   EM137,DH137,DT137,DF137  ;ITEM 137
003032  053752  066633  070320          .WORD   EM140,DH140,DT140,DF140  ;ITEM 140
003042  053766  066570  070276          .WORD   EM141,DH141,DT141,DF141  ;ITEM 141
003052  054024  066460  070276          .WORD   EM142,DH142,DT142,DF142  ;ITEM 142
003062  054040  066633  070320          .WORD   EM143,DH143,DT143,DF143  ;ITEM 143
003072  054054  066570  070276          .WORD   EM144,DH144,DT144,DF144  ;ITEM 144
003102  054072  066460  070276          .WORD   EM145,DH145,DT145,DF145  ;ITEM 145
003112  054106  066633  070320          .WORD   EM146,DH146,DT146,DF146  ;ITEM 146
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ERROR POINTER TABLE

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003122  054122  066570  070276          .WORD   EM147,DH147,DT147,DF147    ;ITEM 147
003132  054142  066460  070276          .WORD   EM150,DH150,DT150,DF150    ;ITEM 150
003142  054156  066633  070320          .WORD   EM151,DH151,DT151,DF151    ;ITEM 151
003152  054172  066570  070276          .WORD   EM152,DH152,DT152,DF152    ;ITEM 152
003162  054212  066460  070276          .WORD   EM153,DH153,DT153,DF153    ;ITEM 153
003172  054226  066633  070320          .WORD   EM154,DH154,DT154,DF154    ;ITEM 154
003202  054242  066570  070276          .WORD   EM155,DH155,DT155,DF155    ;ITEM 155
003212  054262  066460  070276          .WORD   EM156,DH156,DT156,DF156    ;ITEM 156
003222  054276  066633  070320          .WORD   EM157,DH157,DT157,DF157    ;ITEM 157
003232  054321  066570  070276          .WORD   EM160,DH160,DT160,DF160    ;ITEM 160
003242  054367  066460  070276          .WORD   EM161,DH161,DT161,DF161    ;ITEM 161
003252  054402  066633  070320          .WORD   EM162,DH162,DT162,DF162    ;ITEM 162
003262  054426  066460  070276          .WORD   EM163,DH163,DT163,DF163    ;ITEM 163
003272  054442  066704  070276          .WORD   EM164,DH164,DT164,DF164    ;ITEM 164
003302  054472  066747  070402          .WORD   EM165,DH165,DT165,DF165    ;ITEM 165
003312  054506  066747  070402          .WORD   EM166,DH166,DT166,DF166    ;ITEM 166
003322  054522  066747  070402          .WORD   EM167,DH167,DT167,DF167    ;ITEM 167
003332  054536  066747  070402          .WORD   EM170,DH170,DT170,DF170    ;ITEM 170
003342  054552  066747  070402          .WORD   EM171,DH171,DT171,DF171    ;ITEM 171
003352  054566  066747  070402          .WORD   EM172,DH172,DT172,DF172    ;ITEM 172
003362  054602  067012  070446          .WORD   EM173,DH173,DT173,DF173    ;ITEM 173
003372  054616  067012  070446          .WORD   EM174,DH174,DT174,DF174    ;ITEM 174
003402  054632  067012  070446          .WORD   EM175,DH175,DT175,DF175    ;ITEM 175
003412  054646  066460  070276          .WORD   EM176,DH176,DT176,DF176    ;ITEM 176
003422  054670  067063  070512          .WORD   EM177,DH177,DT177,DF177    ;ITEM 177
003432  054724  066747  070402          .WORD   EM200,DH200,DT200,DF200    ;ITEM 200
003442  054777  066747  070402          .WORD   EM201,DH201,DT201,DF201    ;ITEM 201
003452  055050  066747  070402          .WORD   EM202,DH202,DT202,DF202    ;ITEM 202
003462  055122  066747  070402          .WORD   EM203,DH203,DT203,DF203    ;ITEM 203
003472  055244  066747  070402          .WORD   EM204,DH204,DT204,DF204    ;ITEM 204
003502  055317  066747  070402          .WORD   EM205,DH205,DT205,DF205    ;ITEM 205
003512  055370  066747  070402          .WORD   EM206,DH206,DT206,DF206    ;ITEM 206
003522  055442  066747  070402          .WORD   EM207,DH207,DT207,DF207    ;ITEM 207
003532  055514  066747  070402          .WORD   EM210,DH210,DT210,DF210    ;ITEM 210
003542  055566  066747  070402          .WORD   EM211,DH211,DT211,DF211    ;ITEM 211
003552  055645  066747  070402          .WORD   EM212,DH212,DT212,DF212    ;ITEM 212
003562  055716  066747  070402          .WORD   EM213,DH213,DT213,DF213    ;ITEM 213
003572  056027  066747  070402          .WORD   EM214,DH214,DT214,DF214    ;ITEM 214
003602  056114  066704  070276          .WORD   EM215,DH215,DT215,DF215    ;ITEM 215
003612  056251  066633  070320          .WORD   EM216,DH216,DT216,DF216    ;ITEM 216
003622  056264  066570  070276          .WORD   EM217,DH217,DT217,DF217    ;ITEM 217
003632  056304  066460  070276          .WORD   EM220,DH220,DT220,DF220    ;ITEM 220
003642  056320  066704  070276          .WORD   EM221,DH221,DT221,DF221    ;ITEM 221
003652  056370  066633  070320          .WORD   EM222,DH222,DT222,DF222    ;ITEM 222
003662  056404  066570  070276          .WORD   EM223,DH223,DT223,DF223    ;ITEM 223
003672  056424  066460  070276          .WORD   EM224,DH224,DT224,DF224    ;ITEM 224
003702  056440  066570  070276          .WORD   EM225,DH225,DT225,DF225    ;ITEM 225
003712  056463  066460  070276          .WORD   EM226,DH226,DT226,DF226    ;ITEM 226
003722  056474  067112  070346          .WORD   EM227,DH227,DT227,DF227    ;ITEM 227
003732  056525  066570  070276          .WORD   EM230,DH230,DT230,DF230    ;ITEM 230
003742  056550  066460  070276          .WORD   EM231,DH231,DT231,DF231    ;ITEM 231
003752  056562  067112  070346          .WORD   EM232,DH232,DT232,DF232    ;ITEM 232
003762  056574  066570  070276          .WORD   EM233,DH233,DT233,DF233    ;ITEM 233
003772  056620  066460  070276          .WORD   EM234,DH234,DT234,DF234    ;ITEM 234
004002  056632  067112  070346          .WORD   EM235,DH235,DT235,DF235    ;ITEM 235
004012  056644  066570  070276          .WORD   EM236,DH236,DT236,DF236    ;ITEM 236
004022  056671  066460  070276          .WORD   EM237,DH237,DT237,DF237    ;ITEM 237
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004032  056702  067112  070346          .WORD   EM240,DH240,DT240,DF240   ;ITEM 240
004042  056714  066570  070276          .WORD   EM241,DH241,DT241,DF241   ;ITEM 241
004052  056741  066460  070276          .WORD   EM242,DH242,DT242,DF242   ;ITEM 242
004062  056752  067112  070346          .WORD   EM243,DH243,DT243,DF243   ;ITEM 243
004072  056764  066570  070276          .WORD   EM244,DH244,DT244,DF244   ;ITEM 244
004102  057010  066460  070276          .WORD   EM245,DH245,DT245,DF245   ;ITEM 245
004112  057022  066704  070276          .WORD   EM246,DH246,DT246,DF246   ;ITEM 246
004122  057073  067112  070346          .WORD   EM247,DH247,DT247,DF247   ;ITEM 247
004132  057104  066570  070276          .WORD   EM250,DH250,DT250,DF250   ;ITEM 250
004142  057131  066460  070276          .WORD   EM251,DH251,DT251,DF251   ;ITEM 251
004152  057022  066704  070276          .WORD   EM252,DH252,DT252,DF252   ;ITEM 252
004162  057156  067112  070346          .WORD   EM253,DH253,DT253,DF253   ;ITEM 253
004172  057022  066704  070276          .WORD   EM254,DH254,DT254,DF254   ;ITEM 254
004202  057206  067112  070346          .WORD   EM255,DH255,DT255,DF255   ;ITEM 255
004212  057232  066570  070276          .WORD   EM256,DH256,DT256,DF256   ;ITEM 256
004222  057260  066460  070276          .WORD   EM257,DH257,DT257,DF257   ;ITEM 257
004232  057272  066747  070402          .WORD   EM260,DH260,DT260,DF260   ;ITEM 260
004242  057330  066747  070402          .WORD   EM261,DH261,DT261,DF261   ;ITEM 261
004252  057342  066747  070402          .WORD   EM262,DH262,DT262,DF262   ;ITEM 262
004262  057430  066747  070402          .WORD   EM263,DH263,DT263,DF263   ;ITEM 263
004272  057455  066747  070402          .WORD   EM264,DH264,DT264,DF264   ;ITEM 264
004302  057542  066747  070402          .WORD   EM265,DH265,DT265,DF265   ;ITEM 265
004312  057613  066747  070402          .WORD   EM266,DH266,DT266,DF266   ;ITEM 266
004322  057667  066747  070402          .WORD   EM267,DH267,DT267,DF267   ;ITEM 267
004332  057754  066747  070402          .WORD   EM270,DH270,DT270,DF270   ;ITEM 270
004342  060006  066747  070402          .WORD   EM271,DH271,DT271,DF271   ;ITEM 271
004352  060045  066747  070402          .WORD   EM272,DH272,DT272,DF272   ;ITEM 272
004362  060115  066747  070402          .WORD   EM273,DH273,DT273,DF273   ;ITEM 273
004372  060152  066747  070402          .WORD   EM274,DH274,DT274,DF274   ;ITEM 274
004402  060164  066747  070402          .WORD   EM275,DH275,DT275,DF275   ;ITEM 275
004412  060247  066747  070402          .WORD   EM276,DH276,DT276,DF276   ;ITEM 276
004422  060334  066747  070402          .WORD   EM277,DH277,DT277,DF277   ;ITEM 277
004432  060401  066747  070402          .WORD   EM300,DH300,DT300,DF300   ;ITEM 300
004442  060476  066747  070612          .WORD   EM301,DH301,DT301,DF301   ;ITEM 301
004452  060523  066747  070612          .WORD   EM302,DH302,DT302,DF302   ;ITEM 302
004462  060534  067012  070664          .WORD   EM303,DH303,DT303,DF303   ;ITEM 303
004472  060546  066747  070612          .WORD   EM304,DH304,DT304,DF304   ;ITEM 304
004502  060626  066747  070612          .WORD   EM305,DH305,DT305,DF305   ;ITEM 305
004512  060722  066747  070612          .WORD   EM306,DH306,DT306,DF306   ;ITEM 306
004522  061030  066747  070612          .WORD   EM307,DH307,DT307,DF307   ;ITEM 307
004532  061100  066747  070612          .WORD   EM310,DH310,DT310,DF310   ;ITEM 310
004542  061154  066747  070612          .WORD   EM311,DH311,DT311,DF311   ;ITEM 311
004552  061224  066747  070612          .WORD   EM312,DH312,DT312,DF312   ;ITEM 312
004562  061274  066747  070612          .WORD   EM313,DH313,DT313,DF313   ;ITEM 313
004572  061344  066747  070612          .WORD   EM314,DH314,DT314,DF314   ;ITEM 314
004602  061414  066747  070612          .WORD   EM315,DH315,DT315,DF315   ;ITEM 315
004612  061464  066747  070612          .WORD   EM316,DH316,DT316,DF316   ;ITEM 316
004622  061534  066747  070612          .WORD   EM317,DH317,DT317,DF317   ;ITEM 317
004632  061604  066747  070612          .WORD   EM320,DH320,DT320,DF320   ;ITEM 320
004642  061654  066747  070612          .WORD   EM321,DH321,DT321,DF321   ;ITEM 321
004652  061724  066747  070736          .WORD   EM322,DH322,DT322,DF322   ;ITEM 322
004662  061762  066747  070736          .WORD   EM323,DH323,DT323,DF323   ;ITEM 323
004672  061774  067012  071002          .WORD   EM324,DH324,DT324,DF324   ;ITEM 324
004702  062006  066747  070736          .WORD   EM325,DH325,DT325,DF325   ;ITEM 325
004712  062006  066747  070736          .WORD   EM326,DH326,DT326,DF326   ;ITEM 326
004722  062132  066747  070736          .WORD   EM327,DH327,DT327,DF327   ;ITEM 327
004732  062202  066747  070736          .WORD   EM330,DH330,DT330,DF330   ;ITEM 330
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004742  062256  066747  070736          .WORD   EM331,DH331,DT331,DF331    ;ITEM 331
004752  062326  066747  070736          .WORD   EM332,DH332,DT332,DF332    ;ITEM 332
004762  061762  066747  070736          .WORD   EM333,DH333,DT333,DF333    ;ITEM 333
004772  062424  066747  070736          .WORD   EM334,DH334,DT334,DF334    ;ITEM 334
005002  062507  066747  070736          .WORD   EM335,DH335,DT335,DF335    ;ITEM 335
005012  062556  066747  070736          .WORD   EM336,DH336,DT336,DF336    ;ITEM 336
005022  062613  066747  070736          .WORD   EM337,DH337,DT337,DF337    ;ITEM 337
005032  062667  066747  070736          .WORD   EM340,DH340,DT340,DF340    ;ITEM 340
005042  062736  066747  070736          .WORD   EM341,DH341,DT341,DF341    ;ITEM 341
005052  063006  066747  070736          .WORD   EM342,DH342,DT342,DF342    ;ITEM 342
005062  063056  066747  070736          .WORD   EM343,DH343,DT343,DF343    ;ITEM 343
005072  063133  066747  070736          .WORD   EM344,DH344,DT344,DF344    ;ITEM 344
005102  063240  066747  070736          .WORD   EM345,DH345,DT345,DF345    ;ITEM 345
005112  063310  066747  070736          .WORD   EM346,DH346,DT346,DF346    ;ITEM 346
005122  063407  066747  070736          .WORD   EM347,DH347,DT347,DF347    ;ITEM 347
005132  063433  066747  070736          .WORD   EM350,DH350,DT350,DF350    ;ITEM 350
005142  063444  066644  070346          .WORD   EM351,DH351,DT351,DF351    ;ITEM 351
005152  063546  066747  070736          .WORD   EM352,DH352,DT352,DF352    ;ITEM 352
005162  063616  066747  070736          .WORD   EM353,DH353,DT353,DF353    ;ITEM 353
005172  063666  066747  070736          .WORD   EM354,DH354,DT354,DF354    ;ITEM 354
005202  063736  066747  070736          .WORD   EM355,DH355,DT355,DF355    ;ITEM 355
005212  064006  066570  070232          .WORD   EM356,DH356,DT356,DF356    ;ITEM 356
005222  064112  067132  070254          .WORD   EM357,DH357,DT357,DF357    ;ITEM 357
005232  064146  066644  070346          .WORD   EM360,DH360,DT360,DF360    ;ITEM 360
005242  064236  066460  070612          .WORD   EM361,DH361,DT361,DF361    ;ITEM 361
005252  064254  067176  071046          .WORD   EM362,DH362,DT362,DF362    ;ITEM 362
005262  064364  067220  071064          .WORD   EM363,DH363,DT363,DF363    ;ITEM 363
005272  064432  067260  071106          .WORD   EM364,DH364,DT364,DF364    ;ITEM 364
005302  064532  067327  070346          .WORD   EM365,DH365,DT365,DF365    ;ITEM 365
005312  064615  067340  071120          .WORD   EM366,DH366,DT366,DF366    ;ITEM 366
005322  064700  067372  071166          .WORD   EM367,DH367,DT367,DF367    ;ITEM 367
005332  064763  067437  071212          .WORD   EM370,DH370,DT370,DF370    ;ITEM 370
005342  000000  000000  000000          .WORD   EM371,DH371,DT371,DF371    ;ITEM 371
005352  000000  000000  000000          .WORD   EM372,DH372,DT372,DF372    ;ITEM 372
005362  000000  000000  000000          .WORD   EM373,DH373,DT373,DF373    ;ITEM 373
005372  000000  000000  000000          .WORD   EM374,DH374,DT374,DF374    ;ITEM 374
005402  000000  000000  000000          .WORD   EM375,DH375,DT375,DF375    ;ITEM 375
005412  000000  000000  000000          .WORD   EM376,DH376,DT376,DF376    ;ITEM 376
005422  000000  000000  000000          .WORD   EM377,DH377,DT377,DF377    ;ITEM 377
005432  000000  000000  000000          .WORD   EM400,DH400,DT400,DF400    ;ITEM 400
005442  065017  066570  070276          .WORD   EM401,DH401,DT401,DF401    ;ITEM 401
005452  065041  066460  070276          .WORD   EM402,DH402,DT402,DF402    ;ITEM 402
005462  065052  066644  070346          .WORD   EM403,DH403,DT403,DF403    ;ITEM 403
005472  065202  067112  070346          .WORD   EM404,DH404,DT404,DF404    ;ITEM 404
005502  065214  066570  070276          .WORD   EM405,DH405,DT405,DF405    ;ITEM 405
005512  065230  066460  070276          .WORD   EM406,DH406,DT406,DF406    ;ITEM 406
005522  065244  066644  070346          .WORD   EM407,DH407,DT407,DF407    ;ITEM 407
005532  065314  067112  070346          .WORD   EM410,DH410,DT410,DF410    ;ITEM 410
005542  065330  066570  070276          .WORD   EM411,DH411,DT411,DF411    ;ITEM 411
005552  065354  066460  070276          .WORD   EM412,DH412,DT412,DF412    ;ITEM 412
005562  065366  066644  070346          .WORD   EM413,DH413,DT413,DF413    ;ITEM 413
005572  065436  067112  070346          .WORD   EM414,DH414,DT414,DF414    ;ITEM 414
005602  065450  066570  070276          .WORD   EM415,DH415,DT415,DF415    ;ITEM 415
005612  065475  066460  070276          .WORD   EM416,DH416,DT416,DF416    ;ITEM 416
005622  065506  066644  070346          .WORD   EM417,DH417,DT417,DF417    ;ITEM 417
005632  065552  067112  070346          .WORD   EM420,DH420,DT420,DF420    ;ITEM 420
005642  065564  066570  070276          .WORD   EM421,DH421,DT421,DF421    ;ITEM 421
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005652  065611  066460  070276          .WORD   EM422,DH422,DT422,DF422    ;ITEM 422
005662  065622  066644  070346          .WORD   EM423,DH423,DT423,DF423    ;ITEM 423
005672  065634  067112  070346          .WORD   EM424,DH424,DT424,DF424    ;ITEM 424
005702  065646  066570  070276          .WORD   EM425,DH425,DT425,DF425    ;ITEM 425
005712  065672  066460  070276          .WORD   EM426,DH426,DT426,DF426    ;ITEM 426
005722  065704  066644  070346          .WORD   EM427,DH427,DT427,DF427    ;ITEM 427
005732  065756  067112  070346          .WORD   EM430,DH430,DT430,DF430    ;ITEM 430
005742  065770  066644  070346          .WORD   EM431,DH431,DT431,DF431    ;ITEM 431
005752  066016  066570  070276          .WORD   EM432,DH432,DT432,DF432    ;ITEM 432
005762  066043  066460  070276          .WORD   EM433,DH433,DT433,DF433    ;ITEM 433
005772  066054  066644  070346          .WORD   EM434,DH434,DT434,DF434    ;ITEM 434
006002  066124  067112  070346          .WORD   EM435,DH435,DT435,DF435    ;ITEM 435
006012  066136  066644  070346          .WORD   EM436,DH436,DT436,DF436    ;ITEM 436
006022  066164  066570  070276          .WORD   EM437,DH437,DT437,DF437    ;ITEM 437
006032  066206  066570  070276          .WORD   EM440,DH440,DT440,DF440    ;ITEM 440
006042  066230  067502  071256          .WORD   EM441,DH441,DT441,DF441    ;ITEM 441
006052  066230  067327  071274          .WORD   EM442,DH442,DT442,DF442    ;ITEM 442
006062  066230  067327  071274          .WORD   EM443,DH443,DT443,DF443    ;ITEM 443
006072  066355  066524  070276          .WORD   EM444,DH444,DT444,DF444    ;ITEM 444
1671
1672
1673                                    .SBTTL  ACT11 HOOKS
                                        ;;**********************************************************************
                                        ;HOOKS REQUIRED BY ACT11
        006102                                  $SVPC=.                 ;SAVE PC
        000046                                  .=46
000046  043422                                  $ENDAD                  ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
        000052                                  .=52
000052  000000                                  .WORD   0               ;;2)SET LOC.52 TO ZERO
        006102                                  .=$SVPC                 ;; RESTORE PC
1674                                    .SBTTL  APT PARAMETER BLOCK
                                        ;;**********************************************************************
                                        ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
                                        ;;**********************************************************************
        006102                                  .$X=.   ;;SAVE CURRENT LOCATION
        000024                                  .=24    ;;SET POWER FAIL TO POINT TO START OF PROGRAM
000024  000200                                  200     ;;FOR APT START UP
        000044                                  .=44    ;;POINT TO APT INDIRECT ADDRESS PNTR.
000044  006102                                  $APTHDR ;;POINT TO APT HEADER BLOCK
        006102                                  .=.$X   ;;RESET LOCATION COUNTER
                                        ;;**********************************************************************
                                        ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
                                        ;INTERFACE SPEC.
006102                                  $APTHD:
006102  000000                          $HIBTS: .WORD   0       ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
006104  001316                          $MBADR: .WORD   $MAIL   ;;ADDRESS OF APT MAILBOX (BITS 0-15)
006106  000010                          $TSTM:  .WORD   10      ;;RUN TIM OF LONGEST TEST
006110  000040                          $PASTM: .WORD   40      ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
006112  000000                          $UNITM: .WORD   0       ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
006114  000052                                  .WORD   $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)
1675
1676
1677 006116                             START:
                                        .SBTTL  INITIALIZE THE COMMON TAGS
                                        ;;CLEAR THE COMMON TAGS ($CMTAG) AREA
006116  012706  001100                          MOV     #$CMTAG,R6      ;;FIRST LOCATION TO BE CLEARED
006122  005026                          1$:     CLR     (R6)+           ;;CLEAR MEMORY LOCATION
```

```
INITIALIZE THE COMMON TAGS

006124  022706  001140                  CMP     #SWR,R6 ;;DONE?
006130  001374                          BNE     .-6             ;;LOOP BACK IF NO
006132  012706  001100                  MOV     #STACK,SP       ;;SETUP THE STACK POINTER
                                ;;INITIALIZE A FEW VECTORS
006136  012737  043502  000020          MOV     #$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
006144  012737  000340  000022          MOV     #340,@#IOTVEC+2 ;;LEVEL 7
006152  012737  044026  000030          MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
006160  012737  000340  000032          MOV     #340,@#EMTVEC+2 ;;LEVEL 7
006166  012737  046210  000034          MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
006174  012737  000340  000036          MOV     #340,@#TRAPVEC+2;LEVEL 7
006202  012737  046274  000024          MOV     #$PWRDN,@#PWRVEC ;;POWER FAILURE VECTOR
006210  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;LEVEL 7
006216  013737  043236  043230          MOV     $ENDCT,$EOPCT   ;;SETUP END-OF-PROGRAM COUNTER
006224  005037  001302                  CLR     $TIMES          ;;INITIALIZE NUMBER OF ITERATIONS
006230  005037  001304                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE ON ERROR ADDRESS
006234  112737  000001  001115          MOVB    #1,$ERMAX       ;;ALLOW ONE ERROR PER TEST
                                ;;INITIALIZE THE ''T-BIT'' TRAP VECTOR. THEN LOAD LOCATION ''$RTRN'', IN
                                ;;THE ''END-OF-PASS'' ($EOP) ROUTINE, WITH A ''RTI'' OR ''RTT''.
006242  012737  043466  000014          MOV     #$RTRN,@#TBITVEC ;;SET ''T'' BIT VECTOR TO $RTRN
006250  012737  000340  000016          MOV     #340,@#TBITVEC+2 ;;LEVEL 7
006256  012737  042772  043466          MOV     #RTI,$RTRN      ;;SET $RTRN TO A RTI
006264  012737  006312  000010          MOV     #65$,@#RESVEC   ;;TRY TO DO A RTT
006272  005046                          CLR     -(SP)           ;;DUMMY PS
006274  012746  006302                  MOV     #64$,-(SP)      ;;AND PC
006300  000006                          RTT                     ;;TRY THE RTT
006302  012737  000006  043466  64$:    MOV     #RTT,$RTRN      ;;RTT IS LEGAL--SET $RTRN TO A RTT
006310  000402                          BR      66$
006312  062706  000010          65$:    ADD     #10,SP          ;;RTT ILLEGAL--CLEAN OFF THE STACK
006316  012737  000012  000010  66$:    MOV     #RESVEC+2,@#RESVEC ;;RESTORE TRAP CATCHER
006324  005037  043474                  CLR     $TBIT           ;;CLEAR ''T'' BIT SWITCH
006330  012737  006330  001106          MOV     #.,$LPADR       ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
006336  012737  006336  001110          MOV     #.,$LPERR       ;;SETUP THE ERROR LOOP ADDRESS
                                ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
                                ;;EQUAL TO A ''-1'', SETUP FOR A SOFTWARE SWITCH REGISTER.
006344  013746  000004                  MOV     @#ERRVEC,-(SP)  ;;SAVE ERROR VECTOR
006350  012737  006404  000004          MOV     #67$,@#ERRVEC   ;;SET UP ERROR VECTOR
006356  012737  177570  001140          MOV     #DSWR,SWR       ;;SETUP FOR A HARDWARE SWICH REGISTER
006364  012737  177570  001142          MOV     #DDISP,DISPLAY  ;;AND A HARDWARE DISPLAY REGISTER
006372  022777  177777  172540          CMP     #-1,@SWR        ;;TRY TO REFERENCE HARDWARE SWR
006400  001012                          BNE     69$             ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
                                                                ;;AND  THE HARDWARE SWR IS NOT = -1
006402  000403                          BR      68$             ;;BRANCH IF NO TIMEOUT
006404  012716  006412          67$:    MOV     #68$,(SP)       ;;SET UP FOR TRAP RETURN
006410  000002                          RTI
006412  012737  000176  001140  68$:    MOV     #SWREG,SWR      ;;POINT TO SOFTWARE SWR
006420  012737  000174  001142          MOV     #DISPREG,DISPLAY
006426  012637  000004          69$:    MOV     (SP)+,@#ERRVEC  ;;RESTORE ERROR VECTOR
006432  005037  001324                  CLR     $PASS           ;;CLEAR PASS COUNT
006436  132737  000200  001337          BITB    #APTSIZE,$ENVM  ;;TEST USER SIZE UNDER APT
006444  001403                          BEQ     70$             ;;YES,USE NON-APT SWITCH
006446  012737  001340  001140          MOV     #$SWREG,SWR     ;;NO,USE APT SWITCH REGISTER
006454                          70$:
1678                            .SBTTL  TYPE PROGRAM NAME
                                ;;TYPE THE NAME OF THE PROGRAM IF FIRST PASS
006454  005227  177777                  INC     #-1             ;;FIRST TIME?
006460  001047                          BNE     71$             ;;BRANCH IF NO
006462  022737  043422  000042          CMP     #$ENDAD,@#42    ;;ACT-11?
```

```
        006470  001443                          BEQ     71$             ;;BRANCH IF YES
        006472  104401  006540                  TYPE    ,72$            ;;TYPE ASCIZ STRING
                                        .SBTTL  GET VALUE FOR SOFTWARE SWITCH REGISTER
        006476  005737  000042                  TST     @#42            ;;ARE WE RUNNING UNDER XXDP/ACT?
        006502  001012                          BNE     73$             ;;BRANCH IF YES
        006504  123727  001336  000001          CMPB    $ENV,#1         ;;ARE WE RUNNING UNDER APT?
        006512  001406                          BEQ     73$             ;;BRANCH IF YES
        006514  023727  001140  000176          CMP     SWR,#SWREG      ;;SOFTWARE SWITCH REG SELECTED?
        006522  001005                          BNE     74$             ;;BRANCH IF NO
        006524  104405                          GTSWR                   ;;GET SOFT-SWR SETTINGS
        006526  000403                          BR      74$
        006530  112737  000001  001134  73$:    MOVB    #1,$AUTOB       ;;SET AUTO-MODE INDICATOR
        006536                          74$:
        006536  000420                          BR      71$             ;;GET OVER THE ASCIZ
                                        ;;72$:  .ASCIZ  <CRLF>*CKFPCC0 FP11F FLTG PNT PRT C*<CRLF>
        006600                          71$:
   1679
   1680 006600                          LOOP:
   1681
   1682
   1683
   1684
   1690
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1691                                    .SBTTL  TEST # 1 - STF WITH ILLEGAL ACCUMULATOR TEST
                                        ;;*****************************************************************
                                        ;*TEST 1        STF WITH ILLEGAL ACCUMULATOR TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE ST INSTRUCTION USING ILLEGAL ACCUMULATOR 7, MODE 0.
                                        ;*
                                        ;;*************************************** ***************************
     006600  000004                     TST1:   SCOPE
1692
1693 006602                             0001:
     006602  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
1694 006604  005000                             CLR     R0              ;SET THE FPS.
1695 006606  170100                             LDFPS   R0
1696
1697 006610  012737  006646  000244             MOV     #000T,FPVECT    ;SET UP FOR FP TRAPS.
1698 006616  012737  006624  001236             MOV     #1$,$TMP2
1699
1700 006624  174007                     1$:     STF     AC0,AC7         ;THIS TEST INSTRUCTION SHOULD
1701                                             ;CAUSE A TRAP.
1702
1703                                    ;REPORT FAILURE OF USE OF ILLEGAL ACCUMULATOR 7 TO CAUSE AN FPP TRAP.
1704 006626                             0002:
1705 006626  170200                             STFPS   R0              ;GET FPS.
1706 006630  010037  001240                     MOV     R0,$TMP3
1707 006634  170300                             STST    R0              ;GET FEC.
1708 006636  010037  001242                     MOV     R0,$TMP4
1709 006642  104001                     3$:     ERROR   +1              ;STF WITH ILLEGAL ACCUMULATOR, MODE
1710                                             ;0, DIDN'T TRAP. ST 765 TO ST 537.
1711 006644  000434                             BR      000DONE
1712
1713                                    ;TRAP TO 000T, HERE, WHEN THE EXPECTED ERROR OCCURS.
1714 006646  011600                     000T:   MOV     (SP),R0         ;MAKE SURE THE ERROR OCCURRED
1715 006650  022700  006626                     CMP     #0002,R0        ;AT THE CORRECT ADDRESS.
1716 006654  001402                             BEQ     0003            ;BRANCH IF TRAP ADDRESS CORRECT.
1717 006656  000137  047240                     JMP     FPSPUR  ;IF INCORRECT GO REPORT SPURIOUS
1718                                             ;FP TRAP.
1719
1720 006662  170204                     0003:   STFPS   R4              ;GET FPS.
1721 006664  170305                             STST    R5              ;GET FEC.
1722 006666  010437  001240                     MOV     R4,$TMP3        ;SAVE DATA INCASE OF ERROR.
1723 006672  010537  001242                     MOV     R5,$TMP4
1724 006676  012702  100000                     MOV     #100000,R2      ;EXPECTED FPS
1725 006702  012703  000002                     MOV     #2,R3           ;EXPECTED FEC
1726 006706  010237  001244                     MOV     R2,$TMP5
1727 006712  010337  001246                     MOV     R3,$TMP6
1728 006716  022626                             CMP     (SP)+,(SP)+     ;RESET THE STACK.
1729
1730 006720  020204                             CMP     R2,R4           ;WAS FPS CORRECT?
1731 006722  001402                             BEQ     0004            ;BRANCH IF YES.
1732                                             ;OTHERWISE REPORT FPS INCORRECTLY
1733 006724  104002                     1$:     ERROR   +2              ;SET AFTER USE OF ILLEGAL ACC.
1734 006726  000403                             BR      000DONE
1735
1736 006730  020305                     0004:   CMP     R3,R5           ;WAS THE FEC CORRECT?
1737 006732  001401                             BEQ     000DONE         ;BRANCH IF CORRECT.
1738                                             ;OTHERWISE REPORT INCORRECT FEC
1739 006734  104003                     1$:     ERROR   +3              ;AFTER USE OF ILLEGAL ACC.
```

```
                                                                    H 3
1740
1741 006736                        000DONE:
     006736  104412                          RSETUP                ;GO INITIALIZE THE FPS AND STACK; AND
                                                                    ;SEE IF THE USER HAS EXPRESSED
                                                                    ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                    ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                    ;THE USER TYPED CONTROL G?).
1742
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1751                                    .SBTTL  TEST # 2 - FDST MODE 1, FLOATING MODE, TEST
                                        ;;*****************************************************************
                                        ;*TEST 2         FDST MODE 1, FLOATING MODE, TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE STF INSTRUCTION USING FDST MODE 1.
                                        ;*
                                        ;;*****************************************************************
     006740  000004                     TST2:   SCOPE
1752
1753 006742                             PPP1:
     006742  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
1754
1755 006744  012700  177777                       MOV     #-1,R0          ;SET UP A BACKROUND PATTERN IN THE
1756 006750  012701  007100                       MOV     #PPPBF0,R1      ;INPUT BUFFER.
1757 006754  012702  000014                       MOV     #14,R2
1758 006760  010021                     PPP2:     MOV     R0,(R1)+
1759 006762  077202                               SOB     R2,PPP2
1760
1761 006764  012700  000200                       MOV     #200,R0         ;SET FD MODE.
1762 006770  170100                               LDFPS   R0
1763 006772  012700  007130                       MOV     #PPPTP1,R0      ;PUT TEST DATA INTO AC0.
1764 006776  172410                               LDD     (R0),AC0
1765
1766 007000  012700  007114                       MOV     #PPPBF1,R0      ;FDST ADDRESS.
1767 007004  005002                               CLR     R2              ;CLEAR THE FPS.
1768 007006  170102                               LDFPS   R2
1769 007010  012737  007022  001236               MOV     #PPP3,$TMP2
1770 007016  010037  001240                       MOV     R0,$TMP3
1771
1772 007022  174010                     PPP3:     STF     AC0,(R0)        ;TEST INSTRUCTION.
1773
1774 007024  022700  007114                       CMP     #PPPBF1,R0      ;WAS R0 MODIFIED DURING EXECUTION?
1775 007030  001404                               BEQ     PPP4            ;BRANCH IF R0 NOT MODIFIED, CORRECT.
1776
1777 007032  010037  001242                       MOV     R0,$TMP4        ;OTHERWISE REPORT ERROR, R0 MODIFIED.
1778 007036  104004                     1$:       ERROR   +4
1779 007040  000456                               BR      PPPDONE         ;GO TO NEXT TEST.
1780
1781 007042  012700  007114                PPP4:  MOV     #PPPBF1,R0      ;CHECK THE DATA IN THE OUTPUT BUFFER.
1782 007046  012701  007130                       MOV     #PPPTP1,R1
1783 007052  022021                               CMP     (R0)+,(R1)+
1784 007054  001031                               BNE     PPP10           ;BRANCH IF INCORRECT.
1785 007056  022011                               CMP     (R0)+,(R1)
1786 007060  001027                               BNE     PPP10           ;BRANCH IF INCORRECT.
1787 007062  022720  177777                       CMP     #-1,(R0)+       ;WAS FLOATING MODE USED?
1788 007066  001034                               BNE     PPP15           ;BRANCH IF NOT.
1789 007070  022710  177777                       CMP     #-1,(R0)
1790 007074  001031                               BNE     PPP15
1791 007076  000437                               BR      PPPDONE ;GO TO NEXT TEST.
1792
1793 007100  177777  177777  177777     PPPBF0:  .WORD   -1,-1,-1,-1,-1,-1
1794
1795 007114  177777  177777  177777     PPPBF1:  .WORD   -1,-1,-1,-1,-1,-1
1796
1797 007130  123456  023456              PPPTP1:  .WORD   123456,23456
1798 007134  034567  045671                       .WORD   34567,45671
1799
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1800                                        ;REPORT DATA IN OUT PUT BUFFER INCORRECT.
1801 007140  012737  007130  001242  PPP10:  MOV     #PPPTP1,$TMP4
1802 007146  012737  007114  001240          MOV     #PPPBF1,$TMP3
1803 007154  104005                  1$:     ERROR   +5                  ;BAD DATA.
1804 007156  000407                          BR      PPPDONE
1805
1806                                        ;REPORT FLOATING MODE NOT USED, BUT FD FAILED.
1807 007160  012737  007130  001242  PPP15:  MOV     #PPPTP1,$TMP4
1808 007166  012737  007114  001240          MOV     #PPPBF1,$TMP3
1809 007174  104006                  1$:     ERROR   +6                  ;ST 707 TO 245 INTO 244 (BUT FD).
1810
1811 007176                          PPPDONE:
     007176  104412                          RSETUP                      ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).

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1821                                    .SBTTL  TEST # 3 - FDST MODE 2 TEST
                                        ;;*****************************************************************
                                        ;*TEST 3         FDST MODE 2 TEST
                                        ;*
                                        ;*THIS IS A TEST OF BOTH STF AND STD WITH FDST MODE 2.
                                        ;*
                                        ;;*************************************** *************************
     007200  000004                     TST3:   SCOPE
1822
1823                                    ;FIRST TEST STF.
1824 007202                             QQQ1:
     007202  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
1825
1826 007204  012700  177777                     MOV     #-1,R0  ;SET UP THE OUTPUT BUFFER.
1827 007210  012701  007342                     MOV     #QQQBF0,R1
1828 007214  012702  000014                     MOV     #14,R2
1829 007220  010021                     QQQ2:   MOV     R0,(R1)+
1830 007222  077202                             SOB     R2,QQQ2
1831
1832 007224  012700  000200                     MOV     #200,R0         ;SET FD MODE.
1833 007230  170100                             LDFPS   R0
1834 007232  012700  007372                     MOV     #QQQTP1,R0      ;SETUP AC0.
1835 007236  172410                             LDD     (R0),AC0
1836
1837 007240  012700  007356                     MOV     #QQQBF1,R0      ;FDST ADDRESS.
1838 007244  005002                             CLR     R2
1839 007246  170102                             LDFPS   R2              ;SET FPS.
1840 007250  012737  007256  001236             MOV     #QQQ3,$TMP2
1841
1842 007256  174020                     QQQ3:   STF     AC0,(R0)+       ;TEST INSTRUCTION.
1843
1844 007260  022700  007362                     CMP     #QQQBF1+4,R0    ;WAS R0 INCREMENTED BY 4 PROPERLY?
1845
1846 007264  001407                             BEQ     QQQ4            ;BRANCH IF R0 CORRECT.
1847 007266  010037  001242                     MOV     R0,$TMP4        ;REPORT R0 INCORRECT AFTER FDST MODE 2.
1848 007272  012737  007362  001240             MOV     #QQQBF1+4,$TMP3
1849 007300  104007                     1$:     ERROR   +7              ;BAD CONSTANT USED OR DIDN'T GO 527 TO 642
1850 007302  000526                             BR      QQQDONE
1851 007304  012700  007356                     MOV     #QQQBF1,R0      ;WAS THE OUTPUT DATA CORRECT?
1852 007310  012701  007372                     MOV     #QQQTP1,R1
1853 007314  022021                             CMP     (R0)+,(R1)+
1854 007316  001031                             BNE     QQQ10           ;BRANCH IF INCORRECT.
1855 007320  022021                             CMP     (R0)+,(R1)+
1856 007322  001027                             BNE     QQQ10           ;BRANCH IF INCORRECT.
1857 007324  022027  177777                     CMP     (R0)+,#-1       ;SEE IF ANY OTHER DATA BUFFER WORDS WERE MODIFIED.
1858 007330  001024                             BNE     QQQ10           ;BRANCH IF INCORRECT.
1859 007332  022027  177777                     CMP     (R0)+,#-1
1860 007336  001021                             BNE     QQQ10           ;BRANCH IF INCORRECT.
1861 007340  000430                             BR      QQQ20
1862 007342  177777  177777  177777     QQQBF0: .WORD   -1,-1,-1,-1,-1,-1
1863 007356  177777  177777  177777     QQQBF1: .WORD   -1,-1,-1,-1,-1,-1
1864 007372  076543                     QQQTP1: 76543
1865 007374  065432                             65432
1866 007376  054321                             54321
1867 007400  043210                             43210
1868                                    ;REPORT OUTPUT DATA INCORRECT:
1869 007402  012737  007372  001240     QQQ10:  MOV     #QQQTP1,$TMP3
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1870 007410  012737  007356  001242          MOV     #QQQBF1,$TMP4
1871 007416  104010                  1$:     ERROR   +10             ;BAD DATA
1872 007420  000457                          BR      QQQDONE
1873
1874                                 ;NOW TEST STD MODE 2.
1875
1876 007422                          QQQ20:
     007422  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
1877 007424  012700  007342                  MOV     #QQQBF0,R0      ;SET UP DEFAULT INPUT DATA BUFFER.
1878 007430  010001                          MOV     R0,R1
1879 007432  012702  000014                  MOV     #14,R2
1880 007436  010021                  QQQ22:  MOV     R0,(R1)+
1881 007440  077202                          SOB     R2,QQQ22
1882 007442  012700  000200                  MOV     #200,R0         ;ENTER FLOATING DOUBLE MODE.
1883 007446  170100                          LDFPS   R0
1884 007450  012700  007372                  MOV     #QQQTP1,R0      ;LOAD AC0.
1885 007454  172410                          LDD     (R0),AC0
1886 007456  012700  007356                  MOV     #QQQBF1,R0      ;SET DESTINATION ADDRESS.
1887 007462  012737  007470  001236          MOV     #QQQ23,$TMP2
1888 007470  174020                  QQQ23:  STD     AC0,(R0)+       ;TEST INSTRUCTION.
1889 007472  022700  007366                  CMP     #QQQBF1+10,R0   ;WAS R0 INCREMENTED BY 10 CORRECTLY?
1890 007476  001407                          BEQ     QQQ24           ;BRANCH IF CORRECT.
1891 007500  010037  001242                  MOV     R0,$TMP4        ;REPORT R0 INCORRECTLY INCREMENTED.
1892 007504  012737  007366  001240          MOV     #QQQBF1+10,$TMP3
1893 007512  104011                  1$:     ERROR   +11             ;DO NOT INCREM BY 10 BAD CONSTANT
1894 007514  000421                          BR      QQQDONE
1895 007516  012700  007356          QQQ24:  MOV     #QQQBF1,R0      ;DID THE DATA REACH THE OUTPUT BUFFER CORRECTLY?
1896 007522  012701  007372                  MOV     #QQQTP1,R1
1897 007526  012702  000004                  MOV     #4,R2
1898 007532  022021                  1$:     CMP     (R0)+,(R1)+
1899 007534  001002                          BNE     QQQ25           ;BRANCH IF INCORRECT.
1900 007536  077203                          SOB     R2,1$
1901 007540  000407                          BR      QQQDONE
1902                                 ;REPORT DATA INCORRECT.
1903 007542  012737  007372  001240  QQQ25:  MOV     #QQQTP1,$TMP3
1904 007550  012737  007356  001242          MOV     #QQQBF1,$TMP4
1905 007556  104012                  1$:     ERROR   +12             ;BAD DATA
1906 007560                          QQQDONE:
     007560  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).

1907
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TEST # 4 - FDST MODE 2, WITH GR7, TEST

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1913                                    .SBTTL  TEST # 4 - FDST MODE 2, WITH GR7, TEST
                                        ;;*****************************************************************
                                        ;*TEST 4        FDST MODE 2, WITH GR7, TEST
                                        ;*
                                        ;*THIS IS A TEST OF STF WITH GR7 MODE 2 OR IMMEDIATE MODE.
                                        ;*
                                        ;;*****************************************************************
     007562  000004                     TST4:   SCOPE
1914
1915 007564                             RRR1:
     007564  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
1916 007566  012700  007644                     MOV     #RRR3,R0        ;SET UP THE DATA BUFFER FOLLOWING THE TEST INSTRUCTION.
1917 007572  012701  007712                     MOV     #RRRTP1,R1
1918 007576  012702  000004                     MOV     #4,R2
1919 007602  012021                     1$:     MOV     (R0)+,(R1)+
1920 007604  077202                             SOB     R2,1$
1921 007606  012700  000200                     MOV     #200,R0         ;ENTER FLOATING DOUBLE MODE.
1922 007612  170100                             LDFPS   R0
1923 007614  012700  007722                     MOV     #RRRTP2,R0      ;SET UP AC0.
1924 0C7620  172410                             LDD     (R0),AC0
1925 007622  012737  007742  000004             MOV     #RRR10,ERRVECT ;SET UP FOR AN ODD ADDRESS.
1926 007630  012737  007642  001236             MOV     #RRR2,$TMP2
1927 007636  005001                             CLR     R1
1928 007640  005004                             CLR     R4
1929                                    ;THIS IS THE TEST INSTRUCTION. IT SHOULD MODIFY THE FIRST LOCATION
1930                                    ;AFTER IT TO BE AN INCREMENT R4, INC R4, INSTRUCTION INSTEAD
1931                                    ;OF AN INCREMENT R1 INSTRUCTION. THE INCREMENT R4 SHOULD NOT BE
1932                                    ;EXECUTED SINCE THE PC SHOULD BE INCREMENTED BY TWO DURING IMMEDIATE
1933                                    ;MODE ADDRESSING. THUS AFTER THE EXECUTION OF THE NEXT 5 INSTRUCTIONS
1934                                    ;R1 SHOULD CONTAIN 3 AND R4 SHOULD CONTAIN 0.
1935 007642  174027                     RRR2:   STD     AC0,(R7)+       ;TEST INSTRUCTION.
1936 007644  005201                     RRR3:   INC     R1              ;THE STD INSTRUCTION SHOULD CHANGE THIS TO INC R4.
1937 007646  005201                             INC     R1
1938 007650  005201                             INC     R1
1939 007652  005201                             INC     R1
1940 007654  012700  007732                     MOV     #RRREXP,R0      ;SEE IF THE DATA WAS OUTPUT CORRECTLY.
1941 007660  012702  007644                     MOV     #RRR3,R2
1942 007664  012703  000004                     MOV     #4,R3
1943 007670  022022                     RRR4:   CMP     (R0)+,(R2)+
1944 007672  001051                             BNE     RRR25           ;BRANCH IF INCORRECT.
1945 007674  077303                             SOB     R3,RRR4
1946 007676  005704                             TST     R4              ;MAKE SURE R4 IS 0.
1947 007700  001056                             BNE     RRR15           ;BRANCH IF R4 IS INCORRECT.
1948 007702  022701  000003                     CMP     #3,R1           ;SEE IF R1 IS CORRECT.
1949 007706  001053                             BNE     RRR15           ;BRANCH IF R1 IS INCORRECT.
1950 007710  000474                             BR      RRRDONE
1951                                    ;THESE ARE TEST DATA PATTERNS USED TO SET UP THE OUTPUT BUFFER AT RRR3.
1952 007712  005201                     RRRTP1: INC     R1
1953 007714  005201                             INC     R1
1954 007716  005201                             INC     R1
1955 007720  005201                             INC     R1
1956                                    ;THIS IS THE DATA PUT IN AC0 BEFORE EXECUTION OF THE STD.
1957 007722  005204                     RRRTP2: INC     R4
1958 007724  005204                             INC     R4
1959 007726  005204                             INC     R4
1960 007730  005204                             INC     R4
1961                                    ;THIS IS THE EXPECTED DATA AT RRR3 AFTER EXECUTION OF THE STD.
```

```
1962 007732  005204                    RRREXP: INC     R4
1963 007734  005201                            INC     R1
1964 007736  005201                            INC     R1
1965 007740  005201                            INC     R1
1966                                   ;IF A FAILURE IN THE FDST FLOWS RESULTS IN AN ODD ADDRESS TRAP THROUGH
1967                                   ;4 TO HERE:
1968 007742  011602                    RRR10:  MOV     (SP),R2         ;SEE IF THE TRAP WAS BECAUSE OF AN ODD ADDRESS.
1969 007744  032702  000001                    BIT     #1,R2
1970 007750  001005                            BNE     RRR11           ;BRANCH IF YES.
1971 007752  020227  007646                    CMP     R2,#RRR3+2      ;SEE IF THE TRAP OCCURRED AT THE TEST INSTRUCTION.
1972 007756  001412                            BEQ     RRR12           ;BRANCH IF YES.
1973 007760  000137  047302                    JMP     CPSPUR  ;OTHERWISE REPORT A SPURIOUS TRAP THROUGH VECTOR 4.
1974                                   ;REPORT A FAILURE IN THE FDST FLOWS RESULTED IN AN ODD ADDRESS TRAP.
1975 007764  010237  001236            RRR11:  MOV     R2,$TMP2
1976 007770  012737  007646  001240            MOV     #RRR3+2,$TMP3
1977 007776  022626                            CMP     (SP)+,(SP)+
1978 010000  104013                    1$:     ERROR   +13             ;BAD CONSTANT #2 + PC ODD ADDR.
1979 010002  000437                            BR      RRRDONE
1980 010004  010237  001236            RRR12:  MOV     R2,$TMP2
1981 010010  022626                            CMP     (SP)+,(SP)+
1982 010012  104014                    1$:     ERROR   +14             ;ODD ADDRESS TRAP
1983 010014  000432                            BR      RRRDONE         ;WRONG MODE USED.
1984
1985                                   ;REPORT DATA INCORRECT:
1986 010016  012737  007644  001240    RRR25:  MOV     #RRR3,$TMP3
1987 010024  012737  007732  001242            MOV     #RRREXP,$TMP4
1988 010032  104015                    1$:     ERROR   +15             ;BAD DATA BUT GR7 FAIL
1989 010034  000422                            BR      RRRDONE
1990
1991                                   ;REPORT PC INCORRECT MODIFIED DURING THE EXECUTION OF FDST IMMEDIATE
1992                                   ;MODE. THE PC SHOULD HAVE BEEN INCREMENTED BY 2 BUT IT WASN'T.
1993                                   ;USE R1 AND R4 TO COMPUTE THE ACTUAL ACTION THAT WAS TAKEN ON THE PC.
1994 010036  012737  007646  001240    RRR15:  MOV     #RRR3+2,$TMP3
1995 010044  005704                            TST     R4              ;IS R4 CLEAR.
1996 010046  001404                            BEQ     1$
1997 010050  012737  007644  001242            MOV     #RRR3,$TMP4
1998 010056  000410                            BR      2$
1999 010060  012702  007646            1$:     MOV     #RRR3+2,R2
2000 010064  062701  177775                    ADD     #-3,R1
2001 010070  006301                            ASL     R1
2002 010072  160102                            SUB     R1,R2
2003 010074  010237  001242                    MOV     R2,$TMP4
2004 010100                            2$:
2005 010100  104016                    3$:     ERROR   +16             ;BAD CONSTANT PC+
2006 010102                            RRRDONE:
     010102  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                       ;SEE IF THE USER HAS EXPRESSED
                                                                       ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                       ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                       ;THE USER TYPED CONTROL G?).
2007
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```
                                .SBTTL  TEST # 5 - FDST MODE 4 TEST
                                ;;*****************************************************************
                                ;*TEST 5         FDST MODE 4 TEST
                                ;*
                                ;*THIS IS A TEST OF STD WITH FDST MODE 4.
                                ;*
                                ;;*****************************************************************
010104  000004                  TST5:   SCOPE
                                SSS1:
010106  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
010110  012700  177777                  MOV     #-1,R0          ;SET UP THE OUTPUT BUFFER.
010114  012701  010244                  MOV     #SSSBF0,R1
010120  012702  000010                  MOV     #10,R2
010124  010021                  1$:     MOV     R0,(R1)+
010126  077202                          SOB     R2,1$
010130  012700  000200                  MOV     #200,R0         ;ENTER FLOATING DOUBLE MODE.
010134  170100                          LDFPS   R0
010136  012700  010264                  MOV     #SSSTP1,R0      ;SET UP AC0.
010142  172410                          LDD     (R0),AC0
010144  012737  010304  000004          MOV     #SSS10,ERRVECT  ;SET UP FOR A TRAP TO 4.
010152  012737  010164  001236          MOV     #SSS2,$TMP2
010160  012700  010254                  MOV     #SSSA1,R0       ;SET UP THE DESTINATION ADDRESS.
                                SSS2:   STD     AC0,-(R0)       ;TEST INSTRUCTION.
010164  174040                          INC     R1
010166  005201                          CMP     R0,#SSSBF0      ;SEE IF R0 WAS DECREMENTED PROPERLY.
010170  020027  010244                  BNE     SSS15           ;BRANCH IF R0 IS INCORRECT.
010174  001060                          MOV     #SSSBF0,R0      ;WAS THE OUTPUT DATA CORRECT?
010176  012700  010244                  MOV     #SSSTP1,R1
010202  012701  010264                  MOV     #4,R2
010206  012702  000004          1$:     CMP     (R0)+,(R1)+
010212  022021                          BNE     SSS20           ;BRANCH IF INCORRECT.
010214  001057                          SOB     R2,1$
010216  077203                          MOV     #-1,R0          ;IS THE REST OF THE OUTPUT BUFFER CORRECT, -1?
010220  012700  177777                  MOV     #SSSA1,R1
010224  012701  010254                  MOV     #4,R2
010230  012702  000004          2$:     CMP     R0,(R1)+
010234  020021                          BNE     SSS25           ;BRANCH IF INCORRECT.
010236  001056                          SOB     R2,2$
010240  077203                          BR      SSSDONE
010242  000463

                                ;THIS IS THE OUTPUT DATA BUFFER.
010244  177777                  SSSBF0: -1
010246  177777                          -1
010250  177777                          -1
010252  177777                          -1
010254  177777                  SSSA1:  -1
010256  177777                          -1
010260  177777                          -1
010262  177777                          -1

                                ;THIS IS THE TEST DATA LOADED INTO AC0:
010264  147250                  SSSTP1: 147250
010266  036147                          36147
010270  025036                          25036
010272  147250                          147250
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 2062 010274  177777                SSSTP2: -1
 2063 010276  177777                        -1
 2064 010300  177777                        -1
 2065 010302  177777                        -1
 2066
 2067                                ;IF AN ODD ADDRESS TRAP OCCURS  COME HERE:
 2068 010304  011600                SSS10:  MOV     (SP),R0         ;SEE IF THE TRAP ACCURRED ON THE TEST INSTRUCTION.
 2069 010306  020027  010166                CMP     R0,#SSS2+2
 2070 010312  001405                        BEQ     SSS11           ;BRANCH IF YES.
 2071 010314  020027  010170                CMP     R0,#SSS2+4
 2072 010320  001402                        BEQ     SSS11           ;BRANCH IF YES.
 2073 010322  000137  047302                JMP     CPSPUR  ;OTHERWISE GO REPORT A SPURIOUS TRAP THROUGH 4.
 2074                                ;REPORT FAILURE IN FDST FLOWS RESULTED IN AN ODD ADDRESS.
 2075 010326  010037  001236        SSS11:  MOV     R0,$TMP2
 2076 010332  104017                2$:     ERROR   +17             ;FDST FORK X ODD AD RES.
 2077 010334  000426                        BR      SSSDONE
 2078
 2079                                ;REPORT R0 INCORRECTLY DECREMENTED.
 2080 010336  010037  001242        SSS15:  MOV     R0,$TMP4
 2081 010342  012737  010244  001240        MOV     #SSSBF0,$TMP3
 2082 010350  104020                1$:     ERROR   +20             ;R0 NOT DECRE PROP
 2083 010352  000417                        BR      SSSDONE
 2084
 2085                                ;REPORT OUTPUT DATA INCORRECT:
 2086 010354  012737  010244  001240 SSS20:  MOV     #SSSBF0,$TMP3
 2087 010362  012737  010264  001242        MOV     #SSSTP1,$TMP4
 2088 010370  104021                1$:     ERROR   +21             ;BAD DATA
 2089 010372  000407                        BR      SSSDONE
 2090 010374  012737  010254  001242 SSS25:  MOV     #SSSA1,$TMP4
 2091 010402  012737  010274  001240        MOV     #SSSTP2,$TMP3
 2092 010410  104022                1$:     ERROR   +22             ;DATA BAD OUTSIDE TARGET AREA
 2093 010412                        SSSDONE:
      010412  104412                        RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                    ;SEE IF THE USER HAS EXPRESSED
                                                                    ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                    ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                    ;THE USER TYPED CONTROL G?).
 2094
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2100                                    .SBTTL  TEST # 6 - FDST MODE 3 TEST
                                        ;;**********************************************************************
                                        ;*TEST 6         FDST MODE 3 TEST
                                        ;*
                                        ;*THIS IS A TEST OF FDST MODE 3 USING STD.
                                        ;*
                                        ;;**********************************************************************
     010414  000004                     TST6:   SCOPE
2101
2102 010416                             TTT1:
     010416  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2103 010420  012701  010536                     MOV     #TTTBF0,R1      ;SET UP THE OUTPUT DATA BUFFER.
2104 010424  012700  177777                     MOV     #-1,R0
2105 010430  012702  000012                     MOV     #12,R2
2106 010434  010021                     1$:     MOV     R0,(R1)+
2107 010436  077202                             SOB     R2,1$
2108 010440  012737  010536  010552             MOV     #TTTBF0,TTTA2
2109 010446  012700  000200                     MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2110 010452  170100                             LDFPS   R0
2111 010454  012700  010562                     MOV     #TTTTP1,R0      ;SET UP AC0.
2112 010460  172410                             LDD     (R0),AC0
2113 010462  012737  010572  000004             MOV     #TTT10,ERRVECT  ;SET UP FOR TRAPS TO 4.
2114 010470  013737  010502  001236             MOV     TTT2,$TMP2
2115 010476  012700  010552                     MOV     #TTTA2,R0       ;SET UP THE DESTINATION ADDRESS.
2116
2117 010502  174030                     TTT2:   STD     AC0,@(R0)+      ;TEST INSTRUCTION.
2118
2119 010504  020027  010554                     CMP     R0,#TTTA2+2     ;SEE IF R0 WAS INCREMENTED CORRECTLY.
2120 010510  001046                             BNE     TTT15           ;BRANCH IF INCORRECT.
2121 010512  012701  010536                     MOV     #TTTBF0,R1      ;CHECK THE OUTPUT DATA BUFFER.
2122 010516  012702  010562                     MOV     #TTTTP1,R2
2123 010522  012703  000004                     MOV     #4,R3
2124 010526  022122                     TTT3:   CMP     (R1)+,(R2)+
2125 010530  001045                             BNE     TTT20           ;BRANCH IF NOT CORRECT.
2126 010532  077303                             SOB     R3,TTT3
2127 010534  000452                             BR      TTTDONE
2128
2129                                    ;THIS IS THE OUTPUT DATA BUFFER:
2130 010536  177777                     TTTBF0: -1
2131 010540  177777                             -1
2132 010542  177777                             -1
2133 010544  177777                             -1
2134 010546  177777                             -1
2135 010550  177777                     TTTA1:  -1
2136 010552  010536                     TTTA2:  TTTBF0
2137 010554  177777                     TTTA3:  -1
2138 010556  177777                             -1
2139 010560  177777                             -1
2140 010562  101213                     TTTTP1: 101213
2141 010564  141516                             141516
2142 010566  071727                             71727
2143 010570  037475                             37475
2144
2145                                    ;TRAP THROUGH VECTOR 4 TO HERE.
2146 010572  011602                     TTT10:  MOV     (SP),R2         ;SEE IF THE TRAP ADDRESS IS THAT OF THE TEST INSTRUCTION.
2147 010574  020227  010504                     CMP     R2,#TTT2+2
2148 010600  001405                             BEQ     TTT11           ;BRANCH IF YES.
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2149 010602  020227  010506                    CMP     R2,#TTT2+4
2150 010606  001402                            BEQ     TTT11           ;BRANCH IF YES.
2151 010610  000137  047302                    JMP     CPSPUR  ;OTHERWISE GO REPORT A SPURIOUS TRAP TO 4.
2152
2153                                 ;REPORT A FAILURE IN THE FDST FLOWS RESULTED IN AN ODD ADDRESS TRAP.
2154 010614  010237  001236          TTT11:  MOV     R2,$TMP2
2155 010620  022626                            CMP     (SP)+,(SP)+
2156 010622  104023                  1$:     ERROR   +23             ;BET FDST X ODD ADR
2157 010624  000416                            BR      TTTDONE
2158
2159                                 ;REPORT R0 INCORRECT:
2160 010626  010037  001242          TTT15:  MOV     R0,$TMP4
2161 010632  012737  010554  001240          MOV     #TTTA2+2,$TMP3
2162 010640  104024                  1$:     ERROR   +24             ;R0 NOT INCREMENT PROPERLY
2163 010642  000407                            BR      TTTDONE
2164
2165                                 ;REPORT INCORRECT OUTPUT DATA:
2166 010644  012737  010536  001240  TTT20:  MOV     #TTTBF0,$TMP3
2167 010652  012737  010562  001242          MOV     #TTTTP1,$TMP4
2168 010660  104025                  1$:     ERROR   +25             ;BAD DATA
2169 010662                          TTTDONE:
     010662  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
2170
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                                .SBTTL  TEST # 7 - FDST MODE 5 TEST
                                ;;**********************************************************************
                                ;*TEST 7         FDST MODE 5 TEST
                                ;*
                                ;*THIS IS A TEST OF FDST MODE 5 USING STD.
                                ;*
                                ;;************************************* ********************************
 010664  000004                 TST7:   SCOPE
2177
2178 010666                     UUU1:
 010666  104413                         LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2179 010670  012701  011006            MOV     #UUUBF0,R1      ;SET UP THE OUTPUT DATA BUFFER.
2180 010674  012700  177777            MOV     #-1,R0
2181 010700  012702  000012            MOV     #12,R2
2182 010704  010021            1$:     MOV     R0,(R1)+
2183 010706  077202                    SOB     R2,1$
2184 010710  012737  011006  011020    MOV     #UUUBF0,UUUA1
2185 010716  012700  000200            MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2186 010722  170100                    LDFPS   R0
2187 010724  012700  011032            MOV     #UUUTP1,R0      ;SET UP AC0.
2188 010730  172410                    LDD     (R0),AC0
2189 010732  012737  011042  000004    MOV     #UUU10,ERRVECT ;GET READY FOR ANY TRAPS TO 4.
2190 010740  013737  010752  001236    MOV     UUU2,$TMP2
2191 010746  012700  011022            MOV     #UUUA2,R0       ;SET UP THE DESTINATION ADDRESS.
2192 010752  174050            UUU2:   STD     AC0,@-(R0)      ;TEST INSTRUCTION.
2193 010754  020027  011020            CMP     R0,#UUUA2-2     ;WAS R0 DECRIMENTED PROPERLY?
2194 010760  001046                    BNE     UUU15           ;BRANCH IF R0 IS INCORRECT.
2195 010762  012701  011006            MOV     #UUUBF0,R1      ;WAS THE DATA OUTPUT CORRECTLY?
2196 010766  012702  011032            MOV     #UUUTP1,R2
2197 010772  012703  000004            MOV     #4,R3
2198 010776  022122            UUU3:   CMP     (R1)+,(R2)+
2199 011000  001045                    BNE     UUU20           ;BRANCH IF DATA IS INCORRECT.
2200 011002  077303                    SOB     R3,UUU3
2201 011004  000452                    BR      UUUDONE
2202
2203                            ;THIS IS THE OUTPUT DATA BUFFER
2204 011006  177777            UUUBF0: -1
2205 011010  177777                    -1
2206 011012  177777                    -1
2207 011014  177777                    -1
2208 011016  177777                    -1
2209 011020  011006            UUUA1:  UUUBF0
2210 011022  177777            UUUA2:  -1
2211 011024  177777            UUUA3:  -1
2212 011026  177777                    -1
2213 011030  177777                    -1
2214 011032  020212            UUUTP1: 20212
2215 011034  023242                    23242
2216 011036  026273                    26273
2217 011040  031323                    031323
2218
2219                            ;IF A TRAP TO 4 OCCURS COME HERE.
2220 011042  011602            UUU10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
2221 011044  020227  010754            CMP     R2,#UUU2+2
2222 011050  001405                    BEQ     UUU11           ;BRANCH IF YES.
2223 011052  020227  010756            CMP     R2,#UUU2+4
2224 011056  001402                    BEQ     UUU11           ;BRANCH IF YES.
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2225 011060  000137  047302                    JMP     CPSPUR  ;OTHERWISE REPORT A SPURIOUS TRAP TO 4.
2226                                 ;REPORT FAILURE OF FDST RESULTED IN AN ODD ADDRESS TRAP TO 4.
2227 011064  010237  001236         UUU11:  MOV     R2,$TMP2
2228 011070  022626                         CMP     (SP)+,(SP)+
2229 011072  104026                 1$:     ERROR   +26             ;BET FDST X ODD ADR
2230 011074  000416                         BR      UUUDONE
2231
2232                                 ;REPORT R0 INCORRECT.
2233 011076  010037  001242         UUU15:  MOV     R0,$TMP4
2234 011102  012737  011024  001240         MOV     #UUUA2+2,$TMP3
2235 011110  104027                 1$:     ERROR   +27             ;R0 NOT INCREMENT PROPERLY
2236 011112  000407                         BR      UUUDONE
2237
2238                                 ;REPORT BAD DATA.
2239 011114  012737  011006  001242 UUU20:  MOV     #UUUBF0,$TMP4
2240 011122  012737  011032  001240         MOV     #UUUTP1,$TMP3
2241 011130  104030                 1$:     ERROR   +30             ;BAD DATA
2242 011132                         UUUDONE:
     011132  104412                         RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).
2243
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2249                                    .SBTTL  TEST # 10 - FDST MODE 6, INDEX MODE, TEST
                                        ;;*****************************************************************
                                        ;*TEST 10       FDST MODE 6, INDEX MODE, TEST
                                        ;*
                                        ;*THIS IS A TEST OF FDST MODE 6, INDEX MODE, USING STD.
                                        ;*
                                        ;;*****************************************************************
011134  000004                          TST10:  SCOPE
2250                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
2251 011136                             VVV1:
011136  104413                                  LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2252 011140  012700  000200                     MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2253 011144  170100                             LDFPS   R0
2254 011146  012701  011256                     MOV     #VVVBF0,R1      ;SET UP THE OUT PUT DATA BUFFER.
2255 011152  012700  177777                     MOV     #-1,R0
2256 011156  012702  000004                     MOV     #4,R2
2257 011162  010021                     1$:     MOV     R0,(R1)+
2258 011164  077202                             SOB     R2,1$
2259 011166  012767  011276  166610             MOV     #VVV10,ERRVECT ;SET UP VECTOR 4 INCASE OF ERROR.
2260 011174  012700  011266                     MOV     #VVVTP1,R0      ;SET UP AC0.
2261 011200  172410                             LDD     (R0),AC0
2262 011202  012767  011220  170026             MOV     #VVV2,$TMP2
2263 011210  012700  003355                     MOV     #VVVBF0-5701,R0 ;SET UP THE DESTINATION ADDRESS.
2264 011214  012701  000001                     MOV     #1,R1
2265 011220  174060  005701             VVV2:   STD     AC0,5701(R0)    ;TEST INSTRUCTION.
2266
2267 011224  020027  003355                     CMP     R0,#VVVBF0-5701 ;SEE IF R0 WAS MODIFIED.
2268 011230  001040                             BNE     VVV15           ;BRANCH IF INCORRECT.
2269 011232  012702  011256                     MOV     #VVVBF0,R2      ;WAS THE OUTPUT DATA CORRECT.
2270 011236  012703  011266                     MOV     #VVVTP1,R3
2271 011242  012704  000004                     MOV     #4,R4
2272 011246  022223                     1$:     CMP     (R2)+,(R3)+
2273 011250  001037                             BNE     VVV20           ;BRANCH IF INCORRECT DATA.
2274 011252  077403                             SOB     R4,1$
2275 011254  000444                             BR      VVVDONE
2276 011256  177777                     VVVBF0: -1
2277 011260  177777                             -1
2278 011262  177777                             -1
2279 011264  177777                             -1
2280 011266  030313                     VVVTP1: 30313
2281 011270  023334                             23334
2282 011272  035363                             35363
2283 011274  074041                             74041
2284
2285                                    ;COME HERE AFTER A TRAP THROUGH VECTOR 4.
2286 011276  011602                     VVV10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTR.
2287 011300  020227  011222                     CMP     R2,#VVV2+2
2288 011304  001405                             BEQ     VVV11           ;BRANCH IF YES.
2289 011306  020227  011224                     CMP     R2,#VVV2+4
2290 011312  001402                             BEQ     VVV11           ;BRANCH IF YES.
2291 011314  000167  035720                     JMP     FPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
2292
                                        ;REPORT FAILURE OF FDST RESULTED IN AN ODD ADDRESS TRAP TO 4.
2293 011320  010267  167712             VVV11:  MOV     R2,$TMP2
2294 011324  022626                             CMP     (SP)+,(SP)+
2295 011326  104031                     1$:     ERROR   +31             ;FDST FORK X ODD ADD
2296 011330  000416                             BR      VVVDONE
2297
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2298                                    ;REPORT R0 MODIFIED.
2299 011332  010067  167704              VVV15:  MOV     R0,$TMP4
2300 011336  012767  003355  167674              MOV     #VVVBF0-5701,$TMP3
2301 011344  104032                      1$:     ERROR   +32             ;R0 MODIFIED!
2302 011346  000407                              BR      VVVDONE
2303
2304                                    ;REPORT INCORRECT DATA.
2305 011350  012767  011256  167662      VVV20:  MOV     #VVVBF0,$TMP3
2306 011356  012767  011266  167656              MOV     #VVVTP1,$TMP4
2307 011364  104033                      1$:     ERROR   +33             ;BAD DATA
2308 011366                              VVVDONE:
     011366  104412                              RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                         ;SEE IF THE USER HAS EXPRESSED
                                                                         ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                         ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                         ;THE USER TYPED CONTROL G?).
2309                                            .ENABL  AMA             ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
```

```
2315                                    .SBTTL  TEST # 11 - FDST MODE 7, INDEX DEFERRED MODE, TEST
                                        ;;*****************************************************************
                                        ;*TEST 11       FDST MODE 7, INDEX DEFERRED MODE, TEST
                                        ;*
                                        ;*THIS IS A TEST OF FDST MODE 7, INDEX DEFERRED MODE, USING STD.
                                        ;*
                                        ;;*****************************************************************
    011370  000004                      TST11:  SCOPE
2316 011372                             WWW1:
    011372  104413                              LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2317 011374  012700  000200                     MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2318 011400  170100                             LDFPS   R0
2319 011402  012701  011520                     MOV     #WWWBF0,R1      ;SET UP THE OUTPUT DATA BUFFER.
2320 011406  012700  177777                     MOV     #-1,R0
2321 011412  012702  000004                     MOV     #4,R2
2322 011416  010021                     1$:     MOV     R0,(R1)+
2323 011420  077202                             SOB     R2,1$
2324 011422  012737  011550  000004             MOV     #WWW10,ERRVECT  ;SET UP FOR TRAPS TO 4.
2325 011430  012700  011530                     MOV     #WWWTP1,R0      ;SET UP AC0.
2326 011434  172410                             LDD     (R0),AC0
2327 011436  012737  011462  001236             MOV     #WWW2,$TMP2
2328 011444  012700  003637                     MOV     #WWWBF1-5701,R0 ;SET UP THE DESTINATION ADDRESS.
2329 011450  012701  000001                     MOV     #1,R1
2330 011454  012737  011520  011540             MOV     #WWWBF0,WWWBF1
2331 011462  174070  005701             WWW2:   STD     AC0,@5701(R0)   ;TEST INSTRUCTION.
2332
2333 011466  020027  003637                     CMP     R0,#WWWBF1-5701 ;IS R0 CORRECT?
2334 011472  001044                             BNE     WWW15           ;BRANCH IF INCORRECT.
2335 011474  012702  011520                     MOV     #WWWBF0,R2      ;WAS THE DATA OUTPUT CORRECTLY?
2336 011500  012703  011530                     MOV     #WWWTP1,R3
2337 011504  012704  000004                     MOV     #4,R4
2338 011510  022223                     1$:     CMP     (R2)+,(R3)+
2339 011512  001043                             BNE     WWW20           ;BRANCH IF DATA IS INCORRECT.
2340 011514  077403                             SOB     R4,1$
2341 011516  000450                             BR      WWWDONE
2342 011520  177777                     WWWBF0: -1
2343 011522  177777                             -1
2344 011524  177777                             -1
2345 011526  177777                             -1
2346 011530  041424                     WWWTP1: 41424
2347 011532  034445                             34445
2348 011534  046475                             46475
2349 011536  051525                             051525
2350 011540  177777                     WWWBF1: -1
2351 011542  177777                             -1
2352 011544  177777                             -1
2353 011546  177777                             -1
2354
2355                                    ;TRAP THROUGH 4 TO HERE.
2356 011550  011602                     WWW10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTR.
2357 011552  020227  011464                     CMP     R2,#WWW2+2
2358 011556  001405                             BEQ     WWW11           ;BRANCH IF YES.
2359 011560  020227  011466                     CMP     R2,#WWW2+4
2360 011564  001402                             BEQ     WWW11           ;BRANCH IF YES.
2361 011566  000137  047240                     JMP     FPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
2362
                                        ;REPORT FAILURE OF FDST FORK RESULTED IN AN ODD ADDRESS TRAP TO 4.
2363 011572  010237  001236             WWW11:  MOV     R2,$TMP2
```

TEST # 11 - FDST MODE 7, INDEX DEFERRED MODE, TEST

```
2364 011576  022626                        CMP     (SP)+,(SP)+
2365 011600  104034                1$:     ERROR   +34             ;FDST FORK X ODD ADD
2366 011602  000416                        BR      WWWDONE
2367
2368                               ;REPORT R0 MODIFIED.
2369 011604  010037  001242        WWW15:  MOV     R0,$TMP4
2370 011610  012737  003617  001240        MOV     #WWWBF0-5701,$TMP3
2371 011616  104035                1$:     ERROR   +35             ;R0 MODIFIED!
2372 011620  000407                        BR      WWWDONE
2373
2374                               ;REPORT DATA INCORRECT
2375 011622  012737  011520  001240 WWW20:  MOV     #WWWBF0,$TMP3
2376 011630  012737  011530  001242        MOV     #WWWTP1,$TMP4
2377 011636  104036                1$:     ERROR   +36             ;BAD DATA
2378 011640                        WWWDONE:
     011640  104412                        RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                           ;SEE IF THE USER HAS EXPRESSED
                                           ;THE DESIRE TO CHANGE THE SOFTWARE
                                           ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                           ;THE USER TYPED CONTROL G?).
2379
```

TEST # 12 - STCFD TEST

```
2385                                    .SBTTL  TEST # 12 - STCFD TEST
                                        ;;*****************************************************************
                                        ;*TEST 12       STCFD TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE STCFD INSTRUCTION.
                                        ;*
                                        ;;*****************************************************************
     011642  000004                     TST12:  SCOPE
2386
2387                                    ;AC=0
2388 011644                             XXX1:
     011644  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2389 011646  004737  012202                     JSR     PC,STCFDS
2390 011652  000000                     1$:    0                       ;AC
2391 011654  000000                            0
2392 011656  000000                            0
2393 011660  000000                            0
2394 011662  000000                     2$:    0                       ;RES
2395 011664  000000                            0
2396 011666  000000                            0
2397 011670  000000                            0
2398 011672  000000                     3$:    0                       ;ERROR RES.
2399 011674  000000                            0
2400 011676  177777                            -1
2401 011700  177777                            -1
2402 011702  047000                     4$:    47000                   ;FPS BEFORE EXECUTION.
2403 011704  047004                            47004                   ;FPS AFTER EXECUTION.
2404 011706  177777                            -1                      ;FEC
2405 011710  147004                            147004                  ;ERROR FPS.
2406 011712  104042                     5$:    ERROR   +42                     ;FDFL<---FDFLXST 767
2407 011714  000401                            BR      6$
2408 011716  104043                            ERROR   +43                     ;BUT EZBT X ST560 TO 061 INTO 261
2409 011720                             6$:
2410                                    ;
2411 011720                             XXX2:
     011720  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2412 011722  004737  012202                     JSR     PC,STCFDS
2413 011726  017203                     1$:    17203                   ;AC
2414 011730  142536                            142536
2415 011732  047506                            47506
2416 011734  172031                            172031
2417 011736  017203                     2$:    17203                   ;RES
2418 011740  142536                            142536
2419 011742  000000                            0
2420 011744  000000                            0
2421 011746  017203                     3$:    17203                   ;ERROR RES.
2422 011750  142536                            142536
2423 011752  047506                            47506
2424 011754  172031                            172031
2425 011756  040000                     4$:    40000                   ;FPS BEFORE EXECUTION.
2426 011760  040000                            40000                   ;FPS AFTER EXECUTION.
2427 011762  177777                            -1                      ;FEC
2428 011764  177777                            -1                      ;ERROR FPS.
2429 011766  104044                     5$:    ERROR   +44                     ;X11(1,0)<---0 X ST766
2430 011770  000401                            BR      6$
2431 011772  104040                            ERROR   +40
2432 011774                             6$:
```

```
                                        ;
                                XXX3:
                                        LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
012774  104413
012774  004737  012202                  JSR     PC,STCFDS
012776  050717                  1$:     50717           ;AC
012002  027374                          27374
012004  075767                          75767
012006  077071                          77071
012010  050717                  2$:     50717           ;RES
012012  027374                          27374
012014  000000                          0
012016  000000                          0
012020  000000                  3$:     0               ;ERROR RES.
012022  000000                          0
012024  000000                          0
012026  000000                          0
012030  047000                  4$:     47000           ;FPS BEFORE EXECUTION.
012032  047000                          47000           ;FPS AFTER EXECUTION.
012034  177777                          -1              ;FEC
012036  174002                          174002          ;ERROR FPS.
012040  104045                  5$:     ERROR   +45             ;BUT OPIC X ST251
012042  000401                          BR      6$
012044  104046                          ERROR   +46             ;BUT EZBT X ST421
012046                          6$:
                                        ;
                                XXX4:
012046  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
012050  004737  012202                  JSR     PC,STCFDS
012052  020212                  1$:     20212           ;AC
012056  032425                          32425
012060  026272                          26272
012062  002123                          02123
012064  020212                  2$:     20212           ;RES
012066  032425                          32425
012070  000000                          0
012072  000000                          0
012074  020212                  3$:     20212           ;ERROR RES.
012076  032425                          32425
012100  100000                          100000
012102  000000                          0
012104  040000                  4$:     40000           ;FPS BEFORE EXECUTION.
012106  040000                          40000           ;FPS AFTER EXECUTION.
012110  177777                          -1              ;FEC
012112  177777                          -1              ;ERROR FPS.
012114  104047                  5$:     ERROR   +47             ;BUT FD IN ROUND X ST113
012116  000401                          BR      6$
012120  104040                          ERROR   +40
012122                          6$:
                                        ;
                                XXX5:
012122  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
012124  004737  012202                  JSR     PC,STCFDS
012126  121314                  1$:     121314          ;AC
012132  151617                          151617
012134  101112                          101112
012136  131415                          131415
012140  121314                  2$:     121314          ;RES
```

```
2487 012144  151617                        151617
2488 012146  000000                        0
2489 012150  000000                        0
2490 012152  021314                3$:     21314           ;ERROR RES.
2491 012154  151617                        151617
2492 012156  000000                        0
2493 012160  000000                        0
2494 012162  040000                4$:     40000           ;FPS BEFORE EXECUTION.
2495 012164  040010                        40010           ;FPS AFTER EXECUTION.
2496 012166  177777                        -1              ;FEC
2497 012170  177777                        -1              ;ERROR FPS.
2498 012172  104050                5$:     ERROR   +50             ;BUT ENBT X ST567 OR BAD SIGN ST460
2499 012174  000401                        BR      6$
2500 012176  104040                        ERROR   +40
2501 012200  000535                6$:     BR      XXXDONE
2502
2503                                       ;
2504
2505
2506                                       ;THIS SUBROUTINE, STCFDS, IS USED TO SET UP THE OPERANDS, EXECUTE
2507                                       ;THE STCFD INSTRUCTION AND CHECK THE RESULTS. A CALL
2508                                       ;TO IT IS MADE THUS:
2509                                       ;
2510                                       ;               JSR     PC,STCFDS
2511                                       ;               ACARG:  .WORD   X,X,X,X         ;AC OPERAND
2512                                       ;               RES:    .WORD   X,X,X,X         ;EXPECTED RESULT
2513                                       ;               ERRES:  .WORD   X,X,X,X         ;ERROR RESULT
2514                                       ;               FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
2515                                       ;               FPSA:   .WORD   X               ;FPS AFTER EXECUTION
2516                                       ;               FEC:    .WORD   X               ;EXPECTED FEC
2517                                       ;               ERFPS:  .WORD   X               ;ERROR FPS.
2518                                       ;               ERR1:   ERROR   +X              ;DATA ERROR.
2519                                       ;                       BR      CONT
2520                                       ;               ERR2:   ERROR   +X              ;FPS ERROR.
2521                                       ;               CONT:                           ;RETURN ADDRESS
2522                                       ;
2523                                       ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
2524                                       ;THE STCFD INSTRUCTION IS EXECUTED.
2525                                       ;THE RESULT IS CHECKED AGAINST RES. IF THE RESULT IS CORRECT THEN THE FPS IS
2526                                       ;COMPARED WITH FPSA IF THIS TOO IS CORRECT STCFDS RETURNS CONTROL
2527                                       ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD STCFDS
2528                                       ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN STCFDS WILL RETURN
2529                                       ;TO THE ERROR CALL AT ERR2, OTHERWISE STCFDS ITSELF
2530                                       ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
2531                                       ;STCFD IS INCORRECT, THE INCORRECT RESULT IS COMPARED WITH THE
2532                                       ;ANTICIPATED FAILING DATA PATTERN, ERRES. IF THE FAILURE IN
2533                                       ;THE RESULT WAS ANTICIPATED CORRECTLY TO BE ERRES THEN STCFDS
2534                                       ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
2535                                       ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND STCFDS WILL
2536                                       ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
2537
2538 012202  012601                STCFDS: MOV     (SP)+,R1                ;PICK UP THE POINTER TO THE OPERANDS.
2539 012204  012700  000200                MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2540 012210  170100                        LDFPS   R0
2541 012212  010100                        MOV     R1,R0           ;LOAD AC0.
2542 012214  172410                        LDD     (R0),AC0
2543 012216  012700  177777                MOV     #-1,R0          ;FILL THE OUTPUT BUFFER WITH -1'S.
```

TEST # 12 - STCFD TEST

```
2544 012222 012702 012464          MOV     #STCFT,R2
2545 012226 012703 000004          MOV     #4,R3
2546 012232 010022           1$:   MOV     R0,(R2)+
2547 012234 077302                 SOB     R3,1$
2548 012236 016100 000030          MOV     30(R1),R0       ;LOAD THE FPS.
2549 012242 170100                 LDFPS   R0
2550 012244 012737 012256 001236   MOV     #2$,$TMP2
2551 012252 012700 012464          MOV     #STCFT,R0       ;SET UP THE DESTINATION ADDRESS.
2552 012256 176010           2$:   STCFD   AC0,(R0)        ;TEST INSTRUCTION.
2553
2554 012260 170204                 STFPS   R4              ;GET THE FPS.
2555 012262 170305                 STST    R5              ;GET THE FEC.
2556 012264 010102                 MOV     R1,R2           ;SAVE THE DATA IN CASE OF ERROR.
2557 012266 010237 001240          MOV     R2,$TMP3
2558 012272 062702 000010          ADD     #10,R2
2559 012276 010237 001244          MOV     R2,$TMP5
2560 012302 012737 012464 001242   MOV     #STCFT,$TMP4
2561 012310 010437 001250          MOV     R4,$TMP7
2562 012314 016137 000032 001252   MOV     32(R1),$TMP10
2563
2564 012322 010102                 MOV     R1,R2           ;CHECK THE RESULT.
2565 012324 062702 000010          ADD     #10,R2
2566 012330 012703 012464          MOV     #STCFT,R3
2567 012334 012700 000004          MOV     #4,R0
2568 012340 022223           3$:   CMP     (R2)+,(R3)+
2569 012342 001014                 BNE     15$             ;BRANCH IF INCORRECT.
2570 012344 077003                 SOB     R0,3$
2571
2572 012346 016102 000032          MOV     32(R1),R2
2573 012352 020204                 CMP     R2,R4           ;IS THE FPS CORRECT?
2574 012354 001025                 BNE     20$             ;BRANCH IF FPS INCORRECT.
2575 012356 005702                 TST     R2              ;IF EXPECTED FPS IS NEGATIVE, THEN
2576 012360 100003                 BPL     4$              ;GO AHEAD AND CHECK THE FEC.
2577 012362 026105 000036          CMP     36(R1),R5
2578 012366 001027                 BNE     25$             ;BRANCH IF FEC IS INCORRECT.
2579 012370 000161 000046   4$:    JMP     46(R1)          ;RETURN.
2580
2581                               ;RESULT INCORRECT:
2582 012374 010102           15$:  MOV     R1,R2           ;SEE IF ERROR WAS ANTICIPATED.
2583 012376 062702 000020          ADD     #20,R2
2584 012402 012703 012464          MOV     #STCFT,R3
2585 012406 012700 000004          MOV     #4,R0
2586 012412 022223           16$:  CMP     (R2)+,(R3)+
2587 012414 001003                 BNE     17$             ;BRANCH IF NOT ANTICIPATED.
2588 012416 077003                 SOB     R0,16$
2589 012420 000161 000040          JMP     40(R1)          ;IF ERROR WAS ANTICIPATED RETURN.
2590                               ;OTHERWISE REPORT RESULT INCORRECT HERE.
2591 012424                        17$:
2592 012424 104037           18$:  ERROR   +37             ;DATA ERROR
2593 012426 000760                 BR      4$
2594
2595                               ;FPS INCORRECT:
2596 012430 020461 000034    20$:  CMP     R4,34(R1)       ;WAS THE ERROR ANTICIPATED.
2597 012434 001002                 BNE     21$             ;BRANCH IF NOT ANTICIPATED.
2598 012436 000161 000044          JMP     44(R1)          ;IF IT WAS ANTICIPATED RETURN.
2599
2600                               ;THE FPS ERROR WAS NOT ANTICIPATED SO REPORT FPS INCORRECT HERE.
```

```
2601 012442                                21$:
2602 012442  104040                        22$:    ERROR   +40             ;FPS X
2603 012444  000751                                BR      4$
2604
2605                                       ;REPORT FEC INCORRECT:
2606 012446  016137  000036  001256        25$:    MOV     36(R1),$TMP12
2607 012454  010537  001254                        MOV     R5,$TMP11
2608 012460  104041                        26$:    ERROR   +41             ;FEC X
2609 012462  000742                                BR      4$
2610 012464  177777  177777  177777        STCFT:  -1,-1,-1,-1
2611 012474                                XXXDONE:
     012474  104412                                RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                           ;SEE IF THE USER HAS EXPRESSED
                                                                           ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                           ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                           ;THE USER TYPED CONTROL G?).

2612
```

```
                                        .SBTTL  TEST # 13 - STCDF TEST
                                        ;;*****************************************************************
                                        ;*TEST 13       STCDF TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE STCDF INSTRUCTION.
                                        ;*
                                        ;;*****************************************************************
     012476  000004                     TST13:  SCOPE
                                        ;AC=0
                                        YYY1:
     012500  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
     012502  004737  013036                     JSR     PC,STCDFS
     012506  000000                     1$:     0                       ;AC
     012510  000000                             0
     012512  000000                             0
     012514  000000                             0
     012516  000000                     2$:     0                       ;RES
     012520  000000                             0
     012522  177777                             -1
     012524  177777                             -1
     012526  000000                     3$:     0                       ;ERROR RES.
     012530  000000                             0
     012532  000000                             0
     012534  000000                             0
     012536  047200                     4$:     47200                   ;FPS BEFORE EXECUTION.
     012540  047204                             47204                   ;FPS AFTER EXECUTION.
     012542  177777                             -1                      ;FEC
     012544  177777                             -1                      ;ERROR FPS.
     012546  104054                     5$:     ERROR   +54             ;FDFL<---FDFL X ST767
     012550  000401                             BR      6$
     012552  104052                             ERROR   +52             ;FPS INCORRECT.
     012554                             6$:
                                        ;
                                        YYY2:
     012554  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
     012556  004737  013036                     JSR     PC,STCDFS
     012562  067574                     1$:     67574                   ;AC0
     012564  073727                             73727
     012566  170777                             170777
     012570  067574                             67574
     012572  067574                     2$:     67574                   ;RES
     012574  073730                             73730
     012576  177777                             -1
     012600  177777                             -1
     012602  067574                     3$:     67574                   ;ERROR RES.
     012604  073727                             73727
     012606  177777                             -1
     012610  177777                             -1
     012612  040200                     4$:     40200                   ;FPS BEFORE EXECUTION.
     012614  040200                             40200                   ;FPS AFTER EXECUTION.
     012616  177777                             -1                      ;FEC
     012620  177777                             -1                      ;ERROR FPS.
     012622  104055                     5$:     ERROR   +55             ;EITHER ROUND FAILED OR WENT TO 766 X1(1,0)<---0 INTO 767
     012624  000401                             BR      6$
     012626  104052                             ERROR   +52
     012630                             6$:
```

```
2666                                    ;
2667 012630                             YYY3:
     012630  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2668 012632  004737  013036                     JSR     PC,STCDFS
2669 012636  077777                     1$:     77777                   ;AC0
2670 012640  177777                             -1
2671 012642  100000                             100000
2672 012644  000000                             0
2673 012646  000000                     2$:     0                       ;RES
2674 012650  000000                             0
2675 012652  177777                             -1
2676 012654  177777                             -1
2677 012656  077777                     3$:     77777                   ;ERROR RES.
2678 012660  177777                             -1
2679 012662  177777                             -1
2680 012664  177777                             -1
2681 012666  040200                     4$:     40200                   ;FPS BEFORE EXECUTION.
2682 012670  040206                             40206                   ;FPS AFTER EXECUTION.
2683 012672  177777                             -1                      ;FEC
2684 012674  040204                             40204                   ;ERROR FPS.
2685 012676  104055                     5$:     ERROR   +55
2686 012700  000401                             BR      6$
2687 012702  104056                             ERROR   +56             ;BUT EZBT X ST421 TO 062 INTO 262
2688 012704                             6$:
2689                                    ;
2690 012704                             YYY4:
     012704  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2691 012706  004737  013036                     JSR     PC,STCDFS
2692 012712  077777                     1$:     77777                   ;AC0
2693 012714  177777                             -1
2694 012716  100000                             100000
2695 012720  000000                             0
2696 012722  000000                     2$:     0                       ;RES
2697 012724  000000                             0
2698 012726  177777                             -1
2699 012730  177777                             -1
2700 012732  077777                     3$:     77777                   ;ERROR RES.
2701 012734  177777                             -1
2702 012736  177777                             -1
2703 012740  177777                             -1
2704 012742  040200                     4$:     40200                   ;FPS BEFORE EXECUTION.
2705 012744  040206                             40206                   ;FPS AFTER EXECUTION.
2706 012746  177777                             -1                      ;FEC
2707 012750  140206                             140206                  ;ERROR FPS.
2708 012752  104055                     5$:     ERROR   +55
2709 012754  000401                             BR      6$
2710 012756  104057                             ERROR   +57             ;BUT FIV ST262 TO 123 INTO 103
2711 012760                             6$:
2712                                    ;
2713 012760                             YYY5:
     012760  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2714 012762  004737  013036                     JSR     PC,STCDFS
2715 012766  177777                     1$:     177777                  ;AC0
2716 012770  177777                             -1
2717 012772  100000                             100000
2718 012774  000000                             0
2719 012776  100000                     2$:     100000                  ;RES
```

```
2720 013000  000000                        0
2721 013002  177777                        -1
2722 013004  177777                        -1
2723 013006  000000              3$:       0                       ;ERROR RES.
2724 013010  000000                        0
2725 013012  177777                        -1
2726 013014  177777                        -1
2727 013016  047200              4$:       47200                   ;FPS BEFORE EXECUTION.
2728 013020  147216                        147216                  ;FPS AFTER EXECUTION.
2729 013022  000010                        10                      ;FEC
2730 013024  047206                        47206                   ;ERROR FPS.
2731 013026  104060              5$:       ERROR   +60             ;BUT FIV ST262 FAIL TO 103 INT 123
2732 013030  000401                        BR      6$
2733 013032  104061                        ERROR   +61             ;BUT FLAG ST 147 X TO ST 361 INTO 365
2734 013034  000535              6$:       BR      YYYDONE
2735                             ;THIS SUBROUTINE, STCDFS, IS USED TO SET UP THE OPERANDS, EXECUTE
2736                             ;THE STCDF INSTRUCTION AND CHECK THE RESULTS. A CALL
2737                             ;TO IT IS MADE THUS:
2738                             ;
2739                             ;               JSR     PC,STCFDS
2740                             ;               ACARG:  .WORD   X,X,X,X         ;AC OPERAND
2741                             ;               RES:    .WORD   X,X,X,X         ;EXPECTED RESULT
2742                             ;               ERRES:  .WORD   X,X,X,X         ;ERROR RESULT
2743                             ;               FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
2744                             ;               FPSA:   .WORD   X               ;FPS AFTER EXECUTION
2745                             ;               FEC:    .WORD   X               ;EXPECTED FEC
2746                             ;               ERFPS:  .WORD   X               ;ERROR FPS.
2747                             ;               ERR1:   ERROR   +X              ;DATA ERROR.
2748                             ;                       BR      CONT
2749                             ;               ERR2:   ERROR   +X              ;FPS ERROR.
2750                             ;               CONT:                           ;RETURN ADDRESS
2751                             ;
2752                             ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
2753                             ;THE STCFD INSTRUCTION IS EXECUTED.
2754                             ;THE RESULT IS CHECKED AGAINST RES. IF THE RESULT IS CORRECT THEN THE FPS IS
2755                             ;COMPARED WITH FPSA IF THIS TOO IS CORRECT STCFDS RETURNS CONTROL
2756                             ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD STCFDS
2757                             ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN STCFDS WILL RETURN
2758                             ;TO THE ERROR CALL AT ERR2, OTHERWISE STCFDS ITSELF
2759                             ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
2760                             ;STCFD IS INCORRECT, THE INCORRECT RESULT IS COMPARED WITH THE
2761                             ;ANTICIPATED FAILING DATA PATTERN, ERRES. IF THE FAILURE IN
2762                             ;THE RESULT WAS ANTICIPATED CORRECTLY TO BE ERRES THEN STCFDS
2763                             ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
2764                             ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND STCFDS WILL
2765                             ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
2766
2767 013036  012601              STCDFS: MOV     (SP)+,R1        ;PICK UP THE POINTER TO THE OPERANDS.
2768 013040  012700  000200              MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2769 013044  170100                      LDFPS   R0
2770 013046  010100                      MOV     R1,R0           ;LOAD AC0.
2771 013050  172410                      LDD     (R0),AC0
2772 013052  012700  177777              MOV     #-1,R0          ;FILL THE OUTPUT BUFFER WITH -1'S.
2773 013056  012702  013320              MOV     #STCDT,R2
2774 013062  012703  000004              MOV     #4,R3
2775 013066  010022              1$:     MOV     R0,(R2)+
2776 013070  077302                      SOB     R3,1$
```

```
2777 013072  016100  000030                MOV     30(R1),R0       ;LOAD THE FPS.
2778 013076  170100                        LDFPS   R0
2779 013100  012737  013112  001236        MOV     #2$,$TMP2
2780 013106  012700  013320                MOV     #STCDT,R0       ;SET UP THE DESTINATION ADDRESS.
2781 013112  176010                2$:     STCDF   AC0,(R0)        ;TEST INSTRUCTION.
2782
2783 013114  170204                        STFPS   R4              ;GET THE FPS.
2784 013116  170305                        STST    R5              ;GET THE FEC.
2785 013120  010102                        MOV     R1,R2           ;SAVE THE DATA IN CASE OF ERROR.
2786 013122  010237  001240                MOV     R2,$TMP3
2787 013126  062702  000010                ADD     #10,R2
2788 013132  010237  001244                MOV     R2,$TMP5
2789 013136  012737  013320  001242        MOV     #STCDT,$TMP4
2790 013144  010437  001250                MOV     R4,$TMP7
2791 013150  016137  000032  001252        MOV     32(R1),$TMP10
2792
2793 013156  010102                        MOV     R1,R2           ;CHECK THE RESULT.
2794 013160  062702  000010                ADD     #10,R2
2795 013164  012703  013320                MOV     #STCDT,R3
2796 013170  012700  000004                MOV     #4,R0
2797 013174  022223                3$:     CMP     (R2)+,(R3)+
2798 013176  001014                        BNE     15$             ;BRANCH IF INCORRECT.
2799 013200  077003                        SOB     R0,3$
2800
2801 013202  016102  000032                MOV     32(R1),R2
2802 013206  020204                        CMP     R2,R4           ;IS THE FPS CORRECT?
2803 013210  001025                        BNE     20$             ;BRANCH IF FPS INCORRECT.
2804 013212  005702                        TST     R2              ;IF EXPECTED FPS IS NEGATIVE, THEN
2805 013214  100003                        BPL     4$              ;GO AHEAD AND CHECK THE FEC.
2806 013216  026105  000034                CMP     34(R1),R5
2807 013222  001027                        BNE     25$             ;BRANCH IF FEC IS INCORRECT.
2808 013224  000161  000046        4$:     JMP     46(R1)          ;RETURN.
2809
2810                                ;RESULT INCORRECT:
2811 013230  010102                15$:    MOV     R1,R2           ;SEE IF ERROR WAS ANTICIPATED.
2812 013232  062702  000020                ADD     #20,R2
2813 013236  012703  013320                MOV     #STCDT,R3
2814 013242  012700  000004                MOV     #4,R0
2815 013246  022223                16$:    CMP     (R2)+,(R3)+
2816 013250  001003                        BNE     17$             ;BRANCH IF NOT ANTICIPATED.
2817 013252  077003                        SOB     R0,16$
2818 013254  000161  000040                JMP     40(R1)          ;IF ERROR WAS ANTICIPATED RETURN.
2819                                ;OTHERWISE REPORT RESULT INCORRECT HERE.
2820 013260                        17$:
2821 013260  104051                18$:    ERROR   +51             ;DATA ERROR
2822 013262  000760                        BR      4$
2823
2824                                ;FPS INCORRECT:
2825 013264  020461  000034        20$:    CMP     R4,34(R1)               ;WAS THE ERROR ANTICIPATED.
2826 013270  001002                        BNE     21$             ;BRANCH IF NOT ANTICIPATED.
2827 013272  000161  000044                JMP     44(R1)          ;IF IT WAS ANTICIPATED RETURN.
2828
2829                                ;THE FPS ERROR WAS NOT ANTICIPATED SO REPORT FPS INCORRECT HERE.
2830 013276                        21$:
2831 013276  104052                22$:    ERROR   +52             ;FPS X
2832 013300  000751                        BR      4$
2833
```

```
2834                                        ;REPORT FEC INCORRECT:
2835 013302  016137  000036  001256  25$:    MOV     36(R1),$TMP12
2836 013310  010537  001254                 MOV     R5,$TMP11
2837 013314  104053                  26$:    ERROR   +53             ;FEC X
2838 013316  000742                          BR      4$
2839 013320  177777  177777  177777  STCDT:  -1,-1,-1,-1
2840 013330                          YYYDONE:
     013330~ 104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).
```

TEST # 14 - STCFD WITH ILLEGAL ACCUMULATOR TEST

```
2846                                    .SBTTL  TEST # 14 - STCFD WITH ILLEGAL ACCUMULATOR TEST
                                        ;;*****************************************************************
                                        ;*TEST 14       STCFD WITH ILLEGAL ACCUMULATOR TEST
                                        ;*
                                        ;*THIS TEST STCFD WITH ILLEGAL AC 6.
                                        ;*
                                        ;;*************************************** *************************
     013332  000004                     TST14:  SCOPE
2847
2848 013334                             ZZZ1:
     013334  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2849 013336  012700  040000                     MOV     #40000,R0       ;DISSABLE INTERRUPTS.
2850 013342  170100                             LDFPS   R0
2851 013344  012737  013352  001236             MOV     #ZZZ2,$TMP2
2852 013352  176006                     ZZZ2:   STCFD   AC0,AC6         ;THIS TEST INSTRUCTION SHOULD CAUSE AN ERROR.
2853
2854 013354  170204                             STFPS   R4              ;GET FPS.
2855 013356  170305                             STST    R5              ;GET FEC.
2856 013360  020427  140000                     CMP     R4,#140000      ;IS FPS CORRECT?
2857 013364  001004                             BNE     ZZZ10           ;BRANCH IF INCORRECT FPS.
2858 013366  022705  000002                     CMP     #2,R5           ;IS FEC CORRECT?
2859 013372  001010                             BNE     ZZZ15           ;BRANCH IF INCORRECT.
2860 013374  000415                             BR      ZZZDONE
2861
2862                                    ;REPORT FPS INCORRECT AFTER USE OF ILLEGAL ACCUMULATOR.
2863 013376  010437  001242             ZZZ10:  MOV     R4,$TMP4
2864 013402  012737  140000  001240             MOV     #140000,$TMP3
2865 013410  104062                     1$:     ERROR   +62             ;BUT FDST ST767 X TO 567 INTO 577
2866 013412  000406                             BR      ZZZDONE
2867
2868                                    ;REPORT FEC INCORRECT AFTER USE OF ILLEGAL ACCUMULATOR.
2869 013414  010537  001242             ZZZ15:  MOV     R5,$TMP4
2870 013420  012737  000002  001240             MOV     #2,$TMP3
2871 013426  104063                     1$:     ERROR   +63             ;FEC<---2 ST577 X
2872 013430                             ZZZDONE:
     013430  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).

2873
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                                .SBTTL  TEST # 15 - CLRD TEST
                                ;;**********************************************************************
                                ;*TEST 15        CLRD TEST
                                ;*
                                ;*THIS IS A TEST OF THE CRLF AND CLRD INSTRUCTIONS.
                                ;*
                                ;;**********************************************************************
013432  000004                  TST15:  SCOPE
2880 013434                     AAB1:
013434  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2881 013436  012700  013622            MOV     #AABTP1,R0      ;SET UP OUTPUT BUFFER
2882 013442  012701  013612            MOV     #AABBF0,R1
2883 013446  012702  000004            MOV     #4,R2
2884 013452  012021            1$:     MOV     (R0)+,(R1)+
2885 013454  077202                    SOB     R2,1$
2886 013456  012700  013612            MOV     #AABBF0,R0      ;SET UP DESTINATION OPERAND ADDRESS.
2887 013462  012701  000213            MOV     #213,R1         ;SET UP FPS.
2888 013466  170101                    LDFPS   R1
2889 013470  012737  013476  001236    MOV     #2$,$TMP2
2890 013476  170410            2$:     CLRD    (R0)            ;TEST INSTRUCTION.
2891
2892 013500  170205                    STFPS   R5              ;GET FPS.
2893 013502  012702  000004            MOV     #4,R2           ;SEE IF RESULT CLEAR, 0.
2894 013506  012701  013612            MOV     #AABBF0,R1
2895 013512  005721            3$:     TST     (R1)+
2896 013514  001010                    BNE     AAB2            ;BRANCH IF RESULT INCORRECT, NOT 0.
2897 013516  077203                    SOB     R2,3$
2898 013520  022705  000204            CMP     #204,R5         ;SEE IF FPS IS CORRECT.
2899 013524  001014                    BNE     AAB3            ;BRANCH IF INCORRECT.
2900 013526  020027  013612            CMP     R0,#AABBF0      ;SEE IF R0 IS CORRECT.
2901 013532  001020                    BNE     AAB4            ;BRANCH IF R0 IS INCORRECT.
2902 013534  000442                    BR      AABDONE
2903
2904                            ;RESULT NOT 0, REPORT ERROR.
2905 013536  012737  013612  001240  AAB2:   MOV     #AABBF0,$TMP3
2906 013544  012737  013632  001242          MOV     #AABTP2,$TMP4
2907 013552  104064            1$:     ERROR   +64             ;BAD DATA = 0 X 11+ZERO ST770 X
2908 013554  000432                    BR      AABDONE
2909
2910                            ;REPORT FPS INCORRECT:
2911 013556  010437  001242    AAB3:   MOV     R4,$TMP4
2912 013562  012737  000204  001240    MOV     #204,$TMP3
2913 013570  104065            1$:     ERROR   +65             ;BAD FPS
2914 013572  000423                    BR      AABDONE
2915
2916                            ;REPORT R0 INCORRECT.
2917 013574  010037  001242    AAB4:   MOV     R0,$TMP4
2918 013600  012737  013612  001240    MOV     #AABBF0,$TMP3
2919 013606  104066            1$:     ERROR   +66
2920 013610  000414                    BR      AABDONE
2921
2922                            ;THIS IS THE TEST DATA BUFFER, OUTPUT DATA BUFFER.
2923 013612  073475            AABBF0: 73475
2924 013614  067707                    67707
2925 013616  127347                    127347
2926 013620  056770                    56770
2927                            ;THIS IS THE DATA USED TO SET UP THE OUTPUT BUFFER.
```

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2928 013622  073475                AABTP1: 73475
2929 013624  067707                        67707
2930 013626  127347                        127347
2931 013630  056770                        56770
2932                               ;THIS IS THE EXPECTED DATA, RESULT:
2933 013632  000000                AABTP2: 0
2934 013634  000000                        0
2935 013636  000000                        0
2936 013640  000000                        0
2937 013642                        AABDONE:
     013642  104412                        RSETUP                ;GO INITIALIZE THE FPS AND STACK; AND
                                                                  ;SEE IF THE USER HAS EXPRESSED
                                                                  ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                  ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                  ;THE USER TYPED CONTROL G?).

2938
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TEST # 16 - CLRD WITH ILLEGAL ACCUMULATOR TEST

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                                        .SBTTL  TEST # 16 - CLRD WITH ILLEGAL ACCUMULATOR TEST
                                        ;;*****************************************************************
                                        ;*TEST 16       CLRD WITH ILLEGAL ACCUMULATOR TEST
                                        ;*
                                        ;*THIS IS A TEST OF CLRD WITH ILLEGAL AC7.
                                        ;*
                                        ;;*************************************** ***************************
     013644  000004                     TST16:  SCOPE
2945 013646                             CCB1:
     013646  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2946 013650  012700  040200                    MOV     #40200,R0       ;SET UP THE FPS, NO INTERRUPTS AND FD=1.
2947 013654  170100                            LDFPS   R0
2948 013656  012737  013664  001236            MOV     #CCB2,$TMP2
2949 013664  170407                     CCB2:  CLRD    AC7             ;TEST INSTRUCTION.
2950
2951 013666  170204                            STFPS   R4              ;GET FPS.
2952 013670  170305                            STST    R5              ;GET FEC.
2953 013672  020427  140200                    CMP     R4,#140200              ;IS THE FPS CORRECT?
2954 013676  001004                            BNE     CCB10           ;BRANCH IF FPS IS INCORRECT.
2955 013700  022705  000002                    CMP     #2,R5           ;IS THE FEC CORRECT?
2956 013704  001010                            BNE     CCB15           ;BRANCH IF FEC IS INCORRECT.
2957 013706  000415                            BR      CCBDONE
2958
2959                                    ;REPORT INCORRECT FPS:
2960 013710  010437  001242             CCB10: MOV     R4,$TMP4
2961 013714  012737  140200  001240            MOV     #140200,$TMP3
2962 013722  104067                     1$:    ERROR   +67             ;BUT FDST ST 700X TO 607 INTO 677
2963 013724  000406                            BR      CCBDONE
2964
2965                                    ;REPORT INCORRECT FEC:
2966 013726  010537  001242             CCB15: MOV     R5,$TMP4
2967 013732  012737  000002  001240            MOV     #2,$TMP3
2968 013740  104070                     1$:    ERROR   +70             ;FEC<---2 ST 677 X
2969 013742                             CCBDONE:
     013742  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                         ;SEE IF THE USER HAS EXPRESSED
                                                                         ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                         ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                         ;THE USER TYPED CONTROL G?).
2978
2979                                    ;TEST TITLE:NEGF, ABSF AND TSTF SOURCE MODE 0 WITH ILLEGAL AC7, TEST
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TEST # 17 - SEE ABOVE COMMENT FOR TEST TITLE

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2980                                    .SBTTL  TEST # 17 - SEE ABOVE COMMENT FOR TEST TITLE
                                        ;;*****************************************************************
                                        ;*TEST 17       SEE ABOVE COMMENT FOR TEST TITLE
                                        ;*
                                        ;*THIS IS A TEST OF THE SPECIAL
                                        ;*DEST FLOWS USING THE NEGD INST
                                        ;*WITH MODE ZERO AND ILLEGAL
                                        ;*AC7.
                                        ;*
                                        ;;*****************************************************************
     013744  000004                     TST17:  SCOPE
2981
2982 013746                             VVB1:
     013746  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
2983 013750  012700  040200                    MOV     #40200,R0               ;SET UP THE FPS, FID=1 AND FD=1.
2984 013754  170100                            LDFPS   R0
2985 013756  012737  013764  001236            MOV     #VVB2,$TMP2
2986
2987 013764  170707                     VVB2:  NEGD    AC7             ;TEST INSTRUCTION.
2988
2989 013766  170204                            STFPS   R4              ;GET FPS.
2990 013770  170305                            STST    R5              ;GET FEC.
2991
2992 013772  022704  140200                    CMP     #140200,R4              ;IS FPS CORRECT?
2993 013776  001004                            BNE     VVB10           ;BRANCH IF FPS IS INCORRECT.
2994 014000  022705  000002                    CMP     #2,R5           ;IS FEC CORRECT?
2995 014004  001010                            BNE     VVB15           ;BRANCH IF FEC IS INCORRECT.
2996 014006  000416                            BR      VVBDONE
2997
2998                                    ;REPORT INCORRECT FPS:
2999 014010  012737  140200  001240     VVB10: MOV     #140200,$TMP3
3000 014016  010437  001242                    MOV     R4,$TMP4
3001 014022  104176                     1$:    ERROR   +176            ;FPS BAD
3002 014024  000407                            BR      VVBDONE
3003
3004                                    ;REPORT FEC INCORRECT:
3005 014026  012737  000002  001240     VVB15: MOV     #2,$TMP3
3006 014034  010537  001242                    MOV     R5,$TMP4
3007 014040  104377                     1$:    ERROR   +377            ;FEC BAD
3008 014042  000044                            .WORD   44
3009 014044                             VVBDONE:
     014044  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
3010
3018                                            ;TEST TITLE:NEGF, ABSF AND TSTF SOURCE MODE 0 TEST
```

TEST # 20 - SEE ABOVE COMMENT FOR TEST TITLE

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3019                                    .SBTTL  TEST # 20 - SEE ABOVE COMMENT FOR TEST TITLE
                                        ;;*****************************************************************
                                        ;*TEST 20       SEE ABOVE COMMENT FOR TEST TITLE
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE NEGD INSTRUCTION
                                        ;*IS USED TO TEST MODE 0
                                        ;*
                                        ;;*****************************************************************
     014046  000004                     TST20:  SCOPE
3020
3021 014050                             DDB1:
     014050  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3022 014052  012700  000200                     MOV     #200,R0         ;SET FD MODE.
3023 014056  170100                             LDFPS   R0
3024 014060  012700  014222                     MOV     #DDBTP1,R0      ;SET UP AC0.
3025 014064  172410                             LDD     (R0),AC0                ;SET AC0 = 0
3026 014066  005000                             CLR     R0              ;CLEAR THE FPS.
3027 014070  170100                             LDFPS   R0
3028 014072  012700  014232                     MOV     #DDBTP2,R0              ;LOAD AC0 TO BE A FLOATING 0.
3029 014076  172410                             LDF     (R0),AC0        ;SET AC0=ZERO
3030                                                                     ;FLOAT
3031 014100  012700  000201                     MOV     #201,R0         ;SET FD MODE.
3032 014104  170100                             LDFPS   R0
3033 014106  012737  014114  001236             MOV     #DDB2,$TMP2
3034
3035 014114  170700                     DDB2:   NEGD    AC0             ;TEST INSTRUCTION.
3036
3037 014116  170205                             STFPS   R5              ;GET FPS.
3038 014120  012700  000200                     MOV     #200,R0         ;SET FD MODE.
3039 014124  170100                             LDFPS   R0
3040 014126  012700  014242                     MOV     #DDBBF0,R0      ;GET THE RESULT OUT OF AC0.
3041 014132  174010                             STD     AC0,(R0)
3042                                                                     ;SEE IF THE RESULT IS CORRECT.
3043 014134  012701  000004                     MOV     #4,R1
3044 014140  005720                     1$:     TST     (R0)+
3045 014142  001005                             BNE     DDB5            ;BRANCH IF THE RESULT IS INCORRECT.
3046 014144  077103                             SOB     R1,1$
3047 014146  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3048 014152  001014                             BNE     DDB6            ;BRANCH IF THE FPS IS INCORRECT.
3049 014154  000442                             BR      DDBDONE
3050
3051                                    ;RESULT INCORRECT, REPORT FAILURE:
3052 014156  012737  014232  001242     DDB5:   MOV     #DDBTP2,$TMP4   ;EXPECT D0
3053 014164  012737  014252  001240             MOV     #DDBTP3,$TMP3   ;PREV F0 IMPURE
3054 014172  012737  014242  001244             MOV     #DDBBF0,$TMP5   ;GOT
3055 014200  104071                     1$:     ERROR   +71
3056 014202  000427                             BR      DDBDONE
3057
3058                                    ;REPORT FPS INCORRECT:
3059 014204  012737  000204  001240     DDB6:   MOV     #204,$TMP3
3060 014212  010537  001242                     MOV     R5,$TMP4
3061 014216  104072                     1$:     ERROR   +72
3062 014220  000420                             BR      DDBDONE
3063
3064                                    ;THESE ARE TEST DATA TABLES AND AN OUTPUT BUFFER.
3065 014222  101112                     DDBTP1: 101112
```

TEST # 20 - SEE ABOVE COMMENT FOR TEST TITLE

```
3066 014224  131415                        131415
3067 014226  161710                        161710
3068 014230  111213                        111213
3069 014232  000000              DDBTP2:   0
3070 014234  000000                        0
3071 014236  000000                        0
3072 014240  000000                        0
3073
3074 014242  177777              DDBBF0:   -1
3075 014244  177777                        -1
3076 014246  177777                        -1
3077 014250  177777                        -1
3078 014252  000000              DDBTP3:   0
3079 014254  000000                        0
3080 014256  161710                        161710
3081 014260  111213                        111213
3082
3083 014262                      DDBDONE:
     014262  104412                        RSETUP          ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).
3084
3085                                    ;TEST TITLE:NEGF, ABSF AND TSTF SOURCE MODE 1 TEST
```

TEST # 21 - SEE ABOVE COMMENT FOR TEST TITLE

```
3086                                    .SBTTL  TEST # 21 - SEE ABOVE COMMENT FOR TEST TITLE
                                        ;;**********************************************************************
                                        ;*TEST 21       SEE ABOVE COMMENT FOR TEST TITLE
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE NEGD INSTRUCTION
                                        ;*IS USED TO TEST MODE 1
                                        ;*
                                        ;;**********************************************************************
     014264  000004                     TST21:  SCOPE
3087
3088 014266                             EEB1:
     014266  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3089 014270  012700  014376                     MOV     #EEBTP1,R0      ;SET UP THE DATA BUFFER.
3090 014274  012701  014426                     MOV     #EEBBF1,R1
3091 014300  012702  000004                     MOV     #4,R2
3092 014304  012021                     1$:     MOV     (R0)+,(R1)+
3093 014306  077202                             SOB     R2,1$
3094 014310  012700  000200                     MOV     #200,R0         ;SET FD MODE.
3095 014314  170100                             LDFPS   R0
3096 014316  012700  014426                     MOV     #EEBBF1,R0      ;SET UP THE OPERAND ADDRESS.
3097 014322  012737  014336  001236             MOV     #EEB2,$TMP2
3098 014330  012737  014436  000004             MOV     #EEB10,ERRVECT ;SET UP VECTOR 4 IN CASE OF ERROR.
3099 014336  170710                     EEB2:   NEGD    (R0)            ;TEST INSTRUCTION.
3100
3101 014340  170205                             STFPS   R5              ;GET FPS.
3102 014342  012701  014426                     MOV     #EEBBF1,R1      ;SEE IF RESULT IS CORRECT.
3103 014346  012702  000004                     MOV     #4,R2
3104 014352  005721                     1$:     TST     (R1)+
3105 014354  001046                             BNE     EEB15           ;BRANCH IF NOT CORRECT.
3106 014356  077203                             SOB     R2,1$
3107
3108 014360  020027  014426                     CMP     R0,#EEBBF1      ;IS R0 CORRECT?
3109 014364  001055                             BNE     EEB20                   ;BRANCH IF NOT CORRECT.
3110 014366  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3111 014372  001061                             BNE     EEB25           ;BRANCH IF NOT CORRECT.
3112 014374  000466                             BR      EEBDONE
3113
3114                                    ;THESE ARE TEST DATA TABLES AND A BUFFER.
3115 014376  000177                     EEBTP1: 177
3116 014400  167574                             167574
3117 014402  137271                             137271
3118 014404  107675                             107675
3119 014406  000000                     EEBTP2: 0
3120 014410  000000                             0
3121 014412  000000                             0
3122 014414  000000                             0
3123 014416  177777                     EEBBF0: -1
3124 014420  177777                             -1
3125 014422  177777                             -1
3126 014424  177777                             -1
3127 014426  177777                     EEBBF1: -1
3128 014430  177777                             -1
3129 014432  177777                             -1
3130 014434  177777                             -1
3131
3132                                    ;IF A TRAP TO 4 OCCURS COME HERE:
```

TEST # 21 - SEE ABOVE COMMENT FOR TEST TITLE

```
3133 014436  011602                    EEB10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTR.
3134 014440  020227  014340                    CMP     R2,#EEB2+2
3135 014444  001405                            BEQ     1$              ;BRANCH IF YES.
3136 014446  020227  014342                    CMP     R2,#EEB2+4
3137 014452  001402                            BEQ     1$              ;BRANCH IF YES.
3138 014454  000137  047302                    JMP     CPSPUR  ;OTHERWISE GO REPORT A SPURIOUS TRAP TO 4.
3139                                    ;REPORT A FAILURE IN THE FDST FLOWS RECULTED IN AN ODD ADDRESS TRAP TO 4.
3140 014460  022626                    1$:     CMP     (SP)+,(SP)+     ;RESET THE STACK.
3141 014462  010237  001236                    MOV     R2,$TMP2
3142 014466  104107                    2$:     ERROR   +107            ;ODD ADRES
3143 014470  000430                            BR      EEBDONE         ;BUT FDSTX IN ST 771
3144
3145                                    ;REPORT RESULT INCORRECT.
3146 014472  012737  014406  001242    EEB15:  MOV     #EEBTP2,$TMP4
3147 014500  012737  014376  001240            MOV     #EEBTP1,$TMP3
3148 014506  012737  014426  001244            MOV     #EEBBF1,$TMP5
3149 014514  104073                    1$:     ERROR   +73             ;BAD DATA X11*0 ST 312X
3150 014516  000415                            BR      EEBDONE
3151
3152                                    ;R0 INCORRECT:
3153 014520  012737  014426  001240    EEB20:  MOV     #EEBBF1,$TMP3
3154 014526  010037  001242                    MOV     R0,$TMP4
3155 014532  104074                    1$:     ERROR   +74             ;R0 BADX
3156 014534  000406                            BR      EEBDONE
3157
3158                                    ;REPORT FPS INCORRECT:
3159 014536  010537  001240    EEB25:  MOV     R5,$TMP3
3160 014542  012737  000204  001244            MOV     #204,$TMP5
3161 014550  104075                    1$:     ERROR   +75             ;FPS X
3162
3163 014552                             EEBDONE:
     014552  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
3164
3165                                    ;TEST TITLE:NEGF, ABSF AND TSTF SOURCE MODE 2 TEST
```

```
3166                                    .SBTTL  TEST # 22 - SEE ABOVE COMMENT FOR TEST TITLE
                                        ;;*****************************************************************
                                        ;*TEST 22       SEE ABOVE COMMENT FOR TEST TITLE
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                        ;*IS USED TO TEST MODE 2
                                        ;*
                                        ;;*****************************************************************
     014554  000004                     TST22:  SCOPE
3167
3168 014556                             FFB1:
     014556  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3169 014560  012700  014666                      MOV     #FFBTP1,R0              ;SET UP THE DATA BUFFER.
3170 014564  012701  014716                      MOV     #FFBBF1,R1
3171 014570  012702  000004                      MOV     #4,R2
3172 014574  012021                     1$:     MOV     (R0)+,(R1)+
3173 014576  077202                             SOB     R2,1$
3174 014600  012700  000200                      MOV     #200,R0         ;SET FD.
3175 014604  170100                             LDFPS   R0
3176 014606  012700  014716                      MOV     #FFBBF1,R0      ;SET UP THE OPERAND ADDRESS.
3177 014612  012737  014626  001236              MOV     #FFB2,$TMP2
3178 014620  012737  014726  000004              MOV     #FFB10,ERRVECT ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3179
3180 014626  170620                     FFB2:   ABSD    (R0)+           ;TEST INSTRUCTION.
3181
3182 014630  170205                             STFPS   R5              ;GET FPS.
3183 014632  012701  014716                      MOV     #FFBBF1,R1              ;CHECK RESULT.
3184 014636  012702  000004                      MOV     #4,R2
3185 014642  005721                     1$:     TST     (R1)+
3186 014644  001046                             BNE     FFB15           ;BRANCH IF INCORRECT.
3187 014646  077203                             SOB     R2,1$
3188
3189 014650  020027  014726                      CMP     R0,#FFBBF1+10   ;IS R0 CORRECT?
3190 014654  001055                             BNE     FFB20           ;BRANCH IF INCORRECT.
3191 014656  022705  000204                      CMP     #204,R5         ;IS THE FPS CORRECT?
3192 014662  001061                             BNE     FFB25           ;BRANCH IF INCORRECT.
3193 014664  000466                             BR      FFBDONE
3194
3195                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3196 014666  000177                    FFBTP1: 177
3197 014670  167574                             167574
3198 014672  137271                             137271
3199 014674  107675                             107675
3200 014676  000000                    FFBTP2: 0
3201 014700  000000                             0
3202 014702  000000                             0
3203 014704  000000                             0
3204 014706  177777                    FFBBF0: -1
3205 014710  177777                             -1
3206 014712  177777                             -1
3207 014714  177777                             -1
3208 014716  177777                    FFBBF1: -1
3209 014720  177777                             -1
3210 014722  177777                             -1
3211 014724  177777                             -1
3212
```

```
3213                                        ;IF A TRAP TO 4 OCCURS COME HERE.
3214 014726  011602                 FFB10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3215 014730  020227  014630                 CMP     R2,#FFB2+2
3216 014734  001405                         BEQ     1$              ;BRANCH IF YES.
3217 014736  020227  014632                 CMP     R2,#FFB2+4
3218 014742  001402                         BEQ     1$              ;BRANCH IF YES.
3219 014744  000137  047302                 JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3220                                        ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3221 014750  022626                 1$:     CMP     (SP)+,(SP)+
3222 014752  010237  001236                 MOV     R2,$TMP2
3223 014756  104076                 2$:     ERROR   +76             ;ODD ADRES
3224 014760  000430                         BR      FFBDONE         ;BUT FDSTX IN ST 771
3225
3226                                        ;REPORT RESULT INCORRECT:
3227 014762  012737  014676  001240 FFB15:  MOV     #FFBTP2,$TMP3
3228 014770  012737  014666  001242         MOV     #FFBTP1,$TMP4
3229 014776  012737  014716  001244         MOV     #FFBBF1,$TMP5
3230 015004  104077                 1$:     ERROR   +77             ;BAD DATA X11*0 ST 312X
3231 015006  000415                         BR      FFBDONE
3232
3233                                        ;REPORT R0 INCORRECT:
3234 015010  012737  014722  001240 FFB20:  MOV     #FFBBF1+4,$TMP3
3235 015016  010037  001242                 MOV     R0,$TMP4
3236 015022  104100                 1$:     ERROR   +100            ;R0 BADX
3237 015024  000406                         BR      FFBDONE
3238
3239                                        ;REPORT FPS INCORRECT:
3240 015026  010537  001240 FFB25:  MOV     R5,$TMP3
3241 015032  012737  000204  001244         MOV     #204,$TMP5
3242 015040  104101                 1$:     ERROR   +101            ;FPS X
3243
3244 015042                         FFBDONE:
     015042  104412                         RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                    ;SEE IF THE USER HAS EXPRESSED
                                                                    ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                    ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                    ;THE USER TYPED CONTROL G?).
3245                                        ;TEST TITLE:NEGF, ABSF AND TSTF SOURCE MODE 4 TEST
```

```
                                .SBTTL  TEST # 23 - SEE ABOVE COMMENT FOR TEST TITLE
                                ;;*****************************************************************
                                ;*TEST 23       SEE ABOVE COMMENT FOR TEST TITLE
                                ;*
                                ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                ;*IS USED TO TEST MODE 4
                                ;*
                                ;;*****************************************************************
015044  000004                  TST23:  SCOPE
3247
3248 015046
015046  104413                  GGB1:
                                        LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3249 015050  012700  015156            MOV     #GGBTP1,R0              ;SET UP THE DATA BUFFER.
3250 015054  012701  015176            MOV     #GGBBF0,R1
3251 015060  012702  000004            MOV     #4,R2
3252 015064  012021            1$:     MOV     (R0)+,(R1)+
3253 015066  077202                    SOB     R2,1$
3254 015070  012700  000200            MOV     #200,R0         ;SET FD.
3255 015074  170100                    LDFPS   R0
3256 015076  012700  015206            MOV     #GGBBF1,R0      ;SET UP THE OPERAND ADDRESS.
3257 015102  012737  015116  001236    MOV     #GGB2,$TMP2
3258 015110  012737  015216  000004    MOV     #GGB10,ERRVECT ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3259
3260 015116  170640            GGB2:   ABSD    -(R0)           ;TEST INSTRUCTION.
3261
3262 015120  170205                    STFPS   R5              ;GET FPS.
3263 015122  012701  015176            MOV     #GGBBF0,R1              ;CHECK RESULT.
3264 015126  012702  000004            MOV     #4,R2
3265 015132  005721            1$:     TST     (R1)+
3266 015134  001046                    BNE     GGB15           ;BRANCH IF INCORRECT.
3267 015136  077203                    SOB     R2,1$
3268
3269 015140  020027  015176            CMP     R0,#GGBBF0      ;IS R0 CORRECT?
3270 015144  001055                    BNE     GGB20           ;BRANCH IF INCORRECT.
3271 015146  022705  000204            CMP     #204,R5         ;IS THE FPS CORRECT?
3272 015152  001061                    BNE     GGB25           ;BRANCH IF INCORRECT.
3273 015154  000466                    BR      GGBDONE
3274
3275                            ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3276 015156  000177            GGBTP1: 177
3277 015160  117273                    117273
3278 015162  147576                    147576
3279 015164  177071                    177071
3280 015166  000000            GGBTP2: 0
3281 015170  000000                    0
3282 015172  000000                    0
3283 015174  000000                    0
3284 015176  177777            GGBBF0: -1
3285 015200  177777                    -1
3286 015202  177777                    -1
3287 015204  177777                    -1
3288 015206  177777            GGBBF1: -1
3289 015210  177777                    -1
3290 015212  177777                    -1
3291 015214  177777                    -1
3292
```

```
3293                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3294 015216  011602                     GGB10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3295 015220  020227  015120                     CMP     R2,#GGB2+2
3296 015224  001405                             BEQ     1$              ;BRANCH IF YES.
3297 015226  020227  015122                     CMP     R2,#GGB2+4
3298 015232  001402                             BEQ     1$              ;BRANCH IF YES.
3299 015234  000137  047302                     JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3300                                    ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3301 015240  022626                     1$:     CMP     (SP)+,(SP)+
3302 015242  010237  001236                     MOV     R2,$TMP2
3303 015246  104102                     2$:     ERROR   +102            ;ODD ADRES
3304 015250  000430                             BR      GGBDONE         ;BUT FDSTX IN ST 771
3305
3306                                    ;REPORT RESULT INCORRECT:
3307 015252  012737  015166  001240     GGB15:  MOV     #GGBTP2,$TMP3
3308 015260  012737  015156  001242             MOV     #GGBTP1,$TMP4
3309 015266  012737  015176  001244             MOV     #GGBBF0,$TMP5
3310 015274  104103                     1$:     ERROR   +103            ;BAD DATA X11*0 ST 312X
3311 015276  000415                             BR      GGBDONE
3312
3313                                    ;REPORT R0 INCORRECT:
3314 015300  012737  015176  001240     GGB20:  MOV     #GGBBF01,$TMP3
3315 015306  010037  001242                     MOV     R0,$TMP4
3316 015312  104104                     1$:     ERROR   +104            ;R0 BADX
3317 015314  000406                             BR      GGBDONE
3318
3319                                    ;REPORT FPS INCORRECT:
3320 015316  010537  001240     GGB25:  MOV     R5,$TMP3
3321 015322  012737  000204  001244             MOV     #204,$TMP5
3322 015330  104105                     1$:     ERROR   +105            ;FPS X
3323
3324 015332                             GGBDONE:
     015332  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                         ;SEE IF THE USER HAS EXPRESSED
                                                                         ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                         ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                         ;THE USER TYPED CONTROL G?).
3325                                    ;TEST TITLE:NEGF, ABSF AND TSTF SOURCE MODE 3 TEST
```

```
3326                                    .SBTTL  TEST # 24 - SEE ABOVE COMMENT FOR TEST TITLE
                                        ;;*****************************************************************
                                        ;*TEST 24       SEE ABOVE COMMENT FOR TEST TITLE
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                        ;*IS USED TO TEST MODE 3
                                        ;*
                                        ;;*****************************************************************
     015334  000004                     TST24:  SCOPE
3327
3328 015336                             HHB1:
     015336  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3329 015340  012700  015446                     MOV     #HHBTP1,R0              ;SET UP THE DATA BUFFER.
3330 015344  012701  015476                     MOV     #HHBBF0,R1
3331 015350  012702  000010                     MOV     #10,R2
3332 015354  012021                     1$:     MOV     (R0)+,(R1)+
3333 015356  077202                             SOB     R2,1$
3334 015360  012700  000200                     MOV     #200,R0         ;SET FD.
3335 015364  170100                             LDFPS   R0
3336 015366  012700  015506                     MOV     #HHBBF1,R0      ;SET UP THE OPERAND ADDRESS.
3337 015372  012737  015406  001236             MOV     #HHB2,$TMP2
3338 015400  012737  015516  000004             MOV     #HHB10,ERRVECT ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3339
3340 015406  170630                     HHB2:   ABSD    @(R0)+          ;TEST INSTRUCTION.
3341
3342 015410  170205                             STFPS   R5              ;GET FPS.
3343 015412  012701  015476                     MOV     #HHBBF0,R1              ;CHECK RESULT.
3344 015416  012702  000004                     MOV     #4,R2
3345 015422  005721                     1$:     TST     (R1)+
3346 015424  001052                             BNE     HHB15           ;BRANCH IF INCORRECT.
3347 015426  077203                             SOB     R2,1$
3348 015430  020027  015510                     CMP     R0,#HHBBF1+2    ;IS R0 CORRECT?
3349 015434  001061                             BNE     HHB20           ;BRANCH IF INCORRECT.
3350 015436  022705  000204                     MP      #204,R5         ;IS THE FPS CORRECT?
3351 015442  001065                             BNE     HHB25           ;BRANCH IF INCORRECT.
3352 015444  000472                             BR      HHBDONE
3353
3354                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3355 015446  000177                     HHBTP1: 177
3356 015450  147576                             147576
3357 015452  177071                             177071
3358 015454  107576  015476  177777             107576,HHBBF0,-1,-1,-1
3359 015466  000000  000000  000000     HHBTP2: 0,0,0,0
3360 015476  177777                     HHBBF0: -1
3361 015500  177777                             -1
3362 015502  177777                             -1
3363 015504  177777                             -1
3364 015506  177777                     HHBBF1: -1
3365 015510  177777                             -1
3366 015512  177777                             -1
3367 015514  177777                             -1
3368
3369                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3370 015516  011602                     HHB10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3371 015520  020227  015410                     CMP     R2,#HHB2+2
3372 015524  001405                             BEQ     1$              ;BRANCH IF YES.
```

```
3373 015526  020227  015412                    CMP     R2,#HHB2+4
3374 015532  001402                            BEQ     1$                ;BRANCH IF YES.
3375 015534  000137  047302                    JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3376                                 ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3377 015540  022626                 1$:     CMP     (SP)+,(SP)+
3378 015542  010237  001236                    MOV     R2,$TMP2
3379 015546  104106                 2$:     ERROR   +106              ;ODD ADRES
3380 015550  000430                            BR      HHBDONE           ;BUT FDSTX IN ST 771
3381
3382                                 ;REPORT RESULT INCORRECT:
3383 015552  012737  015466  001240 HHB15:  MOV     #HHBTP2,$TMP3
3384 015560  012737  015446  001242          MOV     #HHBTP1,$TMP4
3385 015566  012737  015476  001244          MOV     #HHBBF0,$TMP5
3386 015574  104110                 1$:     ERROR   +110              ;BAD DATA X11*0 ST 3127
3387 015576  000415                            BR      HHBDONE
3388
3389                                 ;REPORT R0 INCORRECT:
3390 015600  012737  015510  001240 HHB20:  MOV     #HHBBF1+2,$TMP3
3391 015606  010037  001242                    MOV     R0,$TMP4
3392 015612  104111                 1$:     ERROR   +111              ;R0 INCORRECT.
3393 015614  000406                            BR      HHBDONE
3394                                 ;REPORT FPS INCORRECT:
3395 015616  010537  001240          HHB25:  MOV     R5,$TMP3
3396 015622  012737  000204  001244          MOV     #204,$TMP5
3397 015630  104112                 1$:     ERROR   +112              ;FPSX
3398
3399 015632                          HHBDONE:
     015632  104412                            RSETUP                    ;GO INITIALIZE THE FPS AND STACK; AND
                                                                       ;SEE IF THE USER HAS EXPRESSED
                                                                       ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                       ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                       ;THE USER TYPED CONTROL G?).
3400                                 ;TEST TITLE:NEGF, ABSF AND TSTF SOURCE MODE 5 TEST
```

TEST # 25 - SEE ABOVE COMMENT FOR TEST TITLE

```
3401                                    .SBTTL  TEST # 25 - SEE ABOVE COMMENT FOR TEST TITLE
                                        ;;*****************************************************************
                                        ;*TEST 25       SEE ABOVE COMMENT FOR TEST TITLE
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE NEGD INSTRUCTION
                                        ;*IS USED TO TEST MODE 5
                                        ;*
                                        ;;*****************************************************************
     015634  000004                     TST25:  SCOPE
3402
3403 015636                             IIB1:
     015636  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3404 015640  012700  015746                     MOV     #IIBTP1,R0              ;SET UP THE DATA BUFFER.
3405 015644  012701  015776                     MOV     #IIBBF0,R1
3406 015650  012702  000010                     MOV     #10,R2
3407 015654  012021                     1$:    MOV     (R0)+,(R1)+
3408 015656  077202                             SOB     R2,1$
3409 015660  012700  000200                     MOV     #200,R0         ;SET FD.
3410 015664  170100                             LDFPS   R0
3411 015666  012700  016010                     MOV     #IIBBF1+2,R0    ;SET UP THE OPERAND ADDRESS.
3412 015672  012737  015706  001236             MOV     #IIB2,$TMP2
3413 015700  012737  016016  000004             MOV     #IIB10,ERRVECT ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3414
3415 015706  170750                     IIB2:  NEGD    @-(R0)           ;TEST INSTRUCTION.
3416
3417 015710  170205                             STFPS   R5              ;GET FPS.
3418 015712  012701  015776                     MOV     #IIBBF0,R1              ;CHECK RESULT.
3419 015716  012702  000004                     MOV     #4,R2
3420 015722  005721                     1$:    TST     (R1)+
3421 015724  001052                             BNE     IIB15           ;BRANCH IF INCORRECT.
3422 015726  077203                             SOB     R2,1$
3423 015730  020027  016006                     CMP     R0,#IIBBF1      ;IS R0 CORRECT?
3424 015734  001061                             BNE     IIB20           ;BRANCH IF INCORRECT.
3425 015736  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3426 015742  001065                             BNE     IIB25           ;BRANCH IF INCORRECT.
3427 015744  000472                             BR      IIBDONE
3428
3429                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3430 015746  000176                     IIBTP1: 176
3431 015750  177074                             177074
3432 015752  127374                             127374
3433 015754  157677  015776  177777             157677,IIBBF0,-1,-1,-1
3434 015766  000000                     IIBTP2: 0
3435 015770  000000                             0
3436 015772  000000                             0
3437 015774  000000                             0
3438 015776  177777                     IIBBF0: -1
3439 016000  177777                             -1
3440 016002  177777                             -1
3441 016004  177777                             -1
3442 016006  177777                     IIBBF1: -1
3443 016010  177777                             -1
3444 016012  177777                             -1
3445 016014  177777                             -1
3446
3447                                    ;IF A TRAP TO 4 OCCURS COME HERE.
```

```
3448 016016  011602                    IIB10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3449 016020  020227  015710                    CMP     R2,#IIB2+2
3450 016024  001405                            BEQ     1$              ;BRANCH IF YES.
3451 016026  020227  015712                    CMP     R2,#IIB2+4
3452 016032  001402                            BEQ     1$              ;BRANCH IF YES.
3453 016034  000137  047302                    JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3454                                 ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3455 016040  022626                 1$:     CMP     (SP)+,(SP)+
3456 016042  010237  001236                MOV     R2,$TMP2
3457 016046  104113                 2$:     ERROR   +113            ;ODD ADRES
3458 016050  000430                         BR      IIBDONE         ;BUT FDSTX IN ST 771
3459
3460                                 ;REPORT RESULT INCORRECT:
3461 016052  012737  015766  001240 IIB15:  MOV     #IIBTP2,$TMP3
3462 016060  012737  015746  001242        MOV     #IIBTP1,$TMP4
3463 016066  012737  015776  001244        MOV     #IIBBF0,$TMP5
3464 016074  104114                 1$:     ERROR   +114            ;BAD DATA X11*0 ST 3127
3465 016076  000415                         BR      IIBDONE
3466
3467                                 ;REPORT R0 INCORRECT:
3468 016100  012737  016006  001240 IIB20:  MOV     #IIBBF1,$TMP3
3469 016106  010037  001242                MOV     R0,$TMP4
3470 016112  104115                 1$:     ERROR   +115            ;R0 BADX
3471 016114  000406                         BR      IIBDONE
3472                                 :REPORT FPS INCORRECT:
3473 016116  010537  001240 IIB25:  MOV     R5,$TMP3
3474 016122  012737  000204  001244        MOV     #204,$TMP5
3475 016130  104116                 1$:     ERROR   +116            ;FPSX
3476
3477 016132                          IIBDONE:
     016132  104412                         RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).
```

```
3478                                    .SBTTL  TEST # 26 - NEGF, ABSF AND TSTF SRC MODE 6 TEST
                                        ;;*****************************************************************
                                        ;*TEST 26       NEGF, ABSF AND TSTF SRC MODE 6 TEST
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                        ;*IS USED TO TEST MODE 6
                                        ;*
                                        ;;*****************************************************************
     016134  000004                     TST26:  SCOPE
3479                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
3480 016136                             JJB1:
     016136  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3481 016140  012700  016250                     MOV     #JJBTP1,R0              ;SET UP THE DATA BUFFER.
3482 016144  012701  016272                     MOV     #JJBBF0,R1
3483 016150  012702  000004                     MOV     #4,R2
3484 016154  012021                     1$:     MOV     (R0)+,(R1)+
3485 016156  077202                             SOB     R2,1$
3486 016160  012700  000200                     MOV     #200,R0         ;SET FD.
3487 016164  170100                             LDFPS   R0
3488 016166  012700  016263                     MOV     #JJBBF0-7,R0    ;SET UP THE OPERAND ADDRESS.
3489 016172  012767  016206  163036             MOV     #JJB2,$TMP2
3490 016200  012767  016312  161576             MOV     #JJB10,ERRVECT ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3491
3492 016206  170660  000007             JJB2:   ABSD    7(R0)           ;TEST INSTRUCTION.
3493
3494 016212  170205                             STFPS   R5              ;GET FPS.
3495 016214  012701  016272                     MOV     #JJBBF0,R1              ;CHECK RESULT.
3496 016220  012702  000004                     MOV     #4,R2
3497 016224  005721                     1$:     TST     (R1)+
3498 016226  001047                             BNE     JJB15           ;BRANCH IF INCORRECT.
3499 016230  077203                             SOB     R2,1$
3500 016232  020027  016263                     CMP     R0,#JJBBF0-7    ;IS R0 CORRECT?
3501 016236  001043                             BNE     JJB15           ;BRANCH IF INCORRECT.
3502 016240  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3503 016244  001053                             BNE     JJB20           ;BRANCH IF INCORRECT.
3504 016246  000467                             BR      JJBDONE
3505
3506                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3507 016250  000177                     JJBTP1: 177
3508 016252  161524                             161524
3509 016254  131273                             131273
3510 016256  107174  000000                     107174,
3511 016262  000000                     JJBTP2: 0
3512 016264  000000                             0
3513 016266  000000                             0
3514 016270  000000                             0
3515 016272  177777                     JJBBF0: -1
3516 016274  177777                             -1
3517 016276  177777                             -1
3518 016300  177777                             -1
3519 016302  177777                     JJBBF1: -1
3520 016304  177777                             -1
3521 016306  177777                             -1
3522 016310  177777                             -1
3523
3524                                    ;IF A TRAP TO 4 OCCURS COME HERE.
```

```
3525 016312  011602                  JJB10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3526 016314  020227  016210                  CMP     R2,#JJB2+2
3527 016320  001405                          BEQ     1$              ;BRANCH IF YES.
3528 016322  020227  016212                  CMP     R2,#JJB2+4
3529 016326  001402                          BEQ     1$              ;BRANCH IF YES.
3530 016330  000167  030746                  JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3531                               ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3532 016334  022626                  1$:     CMP     (SP)+,(SP)+
3533 016336  010267  162674                  MOV     R2,$TMP2
3534 016342  104117                  2$:     ERROR   +117            ;ODD ADRES
3535 016344  000430                          BR      JJBDONE         ;BUT FDSTX IN ST 771
3536
3537                               ;REPORT RESULT INCORRECT:
3538 016346  012767  016262  162664 JJB15:  MOV     #JJBTP2,$TMP3
3539 016354  012767  016250  162660          MOV     #JJBTP1,$TMP4
3540 016362  012767  016272  162654          MOV     #JJBBF0,$TMP5
3541 016370  104120                  1$:     ERROR   +120            ;BAD DATA X11*0 ST 3127
3542 016372  000415                          BR      JJBDONE
3543
3544                               ;REPORT R0 INCORRECT:
3545 016374  012767  016263  162636 JJB20:  MOV     #JJBBF0-7,$TMP3
3546 016402  010067  162634                  MOV     R0,$TMP4
3547 016406  104124                  1$:     ERROR   +124            ;R0 BADX
3548 016410  000406                          BR      JJBDONE
3549                               ;REPORT FPS INCORRECT:
3550 016412  010567  162622          JJB25:  MOV     R5,$TMP3
3551 016416  012767  000204  162620          MOV     #204,$TMP5
3552 016424  104122                  1$:     ERROR   +122            ;FPSX
3553 016426                          JJBDONE:
     016426  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).
3554                                         .ENABL  AMA             ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
```

```
3555                                    .SBTTL  TEST # 27 - NEGF, ABSF AND TSTF SRC MODE 7 TEST
                                        ;******  ************************************************
                                        ;*TEST 2        NEGF, ABSF AND TSTF SRC MODE 7 TEST
                                        ;*
                                        ;*THIS IS A TEST THE NEGF, ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                        ;*IS USED TO TEST MODE 6
                                        ;*
                                        ;*****************************************************************
     016430  000004                     TST27:  SCOPE
3556
3557 016432                             KKB1:
     016432  104413                             LPERR                       ;SET UP THE LOOP ON ERROR ADDRESS.
3558 016434  012700  016544                     MOV     #KKBTP1,R0                  ;SET UP THE DATA BUFFER.
3559 016440  012701  016574                     MOV     #KKBBF0,R1
3560 016444  012702  000010                     MOV     #10,R2
3561 016450  012021                     1$:    MOV     (R0)+,(R1)+
3562 016452  077202                             SOB     R2,1$
3563 016454  012700  000200                     MOV     #200,R0             ;SET FD.
3564 016460  170100                             LDFPS   R0
3565 016462  012700  016575                     MOV     #KKBBF1-7,R0        ;SET UP THE OPERAND ADDRESS.
3566 016466  012737  016502  001236             MOV     #KKB2,$TMP2
3567 016474  012737  016614  000004             MOV     #KKB10,ERRVECT      ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3568
3569 016502  170770  000007             KKB2:   NEGD    @7(R0)              ;TEST INSTRUCTION.
3570
3571 016506  170205                             STFPS   R5                  ;GET FPS.
3572 016510  012701  016574                     MOV     #KKBBF0,R1                  ;CHECK RESULT.
3573 016514  012702  000004                     MOV     #4,R2
3574 016520  005721                     1$:    TST     (R1)+
3575 016522  001052                             BNE     KKB15               ;BRANCH IF INCORRECT.
3576 016524  077203                             SOB     R2,1$
3577 016526  020027  016575                     CMP     R0,#KKBBF1-7        ;IS R0 CORRECT?
3578 016532  001061                             BNE     KKB20               ;BRANCH IF INCORRECT.
3579 016534  022705  000204                     CMP     #204,R5             ;IS THE FPS CORRECT?
3580 016540  001056                             BNE     KKB20               ;BRANCH IF INCORRECT.
3581 016542  000472                             BR      KKBDONE
3582
3583                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3584 016544  000177                     KKBTP1: 177
3585 016546  167574                             167574
3586 016550  137271                             137271
3587 016552  107675  016574  177777             107675,KKBBF0,-1,-1,-1
3588 016564  000000                     KKBTP2: 0
3589 016566  000000                             0
3590 016570  000000                             0
3591 016572  000000                             0
3592 016574  177777                     KKBBF0: -1
3593 016576  177777                             -1
3594 016600  177777                             -1
3595 016602  177777                             -1
3596 016604  177777                     KKBBF1: -1
3597 016606  177777                             -1
3598 016610  177777                             -1
3599 016612  177777                             -1
3600
3601                                    ;IF A TRAP TO 4 OCCURS COME HERE.
```

```
3602 016614  011602                    KKB10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3603 016616  020227  016504                    CMP     R2,#KKB2+2
3604 016622  001405                            BEQ     1$              ;BRANCH IF YES.
3605 016624  020227  016506                    CMP     R2,#KKB2+4
3606 016630  001402                            BEQ     1$              ;BRANCH IF YES.
3607 016632  000137  047302                    JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3608                                    ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3609 016636  022626                    1$:     CMP     (SP)+,(SP)+
3610 016640  010237  001236                    MOV     R2,$TMP2
3611 016644  104123                    2$:     ERROR   +123            ;ODD ADRES
3612 016646  000430                            BR      KKBDONE         ;BUT FDSTX IN ST 771
3613
3614                                    ;REPORT RESULT INCORRECT:
3615 016650  012737  016564  001240    KKB15:  MOV     #KKBTP2,$TMP3
3616 016656  012737  016544  001242            MOV     #KKBTP1,$TMP4
3617 016664  012737  016574  001244            MOV     #KKBBF0,$TMP5
3618 016672  104124                    1$:     ERROR   +124            ;BAD DATA X11*0 ST 3127
3619 016674  000415                            BR      KKBDONE
3620
3621                                    ;REPORT R0 INCORRECT:
3622 016676  012737  016575  001240    KKB20:  MOV     #KKBBF1-7,$TMP3
3623 016704  010037  001242                    MOV     R0,$TMP4
3624 016710  104125                    1$:     ERROR   +125            ;R0 BADX
3625 016712  000406                            BR      KKBDONE
3626                                    :REPORT FPS INCORRECT:
3627 016714  010537  001240    KKB25:  MOV     R5,$TMP3
3628 016720  012737  000204  001244            MOV     #204,$TMP5
3629 016726  104126                    1$:     ERROR   +126            ;FPSX
3630
3631 016730                            KKBDONE:
     016730  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
```

```
3632                                    .SBTTL  TEST # 30 - NEGF, ABSF AND TSTF SRC MODE 6, GR7
                                        ;;*****************************************************************
                                        ;*TEST 30       NEGF, ABSF AND TSTF SRC MODE 6, GR7
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE NEGD INSTRUCTION
                                        ;*IS USED TO TEST MODE 6
                                        ;*
                                        ;;*****************************************************************
     016732  000004                     TST30:  SCOPE
3633                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
3634 016734                             LLB1:
     016734  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3635 016736  012700  017034                     MOV     #LLBTP1,R0              ;SET UP THE DATA BUFFER.
3636 016742  012701  017054                     MOV     #LLBBF0,R1
3637 016746  012702  000004                     MOV     #4,R2
3638 016752  012021                     1$:     MOV     (R0)+,(R1)+
3639 016754  077202                             SOB     R2,1$
3640 016756  012700  000200                     MOV     #200,R0         ;SET FD.
3641 016762  170100                             LDFPS   R0
3642 016764  012767  017000  162244             MOV     #LLB2,$TMP2
3643 016772  012767  017074  161004             MOV     #LLB10,ERRVECT ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3644
3645 017000  170767  000050             LLB2:   NEGD    LLBBF0          ;TEST INSTRUCTION.
3646
3647 017004  170205                             STFPS   R5              ;GET FPS.
3648 017006  012701  017054                     MOV     #LLBBF0,R1              ;CHECK RESULT.
3649 017012  012702  000004                     MOV     #4,R2
3650 017016  005721                     1$:     TST     (R1)+
3651 017020  001043                             BNE     LLB15           ;BRANCH IF INCORRECT.
3652 017022  077203                             SOB     R2,1$
3653 017024  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3654 017030  001052                             BNE     LLB25           ;BRANCH IF INCORRECT.
3655 017032  000457                             BR      LLBDONE
3656
3657                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3658 017034  000127                     LLBTP1: 127
3659 017036  137475                             137475
3660 017040  147372                             147372
3661 017042  117057                             117057
3662 017044  000000                     LLBTP2: 0
3663 017046  000000                             0
3664 017050  000000                             0
3665 017052  000000                             0
3666 017054  177777                     LLBBF0: -1
3667 017056  177777                             -1
3668 017060  177777                             -1
3669 017062  177777                             -1
3670 017064  177777                     LLBBF1: -1
3671 017066  177777                             -1
3672 017070  177777                             -1
3673 017072  177777                             -1
3674
3675                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3676 017074  011602                     LLB10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3677 017076  020227  017002                     CMP     R2,#LLB2+2
3678 017102  001405                             BEQ     1$              ;BRANCH IF YES.
```

```
3679 017104  020227  017004                CMP     R2,#LLB2+4
3680 017110  001402                        BEQ     1$                  ;BRANCH IF YES.
3681 017112  000167  030164                JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3682                                ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3683 017116  022626                1$:     CMP     (SP)+,(SP)+
3684 017120  010267  162112                MOV     R2,$TMP2
3685 017124  104127                2$:     ERROR   +127                ;ODD ADRES
3686 017126  000421                        BR      LLBDONE             ;BUT FDSTX IN ST 771
3687
3688                                ;REPORT RESULT INCORRECT:
3689 017130  012767  017044  162102 LLB15:  MOV     #LLBTP2,$TMP3
3690 017136  012767  017034  162076        MOV     #LLBTP1,$TMP4
3691 017144  012767  017054  162072        MOV     #LLBBF0,$TMP5
3692 017152  104130                1$:     ERROR   +130                ;BAD DATA X11*0 ST 3127
3693 017154  000406                        BR      LLBDONE
3694                                ;REPORT FPS INCORRECT:
3695 017156  010567  162056        LLB25:  MOV     R5,$TMP3
3696 017162  012767  000204  162054        MOV     #204,$TMP5
3697 017170  104131                1$:     ERROR   +131                ;FPSX
3698
3699 017172                        LLBDONE:
     017172  104412                        RSETUP                      ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
3700                                            .ENABL  AMA             ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
```

```
3701                                    .SBTTL  TEST # 31 - NEGF, ABSF AND TSTF SRC MODE 7, GR7
                                        ;;*****************************************************************
                                        ;*TEST 31       NEGF, ABSF AND TSTF SRC MODE 7, GR7
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                        ;*IS USED TO TEST MODE 7
                                        ;*
                                        ;;*****************************************************************
     017174  000004                     TST31:  SCOPE
3702
3703 017176                             MMB1:
     017176  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3704 017200  012700  017276                     MOV     #MMBTP1,R0              ;SET UP THE DATA BUFFER.
3705 017204  012701  017326                     MOV     #MMBBF0,R1
3706 017210  012702  000010                     MOV     #10,R2
3707 017214  012021                     1$:     MOV     (R0)+,(R1)+
3708 017216  077202                             SOB     R2,1$
3709 017220  012700  000200                     MOV     #200,R0         ;SET FD.
3710 017224  170100                             LDFPS   R0
3711 017226  012737  017242  001236             MOV     #MMB2,$TMP2
3712 017234  012737  017346  000004             MOV     #MMB10,ERRVECT ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3713
3714 017242  170677  000070             MMB2:   ABSD    @MMBBF1         ;TEST INSTRUCTION.
3715
3716 017246  170205                             STFPS   R5              ;GET FPS.
3717 017250  012701  017326                     MOV     #MMBBF0,R1              ;CHECK RESULT.
3718 017254  012702  000004                     MOV     #4,R2
3719 017260  005721                     1$:     TST     (R1)+
3720 017262  001047                             BNE     MMB15           ;BRANCH IF INCORRECT.
3721 017264  077203                             SOB     R2,1$
3722 017266  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3723 017272  001056                             BNE     MMB25           ;BRANCH IF INCORRECT.
3724 017274  000463                             BR      MMBDONE
3725
3726                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3727 017276  000137                     MMBTP1: 137
3728 017300  045607                             045607
3729 017302  101230                             101230
3730 017304  045607  017326  177777             45607,MMBBF0,-1,-1,-1
3731 017316  000000                     MMBTP2: 0
3732 017320  000000                             0
3733 017322  000000                             0
3734 017324  000000                             0
3735 017326  177777                     MMBBF0: -1
3736 017330  177777                             -1
3737 017332  177777                             -1
3738 017334  177777                             -1
3739 017336  177777                     MMBBF1: -1
3740 017340  177777                             -1
3741 017342  177777                             -1
3742 017344  177777                             -1
3743
3744                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3745 017346  011602                     MMB10:  MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3746 017350  020227  017244                     CMP     R2,#MMB2+2
3747 017354  001405                             BEQ     1$              ;BRANCH IF YES.
```

```
3748 017356  020227  017246                    CMP     R2,#MMB2+4
3749 017362  001402                            BEQ     1$                ;BRANCH IF YES.
3750 017364  000137  047302                    JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3751                                 ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3752 017370  022626                 1$:       CMP     (SP)+,(SP)+
3753 017372  010237  001236                    MOV     R2,$TMP2
3754 017376  104132                 2$:       ERROR   +132              ;ODD ADRES
3755 017400  000421                            BR      MMBDONE           ;BUT FDSTX IN ST 771
3756
3757                                 ;REPORT RESULT INCORRECT:
3758 017402  012737  017316  001240 MMB15:    MOV     #MMBTP2,$TMP3
3759 017410  012737  017276  001242           MOV     #MMBTP1,$TMP4
3760 017416  012737  017326  001244           MOV     #MMBBF0,$TMP5
3761 017424  104133                 1$:       ERROR   +133              ;BAD DATA X11*0 ST 3127
3762 017426  000406                            BR      MMBDONE
3763                                 ;REPORT FPS INCORRECT:
3764 017430  010537  001240          MMB25:    MOV     R5,$TMP3
3765 017434  012737  000204  001244           MOV     #204,$TMP5
3766 017442  104134                 1$:       ERROR   +134              ;FPSX
3767
3768 017444                          MMBDONE:
     017444  104412                            RSETUP                    ;GO INITIALIZE THE FPS AND STACK; AND
                                               ;SEE IF THE USER HAS EXPRESSED
                                               ;THE DESIRE TO CHANGE THE SOFTWARE
                                               ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                               ;THE USER TYPED CONTROL G?).
```

```
3775                                    .SBTTL  TEST # 32 - SPECIAL DEST, MODE 0, TEST
                                        ;;*****************************************************************
                                        ;*TEST 32       SPECIAL DEST, MODE 0, TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 0 USING THE NEGD INSTR.
                                        ;*
                                        ;;*****************************************************************
     017446  000004                     TST32:  SCOPE
3776
3777 017450                             NNB1:
     017450  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
3778 017452  012700  000200                     MOV     #200,R0         ;SET FD.
3779 017456  170100                             LDFPS   R0
3780 017460  012700  017546                     MOV     #NNBTP1,R0              ;SET UP AC0.
3781 017464  172410                             LDD     (R0),AC0
3782 017466  012737  017474  001236             MOV     #NNB2,$TMP2
3783
3784 017474  170700                     NNB2:   NEGD    AC0             ;TEST INSTRUCTION.
3785
3786 017476  170205                             STFPS   R5              ;GET FPS.
3787 017500  012700  000200                     MOV     #200,R0         ;SET FD.
3788 017504  170100                             LDFPS   R0
3789 017506  012700  017566                     MOV     #NNBBF0,R0              ;GET THE RESULT.
3790 017512  174010                             STD     AC0,(R0)
3791 017514  012700  017566                     MOV     #NNBBF0,R0              ;IS THE RESULT CORRECT?
3792 017520  012701  017556                     MOV     #NNBTP2,R1
3793 017524  012702  000004                     MOV     #4,R2
3794 017530  022021                     1$:     CMP     (R0)+,(R1)+
3795 017532  001021                             BNE     NNB10           ;BRANCH IF INCORRECT.
3796 017534  077203                             SOB     R2,1$
3797 017536  022705  000210                     CMP     #210,R5         ;IS THE FPS CORRECT?
3798 017542  001033                             BNE     NNB15           ;BRANCH IF INCORRECT.
3799 017544  000440                             BR      NNBDONE
3800
3801                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
3802 017546  013572                     NNBTP1: 013572
3803 017550  046013                             46013
3804 017552  057246                             57246
3805 017554  013570                             013570
3806 017556  113572                     NNBTP2: 113572
3807 017560  046013                             46013
3808 017562  057246                             57246
3809 017564  013570                             013570
3810 017566  000000                     NNBBF0: 0
3811 017570  000000                             0
3812 017572  000000                             0
3813 017574  000000                             0
3814
3815                                    ;REPORT RESULT INCORRECT:
3816 017576  012737  017566  00124(  NNB10:  MOV     #NNBBF0,$TMP3
3817 017604  012737  017556  001242          MOV     #NNBTP2,$TMP4
3818 017612  023737  017546  017566          CMP     NNBTP1,NNBBF0
3819 017620  001002                             BNE     NNB11
3820 017622  104135                     1$:     ERROR   +135            ;E10*200X ST 336
3821 017624  000410                             BR      NNBDONE
3822
```

TEST # 32 - SPECIAL DEST, MODE 0, TEST

```
3823                                    ;REPORT RESULT INCORRECT:
3824 017626                             NNB11:
3825 017626  104136                     1$:     ERROR   +136            ;BAD DATA NEGF
3826 017630  000406                             BR      NNBDONE
3827
3828                                    ;REPORT FPS INCORRECT:
3829 017632  010537  001242             NNB15:  MOV     R5,$TMP4
3830 017636  012737  000210  001240             MOV     #210,$TMP3
3831 017644  104137                     1$:     ERROR   +137            ;FPSX
3832
3833 017646                             NNBDONE:
     017646  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                         ;SEE IF THE USER HAS EXPRESSED
                                                                         ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                         ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                         ;THE USER TYPED CONTROL G?).
```

```
                                        .SBTTL  TEST # 33 - SPECIAL DEST, MODE 1, TEST
                                        ;;*****************************************************************
                                        ;*TEST 33       SPECIAL DEST, MODE 1, TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 1 USING THE NEGD INSTR.
                                        ;*
                                        ;;*****************************************************************
    017650  000004                      TST33:  SCOPE
                                        
                                        00B1:
    017652  104413                              LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
    017654  012701  017764              1$:     MOV     #00BTP1,R1      ;SET UP THE DATA BUFFER.
    017660  012700  017774                      MOV     #00BTP2,R0
    017664  012702  000004                      MOV     #4,R2
    017670  012021                      1$:     MOV     (R0)+,(R1)+
    017672  077202                              SOB     R2,1$
    017674  012700  017764                      MOV     #00BTP1,R0
    017700  042710  100000                      BIC     #100000,(R0)    ;MAKE OPERAND POSITIVE.
    017704  012737  017720  001236              MOV     #00B2,$TMP2
    017712  012701  000200                      MOV     #200,R1         ;SET FD.
    017716  170101                              LDFPS   R1
                                        
    017720  170710                      00B2:   NEGD    (R0)            ;TEST INSTRUCTION.
    017722  170205                              STFPS   R5              ;GET FPS.
    017724  012701  017764                      MOV     #00BTP1,R1              ;IS THE RESULT CORRECT.
    017730  012702  017774                      MOV     #00BTP2,R2
    017734  012703  000004                      MOV     #4,R3
    017740  022122                      1$:     CMP     (R1)+,(R2)+
    017742  001020                              BNE     00B10           ;BRANCH IF INCORRECT.
    017744  077303                              SOB     R3,1$
    017746  022700  017764                      CMP     #00BTP1,R0      ;IS R0 CORRECT.
    017752  001024                              BNE     00B15           ;BRANCH IF INCORRECT.
    017754  022705  000210                      CMP     #210,R5         ;IS THE FPS CORRECT?
    017760  001030                              BNE     00B20           ;BRANCH IF INCORRECT.
    017762  000435                              BR      00BDONE
                                        
                                        ;THESE ARE DATA TABLES AND A DATA BUFFER.
    017764  023245                      00BTP1: 023245
    017766  026720                              26720
    017770  122324                              122324
    017772  052672                              52672
    017774  123245                      00BTP2: 123245
    017776  026720                              26720
    020000  122324                              122324
    020002  052672                              52672
                                        
                                        ;REPORT RESULT INCORRECT:
    020004  012737  017764  001240      00B10:  MOV     #00BTP1,$TMP3
    020012  012737  017774  001242              MOV     #00BTP2,$TMP4
    020020  104140                      1$:     ERROR   +140            ;BAD DATA
    020022  000415                              BR      00BDONE
                                        
                                        ;REPORT R0 INCORRECT:
    020024  012737  017764  001240      00B15:  MOV     #00BTP1,$TMP3
    020032  010037  001242                      MOV     R0,$TMP4
    020036  104141                      1$:     ERROR   +141            ;SPEC DESTX
```

TEST # 33 - SPECIAL DEST, MODE 1, TEST

```
3882 020040  000406                          BR      00BDONE         ;R0X
3883
3884                                 ;REPORT FPS INCORRECT:
3885 020042  012737  000210  001240  00B20:  MOV     #210,$TMP3
3886 020050  010537  001242                  MOV     R5,$TMP4
3887 020054  104142                  1$:     ERROR   +142
3888
3889 020056                          00BDONE:
     020056  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).
```

```
                                        .SBTTL  TEST # 34 - SPECIAL DEST, MODE 2, TEST
                                        ;;*****************************************************************
                                        ;*TEST 34       SPECIAL DEST, MODE 2, TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 2 USING THE NEGD INSTR.
                                        ;*
                                        ;;*****************************************************************
020060  000004                          TST34:  SCOPE
3891 020062
020062  104413                          PPB1:   .LPERR                  ;SET UP THE LOOP ON ERROR ADDRESS.
3892
3893 020064  012701  020174                    MOV     #PPBTP1,R1      ;SET UP THE DATA BUFFER.
3894 020070  012700  020204                    MOV     #PPBTP2,R0
3895 020074  012702  000004                    MOV     #4,R2
3896 020100  012021                    1$:     MOV     (R0)+,(R1)+
3897 020102  077202                            SOB     R2,1$
3898 020104  012700  020174                    MOV     #PPBTP1,R0
3899 020110  042710  100000                    BIC     #100000,(R0)    ;MAKE OPERAND POSITIVE.
3900 020114  012737  020130  001236            MOV     #PPB2,$TMP2
3901 020122  012701  000200                    MOV     #200,R1         ;SET FD.
3902 020126  170101                            LDFPS   R1
3903
3904 020130  170720                    PPB2:   NEGD    (R0)+           ;TEST INSTRUCTION.
3905
3906 020132  170205                            STFPS   R5              ;GET FPS.
3907 020134  012701  020174                    MOV     #PPBTP1,R1              ;IS THE RESULT CORRECT.
3908 020140  012702  020204                    MOV     #PPBTP2,R2
3909 020144  012703  000004                    MOV     #4,R3
3910 020150  022122                    1$:     CMP     (R1)+,(R2)+
3911 020152  001020                            BNE     PPB10           ;BRANCH IF INCORRECT.
3912 020154  077303                            SOB     R3,1$
3913 020156  022700  020204                    CMP     #PPBTP1+10,R0   ;IS R0 CORRECT.
3914 020162  001024                            BNE     PPB15           ;BRANCH IF INCORRECT.
3915 020164  022705  000210                    CMP     #210,R5         ;IS THE FPS CORRECT?
3916 020170  001030                            BNE     PPB20           ;BRANCH IF INCORRECT.
3917 020172  000435                            BR      PPBDONE
3918
3919                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
3920 020174  023245                    PPBTP1: 023245
3921 020176  026720                            26720
3922 020200  122324                            122324
3923 020202  052672                            52672
3924 020204  123245                    PPBTP2: 123245
3925 020206  026720                            26720
3926 020210  122324                            122324
3927 020212  052672                            52672
3928
3929                                    ;REPORT RESULT INCORRECT:
3930 020214  012737  020174  001240    PPB10:  MOV     #PPBTP1,$TMP3
3931 020222  012737  020204  001242            MOV     #PPBTP2,$TMP4
3932 020230  104143                    1$:     ERROR   +143            ;BAD DATA
3933 020232  000415                            BR      PPBDONE
3934
3935                                    ;REPORT R0 INCORRECT:
3936 020234  012737  020204  001240    PPB15:  MOV     #PPBTP1+10,$TMP3
3937 020242  010037  001242                    MOV     R0,$TMP4
```

TEST # 34 - SPECIAL DEST, MODE 2, TEST

```
3938 020246  104144                  1$:     ERROR   +144            ;SPEC DESTX ROX
3939 020250  000406                          BR      PPBDONE
3940
3941                                 ;REPORT FPS INCORRECT:
3942 020252  012737  000210  001240  PPB20:  MOV     #210,$TMP3
3943 020260  010537  001242                  MOV     R5,$TMP4
3944 020264  104145                  1$:     ERROR   +145
3945
3946 020266                          PPBDONE:
     020266  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                     ;SEE IF THE USER HAS EXPRESSED
                                                                     ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                     ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                     ;THE USER TYPED CONTROL G?).
```

```
                                .SBTTL  TEST # 35 - SPECIAL DEST, MODE 4, TEST
                                ;;*****************************************************************
                                ;*TEST 35       SPECIAL DEST, MODE 4, TEST
                                ;*
                                ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                ;*MODE 4 USING THE NEGD INSTR.
                                ;*
                                ;;*****************************************************************
020270  000004                TST35:  SCOPE
3948 020272
020272  104413                QQB1:
                                        LPERR                           ;SET UP THE LOOP ON ERROR ADDRESS.
3949 020274  012701  020406             MOV     #QQBTP1,R1              ;SET UP THE DATA BUFFER.
3950 020300  012700  020426             MOV     #QQBTP2,R0
3951 020304  012702  000004             MOV     #4,R2
3952 020310  012021            1$:      MOV     (R0)+,(R1)+
3953 020312  077202                     SOB     R2,1$
3954 020314  012700  020416             MOV     #QQBTP1+10,R0
3955 020320  042760  100000  177770     BIC     #100000,-10(R0) ;MAKE OPERAND POSITIVE.
3956 020326  012737  020342  001236     MOV     #QQB2,$TMP2
3957 020334  012701  000200             MOV     #200,R1                 ;SET FD.
3958 020340  170101                     LDFPS   R1
3959
3960 020342  170740            QQB2:    NEGD    -(R0)                   ;TEST INSTRUCTION.
3961
3962 020344  170205                     STFPS   R5                      ;GET FPS.
3963 020346  012701  020406             MOV     #QQBTP1,R1                      ;IS THE RESULT CORRECT.
3964 020352  012702  020426             MOV     #QQBTP2,R2
3965 020356  012703  000004             MOV     #4,R3
3966 020362  022122            1$:      CMP     (R1)+,(R2)+
3967 020364  001024                     BNE     QQB10                   ;BRANCH IF INCORRECT.
3968 020366  077303                     SOB     R3,1$
3969 020370  022700  020406             CMP     #QQBTP1,R0              ;IS R0 CORRECT.
3970 020374  001030                     BNE     QQB15                   ;BRANCH IF INCORRECT.
3971 020376  022705  000210             CMP     #210,R5                 ;IS THE FPS CORRECT?
3972 020402  001034                     BNE     QQB20                   ;BRANCH IF INCORRECT.
3973 020404  000441                     BR      QQBDONE
3974
3975                            ;THESE ARE DATA TABLES AND A DATA BUFFER.
3976 020406  023245            QQBTP1: 023245
3977 020410  026720                     26720
3978 020412  122324                     122324
3979 020414  052672                     52672
3980 020416  177777  177777  177777             .WORD   -1,-1,-1,-1
3981 020426  123245            QQBTP2: 123245
3982 020430  026720                     26720
3983 020432  122324                     122324
3984 020434  052672                     52672
3985
3986                            ;REPORT RESULT INCORRECT:
3987 020436  012737  020406  001240    QQB10:  MOV     #QQBTP1,$TMP3
3988 020444  012737  020426  001242            MOV     #QQBTP2,$TMP4
3989 020452  104146            1$:     ERROR   +146                    ;BAD DATA
3990 020454  000415                    BR      QQBDONE
3991
3992                            ;REPORT R0 INCORRECT:
3993 020456  012737  020406  001240    QQB15:  MOV     #QQBTP1,$TMP3
3994 020464  010037  001242            MOV     R0,$TMP4
```

```
 3995 020470  104147                    1$:     ERROR   +147           ;SPEC DESTX ROX
 3996 020472  000406                            BR      QQBDONE
 3997
 3998
 3999                                    ;REPORT FPS INCORRECT:
 4000 020474  012737  000210  001240     QQB20:  MOV     #210,$TMP3
 4001 020502  010537  001242                     MOV     R5,$TMP4
 4002 020506  104150                    1$:     ERROR   +150
 4003
 4004 020510                            QQBDONE:
      020510  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
 4005
```

```
4006                                    .SBTTL  TEST # 36 - SPECIAL DEST, MODE 3, TEST
                                        ;;*****************************************************************
                                        ;*TEST 36       SPECIAL DEST, MODE 3, TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 3 USING THE NEGD INSTR.
                                        ;*
                                        ;;*****************************************************************
     020512  000004                     TST36:  SCOPE
4007
4008 020514                             RRB1:
     020514  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4009 020516  012701  020634                     MOV     #RRBTP1,R1      ;SET UP THE DATA BUFFER.
4010 020522  012700  020644                     MOV     #RRBTP2,R0
4011 020526  012702  000004                     MOV     #4,R2
4012 020532  012021                     1$:     MOV     (R0)+,(R1)+
4013 020534  077202                             SOB     R2,1$
4014 020536  012700  020654                     MOV     #RRBTP3,R0
4015 020542  012710  020634                     MOV     #RRBTP1,(R0)
4016 020546  042737  100000  020634             BIC     #100000,RRBTP1  ;MAKE THE OPERAND POSITIVE.
4017 020554  012737  020570  001236             MOV     #RRB2,$TMP2
4018 020562  012701  000200                     MOV     #200,R1         ;SET FD.
4019 020566  170101                             LDFPS   R1
4020
4021 020570  170730                     RRB2:   NEGD    @(R0)+          ;TEST INSTRUCTION.
4022
4023 020572  170205                             STFPS   R5              ;GET FPS.
4024 020574  012701  020634                     MOV     #RRBTP1,R1              ;IS THE RESULT CORRECT.
4025 020600  012702  020644                     MOV     #RRBTP2,R2
4026 020604  012703  000004                     MOV     #4,R3
4027 020610  022122                     1$:     CMP     (R1)+,(R2)+
4028 020612  001021                             BNE     RRB10           ;BRANCH IF INCORRECT.
4029 020614  077303                             SOB     R3,1$
4030 020616  022700  020656                     CMP     #RRBTP3+2,R0    ;IS R0 CORRECT.
4031 020622  001025                             BNE     RRB15           ;BRANCH IF INCORRECT.
4032 020624  022705  000210                     CMP     #210,R5         ;IS THE FPS CORRECT?
4033 020630  001031                             BNE     RRB20           ;BRANCH IF INCORRECT.
4034 020632  000436                             BR      RRBDONE
4035
4036                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4037 020634  023245                     RRBTP1: 023245
4038 020636  026720                             26720
4039 020640  122324                             122324
4040 020642  052672                             52672
4041 020644  123245                     RRBTP2: 123245
4042 020646  026720                             26720
4043 020650  123324                             123324
4044 020652  052672                             52672
4045 020654  020634                     RRBTP3: RRBTP1
4046
4047                                    ;REPORT RESULT INCORRECT:
4048 020656  012737  020634  001240     RRB10:  MOV     #RRBTP1,$TMP3
4049 020664  012737  020644  001242             MOV     #RRBTP2,$TMP4
4050 020672  104150                     1$:     ERROR   +150            ;BAD DATA
4051 020674  000415                             BR      RRBDONE
4052
4053                                    ;REPORT R0 INCORRECT:
```

TEST # 36 - SPECIAL DEST, MODE 3, TEST

```
 4054 020676  012737  020656  001240 RRB15:  MOV     #RRBTP3+2,$TMP3
 4055 020704  010037  001242            MOV     R0,$TMP4
 4056 020710  104152                1$:  ERROR   +152              ;SPEC DESTX ROX
 4057 020712  000406                     BR      RRBDONE
 4058
 4059                                ;REPORT FPS INCORRECT:
 4060 020714  012737  000210  001240 RRB20:  MOV     #210,$TMP3
 4061 020722  010537  001242            MOV     R5,$TMP4
 4062 020726  104153                1$:  ERROR   +153
 4063
 4064 020730                        RRBDONE:
      020730  104412                     RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                  ;SEE IF THE USER HAS EXPRESSED
                                                                  ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                  ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                  ;THE USER TYPED CONTROL G?).
 4065
```

TEST # 37 - SPECIAL DEST, MODE 5, TEST

```
4066                                    .SBTTL  TEST # 37 - SPECIAL DEST, MODE 5, TEST
                                        ;;**********************************************************************
                                        ;*TEST 37       SPECIAL DEST, MODE 5, TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 5 USING THE NEGD INSTR.
                                        ;*
                                        ;;**********************************************************************
     020732  000004                     TST37:  SCOPE
4067 020734
     020734  104413                     SSB1:
                                                LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4068 020736  012701  021056                    MOV     #SSBTP1,R1      ;SET UP THE DATA BUFFER.
4069 020742  012700  021066                    MOV     #SSBTP2,R0
4070 020746  012702  000004                    MOV     #4,R2
4071 020752  012021                     1$:    MOV     (R0)+,(R1)+
4072 020754  077202                            SOB     R2,1$
4073 020756  012700  021100                    MOV     #SSBTP3+2,R0
4074 020762  012760  021056  177776            MOV     #SSBTP1,-2(R0)
4075 020770  042737  100000  021056            BIC     #100000,SSBTP1  ;MAKE THE OPERAND POSITIVE.
4076 020776  012737  021012  001236            MOV     #SSB2,$TMP2
4077 021004  012701  000200                    MOV     #200,R1         ;SET FD.
4078 021010  170101                            LDFPS   R1
4079
4080 021012  170750                     SSB2:  NEGD    @-(R0)          ;TEST INSTRUCTION.
4081
4082 021014  170205                            STFPS   R5              ;GET FPS.
4083 021016  012701  021056                    MOV     #SSBTP1,R1              ;IS THE RESULT CORRECT.
4084 021022  012702  021066                    MOV     #SSBTP2,R2
4085 021026  012703  000004                    MOV     #4,R3
4086 021032  022122                     1$:    CMP     (R1)+,(R2)+
4087 021034  001021                            BNE     SSB10           ;BRANCH IF INCORRECT.
4088 021036  077303                            SOB     R3,1$
4089 021040  022700  021076                    CMP     #SSBTP3,R0      ;IS R0 CORRECT.
4090 021044  001025                            BNE     SSB15           ;BRANCH IF INCORRECT.
4091 021046  022705  000210                    CMP     #210,R5         ;IS THE FPS CORRECT?
4092 021052  001031                            BNE     SSB20           ;BRANCH IF INCORRECT.
4093 021054  000436                            BR      SSBDONE
4094
4095                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4096 021056  023245                     SSBTP1: 023245
4097 021060  026720                             26720
4098 021062  122324                             122324
4099 021064  052672                             52672
4100 021066  123245                     SSBTP2: 123245
4101 021070  026270                             26270
4102 021072  122324                             122324
4103 021074  052672                             52672
4104 021076  021056                     SSBTP3: SSBTP1
4105
4106                                    ;REPORT RESULT INCORRECT:
4107 021100  012737  021056  001240     SSB10:  MOV     #SSBTP1,$TMP3
4108 021106  012737  021066  001242             MOV     #SSBTP2,$TMP4
4109 021114  104154                     1$:    ERROR   +154            ;BAD DATA
4110 021116  000415                            BR      SSBDONE
4111
4112                                    ;REPORT R0 INCORRECT:
4113 021120  012737  021076  001240     SSB15:  MOV     #SSBTP3,$TMP3
```

```
4114 021126  010037  001242                    MOV     R0,$TMP4
4115 021132  104155                    1$:     ERROR   +155            ;SPEC DESTX ROX
4116 021134  000406                            BR      SSBDONE
4117
4118                                   ;REPORT FPS INCORRECT:
4119 021136  012737  000210  001240    SSB20:  MOV     #210,$TMP3
4120 021144  010537  001242                    MOV     R5,$TMP4
4121 021150  104156                    1$:     ERROR   +156
4122
4123 021152                            SSBDONE:
     021152  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
```

TEST # 40 - SPECIAL DEST, FLOATING MODE 2, TEST

```
4124                                    .SBTTL  TEST # 40 - SPECIAL DEST, FLOATING MODE 2, TEST
                                        ;;*****************************************************************
                                        ;*TEST 40       SPECIAL DEST, FLOATING MODE 2, TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 2 USING THE NEGF INSTR.
                                        ;*
                                        ;;*****************************************************************
     021154  000004                     TST40:  SCOPE
4125 021156                             TTB1:
     021156  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4126 021160  012701  021270                     MOV     #TTBTP1,R1      ;SET UP THE DATA BUFFER.
4127 021164  012700  021300                     MOV     #TTBTP2,R0
4128 021170  012702  000004                     MOV     #4,R2
4129 021174  012021                     1$:     MOV     (R0)+,(R1)+
4130 021176  077202                             SOB     R2,1$
4131 021200  012700  021270                     MOV     #TTBTP1,R0
4132 021204  042710  100000                     BIC     #100000,(R0)    ;MAKE OPERAND POSITIVE.
4133 021210  012737  021224  001236             MOV     #TTB2,$TMP2
4134 021216  012701  000000                     MOV     #000,R1         ;SET FD.
4135 021222  170101                             LDFPS   R1
4136
4137 021224  170720                     TTB2:   NEGF    (R0)+           ;TEST INSTRUCTION.
4138
4139 021226  170205                             STFPS   R5              ;GET FPS.
4140 021230  012701  021270                     MOV     #TTBTP1,R1              ;IS THE RESULT CORRECT.
4141 021234  012702  021300                     MOV     #TTBTP2,R2
4142 021240  012703  000004                     MOV     #4,R3
4143 021244  022122                     1$:     CMP     (R1)+,(R2)+
4144 021246  001020                             BNE     TTB10           ;BRANCH IF INCORRECT.
4145 021250  077303                             SOB     R3,1$
4146 021252  022700  021274                     CMP     #TTBTP1+4,R0    ;IS R0 CORRECT.
4147 021256  001024                             BNE     TTB15           ;BRANCH IF INCORRECT.
4148 021260  022705  000010                     CMP     #010,R5         ;IS THE FPS CORRECT?
4149 021264  001030                             BNE     TTB20           ;BRANCH IF INCORRECT.
4150 021266  000435                             BR      TTBDONE
4151
4152                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4153 021270  023245                     TTBTP1: 023245
4154 021272  026720                             26720
4155 021274  122324                             122324
4156 021276  052672                             52672
4157 021300  123245                     TTBTP2: 123245
4158 021302  026720                             26720
4159 021304  122324                             122324
4160 021306  052672                             52672
4161
4162                                    ;REPORT RESULT INCORRECT:
4163 021310  012737  021270  001240     TTB10:  MOV     #TTBTP1,$TMP3
4164 021316  012737  021300  001242             MOV     #TTBTP2,$TMP4
4165 021324  104150                     1$:     ERROR   +150            ;BAD DATA
4166 021326  000415                             BR      TTBDONE
4167
4168                                    ;REPORT R0 INCORRECT:
4169 021330  012737  021274  001240     TTB15:  MOV     #TTBTP1+4,$TMP3
4170 021336  010037  001242                     MOV     R0,$TMP4
4171 021342  104160                     1$:     ERROR   +160            ;SPEC DESTX R0x
```

TEST # 40 - SPECIAL DEST, FLOATING MODE 2, TEST

```
4172 021344  000406                          BR      TTBDONE
4173
4174                                 ;REPORT FPS INCORRECT:
4175 021346  012737  000010  001240 TTB20:  MOV     #010,$TMP3
4176 021354  010537  001242                 MOV     R5,$TMP4
4177 021360  104161                  1$:    ERROR   +161
4178
4179 021362                          TTBDONE:
     021362  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                     ;SEE IF THE USER HAS EXPRESSED
                                                                     ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                     ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                     ;THE USER TYPED CONTROL G?).
4180                                 ;TEST TITLE:SPECIAL DEST, MODE2, GR7 (IMMEDIATE)
```

```
4181                                    .SBTTL  TEST # 41 - SEE ABOVE COMMENT FOR TEST TITLE
                                        ;;*****************************************************************
                                        ;*TEST 41        SEE ABOVE COMMENT FOR TEST TITLE
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 2(IMMEDIATE) USING THE NEGD INSTR.
                                        ;*
                                        ;;*****************************************************************
     021364  000004                     TST41:  SCOPE
4182 021366                             UUB1:
     021366  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4183 021370  012700  021514                     MOV     #UUBTP2,R0
4184 021374  012701  021442                     MOV     #UUBTP1,R1      ;SET UP THE DATA BUFFER.
4185 021400  012702  000004                     MOV     #4,R2
4186 021404  012021                     1$:     MOV     (R0)+,(R1)+
4187 021406  077202                             SOB     R2,1$
4188 021410  012700  021442                     MOV     #UUBTP1,R0
4189 021414  042737  100000  021442             BIC     #100000,UUBTP1  ;MAKE THE OPERAND POSITIVE.
4190 021422  012737  021440  001236             MOV     #UUB2,$TMP2
4191 021430  012701  000200                     MOV     #200,R1         ;SET FD.
4192 021434  170101                             LDFPS   R1
4193 021436  005001                             CLR     R1
4194
4195 021440  170727                     UUB2:   NEGD    (R7)+           ;TEST INSTRUCTION.
4196 021442  005201  005201  005201     UUBTP1: 5201,5201,5201,5201
4197                                    ;NOTE THAT AFTER EXECUTING THIS INSTRUCTION R1 SHOULD CONTAIN 3.
4198 021452  170205                             STFPS   R5              ;GET FPS.
4199 021454  012703  021442                     MOV     #UUBTP1,R3      ;IS THE RESULT CORRECT.
4200 021460  012702  021514                     MOV     #UUBTP2,R2
4201 021464  012704  000004                     MOV     #4,R4
4202 021470  022322                     1$:     CMP     (R3)+,(R2)+
4203 021472  001014                             BNE     UUB10           ;BRANCH IF INCORRECT.
4204 021474  077403                             SOB     R4,1$
4205 021476  022701  000003                     CMP     #3,R1           ;WAS R1 INCREMENTED CORRECTLY.
4206 021502  001027                             BNE     UUB15           ;BRANCH IF INCORRECT.
4207 021504  022705  000210                     CMP     #210,R5         ;IS THE FPS CORRECT?
4208 021510  001015                             BNE     UUB20           ;BRANCH IF INCORRECT.
4209 021512  000436                             BR      UUBDONE
4210
4211                                    ;THESE ARE DATA TABLE.
4212 021514  105201                     UUBTP2: 105201
4213 021516  005201                             5201
4214 021520  005201                             5201
4215 021522  005201                             5201
4216
4217                                    ;REPORT RESULT INCORRECT:
4218 021524  012737  021442  001240     UUB10:  MOV     #UUBTP1,$TMP3
4219 021532  012737  021514  001242             MOV     #UUBTP2,$TMP4
4220 021540  104162                     1$:     ERROR   +162            ;BAD DATA
4221 021542  000422                             BR      UUBDONE
4222
4223                                    ;REPORT FPS INCORRECT:
4224 021544  012737  000210  001240     UUB20:  MOV     #210,$TMP3
4225 021552  010537  001242                     MOV     R5,$TMP4
4226 021556  104163                     1$:     ERROR   +163            ;FPS
4227 021560  000413                             BR      UUBDONE
4228
```

TEST # 41 - SEE ABOVE COMMENT FOR TEST TITLE

```
4229                                    ;REPORT PC INCORRECTLY INCREMENTED DURING EXECUTION.
4230 021562  162701  000003   UUB15:    SUB     #3,R1
4231 021566  006301                    ASL     R1
4232 021570  012702  021444           MOV     #UUBTP1+2,R2
4233 021574  010237  001240           MOV     R2,$TMP3
4234 021600  160102                    SUB     R1,R2
4235 021602  010237  001242           MOV     R2,$TMP4
4236 021606  104164           1$:      ERROR   +164            ;PC BAD CONSTAND B GR7X
4237
4238 021610                    UUBDONE:
     021610  104412                    RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                ;SEE IF THE USER HAS EXPRESSED
                                                                ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                ;THE USER TYPED CONTROL G?).
```

TEST # 42 - SPECIAL DEST, MODE 6, TEST

```
4239                                    .SBTTL  TEST # 42 - SPECIAL DEST, MODE 6, TEST
                                        ;;*****************************************************************
                                        ;*TEST 42       SPECIAL DEST, MODE 6, TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 6 USING THE NEGD INSTR.
                                        ;*
                                        ;;*****************************************************************
     021612  000004                     TST42:  SCOPE
4240                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
4241 021614                             XXB1:
     021614  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4242 021616  012701  021740                     MOV     #XXBTP1,R1      ;SET UP THE DATA BUFFER.
4243 021622  012700  021750                     MOV     #XXBTP2,R0
4244 021626  012702  000004                     MOV     #4,R2
4245 021632  012021                     1$:    MOV     (R0)+,(R1)+
4246 021634  077202                             SOB     R2,1$
4247 021636  012700  014537                     MOV     #XXBTP1-5201,R0
4248 021642  042767  100000  000070             BIC     #100000,XXBTP1;MAKE OPERAND POSITIVE.
4249 021650  012767  021666  157360             MOV     #XXB2,$TMP2
4250 021656  012701  000200                     MOV     #200,R1         ;SET FD.
4251 021662  170101                             LDFPS   R1
4252
4253 021664  005001                             CLR     R1
4254 021666  170760  005201             XXB2:   NEGD    5201(R0)                ;TEST INSTRUCTION.
4255 021672  170205                             STFPS   R5              ;GET FPS.
4256 021674  005701                             TST     R1
4257 021676  001030                             BNE     XXB25           ;WAS THE PC CORRECT AFTER EXECUTION?
4258 021700  012701  021740                     MOV     #XXBTP1,R1              ;IS THE RESULT CORRECT.
4259 021704  012702  021750                     MOV     #XXBTP2,R2
4260 021710  012703  000004                     MOV     #4,R3
4261 021714  022122                     1$:    CMP     (R1)+,(R2)+
4262 021716  001030                             BNE     XXB10           ;BRANCH IF INCORRECT.
4263 021720  077303                             SOB     R3,1$
4264 021722  022700  014537                     CMP     #XXBTP1-5201,R0 ;IS R0 CORRECT.
4265 021726  001034                             BNE     XXB15           ;BRANCH IF INCORRECT.
4266 021730  022705  000210                     CMP     #210,R5         ;IS THE FPS CORRECT?
4267 021734  001040                             BNE     XXB20           ;BRANCH IF INCORRECT.
4268 021736  000445                             BR      XXBDONE
4269
4270                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4271 021740  023245                     XXBTP1: 023245
4272 021742  026720                             26720
4273 021744  122324                             122324
4274 021746  052672                             52672
4275 021750  123245                     XXBTP2: 123245
4276 021752  026720                             26720
4277 021754  122324                             122324
4278 021756  052672                             52672
4279
4280
4281                                    ;REPORT PC INCORRECT AFTER EXECUTION.
4282 021760  012767  021670  157254     XXB25:  MOV     #XXB2+2,$TMP4
4283 021766  012767  021672  157244             MOV     #XXB2+4,$TMP3
4284 021774  104215                     1$:    ERROR   +215            ;PC NOT INCREMENTED BY 2.
4285 021776  000425                             BR      XXBDONE
4286
```

TEST # 42 - SPECIAL DEST, MODE 6, TEST

```
4287                                        ;REPORT RESULT INCORRECT:
4288 022000  012767  021740  157232  XXB10:  MOV     #XXBTP1,$TMP3
4289 022006  012767  021750  157226          MOV     #XXBTP2,$TMP4
4290 022014  104216                  1$:     ERROR   +216            ;BAD DATA
4291 022016  000415                          BR      XXBDONE
4292
4293                                        ;REPORT R0 INCORRECT:
4294 022020  012767  014537  157212  XXB15:  MOV     #XXBTP1-5201,$TMP3
4295 022026  010067  157210                  MOV     R0,$TMP4
4296 022032  104217                  1$:     ERROR   +217            ;SPEC DESTX R0X
4297 022034  000406                          BR      XXBDONE
4298
4299
4300                                        ;REPORT FPS INCORRECT:
4301 022036  012767  000210  157174  XXB20:  MOV     #210,$TMP3
4302 022044  010567  157172                  MOV     R5,$TMP4
4303 022050  104220                  1$:     ERROR   +220
4304
4305 022052                          XXBDONE:
     022052  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                     ;SEE IF THE USER HAS EXPRESSED
                                                                     ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                     ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                     ;THE USER TYPED CONTROL G?).
4306                                                .ENABL  AMA     ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
```

TEST # 43 - SPECIAL DEST, MODE 7, TEST

```
4307                                    .SBTTL  TEST # 43 - SPECIAL DEST, MODE 7, TEST
                                        ;;**********************************************************************
                                        ;*TEST 43       SPECIAL DEST, MODE 7, TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 7 USING THE NEGD INSTR.
                                        ;*
                                        ;;**********************************************************************
     022054  000004                     TST43:  SCOPE
4308
4309 022056                             YYB1:
     022056  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4310 022060  012701  022210                     MOV     #YYBTP1,R1      ;SET UP THE DATA BUFFER.
4311 022064  012700  022220                     MOV     #YYBTP2,R0
4312 022070  012702  000004                     MOV     #4,R2
4313 022074  012021                     1$:    MOV     (R0)+,(R1)+
4314 022076  077202                             SOB     R2,1$
4315 022100  012700  015027                     MOV     #YYBTP3-5201,R0
4316 022104  012760  022210  005201             MOV     #YYBTP1,5201(R0)
4317 022112  042737  100000  022210             BIC     #100000,YYBTP1  ;MAKE THE OPERAND POSITIVE.
4318 022120  012737  022136  001236             MOV     #YYB2,$TMP2
4319 022126  012701  000200                     MOV     #200,R1         ;SET FD.
4320 022132  170101                             LDFPS   R1
4321
4322 022134  005001                             CLR     R1
4323 022136  170770  005201             YYB2:   NEGD    @5201(R0)               ;TEST INSTRUCTION.
4324
4325 022142  170205                             STFPS   R5              ;GET FPS.
4326 022144  005701                             TST     R1              ;WAS THE PC CORRECT AFTER EXECUTION?
4327 022146  001031                             BNE     YYB25
4328 022150  012701  022210                     MOV     #YYBTP1,R1              ;IS THE RESULT CORRECT.
4329 022154  012702  022220                     MOV     #YYBTP2,R2
4330 022160  012703  000004                     MOV     #4,R3
4331 022164  022122                     1$:    CMP     (R1)+,(R2)+
4332 022166  001031                             BNE     YYB10           ;BRANCH IF INCORRECT.
4333 022170  077303                             SOB     R3,1$
4334 022172  022700  015027                     CMP     #YYBTP3-5201,R0 ;IS R0 CORRECT.
4335 022176  001035                             BNE     YYB15           ;BRANCH IF INCORRECT.
4336 022200  022705  000210                     CMP     #210,R5         ;IS THE FPS CORRECT?
4337 022204  001041                             BNE     YYB20           ;BRANCH IF INCORRECT.
4338 022206  000446                             BR      YYBDONE
4339
4340                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4341 022210  023245                     YYBTP1: 023245
4342 022212  026720                             26720
4343 022214  122324                             122324
4344 022216  052672                             52672
4345 022220  123245                     YYBTP2: 123245
4346 022222  026720                             26720
4347 022224  123324                             123324
4348 022226  052672                             52672
4349 022230  022210                     YYBTP3: YYBTP1
4350
4351                                    ;REPORT PC INCORRECT AFTER EXECUTION.
4352 022232  013737  022140  001242     YYB25:  MOV     YYB2+2,$TMP4
4353 022240  013737  022142  001240             MOV     YYB2+4,$TMP3
4354 022246  104221                     1$:    ERROR   +221            ;PC NOT INCREMENTED BY 2.
```

```
 4355 022250  000425                          BR      YYBDONE
 4356
 4357                                 ;REPORT RESULT INCORRECT:
 4358 022252  012737  022210  001240 YYB10:  MOV     #YYBTP1,$TMP3
 4359 022260  012737  022220  001242         MOV     #YYBTP2,$TMP4
 4360 022266  104222                  1$:    ERROR   +222            ;BAD DATA
 4361 022270  000415                         BR      YYBDONE
 4362
 4363                                 ;REPORT R0 INCORRECT:
 4364 022272  012737  015027  001240 YYB15:  MOV     #YYBTP3-5201,$TMP3
 4365 022300  010037  001242                 MOV     R0,$TMP4
 4366 022304  104223                  1$:    ERROR   +223            ;SPEC DESTX R0X
 4367 022306  000406                         BR      YYBDONE
 4368
 4369                                 ;REPORT FPS INCORRECT:
 4370 022310  012737  000210  001240 YYB20:  MOV     #210,$TMP3
 4371 022316  010537  001242                 MOV     R5,$TMP4
 4372 022322  104224                  1$:    ERROR   +224
 4373
 4374 022324                          YYBDONE:
      022324  104412                         RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                              ;SEE IF THE USER HAS EXPRESSED
                                              ;THE DESIRE TO CHANGE THE SOFTWARE
                                              ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                              ;THE USER TYPED CONTROL G?).
```

```
4380                                    .SBTTL  TEST # 44 - NEGD, ABSD AND TSTD TEST
                                        ;;*****************************************************************
                                        ;*TEST 44       NEGD, ABSD AND TSTD TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGD ABSD AND TSTD INSTRUCTIONS.
                                        ;*
                                        ;;*************************************** ***************************
     022326  000004                     TST44:  SCOPE
4381                                    ;TEST NEGD WITH POS NONZERO OPERAND
4382 022330                             WWB1:
     022330  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4383 022332  004737  023172                     JSR     PC,NATSUB
4384 022336  000000                     1$:    0                       ;FLAG=NEGD.
4385 022340  016341                     2$:    16341                   ;OPERAND.
4386 022342  055772                            55772
4387 022344  021133                            21133
4388 022346  055447                            55447
4389 022350  116341                     3$:    116341                  ;RESULT.
4390 022352  055772                            55772
4391 022354  021133                            21133
4392 022356  055447                            55447
4393 022360  016341                     4$:    16341                   ;ERROR RES.
4394 022362  055772                            55772
4395 022364  021133                            21133
4396 022366  055447                            55447
4397 022370  000207                     5$:    207                     ;FPS BEFORE EXECUTION.
4398 022372  000210                            210                     ;FPS AFTER EXECUTION.
4399 022374  000200                            200                     ;ERROR FPS.
4400 022376  177777                            -1                      ;FEC
4401 022400  104200                     6$:    ERROR   +200            ;E10<---E10*200X ST 336
4402 022402  000401                            BR      7$
4403 022404  104201                            ERROR   +201            ;BUT ENBT ST 336X WENT TO 053 INTO 453
4404 022406                             7$:
4405                                    ;TEST NEGD WITH NEG OPERAND.
4406 022406                             WWB2:
     022406  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4407 022410  004737  023172                     JSR     PC,NATSUB
4408 022414  000000                     1$:    0                       ;FLAG=NEGD.
4409 022416  152525                     2$:    152525                  ;OPERAND.
4410 022420  053545                            53545
4411 022422  055565                            55565
4412 022424  057505                            57505
4413 022426  052525                     3$:    52525                   ;RESULT.
4414 022430  053545                            53545
4415 022432  055565                            55565
4416 022434  057505                            57505
4417 022436  152525                     4$:    152525                  ;ERROR RES.
4418 022440  053545                            53545
4419 022442  055565                            55565
4420 022444  057505                            57505
4421 022446  000217                     5$:    217                     ;FPS BEFORE EXECUTION.
4422 022450  000200                            200                     ;FPS AFTER EXECUTION.
4423 022452  000210                            210                     ;ERROR FPS.
4424 022454  177777                            -1                      ;FEC
4425 022456  104200                     6$:    ERROR   +200            ;E10<---E10*200X S336
4426 022460  000401                            BR      7$
4427 022462  104202                            ERROR   +202            ;BUT ENBT X ST336 TO 453 INTO 053
```

```
                                                7$:
                                                ;TEST ABSD WITH POSITIVE OPERAND
                                                WWB3:
                                                        LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
022464  104413
4431 022466  004737  023172                             JSR     PC,NATSUB
4432 022472  000001                             1$:     1                       ;FLAG=ABSD.
4433 022474  060705                             2$:     60705                   ;OPERAND.
4434 022476  124735                                     124735
4435 022500  060124                                     60124
4436 022502  073560                                     73560
4437 022504  060705                             3$:     60705                   ;RESULT.
4438 022506  124735                                     124735
4439 022510  060124                                     60124
4440 022512  073560                                     73560
4441 022514  160705                             4$:     160705                  ;ERROR RES.
4442 022516  124735                                     124735
4443 022520  060124                                     60124
4444 022522  073560                                     73560
4445 022524  000217                             5$:     217                     ;FPS BEFORE EXECUTION.
4446 022526  000200                                     200                     ;FPS AFTER EXECUTION.
4447 022530  000210                                     210                     ;ERROR FPS.
4448 022532  177777                                     -1                      ;EITHER BUT OP1B
4449 022534  104203                             6$:     ERROR   +203            ;BUT ST 055 TO 336 INTO 335
4450 022536  000401                                     BR      7$
4451 022540  104203                                     ERROR   +203            ;OR BUT ENBT ST 335 TO 452 INTO 052
4452 022542                                     7$:
4453                                            ;TEST ABSD WITH NEG. OPERAND
4454 022542                                     WWB4:
022542  104413                                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4455 022544  004737  023172                             JSR     PC,NATSUB
4456 022550  000001                             1$:     1                       ;FLAG=ABSD.
4457 022552  154345                             2$:     154345                  ;OPERAND.
4458 022554  076567                                     76567
4459 022556  032123                                     32123
4460 022560  043234                                     43234
4461 022562  054345                             3$:     54345                   ;RESULT.
4462 022564  076567                                     76567
4463 022566  032123                                     32123
4464 022570  043234                                     43234
4465 022572  154345                             4$:     154345                  ;ERROR RES.
4466 022574  076567                                     76567
4467 022576  032123                                     32123
4468 022600  043234                                     43234
4469 022602  000217                             5$:     217                     ;FPS BEFORE EXECUTION.
4470 022604  000200                                     200                     ;FPS AFTER EXECUTION.
4471 022606  177777                                     -1                      ;ERROR FPS.
4472 022610  177777                                     -1
4473 022612  104204                             6$:     ERROR   +204            ;E10*E10*200X ST 452
4474 022614  000401                                     BR      7$
4475 022616  104171                                     ERROR   +171
4476 022620                                     7$:
4477                                            ;TEST WITH POSITIVE OP
4478 022620                                     WWB5:
022620  104413                                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4479 022622  004737  023172                             JSR     PC,NATSUB
4480 022626  000002                             1$:     2                       ;FLAG=TSTD.
4481 022630  012321                             2$:     12321                   ;OPERAND.
```

TEST # 44 - NEGD, ABSD AND TSTD TEST

```
4482 022632  045654                          45654
4483 022634  070107                          70107
4484 022636  034543                          34543
4485 022640  012321                3$:       12321                ;RESULT.
4486 022642  045654                          45654
4487 022644  070107                          70107
4488 022646  034543                          34543
4489 022650  112321                4$:       112321               ;ERROR RES.
4490 022652  045654                          45654
4491 022654  070107                          70107
4492 022656  034543                          34543
4493 022660  000217                5$:       217                  ;FPS BEFORE EXECUTION.
4494 022662  000200                          200                  ;FPS AFTER EXECUTION.
4495 022664  000210                          210                  ;ERROR FPS.
4496 022666  177777                          -1
4497 022670  104205                6$:       ERROR   +205         ;BUT (OP1B) X ST044 TO 336 INTO 334
4498 022672  000401                          BR      7$
4499 022674  104206                          ERROR   +206         ;BUT ENBT ST 334 TO 453 INTO 053
4500 022676                        7$:
4501                               ;TEST TSTD WITH NEG OP
4502 022676                        WWB6:
     022676  104413                          LPERR                ;SET UP THE LOOP ON ERROR ADDRESS.
4503 022700  004737  023172                  JSR     PC,NATSUB
4504 022704  000002                1$:       2                    ;FLAG=TSTD.
4505 022706  123765                2$:       123765               ;OPERAND.
4506 022710  023407                          23407
4507 022712  034510                          34510
4508 022714  045621                          45621
4509 022716  123765                3$:       123765               ;RESULT.
4510 022720  023407                          23407
4511 022722  034510                          34510
4512 022724  045621                          45621
4513 022726  023765                4$:       23765                ;ERROR RES.
4514 022730  023407                          23407
4515 022732  034510                          34510
4516 022734  045621                          45621
4517 022736  000207                5$:       207                  ;FPS BEFORE EXECUTION.
4518 022740  000210                          210                  ;FPS AFTER EXECUTION.
4519 022742  000200                          200                  ;ERROR FPS.
4520 022744  177777                          -1
4521 022746  104207                6$:       ERROR   +207         ;BUT OPB1 ST 055 TO 335 INTO 334
4522 022750  000401                          BR      7$
4523 022752  104210                          ERROR   +210         ;BUT ENBT ST 334 TO 053 INTO 453
4524 022754                        7$:
4525                               ;TEST TSTD 0 OP
4526 022754                        WWB7:
     022754  104413                          LPERR                ;SET UP THE LOOP ON ERROR ADDRESS.
4527 022756  004737  023172                  JSR     PC,NATSUB
4528 022762  000002                1$:       2                    ;FLAG=TSTD.
4529 022764  000175                2$:       175                  ;OPERAND.
4530 022766  176737                          176737
4531 022770  071727                          71727
4532 022772  037574                          37574
4533 022774  000175                3$:       175                  ;RESULT.
4534 022776  176737                          176737
4535 023000  071727                          71727
4536 023002  037574                          37574
```

TEST # 44 - NEGD, ABSD AND TSTD TEST

```
4537 023004  000000                    4$:     0                       ;ERROR RES.
4538 023006  000000                            0
4539 023010  000000                            0
4540 023012  000000                            0
4541 023014  000200                    5$:     200                     ;FPS BEFORE EXECUTION.
4542 023016  000204                            204                     ;FPS AFTER EXECUTION.
4543 023020  000214                            214                     ;ERROR FPS.
4544 023022  177777                            -1
4545 023024  104211                    6$:     ERROR   +211            ;BUT OP1B ST 255 TO 311 OR 312 INTO 310
4546 023026  000401                            BR      7$
4547 023030  104212                            ERROR   +212            ;BUT ENBT ST 310 TO 402 INTO 002
4548 023032                            7$:
4549                                   ;TEST TSTD -0 UP FIUV=0
4550 023032                            WWB8:
     023032  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4551 023034  004737  023172                    JSR     PC,NATSUB
4552 023040  000002                    1$:     2                       ;FLAG=TSTD.
4553 023042  100123                    2$:     100123                  ;OPERAND.
4554 023044  021012                            21012
4555 023046  034565                            34565
4556 023050  043210                            43210
4557 023052  100123                    3$:     100123                  ;RESULT.
4558 023054  021012                            21012
4559 023056  034565                            34565
4560 023060  043210                            43210
4561 023062  000000                    4$:     0                       ;ERROR RES.
4562 023064  000000                            0
4563 023066  000000                            0
4564 023070  000000                            0
4565 023072  040203                    5$:     40203                   ;FPS BEFORE EXECUTION.
4566 023074  040214                            040214                  ;FPS AFTER EXECUTION.
4567 023076  140214                            140214                  ;ERROR FPS.
4568 023100  177777                            -1
4569 023102  104211                    6$:     ERROR   +211            ;+
4570 023104  000401                            BR      7$
4571 023106  104213                            ERROR   +213            ;BUT FIUV ST 257 TO 355 INTO 255
4572 023110                            7$:
4573                                   ;TEST TSTD -0 OP FIUV=1
4574 023110                            WWB9:
     023110  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4575 023112  004737  023172                    JSR     PC,NATSUB
4576 023116  000002                    1$:     2                       ;FLAG=TSTD.
4577 023120  100137                    2$:     100137                  ;OPERAND.
4578 023122  024613                            24613
4579 023124  057024                            57024
4580 023126  060137                            60137
4581 023130  100137                    3$:     100137                  ;RESULT.
4582 023132  024613                            24613
4583 023134  057024                            57024
4584 023136  060137                            60137
4585 023140  000000                    4$:     0                       ;ERROR RES.
4586 023142  000000                            0
4587 023144  000000                            0
4588 023146  000000                            0
4589 023150  044200                    5$:     44200                   ;FPS BEFORE EXECUTION.
4590 023152  144214                            144214                  ;FPS AFTER EXECUTION.
4591 023154  044214                            044214                  ;ERROR FPS.
```

```
4592 023156  000014                        14
4593 023160  104211              6$:       ERROR   +211            ;*
4594 023162  000401                        BR      7$
4595 023164  104214                        ERROR   +214            ;BUT FIUV ST 257 TO 255 INTO 355
4596 023166                      7$:
4597 023166  000137  023606               JMP     WWBDONE
4598
4599                             ;THIS SUBROUTINE, NATSUB, IS USED TO SET UP THE OPERANDS, EXECUTE
4600                             ;THE EITHER A TSTD, AN ABSD OR A NEGD INSTRUCTION AND CHECK THE RESULTS. A CALL
4601                             ;TO IT IS MADE THUS:
4602                             ;
4603                             ;               JSR     PC,NATSUB
4604                             ;               FLAG:   .WORD   X               ;INSTRUCTION TYPE FLAG.
4605                             ;               ACARG:  .WORD   X,X,X,X         ;OPERAND
4606                             ;               RES:    .WORD   X,X,X,X         ;EXPECTED RESULT
4607                             ;               ERRES:  .WORD   X,X,X,X         ;ERROR RESULT
4608                             ;               FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
4609                             ;               FPSA:   .WORD   X               ;FPS AFTER EXECUTION
4610                             ;               FEC:    .WORD   X               ;EXPECTED FEC
4611                             ;               ERFPS:  .WORD   X               ;ERROR FPS.
4612                             ;               ERR1:   ERROR   +X              ;DATA ERROR.
4613                             ;                       BR      CONT
4614                             ;               ERR2:   ERROR   +X              ;FPS ERROR.
4615                             ;               CONT:                           ;RETURN ADDRESS
4616                             ;
4617                             ;THE OPERAND IS SET UP IN NATBF1. THEN
4618                             ;THE EITHER THE TSTD, NEGD OR ABSD INSTRUCTION IS EXECUTED.
4619                             ;NATSUB USES THE FIRST OPERAND AS A FLAG TO DETERMINE WHICH INSTRUCTION
4620                             ;IS TO BE EXECUTED: 0 = NEGD, 1 = ABSD, 2 = TSTD.
4621                             ;THE RESULT IS CHECKED AGAINST RES. IF THE RESULT IS CORRECT THEN THE FPS IS
4622                             ;COMPARED WITH FPSA. IF THIS TOO IS CORRECT NATSUB RETURNS CONTROL
4623                             ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD NATSUB
4624                             ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN NATSUB WILL RETURN
4625                             ;TO THE ERROR CALL AT ERR2, OTHERWISE NATSUB ITSELF
4626                             ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
4627                             ;INSTRUCTION IS INCORRECT, THE INCORRECT RESULT IS COMPARED WITH THE
4628                             ;ANTICIPATED FAILING DATA PATTERN, ERRES. IF THE FAILURE IN
4629                             ;THE RESULT WAS ANTICIPATED CORRECTLY TO BE ERRES THEN NATSUB
4630                             ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
4631                             ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND NATSUB WILL
4632                             ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
4633
4634
4635 023172  012601              NATSUB: MOV     (SP)+,R1                ;GET A POINTER TO THE ARGUMENTS.
4636 023174  010102                      MOV     R1,R2           ;COPY THE OPERAND.
4637 023176  062702  000002              ADD     #2,R2
4638 023202  012703  023574              MOV     #NATBF1,R3
4639 023206  012704  000004              MOV     #4,R4
4640 023212  012223              1$:     MOV     (R2)+,(R3)+
4641 023214  077402                      SOB     R4,1$
4642 023216  016100  000032              MOV     32(R1),R0       ;LOAD THE FPS.
4643 023222  170100                      LDFPS   R0
4644 023224  012700  023574              MOV     #NATBF1,R0      ;SET UP THE OPERAND ADDRESS.
4645 023230  011102                      MOV     (R1),R2         ;GET THE FLAG TO DETERMINE WHICH
4646 023232  006302                      ASL     R2              ;INSTRUCTION TO EXECUTE.
4647 023234  006302                      ASL     R2              ;0 = NEGD, 1 = ABSD, 2 = TSTD
4648 023236  012703  023252              MOV     #NATINS,R3
```

```
4649 023242  060203                    ADD     R2,R3
4650 023244  010337  001236            MOV     R3,$TMP2
4651 023250  000113                    JMP     (R3)            ;GO EXECUTE THE INSTRUCTION.
4652 023252  170710              NATINS: NEGD    (R0)
4653 023254  000403                    BR      2$
4654 023256  170610                    ABSD    (R0)
4655 023260  000401                    BR      2$
4656 023262  170510                    TSTD    (R0)
4657
4658 023264  170204              2$:   STFPS   R4              ;GET THE FPS.
4659 023266  170305                    STST    R5              ;GET THE FEC.
4660 023270  010102                    MOV     R1,R2
4661 023272  062702  000002            ADD     #2,R2
4662 023276  010237  001240            MOV     R2,$TMP3
4663 023302  062702  000010            ADD     #10,R2
4664 023306  010237  001244            MOV     R2,$TMP5
4665 023312  012737  023574  001242    MOV     #NATBF1,$TMP4
4666 023320  010437  001250            MOV     R4,$TMP7
4667 023324  016137  000034  001252    MOV     34(R1),$TMP10
4668 023332  010100                    MOV     R1,R0           ;WAS THE RESULT CORRECT?
4669 023334  062700  000012            ADD     #12,R0
4670 023340  012702  023574            MOV     #NATBF1,R2
4671 023344  012703  000004            MOV     #4,R3
4672 023350  022022              3$:   CMP     (R0)+,(R2)+
4673 023352  001014                    BNE     10$             ;BRANCH IF INCORRECT.
4674 023354  077303                    SOB     R3,3$
4675 023356  026104  000034            CMP     34(R1),R4       ;WAS THE FPS CORRECT?
4676 023362  001032                    BNE     15$             ;BRANCH IF INCORRECT.
4677 023364  005761  000034            TST     34(R1)          ;IF THE EXPECTED FPS WAS NEGATIVE CHECK THE FEC.
4678 023370  100003                    BPL     4$
4679 023372  026105  000040            CMP     40(R1),R5       ;WAS THE FEC CORRECT.
4680 023376  001037                    BNE     20$             ;BRANCH IF INCORRECT.
4681 023400  000161  000050      4$:   JMP     50(R1)          ;RETURN.
4682
4683                              ;THE RESULT WAS INCORRECT BUT WAS THIS FAILURE ANTICIPATED?
4684                              ;SEE IF THE RESULT WAS ANTICIPATED:
4685 023404                       10$:
4686 023404  011105                    MOV     (R1),R5
4687 023406  006305                    ASL     R5
4688 023410  006305                    ASL     R5
4689 023412  062705  023524            ADD     #NATER1,R5
4690 023416  010100                    MOV     R1,R0
4691 023420  062700  000022            ADD     #22,R0
4692 023424  012702  023574            MOV     #NATBF1,R2
4693 023430  012703  000004            MOV     #4,R3
4694 023434  022022              11$:  CMP     (R0)+,(R2)+
4695 023436  001003                    BNE     12$             ;BRANCH IF NOT ANTICIPATED.
4696 023440  077303                    SOB     R3,11$
4697
4698                              ;THE ERROR WAS ANTICIPATED SO RETURN.
4699 023442  000161  000042            JMP     42(R1)
4700
4701                              ;THE ERROR WAS NOT ANTICIPATED SO REPORT IT HERE.
4702 023446  000115              12$:  JMP     (R5)            ;GO TO THE PROPER ERROR CALL.
4703
4704                              ;THE FPS WAS INCORRECT.
4705 023450  026105  000036      15$:  CMP     36(R1),R5       ;WAS THIS ERROR ANTICIPATED?
```

```
 4706 023454  001002                          BNE     16$             ;BRANCH IF NOT ANTICIPATED.
 4707
 4708                                 ;THE FPS ERROR WAS ANTICIPATED SO RETURN.
 4709 023456  000161  000046                  JMP     46(R1)
 4710
 4711                                 ;THE FPS FAILURE WAS NOT ANTICIPATED SO REPORT IT HERE.
 4712 023462  011102                  16$:    MOV     (R1),R2
 4713 023464  006302                          ASL     R2
 4714 023466  006302                          ASL     R2
 4715 023470  062702  023542                  ADD     #NATER2,R2
 4716 023474  000112                          JMP     (R2)            ;GO TO THE PROPER ERROR CALL.
 4717
 4718                                 ;REPORT THAT THE FEC WAS INCORRECT.
 4719 023476  016137  000040  001256  20$:    MOV     40(R1),$TMP12
 4720 023504  010537  001254                  MOV     R5,$TMP11
 4721 023510  011102                          MOV     (R1),R2
 4722 023512  006302                          ASL     R2
 4723 023514  006302                          ASL     R2
 4724 023516  062702  023556                  ADD     #NATER3,R2
 4725 023522  000112                          JMP     (R2)            ;GO TO THE PROPER ERROR CALL.
 4726
 4727                                 ;THESE ARE THE ERROR CALLS FOR EACH INDIVIDUAL INSTRUCTION AND CONDITION.
 4728 023524  104165                  NATER1: ERROR   +165            ;NEGD BAD DATA
 4729 023526  000403                          BR      NATRET
 4730 023530  104166                          ERROR   +166            ;ABSD BAD DATA
 4731 023532  000401                          BR      NATRET
 4732 023534  104167                          ERROR   +167            ;TSTD BAD DATA
 4733 023536  000161  000050          NATRET: JMP     50(R1)
 4734
 4735                                 ;FPS INCORRECT:
 4736 023542  104170                  NATER2: ERROR   +170            ;NEGD FPSX
 4737 023544  000774                          BR      NATRET
 4738 023546  104171                          ERROR   +171            ;ABSD FPSX
 4739 023550  000772                          BR      NATRET
 4740 023552  104172                          ERROR   +172            ;TSTD FPSX
 4741 023554  000770                          BR      NATRET
 4742
 4743                                 ;FEC INCORRECT:
 4744 023556  104173                  NATER3: ERROR   +173            ;NEGD FECX
 4745 023560  000766                          BR      NATRET
 4746 023562  104174                          ERROR   +174            ;ABSD FECX
 4747 023564  000764                          BR      NATRET
 4748 023566  104175                          ERROR   +175            ;TSTD FECX
 4749 023570  000762                          BR      NATRET
 4750
 4751 023572  177777                          .WORD   -1
 4752 023574  177777  177777  177777  NATBF1: .WORD   -1,-1,-1,-1,-1
 4753
 4754 023606                          WWBDONE:
      023606  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                              ;SEE IF THE USER HAS EXPRESSED
                                              ;THE DESIRE TO CHANGE THE SOFTWARE
                                              ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                              ;THE USER TYPED CONTROL G?).

 4755
 4756
 4763
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                                        .SBTTL  TEST # 45 - SOURCE MODES, MODE 1 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 45       SOURCE MODES, MODE 1 (FL=0), TEST
                                        ;*
                                        ;*  THIS IS A TEST OF SOURCE MODE 1
                                        ;*  USING THE LDFPS INSTR
                                        ;*
                                        ;;*****************************************************************
     023610  000004                     TST45:  SCOPE
4765
4766
4767 023612                             AAC1:
     023612  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4768
4769 023614  012700  023672                        MOV     #AACTP1,R0      ;SET UP TEST DATA IN BUFFER.
4770 023620  012710  147517                        MOV     #147517,(R0)
4771 023624  012737  147517  001240               MOV     #147517,$TMP3   ;SAVE DATA IN CASE OF ERROR.
4772 023632  012737  023646  001236               MOV     #AAC2,$TMP2
4773 023640  012737  023732  000004               MOV     #AAC20,ERRVECT  ;SET UP FOR TRAPS TO 4.
4774 023646  170110                     AAC2:     LDFPS   (R0)            ;TEST INSTRUCTION.
4775
4776 023650  170205                               STFPS   R5              ;GET FPS
4777
4778 023652  020027  023672                        CMP     R0,#AACTP1      ;IS R0 CORRECT?
4779 023656  001007                               BNE     AAC10           ;BR IF NOT.
4780 023660  022705  147517                        CMP     #147517,R5      ;IS FPS CORRECT?
4781 023664  001013                               BNE     AAC11           ;BR IF NOT.
4782 023666  000437                               BR      AACDONE
4783
4784                                    ;TEST BUFFER AND DATA:
4785 023670  177777                               -1
4786 023672  147517                     AACTP1: 147517
4787 023674  177777                               -1
4788
4789                                    ;REPORT R0 INCORRECT.
4790 023676  012737  023672  001240     AAC10:    MOV     #AACTP1,$TMP3
4791 023704  010037  001242                        MOV     R0,$TMP4
4792 023710  104225                     1$:       ERROR   +225            ;R0 BAD BUT FSRC FAILED
4793 023712  000425                               BR      AACDONE
4794
4795                                    ;REPORT FPS INCORRECT.
4796 023714  012737  147517  001240     AAC11:    MOV     #147517,$TMP3   ;REPORT FPS INCORRECT.
4797 023722  010537  001242                        MOV     R5,$TMP4
4798 023726  104226                     1$:       ERROR   +226
4799 023730  000416                               BR      AACDONE
4800
4801                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
4802                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
4803                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
4804 023732                             AAC20:
4805 023732  011602                               MOV     (SP),R2
4806 023734  020227  023650                        CMP     R2,#AAC2+2
4807 023740  001405                               BEQ     1$
4808 023742  020227  023652                        CMP     R2,#AAC2+4
4809 023746  001402                               BEQ     1$
4810 023750  000137  047302                        JMP     CPSPUR
4811 023754  022626                     1$:       CMP     (SP)+,(SP)+
```

```
 4812 023756  010237  001236                MOV     R2,$TMP2
 4813 023762  104227            2$:         ERROR   +227            ;ODD ADRES
 4814 023764  000400                        BR      AACDONE         ;BUT FDSTX IN ST 771
 4815
 4816 023766                    AACDONE:
      023766  104412                        RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                     ;SEE IF THE USER HAS EXPRESSED
                                                                     ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                     ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                     ;THE USER TYPED CONTROL G?).
 4817
 4818
```

```
4819                                    .SBTTL  TEST # 46 - SOURCE MODES, MODE 2 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 46       SOURCE MODES, MODE 2 (FL=0), TEST
                                        ;*
                                        ;*  THIS IS A TEST OF SOURCE MODE 2
                                        ;*  USING THE LDFPS INSTR
                                        ;*
                                        ;;*****************************************************************
     023770  000004                     TST46:  SCOPE
4820
4821 023772                             BBC1:
     023772  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4822
4823 023774  012700  024052                    MOV     #BBCTP1,R0      ;SET UP TEST DATA IN BUFFER.
4824 024000  012710  145212                    MOV     #145212,(R0)
4825 024004  012737  145212  001240            MOV     #145212,$TMP3   ;SAVE DATA IN CASE OF ERROR.
4826 024012  012737  024026  001236            MOV     #BBC2,$TMP2
4827 024020  012737  024112  000004            MOV     #BBC20,ERRVECT ;SET UP FOR TRAPS TO 4.
4828
4829 024026  170120                     BBC2:  LDFPS   (R0)+           ;TEST INSTRUCTION.
4830
4831 024030  170205                            STFPS   R5              ;GET FPS
4832
4833 024032  020027  024054                    CMP     R0,#BBCTP1+2    ;IS R0 CORRECT?
4834 024036  001007                            BNE     BBC10           ;BR IF NOT.
4835 024040  022705  145212                    CMP     #145212,R5      ;IS THE FPS CORRECT?
4836 024044  001013                            BNE     BBC11           ;BR IF NOT.
4837 024046  000436                            BR      BBCDONE
4838
4839
4840                                    ;TEST BUFFER AND DATA:
4841 024050  177777                            -1
4842 024052  177777                    BBCTP1: .WORD   -1
4843 024054  177777                            -1
4844
4845
4846                                    ;REPORT R0 INCORRECT.
4847 024056  012737  024054  001240     BBC10:  MOV     #BBCTP1+2,$TMP3
4848 024064  010037  001242                    MOV     R0,$TMP4
4849 024070  104230                     1$:    ERROR   +230            ;R0 BAD BUT FSRC FAILED
4850 024072  000424                            BR      BBCDONE
4851
4852                                    ;REPORT FPS INCORRECT.
4853 024074  012737  145212  001240     BBC11:  MOV     #145212,$TMP3   ;REPORT FPS INCORRECT.
4854 024102  010537  001242                    MOV     R5,$TMP4
4855 024106  104231                     1$:    ERROR   +231
4856 024110  000415                            BR      BBCDONE
4857
4858                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
4859                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
4860                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
4861 024112                             BBC20:
4862 024112  011602                            MOV     (SP),R2
4863 024114  020227  024030                    CMP     R2,#BBC2+2
4864 024120  001405                            BEQ     1$
4865 024122  020227  024032                    CMP     R2,#BBC2+4
4866 024126  001402                            BEQ     1$
```

```
4867 024130  000137  047302                    JMP     CPSPUR
4868 024134  022626                    1$:     CMP     (SP)+,(SP)+
4869 024136  010237  001236                    MOV     R2,$TMP2
4870 024142  104232                    2$:     ERROR   +232            ;ODD ADRES
4871                                                                    ;BUT FDSTX IN ST 771
4872
4873 024144                            BBCDONE:
     024144  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
4874
4875
```

```
4876                                    .SBTTL  TEST # 47 - SOURCE MODES, MODE 4 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 47       SOURCE MODES, MODE 4 (FL=0), TEST
                                        ;*
                                        ;*  THIS IS A TEST OF SOURCE MODE 4
                                        ;*  USING THE LDFPS INSTR
                                        ;*
                                        ;;*****************************************************************
     024146  000004                     TST47:  SCOPE
4877
4878 024150                             DDC1:
     024150  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4879
4880 024152  012700  024242                       MOV     #DDCTP1+2,R0    ;SET UP THE TEST DATA BUFFER.
4881 024156  012760  105252  177776             MOV     #105252,-2(R0)
4882 024164  012737  105252  001240             MOV     #105252,$TMP3   ;SAVE DATA IN CASE OF ERROR.
4883 024172  012737  024206  001236             MOV     #DDC2,$TMP2
4884 024200  012737  024306  000004             MOV     #DDC20,ERRVEC
4885 024206  170140                     DDC2:   LDFPS   -(R0)
4886 024210  170205                             STFPS   R5
4887 024212  020027  024240                     CMP     R0,#DDCTP1
4888 024216  001015                             BNE     DDC10
4889 024220  022705  105252                     CMP     #105252,R5
4890 024224  001021                             BNE     DDC11
4891 024226  000444                             BR      DDCDONE
4892
4893 024230  177777  177777  177777             -1,-1,-1,-1
4894 024240  177777                     DDCTP1: -1
4895 024242  177777  177777  177777             -1,-1,-1,-1
4896
4897 024252  012737  024240  001240     DDC10:  MOV     #DDCTP1,$TMP3
4898 024260  010037  001242                     MOV     R0,$TMP4
4899 024264  104233                     1$:     ERROR   +233            ;R0 BAD BUT FSRC FAILED
4900 024266  000424                             BR      DDCDONE
4901 024270  012737  105252  001240     DDC11:  MOV     #105252,$TMP3   ;REPORT FPS INCORRECT.
4902 024276  010537  001242                     MOV     R5,$TMP4
4903 024302  104234                     1$:     ERROR   +234
4904 024304  000415                             BR      DDCDONE
4905 024306  011602                     DDC20:  MOV     (SP),R2
4906 024310  020227  024210                     CMP     R2,#DDC2+2
4907 024314  001405                             BEQ     1$
4908 024316  020227  024212                     CMP     R2,#DDC2+4
4909 024322  001402                             BEQ     1$
4910 024324  000137  047302                     JMP     CPSPUR
4911 024330  022626                     1$:     CMP     (SP)+,(SP)+
4912 024332  010237  001236                     MOV     R2,$TMP2
4913 024336  104235                     2$:     ERROR   +235            ;DDD ADRES
4914 024340                             DDCDONE:
     024340  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
```

TEST # 50 - SOURCE MODES, MODE 3 (FL=0), TEST

```
4915                                    .SBTTL  TEST # 50 - SOURCE MODES, MODE 3 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 50       SOURCE MODES, MODE 3 (FL=0), TEST
                                        ;*
                                        ;*  THIS IS A TEST OF SOURCE MODE 3
                                        ;*  USING THE LDFPS INSTR
                                        ;*
                                        ;;*****************************************************************
     024342  000004                     TST50:  SCOPE
4916 024344                             EEC1:
     024344  104413                             LPERR                       ;SET UP THE LOOP ON ERROR ADDRESS.
4917 024346  012700  024450                      MOV     #EECTP2,R0
4918 024352  012710  024440                      MOV     #EECTP1,(R0)
4919 024356  012737  103456  024440              MOV     #103456,EECTP1
4920 024364  012737  103456  001240              MOV     #103456,$TMP3
4921 024372  012737  024406  001236              MOV     #EEC2,$TMP2
4922 024400  012737  024516  000004              MOV     #EEC20,ERRVECT ;SET UP FOR TRAPS TO 4.
4923 024406  170130                     EEC2:   LDFPS   @(R0)+              ;TEST INSTRUCTION.
4924 024410  170205                             STFPS   R5                  ;GET THE FPS.
4925 024412  020027  024452                      CMP     R0,#EECTP2+2        ;IS R0 CORRECT?
4926 024416  001021                              BNE     EEC10               ;BR IF NOT.
4927 024420  022705  103456                      CMP     #103456,R5          ;IS THE FPS CORRECT?
4928 024424  001025                              BNE     EEC11               ;BR IF NOT.
4929 024426  000450                              BR      EECDONE
4930
4931
4932                                    ;TEST BUFFER AND DATA:
4933 024430  177777  177777  177777              -1,-1,-1,-1
4934 024440  177777                     EECTP1: -1
4935 024442  177777  177777  177777              -1,-1,-1
4936 024450  024440  177777  177777     EECTP2: EECTP1,-1,-1,-1,
4937
4938
4939                                    ;REPORT R0 INCORRECT.
4940 024462  012737  024452  001240     EEC10:  MOV     #EECTP2+2,$TMP3
4941 024470  010037  001242                      MOV     R0,$TMP4
4942 024474  104236                     1$:     ERROR   +236                ;R0 BAD BUT FSRC FAILED
4943 024476  000424                              BR      EECDONE
4944
4945                                    ;REPORT FPS INCORRECT.
4946 024500  012737  103456  001240     EEC11:  MOV     #103456,$TMP3       ;REPORT FPS INCORRECT.
4947 024506  010537  001242                      MOV     R5,$TMP4
4948 024512  104237                     1$:     ERROR   +237
4949 024514  000415                              BR      EECDONE
4950                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
4951                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
4952                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
4953 024516  011602                     EEC20:  MOV     (SP),R2
4954 024520  020227  024410                      CMP     R2,#EEC2+2
4955 024524  001405                              BEQ     1$
4956 024526  020227  024412                      CMP     R2,#EEC2+4
4957 024532  001402                              BEQ     1$
4958 024534  000137  047302                      JMP     CPSPUR
4959 024540  022626                     1$:     CMP     (SP)+,(SP)+
4960 024542  010237  001236                      MOV     R2,$TMP2
4961 024546  104240                     2$:     ERROR   +240                ;DDD ADRES
4962 024550                             EECDONE:
```

```
024550  104412                  RSETUP          ;GO INITIALIZE THE FPS AND STACK; AND
                                                ;SEE IF THE USER HAS EXPRESSED
                                                ;THE DESIRE TO CHANGE THE SOFTWARE
                                                ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                ;THE USER TYPED CONTROL G?).
```

```
                                .SBTTL  TEST # 51 - SOURCE MODES, MODE 5 (FL=0), TEST
                                ;;*****************************************************************
                                ;*TEST 51        SOURCE MODES, MODE 5 (FL=0), TEST
                                ;*
                                ;*  THIS IS A TEST OF SOURCE MODE 5
                                ;*  USING THE LDFPS INSTR
                                ;*
                                ;;*****************************************************************
 024552  000004                TST51:  SCOPE
4964 024554                     FFC1:
 024554  104413                        LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
4965 024556  012700  024656            MOV     #FFCTP2+2,R0    ;SET UP THE TEST DATA BUFFER.
4966 024562  012760  024644  177776    MOV     #FFCTP1,-2(R0)
4967 024570  012737  045412  024644    MOV     #45412,FFCTP1
4968 024576  012737  045412  001240    MOV     #45412,$TMP3    ;SAVE DATA IN CASE OF ERROR.
4969 024604  012737  024554  001236    MOV     #FFC1,$TMP2
4970 024612  012737  024720  000004    MOV     #FFC20,ERRVECT ;SET UP FOR TRAPS TO 4.
4971 024620  170150                FFC2:   LDFPS   @-(R0)          ;TEST INSTRUCTION.
4972 024622  170205                        STFPS   R5              ;GET THE FPS.
4973 024624  020027  024654            CMP     R0,#FFCTP2      ;IS R0 CORRECT?
4974 024630  001015                    BNE     FFC10           ;BR IF NOT.
4975 024632  022705  045412            CMP     #45412,R5       ;IS THE FPS CORRECT?
4976 024636  001021                    BNE     FFC11           ;BR IF NOT.
4977 024640  000444                    BR      FFCDONE
4978
4979
4980                            ;TEST BUFFER AND DATA:
4981 024642  177777                    -1
4982 024644  177777                FFCTP1: -1
4983 024646  177777  177777  177777        -1,-1,-1
4984 024654  024644  177777  177777  FFCTP2: FFCTP1,-1,-1,-1
4985
4986
4987                            ;REPORT R0 INCORRECT.
4988 024664  012737  024654  001240  FFC10:  MOV     #FFCTP2,$TMP3
4989 024672  010037  001242            MOV     R0,$TMP4
4990 024676  104241                1$:     ERROR   +241            ;R0 BAD BUT FSRC FAILED
4991 024700  000424                    BR      FFCDONE
4992
4993                            ;REPORT FPS INCORRECT.
4994 024702  012737  045412  001240  FFC11:  MOV     #45412,$TMP3    ;REPORT FPS INCORRECT.
4995 024710  010537  001242            MOV     R5,$TMP4
4996 024714  104242                1$:     ERROR   +242
4997 024716  000415                    BR      FFCDONE
4998                            ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
4999                            ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5000                            ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5001 024720  011602            FFC20:  MOV     (SP),R2
5002 024722  020227  024622            CMP     R2,#FFC2+2
5003 024726  001405                    BEQ     1$
5004 024730  020227  024624            CMP     R2,#FFC2+4
5005 024734  001402                    BEQ     1$
5006 024736  000137  047302            JMP     CPSPUR
5007 024742  022626                1$:     CMP     (SP)+,(SP)+
5008 024744  010237  001236            MOV     R2,$TMP2
5009 024750  104243                2$:     ERROR   +243            ;ODD ADRES
5010 024752                     FFCDONE:
```

TEST # 51 - SOURCE MODES, MODE 5 (FL=0), TEST

```
024752  104412                  RSETUP          ;GO INITIALIZE THE FPS AND STACK; AND
                                                ;SEE IF THE USER HAS EXPRESSED
                                                ;THE DESIRE TO CHANGE THE SOFTWARE
                                                ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                ;THE USER TYPED CONTROL G?).
```

```
5011                                    .SBTTL  TEST # 52 - SOURCE MODES, MODE 6 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 52       SOURCE MODES, MODE 6 (FL=0), TEST
                                        ;*
                                        ;*  THIS IS A TEST OF SOURCE MODE 6
                                        ;*  USING THE LDFPS INSTR
                                        ;*
                                        ;;*****************************************************************
     024754  000004                     TST52:  SCOPE
5012                                            .DSABLE AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
5013 024756                             GGC1:
     024756  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5014 024760  012700  017647                     MOV     #GGCTP1-5201,R0 ;SET UP THE TEST DATA BUFFER.
5015 024764  012767  046543  000056             MOV     #46543,GGCTP1
5016 024772  012767  046543  154240             MOV     #46543,$TMP3    ;SAVE DATA IN CASE OF ERROR.
5017 025000  012767  025016  154230             MOV     #GGC2,$TMP2
5018 025006  005001                             CLR     R1
5019 025010  012767  025136  152766             MOV     #GGC20,ERRVECT ;SET UP FOR TRAPS TO 4.
5020 025016  170160  005201             GGC2:   LDFPS   5201(R0)                ;TEST INSTRUCTION.
5021 025022  170204                             STFPS   R4              ;GET THE FPS.
5022 025024  005701                             TST     R1              ;WAS PC CORRECT AFTER EXECUTION?
5023 025026  001033                             BNE     GGC25           ;BR IF NOT.
5024 025030  020027  017647                     CMP     R0,#GGCTP1-5201 ;IS R0 CORRECT?
5025 025034  001012                             BNE     GGC10           ;BR IF NOT.
5026 025036  022704  046543                     CMP     #46543,R4       ;IS THE FPS CORRECT?
5027 025042  001016                             BNE     GGC11           ;BR IF NOT.
5028 025044  000451                             BR      GGCDONE
5029
5030
5031                                    ;TEST BUFFER AND DATA:
5032 025046  177777                             -1
5033 025050  177777  177777  177777     GGCTP1: -1,-1,-1,-1
5034 025060  177777                             -1
5035
5036                                    ;REPORT R0 INCORRECT.
5037 025062  012767  017647  154150     GGC10:  MOV     #GGCTP1-5201,$TMP3
5038 025070  010067  154146                     MOV     R0,$TMP4
5039 025074  104244                     1$:     ERROR   +244            ;R0 BAD BUT FSRC FAILED
5040 025076  000434                             BR      GGCDONE
5041
5042                                    ;REPORT FPS INCORRECT.
5043 025100  012767  046543  154132     GGC11:  MOV     #46543,$TMP3    ;REPORT FPS INCORRECT.
5044 025106  010467  154130                     MOV     R4,$TMP4
5045 025112  104245                     1$:     ERROR   +245
5046 025114  000425                             BR      GGCDONE
5047
5048                                    ;REPORT PC INCORRECT AFTER INSTRUCTION.
5049 025116  012767  025022  154114     GGC25:  MOV     #GGC2+4,$TMP3
5050 025124  012767  025020  154110             MOV     #GGC2+2,$TMP4
5051 025132  104246                     1$:     ERROR   +246            ;PC X
5052 025134  000415                             BR      GGCDONE
5053                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5054                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5055                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5056 025136  011602                     GGC20:  MOV     (SP),R2
5057 025140  020227  025020                     CMP     R2,#GGC2+2
5058 025144  001405                             BEQ     1$
```

TEST # 52 - SOURCE MODES, MODE 6 (FL=0), TEST

```
5059 025146  020227  025022                    CMP     R2,#GGC2+4
5060 025152  001402                            BEQ     1$
5061 025154  000167  022122                    JMP     CPSPUR
5062 025160  022626                    1$:     CMP     (SP)+,(SP)+
5063 025162  010267  154050                    MOV     R2,$TMP2
5064 025166  104247                    2$:     ERROR   +247            ;ODD ADRES
5065 025170                            GGCDONE:
     025170  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
5066                                            .ENABL  AMA     ;REENABLE MODE 6 TO MODE 7 COMVERSIONS
```

TEST # 53 - SOURCE MODES, MODE 7 (FL=0), TEST

```
5067                                    .SBTTL  TEST # 53 - SOURCE MODES, MODE 7 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 53       SOURCE MODES, MODE 7 (FL=0), TEST
                                        ;*
                                        ;*  THIS IS A TEST OF SOURCE MODE 7
                                        ;*  USING THE LDFPS INSTR
                                        ;*
                                        ;;*****************************************************************
     025172  000004                     TST53:  SCOPE
5068 025174                             HHC1:
     025174  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5069 025176  012700  020103                     MOV     #HHCTP2-5201,R0 ;SET UP THE TEST DATA BUFFER.
5070 025202  012760  025274  005201             MOV     #HHCTP1,5201(R0)
5071 025210  012737  004547  025274             MOV     #4547,HHCTP1
5072 025216  012737  004547  001240             MOV     #4547,$TMP3     ;SAVE DATA IN CASE OF ERROR.
5073 025224  012737  025242  001236             MOV     #HHC2,$TMP2
5074 025232  005001                             CLR     R1
5075 025234  012737  025370  000004             MOV     #HHC20,ERRVECT ;SET UP FOR TRAPS TO 4.
5076 025242  170170  005201             HHC2:   LDFPS   @5201(R0)               ;TEST INSTRUCTION.
5077 025246  170204                             STFPS   R4              ;GET THE FPS.
5078 025250  005701                             TST     R1              ;WAS PC CORRECT AFTER EXECUTION?
5079 025252  001036                             BNE     HHC25           ;BR IF NOT.
5080 025254  020027  020103                     CMP     R0,#HHCTP2-5201 ;IS R0 CORRECT?
5081 025260  001015                             BNE     HHC10           ;BR IF NOT.
5082 025262  022704  004547                     CMP     #4547,R4        ;IS THE FPS CORRECT?
5083 025266  001021                             BNE     HHC11           ;BR IF NOT.
5084 025270  000454                             BR      HHCDONE
5085
5086
5087                                    ;TEST BUFFER AND DATA:
5088 025272  177777                             -1
5089 025274  177777  177777  177777     HHCTP1: .WORD -1,-1,-1,-1
5090 025304  177777  177777  177777     HHCTP2: .WORD -1,-1,-1,-1
5091
5092                                    ;REPORT R0 INCORRECT.
5093 025314  012737  020103  001240     HHC10:  MOV     #HHCTP2-5201,$TMP3
5094 025322  010037  001242                     MOV     R0,$TMP4
5095 025326  104250                     1$:     ERROR   +250            ;R0 BAD BUT FSRC FAILED
5096 025330  000434                             BR      HHCDONE
5097
5098                                    ;REPORT FPS INCORRECT.
5099 025332  012737  004547  001240     HHC11:  MOV     #4547,$TMP3     ;REPORT FPS INCORRECT.
5100 025340  010437  001242                     MOV     R4,$TMP4
5101 025344  104251                     1$:     ERROR   +251
5102 025346  000425                             BR      HHCDONE
5103
5104                                    ;REPORT PC INCORRECT AFTER INSTRUCTION.
5105 025350  012737  025246  001240     HHC25:  MOV     #HHC2+4,$TMP3
5106 025356  012737  025244  001242             MOV     #HHC2+2,$TMP4
5107 025364  104252                     1$:     ERROR   +252            ;PC X
5108 025366  000415                             BR      HHCDONE
5109                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5110                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5111                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5112 025370  011602                     HHC20:  MOV     (SP),R2
5113 025372  020227  025244                     CMP     R2,#HHC2+2
5114 025376  001405                             BEQ     1$
```

```
                                                                H 10
5115 025400  020227  025246                    CMP     R2,#HHC2+4
5116 025404  001402                            BEQ     1$
5117 025406  000137  047302                    JMP     CPSPUR
5118 025412  022626                    1$:     CMP     (SP)+,(SP)+
5119 025414  010237  001236                    MOV     R2,$TMP2
5120 025420  104253                    2$:     ERROR   +253            ;DDD ADDRESS
5121 025422                            HHCDONE:
     025422  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).

5122                                            .ENABL  AMA
5123
5130
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5131                                    .SBTTL  TEST # 54 - SOURCE MODES, MODE 2 GR7 (FL=1), TEST
                                        ;;*****************************************************************
                                        ;*TEST 54       SOURCE MODES, MODE 2 GR7 (FL=1), TEST
                                        ;*
                                        ;* THIS IS A TEST OF THE LDCLD WITH
                                        ;* IMMEDIATE ADDRESSING MODE
                                        ;*
                                        ;;*****************************************************************
     025424  000004                     TST54:  SCOPE
5132
5133 025426                             IIC1:
     025426  104413                             LPERR                       ;SET UP THE LOOP ON ERROR ADDRESS.
5134 025430  012737  025454  001236             MOV     #IIC2,$TMP2         ;SAVE DATA IN CASE OF ERROR.
5135 025436  012737  025526  000004             MOV     #IIC20,ERRVECT ;SET UP FOR TRAPS TO 4.
5136 025444  012700  000300                     MOV     #300,R0
5137 025450  170100                             LDFPS   R0
5138 025452  005001                             CLR     R1
5139
5140 025454  177027                     IIC2:   LDCLD   (R7)+,AC0               ;TEST INSTRUCTION.
5141 025456  005201                             5201
5142 025460  005201                             5201
5143 025462  005201                             5201
5144 025464  005201                             5201
5145
5146 025466  020127  000003                     CMP     R1,#3               ;WAS PC CORRECT AFTER EXECUTION?
5147 025472  001421                             BEQ     IICDONE             ;BR IF YES.
5148
5149
5150                                    ;REPORT PC INCORRECT AFTER INSTRUCTION.
5151 025474  012704  025460             IIC3:   MOV     #IIC2+4,R4
5152 025500  162701  000003                     SUB     #3,R1
5153 025504  006301                             ASL     R1
5154 025506  160104                             SUB     R1,R4
5155 025510  010437  001242                     MOV     R4,$TMP4
5156 025514  012737  025460  001240             MOV     #IIC2+4,$TMP3
5157 025522  104254                     1$:     ERROR   +254                ;BAD CONSTANT
5158 025524  000404                             BR      IICDONE
5159
5160                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5161                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5162 025526  011637  001236             IIC20:  MOV     (SP),$TMP2          ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5163 025532  022626                             CMP     (SP)+,(SP)+
5164 025534  104255                     1$:     ERROR   +255                ;BAD CONSTANT ODD ADD
5165
5166 025536                             IICDONE:
     025536  104412                             RSETUP                      ;GO INITIALIZE THE FPS AND STACK; AND
                                                                            ;SEE IF THE USER HAS EXPRESSED
                                                                            ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                            ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                            ;THE USER TYPED CONTROL G?).
5167
5174
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TEST # 55 - SOURCE MODES, MODE 2 (FL=1), TEST

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5175                                    .SBTTL  TEST # 55 - SOURCE MODES, MODE 2 (FL=1), TEST
                                        ;;**********************************************************************
                                        ;*TEST 55        SOURCE MODES, MODE 2 (FL=1), TEST
                                        ;*
                                        ;* THIS IS A TEST OF THE LDCLD INSTR
                                        ;* WITH MODE 2.
                                        ;*
                                        ;;**********************************************************************
     025540  000004                     TST55:  SCOPE
5176
5177 025542                             TCC1:
     025542  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5178 025544  013737  025564  001236             MOV     TCC2,$TMP2      ;SAVE DATA IN CASE OF ERROR.
5179 025552  012700  000300                     MOV     #300,R0
5180 025556  170100                             LDFPS   R0
5181 025560  012700  025654                     MOV     #TCCBF0,R0      ;SET UP THE TEST DATA BUFFER.
5182 025564  177020                     TCC2:   LDCLD   (R0)+,AC0               ;TEST INSTRUCTION.
5183
5184 025566  170204                             STFPS   R4              ;GET THE FPS.
5185 025570  012701  025664                     MOV     #TCCBF1,R1      ;GET THE RESULT.
5186 025574  012702  000200                     MOV     #200,R2
5187 025600  170102                             LDFPS   R2
5188 025602  174011                             STD     AC0,(R1)
5189 025604  020027  025660                     CMP     R0,#TCCBF0+4    ;IS R0 CORRECT?
5190 025610  001407                             BEQ     TCC3
5191                                    ;REPORT R0 INCORRECT.
5192 025612  010037  001242                     MOV     R0,$TMP4
5193 025616  012737  025660  001240             MOV     #TCCBF0+4,$TMP3
5194 025624  104256                     1$:     ERROR   +256            ;BAD CONST
5195 025626  000422                             BR      TCCDONE
5196
5197 025630  022704  000300             TCC3:   CMP     #300,R4 ;IS THE FPS CORRECT?
5198 025634  001417                             BEQ     TCCDONE
5199
5200                                    ;REPORT FPS INCORRECT.
5201 025636  010437  001242                     MOV     R4,$TMP4
5202 025642  012737  000300  001240             MOV     #300,$TMP3
5203 025650  104257                     1$:     ERROR   +257            ;FPS X
5204 025652  000410                             BR      TCCDONE
5205
5206
5207                                    ;TEST BUFFER AND DATA:
5208 025654  001234  067076  054321     TCCBF0: .WORD   01234,67076,54321,012345
5209 025664  177777  177777  177777     TCCBF1: -1,-1,-1,-1
5210
5211 025674                             TCCDONE:
     025674  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                         ;SEE IF THE USER HAS EXPRESSED
                                                                         ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                         ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                         ;THE USER TYPED CONTROL G?).
5212
5213
5220
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                                .SBTTL  TEST # 56 - LDCIF AND LDCLF TEST
                                ;;*****************************************************************
                                ;*TEST 56       LDCIF AND LDCLF TEST
                                ;*
                                ;* THIS IS A TEST OF THE LDCIF AND
                                ;* THE LDCLF INSTRUCTIONS.
                                ;*
                                ;;*****************************************************************
025676  000004                  TST56:  SCOPE
5222
5223
5224                            ;ZERO   OPERAND FL=0
5225
5226 025700                     KKC1:
     025700  104413                    LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5227 025702  004737  027032            JSR     PC,LDCFSUB      ;GO EXECUTE INSTRUCTION.
5228
5229 025706  000000  000000    1$:     .WORD   0,0             ;FSRC OPERAND.
5230 025712  000000  000000    2$:     .WORD   0,0             ;EXPECTED RESULT.
5231 025716  177777  177777    3$:     .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
5232 025722  000000            4$:     0                       ;FPS BEFORE EXECUTION.
5233 025724  000004                    4                       ;FPS AFTER EXECUTION.
5234 025726  177777                    -1                      ;ANTICIPATED ERRONEOUS FPS.
5235 025730  104260            5$:     ERROR   +260            ;REPORT RESULT INCORRECT.
5236 025732  000401                    BR      6$
5237 025734  104261                    ERROR   +261            ;REPORT FPS INCORRECT.
5238 025736                     6$:
5239                            ;ZERO   OPERAND FL=0
5240
5241 025736                     KKC2:
     025736  104413                    LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5242 025740  004737  027032            JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5243
5244 025744  000000  177777    1$:     .WORD   0,-1            ;FSRC OPERAND.
5245 025750  000000  000000    2$:     .WORD   0,0             ;EXPECTED RESULT.
5246 025754  004177  177400    3$:     4177,177400             ;ANTICIPATED ERRONEOUS RESULT.
5247 025760  000000            4$:     0                       ;FPS BEFORE EXECUTION.
5248 025762  000004                    4                       ;FPS AFTER EXECUTION.
5249 025764  177777                    -1                      ;ANTICIPATED ERRONEOUS FPS.
5250 025766  104262            5$:     ERROR   +262            ;(BUT FL) ST
5251 025770  000401                    BR      6$              ;277 TO 300
5252 025772  104261                    ERROR   +261            ;INTO 301
5253 025774                     6$:
5254                            ;ZERO   OPERAND FL=1
5255
5256 025774                     KKC3:
     025774  104413                    LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5257 025776  004737  027032            JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5258 026002  000000  000000    1$:     .WORD   0,0             ;FSRC OPERAND.
5259 026006  000000  000000    2$:     .WORD   0,0             ;EXPECTED RESULT.
5260 026012  177777  177777    3$:     .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
5261 026016  000100            4$:     100                     ;FPS BEFORE EXECUTION.
5262 026020  000104                    104                     ;FPS AFTER EXECUTION.
5263 026022  000004                    4                       ;ANTICIPATED ERRONEOUS FPS.
5264 026024  104260            5$:     ERROR   +260            ;REPORT RESULT INCORRECT.
5265 026026  000401                    BR      6$
5266 026030  104263                    ERROR   +263    ;FL WAS CLR'ED
```

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5267 026032                                    6$:
5268                                           ;OPERAND        POSITIVE        FL=0
5269 026032                                    KKC4:
     026032  104413                                    LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5270 026034  004737  027032                          JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5271 026040  040000  000000              1$:   .WORD   40000,0                 ;FSRC OPERAND.
5272 026044  043600  000000              2$:   .WORD   43600,0                 ;EXPECTED RESULT.
5273 026050  047600  000000              3$:   .WORD   47600,0                 ;ANTICIPATED ERRONEOUS RESULT.
5274 026054  000017                      4$:   17                              ;FPS BEFORE EXECUTION.
5275 026056  000000                            0                               ;FPS AFTER EXECUTION.
5276 026060  177777                            -1                              ;ANTICIPATED ERRONEOUS FPS.
5277 026062  104264                      5$:   ERROR   +264    ;ST 107 BAD
5278 026064  000401                            BR      6$                      ;CONSTANT 231 INSD
5279 026066  104261                            ERROR   +261                    ;215
5280 026070                                    6$:
5281                                           ;OPERAND=1,     FL=0
5282 026070                                    KKC5:
     026070  104413                                    LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5283 026072  004737  027032                          JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5284 026076  000001  000000              1$:   .WORD   1,0                     ;FSRC OPERAND.
5285 026102  040200  000000              2$:   .WORD   40200,0                 ;EXPECTED RESULT.
5286 026106  044200  000000              3$:   .WORD   44200,0                 ;ANTICIPATED ERRONEOUS RESULT.
5287 026112  000017                      4$:   17                              ;FPS BEFORE EXECUTION.
5288 026114  000000                            0                               ;FPS AFTER EXECUTION.
5289 026116  177777                            -1                              ;ANTICIPATED ERRONEOUS FPS.
5290 026120  104264                      5$:   ERROR   +264                    ;REPORT RESULT INCORRECT.
5291 026122  000401                            BR      6$
5292 026124  104261                            ERROR   +261                    ;REPORT FPS INCORRECT.
5293 026126                                    6$:
5294
5295
5296                                           ;OPERAND=       PATTERN FL=0
5297 026126                                    KKC6:
     026126  104413                                    LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5298 026130  004737  027032                          JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5299 026134  000252  000000              1$:   .WORD   252,0                   ;FSRC OPERAND.
5300 026140  042052  000000              2$:   .WORD   42052,0                 ;EXPECTED RESULT.
5301 026144  046052  000000              3$:   .WORD   46052,0                 ;ANTICIPATED ERRONEOUS RESULT.
5302 026150  000000                      4$:   0                               ;FPS BEFORE EXECUTION.
5303 026152  000000                            0                               ;FPS AFTER EXECUTION.
5304 026154  177777                            -1                              ;ANTICIPATED ERRONEOUS FPS.
5305 026156  104264                      5$:   ERROR   +264                    ;REPORT RESULT INCORRECT.
5306 026160  000401                            BR      6$
5307 026162  104261                            ERROR   +261                    ;REPORT FPS INCORRECT.
5308 026164                                    6$:
5309
5310                                           ;OPERAND=-40000 FL=0
5311 026164                                    KKC7:
     026164  104413                                    LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5312 026166  004737  027032                          JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5313 026172  140000  000000              1$:   .WORD   -40000,0                ;FSRC OPERAND.
5314 026176  143600  000000              2$:   .WORD   143600,0                ;EXPECTED RESULT.
5315 026202  043600  000000              3$:   .WORD   43600,0                 ;ANTICIPATED ERRONEOUS RESULT.
5316 026206  000007                      4$:   7                               ;FPS BEFORE EXECUTION.
5317 026210  000010                            10                              ;FPS AFTER EXECUTION.
5318 026212  177777                            -1                              ;ANTICIPATED ERRONEOUS FPS.
5319 026214  104265                      5$:   ERROR   +265                    ;(SET SIGN) ST 146
```

```
                                        BR      6$
                                        ERROR   +261           ;REPORT FPS INCORRECT.
                                6$:

                                ;OPERAND=-1     FL-0
                                KKC8:
                                        LPERR                 ;SET UP THE LOOP ON ERROR ADDRESS.
                                        JSR     PC,LDCFSUB    ;GO EXECUTE THE INSTRUCTION.
                                1$:     .WORD   -1,0          ;FSRC OPERAND.
                                2$:     .WORD   140200,0      ;EXPECTED RESULT.
                                3$:     .WORD   144000,400    ;ANTICIPATED ERRONEOUS RESULT.
                                4$:     0                     ;FPS BEFORE EXECUTION.
                                        10                    ;FPS AFTER EXECUTION.
                                        -1                    ;ANTICIPATED ERRONEOUS FPS.
                                5$:     ERROR   +266          ;ST 372 TO 152 INTO
                                        BR      6$            ;112 (BUF XNBT)
                                        ERROR   +261          ;REPORT FPS INCORRECT.
                                6$:

                                ;OPERAND=PATTERN        FL=0
                                KKC9:
                                        LPERR                 ;SET UP THE LOOP ON ERROR ADDRESS.
                                        JSR     PC,LDCFSUB    ;GO EXECUTE THE INSTRUCTION.
                                1$:     .WORD   125252,0      ;FSRC OPERAND.
                                2$:     .WORD   143652,126000 ;EXPECTED RESULT.
                                3$:     .WORD   43652,126000  ;ANTICIPATED ERRONEOUS RESULT.
                                4$:     7                     ;FPS BEFORE EXECUTION.
                                        10                    ;FPS AFTER EXECUTION.
                                        -1                    ;ANTICIPATED ERRONEOUS FPS.
                                5$:     ERROR   +265          ;REPORT RESULT INCORRECT.
                                        BR      6$
                                        ERROR   +261          ;REPORT FPS INCORRECT.
                                6$:

                                ;OPERAND        POS     FL-1
                                KKC10:
                                        LPERR                 ;SET UP THE LOOP ON ERROR ADDRESS.
                                        JSR     PC,LDCFSUB    ;GO EXECUTE THE INSTRUCTION.
                                1$:     .WORD   40000,0       ;FSRC OPERAND.
                                2$:     .WORD   47600,0       ;EXPECTED RESULT.
                                3$:     .WORD   43600,0       ;ANTICIPATED ERRONEOUS RESULT.
                                4$:     117                   ;FPS BEFORE EXECUTION.
                                        100                   ;FPS AFTER EXECUTION.
                                        -1                    ;ANTICIPATED ERRONEOUS FPS.
                                5$:     ERROR   +267    ;ST 107 CONSTANT
                                        BR      6$            ;BAD 237 INST 217
                                        ERROR   +261          ;REPORT FPS INCORRECT.
                                6$:

                                ;OPERAND=1      FL=1
                                KKC11:
                                        LPERR                 ;SET UP THE LOOP ON ERROR ADDRESS.
                                        JSR     PC,LDCFSUB    ;GO EXECUTE THE INSTRUCTION.
                                1$:     .WORD   0,1           ;FSRC OPERAND.
                                2$:     .WORD   40200,0       ;EXPECTED RESULT.
                                3$:     .WORD   34200,0       ;ANTICIPATED ERRONEOUS RESULT.
                                4$:     100                   ;FPS BEFORE EXECUTION.
```

```
5373 026400  000100                        100                     ;FPS AFTER EXECUTION.
5374 026402  177777                        -1                      ;ANTICIPATED ERRONEOUS FPS.
5375 026404  104267              5$:       ERROR   +267            ;REPORT RESULT INCORRECT.
5376 026406  000401                        BR      6$
5377 026410  104261                        ERROR   +261            ;REPORT FPS INCORRECT.
5378 026412                      6$:
5379
5380                             ;OPERAND=       PATTERN FL=1
5381 026412                      KKC12:
     026412  104413                        LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5382 026414  004737  027032              JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5383 026420  000000  000252      1$:     .WORD   0,252           ;FSRC OPERAND.
5384 026424  042052  000000      2$:     .WORD   42052,0         ;EXPECTED RESULT.
5385 026430  036052  000000      3$:     .WORD   36052,0         ;ANTICIPATED ERRONEOUS RESULT.
5386 026434  000111              4$:     111                     ;FPS BEFORE EXECUTION.
5387 026436  000100                      100                     ;FPS AFTER EXECUTION.
5388 026440  177777                      -1                      ;ANTICIPATED ERRONEOUS FPS.
5389 026442  104267              5$:     ERROR   +267            ;REPORT RESULT INCORRECT.
5390 026444  000401                      BR      6$
5391 026446  104261                      ERROR   +261            ;REPORT FPS INCORRECT.
5392 026450                      6$:
5393
5394                             ;OPERAND=-40000,0       FL=1
5395 026450                      KKC13:
     026450  104413                        LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5396 026452  004737  027032              JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5397 026456  140000  000000      1$:     .WORD   -40000,0                ;FSRC OPERAND.
5398 026462  147600  000000      2$:     .WORD   147600,0                ;EXPECTED RESULT.
5399 026466  047600  000000      3$:     .WORD   47600,0         ;ANTICIPATED ERRONEOUS RESULT.
5400 026472  000107              4$:     107                     ;FPS BEFORE EXECUTION.
5401 026474  000110                      110                     ;FPS AFTER EXECUTION.
5402 026476  177777                      -1                      ;ANTICIPATED ERRONEOUS FPS.
5403 026500  104265              5$:     ERROR   +265    ;SET SIGN
5404 026502  000401                      BR      6$
5405 026504  104261                      ERROR   +261            ;REPORT FPS INCORRECT.
5406 026506                      6$:
5407
5408                             ;OPERAND=-1,-1  FL=1
5409 026506                      KKC14:
     026506  104413                        LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5410 026510  004737  027032              JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5411 026514  177777  177777      1$:     .WORD   -1,-1           ;FSRC OPERAND.
5412 026520  140200  000000      2$:     .WORD   140200,0                ;EXPECTED RESULT.
5413 026524  150000  000000      3$:     .WORD   150000,0                ;ANTICIPATED ERRONEOUS RESULT.
5414 026530  000100              4$:     100                     ;FPS BEFORE EXECUTION.
5415 026532  000110                      110                     ;FPS AFTER EXECUTION.
5416 026534  177777                      -1                      ;ANTICIPATED ERRONEOUS FPS.
5417 026536  104266              5$:     ERROR   +266            ;(BUT XNBT)
5418 026540  000401                      BR      6$
5419 026542  104261                      ERROR   +261            ;REPORT FPS INCORRECT.
5420 026544                      6$:
5421
5422                             ;OPERAND=-PATTERN       FL=1,   ROUND MODE
5423 026544                      KKC15:
     026544  104413                        LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5424 026546  004737  027032              JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5425 026552  125252  125252      1$:     .WORD   125252,125252           ;FSRC OPERAND.
```

TEST # 56 - LDCIF AND LDCLF TEST

```
5426 026556  147652  125253          2$:     .WORD   147652,125253           ;EXPECTED RESULT.
5427 026562  047652  125253          3$:     .WORD   47652,125253            ;ANTICIPATED ERRONEOUS RESULT.
5428 026566  000105                  4$:     105                     ;FPS BEFORE EXECUTION.
5429 026570  000110                          110                     ;FPS AFTER EXECUTION.
5430 026572  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5431 026574  104265                  5$:     ERROR   +265            ;REPORT RESULT INCORRECT.
5432 026576  000401                          BR      6$
5433 026600  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5434 026602                         6$:
5435
5436                                ;OPERAND=77777,177500   FL=1,   ROUND MODE
5437 026602                         KKC16:
     026602  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5438 026604  004737  027032                  JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5439 026610  077777  177500          1$:     .WORD   77777,177500            ;FSRC OPERAND.
5440 026614  047777  177777          2$:     .WORD   47777,177777            ;EXPECTED RESULT.
5441 026620  047777  177776          3$:     .WORD   47777,177776            ;ANTICIPATED ERRONEOUS RESULT.
5442 026624  000117                  4$:     117                     ;FPS BEFORE EXECUTION.
5443 026626  000100                          100                     ;FPS AFTER EXECUTION.
5444 026630  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5445 026632  104270                  5$:     ERROR   +270            ;ST 631 INTO RND
5446 026634  000401                          BR      6$
5447 026636  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5448 026640                         6$:
5449
5450                                ;OPERAND=40000,000100   FL=1,   ROUND MODE
5451 026640                         KKC17:
     026640  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5452 026642  004737  027032                  JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5453 026646  040000  000100          1$:     .WORD   40000,100               ;FSRC OPERAND.
5454 026652  047600  000001          2$:     .WORD   47600,1         ;EXPECTED RESULT.
5455 026656  047600  000000          3$:     .WORD   47600,0         ;ANTICIPATED ERRONEOUS RESULT.
5456 026662  000102                  4$:     102                     ;FPS BEFORE EXECUTION.
5457 026664  000100                          100                     ;FPS AFTER EXECUTION.
5458 026666  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5459 026670  104270                  5$:     ERROR   +270            ;REPORT RESULT INCORRECT.
5460 026672  000401                          BR      6$
5461 026674  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5462 026676                         6$:
5463
5464                                ;OPERAND=40000,000100   FL=1,   TRUNC MODE
5465 026676                         KKC18:
     026676  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5466 026700  004737  027032                  JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5467 026704  040000  000100          1$:     .WORD   40000,100               ;FSRC OPERAND.
5468 026710  047600  000000          2$:     .WORD   47600,0         ;EXPECTED RESULT.
5469 026714  047600  000001          3$:     .WORD   47600,1         ;ANTICIPATED ERRONEOUS RESULT.
5470 026720  000157                  4$:     157                     ;FPS BEFORE EXECUTION.
5471 026722  000140                          140                     ;FPS AFTER EXECUTION.
5472 026724  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5473 026726  104271                  5$:     ERROR   +271            ;ST 631 ... INTO TRNC
5474 026730  000401                          BR      6$
5475 026732  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5476 026734                         6$:
5477                                ;OPERAND=100000,0 (MOST NEG #)  FL=0
5478 026734                         KKC19:
     026734  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
```

```
5479 026736  004737  027032                  JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5480 026742  100000  000000          1$:     .WORD   100000,0                ;FSRC OPERAND.
5481 026746  144000  000000          2$:     .WORD   144000,0                ;EXPECTED RESULT.
5482 026752  143600  000000          3$:     .WORD   143600,0                ;ANTICIPATED ERRONEOUS RESULT.
5483 026756  000007                  4$:     7                       ;FPS BEFORE EXECUTION.
5484 026760  000010                          10                      ;FPS AFTER EXECUTION.
5485 026762  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5486 026764  104272                  5$:     ERROR   +272            ;ST 630 RH*R14+1
5487 026766  000401                          BR      6$
5488 026770  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5489 026772                          6$:
5490
5491                                 ;OPERAND=100000,0       FL=1
5492 026772                          KKC20:
     026772  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5493 026774  004737  027032                  JSR     PC,LDCFSUB      ;GO EXECUTE THE INSTRUCTION.
5494 027000  100000  000000          1$:     .WORD   100000,0                ;FSRC OPERAND.
5495 027004  150000  000000          2$:     .WORD   150000,0                ;EXPECTED RESULT.
5496 027010  147600  000000          3$:     .WORD   147600,0                ;ANTICIPATED ERRONEOUS RESULT.
5497 027014  000107                  4$:     107                     ;FPS BEFORE EXECUTION.
5498 027016  000110                          110                     ;FPS AFTER EXECUTION.
5499 027020  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5500 027022  104272                  5$:     ERROR   +272            ;REPORT RESULT INCORRECT.
5501 027024  000401                          BR      6$
5502 027026  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5503 027030  000506                  6$:     BR      KKCDONE
5504
5505                                 ;THIS SUBROUTINE, LDCFSUB, IS USED TO SET UP THE OPERANDS, EXECUTE
5506                                 ;THE LDCIF OR LDCLF INSTRUCTION AND CHECK THE RESULTS. A CALL
5507                                 ;TO IT IS MADE THUS:
5508                                 ;
5509                                 ;               JSR     PC,LDCFSUB
5510                                 ;               ACARG:  .WORD   X,X             ;AC OPERAND
5511                                 ;               RES:    .WORD   X,X             ;EXPECTED RESULT
5512                                 ;               ERRES:  .WORD   X,X             ;ERROR RESULT
5513                                 ;               FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
5514                                 ;               FPSA:   .WORD   X               ;FPS AFTER EXECUTION
5515                                 ;               ERFPS:  .WORD   X               ;ERROR FPS
5516                                 ;               ERR1:   ERROR   +X              ;DATA ERROR
5517                                 ;                       BR      CONT
5518                                 ;               ERR2:   ERROR   +X              ;FPS ERROR
5519                                 ;               CONT:                           ;RETURN ADDRESS
5520                                 ;
5521                                 ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
5522                                 ;THE LDCIF OR LDCLF INSTRUCTION IS EXECUTED.
5523                                 ;THE RESULT IS CHECKED AGAINST RES. IF THE RESULT IS CORRECT THEN THE FPS IS
5524                                 ;COMPARED WITH FPSA IF THIS TOO IS CORRECT LDCFSUB RETURNS CONTROL
5525                                 ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD LDCFSUB WILL
5526                                 ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN LDCFSUB WILL RETURN
5527                                 ;TO THE ERROR CALL AT ERR2, OTHERWISE LDCFSUB ITSELF
5528                                 ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
5529                                 ;LDCIF OR LDCLF IS INCORRECT, THE INCORRECT RESULT IS COMPARED WITH THE
5530                                 ;ANTICIPATED FAILING DATA PATTERN, ERRES. IF THE FAILURE IN
5531                                 ;THE RESULT WAS ANTICIPATED CORRECTLY TO BE ERRES THEN LDCFSUB
5532                                 ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
5533                                 ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND LDCFSUB
5534                                 ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
```

TEST # 56 - LDCIF AND LDCLF TEST

```
5535
5536 027032  012601                  LDCFSUB:    MOV     (SP)+,R1        ;GET A POINTER TO THE ARGUMENTS.
5537 027034  016100  000014                      MOV     14(R1),R0       ;SET THE FPS.
5538 027040  170100                              LDFPS   R0
5539 027042  012737  027052  001236              MOV     #1$,$TMP2
5540 027050  010100                              MOV     R1,R0
5541
5542 027052  177010                  1$:         LDCIF   (R0),AC0                ;TEST INSTRUCTION LDCIF OR LDCLF.
5543
5544 027054  170204                              STFPS   R4              ;GET FPS.
5545 027056  012700  027236                      MOV     #LDCT,R0        ;GET THE RESULT.
5546 027062  012702  000200                      MOV     #200,R2
5547 027066  170102                              LDFPS   R2
5548 027070  174010                              STD     AC0,(R0)
5549
5550 027072  012702  027236                      MOV     #LDCT,R2        ;SEE IF THE RESULT WAS CORRECT.
5551 027076  010237  001242                      MOV     R2,$TMP4
5552 027102  010137  001240                      MOV     R1,$TMP3
5553 027106  010103                              MOV     R1,R3
5554 027110  062703  000004                      ADD     #4,R3
5555 027114  010337  001244                      MOV     R3,$TMP5
5556 027120  010437  001250                      MOV     R4,$TMP7
5557 027124  016137  000016  001252              MOV     16(R1),$TMP10
5558 027132  010100                              MOV     R1,R0
5559 027134  062700  000004                      ADD     #4,R0
5560 027140  012703  000002                      MOV     #2,R3
5561 027144  022022                  2$:         CMP     (R0)+,(R2)+
5562 027146  001006                              BNE     10$             ;BR IF INCORRECT.
5563 027150  077303                              SOB     R3,2$
5564
5565 027152  026104  000016                      CMP     16(R1),R4       ;SEE IF THE FPS WAS CORRECT.
5566 027156  001020                              BNE     15$             ;BR IF INCORRECT.
5567 027160  000161  000030              3$:     JMP     30(R1)          ;RETURN.
5568
5569                                     ;RESULT IN CORRECT SO SEE IF THE FAILURE WAS ANTICIPATED.
5570 027164  012702  027236              10$:    MOV     #LDCT,R2
5571 027170  010100                              MOV     R1,R0
5572 027172  062700  000010                      ADD     #10,R0
5573 027176  012703  000002                      MOV     #2,R3
5574 027202  022022                  11$:        CMP     (R0)+,(R2)+
5575 027204  001003                              BNE     13$
5576 027206  077303                              SOB     R3,11$
5577 027210  000161  000022                      JMP     22(R1)
5578
5579                                     ;THE FAILURE WAS NOT ANTICIPATED SO REPORT THE ERROR HERE.
5580 027214                          13$:
5581
5582 027214  104260                  14$:        ERROR   +260            ;BAD RES
5583 027216  000760                              BR      3$
5584
5585
5586                                     ;THE FPS WAS INCORRECT SO SEE IF IT WAS ANTICIPATED.
5587 027220  026104  000020              15$:    CMP     20(R1),R4
5588 027224  001002                              BNE     16$
5589 027226  000161  000026                      JMP     26(R1)
5590
5591                                     ;FPS ERROR NOT ANTICIPATED SO REPORT IT HERE.
```

TEST # 56 - LDCIF AND LDCLF TEST

```
5592 027232                                16$:
5593 027232  104261                        17$:    ERROR   +261          ;BAD FPS
5594 027234  000751                                BR      3$
5595
5596                                       ;DATA BUFFER:
5597 027236  000000  000000  000000       LDCT:   .WORD   0,0,0,0
5598
5599 027246                                KKCDONE:
     027246  104412                                RSETUP                ;GO INITIALIZE THE FPS AND STACK; AND
                                                                          ;SEE IF THE USER HAS EXPRESSED
                                                                          ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                          ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                          ;THE USER TYPED CONTROL G?).
5605
```

```
5606                                    .SBTTL  TEST # 57 - LDCID AND LDCLD TEST
                                        ;;*****************************************************************
                                        ;*TEST 57       LDCID AND LDCLD TEST
                                        ;*
                                        ;* THIS IS A TEST OF LDCID AND LDCLD
                                        ;*
                                        ;;*************************************** *************************
     027250  000004                     TST57:  SCOPE
5607                                    ;OPERAND=0      FL=0,   FD=1
5608 027252                             LLC1:
     027252  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5609 027254  004737  030050                     JSR     PC,LDCDSUB      ;GO EXECUTE THE INSTRUCTION.
5610 027260  000000  000000             1$:     .WORD   0,0             ;FSRC OPERAND.
5611 027264  000000  000000  000000     2$:     .WORD   0,0,0,0         ;EXPECTED RESULT.
5612 027274  177777  177777  177777     3$:     .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
5613 027304  000213                     4$:     211                     ;FPS BEFORE EXECUTION.
5614 027306  000204                             204                     ;FPS AFTER EXECUTION.
5615 027310  177777                             -1                      ;ANTICIPATED ERRONEOUS FPS.
5616 027312  104273                     5$:     ERROR   +273            ;REPORT RESULT INCORRECT.
5617 027314  000401                             BR      6$
5618 027316  104274                             ERROR   +274            ;REPORT FPS INCORRECT.
5619 027320                             6$:
5620                                    ;OPERAND=0      FL=0,   FD=1
5621 027320                             LLC2:
     027320  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5622 027322  004737  030050                     JSR     PC,LDCDSUB      ;GO EXECUTE THE INSTRUCTION.
5623 027326  000000  177777             1$:     .WORD   0,-1            ;FSRC OPERAND.
5624 027332  000000  000000  000000     2$:     .WORD   0,0,0,0         ;EXPECTED RESULT.
5625 027342  004177  177400  000000     3$:     .WORD   4177,177400,0,0         ;ANTICIPATED ERRONEOUS RESULT.
5626 027352  000200                     4$:     200                     ;FPS BEFORE EXECUTION.
5627 027354  000204                             204                     ;FPS AFTER EXECUTION.
5628 027356  177777                             -1                      ;ANTICIPATED ERRONEOUS FPS.
5629 027360  104275                     5$:     ERROR   +275            ;(BUT FL)S+277
5630 027362  000401                             BR      6$              ;TO 300 INTO 301
5631 027364  104274                             ERROR   +274            ;REPORT FPS INCORRECT.
5632 027366                             6$:
5633
5634                                    ;OPERAND=0      FL=1    FD=1
5635 027366                             LLC3:
     027366  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5636 027370  004737  030050                     JSR     PC,LDCDSUB      ;GO EXECUTE THE INSTRUCTION.
5637 027374  000000  000000             1$:     .WORD   0,0             ;FSRC OPERAND.
5638 027400  000000  000000  000000     2$:     .WORD   0,0,0,0         ;EXPECTED RESULT.
5639 027410  177777  177777  177777     3$:     .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
5640 027420  000211                     4$:     211                     ;FPS BEFORE EXECUTION.
5641 027422  000204                             204                     ;FPS AFTER EXECUTION.
5642 027424  177777                             -1                      ;ANTICIPATED ERRONEOUS FPS.
5643 027426  104273                     5$:     ERROR   +273            ;REPORT RESULT INCORRECT.
5644 027430  000401                             BR      6$
5645 027432  104274                             ERROR   +274            ;REPORT FPS INCORRECT.
5646 027434                             6$:
5647
5648                                    ;OPERAND=40000  FL=0    FD=1
5649 027434                             LLC4:
     027434  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5650 027436  004737  030050                     JSR     PC,LDCDSUB      ;GO EXECUTE THE INSTRUCTION.
5651 027442  040000  000000             1$:     .WORD   40000,0         ;FSRC OPERAND.
```

TEST # 57 - LDCID AND LDCLD TEST

```
5652 027446  043600  000000  000000  2$:     .WORD   43600,0,0,0          ;EXPECTED RESULT.
5653 027456  047600  000000  000000  3$:     .WORD   47600,0,0,0          ;ANTICIPATED ERRONEOUS RESULT.
5654 027466  000217                  4$:     217                  ;FPS BEFORE EXECUTION.
5655 027470  000200                          200                  ;FPS AFTER EXECUTION.
5656 027472  177777                          -1                   ;ANTICIPATED ERRONEOUS FPS.
5657 027474  104276                  5$:     ERROR   +276         ;ST 107 BAD CONST
5658 027476  000401                          BR      6$
5659 027500  104274                          ERROR   +274         ;REPORT FPS INCORRECT.
5660 027502                          6$:
5661
5662                                 ;OPERAND=-40000 FL=0    FD=1
5663 027502                          LLC5:
     027502  104413                          LPERR                ;SET UP THE LOOP ON ERROR ADDRESS.
5664 027504  004737  030050                  JSR     PC,LDCDSUB   ;GO EXECUTE THE INSTRUCTION.
5665 027510  140000  000000          1$:     .WORD   -40000,0             ;FSRC OPERAND.
5666 027514  143600  000000  000000  2$:     .WORD   143600,0,0,0         ;EXPECTED RESULT.
5667 027524  043600  000000  000000  3$:     .WORD   43600,0,0,0          ;ANTICIPATED ERRONEOUS RESULT.
5668 027534  000200                  4$:     200                  ;FPS BEFORE EXECUTION.
5669 027536  000210                          210                  ;FPS AFTER EXECUTION.
5670 027540  177777                          -1                   ;ANTICIPATED ERRONEOUS FPS.
5671 027542  104277                  5$:     ERROR   +277         ;(SET SIGN) ST 176
5672 027544  000401                          BR      6$
5673 027546  104274                          ERROR   +274         ;REPORT FPS INCORRECT.
5674 027550                          6$:
5675
5676                                 ;OPERAND=40000,0        FL=1    FD=1
5677 027550                          LLC6:
     027550  104413                          LPERR                ;SET UP THE LOOP ON ERROR ADDRESS.
5678 027552  004737  030050                  JSR     PC,LDCDSUB   ;GO EXECUTE THE INSTRUCTION.
5679 027556  040000  000000          1$:     .WORD   40000,0              ;FSRC OPERAND.
5680 027562  047600  000000  000000  2$:     .WORD   47600,0,0,0          ;EXPECTED RESULT.
5681 027572  043600  000000  000000  3$:     .WORD   43600,0,0,0          ;ANTICIPATED ERRONEOUS RESULT.
5682 027602  000317                  4$:     317                  ;FPS BEFORE EXECUTION.
5683 027604  000300                          300                  ;FPS AFTER EXECUTION.
5684 027606  177777                          -1                   ;ANTICIPATED ERRONEOUS FPS.
5685 027610  104300                  5$:     ERROR   +300         ;ST 107 BAD CONS
5686 027612  000401                          BR      6$
5687 027614  104274                          ERROR   +274         ;REPORT FPS INCORRECT.
5688 027616                          6$:
5689
5690                                 ;OPERAND=0,1    FL=1    FD=1
5691 027616                          LLC7:
     027616  104413                          LPERR                ;SET UP THE LOOP ON ERROR ADDRESS.
5692 027620  004737  030050                  JSR     PC,LDCDSUB   ;GO EXECUTE THE INSTRUCTION.
5693 027624  000000  000001          1$:     .WORD   0,1                  ;FSRC OPERAND.
5694 027630  040200  000000  000000  2$:     .WORD   40200,0,0,0          ;EXPECTED RESULT.
5695 027640  034200  000000  000000  3$:     .WORD   34200,0,0,0          ;ANTICIPATED ERRONEOUS RESULT.
5696 027650  000300                  4$:     300                  ;FPS BEFORE EXECUTION.
5697 027652  000300                          300                  ;FPS AFTER EXECUTION.
5698 027654  177777                          -1                   ;ANTICIPATED ERRONEOUS FPS.
5699 027656  104300                  5$:     ERROR   +300         ;REPORT FPS INCORRECT.
5700 027660  000401                          BR      6$
5701 027662  104274                          ERROR   +274         ;REPORT FPS INCORRECT.
5702 027664                          6$:
5703
5704                                 ;OPERAND=77777,177777   FL=1    FD=1
5705 027664                          LLC8:
```

TEST # 57 - LDCID AND LDCLD TEST

```
        027664  104413                          LPERR                           ;SET UP THE LOOP ON ERROR ADDRESS.
5706    027666  004737  030050                  JSR     PC,LDCDSUB              ;GO EXECUTE THE INSTRUCTION.
5707    027672  077777  177777          1$:     .WORD   77777,177777                    ;FSRC OPERAND.
5708    027676  047777  177777  177000  2$:     .WORD   47777,177777,177000,0           ;EXPECTED RESULT.
5709    027706  177777  177777  177777  3$:     .WORD   -1,-1,-1,-1                     ;ANTICIPATED ERRONEOUS RESULT.
5710    027716  000317                  4$:     317                             ;FPS BEFORE EXECUTION.
5711    027720  000300                          300                             ;FPS AFTER EXECUTION.
5712    027722  177777                          -1                              ;ANTICIPATED ERRONEOUS FPS.
5713    027724  104273                  5$:     ERROR   +273                    ;REPORT RESULT INCORRECT.
5714    027726  000401                          BR      6$
5715    027730  104274                          ERROR   +274                    ;REPORT FPS INCORRECT.
5716    027732                          6$:
5717
5718                                    ;OPERAND=-PATTERN       FL=1    FD=1
5719
5720    027732                          LLC9:
        027732  104413                          LPERR                           ;SET UP THE LOOP ON ERROR ADDRESS.
5721    027734  004737  030050                  JSR     PC,LDCDSUB              ;GO EXECUTE THE INSTRUCTION.
5722    027740  177777  177526          1$:     .WORD   -1,-252                 ;FSRC OPERAND.
5723    027744  142052  000000  000000  2$:     .WORD   142052,0,0,0                    ;EXPECTED RESULT.
5724    027754  136052  000000  000000  3$:     .WORD   136052,0,0,0                    ;ANTICIPATED ERRONEOUS RESULT.
5725    027764  000307                  4$:     307                             ;FPS BEFORE EXECUTION.
5726    027766  000310                          310                             ;FPS AFTER EXECUTION.
5727    027770  177777                          -1                              ;ANTICIPATED ERRONEOUS FPS.
5728    027772  104300                  5$:     ERROR   +300                    ;REPORT RESULT INCORRECT.
5729    027774  000401                          BR      6$
5730    027776  104274                          ERROR   +274                    ;REPORT FPS INCORRECT.
5731    030000                          6$:
5732
5733                                    ;OPERAND=PATTERN        FL=1    FD=1    FT=1
5734    030000                          LLC10:
        030000  104413                          LPERR                           ;SET UP THE LOOP ON ERROR ADDRESS.
5735    030002  004737  030050                  JSR     PC,LDCDSUB              ;GO EXECUTE THE INSTRUCTION.
5736    030006  012345  067012          1$:     .WORD   12345,67012                     ;FSRC OPERAND.
5737    030012  047247  025560  050000  2$:     .WORD   47247,025560,050000,0           ;EXPECTED RESULT.
5738    030022  177777  177777  177777  3$:     .WORD   -1,-1,-1,-1                     ;ANTICIPATED ERRONEOUS RESULT.
5739    030032  000352                  4$:     352                             ;FPS BEFORE EXECUTION.
5740    030034  000340                          340                             ;FPS AFTER EXECUTION.
5741    030036  177777                          -1                              ;ANTICIPATED ERRONEOUS FPS.
5742    030040  104273                  5$:     ERROR   +273                    ;REPORT RESULT INCORRECT.
5743    030042  000401                          BR      6$
5744    030044  104274                          ERROR   +274                    ;REPORT FPS INCORRECT.
5745    030046  000502                  6$:     BR      LLCDONE
5746
5747                                    ;THIS SUBROUTINE, LDCDSUB, IS USED TO SET UP THE OPERANDS, EXECUTE
5748                                    ;THE LDCID OR LDCLD INSTRUCTION AND CHECK THE RESULTS. A CALL
5749                                    ;TO IT IS MADE THUS:
5750                                    ;
5751                                    ;               JSR     PC,LDCDSUB
5752                                    ;               ACARG:  .WORD   X,X             ;AC OPERAND
5753                                    ;               RES:    .WORD   X,X,X,X         ;EXPECTED RESULT
5754                                    ;               ERRES:  .WORD   X,X,X,X         ;ERROR RESULT
5755                                    ;               FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
5756                                    ;               FPSA:   .WORD   X               ;FPS AFTER EXECUTION
5757                                    ;               ERFPS:  .WORD   X               ;ERROR FPS.
5758                                    ;               ERR1:   ERROR   +X              ;DATA ERROR.
5759                                    ;                       BR      CONT
```

TEST # 57 - LDCID AND LDCLD TEST

```
                                        ;               ERR2:   ERROR   +X              ;FPS ERROR.
                                        ;               CONT:                           ;RETURN ADDRESS
                                        ;
                                        ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
                                        ;THE LDCID OR LDCLD INSTRUCTION IS EXECUTED.
                                        ;THE RESULT IS CHECKED AGAINST RES. IF THE RESULT IS CORRECT THEN THE FPS IS
                                        ;COMPARED WITH FPSA IF THIS TOO IS CORRECT LDCDSUB RETURNS CONTROL
                                        ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD LDCDSUB
                                        ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN LDCDSUB WILL RETURN
                                        ;TO THE ERROR CALL AT ERR2, OTHERWISE LDCDSUB ITSELF
                                        ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
                                        ;LDCID OR LDCLD IS INCORRECT, THE INCORRECT RESULT IS COMPARED WITH THE
                                        ;ANTICIPATED FAILING DATA PATTERN, ERRES. IF THE FAILURE IN
                                        ;THE RESULT WAS ANTICIPATED CORRECTLY TO BE ERRES THEN LDCDSUB
                                        ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
                                        ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND LDCDSUB WILL
                                        ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.

030050  012601                  LDCDSUB:      MOV     (SP)+,R1        ;GET A POINTER TO THE ARGUMENTS.
030052  016100  000024                        MOV     24(R1),R0       ;SET THE FPS.
030056  170100                              LDFPS   R0
030060  012737  030070  001236              MOV     #1$,$TMP2
030066  010100                              MOV     R1,R0
030070  177010                  1$:         LDCID   (R0),AC0        ;TEST INSTRUCTION, LDCID OR LDCLD.

030072  170204                              STFPS   R4              ;GET FPS.
030074  012700  027236                      MOV     #LDCT,R0        ;GET THE RESULT.
030100  012702  000200                      MOV     #200,R2
030104  170102                              LDFPS   R2
030106  174010                              STD     AC0,(R0)

                                        ;SEE IF THE RESULT IS CORRECT.
030110  012702  027236                      MOV     #LDCT,R2
030114  010237  001242                      MOV     R2,$TMP4
030120  010137  001240                      MOV     R1,$TMP3
030124  010103                            MOV     R1,R3
030126  062703  000004                      ADD     #4,R3
030132  010337  001244                      MOV     R3,$TMP5
030136  010437  001250                      MOV     R4,$TMP7
030142  016137  000026  001252              MOV     26(R1),$TMP10
030150  010100                            MOV     R1,R0
030152  062700  000004                      ADD     #4,R0
030156  012703  000002                      MOV     #2,R3
030162  022022                  2$:         CMP     (R0)+,(R2)+
030164  001006                            BNE     10$             ;BR IF INCORRECT.
030166  077303                            SOB     R3,2$

030170  026104  000026                      CMP     26(R1),R4               ;IS THE FPS CORRECT?
030174  001020                            BNE     15$             ;BR IF INCORRECT.
030176  000161  000040            3$:       JMP     40(R1)          ;RETURN.

                                        ;THE RESULT WAS INCORRECT SO SEE IF THE ERROR WAS ANTICIPATED.
030202  012702  027236            10$:      MOV     #LDCT,R2
030206  010100                            MOV     R1,R0
030210  062700  000014                      ADD     #14,R0
030214  012703  000002                      MOV     #2,R3
030220  022022                  11$:        CMP     (R0)+,(R2)+
```

TEST # 57 - LDCID AND LDCLD TEST

```
5817 030222  001003                        BNE     13$
5818 030224  077303                        SOB     R3,11$
5819 030226  000161  000032                JMP     32(R1)
5820 030232                          13$:
5821                                 ;ERROR NOT ANTICIPATED SO REPORT RESULT INCORRECT HERE.
5822 030232  104273                  14$:  ERROR   +273                    ;BAD RES
5823 030234  000760                        BR      3$
5824
5825                                 ;THE FPS WAS INCORRECT. SEE IF FAILURE WAS ANTICIPATED.
5826 030236  026104  000030          15$:  CMP     30(R1),R4
5827 030242  001002                        BNE     16$
5828 030244  000161  000036                JMP     36(R1)
5829                                 ;FPS ERROR WAS NOT ANTICIPATED SO REPORT FAILURE HERE.
5830 030250                          16$:
5831
5832 030250  104274                  17$:  ERROR   +274                    ;BAD FPS
5833 030252  000751                        BR      3$
5834
5835 030254                          LLCDONE:
     030254  104412                        RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).

5836
5845
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                                        .SBTTL  TEST # 60 - LDEXP TEST
                                        ;;*****************************************************************
                                        ;*TEST 60       LDEXP TEST
                                        ;*
                                        ;* THIS IS A TEST OF THE LDEXP INST
                                        ;* A SUBROUTINE IS USED TO SET UP
                                        ;* OPERANDS, EXECUTE THE LDEXP INST AND
                                        ;* CHECK THE RESULTS.
                                        ;*
                                        ;;*****************************************************************
    030256  000004                      TST60:  SCOPE
5847
5848                                    ; NON-ZERO RES. VALID EXPON=210 (EXCESS 200)=10
5849 030260                             MMC1:
    030260  104413                              LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5850 030262  004737  031622                    JSR     PC,LDXSUB       ;GO EXECUTE THE INSTRUCTION.
5851 030266  012345  067012  034567  1$:      .WORD   12345,67012,34567,012345        ;AC0 OPERAND.
5852 030276  000010                  2$:      .WORD   10              ;EXPONENT OPERAND.
5853 030300  042145  067012  034567  3$:      .WORD   42145,67012,34567,012345                ;EXPECTED RESULT.
5854 030310  002145  067012  034567  4$:      .WORD   2145,67012,34567,012345         ;ANTICIPATED ERRONEOUS RESULT.
5855 030320  047217                  5$:      47217                   ;FPS BEFORE EXECUTION.
5856 030322  047200                           47200                   ;FPS AFTER EXECUTION.
5857 030324  147200                           147200                  ;ANTICIPATED ERRONEOUS FPS.
5858 030326  177777                           -1              ;EXPECTED FEC.
5859 030330  104304                  6$:      ERROR   +304            ;E12+E12+200 BAD
5860 030332  000400                           BR      7$              ;ST 624
5861 030334  104305                  7$:      ERROR   +305            ;REPORT FPS INCORRECT.
5862                                                                    ;ST 625 INTO 304
5863                                    ;NON-ZERO       RES     NEG.
5864 030336                             MMC2:
    030336  104413                              LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5865 030340  004737  031622                    JSR     PC,LDXSUB       ;EXPON=377
5866 030344  123456  070123  045670  1$:      .WORD   123456,70123,45670,123456       ;AC0 OPERAND.
5867 030354  000177                  2$:      .WORD   177             ;EXPONENT OPERAND.
5868 030356  177656  070123  045670  3$:      .WORD   177656,70123,45670,123456               ;EXPECTED RESULT.
5869 030366  137656  070123  045670  4$:      .WORD   137656,70123,45670,123456               ;ANTICIPATED ERRONEOUS RESULT.
5870 030376  047207                  5$:      47207                   ;FPS BEFORE EXECUTION.
5871 030400  047210                           47210                   ;FPS AFTER EXECUTION.
5872 030402  147210                           147210                  ;ANTICIPATED ERRONEOUS FPS.
5873 030404  177777                           -1              ;EXPECTED FEC.
5874 030406  104304                  6$:      ERROR   +304            ;REPORT RESULT INCORRECT.
5875 030410  000401                           BR      7$
5876 030412  104305                           ERROR   +305            ;REPORT FPS INCORRECT.
5877 030414                           7$:
5878
5879                                    ;NON-ZERO       RES,    EXP=256=(56)REAL
5880 030414                             MMC3:
    030414  104413                              LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5881 030416  004737  031622                    JSR     PC,LDXSUB       ;GO EXECUTE THE INSTRUCTION.
5882 030422  073261  057645  043323  1$:      .WORD   73261,057645,43323,101760       ;AC0 OPERAND.
5883 030432  000056                  2$:      .WORD   56              ;EXPONENT OPERAND.
5884 030434  053461  057645  043323  3$:      .WORD   53461,057645,43323,101760               ;EXPECTED RESULT.
5885 030444  177777  177777  177777  4$:      .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
5886 030454  047200                  5$:      47200                   ;FPS BEFORE EXECUTION.
5887 030456  047200                           47200                   ;FPS AFTER EXECUTION.
5888 030460  147200                           147200                  ;ANTICIPATED ERRONEOUS FPS.
5889 030462  177777                           -1              ;EXPECTED FEC.
```

TEST # 60 - LDEXP TEST

```
5890 030464  104301                    6$:     ERROR   +301            ;REPORT RESULT INCORRECT.
5891 030466  000401                            BR      7$
5892 030470  104305                            ERROR   +305            ;REPORT FPS INCORRECT.
5893 030472                             7$:
5894
5895                                    ;EXP=27 (EXCESS 200)=-151 (OCT)
5896 030472                             MMC4:
     030472  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5897 030474  004737  031622                     JSR     PC,LDXSUB       ;GO EXECUTE THE INSTRUCTION.
5898 030500  012223  024252  062720     1$:     .WORD   12223,24252,62720,21222 ;AC0 OPERAND.
5899 030510  177627                     2$:     .WORD   -151            ;EXPONENT OPERAND.
5900 030512  005623  024252  062720     3$:     .WORD   5623,24252,62720,21222          ;EXPECTED RESULT.
5901 030522  177777  177777  177777     4$:     .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
5902 030532  047200                     5$:     47200                   ;FPS BEFORE EXECUTION.
5903 030534  047200                             47200                   ;FPS AFTER EXECUTION.
5904 030536  147200                             147200                  ;ANTICIPATED ERRONEOUS FPS.
5905 030540  177777                             -1              ;EXPECTED FEC.
5906 030542  104301                    6$:     ERROR   +301            ;REPORT RESULT INCORRECT.
5907 030544  000401                            BR      7$
5908 030546  104306                            ERROR   +306            ;(BUT EZBT) ST 544 TO 504 INTO 704 0 (BUT EXBT) ST 704 INTO
5909 030550                             7$:
5910
5911                                    ;EXP=0 (EXCESS 200)=-200 (OCT), POSITIVE FRAC
5912                                    ; FIV=1
5913 030550                             MMC5:
     030550  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5914 030552  004737  031622                     JSR     PC,LDXSUB       ;GO EXECUTE THE INSTRUCTION.
5915 030556  030131  032334  035363     1$:     .WORD   30131,32334,35363,73031 ;AC0 OPERAND.
5916 030566  177600                     2$:     .WORD   -200            ;EXPONENT OPERAND.
5917 030570  000131  032334  035363     3$:     .WORD   00131,32334,35363,73031         ;EXPECTED RESULT.
5918 030600  000000  000000  000000     4$:     .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
5919 030610  042200                     5$:     42200                   ;FPS BEFORE EXECUTION.
5920 030612  142204                             142204                  ;FPS AFTER EXECUTION.
5921 030614  042202                             42202                   ;ANTICIPATED ERRONEOUS FPS.
5922 030616  000012                             12              ;EXPECTED FEC.
5923 030620  104307                    6$:     ERROR   +307            ;(BUT EXBT) ST 704 TO 64 INST 264
5924 030622  000401                            BR      7$
5925 030624  104310                            ERROR   +310    ;(BUT FIU) ST 264 X
5926 030626                             7$:
5927
5928                                    ;EXP=0  (EXCESS 200)=-200 (OCT), NEG FRACT,FIU=1
5929 030626                             MMC6:
     030626  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
5930 030630  004737  031622                     JSR     PC,LDXSUB       ;GO EXECUTE THE INSTRUCTION.
5931 030634  140414  024344  045464     1$:     .WORD   140414,24344,45464,74045        ;AC0 OPERAND.
5932 030644  177600                     2$:     .WORD   -200            ;EXPONENT OPERAND.
5933 030646  100014  024344  045464     3$:     .WORD   100014,24344,45464,74045        ;-0             ;EXPECTED RESULT.
5934 030656  000000  000000  000000     4$:     .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
5935 030666  042200                     5$:     42200                   ;FPS BEFORE EXECUTION.
5936 030670  142214                             142214                  ;FPS AFTER EXECUTION.
5937 030672  042214                             42214                   ;ANTICIPATED ERRONEOUS FPS.
5938 030674  000012                             12              ;EXPECTED FEC.
5939 030676  104307                    6$:     ERROR   +307            ;REPORT RESULT INCORRECT.
5940 030700  000401                            BR      7$
5941 030702  104310                            ERROR   +310            ;REPORT FPS INCORRECT.
5942 030704                             7$:
5943
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                                        ;EXP=0 (EXCESS 200)=-200 (OCT),POS FRAC, FIU=0
                                        MMC7:
030704  104413                                LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
030706  004737  031622                        JSR     PC,LDXSUB       ;GO EXECUTE THE INSTRUCTION.
030712  051525  035455  005675          1$:   .WORD   51525,35455,5675,05152  ;AC0 OPERAND.
030722  177600                        2$:   .WORD   -200            ;EXPONENT OPERAND.
030724  000000  000000  000000        3$:   .WORD   0,0,0,0         ;EXPECTED RESULT.
030734  000125  035455  005675        4$:   .WORD   00125,35455,5675,05152          ;ANTICIPATED ERRONEOUS RESULT.
030744  045200                              45200                   ;FPS BEFORE EXECUTION.
030746  045204                              45204                   ;FPS AFTER EXECUTION.
030750  145204                              145204                  ;ANTICIPATED ERRONEOUS FPS.
030752  177777                              -1              ;EXPECTED FEC.
030754  104311                        6$:   ERROR   +311            ;(BUT FIU) ST 264 X             ;REPORT RESULT INCORRECT.
030756  000401                              BR      7$
030760  104302                              ERROR   +302            ;REPORT FPS INCORRECT.
030762                                7$:
                                        ;EXP=-1405 (EXCESS 200)=-1605 (OCT), FIU=1
030762                                  MMC8:
030762  104413                                LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
030764  004737  031622                        JSR     PC,LDXSUB       ;GO EXECUTE THE INSTRUCTION.
030770  061626  062636  046566          1$:   .WORD   61626,62636,46566,67606 ;AC0 OPERAND.
031000  176173                        2$:   .WORD   -1605           ;EXPONENT OPERAND.
031002  076626  062636  046566        3$:   .WORD   76626,62636,46566,67606         ;EXPECTED RESULT.
031012  000000  000000  000000        4$:   .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
031022  042200                        5$:   42200                   ;FPS BEFORE EXECUTION.
031024  142200                              142200                  ;FPS AFTER EXECUTION.
031026  042204                              42204                   ;ANTICIPATED ERRONEOUS FPS.
031030  000012                              12              ;EXPECTED FEC.
031032  104312                        6$:   ERROR   +312            ;(BUT EZBT) ST 544 TO 704 INTO 504
031034  000401                              BR      7$
031036  104302                              ERROR   +302            ;REPORT FPS INCORRECT.
031040                                7$:
                                        ;EXP=-17416 (EXCESS 200)=-17616 (OCT), FIU=0
031040                                  MMC9:
031040  104413                                LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
031042  004737  031622                        JSR     PC,LDXSUB       ;GO EXECUTE THE INSTRUCTION.
031046  071727  037475  076777          1$:   .WORD   71727,37475,76777,17273 ;AC0 OPERAND.
031056  160162                        2$:   .WORD   -17616          ;EXPONENT OPERAND.
031060  000000  000000  000000        3$:   .WORD   0,0,0,0         ;EXPECTED RESULT.
031070  074527  037475  076777        4$:   .WORD   74527,37475,76777,17273         ;ANTICIPATED ERRONEOUS RESULT.
031100  045200                        5$:   45200                   ;FPS BEFORE EXECUTION.
031102  045204                              45204                   ;FPS AFTER EXECUTION.
031104  145200                              145200                  ;ANTICIPATED ERRONEOUS FPS.
031106  177777                              -1              ;EXPECTED FEC.
031110  104313                        6$:   ERROR   +313            ;(BUT FIU) ST 504
031112  000401                              BR      7$
031114  104302                              ERROR   +302            ;REPORT FPS INCORRECT.
031116                                7$:
                                        ;EXP=-1601 (EXCESS 200)=-2001 (OCT), FIU=1
031116                                  MMC10:
031116  104413                                LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
031120  004737  031622                        JSR     PC,LDXSUB       ;GO EXECUTE THE INSTRUCTION.
031124  001020  030405  006070          1$:   .WORD   01020,30405,06070,00102 ;AC0 OPERAND.
031134  175777                        2$:   .WORD   -2001           ;EXPONENT OPERAND.
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5997 031136  037620  030405  006070  3$:     .WORD   37620,30405,06070,00102        ;EXPECTED RESULT.
5998 031146  000000  000000  000000  4$:     .WORD   0,0,0,0                    ;ANTICIPATED ERRONEOUS RESULT.
5999 031156  042200                  5$:     42200                              ;FPS BEFORE EXECUTION.
6000 031160  142200                          142200                             ;FPS AFTER EXECUTION.
6001 031162  042204                          42204                              ;ANTICIPATED ERRONEOUS FPS.
6002 031164  000012                          12                      ;EXPECTED FEC.
6003 031166  104312                  6$:     ERROR   +312                       ;(BUT FIU) ST 504
6004 031170  000401                          BR      7$
6005 031172  104302                          ERROR   +302                       ;REPORT FPS INCORRECT.
6006 031174                           7$:
6007
6008                                  ;EXP=1206 (EXCESS 200)=1006 (OCT) FIV =1
6009 031174                           MMC11:
     031174  104413                          LPERR                              ;SET UP THE LOOP ON ERROR ADDRESS.
6010 031176  004737  031622                  JSR     PC,LDXSUB                  ;GO EXECUTE THE INSTRUCTION.
6011 031202  012131  014151  016171  1$:     .WORD   12131,14151,16171,10111 ;AC0 OPERAND.
6012 031212  001006                  2$:     .WORD   1006                       ;EXPONENT OPERAND.
6013 031214  041531  014151  016171  3$:     .WORD   41531,14151,16171,10111        ;EXPECTED RESULT.
6014 031224  000000  000000  000000  4$:     .WORD   0,0,0,0                    ;ANTICIPATED ERRONEOUS RESULT.
6015 031234  041200                  5$:     41200                              ;FPS BEFORE EXECUTION.
6016 031236  141202                          141202                             ;FPS AFTER EXECUTION.
6017 031240  041204                          41204                              ;ANTICIPATED ERRONEOUS FPS.
6018 031242  000010                          10                      ;EXPECTED FEC.
6019 031244  104314                  6$:     ERROR   +314                       ;(BUT FIV) ST 104
6020 031246  000401                          BR      7$
6021 031250  104302                          ERROR   +302                       ;REPORT FPS INCORRECT.
6022 031252                           7$:
6023
6024                                  ;EXP=16315 (EXCESS 200)=16115 (OCT) FIV=0
6025 031252                           MMC12:
     031252  104413                          LPERR                              ;SET UP THE LOOP ON ERROR ADDRESS.
6026 031254  004737  031622                  JSR     PC,LDXSUB                  ;GO EXECUTE THE INSTRUCTION.
6027 031260  027262  025242  023222  1$:     .WORD   27262,25242,23222,21202 ;AC0 OPERAND.
6028 031270  016115                  2$:     .WORD   16115                      ;EXPONENT OPERAND.
6029 031272  000000  000000  000000  3$:     .WORD   0,0,0,0                    ;EXPECTED RESULT.
6030 031302  063262  025242  023222  4$:     .WORD   63262,25242,23222,21202        ;ANTICIPATED ERRONEOUS RESULT.
6031 031312  046200                  5$:     46200                              ;FPS BEFORE EXECUTION.
6032 031314  046206                          46206                              ;FPS AFTER EXECUTION.
6033 031316  146202                          146202                             ;ANTICIPATED ERRONEOUS FPS.
6034 031320  177777                          -1                      ;EXPECTED FEC.
6035 031322  104315                  6$:     ERROR   +315                       ;(BUT FIV) ST 104
6036 031324  000401                          BR      7$
6037 031326  104302                          ERROR   +302                       ;REPORT FPS INCORRECT.
6038 031330                           7$:
6039
6040                                  ;EXP=11011 (EXCESS 200)=10611 (OCT) FIV=1
6041
6042 031330                           MMC13:
     031330  104413                          LPERR                              ;SET UP THE LOOP ON ERROR ADDRESS.
6043 031332  004737  031622                  JSR     PC,LDXSUB                  ;GO EXECUTE THE INSTRUCTION.
6044 031336  030313  032333  034353  1$:     .WORD   30313,32333,34353,36373 ;AC0 OPERAND.
6045 031346  010611                  2$:     .WORD   10611                      ;EXPONENT OPERAND.
6046 031350  002313  032333  034353  3$:     .WORD   2313,32333,34353,36373         ;EXPECTED RESULT.
6047 031360  000000  000000  000000  4$:     .WORD   0,0,0,0                    ;ANTICIPATED ERRONEOUS RESULT.
6048 031370  041200                  5$:     41200                              ;FPS BEFORE EXECUTION.
6049 031372  141202                          141202                             ;FPS AFTER EXECUTION.
6050 031374  041204                          41204                              ;ANTICIPATED ERRONEOUS FPS.
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6051 031376  000010                        10                ;EXPECTED FEC.
6052 031400  104316              6$:       ERROR   +316              ;(BUT FIV) ST 144
6053 031402  000401                        BR      7$
6054 031404  104302                        ERROR   +302              ;REPORT FPS INCORRECT.
6055 031406                      7$:
6056
6057                             ;EXP=17123 (EXCESS 200)=16723 (OCT) FIV=0
6058
6059 031406                      MMC14:
     031406  104413                        LPERR                     ;SET UP THE LOOP ON ERROR ADDRESS.
6060 031410  004737  031622                JSR     PC,LDXSUB         ;GO EXECUTE THE INSTRUCTION.
6061 031414  040414  042434  044454  1$:   .WORD   40414,42434,44454,46474 ;AC0 OPERAND.
6062 031424  016723              2$:       .WORD   16723             ;EXPONENT OPERAND.
6063 031426  000000  000000  000000  3$:   .WORD   0,0,0,0           ;EXPECTED RESULT.
6064 031436  024614  042434  044454  4$:   .WORD   24614,42434,44454,46474      ;ANTICIPATED ERRONEOUS RESULT.
6065 031446  046200              5$:       46200                     ;FPS BEFORE EXECUTION.
6066 031450  046206                        46206                     ;FPS AFTER EXECUTION.
6067 031452  146202                        146202                    ;ANTICIPATED ERRONEOUS FPS.
6068 031454  177777                        -1                ;EXPECTED FEC.
6069 031456  104317              6$:       ERROR   +317              ;(BUT FIV) ST 144
6070 031460  000401                        BR 7$
6071 031462  104302                        ERROR   +302              ;REPORT FPS INCORRECT.
6072 031464                      7$:
6073
6074                             :EXP=   254 (OCT)=      454 (EXCESS 200)        FIV=1
6075
6076 031464                      MMC15:
     031464  104413                        LPERR                     ;SET UP THE LOOP ON ERROR ADDRESS.
6077 031466  004737  031622                JSR     PC,LDXSUB         ;GO EXECUTE THE INSTRUCTION.
6078 031472  050515  052535  054555  1$:   .WORD   50515,52535,54555,56575 ;AC0 OPERAND.
6079 031502  000254              2$:       .WORD   254               ;EXPONENT OPERAND.
6080 031504  013115  052535  054555  3$:   .WORD   13115,52535,54555,56575      ;EXPECTED RESULT.
6081 031514  000000  000000  000000  4$:   .WORD   0,0,0,0           ;ANTICIPATED ERRONEOUS RESULT.
6082 031524  041200              5$:       41200                     ;FPS BEFORE EXECUTION.
6083 031526  141202                        141202                    ;FPS AFTER EXECUTION.
6084 031530  041204                        41204                     ;ANTICIPATED ERRONEOUS FPS.
6085 031532  000010                        10                ;EXPECTED FEC.
6086 031534  104320              6$:       ERROR   +320                    ;(BUT FIV) ST344
6087 031536  000401                        BR      7$
6088 031540  104302                        ERROR   +302              ;REPORT FPS INCORRECT.
6089 031542                      7$:
6090
6091                             ;EXP=   313 (OCT)=      513(EXCESS 200) FIV=0
6092
6093 031542                      MMC16:
     031542  104413                        LPERR                     ;SET UP THE LOOP ON ERROR ADDRESS.
6094 031544  004737  031622                JSR     PC,LDXSUB         ;GO EXECUTE THE INSTRUCTION.
6095 031550  060616  062636  064656  1$:   .WORD   60616,62636,64656,66676 ;AC0 OPERAND.
6096 031560  000313              2$:       .WORD   313               ;EXPONENT OPERAND.
6097 031562  000000  000000  000000  3$:   .WORD   0,0,0,0           ;EXPECTED RESULT.
6098 031572  022616  062636  064656  4$:   .WORD   22616,62636,64656,66676      ;ANTICIPATED ERRONEOUS RESULT.
6099 031602  046200              5$:       46200                     ;FPS BEFORE EXECUTION.
6100 031604  046206                        46206                     ;FPS AFTER EXECUTION.
6101 031606  146202                        146202                    ;ANTICIPATED ERRONEOUS FPS.
6102 031610  177777                        -1                ;EXPECTED FEC.
6103 031612  104321              6$:       ERROR   +321                    ;(BUT FIV) ST 344
6104 031614  000401                        BR      7$
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6105 031616  104302                        ERROR   +302            ;REPORT FPS INCORRECT.
6106 031620                          7$:
6107 031620  000540                        BR      MMCDONE
6108
6109                                 ;THIS SUBROUTINE, LDXSUB, IS USED TO SET UP THE OPERANDS, EXECUTE
6110                                 ;THE LDEXP INSTRUCTION AND CHECK THE RESULTS. A CALL
6111                                 ;TO IT IS MADE THUS:
6112                                 ;
6113                                 ;               JSR     PC,LDXSUB
6114                                 ;               ACARG:  .WORD   X,X,X,X         ;AC OPERAND
6115                                 ;               EXP:    .WORD   X               ;EXPONENT
6116                                 ;               RES:    .WORD   X,X,X,X         ;EXPECTED RESULT
6117                                 ;               ERRES:  .WORD   X,X,X,X         ;ERROR RESULT
6118                                 ;               FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
6119                                 ;               FPSA:   .WORD   X               ;FPS AFTER EXECUTION
6120                                 ;               ERFPS:  .WORD   X               ;ERROR FPS.
6121                                 ;               FEC:    .WORD   X               ;EXPECTED FEC
6122                                 ;               ERR1:   ERROR   +X              ;DATA ERROR.
6123                                 ;                       BR      CONT
6124                                 ;               ERR2:   ERROR   +X              ;FPS ERROR.
6125                                 ;               CONT:                           ;RETURN ADDRESS
6126                                 ;
6127                                 ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
6128                                 ;THE LDEXP INSTRUCTION IS EXECUTED.
6129                                 ;THE RESULT IS CHECKED AGAINST RES. IF THE RESULT IS CORRECT THEN THE FPS IS
6130                                 ;COMPARED WITH FPSA IF THIS TOO IS CORRECT LDXSUB RETURNS CONTROL
6131                                 ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD LDXSUB
6132                                 ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN LDXSUB WILL RETURN
6133                                 ;TO THE ERROR CALL AT ERR2, OTHERWISE LDXSUB ITSELF
6134                                 ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
6135                                 ;LDEXP IS INCORRECT, THE INCORRECT RESULT IS COMPARED WITH THE
6136                                 ;ANTICIPATED FAILING DATA PATTERN, ERRES. IF THE FAILURE IN
6137                                 ;THE RESULT WAS ANTICIPATED CORRECTLY TO BE ERRES THEN LDXSUB
6138                                 ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
6139                                 ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND LDXSUB WILL
6140                                 ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
6141
6142 031622  012601                  LDXSUB: MOV     (SP)+,R1        ;GET A POINTER TO THE ARGUMENTS.
6143 031624  012700  000200                  MOV     #200,R0         ;LOAD THE AC0 OPERAND.
6144 031630  170100                          LDFPS   R0
6145 031632  010100                          MOV     R1,R0
6146 031634  172410                          LDD     (R0),AC0
6147 031636  012737  031660  001236          MOV     #1$,$TMP2
6148 031644  016100  000032                  MOV     32(R1),R0       ;SET UP THE FPS.
6149 031650  170100                          LDFPS   R0
6150 031652  010100                          MOV     R1,R0
6151 031654  062700  000010                  ADD     #10,R0
6152
6153 031660  176410                  1$:     LDEXP   (R0),AC0        ;TEST INSTRUCTION.
6154
6155 031662  170204                          STFPS   R4              ;GET THE FPS.
6156 031664  170305                          STST    R5              ;GET THE FEC.
6157 031666  012700  000200                  MOV     #200,R0         ;GET THE RESULT.
6158 031672  170100                          LDFPS   R0
6159 031674  012700  032112                  MOV     #LDXT,R0
6160 031700  174010                          STD     AC0,(R0)
6161 031702  010437  001250                  MOV     R4,$TMP7
```

TEST # 60 - LDEXP TEST

```
 6162 031706  016137  000034  001252          MOV     34(R1),$TMP10
 6163 031714  010537  001254                  MOV     R5,$TMP11
 6164 031720  016137  000040  001256          MOV     40(R1),$TMP12
 6165 031726  010102                          MOV     R1,R2
 6166 031730  010237  001240                  MOV     R2,$TMP3
 6167 031734  062702  000010                  ADD     #10,R2
 6168 031740  011237  001242                  MOV     (R2),$TMP4
 6169 031744  062702  000002                  ADD     #2,R2
 6170 031750  010237  001244                  MOV     R2,$TMP5
 6171 031754  012737  032112  001246          MOV     #LDXT,$TMP6
 6172 031762  012702  032112                  MOV     #LDXT,R2        ;SEE IF THE RESULT WAS CORRECT.
 6173 031766  010103                          MOV     R1,R3
 6174 031770  062703  000012                  ADD     #12,R3
 6175 031774  012700  000004                  MOV     #4,R0
 6176 032000  022223          2$:     CMP     (R2)+,(R3)+
 6177 032002  001014                  BNE     10$             ;BRANCH IF NOT CORRECT.
 6178 032004  077003                  SOB     R0,2$
 6179 032006  020461  000034          CMP     R4,34(R1)       ;SEE IF THE FPS WAS CORRECT.
 6180 032012  001026                  BNE     15$             ;BRANCH IF NOT CORRECT.
 6181 032014  005761  000034          TST     34(R1)
 6182 032020  100003                  BPL     3$
 6183 032022  020561  000040          CMP     R5,40(R1)       ;SEE IF THE FEC WAS CORRECT.
 6184 032026  001027                  BNE     20$             ;BRANCH IF NOT CORRECT.
 6185
 6186 032030  000161  000050          3$:     JMP     50(R1)          ;RETURN.
 6187
 6188                          ;THE RESULT WAS INCORRECT SO SEE IF THE FAILURE WAS ANTICIPATED.
 6189 032034  012702  032112          10$:    MOV     #LDXT,R2
 6190 032040  010103                  MOV     R1,R3
 6191 032042  062703  000022          ADD     #22,R3
 6192 032046  012700  000004          MOV     #4,R0
 6193 032052  022223          11$:    CMP     (R2)+,(R3)+
 6194 032054  001003                  BNE     12$
 6195 032056  077003                  SOB     R0,11$
 6196 032060  000161  000042          JMP     42(R1)
 6197
 6198                          ;THE ERROR WAS NOT ANTICIPATED SO REPORT IT HERE.
 6199 032064                  12$:
 6200 032064  104301          13$:    ERROR   +301                    ;BAD RES
 6201 032066  000760                  BR      3$
 6202
 6203                          ;SEE IF THE FPS ERROR WAS ANTICIPATED.
 6204 032070  026104  000036  15$:    CMP     36(R1),R4
 6205 032074  001002                  BNE     16$
 6206 032076  000161  000046          JMP     46(R1)
 6207 032102                  16$:
 6208                          ;THE FPS WAS NOT ANTICIPATED SO REPORT IT HERE.
 6209 032102  104302          17$:    ERROR   +302                    ;BAD FPS
 6210 032104  000751                  BR      3$                      ;BUT EZBTY8
 6211                                                                  ;ST 063
 6212
 6213 032106                  20$:
 6214                          ;REPORT FEC INCORRECT.
 6215 032106  104303          21$:    ERROR   +303                    ;BAD FEC
 6216 032110  000747                  BR      3$
 6217
 6218                          ;DATA BUFFER:
```

```
6219 032112  000000  000000  000000  LDXT:   .WORD   0,0,0,0
6220
6221 032122                          MMCDONE:
     032122  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                             ;SEE IF THE USER HAS EXPRESSED
                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                             ;THE USER TYPED CONTROL G?).
6222
6223
6230
```

```
6231                                    .SBTTL  TEST # 61 - DESTINATION MODES, MODE 1 (FL=0), TEST
                                        ;;**********************************************************************
                                        ;*TEST 61       DESTINATION MODES, MODE 1 (FL=0), TEST
                                        ;*
                                        ;* THIS IS A TEST OF DESTINATION MODE 1 USING
                                        ;* THE STFPS INSTRUCTION
                                        ;*
                                        ;;**********************************************************************
     032124  000004                     TST61:  SCOPE
6232
6233
6234 032126                             NNC1:
     032126  104413                             LPERR                       ;SET UP THE LOOP ON ERROR ADDRESS.
6235 032130  012700  032226                     MOV     #NNCTB0,R0          ;SET UP THE DATA BUFFER.
6236 032134  012701  000006                     MOV     #6,R1
6237 032140  012720  177777             1$:     MOV     #-1,(R0)+
6238 032144  077103                             SOB     R1,1$
6239 032146  012700  102345                     MOV     #102345,R0
6240 032152  012737  032174  001236             MOV     #NNC2,$TMP2
6241 032160  012737  032326  000004             MOV     #NNC25,ERRVECT ;SET UP FOR TRAPS TO 4.
6242 032166  170100                             LDFPS   R0                  ;SET UP FPS.
6243 032170  012700  032232                     MOV     #NNCTB1,R0
6244
6245 032174  170210                     NNC2:   STFPS   (R0)                ;TEST INSTRUCTION.
6246 032176  020027  032232                     CMP     R0,#NNCTB1          ;IS R0 CORRECT?
6247 032202  001017                             BNE     NNC10               ;BRANCH IF NOT CORRECT.
6248 032204  023727  032232  102345             CMP     NNCTB1,#102345      ;IS RESULT CORRECT?
6249 032212  001023                             BNE     NNC15               ;BRANCH IF NOT CORRECT.
6250 032214  023727  032234  177777             CMP     NNCTB1+2,#-1  ;IS THE RESULT CORRECT?
6251 032222  001030                             BNE     NNC20               ;BRANCH IF NOT CORRECT.
6252 032224  000453                             BR      NNCDONE
6253
6254                                    ;TEST DATA BUFFER:
6255 032226  177777  177777             NNCTB0: .WORD   -1,-1
6256 032232  177777  177777  177777     NNCTB1: .WORD   -1,-1,-1,-1
6257
6258                                    ;REPORT R0 INCORRECT.
6259 032242  010037  001242             NNC10:  MOV     R0,$TMP4
6260 032246  012737  032232  001240             MOV     #NNCTB1,$TMP3
6261 032254                             1$:
     032254  104377                             ERROR   +377
     032256  000001                             .WORD   1
6262                                                                        ;R0 BAD (BUT
6263 032260  000435                             BR      NNCDONE             ;    FDST)X
6264
6265                                    ;REPORT RESULT INCORRECT.
6266 032262  012737  102345  001240     NNC15:  MOV     #102345,$TMP3               ;    ST 634
6267 032270  013737  032232  001242             MOV     NNCTB1,$TMP4
6268 032276                             1$:
     032276  104377                             ERROR   +377
     032300  000002                             .WORD   2
6269                                                                        ;BAD DATA
6270 032302  000424                             BR      NNCDONE
6271
6272
6273                                    ;REPORT RESULT INCORRECT.
6274 032304  012737  177777  001240     NNC20:  MOV     #-1,$TMP3
```

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6275 032312  013737  032234  001242          MOV     NNCTB1+2,$TMP4
6276 032320                          1$:
     032320  104377                          ERROR   +377
     032322  000003                          .WORD   3
6277                                                                ;(BUT GR7,FL)
6278 032324  000413                          BR      NNCDONE                ;ST 357 TO 416
6279                                                                ;INTO 417
6280
6281                                 ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6282                                 ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6283                                 ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6284 032326  011604                  NNC25:  MOV     (SP),R4
6285 032330  020427  032176                  CMP     R4,#NNC2+2
6286 032334  001402                          BEQ     1$
6287 032336  000137  047302                  JMP     CPSPUR
6288
6289 032342  011637  001236          1$:     MOV     (SP),$TMP2
6290 032346  022626                          CMP     (SP)+,(SP)+
6291 032350                          2$:
     032350  104377                          ERROR   +377
     032352  000004                          .WORD   4
6292                                                                ;(BUT FDST)+ ST634
6293
6294 032354                          NNCDONE:
     032354  104412                          RSETUP                 ;GO INITIALIZE THE FPS AND STACK; AND
                                                                    ;SEE IF THE USER HAS EXPRESSED
                                                                    ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                    ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                    ;THE USER TYPED CONTROL G?).
6295
6296
```

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6297                                    .SBTTL  TEST # 62 - DESTINATION MODES, MODE 2 (FL=0), TEST
                                        ;;**********************************************************************
                                        ;*TEST 62       DESTINATION MODES, MODE 2 (FL=0), TEST
                                        ;*
                                        ;* THIS IS A TEST OF DESTINATION MODE 2 USING
                                        ;* THE STFPS INSTRUCTION
                                        ;*
                                        ;;**********************************************************************
     032356  000004                     TST62:  SCOPE
6298
6299
6300 032360                             00C1:
     032360  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6301 032362  012700  032460                     MOV     #00CTB0,R0      ;SET UP THE DATA BUFFER.
6302 032366  012701  000006                     MOV     #6,R1
6303 032372  012720  177777             1$:     MOV     #-1,(R0)+
6304 032376  077103                             SOB     R1,1$
6305 032400  012700  105412                     MOV     #105412,R0
6306 032404  012737  032426  001236             MOV     #00C2,$TMP2
6307 032412  012737  032560  000004             MOV     #00C25,ERRVECT  ;SET UP FOR TRAPS TO VECTOR 4.
6308 032420  170100                             LDFPS   R0              ;SET UP FPS.
6309 032422  012700  032464                     MOV     #00CTB1,R0
6310
6311 032426  170220                     00C2:   STFPS   (R0)+           ;TEST INSTRUCTION.
6312 032430  020027  032466                     CMP     R0,#00CTB1+2    ;IS R0 CORRECT?
6313 032434  001017                             BNE     00C10           ;BRANCH IF NOT CORRECT.
6314 032436  023727  032464  105412             CMP     00CTB1,#105412  ;IS THE RESULT CORRECT?
6315 032444  001023                             BNE     00C15           ;BRANCH IF NOT CORRECT.
6316 032446  023727  032466  177777             CMP     00CTB1+2,#-1  ;IS THE RESULT CORRECT?
6317 032454  001030                             BNE     00C20           ;BRANCH IF NOT CORRECT.
6318 032456  000453                             BR      00CDONE
6319
6320                                    ;TEST DATA BUFFER:
6321 032460  177777  177777             00CTB0: .WORD   -1,-1
6322 032464  177777  177777  177777     00CTB1: .WORD   -1,-1,-1,-1
6323
6324                                    ;REPORT R0 INCORRECT.
6325 032474  010037  001242             00C10:  MOV     R0,$TMP4
6326 032500  012737  032466  001240             MOV     #00CTB1+2,$TMP3
6327 032506                             1$:
     032506  104377                             ERROR   +377
     032510  000005                             .WORD   5
6328                                                                    ;R0 BAD (BUT
6329 032512  000435                             BR      00CDONE         ;     FDST)X
6330
6331                                    ;REPORT RESULT INCORRECT.
6332 032514  012737  105412  001240     00C15:  MOV     #105412,$TMP3                   ;     ST 634
6333 032522  013737  032464  001242             MOV     00CTB1,$TMP4
6334 032530                             1$:
     032530  104377                             ERROR   +377
     032532  000006                             .WORD   6
6335                                                                    ;BAD DATA
6336 032534  000424                             BR      00CDONE
6337
6338
6339                                    ;REPORT RESULT INCORRECT.
6340 032536  012737  177777  001240     00C20:  MOV     #-1,$TMP3
```

```
6341 032544  013737  032466  001242          MOV     00CTB1+2,$TMP4
6342 032552                          1$:
     032552  104377                          ERROR   +377
     032554  000007                          .WORD   7
6343                                                                ;(BUT GR7,FL)
6344 032556  000413                          BR      00CDONE        ;ST 357 TO 416
6345                                                                ;INTO 417
6346
6347                                 ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6348                                 ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6349                                 ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6350 032560  011604                  00C25:  MOV     (SP),R4
6351 032562  020427  032430                  CMP     R4,#00C2+2
6352 032566  001402                          BEQ     1$
6353 032570  000137  047302                  JMP     CPSPUR
6354
6355 032574  011637  001236          1$:     MOV     (SP),$TMP2
6356 032600  022626                          CMP     (SP)+,(SP)+
6357 032602                          2$:
     032602  104377                          ERROR   +377
     032604  000010                          .WORD   10
6358                                                                ;(BUT FDS1)+ ST634
6359
6360 032606                          00CDONE:
     032606  104412                          RSETUP                 ;GO INITIALIZE THE FPS AND STACK; AND
                                                                    ;SEE IF THE USER HAS EXPRESSED
                                                                    ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                    ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                    ;THE USER TYPED CONTROL G?).
6361
6362
6363
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TEST # 63 - DESTINATION MODES, MODE 4 (FL=0), TEST

```
6364                                    .SBTTL  TEST # 63 - DESTINATION MODES, MODE 4 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 63       DESTINATION MODES, MODE 4 (FL=0), TEST
                                        ;*
                                        ;* THIS IS A TEST OF DESTINATION MODE 4 USING
                                        ;* THE STFPS INSTRUCTION
                                        ;*
                                        ;*****************************************************************
     032610  000004                     TST63:  SCOPE
6365
6366 032612                             PPC1:
     032612  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6367 032614  012700  032712                     MOV     #PPCTB0,R0      ;SET UP THE DATA BUFFER.
6368 032620  012701  000006                     MOV     #6,R1
6369 032624  012720  177777             1$:     MOV     #-1,(R0)+
6370 032630  077103                             SOB     R1,1$
6371 032632  012700  105555                     MOV     #105555,R0
6372 032636  012737  032660  001236             MOV     #PPC2,$TMP2
6373 032644  012737  033012  000004             MOV     #PPC25,ERRVECT  ;SET UP FOR TRAPS TO VECTOR 4.
6374 032652  170100                             LDFPS   R0              ;SET UP FPS.
6375 032654  012700  032720                     MOV     #PPCTB1+2,R0
6376
6377 032660  170240                     PPC2:   STFPS   -(R0)           ;TEST INSTRUCTION.
6378 032662  020027  032716                     CMP     R0,#PPCTB1      ;IS R0 CORRECT?
6379 032666  001017                             BNE     PPC10           ;BRANCH IF NOT CORRECT.
6380 032670  023727  032716  105555             CMP     PPCTB1,#105555  ;IS THE RESULT CORRECT?
6381 032676  001023                             BNE     PPC15           ;BRANCH IF NOT CORRECT.
6382 032700  023727  032720  177777             CMP     PPCTB1+2,#-1  ;IS THE RESULT CORRECT?
6383 032706  001030                             BNE     PPC20           ;BRANCH IF NOT CORRECT.
6384 032710  000453                             BR      PPCDONE
6385
6386                                    ;TEST DATA BUFFER:
6387 032712  177777  177777             PPCTB0: .WORD   -1,-1
6388 032716  177777  177777  177777     PPCTB1: .WORD   -1,-1,-1,-1
6389
6390                                    ;REPORT R0 INCORRECT.
6391 032726  010037  001242             PPC10:  MOV     R0,$TMP4
6392 032732  012737  032716  001240             MOV     #PPCTB1,$TMP3
6393 032740                             1$:
     032740  104377                             ERROR   +377
     032742  000011                             .WORD   11
6394                                                                    ;R0 BAD (BUT
6395 032744  000435                             BR      PPCDONE        ;     FDST)X
6396
6397                                    ;REPORT RESULT INCORRECT.
6398 032746  012737  105555  001240     PPC15:  MOV     #105555,$TMP3                   ;     ST 634
6399 032754  013737  032716  001242             MOV     PPCTB1,$TMP4
6400 032762                             1$:
     032762  104377                             ERROR   +377
     032764  000012                             .WORD   12
6401                                                                    ;BAD DATA
6402 032766  000424                             BR      PPCDONE
6403
6404
6405                                    ;REPORT RESULT INCORRECT.
6406 032770  012737  177777  001240     PPC20:  MOV     #-1,$TMP3
6407 032776  013737  032720  001242             MOV     PPCTB1+2,$TMP4
```

TEST # 63 - DESTINATION MODES, MODE 4 (FL=0), TEST

```
6408 033004                          1$:
     033004  104377                          ERROR   +377
     033006  000013                          .WORD   13
6409                                                        ;(BUT GR7,FL)
6410 033010  000413                          BR      PPCDONE            ;ST 357 TO 416
6411                                                        ;INTO 417
6412
6413                                 ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6414                                 ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6415                                 ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6416 033012  011604                  PPC25:  MOV     (SP),R4
6417 033014  020427  032662                  CMP     R4,#PPC2+2
6418 033020  001402                          BEQ     1$
6419 033022  000137  047302                  JMP     CPSPUR
6420
6421 033026  011637  001236          1$:     MOV     (SP),$TMP2
6422 033032  022626                          CMP     (SP)+,(SP)+
6423 033034                          2$:
     033034  104377                          ERROR   +377
     033036  000014                          .WORD   14
6424                                                        ;(BUT FDST)+ ST634
6425
6426 033040                          PPCDONE:
     033040  104412                          RSETUP                     ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
6427
6428
6429
```

```
6430                                    .SBTTL  TEST # 64 - DESTINATION MODES, MODE 3 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 64       DESTINATION MODES, MODE 3 (FL=0), TEST
                                        ;*
                                        ;* THIS IS A TEST OF DESTINATION MODE 3 USING
                                        ;* THE STFPS INSTRUCTION
                                        ;*
                                        ;;*****************************************************************
     033042  000004                     TST64:  SCOPE
6431
6432 033044                             QQC1:
     033044  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6433 033046  012700  033150                     MOV     #QQCTB0,R0      ;SET UP THE DATA BUFFER.
6434 033052  012701  000010                     MOV     #10,R1
6435 033056  012720  177777             1$:     MOV     #-1,(R0)+
6436 033062  077103                             SOB     R1,1$
6437 033064  012700  106653                     MOV     #106653,R0
6438 033070  012737  033116  001236             MOV     #QQC2,$TMP2
6439 033076  012737  033254  000004             MOV     #QQC25,ERRVECT  ;SET UP FOR TRAPS TO VECTOR 4.
6440 033104  170100                             LDFPS   R0              ;SET UP FPS.
6441 033106  012700  033164                     MOV     #QQCTB2,R0
6442 033112  012710  033154                     MOV     #QQCTB1,(R0)
6443
6444 033116  170230                     QQC2:   STFPS   @(R0)+          ;TEST INSTRUCTION.
6445 033120  020027  033166                     CMP     R0,#QQCTB2+2    ;IS R0 CORRECT?
6446 033124  001021                             BNE     QQC10           ;BRANCH IF NOT CORRECT.
6447 033126  023727  033154  106653             CMP     QQCTB1,#106653  ;IS THE RESULT CORRECT?
6448 033134  001025                             BNE     QQC15           ;BRANCH IF NOT CORRECT.
6449 033136  023727  033164  033154             CMP     QQCTB2,#QQCTB1  ;IS THE RESULT CORRECT?
6450 033144  001032                             BNE     QQC20           ;BRANCH IF NOT CORRECT.
6451 033146  000455                             BR      QQCDONE
6452
6453                                    ;TEST DATA BUFFER:
6454 033150  177777  177777             QQCTB0: .WORD   -1,-1
6455 033154  177777  177777  177777     QQCTB1: .WORD   -1,-1,-1,-1
6456 033164  177777  177777             QQCTB2: .WORD   -1,-1
6457
6458                                    ;REPORT R0 INCORRECT.
6459 033170  010037  001242             QQC10:  MOV     R0,$TMP4
6460 033174  012737  033166  001240             MOV     #QQCTB2+2,$TMP3
6461 033202                             1$:
     033202  104377                             ERROR   +377
     033204  000015                             .WORD   15
6462                                                                    ;R0 BAD (BUT
6463 033206  000435                             BR      QQCDONE         ;    FDST)X
6464
6465                                    ;REPORT RESULT INCORRECT.
6466 033210  012737  106653  001240     QQC15:  MOV     #106653,$TMP3           ;    ST 634
6467 033216  013737  033154  001242             MOV     QQCTB1,$TMP4
6468 033224                             1$:
     033224  104377                             ERROR   +377
     033226  000016                             .WORD   16
6469                                                                    ;BAD DATA
6470 033230  000424                             BR      QQCDONE
6471
6472
6473                                    ;REPORT RESULT INCORRECT.
```

```
 6474 033232  012737  033164  001240  QQC20:  MOV     #QQCTB2,$TMP3                   ;(BUT FDST)
 6475 033240  013737  033156  001242          MOV     QQCTB1+2,$TMP4
 6476 033246                          1$:
      033246  104377                          ERROR   +377
      033250  000017                          .WORD   17
 6477 033252  000413                          BR      QQCDONE
 6478
 6479
 6480                                 ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
 6481                                 ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
 6482                                 ;TO THE SPURIOUS TRAP TO 4 HANDLER.
 6483 033254  011604                  QQC25:  MOV     (SP),R4
 6484 033256  020427  033120                  CMP     R4,#QQC2+2
 6485 033262  001402                          BEQ     1$
 6486 033264  000137  047302                  JMP     CPSPUR
 6487
 6488 033270  011637  001236          1$:     MOV     (SP),$TMP2
 6489 033274  022626                          CMP     (SP)+,(SP)+
 6490 033276                          2$:
      033276  104377                          ERROR   +377
      033300  000020                          .WORD   20
 6491                                                         ;(BUT FDST)+ ST634
 6492
 6493 033302                          QQCDONE:
      033302  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                              ;SEE IF THE USER HAS EXPRESSED
                                              ;THE DESIRE TO CHANGE THE SOFTWARE
                                              ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                              ;THE USER TYPED CONTROL G?).
 6494
 6495
 6496
```

```
                                .SBTTL  TEST # 65 - DESTINATION MODES, MODE 5 (FL=0), TEST
                                ;;*****************************************************************
                                ;*TEST 65       DESTINATION MODES, MODE 5 (FL=0), TEST
                                ;*
                                ;* THIS IS A TEST OF DESTINATION MODE 5 USING
                                ;* THE STFPS INSTRUCTION
                                ;*
                                ;;*****************************************************************
     033304  000004             TST65:  SCOPE
                                RRC1:
     033306  104413                     LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
     033310  012700  033414             MOV     #RRCTB0,R0      ;SET UP THE DATA BUFFER.
     033314  012701  000006             MOV     #6,R1
     033320  012720  177777     1$:     MOV     #-1,(R0)+
     033324  077103                     SOB     R1,1$
     033326  012700  004301             MOV     #004301,R0
     033332  012737  033362  001236     MOV     #RRC2,$TMP2
     033340  012737  033520  000004     MOV     #RRC25,ERRVECT  ;SET UP FOR TRAPS TO VECTOR 4.
     033346  170100                     LDFPS   R0              ;SET UP FPS.
     033350  012700  033432             MOV     #RRCTB2+2,R0
     033354  012760  033420  177776     MOV     #RRCTB1,-2(R0)
                                RRC2:   STFPS   @-(R0)          ;TEST INSTRUCTION.
     033362  170250
     033364  020027  033430             CMP     R0,#RRCTB2      ;IS R0 CORRECT?
     033370  001021                     BNE     RRC10           ;BRANCH IF NOT CORRECT.
     033372  023727  033420  004301     CMP     RRCTB1,#004301  ;IS THE RESULT CORRECT?
     033400  001025                     BNE     RRC15           ;BRANCH IF NOT CORRECT.
     033402  023727  033430  033420     CMP     RRCTB2,#RRCTB1  ;IS THE RESULT CORRECT?
     033410  001032                     BNE     RRC20           ;BRANCH IF NOT CORRECT.
     033412  000455                     BR      RRCDONE
                                ;TEST DATA BUFFER:
     033414  177777  177777     RRCTB0: .WORD   -1,-1
     033420  177777  177777  177777 RRCTB1: .WORD   -1,-1,-1,-1
     033430  177777  177777     RRCTB2: .WORD   -1,-1
                                ;REPORT R0 INCORRECT.
     033434  010037  001242     RRC10:  MOV     R0,$TMP4
     033440  012737  033430  001240     MOV     #RRCTB2,$TMP3
     033446                     1$:
     033446  104377                     ERROR   +377
     033450  000021                     .WORD   21
                                                             ;R0 BAD (BUT
     033452  000435                     BR      RRCDONE         ;    FDST)X
                                ;REPORT RESULT INCORRECT.
     033454  012737  004301  001240 RRC15:  MOV     #004301,$TMP3           ;    ST 634
     033462  013737  033420  001242     MOV     RRCTB1,$TMP4
     033470                     1$:
     033470  104377                     ERROR   +377
     033472  000022                     .WORD   22
                                                             ;BAD DATA
     033474  000424                     BR      RRCDONE
```

```
6541                                            ;REPORT RESULT INCORRECT.
6542 033476  012737  033430  001240  RRC20:    MOV     #RRCTB2,$TMP3                   ;BUT FDST)
6543 033504  013737  033422  001242            MOV     RRCTB1+2,$TMP4
6544 033512                                     1$:
     033512  104377                            ERROR   +377
     033514  000023                            .WORD   23
6545                                                                    ;(BUT GR7,FL)
6546 033516  000413                            BR      RRCDONE         ;ST 357 TO 416
6547                                                                    ;INTO 417
6548
6549                                            ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6550                                            ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6551                                            ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6552 033520  011604                            RRC25:  MOV     (SP),R4
6553 033522  020427  033364                    CMP     R4,#RRC2+2
6554 033526  001402                            BEQ     1$
6555 033530  000137  047302                    JMP     CPSPUR
6556
6557 033534  011637  001236            1$:     MOV     (SP),$TMP2
6558 033540  022626                            CMP     (SP)+,(SP)+
6559 033542                                     2$:
     033542  104377                            ERROR   +377
     033544  000024                            .WORD   24
6560                                                                    ;(BUT FDST)+ ST634
6561
6562 033546                                     RRCDONE:
     033546  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
6563
6564
```

```
6565                                    .SBTTL  TEST # 66 - DESTINATION MODES, MODE 6 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 66       DESTINATION MODES, MODE 6 (FL=0), TEST
                                        ;*
                                        ;* THIS IS A TEST OF DESTINATION MODE 6 USING
                                        ;* THE STFPS INSTRUCTION
                                        ;*
                                        ;;*****************************************************************
     033550  000004                     TST66:  SCOPE
6566                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
6567
6568 033552                             SSC1:
     033552  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6569 033554  012700  033664                     MOV     #SSCTB0,R0      ;SET UP THE DATA BUFFER.
6570 033560  012701  000006                     MOV     #6,R1
6571 033564  012720  177777             1$:     MOV     #-1,(R0)+
6572 033570  077103                             SOB     R1,1$
6573 033572  012700  102514                     MOV     #102514,R0
6574 033576  012767  033622  145432             MOV     #SSC2,$TMP2
6575 033604  012767  033764  144172             MOV     #SSC25,ERRVECT  ;SET UP FOR TRAPS TO VECTOR 4.
6576 033612  170100                             LDFPS   R0              ;SET UP FPS.
6577 033614  005001                             CLR     R1
6578 033616  012700  026467                     MOV     #SSCTB1-5201,R0
6579
6580 033622  170260  005201             SSC2:   STFPS   5201(R0)                ;TEST INSTRUCTION.
6581 033626  020127  000000                     CMP     R1,#0           ;WAS PC CORRECT AFTER EXECUTION?
6582 033632  001070                             BNE     SSC30           ;BRANCH IF NOT CORRECT.
6583 033634  020027  026467                     CMP     R0,#SSCTB1-5201 ;IS R0 CORRECT?
6584 033640  001017                             BNE     SSC10           ;BRANCH IF NOT CORRECT.
6585 033642  026727  000022  102514             CMP     SSCTB1,#102514  ;IS THE RESULT CORRECT?
6586 033650  001023                             BNE     SSC15           ;BRANCH IF NOT CORRECT.
6587 033652  026727  000014  177777             CMP     SSCTB1+2,#-1    ;IS THE RESULT CORRECT?
6588 033660  001030                             BNE     SSC20           ;BRANCH IF NOT CORRECT.
6589 033662  000456                             BR      SSCDONE
6590
6591                                    ;TEST DATA BUFFER:
6592 033664  177777  177777             SSCTB0: .WORD   -1,-1
6593 033670  177777  177777  177777     SSCTB1: .WORD   -1,-1,-1,-1
6594
6595                                    ;REPORT R0 INCORRECT.
6596 033700  010067  145336             SSC10:  MOV     R0,$TMP4
6597 033704  012767  026467  145326             MOV     #SSCTB1-5201,$TMP3
6598 033712                             1$:
     033712  104377                             ERROR   +377
     033714  000025                             .WORD   25
6599                                                                    ;R0 BAD
6600 033716  000440                             BR      SSCDONE
6601
6602                                    ;REPORT RESULT INCORRECT.
6603 033720  012767  102534  145312     SSC15:  MOV     #102534,$TMP3
6604 033726  016767  177736  145306             MOV     SSCTB1,$TMP4
6605 033734                             1$:
     033734  104377                             ERROR   +377
     033736  000026                             .WORD   26
6606                                                                    ;BAD DATA
6607 033740  000427                             BR      SSCDONE
6608
```

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6609
6610                                    ;REPORT RESULT INCORRECT.
6611 033742  012767  177777  145270     SSC20:  MOV     #-1,$TMP3
6612 033750  016767  177716  145264             MOV     SSCTB1+2,$TMP4
6613 033756                             1$:
     033756  104377                             ERROR   +377
     033760  000027                             .WORD   27
6614                                                                ;(BUT GR7,FL)
6615 033762  000416                             BR      SSCDONE     ;ST 357 TO 416
6616                                                                ;INTO 417
6617
6618                                    ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6619                                    ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6620                                    ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6621 033764  011604                     SSC25:  MOV     (SP),R4
6622 033766  020427  033624                     CMP     R4,#SSC2+2
6623 033772  001402                             BEQ     1$
6624 033774  000167  013302                     JMP     CPSPUR
6625
6626 034000  011667  145232             1$:     MOV     (SP),$TMP2
6627 034004  022626                             CMP     (SP)+,(SP)+
6628 034006                             2$:
     034006  104377                             ERROR   +377
     034010  000030                             .WORD   30
6629                                                                ;(BUT FDST)+ ST634
6630 034012  000402                             BR      SSCDONE
6631
6632                                    ;REPORT PC NOT INCREMENTED BY 2 DURING EXECUTION.
6633 034014                             SSC30:
6634 034014                             1$:
     034014  104377                             ERROR   +377
     034016  000031                             .WORD   31
6635                                                                ;PC NOT
6636                                                                ;INCREMENTED
6637                                                                ;BY 2
6638
6639 034020                             SSCDONE:
     034020  104412                             RSETUP              ;GO INITIALIZE THE FPS AND STACK; AND
                                                                    ;SEE IF THE USER HAS EXPRESSED
                                                                    ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                    ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                    ;THE USER TYPED CONTROL G?).
6640                                                .ENABL  AMA     ;RESET MODE 6 TO MODE 3 CONVERSIONS
6641
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6642                                    .SBTTL  TEST # 67 - DESTINATION MODES, MODE 7 (FL=0), TEST
                                        ;;*****************************************************************
                                        ;*TEST 67       DESTINATION MODES, MODE 7 (FL=0), TEST
                                        ;*
                                        ;* THIS IS A TEST OF DESTINATION MODE 7 USING
                                        ;* THE STFPS INSTRUCTION
                                        ;*
                                        ;;*****************************************************************
     034022  000004                     TST67:  SCOPE
6643
6644 034024                             TTC1:
     034024  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6645 034026  012700  034144                    MOV     #TTCTB0,R0      ;SET UP THE DATA BUFFER.
6646 034032  012701  000010                    MOV     #10,R1
6647 034036  012720  177777             1$:    MOV     #-1,(R0)+
6648 034042  077103                            SOB     R1,1$
6649 034044  012700  103747                    MOV     #103747,R0
6650 034050  012737  034102  001236            MOV     #TTC2,$TMP2
6651 034056  012737  034250  000004            MOV     #TTC25,ERRVECT  ;SET UP FOR TRAPS TO VECTOR 4.
6652 034064  170100                            LDFPS   R0              ;SET UP FPS.
6653 034066  005001                            CLR     R1
6654 034070  012700  026757                    MOV     #TTCTB2-5201,R0
6655 034074  012760  034150  005201            MOV     #TTCTB1,5201(R0)
6656
6657 034102  170270  005201             TTC2:  STFPS   @5201(R0)               ;TEST INSTRUCTION.
6658 034106  022701  000000                    CMP     #0,R1           ;WAS PC CORRECT AFTER EXECUTION?
6659 034112  001072                            BNE     TTC30           ;BRANCH IF NOT CORRECT.
6660 034114  020027  026757                    CMP     R0,#TTCTB2-5201 ;IS R0 CORRECT?
6661 034120  001021                            BNE     TTC10           ;BRANCH IF NOT CORRECT.
6662 034122  023727  034150  103747            CMP     TTCTB1,#103747  ;IS THE RESULT CORRECT?
6663 034130  001025                            BNE     TTC15           ;BRANCH IF NOT CORRECT.
6664 034132  023727  034152  177777            CMP     TTCTB1+2,#-1  ;IS THE RESULT CORRECT?
6665 034140  001032                            BNE     TTC20           ;BRANCH IF NOT CORRECT.
6666 034142  000460                            BR      TTCDONE
6667
6668                                    ;TEST DATA BUFFER:
6669 034144  177777  177777             TTCTB0: .WORD   -1,-1
6670 034150  177777  177777  177777     TTCTB1: .WORD   -1,-1,-1,-1
6671 034160  177777  177777             TTCTB2: .WORD   -1,-1
6672
6673                                    ;REPORT R0 INCORRECT.
6674 034164  010037  001242             TTC10:  MOV     R0,$TMP4
6675 034170  012737  026757  001240            MOV     #TTCTB2-5201,$TMP3
6676 034176                             1$:
     034176  104377                            ERROR   +377
     034200  000032                            .WORD   32
6677                                                                    ;R0 BAD
6678 034202  000440                            BR      TTCDONE
6679
6680
6681                                    ;REPORT RESULT INCORRECT.
6682 034204  012737  103747  001240     TTC15:  MOV     #103747,$TMP3
6683 034212  013737  034150  001242            MOV     TTCTB1,$TMP4
6684 034220                             1$:
     034220  104377                            ERROR   +377
     034222  000033                            .WORD   33
6685                                                                    ;BAD DATA
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6686 034224  000427                          BR      TTCDONE
6687
6688
6689                                  ;REPORT RESULT INCORRECT.
6690 034226  012737  177777  001240  TTC20:  MOV     #-1,$TMP3
6691 034234  013737  034152  001242          MOV     TTCTB1+2,$TMP4
6692 034242                           1$:
     034242  104377                          ERROR   +377
     034244  000034                          .WORD   34
6693                                                                  ;(BUT GR7,FL)
6694 034246  000416                          BR      TTCDONE         ;ST 357 TO 416
6695                                                                  ;INTO 417
6696
6697                                  ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6698                                  ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6699                                  ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6700 034250  011604                  TTC25:  MOV     (SP),R4
6701 034252  020427  034104                  CMP     R4,#TTC2+2
6702 034256  001402                          BEQ     1$
6703 034260  000137  047302                  JMP     CPSPUR
6704 034264  011637  001236          1$:     MOV     (SP),$TMP2
6705 034270  022626                          CMP     (SP)+,(SP)+
6706 034272                           2$:
     034272  104377                          ERROR   +377
     034274  000035                          .WORD   35
6707                                                                  ;(BUT FSDT)+ ST634
6708 034276  000402                          BR      TTCDONE
6709
6710                                  ;REPORT PC NOT INCREMENTED BY 2 DURING EXECUTION.
6711 034300                           TTC30:
6712 034300                           1$:
     034300  104377                          ERROR   +377
     034302  000036                          .WORD   36
6713                                                                  ;PC NOT
6714                                                                  ;INCREMENTED
6715 034304                           TTCDONE:
     034304  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                              ;SEE IF THE USER HAS EXPRESSED
                                              ;THE DESIRE TO CHANGE THE SOFTWARE
                                              ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                              ;THE USER TYPED CONTROL G?).
6716
```

```
6723                                    .SBTTL  TEST # 70 - DESTINATION MODES, MODE 2 (FL=1), TEST
                                        ;;*****************************************************************
                                        ;*TEST 70       DESTINATION MODES, MODE 2 (FL=1), TEST
                                        ;*
                                        ;* THIS IS A TEST OF DESTINATION MODE
                                        ;* 2 USING STCOL WITH REGISTER 0
                                        ;*
                                        ;;*****************************************************************
     034306  000004                     TST70:  SCOPE
6724 034310                             UUC1:
     034310  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6725 034312  012700  000300                     MOV     #300,R0         ;SET UP FPS.
6726 034316  170100                             LDFPS   R0
6727 034320  012700  034370                     MOV     #UUCTP1,R0      ;SET UP THE AC0 OPERAND.
6728 034324  172410                             LDD     (R0),AC0
6729 034326  012737  034340  001236             MOV     #UUC2,$TMP2
6730 034334  012700  034402                     MOV     #UUCBF0,R0
6731
6732 034340  175420                     UUC2:   STCDL   AC0,(R0)+       ;TEST INSTRUCTION.
6733
6734 034342  020027  034406                     CMP     R0,#UUCBF0+4    ;IS R0 CORRECT?
6735 034346  001420                             BEQ     UUCDONE         ;BRANCH IF CORRECT.
6736
6737                                    ;REPORT R0 INCORRECT.
6738 034350  010037  001242             UUC3:   MOV     R0,$TMP4
6739 034354  012737  034406  001240             MOV     #UUCBF0+4,$TMP3
6740 034362                             1$:
     034362  104377                             ERROR   +377
     034364  000037                             .WORD   37
6741                                                                    ;R0 NOT INCR BY 4
6742 034366  000410                             BR      UUCDONE
6743                                    ;TEST DATA BUFFER:
6744 034370  000000  000000  000000     UUCTP1: .WORD   0,0,0,0
6745 034400  177777                             -1
6746 034402  177777  177777  177777     UUCBF0: .WORD   -1,-1,-1
6747
6748 034410                             UUCDONE:
     034410  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).

6749
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```
                                .SBTTL  TEST # 71 - DESTINATION MODES, MODE 4 (FL=1), TEST
                                ;;*****************************************************************
                                ;*TEST 71        DESTINATION MODES, MODE 4 (FL=1), TEST
                                ;*
                                ;* THIS IS A TEST OF DESTINATION MODE
                                ;* 4 USING STCDL WITH REGISTER 0
                                ;*
                                ;;*****************************************************************
     034412  000004             TST71:  SCOPE
                                VVC1:
     034414  104413                     LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
     034416  012700  000300             MOV     #300,R0         ;SET UP FPS.
     034422  170100                     LDFPS   R0
     034424  012700  034474             MOV     #VVCTP1,R0      ;SET UP THE AC0 OPERAND.
     034430  172410                     LDD     (R0),AC0
     034432  012737  034444  001236     MOV     #VVC2,$TMP2
     034440  012700  034512             MOV     #VVCBF0+4,R0
                                VVC2:   STCDL   AC0,-(R0)               ;TEST INSTRUCTION.
     034446  020027  034506             CMP     R0,#VVCBF0      ;IS R0 CORRECT?
     034452  001420                     BEQ     VVCDONE
                                ;REPORT R0 INCORRECT.
     034454  010037  001242     VVC3:   MOV     R0,$TMP4
     034460  012737  034506  001240     MOV     #VVCBF0,$TMP3
     034466                     1$:
     034466  104377                     ERROR   +377
     034470  000040                     .WORD   40
                                                                     ;R0 NOT DECR BY 4
     034472  000410                     BR      VVCDONE
                                ;TEST DATA BUFFER:
     034474  000000  000000  000000 VVCTP1: .WORD   0.0,0.0
     034504  177777                     -1
     034506  177777  177777  177777 VVCBF0: .WORD   -1,-1,-1
     034514                     VVCDONE:
     034514  104412                     RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                ;SEE IF THE USER HAS EXPRESSED
                                                                ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                ;THE USER TYPED CONTROL G?).
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TEST # 72 - STCDI AND STCDL TEST

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6793                                    .SBTTL  TEST # 72 - STCDI AND STCDL TEST
                                        ;;*****************************************************************
                                        ;*TEST 72       STCDI AND STCDL TEST
                                        ;*
                                        ;* THIS IS A TEST OF THE STCDI AND
                                        ;* STCDL INSTRUCTIONS. NOTE THAT A
                                        ;* SUBROUTINE, STCSUB, IS USED TO
                                        ;* SET UP THE OPERANDS, EXECUTE THE STC
                                        ;* INSTRUCTION AND CHECK THE RESULT.
                                        ;*
                                        ;;*****************************************************************
     034516  000004                     TST72:  SCOPE
6794
6795                                    ;FIRST TEST STC WITH EXP=100 (EXCESS 200)
6796 034520                             WWC1:
     034520  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6797 034522  004737  035666                     JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6798 034526  020000  000000  000000   1$:      .WORD   20000,0,0,0     ;AC0 OPERAND.
6799 034536  000000  000000           2$:      .WORD   0,0             ;EXPECTED RESULT.
6800 034542  177777  177777           3$:      .WORD   -1,-1           ;ERROR RES.
6801 034546  040300                    4$:      40300                   ;FPS BEFORE EXECUTION.
6802 034550  040304                             40304                   ;FPS AFTER EXECUTION.
6803 034552  140304                             140304                  ;ANTICIPATED ERRONEOUS FPS.
6804 034554  177777                             -1              ;REPORT RESULT INCORRECT.
6805 034556  104322                    5$:      ERROR   +322            ;RESULT INCORP.
6806 034560  000401                             BR      6$
6807 034562  104325                             ERROR   +325            ;EITHER (BUT FLAG)
6808 034564                             6$:                             ;ST 662
6809                                                                    ;OR CLEAR FLAG
6810                                                                    ;ST 774
6811
6812                                    ;EXP=0 (OCT)    FL=1    FIC=0
6813 034564                             WWC2:
     034564  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6814 034566  004737  035666                     JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6815 034572  040000  000000  000000   1$:      .WORD   40000,0,0,0     ;AC     ;AC0 OPERAND.
6816 034602  000000  000000           2$:      .WORD   0,0             ;EXPECTED RESULT.
6817 034606  177777  177777           3$:      .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
6818 034612  040313                    4$:      40313                   ;FPS BEFORE EXECUTION.
6819 034614  040304                             40304                   ;FPS AFTER EXECUTION.
6820 034616  140304                             140304                  ;ANTICIPATED ERRONEOUS FPS.
6821 034620  177777                             -1              ;EXPECTED FEC.
6822 034622  104322                    5$:      ERROR   +322            ;REPORT RESULT INCORRECT.
6823 034624  000401                             BR      6$
6824 034626  104326                             ERROR   +326            ;REPORT FPS INCORRECT.
6825 034630                             6$:
6826
6827                                    ;EXP=37 (OCT)   FL=1    FIC=1
6828 034630                             WWC4:
     034630  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6829 034632  004737  035666                     JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6830 034636  047667  075757  157737   1$:      .WORD   47667,75757,157737,167773       ;AC0 OPERAND.
6831 034646  055675  173757           2$:      .WORD   55675,173757            ;EXPECTED RESULT.
6832 034652  122102  004021           3$:      .WORD   122102,004021           ;ANTICIPATED ERRONEOUS RESULT.
6833 034656  040717                    4$:      40717                   ;FPS BEFORE EXECUTION.
6834 034660  040700                             40700                   ;FPS AFTER EXECUTION.
6835 034662  140705                             140705                  ;ANTICIPATED ERRONEOUS FPS.
```

```
6836 034664  177777                          -1              ;EXPECTED FEC.
6837 034666  104327                5$:       ERROR   +327            ;(BUT ENBT) ST 632
6838 034670  000401                          BR      6$
6839 034672  104326                          ERROR   +326            ;REPORT FPS INCORRECT.
6840 034674                        6$:
6841
6842                               ;EXP=40 (OCT)   FL=1    FIC=1
6843 034674                        WWC5:
     034674  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6844 034676  004737  035666                  JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6845 034702  050000  000000  000000  1$:     .WORD   50000,0,0,0     ;AC0 OPERAND.
6846 034712  000000  000000        2$:     .WORD   0,0             ;EXPECTED RESULT.
6847 034716  177777  177777        3$:     .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
6848 034722  040700              4$:       40700                   ;FPS BEFORE EXECUTION.
6849 034724  140705                          140705                  ;FPS AFTER EXECUTION.
6850 034726  040705                          40705                   ;ANTICIPATED ERRONEOUS FPS.
6851 034730  000006                          6               ;EXPECTED FEC.
6852 034732  104322                5$:       ERROR   +322            ;REPORT RESULT INCORRECT.
6853 034734  000401                          BR      6$
6854 034736  104330                          ERROR   +330            ;(BUT FIC) ST 004               ;REPORT FPS INCORRECT.
6855                                                                  ;TO 305 INTO
6856 034740                        6$:                               ;315
6857
6858                               ;EXP=40 (OCT)    FL=1   FIC=0
6859 034740                        WWC6:
     034740  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6860 034742  004737  035666                  JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6861 034746  050000  000000  000000  1$:     .WORD   50000,0,0,0     ;AC0 OPERAND.
6862 034756  000000  000000        2$:     .WORD   0,0             ;EXPECTED RESULT.
6863 034762  177777  177777        3$:     .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
6864 034766  040312              4$:       40312                   ;FPS BEFORE EXECUTION.
6865 034770  040305                          40305                   ;FPS AFTER EXECUTION.
6866 034772  140305                          140305                  ;ANTICIPATED ERRONEOUS FPS.
6867 034774  177777                          -1              ;EXPECTED FEC.
6868 034776  104322                5$:       ERROR   +322            ;REPORT RESULT INCORRECT.
6869 035000  000401                          BR      6$
6870 035002  104331                          ERROR   +331            ;(BUT FIC) ST 004 TO
6871 035004                        6$:                               ;315 INTO 305
6872
6873                               ;EXP=30 (OCT)   FL=1    FIC=1
6874 035004                        WWC7:
     035004  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6875 035006  004737  035666                  JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6876 035012  046000  000001  000000  1$:     .WORD   46000,1,0,0     ;AC0 OPERAND.
6877 035022  000200  000001        2$:     .WORD   200,1           ;EXPECTED RESULT.
6878 035026  177777  177777        3$:     .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
6879 035032  040700              4$:       40700                   ;FPS BEFORE EXECUTION.
6880 035034  040700                          40700                   ;FPS AFTER EXECUTION.
6881 035036  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
6882 035040  177777                          -1              ;EXPECTED FEC.
6883 035042  104322                5$:       ERROR   +322            ;REPORT RESULT INCORRECT.
6884 035044  000401                          BR      6$
6885 035046  104323                          ERROR   +323            ;REPORT FPS INCORRECT.
6886 035050                        6$:
6887
6888                               ;EXP=27 (OCT)   FL=1    FIC=1
6889 035050                        WWC8:
```

TEST # 72 - STCDI AND STCDL TEST

```
        035050  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6890    035052  004737  035666                  JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6891    035056  045600  000001  000000  1$:     .WORD   45600,1,0,0     ;AC0 OPERAND.
6892    035066  000100  000000          2$:     .WORD   100,0           ;EXPECTED RESULT.
6893    035072  177777  177777          3$:     .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
6894    035076  040707                  4$:     40707                   ;FPS BEFORE EXECUTION.
6895    035100  040700                          40700                   ;FPS AFTER EXECUTION.
6896    035102  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
6897    035104  177777                          -1              ;EXPECTED FEC.
6898    035106  104322                  5$:     ERROR   +322            ;REPORT RESULT INCORRECT.
6899    035110  000401                          BR      6$
6900    035112  104323                          ERROR   +323            ;REPORT FPS INCORRECT.
6901    035114                          6$:
6902
6903                                    ;EXP=17 (OCT)   FL=0    FIC=1
6904    035114                          WWC9:
        035114  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6905    035116  004737  035666                  JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6906    035122  043600  000000  000000  1$:     .WORD   43600,0,0,0     ;AC0 OPERAND.
6907    035132  040000  177777          2$:     .WORD   40000,-1                ;EXPECTED RESULT.
6908    035136  000000  177777          3$:     .WORD   0,-1            ;ANTICIPATED ERRONEOUS RESULT.
6909    035142  040600                  4$:     40600                   ;FPS BEFORE EXECUTION.
6910    035144  040600                          40600                   ;FPS AFTER EXECUTION.
6911    035146  140604                          140604                  ;ANTICIPATED ERRONEOUS FPS.
6912    035150  177777                          -1              ;EXPECTED FEC.
6913    035152  104332                  5$:     ERROR   +332            ;BAD CONSTANT ST 066
6914    035154  000401                          BR      6$
6915    035156  104333                          ERROR   +333            ;REPORT FPS INCORRECT.
6916    035160                          6$:
6917
6918                                    ;EXP=20 (OCT)   FL=0    FIC=1
6919    035160                          WWC10:
        035160  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6920    035162  004737  035666                  JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6921    035166  044000  000000  000000  1$:     .WORD   44000,0,0,0     ;AC0 OPERAND.
6922    035176  000000  177777          2$:     .WORD   0,-1            ;EXPECTED RESULT.
6923    035202  177777  177777          3$:     .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
6924    035206  040600                  4$:     40600                   ;FPS BEFORE EXECUTION.
6925    035210  140605                          140605                  ;FPS AFTER EXECUTION.
6926    035212  040600                          40600                   ;ANTICIPATED ERRONEOUS FPS.
6927    035214  000006                          6               ;EXPECTED FEC.
6928    035216  104322                  5$:     ERROR   +322            ;REPORT RESULT INCORRECT.
6929    035220  000401                          BR      6$
6930    035222  104334                          ERROR   +334            ;BAD CONSTANT ST 066
6931    035224                          6$:
6932
6933                                    ;EXP=10 (OCT), AC NEGATIVE, FL=0, FIC=1
6934    035224                          WWC11:
        035224  104413                          LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6935    035226  004737  035666                  JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6936    035232  142000  000000  000000  1$:     .WORD   142000,0,0,0    ;AC0 OPERAND.
6937    035242  177600  177777          2$:     .WORD   177600,-1               ;EXPECTED RESULT.
6938    035246  000200  000000          3$:     .WORD   200,0           ;ANTICIPATED ERRONEOUS RESULT.
6939    035252  040600                  4$:     40600                   ;FPS BEFORE EXECUTION.
6940    035254  040610                          40610                   ;FPS AFTER EXECUTION.
6941    035256  040600                          40600                   ;ANTICIPATED ERRONEOUS FPS.
6942    035260  177777                          -1              ;EXPECTED FEC.
```

```
6943 035262  104335                    5$:     ERROR   +335    ;(BUT ENBT) ST 632
6944 035264  000401                            BR      6$
6945 035266  104336                            ERROR   +336    ;(SET FN) ST 473
6946 035270                             6$:
6947
6948                                    ;EXP=37 (OCT), FL=1, FIC=1, AC NEG.
6949 035270                             WWC12:
     035270  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6950 035272  004737  035666                    JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6951 035276  147600  000000  000000  1$:      .WORD   147600,0,0,0    ;AC0 OPERAND.
6952 035306  140000  000000          2$:      .WORD   140000,0                ;EXPECTED RESULT.
6953 035312  137777  000000          3$:      .WORD   137777,0                ;ANTICIPATED ERRONEOUS RESULT.
6954 035316  040700                  4$:      40700                   ;FPS BEFORE EXECUTION.
6955 035320  040710                           40710                   ;FPS AFTER EXECUTION.
6956 035322  177777                           -1                      ;ANTICIPATED ERRONEOUS FPS.
6957 035324  177777                           -1              ;EXPECTED FEC.
6958 035326  104337                    5$:     ERROR   +337            ;(BUT COUT) ST 375
6959 035330  000401                            BR      6$              ;ST 275 TO 074
6960 035332  104323                            ERROR   +323            ;INTO 274
6961 035334                             6$:
6962
6963                                    ;EXP=37  (OCT),  FL=1,  FIC=1,  AC  NEG
6964 035334                             WWC13:
     035334  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6965 035336  004737  035666                    JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6966 035342  147600  000000  001000  1$:      .WORD   147600,0,1000,0 ;AC0 OPERAND.
6967 035352  137777  177777          2$:      .WORD   137777,177777           ;EXPECTED RESULT.
6968 035356  140000  177777          3$:      .WORD   140000,177777           ;ANTICIPATED ERRONEOUS RESULT.
6969 035362  040707                  4$:      40707                   ;FPS BEFORE EXECUTION.
6970 035364  040710                           40710                   ;FPS AFTER EXECUTION.
6971 035366  177777                           -1                      ;ANTICIPATED ERRONEOUS FPS.
6972 035370  177777                           -1              ;EXPECTED FEC.
6973 035372  104340                    5$:     ERROR   +340            ;(BUT COUT) ST 375
6974 035374  000401                            BR      6$              ;TO 274 INTO 074
6975 035376  104323                            ERROR   +323            ;REPORT FPS INCORRECT.
6976 035400                             6$:
6977
6978                                    ;EXP=41 (OCT),  AC NEG, FL=1, FIC=1
6979 035400                             WWC14:
     035400  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6980 035402  004737  035666                    JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6981 035406  150200  000000  000000  1$:      .WORD   150200,0,0,0    ;AC0 OPERAND.
6982 035416  000000  000000          2$:      .WORD   0,0             ;EXPECTED RESULT.
6983 035422  177777  177777          3$:      .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
6984 035426  040700                  4$:      40700                   ;FPS BEFORE EXECUTION.
6985 035430  140705                           140705                  ;FPS AFTER EXECUTION.
6986 035432  177777                           -1                      ;ANTICIPATED ERRONEOUS FPS.
6987 035434  000006                           6               ;EXPECTED FEC.
6988 035436  104322                    5$:     ERROR   +322            ;REPORT RESULT INCORRECT.
6989 035440  000401                            BR      6$
6990 035442  104341                            ERROR   +341            ;(BUT EZBT) ST 377
6991 035444                             6$:
6992                                    ;EXP=40 (OCT),  AC NEG,  FL=1,  FIC=1
6993 035444                             WWC15:
     035444  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
6994 035446  004737  035666                    JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
6995 035452  150000  000001  000000  1$:      .WORD   150000,1,0,0    ;AC0 OPERAND.
```

TEST # 72 - STCDI AND STCDL TEST

```
 6996 035462  000000  000000          2$:     .WORD   0,0                     ;EXPECTED RESULT.
 6997 035466  100000  177600          3$:     .WORD   100000,-200                     ;ANTICIPATED ERRONEOUS RESULT.
 6998 035472  040700                  4$:     40700                           ;FPS BEFORE EXECUTION.
 6999 035474  140705                          140705                          ;FPS AFTER EXECUTION.
 7000 035476  040700                          40700                           ;ANTICIPATED ERRONEOUS FPS.
 7001 035500  000006                          6                       ;EXPECTED FEC.
 7002 035502  104342                  5$:     ERROR   +342                    ;(BUT COUT) ST 360
 7003 035504  000401                          BR      6$                      ;TO 654 INTO 454
 7004 035506  104323                          ERROR   +323                    ;REPORT FPS INCORRECT.
 7005 035510                          6$:
 7006
 7007                                 ;EXP=40, AC NEGATIVE, FL=1, FIC=1
 7008 035510                          WWC16:
      035510  104413                          LPERR                           ;SET UP THE LOOP ON ERROR ADDRESS.
 7009 035512  004737  035666                  JSR     PC,STCSUB               ;GO EXECUTE THE INSTRUCTION.
 7010 035516  150001  000000  000000  1$:     .WORD   150001,0,0,0            ;AC0 OPERAND.
 7011 035526  000000  000000          2$:     .WORD   0,0                     ;EXPECTED RESULT.
 7012 035532  077400  000000          3$:     .WORD   77400,0                 ;ANTICIPATED ERRONEOUS RESULT.
 7013 035536  040700                  4$:     40700                           ;FPS BEFORE EXECUTION.
 7014 035540  140705                          140705                          ;FPS AFTER EXECUTION.
 7015 035542  177777                          -1                              ;ANTICIPATED ERRONEOUS FPS.
 7016 035544  000006                          6                       ;EXPECTED FEC.
 7017 035546  104343                  5$:     ERROR   +343                    ;REPORT RESULT INCORRECT.
 7018 035550  000401                          BR      6$
 7019 035552  104323                          ERROR   +323                    ;REPORT FPS INCORRECT.
 7020 035554                          6$:
 7021
 7022
 7023                                 ;EXP 40    (OCT), AC MOST NEG LONG INT, FL=1
 7024                                 ;FIC=1
 7025 035554                          WWC17:
      035554  104413                          LPERR                           ;SET UP THE LOOP ON ERROR ADDRESS.
 7026 035556  004737  035666                  JSR     PC,STCSUB               ;GO EXECUTE THE INSTRUCTION.
 7027 035562  150000  000000  000000  1$:     .WORD   150000,0,0,0            ;AC0 OPERAND.
 7028 035572  100000  000000          2$:     .WORD   100000,0                        ;EXPECTED RESULT.
 7029 035576  000000  000000          3$:     .WORD   0,0                     ;ANTICIPATED ERRONEOUS RESULT.
 7030 035602  040700                  4$:     40700                                   ;FPS BEFORE EXECUTION.
 7031 035604  040710                          40710                           ;FPS AFTER EXECUTION.
 7032 035606  140705                          140705                          ;ANTICIPATED ERRONEOUS FPS.
 7033 035610  177777                          -1                      ;EXPECTED FEC.
 7034 035612  104344                  5$:     ERROR   +344                            ;(BUT NBIT) ST 654
 7035 035614  000401                          BR      6$                              ;OR (BUT COUT) ST 454
 7036 035616  104323                          ERROR   +323                    ;REPORT FPS INCORRECT.
 7037 035620                          6$:
 7038
 7039                                 ;EXP=20, AC = MOST NEG INTEGER, FL=0, FIC=1
 7040
 7041 035620                          WWC18:
      035620  104413                          LPERR                           ;SET UP THE LOOP ON ERROR ADDRESS.
 7042 035622  004737  035666                  JSR     PC,STCSUB               ;GO EXECUTE THE INSTRUCTION.
 7043 035626  144000  000001  000000  1$:     .WORD   144000,1,0,0            ;AC0 OPERAND.
 7044 035636  100000  177777          2$:     .WORD   100000,-1                       ;EXPECTED RESULT.
 7045 035642  100000  177400          3$:     .WORD   100000,177400                   ;ANTICIPATED ERRONEOUS RESULT.
 7046 035646  040600                  4$:     40600                           ;FPS BEFORE EXECUTION.
 7047 035650  040610                          40610                           ;FPS AFTER EXECUTION.
 7048 035652  140605                          140605                          ;ANTICIPATED ERRONEOUS FPS.
 7049 035654  177777                          -1                      ;EXPECTED FEC.
```

```
7050 035656  104345                5$:     ERROR   +345                    ;(BUT FL) ST 633
7051 035660  000401                         BR      6$                      ;TO 655 INTO 654
7052 035662  104323                         ERROR   +323            ;REPORT FPS INCORRECT.
7053
7054 035664  000534                6$:     BR      WWCDONE
7055
7056                                ;THIS SUBROUTINE, STCSUB, IS USED TO SET UP THE OPERANDS, EXECUTE
7057                                ;THE STCDI OR STCDL INSTRUCTION AND CHECK THE RESULTS. A CALL
7058                                ;TO IT IS MADE THUS:
7059                                ;
7060                                ;               JSR     PC,STCSUB
7061                                ;               ACARG:  .WORD   X,X,X,X         ;AC OPERAND
7062                                ;               RES:    .WORD   X,X             ;EXPECTED RESULT
7063                                ;               ERRES:  .WORD   X,X             ;ERROR RESULT
7064                                ;               FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
7065                                ;               FPSA:   .WORD   X               ;FPS AFTER EXECUTION
7066                                ;               ERFPS:  .WORD   X               ;ERROR FPS.
7067                                ;               FEC:    .WORD   X               ;EXPECTED FEC
7068                                ;               ERR1:   ERROR   +X              ;DATA ERROR.
7069                                ;                       BR      CONT
7070                                ;               ERR2:   ERROR   +X              ;FPS ERROR.
7071                                ;               CONT:                           ;RETURN ADDRESS
7072                                ;
7073                                ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
7074                                ;THE STCDI OR STCDL INSTRUCTION IS EXECUTED.
7075                                ;THE RESULT IS CHECKED AGAINST RES. IF THE RESULT IS CORRECT THEN THE FPS IS
7076                                ;COMPARED WITH FPSA IF THIS TOO IS CORRECT STCSUB RETURNS CONTROL
7077                                ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD STCSUB
7078                                ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN STCSUB WILL RETURN
7079                                ;TO THE ERROR CALL AT ERR2, OTHERWISE STCSUB ITSELF
7080                                ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
7081                                ;STCDI OR STCDL IS INCORRECT, THE INCORRECT RESULT IS COMPARED WITH THE
7082                                ;ANTICIPATED FAILING DATA PATTERN, ERRES. IF THE FAILURE IN
7083                                ;THE RESULT WAS ANTICIPATED CORRECTLY TO BE ERRES THEN STCSUB
7084                                ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
7085                                ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND STCSUB WILL
7086                                ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
7087
7088 035666  012601                STCSUB: MOV     (SP)+,R1                ;GET A POINTER TO THE ARGUMENTS.
7089 035670  012700  000200                MOV     #200,R0                 ;SET UP THE AC0 OPERAND.
7090 035674  170100                        LDFPS   R0
7091 035676  010100                        MOV     R1,R0
7092 035700  172410                        LDD     (R0),AC0
7093 035702  012702  036146                MOV     #STCIBF,R2              ;INITIALIZE THE OUT PUT BUFFER.
7094 035706  012700  000004                MOV     #4,R0
7095 035712  012722  177777        1$:     MOV     #-1,(R2)+
7096 035716  077003                        SOB     R0,1$
7097 035720  016100  000020                MOV     20(R1),R0               ;SET THE FPS.
7098 035724  170100                        LDFPS   R0
7099 035726  012737  035740  001236        MOV     #2$,$TMP2
7100 035734  012700  036146                MOV     #STCIBF,R0
7101 035740  175410                2$:     STCDL   AC0,(R0)                ;TEST INSTRUCTION.
7102
7103 035742  170204                        STFPS   R4                      ;GET THE FPS.
7104 035744  170305                        STST    R5                      ;GET THE FEC.
7105 035746  010102                        MOV     R1,R2
7106 035750  010237  001240                MOV     R2,$TMP3
```

TEST # 72 - STCDI AND STCDL TEST

```
7107 035754  062702  000010                    ADD     #10,R2
7108 035760  010237  001244                    MOV     R2,$TMP5
7109 035764  012737  036146  001242            MOV     #STCIBF,$TMP4
7110 035772  010437  001250                    MOV     R4,$TMP7
7111 035776  016137  000022  001252            MOV     22(R1),$TMP10
7112 036004  010102                            MOV     R1,R2
7113 036006  062702  000010                    ADD     #10,R2
7114 036012  012700  036146                    MOV     #STCIBF,R0      ;SEE IF THE RESULT IS CORRECT.
7115 036016  012703  000002                    MOV     #2,R3
7116 036022  022022                3$:         CMP     (R0)+,(R2)+
7117 036024  001014                            BNE     15$
7118 036026  077303                            SOB     R3,3$
7119 036030  016102  000022                    MOV     22(R1),R2
7120 036034  020204                            CMP     R2,R4           ;SEE IF THE FPS IS CORRECT.
7121 036036  001025                            BNE     20$             ;BRANCH IF INCORRECT.
7122 036040  005702                            TST     R2
7123 036042  100003                            BPL     4$
7124 036044  026105  000026                    CMP     26(R1),R5       ;SEE IF THE FEC IS CORRECT.
7125 036050  001027                            BNE     25$             ;BRANCH IF INCORRECT.
7126
7127 036052  000161  000036          4$:       JMP     36(R1)          ;RETURN.
7128                               ;DATA ERROR:
7129                               ;SEE IF THE FAILURE WAS ANTICIPATED.
7130 036056  010102                15$:       MOV     R1,R2
7131 036060  062702  000014                    ADD #14,R2
7132 036064  012700  036146                    MOV     #STCIBF,R0
7133 036070  012703  000002                    MOV     #2,R3
7134 036074  022022                16$:       CMP     (R0)+,(R2)+
7135 036076  001003                            BNE     17$
7136 036100  077303                            SOB     R3,16$
7137 036102  000161  000030                    JMP     30(R1)
7138 036106                        17$:
7139                               ;FAILURE WAS NOT ANTICIPATED SO REPORT INCORRECT RESULT HERE.
7140 036106  104322                18$:       ERROR   +322                    ;DATA BAD
7141 036110  000760                            BR      4$
7142
7143                               ;FPS INCORRECT, SO SEE IF FAILURE WAS ANTICIPATED.
7144 036112  020461  000024          20$:       CMP     R4,24(R1)
7145 036116  001002                            BNE     21$
7146 036120  000161  000034                    JMP     34(R1)
7147 036124                        21$:
7148                               ;NOT ANTICIPATED SO REPORT BAD FPS HERE.
7149 036124  104323                22$:       ERROR   +323                    ;FPS BAD
7150 036126  000751                            BR      4$
7151
7152                               ;REPORT INCORRECT FEC.
7153 036130  016137  000026  001256  25$:       MOV     26(R1),$TMP12
7154 036136  010537  001254                    MOV     R5,$TMP11
7155 036142  104324                26$:       ERROR   +324
7156 036144  000742                            BR      4$
7157
7158                               ;DATA BUFFER:
7159 036146  177777  177777  177777  STCIBF: .WORD   -1,-1,-1,-1
7160
7161 036156                        WWCDONE:
     036156  104412                            RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
```

```
                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                        ;THE USER TYPED CONTROL G?).

  7162
  7163
```

TEST # 73 - STCFL AND STCFI TEST

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7171                                    .SBTTL  TEST # 73 - STCFL AND STCFI TEST
                                        ;;*****************************************************************
                                        ;*TEST 73       STCFL AND STCFI TEST
                                        ;*
                                        ;* THIS IS A TEST OF STCFL AND STCFI.  IT
                                        ;* MAKES USE OF THE SAME SUBROUTINE, STCSUB,
                                        ;* WHICH WAS USED TO TEST STCDL AND STCDI.
                                        ;*
                                        ;;*****************************************************************
     036160  000004                     TST73:  SCOPE
7172
7173
7174                                    ;EXPONENT=37, FL=1
7175 036162                             XXC1:
     036162  104413                             LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
7176 036164  004737  035666                     JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
7177 036170  047777  177777  177777   1$:      .WORD   47777,-1,-1,-1  ;AC0 OPERAND.
7178 036200  077777  177600           2$:      .WORD   77777,177600            ;EXPECTED RESULT.
7179 036204  077777  177777           3$:      .WORD   77777,177777            ;ANTICIPATED ERRONEOUS RESULT.
7180 036210  040100                   4$:      40100                   ;FPS BEFORE EXECUTION.
7181 036212  040100                            40100                   ;FPS AFTER EXECUTION.
7182 036214  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
7183 036216  177777                            -1              ;EXPECTED FEC.
7184 036220  104346                   5$:      ERROR   +346                    ;X11(1,0)+0 ST 773X
7185 036222  000401                            BR      6$
7186 036224  104323                            ERROR   +323            ;REPORT FPS INCORRECT.
7187 036226                             6$:
7188
7189 036226                             XXCDONE:
     036226  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                         ;SEE IF THE USER HAS EXPRESSED
                                                                         ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                         ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                         ;THE USER TYPED CONTROL G?).
7190
7191
```

TEST # 74 - STEXP TEST

```
                                .SBTTL  TEST # 74 - STEXP TEST
                                ;;*****************************************************************
                                ;*TEST 74        STEXP TEST
                                ;*
                                ;* THIS IS A TEST OF THE STEXP
                                ;* INSTRUCTION
                                ;*
                                ;;*****************************************************************
    036230  000004              TST74:  SCOPE
                                ; EXP = 100 (EXCESS 200)
                                YYC1:
    036232  104413                      LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
    036234  004737  036520              JSR     PC,STXSUB
    036240  020000  000000  000000  1$: .WORD   20000,0,0,0              ;AC
    036250  177700          000000  2$: -100                            ;EXP RES
    036252  052525                  3$: 52525                          ;ERROR EXP.
    036254  040000                  4$: 40000                          ;FPSB
    036256  040010                      40010                          ;FPSA
    036260  040000                      40000                          ;ERROR FPS
    036262  104347                  5$: ERROR   +347                   ;BAD EXP
    036264  000401                      BR      6$
    036266  104352                      ERROR   +352            ;+(BUT ENBT) ST 376
    036270                          6$:
                                ; EXP = 200 (EXCESS 200)
                                YYC2:
    036270  104413                      LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
    036272  004737  036520              JSR     PC,STXSUB       ;GO EXECUTE THE INSTRUCTION.
    036276  040000  000000  000000  1$: .WORD   40000,0,0,0      ;AC0 OPERAND.
    036306  000000                  2$: 0                       ;EXPECTED EXPONENT RESULT.
    036310  052525                  3$: 52525           ;ANTICIPATED ERRONEOUS RESULT.
    036312  040000                  4$: 40000                   ;FPS BEFORE EXECUTION.
    036314  040004                      40004                   ;FPS AFTER EXECUTION.
    036316  040000                      40000                   ;ANTICIPATED ERRONEOUS FPS.
    036320  104347                  5$: ERROR   +347            ;REPORT RESULT INCORRECT.
    036322  000401                      BR      6$
    036324  104353                      ERROR   +353                    ;(BUT EZBT) ST 071
                                                                        ;TO 072 INT 272
    036326                          6$:
                                ; EXP = 201  (EXCESS 200)
                                YYC3:
    036326  104413                      LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
    036330  004737  036520              JSR     PC,STXSUB       ;GO EXECUTE THE INSTRUCTION.
    036334  040200  000000  000000  1$: .WORD   40200,0,0,0      ;AC0 OPERAND.
    036344  000001                  2$: 1                       ;EXPECTED EXPONENT RESULT.
    036346  052525                  3$: 52525           ;ANTICIPATED ERRONEOUS RESULT.
    036350  040000                  4$: 40000                   ;FPS BEFORE EXECUTION.
    036352  040000                      40000                   ;FPS AFTER EXECUTION.
    036354  040004                      40004                   ;ANTICIPATED ERRONEOUS FPS.
    036356  104347                  5$: ERROR   +347            ;REPORT RESULT INCORRECT.
    036360  000401                      BR      6$
    036362  104354                      ERROR   +354                    ;(BUT EZBT) ST 071
    036364                          6$:                                 ;TO 272 INTO 072
```

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                                        ; EXP = 375  (EXCESS 200)
                                        YYC4:
036364  104413                                LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
036366  004737  036520                        JSR     PC,STXSUB       ;GO EXECUTE THE INSTRUCTION.
036372  077200  000000  000000        1$:     .WORD   77200,0,0,0     ;AC0 OPERAND.
036402  000175                        2$:     175                     ;EXPECTED EXPONENT RESULT.
036404  052525                        3$:     52525           ;ANTICIPATED ERRONEOUS RESULT.
036406  040000                        4$:     40000                   ;FPS BEFORE EXECUTION.
036410  040000                                40000                   ;FPS AFTER EXECUTION.
036412  040010                                40010                   ;ANTICIPATED ERRONEOUS FPS.
036414  104347                        5$:     ERROR   +347            ;REPORT RESULT INCORRECT.
036416  000401                                BR      6$
036420  104355                                ERROR   +355                    ;(BUT ENBT) ST 376
036422                                6$:                                     ;TO 471 INTO 071

                                        ; EXP = 1  (EXCESS 200)

036422                                  YYC5:
036422  104413                                LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
036424  004737  036520                        JSR     PC,STXSUB       ;GO EXECUTE THE INSTRUCTION.
036430  000200  000000  000000        1$:     .WORD   200,0,0,0       ;AC0 OPERAND.
036440  177601                        2$:     -177                    ;EXPECTED EXPONENT RESULT.
036442  052525                        3$:     52525           ;ANTICIPATED ERRONEOUS RESULT.
036444  040000                        4$:     40000                   ;FPS BEFORE EXECUTION.
036446  040010                                40010                   ;FPS AFTER EXECUTION.
036450  040000                                40000                   ;ANTICIPATED ERRONEOUS FPS.
036452  104347                        5$:     ERROR   +347            ;REPORT RESULT INCORRECT.
036454  000401                                BR      6$
036456  104352                                ERROR   +352            ;REPORT FPS INCORRECT.
036460                                6$:

                                        ; EXP = 156  (EXCESS 200)

036460                                  YYC6:
036460  104413                                LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
036462  004737  036520                        JSR     PC,STXSUB       ;GO EXECUTE THE INSTRUCTION.
036466  033400  000000  000000        1$:     .WORD   33400,0,0,0     ;AC0 OPERAND.
036476  177756                        2$:     -22                     ;EXPECTED EXPONENT RESULT.
036500  052525                        3$:     52525           ;ANTICIPATED ERRONEOUS RESULT.
036502  047707                        4$:     47707                   ;FPS BEFORE EXECUTION.
036504  047710                                47710                   ;FPS AFTER EXECUTION.
036506  177777                                -1                      ;ANTICIPATED ERRONEOUS FPS.
036510  104347                        5$:     ERROR   +347            ;REPORT RESULT INCORRECT.
036512  000401                                BR      6$
036514  104350                                ERROR   +350            ;REPORT FPS INCORRECT.

036516  000510                        6$:     BR      YYCDONE

                                        ;THIS SUBROUTINE, STXSUB, IS USED TO SET UP THE OPERANDS, EXECUTE
                                        ;THE STEXP INSTRUCTION AND CHECK THE RESULTS. A CALL
                                        ;TO IT IS MADE THUS:
                                        ;
                                        ;               JSR     PC,STXSUB
                                        ;               ACARG:  .WORD   X,X,X,X         ;AC OPERAND
                                        ;               RES:    .WORD   X               ;EXPECTED RESULT
                                        ;               ERRES:  .WORD   X               ;ERROR RESULT
```

```
7298                                    ;              FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
7299                                    ;              FPSA:   .WORD   X               ;FPS AFTER EXECUTION
7300                                    ;              ERFPS:  .WORD   X               ;ERROR FPS.
7301                                    ;              ERR1:   ERROR   +X              ;DATA ERROR.
7302                                    ;                      BR      CONT
7303                                    ;              ERR2:   ERROR   +X              ;FPS ERROR.
7304                                    ;              CONT:                           ;RETURN ADDRESS
7305                                    ;
7306                                    ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
7307                                    ;THE STEXP INSTRUCTION IS EXECUTED.
7308                                    ;THE RESULT IS CHECKED AGAINST RES. IF THE RESULT IS CORRECT THEN THE FPS IS
7309                                    ;COMPARED WITH FPSA IF THIS TOO IS CORRECT STXSUB RETURNS CONTROL
7310                                    ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD STXSUB
7311                                    ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN STXSUB WILL RETURN
7312                                    ;TO THE ERROR CALL AT ERR2, OTHERWISE STXSUB ITSELF
7313                                    ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
7314                                    ;STEXP IS INCORRECT, THE INCORRECT RESULT IS COMPARED WITH THE
7315                                    ;ANTICIPATED FAILING DATA PATTERN, ERRES. IF THE FAILURE IN
7316                                    ;THE RESULT WAS ANTICIPATED CORRECTLY TO BE ERRES THEN STXSUB
7317                                    ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
7318                                    ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND STXSUB WILL
7319                                    ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
7320
7321 036520  012601                    STXSUB: MOV     (SP)+,R1        ;GET A POINTER TO THE ARGUMENTS.
7322 036522  010102                            MOV     R1,R2
7323 036524  010237  001240                    MOV     R2,$TMP3
7324 036530  062702  000010                    ADD     #10,R2
7325 036534  012237  001244                    MOV     (R2)+,$TMP5
7326 036540  012737  036606  001236            MOV     #1$,$TMP2
7327 036546  012737  123456  036726            MOV     #123456,STXBF
7328 036554  012737  076543  036730            MOV     #76543,STXBF+2
7329 036562  012700  000200                    MOV     #200,R0
7330 036566  170100                            LDFPS   R0
7331 036570  010100                            MOV     R1,R0           ;SET UP THE AC0 OPERAND.
7332 036572  172410                            LDD     (R0),AC0
7333 036574  016100  000016                    MOV     16(R1),R0       ;SET THE FPS.
7334 036600  170100                            LDFPS   R0
7335 036602  012700  036726                    MOV     #STXBF,R0
7336 036606  175010                    1$:     STEXP   AC0,(R0)        ;TEST INSTRUCTION.
7337 036610  170204                            STFPS   R4              ;GET FPS.
7338 036612  010437  001250                    MOV     R4,$TMP7
7339 036616  016137  000016  001252            MOV     16(R1),$TMP10
7340 036624  013737  036726  001242            MOV     STXBF,$TMP4
7341 036632  026137  000010  036726            CMP     10(R1),STXBF    ;WAS RESULT CORRECT?
7342 036640  001411                            BEQ     5$              ;BRANCH IF CORRECT.
7343 036642  026137  000012  036726            CMP     12(R1),STXBF    ;OTHERWISE SEE IF THE FAILURE WAS ANTICIPATED.
7344 036650  001002                            BNE     2$
7345 036652  000161  000022                    JMP     22(R1)
7346
7347                                    ;IF NOT ANTICIPATED REPORT ERROR HERE.
7348 036656                             2$:
7349 036656  104347                    3$:     ERROR   +347                            ;EXP BAD
7350 036660  000161  000030            4$:     JMP     30(R1)
7351
7352 036664  020461  000016            5$:     CMP     R4,16(R1)       ;SEE IF THE FPS IS CORRECT.
7353 036670  001407                            BEQ     10$             ;BRANCH IF CORRECT.
7354 036672  020461  000020                    CMP     R4,20(R1)       ;SEE IF THE FAILURE WAS ANTICIPATED.
```

```
7355 036676  001002                        BNE     6$
7356 036700  000161  000026                JMP     26(R1)
7357
7358                                ;FPS ERROR WAS NOT ANTICIPATED SO REPORT ERROR HERE.
7359 036704                         6$:
7360 036704  104350                7$:     ERROR   +350                    ;FPS BAD
7361 036706  000764                        BR      4$
7362
7363                                ;SEE IF MORE THAN ONE WORD WAS WRITTEN IN THE OUTPUT BUFFER.
7364 036710  022737  076543  036730 10$:    CMP     #76543,STXBF+2
7365 036716  001760                        BEQ     4$
7366 036720  104351                11$:    ERROR   +351                    ;FDFL+0 ST 347X
7367 036722  000756                        BR      4$
7368
7369 036724  177777                        -1
7370 036726  177777  177777  177777 STXBF: .WORD   -1,-1,-1,-1,-1
7371
7372 036740                         YYCDONE:
     036740  104412                        RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                    ;SEE IF THE USER HAS EXPRESSED
                                                                    ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                    ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                    ;THE USER TYPED CONTROL G?).
7373
```

```
                                .SBTTL  TEST # 75 - STST TEST
                                ;;*****************************************************************
                                ;*TEST 75        STST TEST
                                ;*
                                ;* THIS IS A TEST OF THE STST
                                ;* INSTRUCTION.  FIRST AN ILLEGAL FPS OP CODE
                                ;* (INSTRUCTION) IS USED TO ENTER AN
                                ;* ERROR CONDITION IN THE FEC AND
                                ;* FEA.  THE STST IS EXECUTED AND
                                ;* THE FEC AND FEA ARE CHECKED
                                ;*
                                ;;*****************************************************************
 036742  000004                 TST75:  SCOPE
                                ZZC1:
 036744  104413                         LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
 036746  012700  040000                 MOV     #40000,R0       ;SET FPS. FID=1.
 036752  170100                         LDFPS   R0
                                ZZC2:   .WORD   170003                  ;ILLEGAL FPP
                                                                        ;OP CODE
 036756  012700  037132                 MOV     #ZZCBF,R0       ;SET UP THE OUTPUT BUFFER.
 036762  012710  177777                 MOV     #-1,(R0)
 036766  012760  177777  000002         MOV     #-1,2(R0)
 036774  012737  037002  001236         MOV     #ZZC3,$TMP2
 037002  170310                 ZZC3:   STST    (R0)                    ;GET FEC AND
                                                                        ;FEA
 037004  170204                         STFPS   R4              ;GET FPS.
 037006  012700  037132                 MOV     #ZZCBF,R0
 037012  011037  001240                 MOV     (R0),$TMP3
 037016  016037  000002  001242         MOV     2(R0),$TMP4
 037024  012737  000002  001244         MOV     #2,$TMP5
 037032  012737  036754  001246         MOV     #ZZC2,$TMP6
 037040  010437  001250                 MOV     R4,$TMP7
 037044  012737  140000  001252         MOV     #140000,$TMP10

 037052  022710  000002                 CMP     #2,(R0) ;SEE IF FEC IS CORRECT.
 037056  001010                         BNE     ZZC5            ;BRANCH IF INCORRECT.
 037060  022760  036754  000002         CMP     #ZZC2,2(R0)     ;SEE IF FEA, ADDRESS, IS CORRECT.
 037066  001006                         BNE     ZZC10           ;BRANCH IF INCORRECT.
 037070  022704  140000                 CMP     #140000,R4      ;SEE IF FPS IS CORRECT.
 037074  001013                         BNE     ZZC15           ;BRANCH IF INCORRECT.
 037076  000422                         BR      ZZCDONE

                                ;REPORT FEC INCORRECT
 037100                         ZZC5:
 037100  104356                 1$:     ERROR   +356                            ;STST BAD
 037102  000420                         BR      ZZCDONE                 ;FECX

                                ;REPORT FEA INCORRECT
 037104  022760  177777  000002 ZZC10:  CMP     #-1,2(R0)
 037112  001402                         BEQ     ZZC12
 037114  104357                 1$:     ERROR   +357                            ;STST BAD FEA
 037116  000412                         BR      ZZCDONE
 037120                         ZZC12:
 037120  104360                 1$:     ERROR   +360                            ;SET FD FL ST 636
 037122  000410                         BR      ZZCDONE
```

```
7428
7429                                    ;REPORT FPS INCORRECT
7430 037124                             ZZC15:
7431 037124  104361                     1$:     ERROR   +361                    ;FPS X AFTER ST ST
7432 037126  000406                             BR      ZZCDONE
7433
7434                                    ;DATA BUFFER:
7435 037130  177777                             -1
7436 037132  177777  177777  177777    ZZCBF:  .WORD   -1,-1,-1,-1
7437 037142  177777                             -1
7438
7439 037144                             ZZCDONE:
     037144  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                         ;SEE IF THE USER HAS EXPRESSED
                                                                         ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                         ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                         ;THE USER TYPED CONTROL G?).
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SETUP FOR TESTS 76 THROUGH 104

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7441                                                .SBTTL  SETUP FOR TESTS 76 THROUGH 104
7442 037146  005037  177572                        CLR     MMR0            ;MAKE SURE MEMORY MANAGEMENT IS OFF.
7443 037152  170127  040000                        LDFPS   #40000          ;LOAD FPS STATUS.
7444 037156  012700  077406                        MOV     #77406,R0       ;LOAD R0 WITH 77406
7445 037162  012701  077400                        MOV     #77400,R1       ;LOAD R1 WITH 77400
7446 037166  010037  172320                        MOV     R0,KDPDR0       ;MAKE KDPDR0 RESIDENT.
7447 037172  010137  172322                        MOV     R1,KDPDR1       ;MAKE KDPDR1 NON-RESIDENT.
7448 037176  010137  172324                        MOV     R1,KDPDR2       ;MAKE KDPDR2 NON-RESIDENT.
7449 037202  010037  172326                        MOV     R0,KDPDR3       ;MAKE KDPDR3 RESIDENT FOR ADDRESSES 60000-77756.
7450 037206  010037  172330                        MOV     R0,KDPDR4       ;MAKE KDPDR4 RESIDENT FOR ADDRESSES 77760-77776.
7451 037212  010037  172336                        MOV     R0,KDPDR7       ;MAKE KDPDR7 RESIDENT (I/O PAGE).
7452
7453 037216  005037  172360                        CLR     KDPAR0          ;MAP D-PAGE 0 FOR 0-4K.
7454 037222  012737  000200  172362                MOV     #200,KDPAR1     ;MAP D-PAGE 1 FOR 4-8K.
7455 037230  012737  000400  172364                MOV     #400,KDPAR2     ;MAP D-PAGE 2 FOR 8-12K.
7456 037236  012737  000600  172366                MOV     #600,KDPAR3     ;MAP D-PAGE 3 FOR ACCESSING ADDRESSES 60000-77756.
7457 037244  012737  000600  172370                MOV     #600,KDPAR4     ;MAP D-PAGE 4 FOR ACCESSING ADDRESSES 77760-77776.
7458 037252  012737  177600  172376                MOV     #177600,KDPAR7  ;MAP D-PAGE 7 FOR I/O PAGE.
7459
7460 037260  010037  172300                        MOV     R0,KIPDR0       ;MAKE KIPDR0 RESIDENT.
7461 037264  010037  172302                        MOV     R0,KIPDR1       ;MAKE KIPDR1 RESIDENT.
7462 037270  010037  172304                        MOV     R0,KIPDR2       ;MAKE KIPDR2 RESIDENT.
7463 037274  010137  172306                        MOV     R1,KIPDR3       ;MAKE KIPDR3 NON-RESIDENT FOR USING ADDRESSES 60000-77756.
7464 037300  010137  172310                        MOV     R1,KIPDR4       ;MAKE KIPDR4 NON-RESIDENT FOR USING ADDRESSES 77760-77776.
7465 037304  010037  172316                        MOV     R0,KIPDR7       ;MAKE KIPDR7 RESIDENT (I/O PAGE).
7466
7467 037310  005037  172340                        CLR     KIPAR0          ;MAP I-PAGE 0 FOR 0-4K.
7468 037314  012737  000200  172342                MOV     #200,KIPAR1     ;MAP I-PAGE 1 FOR 4-8K.
7469 037322  012737  000400  172344                MOV     #400,KIPAR2     ;MAP I-PAGE 2 FOR 8-12K.
7470 037330  012737  000600  172346                MOV     #600,KIPAR3     ;MAP I-PAGE 3 FOR ACCESSING ADDRESSES 60000-77756.
7471 037336  012737  000600  172350                MOV     #600,KIPAR4     ;MAP I-PAGE 4 FOR ACCESSING ADDRESSES 77760-77776.
7472 037344  012737  177600  172356                MOV     #177600,KIPAR7  ;MAP I-PAGE 7 FOR I/O PAGE.
7473
7474 037352  013737  000250  001262                MOV     MMVECT,$TMP14   ;MOVE MM TRAP VECTOR TO $TMP14 FOR TEMP STORAGE.
7475 037360  012701  117760                        MOV     #DATA,R1        ;SET UP R1.
7476 037364  012702  117770                        MOV     #DATA+10,R2     ;SET UP R2.
7477 037370  012703  117772                        MOV     #DATA+12,R3     ;SET UP R3.
7478 037374  012737  040010  000250                MOV     #TRAPV,MMVECT   ;SET UP FOR FP TRAPS FOR THIS TEST.
7479 037402  012737  000340  000252                MOV     #340,MMVECT+2
7480 037410  012737  000024  172516                MOV     #24,MMR3        ;TURN ON 22-BIT KERNEL D-SPACE.
7481 037416  012737  117760  077770                MOV     #DATA,77770     ;SET UP ADDRESS POINTER.
```

```
7495                                    .SBTTL  TEST # 76 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 1
                                        ;;*****************************************************************
                                        ;*TEST 76       ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 1
                                        ;*
                                        ;* THIS IS A TEST THAT WILL ENABLE D-SPACE AND MAKE IT RESIDENT SO THAT AN
                                        ;* INSTRUCTION THAT ACCESSES I-SPACE WHEN IT NORMALLY SHOULDN'T WILL CAUSE A
                                        ;* MEMORY MANAGEMENT TRAP/ABORT.
                                        ;* ****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO FLOWS
                                        ;* AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD BE EASIER.
                                        ;* INSTRUCTION GROUPS ISOLATED BY BLANK LINES ARE TO BE EXECUTED TOGETHER
                                        ;* DUE TO PROPER SETUP PURPOSES.  I.E. THE LOCATION OR ADDRESS HAS TO BE
                                        ;* INITIALIZED PROPERLY BEFORE THE INSTRUCTION CAN BE ACCOMPLISHED.
                                        ;*
                                        ;;*****************************************************************
     037424  000004                     TST76:  SCOPE
7496 037426                             ZZF1:
     037426  104413                            LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
7497 037430  005237  177572                    INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7498                                    ;* THIS INSTRUCTION WILL TEST FOR A WORST-CASE HARDWARE PROBLEM.
7499 037434  170000                     CFCC                            ;* TEST INSTRUCTION WHICH SHOULD ALWAYS INVOKE D-SPACE.
7500 037436  010100                     MOV     R1,R0                   ;SETTING UP R0.
7501 037440  170410                     CLRF    (R0)                    ;TESTING BLOCKS 27-K AND 27-R.
7502 037442  177010                     LDCIF   (R0),AC0                ;TESTING BLOCKS 28-F AND 28-P.
7503 037444  172410                     LDF     (R0),AC0                ;TESTING BLOCKS 4-J, 4-X, 4-Z AND 4-BB.
7504 037446  170310                     STST    (R0)                    ;TESTING BLOCKS 33-E AND 33-P.
7505 037450  005037  177572             CLR     MMR0                    ;TURN OFF MEMORY MANAGEMENT.
```

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7506                                    .SBTTL  TEST # 77 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 2
                                        ;;*****************************************************************
                                        ;*TEST 77       ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 2
                                        ;*
                                        ;* THIS IS A TEST THAT WILL ENABLE D-SPACE AND MAKE IT RESIDENT SO THAT AN
                                        ;* INSTRUCTION THAT ACCESSES I-SPACE WHEN IT NORMALLY SHOULDN'T WILL CAUSE A
                                        ;* MEMORY MANAGEMENT TRAP/ABORT.
                                        ;* ****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO FLOWS
                                        ;* AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOUL  BE EASIER.
                                        ;* INSTRUCTION GROUPS ISOLATED BY BLANK LINES ARE TO BE EXECUTED TOGETHER
                                        ;* DUE TO PROPER SETUP PURPOSES.  I.E. THE LOCATION OR ADDRESS HAS TO BE
                                        ;* INITIALIZED PROPERLY BEFORE THE INSTRUCTION CAN BE ACCOMPLISHED.
                                        ;*
                                        ;;*****************************************************************
     037454  000004                     TST77:  SCOPE
7507 037456  005237  177572                     INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7508 037462  010100                             MOV     R1,R0           ;SETTING UP R0.
7509 037464  170520                             TSTF    (R0)+           ;TESTING BLOCK 21-AA.
7510 037466  170527  001000                     TSTF    #1000
7511
7512 037472  010100                             MOV     R1,R0           ;CORRECTING R0.
7513 037474  170420                             CLRF    (R0)+           ;TESTING BLOCKS 27-K AND 27-R.
7514                                            ;**NOTE**: THE LOCATION AFTER THE CLRF, AND STST MODE 2 REG 7 INSTRUCTIONS
7515                                            ;*WILL* BE CHANGED ON SUBSEQUENT PASSES, BUT IS **NOT** INCORRECT.  THE
7516                                            ;ACTUAL CONTENTS OF THOSE LOCATIONS IS IMMATERIAL, AS THIS TEST INSURES
7517                                            ;THAT THE INSTRUCTION DOES EXECUTE WITHOUT ACCESSING THAT LOCATION AS
7518                                            ;A D-SPACE ACCESS.
7519 037476  170427  001000                     CLRF    #1000
7520
7521 037502  010100                             MOV     R1,R0           ;CORRECTING R0.
7522 037504  177020                             LDCIF   (R0)+,AC0       ;TESTING BLOCKS 28-F AND 28-P.
7523 037506  177027  001000                     LDCIF   #1000,AC0
7524
7525 037512  010100                             MOV     R1,R0           ;CORRECTING R0.B
7526 037514  172420                             LDF     (R0)+,AC0       ;TESTING BLOCKS 4-NN, 4-X, 4-Z AND 4-BB.
7527 037516  172427  042572                     LDF     #1000,AC0
7528
7529 037522  010100                             MOV     R1,R0           ;CORRECTING R0.
7530 037524  170320                             STST    (R0)+           ;TESTING BLOCKS 33-J AND 33-P.
7531 037526  170327  001000                     STST    #1000
7532 037532  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
```

```
 7533                                   .SBTTL  TEST # 100 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 3
                                        ;;*****************************************************************
                                        ;*TEST 100      ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 3
                                        ;*
                                        ;* THIS IS A TEST THAT WILL ENABLE D-SPACE AND MAKE IT RESIDENT SO THAT AN
                                        ;* INSTRUCTION THAT ACCESSES I-SPACE WHEN IT NORMALLY SHOULDN'T WILL CAUSE A
                                        ;* MEMORY MANAGEMENT TRAP/ABORT.
                                        ;* ****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO FLOWS
                                        ;* AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD BE EASIER.
                                        ;* INSTRUCTION GROUPS ISOLATED BY BLANK LINES ARE TO BE EXECUTED TOGETHER
                                        ;* DUE TO PROPER SETUP PURPOSES.  I.E. THE LOCATION OR ADDRESS HAS TO BE
                                        ;* INITIALIZED PROPERLY BEFORE THE INSTRUCTION CAN BE ACCOMPLISHED.
                                        ;*
                                        ;;*****************************************************************
                                        TST100: SCOPE
 037536  000004
 7534 037540  005237  177572                   INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
 7535 037544  010200                           MOV     R2,R0           ;SETTING UP R0.
 7536 037546  170530                           TSTF    @(R0)+          ;TESTING BLOCK 21-N.
 7537 037550  170537  117760                   TSTF    DATA
 7538
 7539 037554  010200                           MOV     R2,R0           ;CORRECTING R0.
 7540 037556  170430                           CLRF    @(R0)+          ;TESTING BLOCKS 27-U, 27-T AND 27-R.
 7541 037560  170437  117760                   CLRF    DATA
 7542
 7543 037564  010200                           MOV     R2,R0           ;CORRECTING R0.
 7544 037566  177030                           LDCIF   @(R0)+,AC0      ;TESTING BLOCKS 28-L, 28-N AND 28-P.
 7545 037570  177037  117760                   LDCIF   DATA,AC0
 7546
 7547 037574  010200                           MOV     R2,R0           ;CORRECTING R0.
 7548 037576  172430                           LDF     @(R0)+,AC0      ;TESTING BLOCKS 4-R, 4-T, 4-X, 4-Z AND 4-BB.
 7549 037600  172437  117760                   LDF     DATA,AC0
 7550
 7551 037604  010200                           MOV     R2,R0           ;CORRECTING R0.
 7552 037606  170330                           STST    @(R0)+          ;TESTING BLOCKS 33-L, 33-N AND 33-P.
 7553 037610  170337  117760                   STST    DATA
 7554 037614  005037  177572                   CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
```

```
7555                                    .SBTTL  TEST # 101 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 4
                                        ;;*****************************************************************
                                        ;*TEST 101      ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 4
                                        ;*
                                        ;* THIS IS A TEST THAT WILL ENABLE D-SPACE AND MAKE IT RESIDENT SO THAT AN
                                        ;* INSTRUCTION THAT ACCESSES I-SPACE WHEN IT NORMALLY SHOULDN'T WILL CAUSE A
                                        ;* MEMORY MANAGEMENT TRAP/ABORT.
                                        ;* ****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO FLOWS
                                        ;* AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD BE EASIER.
                                        ;* INSTRUCTION GROUPS ISOLATED BY BLANK LINES ARE TO BE EXECUTED TOGETHER
                                        ;* DUE TO PROPER SETUP PURPOSES.  I.E. THE LOCATION OR ADDRESS HAS TO BE
                                        ;* INITIALIZED PROPERLY BEFORE THE INSTRUCTION CAN BE ACCOMPLISHED.
                                        ;*
                                        ;;*****************************************************************
     037620  000004                     TST101: SCOPE
7556 037622  005237  177572                    INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7557 037626  010200                            MOV     R2,R0           ;SETTING UP R0.
7558 037630  172440                            LDF     -(R0),AC0       ;TESTING BLOCKS 4-J, 4-X, 4-Z AND 4-BB.
7559 037632  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
```

TEST # 102 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 5

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7560                                    .SBTTL  TEST # 102 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 5
                                        ;;*****************************************************************
                                        ;*TEST 102       ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 5
                                        ;*
                                        ;* THIS IS A TEST THAT WILL ENABLE D-SPACE AND MAKE IT RESIDENT SO THAT AN
                                        ;* INSTRUCTION THAT ACCESSES I-SPACE WHEN IT NORMALLY SHOULDN'T WILL CAUSE A
                                        ;* MEMORY MANAGEMENT TRAP/ABORT.
                                        ;* ****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO FLOWS
                                        ;* AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD BE EASIER.
                                        ;* INSTRUCTION GROUPS ISOLATED BY BLANK LINES ARE TO BE EXECUTED TOGETHER
                                        ;* DUE TO PROPER SETUP PURPOSES.  I.E. THE LOCATION OR ADDRESS HAS TO BE
                                        ;* INITIALIZED PROPERLY BEFORE THE INSTRUCTION CAN BE ACCOMPLISHED.
                                        ;*
                                        ;;*****************************************************************
    037636  000004                      TST102: SCOPE
7561 037640  005237  177572                    INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7562 037644  010300                            MOV     R3,R0           ;SETTING UP R0.
7563 037646  170550                            TSTF    @-(R0)          ;TESTING BLOCK 21-U.
7564
7565 037650  010300                            MOV     R3,R0           ;CORRECTING R0.
7566 037652  170450                            CLRF    @-(R0)          ;TESTING BLOCKS 27-X, 27-T AND 27-R.
7567
7568 037654  010300                            MOV     R3,R0           ;CORRECTING R0.
7569 037656  177050                            LDCIF   @-(R0),AC0      ;TESTING BLOCKS 28-S, 28-N AND 28-P.
7570
7571 037660  010300                            MOV     R3,R0           ;CORRECTING R0.
7572 037662  172450                            LDF     @-(R0),AC0      ;TESTING BLOCKS 4-U, 4-T, 4-X, 4-Z AND 4-BB.
7573
7574 037664  010300                            MOV     R3,R0           ;CORRECTING R0.
7575 037666  170350                            STST    @-(R0)          ;TESTING BLOCKS 33-S, 33-N ADN 33-P.
7576 037670  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
```

TEST # 103 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 6

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7577                                    .SBTTL  TEST # 103 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 6
                                        ;;*****************************************************************
                                        ;*TEST 103      ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 6
                                        ;*
                                        ;* THIS IS A TEST THAT WILL ENABLE D-SPACE AND MAKE IT RESIDENT SO THAT AN
                                        ;* INSTRUCTION THAT ACCESSES I-SPACE WHEN IT NORMALLY SHOULDN'T WILL CAUSE A
                                        ;* MEMORY MANAGEMENT TRAP/ABORT.
                                        ;* ****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO FLOWS
                                        ;* AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD BE EASIER.
                                        ;* INSTRUCTION GROUPS ISOLATED BY BLANK LINES ARE TO BE EXECUTED TOGETHER
                                        ;* DUE TO PROPER SETUP PURPOSES.  I.E. THE LOCATION OR ADDRESS HAS TO BE
                                        ;* INITIALIZED PROPERLY BEFORE THE INSTRUCTION CAN BE ACCOMPLISHED.
                                        ;*
                                        ;;*****************************************************************
     037674  000004                     TST103: SCOPE
7578                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSION
7579 037676  005267  137670                     INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7580 037702  170567  060052                     TSTF    DATA            ;TESTING BLOCK 21-0.
7581 037706  170467  060046                     CLRF    DATA            ;TESTING BLOCKS 27-DD, 27-T AND 27-R.
7582 037712  177067  060042                     LDCIF   DATA,AC0        ;TESTING BLOCKS 28-T, 28-N ADN 28-P.
7583 037716  172467  060036                     LDF     DATA,AC0        ;TESTING BLOCKS 4-DD, 4-T, 4-X, 4-Z AND 4-BB.
7584 037722  170367  060032                     STST    DATA            ;TESTING BLOCKS 33-T, 33-N AND 33-P.
7585 037726  005067  137640                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7586                                            .ENABL  AMA             ;REENABLE MODE 6 TO MODE 3 CONVERSION
```

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 7587                                   .SBTTL  TEST # 104 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 7
                                        ;;*****************************************************************
                                        ;*TEST 104      ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 7
                                        ;*
                                        ;* THIS IS A TEST THAT WILL ENABLE D-SPACE AND MAKE IT RESIDENT SO THAT AN
                                        ;* INSTRUCTION THAT ACCESSES I-SPACE WHEN IT NORMALLY SHOULDN'T WILL CAUSE A
                                        ;* MEMORY MANAGEMENT TRAP/ABORT.
                                        ;* ****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO FLOWS
                                        ;* AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD BE EASIER.
                                        ;* INSTRUCTION GROUPS ISOLATED BY BLANK LINES ARE TO BE EXECUTED TOGETHER
                                        ;* DUE TO PROPER SETUP PURPOSES.  I.E. THE LOCATION OR ADDRESS HAS TO BE
                                        ;* INITIALIZED PROPERLY BEFORE THE INSTRUCTION CAN BE ACCOMPLISHED.
                                        ;*
                                        ;;*****************************************************************
      037732  000004                    TST104: SCOPE
 7588 037734  005237  177572                    INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
 7589 037740  010200                            MOV     R2,R0           ;SETTING UP R0.
 7590 037742  170470  000000                    CLRF    @0(R0)          ;TESTING BLOCKS 27-GG, 27-JJ, 27-T AND 27-R.
 7591 037746  170477  060016                    CLRF    @DATA+10
 7592 037752  177070  000000                    LDCIF   @0(R0),AC0      ;TESTING BLOCKS 28-W, 28-Z, 28-N AND 28-P.
 7593 037756  177077  060006                    LDCIF   @DATA+10,AC0
 7594 037762  172470  000000                    LDF     @0(R0),AC0      ;TESTING BLOCKS 4-GG, 4-JJ, 4-T, 4-X 4-Z AND 4-BB.
 7595 037766  172477  057776                    LDF     @DATA+10,AC0
 7596 037772  170370  000000                    STST    @0(R0)          ;TESTING BLOCKS 33-W, 33-Z, 33-N AN 33-P.
 7597 037776  170377  057766                    STST    @DATA+10
 7598 040002  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 7599
 7600 040006  000431                    BR      ENDTST          ;BRANCH TO END OF TEST ROUTINE.
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7601                                            .SBTTL  TRAP HANDLER FOR UNEXPECTED MEMORY MANAGEMENT ABORTS
7602 040010  042737  000001  177572  TRAPV:    BIC     #1,MMR0         ;TURN OFF MEMORY MANAGEMENT.
7603 040016  013737  177572  001240            MOV     MMR0,$TMP3      ;TRANSFER MMR0 TO $TMP3 FOR ERROR PRINTING.
7604 040024  005237  001240                    INC     $TMP3           ;REPLACE BIT CLEARED TURNING OFF MEMORY MANAGEMENT.
7605 040030  013737  177576  001236            MOV     MMR2,$TMP2      ;MOVE THE TRAP INSTRUCTION ADDRESS TO $TMP13.
7606 040036  005037  177572                    CLR     MMR0            ;CLEAR ERROR BITS.
7607 040042  012637  001266                    MOV     (SP)+,$TMP16    ;POP STACK AND SAVE 1ST CONTENTS.
7608 040046  012637  001270                    MOV     (SP)+,$TMP17    ;POP STACK AGAIN AND SAVE 2ND CONTENTS.
7609 040052  104362                            ERROR   +362            ;FPP TRAP/ABORT ERROR CALL.
7610 040054  013746  001270                    MOV     $TMP17,-(SP)    ;PUSH 2ND SAVED CONTENTS BACK ON STACK.
7611 040060  013746  001266                    MOV     $TMP16,-(SP)    ;PUSH 1ST SAVED CONTENTS BACK ON STACK.
7612 040064  005237  177572                    INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7613 040070  000002                            RTI                     ;RETURN FROM INTERRUPT.
```

TRAP HANDLER FOR UNEXPECTED MEMORY MANAGEMENT ABORTS

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7614 040072  005037  177572          ENDTST: CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7615 040076  013737  001262  000250          MOV     $TMP14,MMVECT   ;RESTORE MMVECT TO ITS ORIGINAL CONTENTS.
7616 040104                          IDONE:
     040104  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                     ;SEE IF THE USER HAS EXPRESSED
                                                                     ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                     ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                     ;THE USER TYPED CONTROL G?).
7617 040106  005037  177572                  CLR     MMR0            ;MAKE SURE MEMORY MANAGEMENT IS OFF.
7618 040112  170127  040000                  LDFPS   #40000          ;LOAD FLOATING POINT STATUS.
7619 040116  005037  001272                  CLR     $TMP20          ;CLEAR THE TEMPORARY LOCATION.
7620 040122  012737  000252  043014          MOV     #252,STORE      ;CLEAR UPPER BYTE - ALTERNATING BITS IN LOWER BYTE.
7621 040130  012737  125252  043016          MOV     #125252,STORE+2 ;MOVE ALTERNATING BITS TO 2ND WORD.
7622 040136  012737  125252  043020          MOV     #125252,STORE+4 ;MOVE ALTERNATING BITS TO 3RD WORD.
7623 040144  012737  125252  043022          MOV     #125252,STORE+6 ;MOVE ALTERNATING BITS TO 4TH WORD.
7624 040152  172437  043014                  LDF     STORE,AC0       ;LOAD AC0.
7625 040156  172537  043014                  LDF     STORE,AC1       ;LOAD AC1.
7626 040162  172637  043014                  LDF     STORE,AC2       ;LOAD AC2.
7627 040166  172737  043014                  LDF     STORE,AC3       ;LOAD AC3.
7628 040172  012700  043014                  MOV     #STORE,R0       ;MOVE ADDRESS OF STORE TO R0.
7629 040176  012701  000030                  MOV     #30,R1          ;MOVE LOOP COUNTER (CLEARING 30 WORDS) TO R1.
7630 040202  005020                  1$:     CLR     (R0)+           ;CLEAR THE WORD.
7631 040204  077102                          SOB     R1,1$           ;SUBTRACT 1 FROM R1 AND BRANCH IF NOT 0.
7632 040206  174037  043014                  STF     AC0,STORE       ;STORE AC0.
7633 040212  174137  043024                  STF     AC1,STORE+10    ;STORE AC1.
7634 040216  174237  043034                  STF     AC2,STORE+20    ;STORE AC2.
7635 040222  174337  043044                  STF     AC3,STORE+30    ;STORE AC3.
7636
7637 040226  012737  077406  172320          MOV     #77406,KDPDR0   ;MAKE KDPDR0 RESIDENT.
7638 040234  012737  077406  172322          MOV     #77406,KDPDR1   ;MAKE KDPDR1 RESIDENT.
7639 040242  012737  077400  172324          MOV     #77400,KDPDR2   ;MAKE KDPDR2 NON-RESIDENT.
7640 040250  012737  077406  172326          MOV     #77406,KDPDR3   ;MAKE KDPDR3 RESIDENT.
7641 040256  012737  077406  172336          MOV     #77406,KDPDR7   ;MAKE KDPDR7 RESIDENT.
7642
7643 040264  012737  077406  172300          MOV     #77406,KIPDR0   ;MAKE KIPDR0 RESIDENT.
7644 040272  012737  077406  172302          MOV     #77406,KIPDR1   ;MAKE KIPDR1 RESIDENT.
7645 040300  012737  077406  172304          MOV     #77406,KIPDR2   ;MAKE KIPDR2 RESIDENT.
7646 040306  012737  077406  172306          MOV     #77406,KIPDR3   ;MAKE KIPDR3 RESIDENT.
7647 040314  012737  077406  172316          MOV     #77406,KIPDR7   ;MAKE KIPDR7 RESIDENT.
7648
7649 040322  005037  172360                  CLR     KDPAR0          ;MAP D-PAGE 0 FOR 0-4K.
7650 040326  012737  000200  172362          MOV     #200,KDPAR1     ;MAP D-PAGE 1 FOR 4-8K.
7651 040334  012737  000400  172364          MOV     #400,KDPAR2     ;MAP D-PAGE 2 FOR 8-12K.
7652 040342  012737  000600  172366          MOV     #600,KDPAR3     ;MAP D-PAGE 3 FOR 12-16K.
7653 040350  012737  177600  172376          MOV     #177600,KDPAR7  ;MAP D-PAGE 7 FOR I/O PAGE.
7654
7655 040356  005037  172340                  CLR     KIPAR0          ;MAP I-PAGE 0 FOR 0-4K.
7656 040362  012737  000200  172342          MOV     #200,KIPAR1     ;MAP I-PAGE 1 FOR 4-8K.
7657 040370  012737  000400  172344          MOV     #400,KIPAR2     ;MAP I-PAGE 2 FOR 8-12K.
7658 040376  012737  000600  172346          MOV     #600,KIPAR3     ;MAP I-PAGE 3 FOR 12-16K.
7659 040404  012737  177600  172356          MOV     #177600,KIPAR7  ;MAP I-PAGE 7 FOR I/O PAGE.
7660
7661 040412  012705  043074                  MOV     #BYTABL,R5      ;SET UP BYTE TABLE POINTER R5.
7662 040416  013737  000250  001262          MOV     MMVECT,$TMP14   ;TEMPORARILY STORE THE MMVECT VALUE.
7663 040424  012737  041636  000250          MOV     #TRPV,MMVECT    ;SET UP FOR FP TRAPS FOR THIS TEST.
7664 040432  012737  000340  000252          MOV     #340,MMVECT+2
7665 040440  013737  000020  040522          MOV     IOTRAP,SAVIOT   ;STORE THE IOTRAP VALUE IN SAVIOT
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7666 040446  012737  000340  000022          MOV     #340,IOTRAP+2
7667
7668 040454  012737  000024  172516          MOV     #24,MMR3          ;TURN ON 22-BIT KERNEL D-SPACE.
7669 040462  012737  043000  043010          MOV     #NODAT,NODAT+10   ;SET UP ADDRESS POINTER.
7670 040470  012700  043000                  MOV     #NODAT,R0         ;SET UP R0.
7671 040474  012702  043010                  MOV     #NODAT+10,R2      ;SET UP R2.
7672 040500  012703  043012                  MOV     #NODAT+12,R3      ;SET UP R3.
7673 040504  010037  043054                  MOV     R0,STORE+40       ;STORE R0.
7674 040510  010237  043056                  MOV     R2,STORE+42       ;STORE R2.
7675 040514  010337  043060                  MOV     R3,STORE+44       ;STORE R3.
7676 040520  000401                          BR      TST105            ;BRANCH OVER LOCATION SAVIOT
7677
7678 040522  000000          SAVIOT: .WORD   0                 ;LOCATION TO SAVE THE SCOPE VECTOR ADDRESS
```

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7691                                    .SBTTL  TEST # 105 - AUTO INCREMENT/DECREMENT TEST, MODE 0
                                        ;;*****************************************************************
                                        ;*TEST 105      AUTO INCREMENT/DECREMENT TEST, MODE 0
                                        ;*
                                        ;* THIS TEST INSURES THAT AUTO INCREMENT/DECREMENT WORKS PROPERLY AND
                                        ;* *ONLY* WHEN IT IS SUPPOSED TO. THIS IS DONE BY ENABLING 22-BIT KERNEL
                                        ;* D-SPACE, BUT MAKING IT NON-RESIDENT, FORCING A MEMORY MANAGEMENT TRAP
                                        ;* CONDITION.  THIS ENABLES EXAMINING OF SR1 FOR PROPER CONTENTS.
                                        ;*****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO
                                        ;* FLOW AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD
                                        ;* BE EASIER.
                                        ;*
                                        ;;*****************************************************************
040524  000004                          TST105: SCOPE
7692 040526
040526  104413                          1$:     LPERR                   ;SET UP THE LOOP ON ERROR ADDRESS.
7693
7694                                            ;* THE FOLLOWING TESTS ARE FOR MODE 0 REG 1 (THESE SHOULD *NOT* ABORT).
7695
7696 040530  012737  041570  000020              MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
7697 040536  005237  177572                      INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7698 040542  170501                              TSTF    R1              ;FDST-NOTCLR PAGE 21.
7699 040544  170401                              CLRF    R1              ;FDST MODES PAGE 27.
7700 040546  177001                              LDCIF   R1,AC0          ;SOURCE MODES PAGE 28.
7701 040550  172401                              LDF     R1,AC0          ;FSRC MODES PAGE 4.
7702 040552  170301                              STST    R1              ;DEST MODES PAGE 33.
7703 040554  005037  177572                      CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7704 040560  172437  043014                      LDF     STORE,AC0       ;RESTORE AC0.
7705 040564  172537  043014                      LDF     STORE,AC1       ;RESTORE AC1.
7706 040570  010046                              MOV     R0,-(SP)        ;SAVE R0 FOR NEXT TEST
7707 040572  010246                              MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
7708 040574  013737  040522  000020              MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
```

```
7709                                    .SBTTL  TEST # 106 - AUTO INCREMENT/DECREMENT TEST, MODE 1
                                        ;;*****************************************************************
                                        ;*TEST 106      AUTO INCREMENT/DECREMENT TEST, MODE 1
                                        ;*
                                        ;* THIS TEST INSURES THAT AUTO INCREMENT/DECREMENT WORKS PROPERLY AND
                                        ;* *ONLY* WHEN IT IS SUPPOSED TO. THIS IS DONE BY ENABLING 22-BIT KERNEL
                                        ;* D-SPACE, BUT MAKING IT NON-RESIDENT, FORCING A MEMORY MANAGEMENT TRAP
                                        ;* CONDITION.  THIS ENABLES EXAMINING OF SR1 FOR PROPER CONTENTS.
                                        ;*****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO
                                        ;* FLOW AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD
                                        ;* BE EASIER.
                                        ;*
                                        ;;*****************************************************************
    040602  000004                      TST106: SCOPE
7710 040604  012602                             MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
7711 040606  012600                             MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
7712 040610  012737  041570  000020             MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
7713 040616  005237  177572                     INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7714 040622  010001                      MODE1: MOV     R0,R1           ;SET UP R1.
7715 040624  010004                             MOV     R0,R4           ;MOVE 'START' VALUE INTO R4.
7716 040626  170511                             TSTF    (R1)            ;FDST-NOTCLR PAGE 21.
7717 040630  000004                             IOT                     ;FORCE A TRAP.
7718 040632  170411                             CLRF    (R1)            ;FDST MODES PAGE 27.
7719 040634  000004                             IOT                     ;FORCE A TRAP.
7720 040636  177011                             LDCIF   (R1),AC0        ;SOURCE MODES PAGE 28.
7721 040640  000004                             IOT                     ;FORCE A TRAP.
7722 040642  172411                             LDF     (R1),AC0        ;FSRC MODES PAGE 4.
7723 040644  000004                             IOT                     ;FORCE A TRAP.
7724 040646  170311                             STST    (R1)            ;DEST MODES PAGE 33.
7725 040650  000004                             IOT                     ;FORCE A TRAP.
7726 040652  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7727 040656  010046                             MOV     R0,-(SP)        ;SAVE R0 FOR NEXT TEST
7728 040660  010246                             MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
7729 040662  013737  040522  000020             MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
```

TEST # 107 - AUTO INCREMENT/DECREMENT TEST, MODE 2

```
7730                                    .SBTTL  TEST # 107 - AUTO INCREMENT/DECREMENT TEST, MODE 2
                                        ;;*****************************************************************
                                        ;*TEST 107      AUTO INCREMENT/DECREMENT TEST, MODE 2
                                        ;*
                                        ;* THIS TEST INSURES THAT AUTO INCREMENT/DECREMENT WORKS PROPERLY AND
                                        ;* *ONLY* WHEN IT IS SUPPOSED TO. THIS IS DONE BY ENABLING 22-BIT KERNEL
                                        ;* D-SPACE, BUT MAKING IT NON-RESIDENT, FORCING A MEMORY MANAGEMENT TRAP
                                        ;* CONDITION.  THIS ENABLES EXAMINING OF SR1 FOR PROPER CONTENTS.
                                        ;*****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO
                                        ;* FLOW AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD
                                        ;* BE EASIER.
                                        ;*
                                        ;;*****************************************************************
     040670  000004
7731 040672  012737  041570  000020    TST107: SCOPE
                                                MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
7732 040700  012602                             MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
7733 040702  012600                             MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
7734 040704  005237  177572                     INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7735 040710  170521                             TSTF    (R1)+           ;FDST-NOTCLR PAGE 21.
7736 040712  000004                    LABEL1:  IOT                     ;FORCE A TRAP.
7737
7738 040714  010001                             MOV     R0,R1           ;CORRECT R1.
7739 040716  170421                             CLRF    (R1)+           ;FDST MODES PAGE 27.
7740 040720  000004                             IOT                     ;FORCE A TRAP.
7741
7742 040722  010001                             MOV     R0,R1           ;CORRECT R1.
7743 040724  177021                             LDCIF   (R1)+,AC0       ;SOURCE MODES PAGE 28.
7744 040726  000004                             IOT                     ;FORCE A TRAP.
7745
7746 040730  010001                             MOV     R0,R1           ;CORRECT R1.
7747 040732  172421                             LDF     (R1)+,AC0       ;FSRC MODES PAGE 4.
7748 040734  000004                             IOT                     ;FORCE A TRAP.
7749
7750 040736  010001                             MOV     R0,R1           ;CORRECT R1.
7751 040740  170321                             STST    (R1)+           ;DEST MODES PAGE 33.
7752 040742  000004                             IOT                     ;FORCE A TRAP.
7753 040744  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7754 040750  013737  040522  000020            MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
7755 040756  010046                             MOV     R0,-(SP)        ;SAVE R0 FOR NEXT TEST
7756 040760  010246                             MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
```

TEST # 110 - AUTO INCREMENT/DECREMENT TEST, MODE 3

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7757                                    .SBTTL  TEST # 110 - AUTO INCREMENT/DECREMENT TEST, MODE 3
                                        ;;*****************************************************************
                                        ;*TEST 110      AUTO INCREMENT/DECREMENT TEST, MODE 3
                                        ;*
                                        ;* THIS TEST INSURES THAT AUTO INCREMENT/DECREMENT WORKS PROPERLY AND
                                        ;* *ONLY* WHEN IT IS SUPPOSED TO. THIS IS DONE BY ENABLING 22-BIT KERNEL
                                        ;* D-SPACE, BUT MAKING IT NON-RESIDENT, FORCING A MEMORY MANAGEMENT TRAP
                                        ;* CONDITION.  THIS ENABLES EXAMINING OF SR1 FOR PROPER CONTENTS.
                                        ;*****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO
                                        ;* FLOW AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD
                                        ;* BE EASIER.
                                        ;*
                                        ;;*****************************************************************
    040762  000004                      TST110: SCOPE
7758 040764  012737  041570  000020             MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
7759 040772  012602                             MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
7760 040774  012600                             MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
7761 040776  005237  177572                     INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7762 041002  010201                             MOV     R2,R1           ;SET UP R1 FOR MODE 3.
7763 041004  010204                             MOV     R2,R4           ;MOVE 'START' VALUE INTO R4.
7764 041006  170531                             TSTF    @(R1)+          ;FDST-NOTCLR PAGE 21.
7765 041010  000004                             IOT                     ;FORCE A TRAP.
7766 041012  170537  043000                     TSTF    NODAT
7767 041016  000004                             IOT                     ;FORCE A TRAP.
7768
7769 041020  010201                             MOV     R2,R1           ;CORRECT R1.
7770 041022  170431                             CLRF    @(R1)+          ;FDST MODES PAGE 27.
7771 041024  000004                             IOT                     ;FORCE A TRAP.
7772 041026  170437  043000                     CLRF    NODAT
7773 041032  000004                             IOT                     ;FORCE A TRAP.
7774
7775 041034  010201                             MOV     R2,R1           ;CORRECT R1.
7776 041036  177031                             LDCIF   @(R1)+,AC0      ;SOURCE MODES PAGE 28.
7777 041040  000004                             IOT                     ;FORCE A TRAP.
7778 041042  177037  043000                     LDCIF   NODAT,AC0
7779 041046  000004                             IOT                     ;FORCE A TRAP.
7780
7781 041050  010201                             MOV     R2,R1           ;CORRECT R1.
7782 041052  172431                             LDF     @(R1)+,AC0      ;FSRC MODES PAGE 4.
7783 041054  000004                             IOT                     ;FORCE A TRAP.
7784 041056  172437  043000                     LDF     NODAT,AC0
7785 041062  000004                             IOT                     ;FORCE A TRAP.
7786
7787 041064  010201                             MOV     R2,R1           ;CORRECT R1.
7788 041066  170331                             STST    @(R1)+          ;DEST MODES PAGE 33.
7789 041070  000004                             IOT                     ;FORCE A TRAP.
7790 041072  170337  043000                     STST    NODAT
7791 041076  000004                             IOT                     ;FORCE A TRAP.
7792 041100  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7793 041104  010046                             MOV     R0,-(SP)        ;SAVE R0 FOR NEXT TEST
7794 041106  010246                             MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
7795 041110  013737  040522  000020             MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
```

```
 7796                                   .SBTTL  TEST # 111 - AUTO INCREMENT/DECREMENT TEST, MODE 4
                                        ;;*****************************************************************
                                        ;*TEST 111      AUTO INCREMENT/DECREMENT TEST, MODE 4
                                        ;*
                                        ;* THIS TEST INSURES THAT AUTO INCREMENT/DECREMENT WORKS PROPERLY AND
                                        ;* *ONLY* WHEN IT IS SUPPOSED TO. THIS IS DONE BY ENABLING 22-BIT KERNEL
                                        ;* D-SPACE, BUT MAKING IT NON-RESIDENT, FORCING A MEMORY MANAGEMENT TRAP
                                        ;* CONDITION.  THIS ENABLES EXAMINING OF SR1 FOR PROPER CONTENTS.
                                        ;*****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO
                                        ;* FLOW AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD
                                        ;* BE EASIER.
                                        ;*
                                        ;;*****************************************************************
     041116  000004                     TST111: SCOPE
 7797 041120  012737  041570  000020            MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
 7798 041126  012602                            MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
 7799 041130  012600                            MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
 7800 041132  005237  177572                    INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
 7801 041136  010201                            MOV     R2,R1           ;SET UP R1 FOR MODE 4.
 7802 041140  170541                            TSTF    -(R1)           ;FDST-NOTCLR PAGE 21.
 7803 041142  000004                            IOT                     ;FORCE A TRAP.
 7804
 7805 041144  010201                            MOV     R2,R1           ;CORRECT R1.
 7806 041146  170441                            CLRF    -(R1)           ;FDST MODES PAGE 27.
 7807 041150  000004                            IOT                     ;FORCE A TRAP.
 7808
 7809 041152  010201                            MOV     R2,R1           ;CORRECT R1.
 7810 041154  177041                            LDCIF   -(R1),AC0       ;SOURCE MODES PAGE 28.
 7811 041156  000004                            IOT                     ;FORCE A TRAP.
 7812
 7813 041160  010201                            MOV     R2,R1           ;CORRECT R1.
 7814 041162  172441                            LDF     -(R1),AC0       ;FSRC MODES PAGE 4.
 7815 041164  000004                            IOT                     ;FORCE A TRAP.
 7816
 7817 041166  010201                            MOV     R2,R1           ;CORRECT R1.
 7818 041170  170341                            STST    -(R1)           ;DEST MODES PAGE 33.
 7819 041172  000004                            IOT                     ;FORCE A TRAP.
 7820 041174  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 7821 041200  010046                            MOV     R0,-(SP)        ;SAVE R0 FOR NEXT TEST
 7822 041202  010246                            MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
 7823 041204  013737  040522  000020            MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
```

```
7824                                    .SBTTL  TEST # 112 - AUTO INCREMENT/DECREMENT TEST, MODE 5
                                        ;;*****************************************************************
                                        ;*TEST 112      AUTO INCREMENT/DECREMENT TEST, MODE 5
                                        ;*
                                        ;* THIS TEST INSURES THAT AUTO INCREMENT/DECREMENT WORKS PROPERLY AND
                                        ;* *ONLY* WHEN IT IS SUPPOSED TO. THIS IS DONE BY ENABLING 22-BIT KERNEL
                                        ;* D-SPACE, BUT MAKING IT NON-RESIDENT, FORCING A MEMORY MANAGEMENT TRAP
                                        ;* CONDITION.  THIS ENABLES EXAMINING OF SR1 FOR PROPER CONTENTS.
                                        ;*****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO
                                        ;* FLOW AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD
                                        ;* BE EASIER.
                                        ;*
                                        ;;*****************************************************************
     041212  000004                     TST112: SCOPE
7825 041214  012737  041570  000020             MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
7826 041222  012602                             MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
7827 041224  012600                             MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
7828 041226  005237  177572                     INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7829 041232  010301                             MOV     R3,R1           ;SET UP R1 FOR MODE 5.
7830 041234  010304                             MOV     R3,R4           ;MOVE 'START' VALUE INTO R4.
7831 041236  170551                             TSTF    @-(R1)          ;FDST-NOTCLR PAGE 21.
7832 041240  000004                             IOT                     ;FORCE A TRAP.
7833
7834 041242  010301                             MOV     R3,R1           ;CORRECT R1.
7835 041244  170451                             CLRF    @-(R1)          ;FDST MODES PAGE 27.
7836 041246  000004                             IOT                     ;FORCE A TRAP.
7837
7838 041250  010301                             MOV     R3,R1           ;CORRECT R1.
7839 041252  177051                             LDCIF   @-(R1),AC0      ;SOURCE MODES PAGE 28.
7840 041254  000004                             IOT                     ;FORCE A TRAP.
7841
7842 041256  010301                             MOV     R3,R1           ;CORRECT R1.
7843 041260  172451                             LDF     @-(R1),AC0      ;FSRC MODES PAGE 4.
7844 041262  000004                             IOT                     ;FORCE A TRAP.
7845
7846 041264  010301                             MOV     R3,R1           ;CORRECT R1.
7847 041266  170351                             STST    @-(R1)          ;DEST MODES PAGE 33.
7848 041270  000004                             IOT                     ;FORCE A TRAP.
7849 041272  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7850 041276  013737  040522  000020             MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
```

```
                                .SBTTL  TEST # 113 - AUTO INCREMENT/DECREMENT TEST, MODE 6
                                ;;*****************************************************************
                                ;*TEST 113       AUTO INCREMENT/DECREMENT TEST, MODE 6
                                ;*
                                ;* THIS TEST INSURES THAT AUTO INCREMENT/DECREMENT WORKS PROPERLY AND
                                ;* *ONLY* WHEN IT IS SUPPOSED TO. THIS IS DONE BY ENABLING 22-BIT KERNEL
                                ;* D-SPACE, BUT MAKING IT NON-RESIDENT, FORCING A MEMORY MANAGEMENT TRAP
                                ;* CONDITION.  THIS ENABLES EXAMINING OF SR1 FOR PROPER CONTENTS.
                                ;*****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO
                                ;* FLOW AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD
                                ;* BE EASIER.
                                ;*
                                ;;*****************************************************************
 041304  000004                 TST113: SCOPE
7852                                    .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
7853 041306  012767  041570  136504       MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
7854 041314  010301                       MOV     R3,R1           ;SET UP R1 FOR MODE 6.
7855 041316  010304                       MOV     R3,R4           ;MOVE 'START' VALUE INTO R4.
7856 041320  005267  136246               INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7857 041324  170561  000000               TSTF    0(R1)           ;FDST-NOTCLR PAGE 21.
7858 041330  000004                       IOT                     ;FORCE A TRAP.
7859 041332  170567  001442               TSTF    NODAT
7860 041336  000004                       IOT                     ;FORCE A TRAP.
7861 041340  170461  000000               CLRF    0(R1)           ;FDST MODES PAGE 27.
7862 041344  000004                       IOT                     ;FORCE A TRAP.
7863 041346  170467  001426               CLRF    NODAT
7864 041352  000004                       IOT                     ;FORCE A TRAP.
7865 041354  177061  000000               LDCIF   0(R1),AC0       ;SOURCE MODES PAGE 28.
7866 041360  000004                       IOT                     ;FORCE A TRAP.
7867 041362  177067  001412               LDCIF   NODAT,AC0
7868 041366  000004                       IOT                     ;FORCE A TRAP.
7869 041370  172461  000000               LDF     0(R1),AC0       ;FSRC MODES PAGE 4.
7870 041374  000004                       IOT                     ;FORCE A TRAP.
7871 041376  172467  001376               LDF     NODAT,AC0
7872 041402  000004                       IOT                     ;FORCE A TRAP.
7873 041404  170361  000000               STST    0(R1)           ;DEST MODES PAGE 33.
7874 041410  000004                       IOT                     ;FORCE A TRAP.
7875 041412  170367  001362               STST    NODAT
7876 041416  000004                       IOT                     ;FORCE A TRAP.
7877 041420  005067  136146               CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7878 041424  010246                       MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
7879 041426  016767  177070  136364       MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
7880                                    .ENABL  AMA             ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
```

```
7881                                    .SBTTL  TEST # 114 - AUTO INCREMENT/DECREMENT TEST, MODE 7
                                        ;;*****************************************************************
                                        ;*TEST 114      AUTO INCREMENT/DECREMENT TEST, MODE 7
                                        ;*
                                        ;* THIS TEST INSURES THAT AUTO INCREMENT/DECREMENT WORKS PROPERLY AND
                                        ;* *ONLY* WHEN IT IS SUPPOSED TO. THIS IS DONE BY ENABLING 22-BIT KERNEL
                                        ;* D-SPACE, BUT MAKING IT NON-RESIDENT, FORCING A MEMORY MANAGEMENT TRAP
                                        ;* CONDITION.  THIS ENABLES EXAMINING OF SR1 FOR PROPER CONTENTS.
                                        ;*****ALL REFERENCES TO MICRO-FLOWS REFER TO *FP11-F-2 REV A* FLOWS*****
                                        ;* THE COMMENTS FOR EACH TEST LINE ARE WRITTEN SO YOU CAN GO TO THE MICRO
                                        ;* FLOW AND PINPOINT THE PROBLEM AREA.  FROM THERE, HARDWARE ANALYSIS SHOULD
                                        ;* BE EASIER.
                                        ;*
                                        ;;*****************************************************************
    041434  000004                      TST114: SCOPE
7882 041436  012737  041570  000020             MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
7883 041444  012602                             MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
7884 041446  005237  177572                     INC     MMR0            ;TURN ON MEMORY MANAGEMENT.
7885 041452  010201                             MOV     R2,R1           ;SET UP R1 FOR MODE 7.
7886 041454  010204                             MOV     R2,R4           ;MOVE 'START' VALUE TO R4.
7887 041456  170571  000000                     TSTF    @0(R1)          ;FDST-NOTCLR PAGE 21.
7888 041462  000004                             IOT                     ;FORCE A TRAP.
7889 041464  170577  001320                     TSTF    @NODAT+10
7890 041470  000004                             IOT                     ;FORCE A TRAP.
7891 041472  170471  000000                     CLRF    @0(R1)          ;FDST MODES PAGE 27.
7892 041476  000004                             IOT                     ;FORCE A TRAP.
7893 041500  170477  001304                     CLRF    @NODAT+10
7894 041504  000004                             IOT                     ;FORCE A TRAP.
7895 041506  177071  000000                     LDCIF   @0(R1),AC0      ;SOURCE MODES PAGE 28.
7896 041512  000004                             IOT                     ;FORCE A TRAP.
7897 041514  177077  001270                     LDCIF   @NODAT+10,AC0
7898 041520  000004                             IOT                     ;FORCE A TRAP.
7899 041522  172471  000000                     LDF     @0(R1),AC0      ;FSRC MODES PAGE 4.
7900 041526  000004                             IOT                     ;FORCE A TRAP.
7901 041530  172477  001254                     LDF     @NODAT+10,AC0
7902 041534  000004                             IOT                     ;FORCE A TRAP.
7903 041536  170371  000000                     STST    @0(R1)          ;DEST MODES PAGE 33.
7904 041542  000004                             IOT                     ;FORCE A TRAP.
7905 041544  170377  001240                     STST    @NODAT+10
7906 041550  000004                             IOT                     ;FORCE A TRAP.
7907 041552  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7908 041556  013737  040522  000020             MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
7909 041564  000137  043160                     JMP     ENDTES          ;JUMP TO END TEST.
```

TEST # 114 - AUTO INCREMENT/DECREMENT TEST, MODE 7

```
7910 041570  005037  177572          FALTRP: CLR     MMR0              ;TURN OFF MEMORY MANAGEMENT.
7911 041574  011637  001260                  MOV     (SP),$TMP13       ;MOVE NEXT''INSTRUCTION ADDRESS TO $TMP13.
7912
7913                                         ;THIS NEXT SECTION NOW CORRECTS THE CONTENTS OF $TMP13 SO THAT IT POINTS
7914                                         ;TO THE PREVIOUS FPP INSTRUCTION.  IT DOES THIS BY SUBTRACTING 2 FROM THE
7915                                         ;ADDRESS IN $TMP13, REPLACING THE 170000 THAT THE BIC INSTRUCTION USES,
7916                                         ;AND BIT CLEARING THE INSTRUCTION WITH 170000.  IF THE INSTRUCTION THAT
7917                                         ;$TMP13 IS POINTING TO IS NOT AN FPP INSTRUCTION, THE 170000 WILL NOT
7918                                         ;CLEAR, SATISFYING THE NEXT BRANCH.  THE ADDRESS IS AGAIN CORRECTED,
7919                                         ;AND THE TESTING PROCESS STARTS OVER.  THIS CONTINUES UNTIL $TMP13 IS
7920                                         ;POITING TO AN FPP INSTRUCTION, AND NORMALLY WILL NOT BE EXECUTED MORE
7921                                         ;THAN THREE TIMES BEFORE FINDING THE INSTRUCTION.
7922 041600  162737  000002  001260  1$:     SUB     #2,$TMP13         ;SUBTRACT 2 FROM $TMP13.
7923 041606  012737  170000  041620          MOV     #170000,2$+4      ;SET UP BIC DATA LOCATION.
7924 041614  047727  137440  170000  2$:     BIC     @$TMP13,#170000   ;TEST TO SEE IF FPP INSTRUCTION.
7925 041622  001366                          BNE     1$                ;BRANCH BACK FOR ANOTHER TRY IF NOT.
7926 041624  012737  000364  001272          MOV     #364,$TMP20       ;MOVE FAILURE TO ABORT ERROR TO $TMP20.
7927 041632  000137  042666                  JMP     MULTER            ;JUMP TO MULTIPLE ERROR HANDLER.
```

```
7928 041636  013737  177574  001236  TRPV:   MOV     SR1,$TMP2         ;MOVE SR1 TO $TMP2 FOR TESTING.
7929 041644  013737  177576  001260          MOV     MMR2,$TMP13       ;TRANSFER ADDRESS OF INST. CAUSING TRAP TO $TMP13.
7930 041652  005037  177572                  CLR     MMR0              ;TURN OFF MEMORY MANAGEMENT.
7931 041656  112737  000365  001272          MOVB    #365,$TMP20       ;MOVE 365, THE MODE 0 ERROR, TO LOWER BYTE IN ERROR POINTER.
7932 041664  022737  040622  001260          CMP     #MODE1,$TMP13     ;SEE IF INSTRUCTION CAUSING TRAP IS BEFORE MODE 1 (MODE 0).
7933 041672  002402                          BLT     1$                ;BRANCH AROUND MODE 0 ERROR JUMP IF NOT.
7934 041674  000137  042666                  JMP     MULTER            ;JUMP TO ERROR NEST.
7935 041700  017737  137354  001266  1$:     MOV     @$TMP13,$TMP16    ;MOVE INSTRUCTION CAUSING TRAP TO $TMP16.
7936 041706  112737  000363  001272          MOVB    #363,$TMP20       ;MOVE 363, SR1 WRONG ERROR, TO LOWER BYTE IN ERROR POINTER.
7937 041714  005037  001240                  CLR     $TMP3             ;CLEAR CALCULATED LOCATION.
7938 041720  012737  042112  001244          MOV     #65$,$TMP5        ;MOVE NEXT CHECK ADDRESS TO $TMP5.
7939 041726  022737  040712  001260          CMP     #LABEL1,$TMP13    ;SEE IF TRAP IS BEFORE MODE 2 REG 1 CLRF INST.
7940 041734  100053                          BPL     61$               ;BRANCH TO SR1=0 TEST IF SO.
7941 041736  012737  000060  041750          MOV     #60,200$          ;SET UP BIC DATA POSITION.
7942 041744  043727  001266          2$:     BIC     $TMP16,(PC)+      ;TEST TO SEE IF MODE 6 OR 7 INSTRUCTION.
7943 041750  000060                  200$:   .WORD   60                ;LOCATION TO HOLD 60
7944 041752  001444                          BEQ     61$               ;BRANCH DIRECTLY TO BYTE TABLE TESTING IF SO.
7945                                         ;THIS NEXT ROUTINE DETERMINES WHICH REGISTER WAS IN THE INSTRUCTION, AND
7946                                         ;LOADS THE START AND END VALUES OF EITHER R1 OR R7 (PROGRAM COUNTER) INTO
7947                                         ;$TMP17 AND $TMP3 RESPECTIVELY.  THEY ARE THEN SUBTRACTED TO FIND THE
7948                                         ;DIFFERENCE THAT ACTUALLY OCCURED.  IF NO DIFFERENCE WAS FOUND, THE TEST
7949                                         ;FOR ZERO IN SR1 IS ACCOMPLISHED.  IF A DIFFERENCE IS FOUND, THE DIFFERENCE
7950                                         ;IS SHIFTED LEFT 3 PLACES, THE TOP BYTE IS CLEARED, AND THE REGISTER
7951                                         ;OF THE INSTRUCTION IS ADDED.  $TMP3 NOW CONTAINS WHAT SHOULD APPEAR
7952                                         ;IN SR1, ACCORDING TO WHAT ACTUALLY HAPPENED TO THE REGISTER.
7953 041754  042737  177770  001266  4$:     BIC     #177770,$TMP16    ;BIT CLEAR THE INSTRUCTION, LEAVING THE REG EXPOSED.
7954 041762  023727  001266  000007          CMP     $TMP16,#7         ;COMPARE REGISTER TO DETERMINE IF IT IS REG 7.
7955 041770  001405                          BEQ     5$                ;BRANCH TO THE REG 7 SETUP IF EQUAL TO REG 7.
7956 041772  010437  001270                  MOV     R4,$TMP17         ;MOVE THE START VALUE TO $TMP17.
7957 041776  010137  001240                  MOV     R1,$TMP3          ;MOVE THE END VALUE TO $TMP3.
7958 042002  000410                          BR      6$                ;BRANCH TO CONTINUE.
7959 042004  013737  001260  001270  5$:     MOV     $TMP13,$TMP17     ;MOVE THE START VALUE TO $TMP17.
7960 042012  062737  000002  001270          ADD     #2,$TMP17         ;ADD 2 TO START VALUE FOR NORMAL INCREMENTING.
7961 042020  011637  001240                  MOV     (SP),$TMP3        ;MOVE THE END VALUE TO $TMP3.
7962 042024  163737  001270  001240  6$:     SUB     $TMP17,$TMP3      ;FIND THE DIFFERENCE THAT OCCURED.
7963 042032  001414                          BEQ     61$               ;BRANCH TO TEST FOR SR1=0 IF NO DIFFERENCE.
7964 042034  006337  001240                  ASL     $TMP3             ;ARITHMETIC SHIFT LEFT $TMP3 3
7965 042040  006337  001240                  ASL     $TMP3             ;PLACES TO PUT DIFFERENCE FOUND
7966 042044  006337  001240                  ASL     $TMP3             ;IN BITS 3 THROUGH 7.
7967 042050  042737  177400  001240          BIC     #177400,$TMP3     ;BIT CLEAR UPPER BYTE OF $TMP3.
7968 042056  063737  001266  001240          ADD     $TMP16,$TMP3      ;ADD THE REGISTER THAT WAS CHANGED, AND
7969 042064  111537  001276          61$:    MOVB    (R5),$TMP22       ;MOVE EXPECTED DATA TO $TMP22.
7970 042070  123725  001236                  CMPB    $TMP2,(R5)+       ;COMPARE SR1 WITH TABLE DATA.
7971 042074  001004                          BNE     62$               ;BRANCH TO ERROR JUMP IF WRONG.
7972 042076  005305                          DEC     R5                ;CORRECT R5 BEFORE NEXT COMPARE.
7973 042100  123725  001240                  CMPB    $TMP3,(R5)+       ;COMPARE CALCULATED WITH TABLE DATA.
7974 042104  001402                          BEQ     65$               ;BRANCH AROUND ERROR JUMP IF OK.
7975 042106  000137  042564          62$:    JMP     7$                ;JUMP TO ERROR REPORT IF INCORRECT.
7976 042112  132737  000001  001273  65$:    BITB    #1,$TMP20+1       ;TEST TO SEE IF BIT 8 IS SET.
7977 042120  001402                          BEQ     66$               ;BRANCH AROUND AC SKIP JUMP IF NOT.
7978 042122  000137  042750                  JMP     RETURN            ;JUMP TO RETURN - AC TESTS ARE TO BE SKIPPED.
7979 042126  112737  000366  001272  66$:    MOVB    #366,$TMP20       ;MOVE 366, AC LOAD ERROR, TO ERROR POINTER.
7980 042134  010037  043072                  MOV     R0,STORE+56       ;STORE R0 FOR USE LATER IN THIS ROUTINE.
7981 042140  005037  001236                  CLR     $TMP2             ;MOVE A '0' IN 'AC CHANGED' LOCATION.
7982 042144  012737  042210  001244          MOV     #101$,$TMP5       ;MOVE RETURN TO $TMP5.
7983 042152  173437  043014                  CMPF    STORE,AC0         ;SEE IF AC0 WAS CHANGED.
7984 042156  170000                          CFCC                      ;COPY FPP CONDITION CODES TO CPU CODES.
```

```
 7985 042160  001413                          BEQ     101$            ;BRANCH TO NEXT TEST IF OK.
 7986 042162  174037  043062                  STF     AC0,STORE+46    ;STORE ACTUAL AC0 FOR ERROR PRINTING.
 7987 042166  012700  043014                  MOV     #STORE,R0       ;MOVE ADDRESS OF EXPECTED AC0 TO R0.
 7988                                ;THE NEXT TWO INSTRUCTIONS TRY TO RESTORE THE ACCUMULATOR AND CHECK THE ACCUMULATOR
 7989                                ;TO MAKE SURE IT WAS RESTORED PROPERLY FOR THE NEXT RUN THROUGH THIS TRAP HANDLER.
 7990                                ;IT IS *IMPORTANT* TO REALIZE THAT IF THE "CMPF" FINDS A DIFFERENCE, THAT THE
 7991                                ;*FLOATING*POINT*STATUS* IS BEING CHANGED MISTAKENLY.  AN ERROR IN THE MICROCODE
 7992                                ;HAS BEEN FOUND TO CAUSE THIS, SO CHECK THE REVISION OF THE ROM/PROM SET IN THE
 7993                                ;FPP YOU HAVE.  IF YOU DO HAVE WHAT *SEEMS* TO BE THE LATEST REV, A NEW REV WILL
 7994                                ;BE COMMING OUT TO CORRECT THIS PROBLEM.  THIS SAME "LDF/CMPF" SET OF RESTORE/
 7995                                ;CHECK INSTRUCTIONS IS ACCOMPLISHED FOR EACH ACCUMULATOR CHECK. IT IS ALSO
 7996                                ;IMPORTANT TO NOTE THAT IF AN ACCUMULATOR FAILS TO RESTORE PROPERLY, SUBSEQUENT
 7997                                ;PASSES THROUGH THE TRAP HANDLER WILL SKIP THE ACCUMULATOR CHECKS DUE TO THE
 7998                                ;BIT TEST #400 ABOVE.  FOR EXAMPLE, IF AC0 FAILS TO LOAD PROPERLY, AC1 THROUGH
 7999                                ;AC3 WILL STILL BE CHECKED.  AS SOON AS ANOTHER FPP INSTRUCTION TRAPS IN THE
 8000                                ;MAIN TEST, ALL *FURTHER* AC0-AC3 CHECKS WILL BE SKIPPED.
 8001 042172  172437  043014                  LDF     STORE,AC0       ;RESTORE AC0.
 8002 042176  173437  043014                  CMPF    STORE,AC0       ;SEE IF IT WAS RESTORED PROPERLY.
 8003 042202  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8004 042204  001567                          BEQ     7$              ;BRANCH TO ERROR CALL IF OK.
 8005 042206  000476                          BR      113$            ;BRANCH TO ERROR SETUP ROUTINE.
 8006 042210  012737  000001  001236  101$:   MOV     #1,$TMP2        ;PUT A '1' IN 'AC CHANGED' LOCATION.
 8007 042216  012737  042262  001244          MOV     #102$,$TMP5     ;MOVE RETURN TO $TMP5.
 8008 042224  173537  043024                  CMPF    STORE+10,AC1    ;SEE IF AC1 WAS CHANGED.
 8009 042230  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8010 042232  001413                          BEQ     102$            ;BRANCH TO NEXT TEST IF OK.
 8011 042234  174137  043062                  STF     AC1,STORE+46    ;STORE ACTUAL AC1 FOR ERROR PRINTING.
 8012 042240  012700  043024                  MOV     #STORE+10,R0    ;MOVE ADDRESS OF EXPECTED AC1 TO R0.
 8013 042244  172537  043024                  LDF     STORE+10,AC1    ;RESTORE AC1.
 8014 042250  173537  043024                  CMPF    STORE+10,AC1    ;SEE IF IT WAS RESTORED PROPERLY.
 8015 042254  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8016 042256  001542                          BEQ     7$              ;BRANCH TO ERROR CALL IF OK.
 8017 042260  000451                          BR      113$            ;BRANCH TO ERROR SETUP ROUTINE.
 8018 042262  012737  000002  001236  102$:   MOV     #2,$TMP2        ;PUT A '2' IN 'AC CHANGED' LOCATION.
 8019 042270  012737  042334  001244          MOV     #103$,$TMP5     ;MOVE RETURN TO $TMP5.
 8020 042276  173637  043034                  CMPF    STORE+20,AC2    ;SEE IF AC2 WAS CHANGED.
 8021 042302  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8022 042304  001413                          BEQ     103$            ;BRANCH TO NEXT TEST IF OK.
 8023 042306  174237  043062                  STF     AC2,STORE+46    ;STORE ACTUAL AC2 FOR ERROR PRINTING.
 8024 042312  012700  043034                  MOV     #STORE+20,R0    ;MOVE ADDRESS OF EXPECTED AC2 TO R0.
 8025 042316  172637  043034                  LDF     STORE+20,AC2    ;RESTORE AC2.
 8026 042322  173637  043034                  CMPF    STORE+20,AC2    ;SEE IF IT WAS RESTORED PROPERLY.
 8027 042326  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8028 042330  001515                          BEQ     7$              ;BRANCH TO ERROR CALL IF OK.
 8029 042332  000424                          BR      113$            ;BRANCH TO ERROR SETUP ROUTINE.
 8030 042334  012737  000003  001236  103$:   MOV     #3,$TMP2        ;PUT A '3' IN 'AC CHANGED' LOCATION.
 8031 042342  012737  042414  001244          MOV     #100$,$TMP5     ;MOVE RETURN TO $TMP5.
 8032 042350  173737  043044                  CMPF    STORE+30,AC3    ;SEF IF AC3 WAS CHANGED.
 8033 042354  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8034 042356  001416                          BEQ     100$            ;BRANCH TO NEXT TEST IF OK.
 8035 042360  174337  043062                  STF     AC3,STORE+46    ;STORE ACTUAL AC3 FOR ERROR PRINTING.
 8036 042364  012700  043044                  MOV     #STORE+30,R0    ;MOVE ADDRESS OF EXPECTED AC3 TO R0.
 8037 042370  172737  043044                  LDF     STORE+30,AC3    ;RESTORE AC3.
 8038 042374  173737  043044                  CMPF    STORE+30,AC3    ;SEE IF IT WAS RESTORED PROPERLY.
 8039 042400  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8040 042402  001470                          BEQ     7$              ;BRANCH TO ERROR CALL IF OK.
 8041 042404  012737  000770  001272  113$:   MOV     #770,$TMP20     ;MOVE 370 FOR AC LOAD FAILURE, & SET BIT 8 OF ERROR POINTER.
```

TEST # 114 - AUTO INCREMENT/DECREMENT TEST, MODE 7

```
8042 042412  000464                        BR      7$              ;BRANCH TO ERROR CALL.
8043 042414  005037  001236          100$:  CLR     $TMP2           ;CLEAR 'REGISTER CHANGED' LOCATION.
8044 042420  112737  000367  001272        MOVB    #367,$TMP20     ;MOVE 367, GENERAL REGISTER CHANGED ERROR, TO POINTER.
8045 042426  012737  042462  001244        MOV     #120$,$TMP5     ;MOVE RETURN TO $TMP5.
8046 042434  023700  043054                CMP     STORE+40,R0     ;SEE IF R0 WAS CHANGED.
8047 042440  001410                        BEQ     120$            ;BRANCH TO NEXT TEST IF OK.
8048 042442  010037  001246                MOV     R0,$TMP6        ;MOVE ACTUAL R0 TO LOCATION FOR ERROR PRINTING.
8049 042446  013737  043054  001240        MOV     STORE+40,$TMP3  ;MOVE EXPECTED TO LOCATION FOR ERROR PRINTING.
8050 042454  013700  043054                MOV     STORE+40,R0     ;RESTORE R0.
8051 042460  000441                        BR      7$              ;BRANCH TO ERROR CALL.
8052 042462  012737  000002  001236  120$:  MOV     #2,$TMP2        ;PUT A '2' IN 'REGISTER CHANGED' LOCATION.
8053 042470  012737  042524  001244        MOV     #130$,$TMP5     ;MOVE RETURN TO $TMP5.
8054 042476  023702  043056                CMP     STORE+42,R2     ;SEE IF R2 WAS CHANGED.
8055 042502  001410                        BEQ     130$            ;BRANCH TO NEXT TEST IF OK.
8056 042504  010237  001246                MOV     R2,$TMP6        ;MOVE ACTUAL R2 TO LOCATION FOR ERROR PRINTING.
8057 042510  013737  043056  001240        MOV     STORE+42,$TMP3  ;MOVE EXPECTED TO LOCATION FOR ERROR PRINTING.
8058 042516  013702  043056                MOV     STORE+42,R2     ;RESTORE R2.
8059 042522  000420                        BR      7$              ;BRANCH TO ERROR CALL.
8060 042524  012737  000003  001260  130$:  MOV     #3,$TMP13       ;PUT A '3' IN 'REGISTER CHANGED' LOCATION.
8061 042532  012737  042750  001244        MOV     #RETURN,$TMP5   ;MOVE RETURN TO $TMP5.
8062 042540  023703  043060                CMP     STORE+44,R3     ;SEE IF R3 WAS CHANGED.
8063 042544  001501                        BEQ     RETURN          ;BRANCH TO RETURN IF OK.
8064 042546  010337  001246                MOV     R3,$TMP6        ;MOVE ACTUAL R3 TO LOCATION FOR ERROR PRINTING.
8065 042552  013737  043060  001240        MOV     STORE+44,$TMP3  ;MOVE EXPECTED TO LOCATION FOR ERROR PRINTING.
8066 042560  013703  043060                MOV     STORE+44,R3     ;RESTORE R3.
8067 042564  116537  177777  043156  7$:   MOVB    -1(R5),EXPCTD   ;MOVE DATA FROM TABLE FOR POSSIBLE USE  ;DPM001
8068 042572  122737  000370  001272        CMPB    #370,$TMP20     ;TEST TO SEE IF AC INFO NEEDS TO BE STORED.
8069 042600  001404                        BEQ     71$             ;BRANCH TO INFO STORE ROUTINE IF SO.
8070 042602  122737  000366  001272        CMPB    #366,$TMP20     ;TEST TO SEE IF AC INFO NEEDS TO BE STORED.
8071 042610  001026                        BNE     MULTER          ;SKIP AC INFO ROUTINE IF NOT.
8072 042612  012037  001240          71$:  MOV     (R0)+,$TMP3     ;MOVE 1ST WORD OF ACTUAL AC DATA TO $TMP3.
8073 042616  012037  001242                MOV     (R0)+,$TMP4     ;MOVE 2ND WORD OF ACTUAL AC DATA TO $TMP4.
8074 042622  012037  001246                MOV     (R0)+,$TMP6     ;MOVE 3RD WORD OF ACTUAL AC DATA TO $TMP6.
8075 042626  012037  001250                MOV     (R0)+,$TMP7     ;MOVE 4TH WORD OF ACTUAL AC DATA TO $TMP7.
8076 042632  013700  043072                MOV     STORE+56,R0     ;RESTORE R0 TO WHAT IT HAD AT BEGINNING OF TRAP.
8077 042636  013737  043062  001252        MOV     STORE+46,$TMP10 ;MOVE 1ST WORD OF EXPECTED AC DATA TO $TMP10.
8078 042644  013737  043064  001254        MOV     STORE+50,$TMP11 ;MOVE 2ND WORD OF EXPECTED AC DATA TO $TMP11.
8079 042652  013737  043066  001256        MOV     STORE+52,$TMP12 ;MOVE 3RD WORD OF EXPECTED AC DATA TO $TMP12.
8080 042660  013737  043070  001274        MOV     STORE+54,$TMP21 ;MOVE 4TH WORD OF EXPECTED AC DATA TO $TMP21.
8081 042666  012637  001266          MULTER: MOV     (SP)+,$TMP16    ;SAVE 1ST CONTENTS OF STACK AND POP IT ONCE.
8082 042672  012637  001270                MOV     (SP)+,$TMP17    ;SAVE 2ND CONTENTS OF STACK AND POP IT AGAIN.
8083 042676  142737  000377  042712        BICB    #377,74$        ;CLEAR OUT LAST ERROR OFFSET FROM ERROR INSTRUCTION.
8084 042704  153737  001272  042712        BISB    $TMP20,74$      ;PUT ERROR NUMBER TO BE ACCOMPLISHED IN ERROR INSTRUCTION.
8085                                       ;THIS ERROR IS DEFINED BY THE CONTENTS OF THE LOWER BYTE OF LOCATION [1272]
8086 042712  104000                  74$:  ERROR   +0
8087 042714  013746  001270                MOV     $TMP17,-(SP)    ;PUSH 2ND CONTENTS BACK ON THE STACK.
8088 042720  013746  001266                MOV     $TMP16,-(SP)    ;PUSH 1ST CONTENTS BACK ON THE STACK.
8089 042724  022737  000364  001272        CMP     #364,$TMP20     ;SEE IF RETURN ROUTINE IS TO BE SKIPPED.
8090 042732  001417                        BEQ     RTI             ;BRANCH TO RTI IF SO.
8091 042734  022737  000365  001272        CMP     #365,$TMP20     ;SEE IF RETURN ROUTINE IS TO BE SKIPPED.
8092 042742  001413                        BEQ     RTI             ;BRANCH TO RTI IF SO.
8093 042744  000177  136274                JMP     @$TMP5          ;JUMP TO CONTINUE CHECKING.
8094 042750  022776  000004  000000  RETURN: CMP     #4,@0(SP)       ;SEE IF INSTRUCTION IS THE IOT.
8095 042756  001403                        BEQ     9$              ;BRANCH IF THE IOT HAS BEEN FOUND.
8096 042760  062716  000002                ADD     #2,(SP)         ;CORRECT PC RETURN.
8097 042764  000771                        BR      RETURN          ;BRANCH BACK FOR ANOTHER TRY.
8098 042766  062716  000002          9$:   ADD     #2,(SP)         ;CORRECT PC RETURN TO POINT AFTER IOT FOUND.
```

```
 8099 042772  005237  177572          RTI:    INC     MMR0            ;TURN ON MEMORY MANAGEMENT, AND
 8100 042776  000002                          RTI                     ;RETURN FROM INTERRUPT.
 8101
 8102 043000                          NODAT:  .BLKW   6               ;LOCATION IN NON-RES. D-SPACE USED TO FORCE A TRAP.
 8103                                 ;THE 'STORE' LOCATION BELOW IS PARTITIONED TO RESERVE *4* WORDS FOR EACH FP
 8104                                 ;ACCUMULATOR, EVEN THOUGH ONLY 2 ARE REQUIRED FOR STORING A FLOATING NUMBER.
 8105                                 ;THIS IS BECAUSE *IF* THE FPS IS CHANGED BY A PROBLEM IN THE FPP, SO THAT A
 8106                                 ;*DOUBLE* IS STORED, *4* WORDS RESERVED WILL GUARANTEE THAT THE NEXT DATA BLOCK
 8107                                 ;WILL NOT BE DISTURBED.  PARTITIONING IS AS FOLLOWS:
 8108                                 ;       WORD(S)         USE
 8109                                 ;       -------         ------------
 8110                                 ;       1 - 4           STORE AC0
 8111                                 ;       5 -10           STORE AC1
 8112                                 ;       11-14           STORE AC2
 8113                                 ;       15-20           STORE AC3
 8114                                 ;        21             STORE R0
 8115                                 ;        22             STORE R2
 8116                                 ;        23             STORE R3
 8117                                 ;       24-27           STORE ACTUAL AC
 8118                                 ;        30             STORE ACTUAL R0 SO R0 CAN BE USED IN AC ERROR CALLS
 8119 043014                          STORE:  .BLKW   30      ;STORAGE LOCATIONS FOR THE FLOATING ACCUMULATORS & DATA.
 8120                                 ;THE FOLLOWING BYTE TABLE WILL BE USED TO CHECK THE VALUES OF SR1 AND THE CALCULATED
 8121                                 ;VALUES.  SR1 MAY TRACK THE ACTIVE REGISTER PROPERLY, BUT IF THE *VALUE* OF THE
 8122                                 ;INCREMENT/DECREMENT IS WRONG, AN ERROR STILL EXISTS.
 8123 043074     000     000     000  BYTABL: .BYTE   0,0,0,0,0,0,41,21,41,41,0,0,0,27,0,27,0,27,0,27,0,341,361,341
 8124 043124     341     000     361          .BYTE   341,0,361,361,361,361,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
 8125 043156  000000                  EXPCTD: .WORD   0               ;LOCATION TO HOLD DATA FROM BYTE TABLE  ;DPM001
 8126 043160  005037  177572          ENDTES: CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 8127 043164  013737  001262  000250          MOV     $TMP14,MMVECT   ;RESTORE MMVECT CONTENTS.
 8128 043172  013737  040522  000020          MOV     SAVIOT,IOTRAP   ;RESTORE IOTRAP CONTENTS.
 8129 043200                          DIDONE:
      043200  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                               ;SEE IF THE USER HAS EXPRESSED
                                               ;THE DESIRE TO CHANGE THE SOFTWARE
                                               ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                               ;THE USER TYPED CONTROL G?).
 8130
 8131 043202                          TST115:
 8132
 8133
 8134
 8135                                 .SBTTL  END OF PASS ROUTINE
                                      ;;*****************************************************************************
                                      ;*INCREMENT THE PASS NUMBER ($PASS)
                                      ;*INDICATE END-OF-PROGRAM AFTER 1 PASSES THRU THE PROGRAM
                                      ;*IF SW12=1 INHIBIT TRACE TRAP
                                      ;*IF THERES A MONITOR GO TO IT
                                      ;*IF THERE ISN'T JUMP TO LOOP
      043202                          $EOP:
      043202  000004                          SCOPE
      043204  005037  001102                  CLR     $TSTNM          ;;ZERO THE TEST NUMBER
      043210  005037  001302                  CLR     $TIMES          ;;ZERO THE NUMBER OF ITERATIONS
      043214  005237  001324                  INC     $PASS           ;;INCREMENT THE PASS NUMBER
      043220  042737  100000  001324          BIC     #100000,$PASS   ;;DON'T ALLOW A NEG. NUMBER
      043226  005327                          DEC     (PC)+           ;;LOOP?
      043230  000001                  $EOPCT: .WORD   1
      043232  003077                          BGT     $DOAGN          ;;YES
```

END OF PASS ROUTINE

```
043234  012737                          MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
043236  000001                $ENDCT:   .WORD   1
043240  043230                          $EOPCT
043242  104401  043250                  TYPE    ,65$            ;;TYPE ASCIZ STRING
043246  000407                          BR      64$             ;;GET OVER THE ASCIZ
                            ;;65$:    .ASCIZ  <12><15>/END PASS #/
043266                      64$:
043266  013746  001324                  MOV     $PASS,-(SP)     ;;SAVE $PASS FOR TYPEOUT
                                                                ;;TYPE PASS NUMBER IN OCTAL
043272  104403                          TYPOS                   ;;GO TYPE--OCTAL ASCII
043274     006                          .BYTE   6               ;;TYPE 6 DIGITS
043275     000                          .BYTE   0               ;;SUPPRESS LEADING ZEROS
043276  005737  001112                  TST     $ERTTL          ;SEE IF ANY ERRORS TO REPORT    ;DPM001
043302  001430                          BEQ     9000$           ;BRANCH IF NOT                  ;DPM001
043304  104401  043312                  TYPE    ,67$            ;;TYPE ASCIZ STRING
043310  000421                          BR      66$             ;;GET OVER THE ASCIZ
                            ;;67$:    .ASCIZ  /  TOTAL ERRORS SINCE LAST REPORT /
043354                      66$:
043354  013746  001112                  MOV     $ERTTL,-(SP)    ;;SAVE $ERTTL FOR TYPEOUT
                                                                ;;TOTAL NUMBER OF ERRORS IN OCTAL
043360  104403                          TYPOS                   ;;GO TYPE--OCTAL ASCII
043362     006                          .BYTE   6               ;;TYPE 6 DIGITS
043363     000                          .BYTE   0               ;;SUPPRESS LEADING ZEROS
043364  104401  001313          9000$:  TYPE    ,$CRLF          ;;TYPE CARRIAGE RETURN, LINE FEED
043370  005037  001112                  CLR     $ERTTL          ;;CLEAR ERROR TOTAL
043374  013700  000042          $GET42: MOV     @#42,R0         ;;GET MONITOR ADDRESS
043400  001414                          BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
043402  005046                          CLR     -(SP)           ;;INSURE THE "T" BIT IS CLEAR
043404  012746  043412                  MOV     #$CLR.T,-(SP)   ;;SETUP FOR AN RTI OR RTT
043410  000426                          BR      $RTRN           ;;GO DO AN RTI OR RTT TO LOAD THE PSW
                                                                ;;WITH A CLEARED "T" BIT
043412                      $CLR.T:
043412  013700  000042                  MOV     @#42,R0         ;;INSURE R0 CONTAINS THE MONITORS
043416  001405                          BEQ     $DOAGN          ;;RETURN ADDRESS
043420  000005                          RESET                   ;;CLEAR THE WORLD
043422  004710                $ENDAD:   JSR     PC,(R0)         ;;GO TO MONITOR
043424  000240                          NOP                     ;;SAVE ROOM
043426  000240                          NOP                     ;;FOR
043430  000240                          NOP                     ;;ACT11
043432                      $DOAGN:
043432  104400                          TRAP                    ;;PUSH OLD PSW AND PC ON STACK
043434  042716  000020                  BIC     #20,(SP)        ;;CLEAR THE "T" BIT
043440  032777  010000  135472          BIT     #BIT12,@SWR     ;;RUN WITH TRACE TRAP?
043446  001005                          BNE     1$              ;;BR IF NO
043450  005137  043474                  COM     $TBIT           ;;IS IT TIME FOR TRACE TRAP
043454  100402                          BMI     1$              ;;BR IF NO
043456  052716  000020                  BIS     #20,(SP)        ;;SET TRACE TRAP
043462  012746  043470          1$:     MOV     #$LOOP,-(SP)    ;;JUMP TO START OF TEST
043466  000002                $RTRN:    RTI                     ;;RETURN--THIS IS CHANGED TO
                                                                ;;AN "RTT" IF "RTT" IS A LEGAL
                                                                ;;INSTRUCTION
043470                      $LOOP:
043470  000137                          JMP     @(PC)+          ;;RETURN
043472  006600                $RTNAD:   .WORD   LOOP
043474  000000                $TBIT:    .WORD   0               ;;"T" BIT STATE INDICATOR
043476     377      377      000  $ENULL: .BYTE   -1,-1,0         ;;NULL CHARACTER STRING
                                        .EVEN
```

END OF PASS ROUTINE

```
                                .SBTTL  SCOPE HANDLER ROUTINE

                                ;;**********************************************************************
                                ;*THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
                                ;*AND LOAD THE TEST NUMBER($TSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
                                ;*AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
                                ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
                                ;*SW14=1         LOOP ON TEST
                                ;*SW11=1         INHIBIT ITERATIONS
                                ;*SW09=1         LOOP ON ERROR
                                ;*SW08=1         LOOP ON TEST IN SWR<7:0>
                                ;*CALL
                                ;*      SCOPE            ;;SCOPE=IOT

043502                          $SCOPE:
043502  104406                         CKSWR                   ;;TEST  FOR CHANGE IN SOFT-SWR
043504  032777  040000  135426  1$:     BIT     #BIT14,@SWR     ;;LOOP ON PRESENT TEST?
043512  001134                         BNE     $OVER           ;;YES IF SW14=1
                                ;#####START OF CODE FOR THE XOR TESTER#####
043514  000416                 $XTSTR: BR      6$              ;;IF RUNNING ON THE ''XOR'' TESTER CHANGE
                                                                ;;THIS INSTRUCTION TO A ''NOP'' (NOP=240)
043516  013746  000004                 MOV     ERRVEC,-(SP)    ;;SAVE THE CONTENTS OF THE ERROR VECTOR
043522  012737  043542  000004         MOV     #5$,ERRVEC      ;;SET FOR TIMEOUT
043530  005737  177060                 TST     177060  ;;TIME OUT ON XOR?
043534  012637  000004                 MOV     (SP)+,ERRVEC    ;;RESTORE THE ERROR VECTOR
043540  000503                         BR      $SVLAD          ;;GO TO THE NEXT TEST
043542  022626                 5$:     CMP     (SP)+,(SP)+     ;;CLEAR THE STACK AFTER A TIME OUT
043544  012637  000004                 MOV     (SP)+,ERRVEC    ;;RESTORE THE ERROR VECTOR
043550  000443                         BR      7$              ;;LOOP ON THE PRESENT TEST
043552                          6$:;#####END OF CODE FOR THE XOR TESTER#####
043552  032777  000400  135360         BIT     #BIT08,@SWR     ;;LOOP ON SPEC. TEST?
043560  001404                         BEQ     2$              ;;BR IF NO
043562  127737  135352  001102         CMPB    @SWR,$TSTNM     ;;ON THE RIGHT TEST?    SWR<7:0>
043570  001505                         BEQ     $OVER           ;;BR IF YES
043572  013737  177766  044020  2$:     MOV     177766,CPSAVE   ;MOVE CPU ERR REG VALUE TO LOC FOR TST  ;DPM001
043600  032737  000001  044020         BIT     #BIT00,CPSAVE   ;SEE IF THE POWER MONITOR BIT IS ON     ;DPM001
043606  001411                         BEQ     2000$           ;BRANCH TO CONTINUE ROUTINE IF CLEAR    ;DPM001
043610  042737  000001  177766         BIC     #BIT00,177766   ;CLEAR THE BIT FOUND TO BE SET          ;DPM001
043616  012737  177777  001320         MOV     #-1,$FATAL      ;MOVE -1 TO $FATAL INDICATING PWR MON ER;DPM001
043624  104177                         ERROR   +177            ;CALL SPECIAL POWER FAIL BIT ERROR CALL ;DPM001
043626  105037  001103                 CLRB    $ERFLG          ;CLEAR ERROR FLAG FOR CHECK BELOW       ;DPM001
043632  105737  001103         2000$:  TSTB    $ERFLG          ;;HAS AN ERROR OCCURRED?
043636  001421                         BEQ     3$              ;;BR IF NO
043640  123737  001115  001103         CMPB    $ERMAX,$ERFLG   ;;MAX. ERRORS FOR THIS TEST OCCURRED?
043646  101015                         BHI     3$              ;;BR IF NO
043650  032777  001000  135262         BIT     #BIT09,@SWR     ;;LOOP ON ERROR?
043656  001404                         BEQ     4$              ;;BR IF NO
043660  013737  001110  001106  7$:     MOV     $LPERR,$LPADR   ;;SET LOOP ADDRESS TO LAST SCOPE
043666  000446                         BR      $OVER
043670  105037  001103         4$:     CLRB    $ERFLG          ;;ZERO THE ERROR FLAG
043674  005037  001302                 CLR     $TIMES          ;;CLEAR THE NUMBER OF ITERATIONS TO MAKE
043700  000415                         BR      1$              ;;ESCAPE TO THE NEXT TEST
043702  032777  004000  135230  3$:     BIT     #BIT11,@SWR     ;;INHIBIT ITERATIONS?
043710  001011                         BNE     1$              ;;BR IF YES
043712  005737  001324                 TST     $PASS           ;;IF FIRST PASS OF PROGRAM
043716  001406                         BEQ     1$              ;;      INHIBIT ITERATIONS
```

```
043720  005237  001104                  INC     $ICNT           ;;INCREMENT ITERATION COUNT
043724  023737  001302  001104          CMP     $TIMES,$ICNT    ;;CHECK THE NUMBER OF ITERATIONS MADE
043732  002024                          BGE     $OVER           ;;BR IF MORE ITERATION REQUIRED
043734  012737  000001  001104  1$:     MOV     #1,$ICNT        ;;REINITIALIZE THE ITERATION COUNTER
043742  013737  044022  001302          MOV     $MXCNT,$TIMES   ;;SET NUMBER OF ITERATIONS TO DO
043750  105237  001102          $SVLAD: INCB    $TSTNM          ;;COUNT TEST NUMBERS
043754  113737  001102  001322          MOVB    $TSTNM,$TESTN   ;;SET TEST NUMBER IN APT MAILBOX
043762  011637  001106                  MOV     (SP),$LPADR     ;;SAVE SCOPE LOOP ADDRESS
043766  011637  001110                  MOV     (SP),$LPERR     ;;SAVE ERROR LOOP ADDRESS
043772  005037  001304                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE FROM ERROR ADDRESS
043776  112737  000001  001115          MOVB    #1,$ERMAX       ;;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
044004  013777  001102  135130  $OVER:  MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER
044012  013716  001106                  MOV     $LPADR,(SP)     ;;FUDGE RETURN ADDRESS
044016  000002                          RTI                     ;;FIXES PS
044020  000000          CPSAVE: .WORD   0               ;LOCATION TO SAVE CPU ERR REG CONTENTS  ;DPM001
044022  000001          $MXCNT: 1                       ;;MAX. NUMBER OF ITERATIONS
8138
8139                            .SBTTL  ERROR HANDLER ROUTINE

                                ;;**********************************************************************
                                ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
                                ;*SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
                                ;*AND GO TO ERTYPE ON ERROR
                                ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
                                ;*SW15=1         HALT ON ERROR
                                ;*SW13=1         INHIBIT ERROR TYPEOUTS
                                ;*SW10=1         BELL ON ERROR
                                ;*SW09=1         LOOP ON ERROR
                                ;*CALL
                                ;*      ERROR   N       ;;ERROR=EMT AND N=ERROR ITEM NUMBER

044024  000000          IBSAVE: .WORD   0               ;LOC'N TO HOLD $ERRPC DURING DUAL ERR   ;DPM001
044026                  $ERROR:
044026  104406                  CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
044030  105237  001103          7$:     INCB    $ERFLG          ;;SET THE ERROR FLAG
044034  001775                  BEQ     7$              ;;DON'T LET THE FLAG GO TO ZERO
044036  013777  001102  135076          MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER AND ERROR FLAG
044044  032777  002000  135066          BIT     #BIT10,@SWR     ;;BELL ON ERROR?
044052  001402                  BEQ     1$              ;;NO - SKIP
044054  104401  001306          TYPE    ,$BELL          ;;RING BELL
044060  005237  001112          1$:     INC     $ERTTL          ;;COUNT THE NUMBER OF ERRORS
044064  011637  001116                  MOV     (SP),$ERRPC     ;;GET ADDRESS OF ERROR INSTRUCTION
044070  162737  000002  001116          SUB     #2,$ERRPC
044076  117737  135014  001114          MOVB    @$ERRPC,$ITEMB  ;;STRIP AND SAVE THE ERROR ITEM CODE
044104  122737  000177  001114          CMPB    #177,$ITEMB     ;SEE IF PWR MON ERROR CALL              ;DPM001
044112  001421                  BEQ     1000$           ;BRANCH IF SO TO CALL THE ERROR         ;DPM001
044114  013737  177766  044020          MOV     177766,CPSAVE   ;MOVE CPU ERR REG TO CPSAVE FOR TEST    ;DPM001
044122  032737  000001  044020          BIT     #BIT00,CPSAVE   ;SEE IF POWER MONITOR BIT IS SET        ;DPM001
044130  001412                  BEQ     1000$           ;BRANCH IF OK                           ;DPM001
044132  042737  000001  177766          BIC     #BIT00,177766   ;CLEAR THE BIT FOUND SET              ;DPM001
044140  013737  001116  044024          MOV     $ERRPC,IBSAVE   ;SAVE $ERROR                            ;DPM001
044146  104177                  ERROR   +177            ;CALL POWER MONITOR BIT ERROR           ;DPM001
044150  013737  044024  001116          MOV     IBSAVE,$ERRPC   ;RESTORE $ERROR                         ;DPM001
044156                  1000$:
044156  032777  020000  134754          BIT     #BIT13,@SWR     ;;SKIP TYPEOUT IF SET
044164  001004                  BNE     20$             ;;SKIP TYPEOUTS
044166  004737  046460                  JSR     PC,ERTYPE       ;;GO TO USER ERROR ROUTINE
```

```
044172  104401  001313                  TYPE    ,$CRLF
044176                          20$:
044176  122737  000001  001336          CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
044204  001023                          BNE     2$              ;;NO,SKIP APT ERROR REPORT
044206  005037  044250                  CLR     21$             ;CLEAR ANY PREVIOUS NUMBER FROM 21$     ;DPM001
044212  113737  001114  044250          MOVB    $ITEMB,21$      ;;SET ITEM NUMBER AS ERROR NUMBER
044220  122737  000377  001114          CMPB    #377,$ITEMB     ;SEE IF ITEM # IS OVER 400              ;DPM001
044226  001006                          BNE     900$            ;BRANCH IF NOT                          ;DPM001
044230  012737  000400  044250          MOV     #400,21$        ;MOVE BASE OF 400 TO 21$                ;DPM001
044236  067737  134654  044250          ADD     @$ERRPC,21$     ;ADD NUMBER OVER 400 TO 21$             ;DPM001
044244  004737  045312          900$:   JSR     PC,$ATY4        ;;REPORT FATAL ERROR TO APT
044250     000          21$:   .BYTE   0
044251     000                 .BYTE   0
044252  000777          22$:   BR      22$             ;;APT ERROR LOOP
044254  005737  044024          2$:    TST     IBSAVE          ;SEE IF POWER FAIL ERROR CALL           ;DPM001
044260  001005                          BNE     3$              ;BRANCH IF NOT - HALT NOT ALLOWED       ;DPM001
044262  005777  134652                  TST     @SWR            ;;HALT ON ERROR
044266  100002                          BPL     3$              ;;SKIP IF CONTINUE
044270  000000                          HALT                    ;;HALT ON ERROR!
044272  104406                          CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
044274  032777  001000  134636  3$:     BIT     #BIT09,@SWR     ;;LOOP ON ERROR SWITCH SET?
044302  001405                          BEQ     4$              ;;BR IF NO
044304  005737  044024                  TST     IBSAVE          ;SEE IF ERROR IS PWR MONITOR BIT ERROR  ;DPM001
044310  001002                          BNE     4$              ;BRANCH IF SO - DON'T FUDGE RETURN      ;DPM001
044312  013716  001110                  MOV     $LPERR,(SP)     ;;FUDGE RETURN FOR LOOPING
044316  005737  001304          4$:     TST     $ESCAPE         ;;CHECK FOR AN ESCAPE ADDRESS
044322  001405                          BEQ     5$              ;;BR IF NONE
044324  005737  044024                  TST     IBSAVE          ;SEE IF ERROR IS PWR MONITOR BIT ERROR  ;DPM001
044330  001002                          BNE     5$              ;BRANCH IF SO - DON'T FUDGE RETURN      ;DPM001
044332  013716  001304                  MOV     $ESCAPE,(SP)    ;;FUDGE RETURN ADDRESS FOR ESCAPE
044336                          5$:
044336  022737  043422  000042          CMP     #$ENDAD,42      ;;ACT-11 AUTO-ACCEPT?
044344  001001                          BNE     6$              ;;BRANCH IF NO
044346  000000                          HALT                    ;;YES
044350                          6$:
044350  032777  001000  134562          BIT     #BIT09,@SWR
044356  001013                          BNE     ERM10
044360  011637  001162                  MOV     (SP),$REG0              ;SEE IF ERROR #377
044364  062737  177776  001162          ADD     #-2,$REG0
044372  122777  000377  134562          CMPB    #377,@$REG0
044400  001002                          BNE     ERM10
044402  062716  000002                  ADD     #2,(SP)
044406  000002          ERM10:  RTI
8140
8141                                    .SBTTL  SAVE AND RESTORE R0-R5 ROUTINES
                                        ;;*****************************************************************
                                        ;*SAVE R0-R5
                                        ;*CALL:
                                        ;*      SAVREG
                                        ;*UPON RETURN FROM $SAVREG THE STACK WILL LOOK LIKE:
                                        ;*
                                        ;*TOP---(+16)
                                        ;* +2---(+18)
                                        ;* +4---R5
                                        ;* +6---R4
                                        ;* +8---R3
                                        ;*+10---R2
```

```
                                ;**+12---R1
                                ;**+14---R0
                                $SAVREG:
044410                                  MOV     R0,-(SP)        ;;PUSH R0 ON STACK
044410  010046                         MOV     R1,-(SP)        ;;PUSH R1 ON STACK
044412  010146                         MOV     R2,-(SP)        ;;PUSH R2 ON STACK
044414  010246                         MOV     R3,-(SP)        ;;PUSH R3 ON STACK
044416  010346                         MOV     R4,-(SP)        ;;PUSH R4 ON STACK
044420  010446                         MOV     R5,-(SP)        ;;PUSH R5 ON STACK
044422  010546                         MOV     22(SP),-(SP)    ;;SAVE PS OF MAIN FLOW
044424  016646  000022                 MOV     22(SP),-(SP)    ;;SAVE PC OF MAIN FLOW
044430  016646  000022                 MOV     22(SP),-(SP)    ;;SAVE PS OF CALL
044434  016646  000022                 MOV     22(SP),-(SP)    ;;SAVE PC OF CALL
044440  016646  000022                 RTI
044444  000002                  ;*RESTORE R0-R5
                                ;*CALL:
                                ;*      RESREG
                                $RESREG:
044446                                  MOV     (SP)+,22(SP)    ;;RESTORE PC OF CALL
044446  012666  000022                 MOV     (SP)+,22(SP)    ;;RESTORE PS OF CALL
044452  012666  000022                 MOV     (SP)+,22(SP)    ;;RESTORE PC OF MAIN FLOW
044456  012666  000022                 MOV     (SP)+,22(SP)    ;;RESTORE PS OF MAIN FLOW
044462  012666  000022                 MOV     (SP)+,R5        ;;POP STACK INTO R5
044466  012605                         MOV     (SP)+,R4        ;;POP STACK INTO R4
044470  012604                         MOV     (SP)+,R3        ;;POP STACK INTO R3
044472  012603                         MOV     (SP)+,R2        ;;POP STACK INTO R2
044474  012602                         MOV     (SP)+,R1        ;;POP STACK INTO R1
044476  012601                         MOV     (SP)+,R0        ;;POP STACK INTO R0
044500  012600                         RTI
044502  000002
8142
8143                            .SBTTL  TYPE ROUTINE

                                ;;**********************************************************************
                                ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
                                ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
                                ;*NOTE1:        $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
                                ;*NOTE2:        $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
                                ;*NOTE3:        $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
                                ;*
                                ;*CALL:
                                ;*1) USING A TRAP INSTRUCTION
                                ;*      TYPE    ,MESADR         ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
                                ;*OR
                                ;*      TYPE
                                ;*      MESADR
                                ;*
044504  000000                  EOASCI: .WORD   0               ;LOC TO HOLD ADRS OF TERMINATOR BYTE    ;DPM001
044506  105737  001157          $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
044512  100002                          BPL     1$              ;;BR IF YES
044514  000000                          HALT                    ;;HALT HERE IF NO TERMINAL
044516  000432                          BR      3$              ;;LEAVE
044520  010046                  1$:     MOV     R0,-(SP)        ;;SAVE R0
044522  017600  000002                  MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
044526  122737  000001  001336          CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
044534  001011                          BNE     62$             ;;NO,GO CHECK FOR APT CONSOLE
044536  132737  000100  001337          BITB    #APTSPOOL,$ENVM ;;SPOOL MESSAGE TO APT
044544  001405                          BEQ     62$             ;;NO,GO CHECK FOR CONSOLE
```

```
TYPE ROUTINE

044546  010037  044556                  MOV     R0,61$          ;;SETUP MESSAGE ADDRESS FOR APT
044552  004737  045302                  JSR     PC,$ATY3        ;;SPOOL MESSAGE TO APT
044556  000000                  61$:     .WORD   0               ;;MESSAGE ADDRESS
044560  132737  000040  001337  62$:     BITB    #APTCSUP,$ENVM  ;;APT CONSOLE SUPPRESSED
044566  001005                          BNE     60$             ;;YES,SKIP TYPE OUT
044570  112046                  2$:     MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
044572  001007                          BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
044574  005726                          TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
044576  010037  044504                  MOV     R0,EOASCI       ;SAVE ADRS OF TERMINATOR - POSSIBLY USED;DPM001
044602  012600                  60$:     MOV     (SP)+,R0        ;;RESTORE R0
044604  062716  000002          3$:     ADD     #2,(SP)         ;;ADJUST RETURN PC
044610  000002                          RTI                     ;;RETURN
044612  122716  000011          4$:     CMPB    #HT,(SP)        ;;BRANCH IF <HT>
044616  001430                          BEQ     8$
044620  122716  000200                  CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
044624  001006                          BNE     5$
044626  005726                          TST     (SP)+           ;;POP  <CR><LF> EQUIV
044630  104401                          TYPE                    ;;TYPE A CR AND LF
044632  001313                          $CRLF
044634  105037  045042                  CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
044640  000753                          BR      2$              ;;GET NEXT CHARACTER
044642  004737  044724          5$:     JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
044646  123726  001156          6$:     CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
044652  001346                          BNE     2$              ;;IF NO GO GET NEXT CHAR.
044654  013746  001154                  MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
                                                                ;;AND THE NULL CHAR.
044660  105366  000001          7$:     DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
044664  002770                          BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
044666  004737  044724                  JSR     PC,$TYPEC       ;;GO TYPE A NULL
044672  105337  045042                  DECB    $CHARCNT        ;;DO NOT COUNT AS A COUNT
044676  000770                          BR      7$              ;;LOOP

                                ;HORIZONTAL TAB PROCESSOR

044700  112716  000040          8$:     MOVB    #' ,(SP)        ;;REPLACE TAB WITH SPACE
044704  004737  044724          9$:     JSR     PC,$TYPEC       ;;TYPE A SPACE
044710  132737  000007  045042          BITB    #7,$CHARCNT     ;;BRANCH IF NOT AT
044716  001372                          BNE     9$              ;;TAB STOP
044720  005726                          TST     (SP)+           ;;POP SPACE OFF STACK
044722  000722                          BR      2$              ;;GET NEXT CHARACTER
044724                          $TYPEC:
044724  105777  134214                  TSTB    @$TKS           ;;CHAR IN KYBD BUFFER?          ;MJD001
044730  100022                          BPL     10$             ;;BR IF NOT                     ;MJD001
044732  017746  134210                  MOV     @$TKB,-(SP)     ;;GET CHAR                      ;MJD001
044736  042716  177600                  BIC     #177600,(SP)    ;;STRIP EXTRANEOUS BITS         ;MJD001
044742  122716  000023                  CMPB    #$XOFF,(SP)     ;;WAS CHAR XOFF                 ;MJD001
044746  001012                          BNE     102$            ;;BR IF NOT                     ;MJD001
044750                          101$:                                                           ;MJD001
044750  105777  134170                  TSTB    @$TKS           ;;WAIT FOR CHAR                 ;MJD001
044754  100375                          BPL     101$                                            ;MJD001
044756  117716  134164                  MOVB    @$TKB,(SP)      ;;GET CHAR                      ;MJD001
044762  042716  177600                  BIC     #177600,(SP)    ;;STRIP IT                      ;MJD001
044766  122716  000021                  CMPB    #$XON,(SP)      ;;WAS IT XON?                   ;MJD001
044772  001366                          BNE     101$            ;;BR IF NOT                     ;MJD001
044774                          102$:                                                           ;MJD001
044774  005726                          TST     (SP)+           ;;FIX STACK                     ;MJD001
044776                          10$:                                                            ;MJD001
```

TYPE ROUTINE

```
045776  105777  134146                  TSTB    @$TPS           ;;WAIT UNTIL PRINTER IS READY
045002  100375                          BPL     10$                                     ;MJD001
045004  116677  000002  134140          MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
045012  122766  000015  000002          CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
045020  001003                          BNE     1$              ;;BRANCH IF NO
045022  105037  045042                  CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
045026  000406                          BR      $TYPEX          ;;EXIT
045030  122766  000012  000002  1$:     CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
045036  001402                          BEQ     $TYPEX          ;;BRANCH IF YES
045040  105227                          INCB    (PC)+           ;;COUNT THE CHARACTER
045042  000000                  $CHARCNT:.WORD  0               ;;CHARACTER COUNT STORAGE
045044  000207                  $TYPEX: RTS     PC

8144
8145                                    .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE
                                        ;;**************************************************************
                                        ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
                                        ;*OCTAL (ASCII) NUMBER AND TYPE IT.
                                        ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGIVS TO TYPE
                                        ;*CALL:
                                        ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
                                        ;*      TYPOS                   ;;CALL FOR TYPEOUT
                                        ;*      .BYTE   N               ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
                                        ;*      .BYTE   M               ;;M=1 OR 0
                                        ;*                                      ;;1=TYPE LEADING ZERGS
                                        ;*                                      ;;0=SUPPRESS LEADING ZEROS
                                        ;*
                                        ;*$TYPON----ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
                                        ;*$TYPOS OR $TYPOC
                                        ;*CALL:
                                        ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
                                        ;*      TYPON                   ;;CALL FOR TYPEOUT
                                        ;*
                                        ;*$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
                                        ;*CALL:
                                        ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
                                        ;*      TYPOC                   ;;CALL FOR TYPEOUT
045046  017646  000000          $TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
045052  116637  000001  045271          MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
045060  112637  045273                  MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
045064  062716  000002                  ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
045070  000406                          BR      $TYPON
045072  112737  000001  045271  $TYPOC: MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
045100  112737  000006  045273          MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
045106  112737  000005  045270  $TYPON: MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
045114  010346                          MOV     R3,-(SP)        ;;SAVE R3
045116  010446                          MOV     R4,-(SP)        ;;SAVE R4
045120  010546                          MOV     R5,-(SP)        ;;SAVE R5
045122  113704  045273                  MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
045126  005404                          NEG     R4
045130  062704  000006                  ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
045134  110437  045272                  MOVB    R4,$OMODE       ;;SAVE IT FOR USE
045140  113704  045271                  MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
045144  016605  000012                  MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
045150  005003                          CLR     R3              ;;CLEAR THE OUTPUT WORD
045152  006105                  1$:     ROL     R5              ;;ROTATE MSB INTO "C"
045154  000404                          BR      3$              ;;GO DO MSB
```

```
045156  006105                  2$:     ROL     R5              ;;FORM THIS DIGIT
045160  006105                          ROL     R5
045162  006105                          ROL     R5
045164  010503                          MOV     R5,R3
045166  006103                  3$:     ROL     R3              ;;GET LSB OF THIS DIGIT
045170  105337  045272                  DECB    $OMODE          ;;TYPE THIS DIGIT?
045174  100016                          BPL     7$              ;;BR IF NO
045176  042703  177770                  BIC     #177770,R3      ;;GET RID OF JUNK
045202  001002                          BNE     4$              ;;TEST FOR 0
045204  005704                          TST     R4              ;;SUPPRESS THIS 0?
045206  001403                          BEQ     5$              ;;BR IF YES
045210  005204                  4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
045212  052703  000060                  BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
045216  052703  000040          5$:     BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
045222  110337  045266                  MOVB    R3,8$           ;;SAVE FOR TYPING
045226  104401  045266                  TYPE    ,8$             ;;GO TYPE THIS DIGIT
045232  105337  045270          7$:     DECB    $OCNT           ;;COUNT BY 1
045236  003347                          BGT     2$              ;;BR IF MORE TO DO
045240  002402                          BLT     6$              ;;BR IF DONE
045242  005204                          INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
045244  000744                          BR      2$              ;;GO DO THE LAST DIGIT
045246  012605                  6$:     MOV     (SP)+,R5        ;;RESTORE R5
045250  012604                          MOV     (SP)+,R4        ;;RESTORE R4
045252  012603                          MOV     (SP)+,R3        ;;RESTORE R3
045254  016666  000002  000004          MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
045262  012616                          MOV     (SP)+,(SP)
045264  000002                          RTI                     ;;RETURN
045266     000                  8$:     .BYTE   0               ;;STORAGE FOR ASCII DIGIT
045267     000                          .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
045270     000                  $OCNT:  .BYTE   0               ;;OCTAL DIGIT COUNTER
045271     000                  $OFILL: .BYTE   0               ;;ZERO FILL SWITCH
045272  000000                  $OMODE: .WORD   0               ;;NUMBER OF DIGITS TO TYPE
8146
8147                                    .SBTTL  APT COMMUNICATIONS ROUTINE
                                        ;;**************************************************************
045274  112737  000001  045540  $ATY1:  MOVB    #1,$FFLG        ;;TO REPORT FATAL ERROR
045302  112737  000001  045536  $ATY3:  MOVB    #1,$MFLG        ;;TO TYPE A MESSAGE
045310  000403                          BR      $ATYC
045312  112737  000001  045540  $ATY4:  MOVB    #1,$FFLG        ;;TO ONLY REPORT FATAL ERROR
045320                          $ATYC:
045320  010046                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
045322  010146                          MOV     R1,-(SP)        ;;PUSH R1 ON STACK
045324  105737  045536                  TSTB    $MFLG           ;;SHOULD TYPE A MESSAGE?
045330  001450                          BEQ     5$              ;;IF NOT:  BR
045332  122737  000001  001336          CMPB    #APTENV,$ENV    ;;OPERATING UNDER APT?
045340  001031                          BNE     3$              ;;IF NOT:  BR
045342  132737  000100  001337          BITB    #APTSPOOL,$ENVM ;;SHOULD SPOOL MESSAGES?
045350  001425                          BEQ     3$              ;;IF NOT:  BR
045352  017600  000004                  MOV     @4(SP),R0       ;;GET MESSAGE ADDR.
045356  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
045364  005737  001316          1$:     TST     $MSGTYPE        ;;SEE IF DONE W/ LAST XMISSION?
045370  001375                          BNE     1$              ;;IF NOT:  WAIT
045372  010037  001332                  MOV     R0,$MSGAD       ;;PUT ADDR IN MAILBOX
045376  105720                  2$:     TSTB    (R0)+           ;;FIND END OF MESSAGE
045400  001376                          BNE     2$
045402  163700  001332                  SUB     $MSGAD,R0       ;;SUB START OF MESSAGE
045406  006200                          ASR     R0              ;;GET MESSAGE LNGTH IN WORDS
```

```
045410  010037  001334                    MOV     R0,$MSGLGT      ;;PUT LENGTH IN MAILBOX
045414  012737  000004  001316            MOV     #4,$MSGTYPE     ;;TELL APT TO TAKE MSG.
045422  000413                            BR      5$
045424  017637  000004  045450  3$:       MOV     @4(SP),4$       ;;PUT MSG ADDR IN JSR LINKAGE
045432  062766  000002  000004            ADD     #2,4(SP)                ;;BUMP RETURN ADDRESS
045440  013746  177776                    MOV     177776,-(SP)    ;;PUSH 177776 ON STACK
045444  004737  044506                    JSR     PC,$TYPE        ;;CALL TYPE MACRO
045450  000000                    4$:     .WORD   0
045452                            5$:
045452  105737  045540            10$:    TSTB    $FFLG           ;;SHOULD REPORT FATAL ERROR?
045456  001416                            BEQ     12$             ;;IF NOT:  BR
045460  005737  001336                    TST     $ENV            ;;RUNNING UNDER APT?
045464  001413                            BEQ     12$             ;;IF NOT:  BR
045466  005737  001316            11$:    TST     $MSGTYPE        ;;FINISHED LAST MESSAGE?
045472  001375                            BNE     11$             ;;IF NOT:  WAIT
045474  017637  000004  001320            MOV     @4(SP),$FATAL   ;;GET ERROR #
045502  062766  000002  000004            ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
045510  005237  001316                    INC     $MSGTYPE        ;;TELL APT TO TAKE ERROR
045514  105037  045540            12$:    CLRB    $FFLG           ;;CLEAR FATAL FLAG
045520  105037  045537                    CLRB    $LFLG           ;;CLEAR LOG FLAG
045524  105037  045536                    CLRB    $MFLG           ;;CLEAR MESSAGE FLAG
045530  012601                            MOV     (SP)+,R1        ;;POP STACK INTO R1
045532  012600                            MOV     (SP)+,R0        ;;POP STACK INTO R0
045534  000207                            RTS     PC              ;;RETURN
045536     000            $MFLG:  .BYTE   0               ;;MESSG. FLAG
045537     000            $LFLG:  .BYTE   0               ;;LOG FLAG
045540     000            $FFLG:  .BYTE   0               ;;FATAL FLAG
                                  .EVEN
          000200                  APTSIZE=200
          000001                  APTENV=001
          000100                  APTSPOOL=100
          000040                  APTCSUP=040
8148
8149                              .SBTTL  TTY INPUT ROUTINE
                                  ;;******************************************************************
                                  .ENABL  LSB
                                  ;;******************************************************************
                                  ;*SOFTWARE SWITCH REGISTER CHANGE ROUTINE.
                                  ;*ROUTINE IS ENTERED FROM THE TRAP HANDLER, AND WILL
                                  ;*SERVICE THE TEST FOR CHANGE IN SOFTWARE SWITCH REGISTER TRAP CALL
                                  ;*WHEN OPERATING IN TTY FLAG MODE.
045542  022737  000176  001140  $CKSWR: CMP     #SWREG,SWR      ;;IS THE SOFT-SWR SELECTED?
045550  001074                          BNE     15$             ;;BRANCH IF NO
045552  105777  133366                  TSTB    @$TKS           ;;CHAR THERE?
045556  100071                          BPL     15$             ;;IF NO, DON'T WAIT AROUND
045560  117746  133362                  MOVB    @$TKB,-(SP)     ;;SAVE THE CHAR
045564  042716  177600                  BIC     #^C177,(SP)     ;;STRIP-OFF THE ASCII
045570  022726  000007                  CMP     #7,(SP)+        ;;IS IT A CONTROL G?
045574  001062                          BNE     15$             ;;NO, RETURN TO USER
045576  123727  001134  000001          CMPB    $AUTOB,#1       ;;ARE WE RUNNING IN AUTO-MODE?
045604  001456                          BEQ     15$             ;;BRANCH IF YES
045606  104401  046161                  TYPE    ,$CNTLG         ;;ECHO THE CONTROL-G (^G)
045612  104401  046166          $GTSWR: TYPE    ,$MSWR          ;;TYPE CURRENT CONTENTS
045616  013746  000176                  MOV     SWREG,-(SP)     ;;SAVE SWREG FOR TYPEOUT
045622  104402                          TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
045624  104401  046177                  TYPE    ,$MNEW          ;;PROMPT FOR NEW SWR
045630  005046                  19$:    CLR     -(SP)           ;;CLEAR COUNTER
```

```
045632  005046                          CLR     -(SP)           ;;THE NEW SWR
045634  105777  133304          7$:     TSTB    @$TKS           ;;CHAR THERE?
045640  100375                          BPL     7$              ;;IF NOT TRY AGAIN
045642  117746  133300                  MOVB    @$TKB,-(SP)     ;;PICK UP CHAR
045646  042716  177600                  BIC     #^C177,(SP)     ;;MAKE IT 7-BIT ASCII
045652  021627  000025          9$:     CMP     (SP),#25        ;;IS IT A CONTROL-U?
045656  001005                          BNE     10$             ;;BRANCH IF NOT
045660  104401  046154                  TYPE    ,$CNTLU         ;;YES, ECHO CONTROL-U (^U)
045664  062706  000006          20$:    ADD     #6,SP           ;;IGNORE PREVIOUS INPUT
045670  000757                          BR      19$             ;;LET'S TRY IT AGAIN
045672  021627  000015          10$:    CMP     (SP),#15        ;;IS IT A <CR>?
045676  001022                          BNE     16$             ;;BRANCH IF NO
045700  005766  000004                  TST     4(SP)           ;;YES, IS IT THE FIRST CHAR?
045704  001403                          BEQ     11$             ;;BRANCH IF YES
045706  016677  000002  133224          MOV     2(SP),@SWR      ;;SAVE NEW SWR
045714  062706  000006          11$:    ADD     #6,SP           ;;CLEAR UP STACK
045720  104401  001313          14$:    TYPE    ,$CRLF          ;;ECHO <CR> AND <LF>
045724  123727  001135  000001          CMPB    $INTAG,#1       ;;RE-ENABLE TTY KBD INTERRUPTS?
045732  001003                          BNE     15$             ;;BRANCH IF NOT
045734  012777  000100  133202          MOV     #100,@$TKS      ;;RE-ENABLE TTY KBD INTERRUPTS
045742  000002          15$:    RTI                             ;;RETURN
045744  004737  044724          16$:    JSR     PC,$TYPEC       ;;ECHO CHAR
045750  021627  000060                  CMP     (SP),#60        ;;CHAR < 0?
045754  002420                          BLT     18$             ;;BRANCH IF YES
045756  021627  000067                  CMP     (SP),#67        ;;CHAR > 7?
045762  003015                          BGT     18$             ;;BRANCH IF YES
045764  042726  000060                  BIC     #60,(SP)+       ;;STRIP-OFF ASCII
045770  005766  000002                  TST     2(SP)           ;;IS THIS THE FIRST CHAR
045774  001403                          BEQ     17$             ;;BRANCH IF YES
045776  006316                          ASL     (SP)            ;;NO, SHIFT PRESENT
046000  006316                          ASL     (SP)            ;;    CHAR OVER TO MAKE
046002  006316                          ASL     (SP)            ;;    ROOM FOR NEW ONE.
046004  005266  000002          17$:    INC     2(SP)           ;;KEEP COUNT OF CHAR
046010  056616  177776                  BIS     -2(SP),(SP)     ;;SET IN NEW CHAR
046014  000707                          BR      7$              ;;GET THE NEXT ONE
046016  104401  001312          18$:    TYPE    ,$QUES          ;;TYPE ?<CR><LF>
046022  000720                          BR      20$             ;;SIMULATE CONTROL-U
                        .DSABL  LSB
                        ;;*****************************************************************
                        ;*THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TTY
                        ;*CALL:
                        ;*      RDCHR                           ;;INPUT A SINGLE CHARACTER FROM THE TTY
                        ;*      RETURN HERE                     ;;CHARACTER IS ON THE STACK
                        ;*                                      ;;WITH PARITY BIT STRIPPED OFF
                        ;
046024  011646          $RDCHR: MOV     (SP),-(SP)      ;;PUSH DOWN THE PC
046026  016666  000004  000002          MOV     4(SP),2(SP)     ;;SAVE THE PS
046034  105777  133104          1$:     TSTB    @$TKS           ;;WAIT FOR
046040  100375                          BPL     1$              ;;A CHARACTER
046042  117766  133100  000004          MOVB    @$TKB,4(SP)     ;;READ THE TTY
046050  042766  177600  000004          BIC     #^C<177>,4(SP)  ;;GET RID OF JUNK IF ANY
046056  026627  000004  000023          CMP     4(SP),#23       ;;IS IT A CONTROL-S?
046064  001013                          BNE     3$              ;;BRANCH IF NO
046066  105777  133052          2$:     TSTB    @$TKS           ;;WAIT FOR A CHARACTER
046072  100375                          BPL     2$              ;;LOOP UNTIL ITS THERE
046074  117746  133046                  MOVB    @$TKB,-(SP)     ;;GET CHARACTER
046100  042716  177600                  BIC     #^C177,(SP)     ;;MAKE IT 7-BIT ASCII
```

```
046104  022627  000021              CMP     (SP)+,#21       ;;IS IT A CONTROL-Q?
046110  001366                      BNE     2$              ;;IF NOT DISCARD IT
046112  000750                      BR      1$              ;;YES, RESUME
046114  026627  000004  000021  3$: CMP     4(SP),#$XON     ;;IS IT A RANDOM XON?           ;RAN001
046122  001744                      BEQ     1$              ;;BRANCH IF YES                 ;RAN001
046124  026627  000004  000140      CMP     4(SP),#140      ;;IS IT UPPER CASE?
046132  002407                      BLT     4$              ;;BRANCH IF YES
046134  026627  000004  000175      CMP     4(SP),#175      ;;IS IT A SPECIAL CHAR?
046142  003003                      BGT     4$              ;;BRANCH IF YES
046144  042766  000040  000004      BIC     #40,4(SP)       ;;MAKE IT UPPER CASE
046152  000002                  4$: RTI                     ;;GO BACK TO USER
046154    136     125     015   $CNTLU: .ASCIZ  /^U/<15><12>    ;;CONTROL 'U'
046161    136     107     015   $CNTLG: .ASCIZ  /^G/<15><12>    ;;CONTROL 'G'
046166    015     012     123   $MSWR:  .ASCIZ  <15><12>/SWR = /
046177    040     040     116   $MNEW:  .ASCIZ  /  NEW = /
8150
8151                              .SBTTL  TRAP DECODER
                                  ;;*****************************************************************
                                  ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE 'TRAP' INSTRUCTION
                                  ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
                                  ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
                                  ;*GO TO THAT ROUTINE.
046210  010046                  $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
046212  016600  000002                  MOV     2(SP),R0        ;;GET TRAP ADDRESS
046216  005740                          TST     -(R0)           ;;BACKUP BY 2
046220  111000                          MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
046222  006300                          ASL     R0              ;;POSITION FOR INDEXING
046224  016000  046244                  MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
046230  000200                          RTS     R0              ;;GO TO ROUTINE
                                  ;;THIS IS USE TO HANDLE THE 'GETPRI' MACRO
046232  011646                  $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
046234  016666  000004  000002          MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
046242  000002                          RTI                     ;;RESTORE THE PSW
                                  .SBTTL  TRAP TABLE
                                  ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
                                  ;*BY THE 'TRAP' INSTRUCTION.
                                  ;       ROUTINE
                                  ;       -------
046244  046232                  $TRPAD: .WORD   $TRAP2
046246  044506                          $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
046250  045072                          $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
046252  045046                          $TYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
046254  045106                          $TYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
046256  045612                          $GTSWR  ;;CALL=GTSWR    TRAP+5(104405)  GET SOFT-SWR SETTING
046260  045542                          $CKSWR  ;;CALL=CKSWR    TRAP+6(104406)  TEST FOR CHANGE IN SOFT-SWR
046262  046024                          $RDCHR  ;;CALL=RDCHR    TRAP+7(104407)  TTY TYPEIN CHARACTER ROUTINE
046264  044410                          $SAVREG ;;CALL=SAVREG   TRAP+10(104410) SAVE R0-R5 ROUTINE
046266  044446                          $RESREG ;;CALL=RESREG   TRAP+11(104411) RESTORE R0-R5 ROUTINE
8152 046270  047364                     .RSET   ;;CALL=RSETUP   TRAP+12(104412) ROUTINE TO INITIALIZE AT END OF EACH TEST
8153 046272  047356                     .LPER   ;;CALL=LPERR    TRAP+13(104413) ROUTINE TO SET UP LOOP ON ERROR ADDRESS
8154         000030             $TERM=.-$TRPAD
8155
8156                              .SBTTL  POWER DOWN AND UP ROUTINES
                                  ;;*****************************************************************
                                  ;POWER DOWN ROUTINE
046274  012737  046452  000024  $PWRDN: MOV     #$ILLUP,@#PWRVEC ;;SET FOR FAST UP
046302  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;PRIO:7
```

POWER DOWN AND UP ROUTINES

```
046310  010046                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
046312  010146                          MOV     R1,-(SP)        ;;PUSH R1 ON STACK
046314  010246                          MOV     R2,-(SP)        ;;PUSH R2 ON STACK
046316  010346                          MOV     R3,-(SP)        ;;PUSH R3 ON STACK
046320  010446                          MOV     R4,-(SP)        ;;PUSH R4 ON STACK
046322  010546                          MOV     R5,-(SP)        ;;PUSH R5 ON STACK
046324  017746  132610                  MOV     @SWR,-(SP)      ;;PUSH @SWR ON STACK
046330  010637  046456                  MOV     SP,$SAVR6       ;;SAVE SP
046334  012737  046346  000024          MOV     #$PWRUP,@#PWRVEC ;;SET UP VECTOR
046342  000000                          HALT
046344  000776                          BR      .-2             ;;HANG UP
                                ;;**************************************************************
                                ;POWER UP ROUTINE
046346  012737  046452  000024  $PWRUP: MOV     #$ILLUP,@#PWRVEC ;;SET FOR FAST DOWN
046354  013706  046456                  MOV     $SAVR6,SP       ;;GET SP
046360  005037  046456                  CLR     $SAVR6          ;;WAIT LOOP FOR THE TTY
046364  005237  046456          1$:     INC     $SAVR6          ;;WAIT FOR THE INC
046370  001375                          BNE     1$              ;;OF  WORD
046372  012677  132542                  MOV     (SP)+,@SWR      ;;POP STACK INTO @SWR
046376  012605                          MOV     (SP)+,R5        ;;POP STACK INTO R5
046400  012604                          MOV     (SP)+,R4        ;;POP STACK INTO R4
046402  012603                          MOV     (SP)+,R3        ;;POP STACK INTO R3
046404  012602                          MOV     (SP)+,R2        ;;POP STACK INTO R2
046406  012601                          MOV     (SP)+,R1        ;;POP STACK INTO R1
046410  012600                          MOV     (SP)+,R0        ;;POP STACK INTO R0
046412  012737  046274  000024          MOV     #$PWRDN,@#PWRVEC ;;SET UP THE POWER DOWN VECTOR
046420  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;PRIO:7
046426  104401                          TYPE                    ;;REPORT THE POWER FAILURE
046430  047434                  $PWRMG: .WORD   POWERM          ;;POWER FAIL MESSAGE POINTER
046432  012716                          MOV     (PC)+,(SP)      ;;RESTART AT START
046434  006116                  $PWRAD: .WORD   START           ;;RESTART ADDRESS
046436  042766  000020  000002          BIC     #20,2(SP)       ;;CLEAR "T" BIT
046444  005037  043474                  CLR     $TBIT           ;;CLEAR THE "T" BIT FLAG
046450  000002                          RTI
046452  000000                  $ILLUP: HALT                    ;;THE POWER UP SEQUENCE WAS STARTED
046454  000776                          BR      .-2             ;; BEFORE THE POWER DOWN WAS COMPLETE
046456  000000                  $SAVR6: 0                       ;;PUT THE SP HERE
8157
8158
8159                                    .SBTTL  ERROR TYPE OUT ROUTINE
8160                            ;;**************************************************************
                                ;;**************************************************************
8161                            ;*THIS ROUTINE IS CALLED TO TYPE AN ERROR MESSAGE WHICH IS INCLUDED
8162                            ;*IN THE ERROR MESSAGE DATA TABLE. IT IS CALLED BY THE $ERROR ROUTINE
8163                            ;*OR BY FIRST SETTING $ITEMB EQUAL TO THE ERROR TABLE ITEM TO BE PRINTED
8164                            ;*OUT AND THEN ECECUTING A:
8165                            ;*              JSR     PC,ERTYPE
8166                            ;*
8167 046460  104401            ERTYPE: TYPE                    ;TYPE A CRLF
8168 046462  001313                    .WORD   $CRLF
8169 046464  113737  001102  001232    MOVB    $TSTNM,$TMP0
8170 046472  042737  177400  001232    BIC     #177400,$TMP0
8171 046500  013737  001116  001234    MOV     $ERRPC,$TMP1    ;GET PC OF CALL
8172 046506  010046                    MOV     R0,-(SP)        ;SAVE R0
8173 046510  117700  132520            MOVB    @$TMP1,R0       ;GET THE ITEM NUMBER.
8174 046514  042700  177400            BIC     #177400,R0
8175 046520  001006                    BNE     21$
```

```
8176 046522  013746  001116                MOV     $ERRPC,-(SP)    ;MOVE ERROR PC TO STACK FOR PRINTING
8177 046526  104402                        TYPOC                   ;GO TYPE THE ERROR PC
8178 046530  104401  001313                TYPE    ,$CRLF          ;TYPE A <CRLF>
8179 046534  000561                        BR      ERT5            ;BRANCH TO EXIT
8180 046536  022700  000377          21$:  CMP     #377,R0
8181 046542  001004                        BNE     20$
8182 046544  017600  000004                MOV     @4(SP),R0
8183 046550  062700  000400                ADD     #400,R0
8184 046554  010037  047104          20$:  MOV     R0,ERRNUM       ;SAVE THE ERROR # FOR POSSIBLE USE      ;DPM001
8185 046560  005300                        DEC     R0              ;OTHERWISE MAKE R0 AN
8186 046562  006300                        ASL     R0              ;INDEX FOR THE TABLE.
8187 046564  006300                        ASL     R0
8188 046566  006300                        ASL     R0
8189 046570  062700  001442                ADD     #$ERRTB,R0
8190 046574  012037  046604          22$:  MOV     (R0)+,2$        ;PICK UP THE ADDRESS
8191 046600  001406                        BEQ     3$              ;OF THE EM, ERROR MESSAGE
8192 046602  104401                        TYPE
8193 046604  000000                  2$:   .WORD   0
8194 046606  004737  047106                JSR     PC,PASCIZ       ;GO CHECK FOR AND PRINT ANY ADDTL ASCIZ ;DPM001
8195 046612  104401  001313                TYPE    ,$CRLF
8196 046616  012037  046626          3$:   MOV     (R0)+,4$        ;GET THE DH,DATA HEADER
8197 046622  001406                        BEQ     5$
8198 046624  104401                        TYPE
8199 046626  000000                  4$:   .WORD   0
8200 046630  004737  047106                JSR     PC,PASCIZ       ;GO CHECK FOR AND PRINT ANY ADDTL ASCIZ ;DPM001
8201 046634  104401                        TYPE
8202 046636  001313                        .WORD   $CRLF
8203 046640  010146                  5$:   MOV     R1,-(SP)        ;SAVE R1,R2 AND R3
8204 046642  010246                        MOV     R2,-(SP)
8205 046644  010346                        MOV     R3,-(SP)
8206 046646  012001                        MOV     (R0)+,R1        ;GET THE ADDRESS OF THE DATA TABLE.
8207 046650  001506                        BEQ     ERT4            ;RETURN IF NO DATA.
8208 046652  011000                        MOV     (R0),R0         ;GET A POINTER TO THE DATA FORMAT TABLE.
8209 046654  105710                ERT1:   TSTB    (R0)            ;FORMAT ZERO?
8210 046656  001003                        BNE     7$
8211 046660  013146                        MOV     @(R1)+,-(SP)    ;FORMAT ZERO SO TYPE
8212 046662  104402                        TYPOC                   ;AN OCTAL NUMBER.
8213 046664  000473                        BR      ERT2
8214 046666  122710  000002          7$:   CMPB    #2,(R0)         ;FORMAT TWO?
8215 046672  001010                        BNE     9$
8216 046674  013102                        MOV     @(R1)+,R2       ;FORMAT TWO SO TYPE TWO
8217 046676  012246                        MOV     (R2)+,-(SP)     ;OCTAL NUMBERS.
8218 046700  104402                        TYPOC
8219 046702  104401                        TYPE
8220 046704  047500                        .WORD   SPACE
8221 046706  011246                        MOV     (R2),-(SP)
8222 046710  104402                        TYPOC
8223 046712  000460                        BR      ERT2
8224 046714  122710  000003          9$:   CMPB    #3,(R0)         ;FORMAT THREE?
8225 046720  001011                        BNE     10$
8226 046722  013102                        MOV     @(R1)+,R2       ;FORMAT THREE SO TYPE 4 OCTAL NUMBERS.
8227 046724  012703  000004                MOV     #4,R3           ;LOOP COUNTER
8228 046730  012246                90$:    MOV     (R2)+,-(SP)     ;MOVE DATA TO THE STACK
8229 046732  104402                        TYPOC                   ;TYPE AN OCTAL NUMBER
8230 046734  104401                        TYPE                    ;TYPE A SPACE
8231 046736  047500                        .WORD   SPACE
8232 046740  077305                        SOB     R3,90$          ;SUBTRACT 1 AND BRANCH IF NOT DONE YET  ;DPM001
```

```
8233 046742  000444                    BR      ERT2            ;EXIT
8234 046744  122710  000004    10$:    CMPB    #4,(R0)         ;FORMAT FOUR?
8235 046750  001004                    BNE     11$
8236 046752  013146                    MOV     @(R1)+,-(SP)    ;FORMAR FOUR SO TYPE
8237 046754  104403                    TYPOS                   ;AN OCTAL NUMBER
8238 046756     016                    .BYTE   16              ;SUPPRESSING LEADING ZEROES.
8239 046757     000                    .BYTE   0
8240 046760  000435                    BR      ERT2
8241 046762  122710  000005    11$:    CMPB    #5,(R0)         ;FORMAT FIVE?
8242 046766  001005                    BNE     13$
8243 046770  012137  046776           MOV     (R1)+,12$       ;FORMAT FIVE SO TYPE AN
8244 046774  104401                    TYPE                    ;ASCIZ STRING.
8245 046776  000000    12$:    .WORD   0
8246 047000  000427                    BR      ERT3
8247 047002  122710  000011    13$:    CMPB    #11,(R0)        ;FORMAT ELEVEN?
8248 047006  001005                    BNE     15$
8249 047010  013137  047016           MOV     @(R1)+,14$      ;FORMAT ELEVEN SO PICK
8250 047014  104401                    TYPE                    ;A POINTER TO AN ASCIZ
8251 047016  000000    14$:    .WORD   0                       ;STRING.
8252 047020  000417                    BR      ERT3
8253 047022  122710  000012    15$:    CMPB    #12,(R0)        ;FORMAT TWELVE?
8254 047026  001011                    BNE     17$
8255 047030  013102                    MOV     @(R1)+,R2       ;FORMAT TWELVE SO TYPE
8256 047032  012703  000006           MOV     #6,R3           ;TYPE SIX OCTAL NUMBERS
8257 047036  012246    16$:    MOV     (R2)+,-(SP)
8258 047040  104402                    TYPOC
8259 047042  104401                    TYPE
8260 047044  047500                    .WORD   SPACE
8261 047046  077305                    SOB     R3,16$
8262 047050  000401                    BR      ERT2
8263 047052  000000    17$:    HALT                            ;UNDEFINED FORMAT FOR DATA?????
8264 047054  104401    ERT2:   TYPE                            ;PRINT A TAB AFTER TYPING A DATA TABLE ENTRY
8265 047056  047503                    .WORD   $TAB            ;OF ALL FORMATS EXCEPT ASCIZ, FORMATS 5 OR 11
8266 047060  005200    ERT3:   INC     R0                      ;POINT TO THE NEXT FORMAT
8267 047062  005711                    TST     (R1)            ;END OF DATA TABLE.
8268 047064  001273                    BNE     ERT1
8269 047066  104401    ERT4:   TYPE                            ;DONE.
8270 047070  001313                    .WORD   $CRLF
8271 047072  012603                    MOV     (SP)+,R3        ;RESTORE R1,R2 AND R3
8272 047074  012602                    MOV     (SP)+,R2
8273 047076  012601                    MOV     (SP)+,R1
8274 047100  012600    ERT5:   MOV     (SP)+,R0        ;RESTORE R0.
8275 047102  000207                    RTS     PC              ;AND RETURN.
8276
8277 047104  000000    . ERRNUM: .WORD   0                       ;LOCATION TO HOLD CURRENT ERROR NUMBER  ;DPM001
```

SUBROUTINE TO LOOK FOR ANY ADDITIONAL MSGS TO PRINT

```
8278                                          .SBTTL  SUBROUTINE TO LOOK FOR ANY ADDITIONAL MSGS TO PRINT
8279 047106  010446                  PASCIZ:  MOV     R4,-(SP)        ;SAVE R4                                  ;DPM001
8280 047110  013704  044504          1$:      MOV     EOASCI,R4       ;MOVE END OF ASCII ADDRESS TO R4          ;DPM001
8281 047114  122714  000377                   CMPB    #377,(R4)       ;SEE IF ADD'L MSGS NEED TO BE PRINTED     ;DPM001
8282 047120  001013                           BNE     4$              ;BRANCH IF NOT                            ;DPM001
8283 047122  005204                           INC     R4              ;INCREMENT TO NEXT BYTE                   ;DPM001
8284 047124  032704  000001                   BIT     #BIT00,R4       ;SEE IF ODD ADDRESS                       ;DPM001
8285 047130  001401                           BEQ     2$              ;BRANCH IF NOT                            ;DPM001
8286 047132  005204                           INC     R4              ;POINT TO WORD ADDRESS                    ;DPM001
8287 047134  012437  047144          2$:      MOV     (R4)+,3$        ;MOVE ADDRESS TO LOCATION FOR TYPING      ;DPM001
8288 047140  001763                           BEQ     1$              ;GO CHK FOR MORE MSG ADRS'S IF NO MORE    ;DPM001
8289 047142  104401                           TYPE                    ;TYPE THE MESSAGE, ADDRESS IN NEXT WORD   ;DPM001
8290 047144  000000                  3$:      .WORD   0               ;LOCATION FOR MESSAGE ADDRESS             ;DPM001
8291 047146  000772                           BR      2$              ;BRANCH BACK TO LOAD OTHER MESSAGES       ;DPM001
8292 047150  122714  000376          4$:      CMPB    #376,(R4)       ;SEE IF SPECIFIC MSGS NEED PRINTING       ;DPM001
8293 047154  001027                           BNE     11$             ;BRANCH TO EXIT IF NOT                    ;DPM001
8294 047156  005204                           INC     R4              ;INCREMENT TO NEXT BYTE                   ;DPM001
8295 047160  032704  000001                   BIT     #BIT00,R4       ;SEE IF ODD ADDRESS                       ;DPM001
8296 047164  001401                           BEQ     5$              ;BRANCH IF NOT                            ;DPM001
8297 047166  005204                           INC     R4              ;POINT TO WORD ADDRESS                    ;DPM001
8298 047170  005046                  5$:      CLR     -(SP)           ;CLEAR COUNTER LOCATION ON STACK          ;DPM001
8299 047172  005216                  6$:      INC     (SP)            ;INCREMENT COUNTER                        ;DPM001
8300 047174  023724  047104                   CMP     ERRNUM,(R4)+    ;SEE IF ITEM NUMBER MATCHES ERROR         ;DPM001
8301 047200  001374                           BNE     6$              ;BRANCH IF NOT TO SEARCH AGAIN            ;DPM001
8302 047202  005724                  7$:      TST     (R4)+           ;SEE IF AT TERMINATOR YET                 ;DPM001
8303 047204  001376                           BNE     7$              ;BRANCH BACK UNTIL IT IS                  ;DPM001
8304 047206  005744                           TST     -(R4)           ;PUT R4 AT THE TERMINATOR                 ;DPM001
8305 047210  005724                  8$:      TST     (R4)+           ;POINT R4 TO NEXT ADDRESS                 ;DPM001
8306 047212  005316                           DEC     (SP)            ;SEE IF COUNTER DOWN TO ZERO YET          ;DPM001
8307 047214  001375                           BNE     8$              ;BRANCH BACK IF NOT TO ADVANCE R4         ;DPM001
8308 047216  005726                  9$:      TST     (SP)+           ;POP COUNTER OFF STACK                    ;DPM001
8309 047220  011437  047230                   MOV     (R4),10$        ;MOVE ADDRESS TO LOCATION TO TYPE         ;DPM001
8310 047224  001403                           BEQ     11$             ;BRANCH IF NO EXTRA MESSAGE TO PRINT      ;DPM001
8311 047226  104401                           TYPE                    ;TYPE THE ASCII MESSAGE                   ;DPM001
8312 047230  000000                  10$:     .WORD   0               ;LOCATION FOR ASCII MESSAGE ADDRESS       ;DPM001
8313 047232  000726                           BR      1$              ;GO BACK TO MAKE SURE NO MORE MSGS        ;DPM001
8314 047234  012604                  11$:     MOV     (SP)+,R4        ;RESTORE R4                               ;DPM001
8315 047236  000207                           RTS     PC              ;EXIT                                     ;DPM001
```

```
                                        .SBTTL  FPP SPURIOUS TRAP TO 244 HANDLER
                                ;;**********************************************************************
                                ;;**********************************************************************
                                ;*THIS ROUTINE HANDLES UNEXPECTED TRAPS TO THE FPP TRAP VECTOR AT 244.
                                ;*THE LAST FPP INSTRUCTION EXECUTED AND ITS ADDRESS HAS BEEN RECORDED
                                ;*THESE ALONG WITH THE FEC, FPS AND PC OF TRAP ARE REPORTED.
                                ;*
047240  042737  000001  177572  FPSPUR: BIC     #BIT00,MMR0     ;MAKE SURE MEMORY MANAGEMENT IS OFF     ;DPM001
047246  011637  001236                  MOV     (SP),$TMP2      ;SAVE PC OF TRAP.
047252  022626                          CMP     (SP)+,(SP)+     ;RESTORE SP.
047254  170200                          STFPS   R0              ;GET FPS
047256  010037  001240                  MOV     R0,$TMP3        ;MOVE IT TO $TMP3
047262  170300                          STST    R0              ;GET FEC
047264  010037  001242                  MOV     R0,$TMP4        ;MOVE IT TO $TMP4
047270  104377                          ERROR   +377            ;CALL ERROR
047272  000041                          .WORD   41              ;ERROR #441
047274  104412                          RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                                ;SEE IF THE USER HAS EXPRESSED
                                                                ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                ;THE USER TYPED CONTROL G?).
047276  000137  043202                  JMP     $EOP            ;JUMP TO $EOP
```

```
8333                                    .SBTTL  CPU SPURIOUS TRAP TO 4 HANDLER
8334                                ;;**********************************************************************
                                    ;;**********************************************************************
8335                                ;*THIS ROUTINE REPORTS UNEXPECTED CPU TRAPS TO VECTOR 4.
8336                                ;*
8337 047302  042737  000001  177572 CPSPUR: BIC     #BIT00,MMR0     ;MAKE SURE MEMORY MANAGEMENT IS OFF     ;DPM001
8338 047310  011637  001236          MOV     (SP),$TMP2      ;SAVE PC OF TRAP.
8339 047314  022626                  CMP     (SP)+,(SP)+     ;CLEAN STACK
8340 047316  104377                  ERROR   +377            ;CALL ERROR
8341 047320  000042                  .WORD   42              ;ERROR #442
8342 047322  104412                  RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                             ;SEE IF THE USER HAS EXPRESSED
                                                             ;THE DESIRE TO CHANGE THE SOFTWARE
                                                             ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                             ;THE USER TYPED CONTROL G?).
8343 047324  000137  043202          JMP     $EOP            ;JUMP TO $EOP
```

CPU SPURIOUS TRAP TO 10 HANDLER

```
                                        .SBTTL  CPU SPURIOUS TRAP TO 10 HANDLER
                                ;;**********************************************************************
                                ;;**********************************************************************
                                ;*THIS ROUTINE REPORTS UNEXPECTED CPU TRAPS TO VECTOR 10.
                                ;*
047330  042737  000001  177572  CPTWO:  BIC     #BIT00,MMR0     ;MAKE SURE MEMORY MANAGEMENT IS OFF     ;DPM001
047336  011637  001236                  MOV     (SP),$TMP2      ;SAVE PC OF TRAP.
047342  022626                        CMP     (SP)+,(SP)+     ;CLEAN STACK
047344  104377                  1$:   ERROR   +377            ;CALL ERROR
047346  000043                        .WORD   43              ;ERROR #443
047350  104412                        RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
                                                              ;SEE IF THE USER HAS EXPRESSED
                                                              ;THE DESIRE TO CHANGE THE SOFTWARE
                                                              ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                              ;THE USER TYPED CONTROL G?).
047352  000137  043202                JMP     $EOP            ;JUMP TO $EOP
```

SET LOOP ON ERROR ADDRESS ROUTINE

```
                                        .SBTTL  SET LOOP ON ERROR ADDRESS ROUTINE
                                ;;**************************************************************
                                ;;**************************************************************
                                ;*
047356  011637  001110          .LPER:  MOV     (SP),$LPERR
047362  000002                          RTI
```

FLAG RESET AND CONSOLE TEST ROUTINE

```
                                        .SBTTL  FLAG RESET AND CONSOLE TEST ROUTINE
                                ;;**************************************************************************
                                ;;**************************************************************************
                                ;*THIS ROUTINE WILL BE CALLED AT THE END OF EACH TEST TO
                                ;*RESET THE STACK, CLEAR THE FPS AND SEE IF THE USER HAS TYPED
                                ;* CONTROL G ON THE TERMINAL. IF THE USER HAS TYPED CONTROL G AND
                                ;*THERE IS NO PHYSICAL CONSOLE SWITCH REGISTER THEN THE CONTENTS
                                ;*OF THE SOFTWARE SWITCH REGISTER WILL BE TYPED IN OCTAL ON THE
                                ;*TELETYPE AND THE USER CAN MODIFY IT.
                                ;*
047364  023727  001140  177570  .RSET:  CMP     SWR,#177570     ;SEE IF THERE IS A PHYSICAL CONSOLE SWITCH REGISTER.
047372  001001                          BNE     1$              ;BRANCH IF NOT
047374  104406                          CKSWR                   ;OTHERWISE TYPE THE CONTENTS OF THE PROGRAM VIRTUAL
                                                                ;SWITCH REGISTER AND GIVE THE USER CHANCE TO MODIFY IT
047376  012737  047240  000244  1$:     MOV     #FPSPUR,FPVECT
047404  012737  047302  000004          MOV     #CPSPUR,ERRVECT
047412  012737  047330  000010          MOV     #CPTWO,10
047420  011600                          MOV     (SP),R0         ;SAVE RETURN ADDRESS.
047422  012706  001100                  MOV     #STACK,SP       ;RESET THE STACK POINTER.
047426  005004                          CLR     R4              ;CLEAR THE FPS.
047430  170104                          LDFPS   R4
047432  000110                          JMP     (R0)            ;RETURN.
```

SPECIAL MESSAGES

```
8381                                                    .SBTTL  SPECIAL MESSAGES
8382 047434     200     120     117     POWERM: .ASCIZ  <CRLF>'POWER FAILURE. PROGRAM RESTARTING.'
8383 047500     040     040     000     SPACE:  .ASCIZ  ' '
8384 047503     011     000             $TAB:   .ASCIZ  <TAB>
8385 047505     107     117     124     MS1:    .ASCIZ  'GOT RESULT:'<TAB><TAB>
8386 047523     105     130     120     MS2:    .ASCIZ  'EXPECTED RESULT:'<TAB>
8387 047545     101     103     040     MS3:    .ASCIZ  'AC OPERAND:'<TAB><TAB>
8388 047563     123     117     125     MS4:    .ASCIZ  'SOURCE OPERAND: '<TAB>
8389         047545                     MS10=MS3
8390 047605     105     130     120     MS11:   .ASCIZ  'EXPONENT OPERAND:'<TAB>
8391 047630     114     117     101     MS20:   .ASCIZ  'LOADED:'<TAB><TAB>
8392 047642     124     122     111     MS21:   .ASCIZ  'TRIED TO LOAD:'<TAB>
```

ERROR MESSAGES

```
8393                                                    .SBTTL  ERROR MESSAGES
8413 047662     123     000             EM1:    .ASCIZ  !S!
8414 047664     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8415 047666 047676  047707  047726              .WORD   EM1B,EM1C,EM1D,0
8416 047676     124     106     040     EM1B:   .ASCIZ  !TF A,AC7!
8417 047707     040     104     111     EM1C:   .ASCIZ  ! DID NOT TRAP.!
8418 047726     040     106     111     EM1D:   .ASCIZ  ! FID=0.!
8419 047736     123     000             EM2:    .ASCIZ  !S!
8420 047740     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8421 047742 047676  047752  047726              .WORD   EM1B,EM2B,EM1D,0
8422 047752     056     040     106     EM2B:   .ASCIZ  !. FPS BAD. !
8423 047766     123     000             EM3:    .ASCIZ  !S!
8424 047770     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8425 047772 047676  050002  047726              .WORD   EM1B,EM3B,EM1D,0
8426 050002     056     040     106     EM3B:   .ASCIZ  !. FEC BAD. !
8427 050016     123     000             EM4:    .ASCIZ  !S!
8428 050020     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8429 050022 050034  050045  050057              .WORD   EM4A,EM4B,EM4C,EM4D,0
8430 050034     124     106     040     EM4A:   .ASCIZ  !TF A,(R)!
8431 050045     056     040     122     EM4B:   .ASCIZ  !. R0 BAD.!
8432 050057     056     040     106     FM4C:   .ASCIZ  !. FDST!
8433 050066     040     106     101     EM4D:   .ASCIZ  ! FAILED.!
8434 050077     123     000             EM5:    .ASCIZ  !S!
8435 050101     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8436 050102 050034  050066  000000              .WORD   EM4A,EM4D,0
8437 050110     123     000             EM6:    .ASCIZ  !S!
8438 050112     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8439 050114 050034  050057  050066              .WORD   EM4A,EM4C,EM4D,EM6C
8440 050124                             EM6C:
     050124     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     050126 050167  050164  050176              .WORD   CRBUT,IFD,PRST,N7,N0,N7,WENTTO,N2,N4,N5,INSTOF,N2,N4,N4,0
8441 050164     106     104     000     IFD:    .ASCIZ  !FD!
8442 050167     200     050     102     CRBUT:  .ASCIZ  <CRLF>!(BUT !
8443 050176     051     040     123     PRST:   .ASCIZ  !) ST !
8444 050204     040     127     105     WENTTO: .ASCIZ  ! WENT TO !
8445 050216     040     111     116     INSTOF: .ASCIZ  ! INSTEAD OF !
8446 050233     060     000             N0:     .ASCIZ  !0!
8447 050235     061     000             N1:     .ASCIZ  !1!
8448 050237     062     000             N2:     .ASCIZ  !2!
8449 050241     063     000             N3:     .ASCIZ  !3!
8450 050243     064     000             N4:     .ASCIZ  !4!
8451 050245     065     000             N5:     .ASCIZ  !5!
8452 050247     066     000             N6:     .ASCIZ  !6!
8453 050251     067     000             N7:     .ASCIZ  !7!
8454 050253     123     000             EM7:    .ASCIZ  !S!
8455 050255     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8456 050256 050034  050272  050045              .WORD   EM4A,EM7B,EM4B,EM4C,EM4D,0
8457 050272     053     056     000     EM7B:   .ASCIZ  !+.!
8458 050275     123     000             EM10:   .ASCIZ  !S!
```

ERROR MESSAGES

```
8459 050277     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8460 050300  050034  050272  050066             .WORD   EM4A,EM7B,EM4D,0
8461 050310     123     000           EM11:     .ASCIZ  !S!
8462 050312     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8463 050314  050326  050045  050057             .WORD   EM11B,EM4B,EM4C,EM4D,0
8464 050326     124     104     040   EM11B:    .ASCIZ  !TD A,(R)+!
8465 050340     123     000           EM12:     .ASCIZ  !S!
8466 050342     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8467 050344  050326  050066  000000             .WORD   EM11B,EM4D,0
8468 050352     123     000           EM13:     .ASCIZ  !S!
8469 050354     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8470 050356  050364  050374  000000             .WORD   EM13A,EM13B,0
8471 050364     124     104     040   EM13A:    .ASCIZ  !TD A,#N!
8472 050374     040     124     122   EM13B:    .ASCIZ  ! TRAP TO 4 IN FDST.!
8473         050352                  EM14=EM13
8474 050420     123     000           EM15:     .ASCIZ  !S!
8475 050422     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8476 050424  050364  050066  000000             .WORD   EM13A,EM4D,0
8477 050432     120     103     040   EM16:     .ASCIZ  !PC BAD AFTER S!
8478 050451     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8479 050452  050364  000000                     .WORD   EM13A,0
8480 050456     123     000           EM17:     .ASCIZ  !S!
8481 050460     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8482 050462  050470  050374  000000             .WORD   EM17B,EM13B,0
8483 050470     124     104     040   EM17B:    .ASCIZ  !TD A,-(R)!
8484 050502     123     000           EM20:     .ASCIZ  !S!
8485 050504     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8486 050506  050470  050045  050057             .WORD   EM17B,EM4B,EM4C,EM4D,0
8487 050520     123     000           EM21:     .ASCIZ  !S!
8488 050522     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8489 050524  050470  050066  000000             .WORD   EM17B,EM4D,0
8490         050520                  EM22=EM21
8491 050532     123     000           EM23:     .ASCIZ  !S!
8492 050534     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8493 050536  050544  050374  000000             .WORD   EM23B,EM13B,0
8494 050544     124     104     040   EM23B:    .ASCIZ  !TD A,@(R)+!
8495 050557     123     000           EM24:     .ASCIZ  !S!
8496 050561     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8497 050562  050544  050045  050057             .WORD   EM23B,EM4B,EM4C,EM4D,0
8498 050574     123     000           EM25:     .ASCIZ  !S!
8499 050576     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8500 050600  050544  050066  000000             .WORD   EM23B,EM4D,0
8501 050606     123     000           EM26:     .ASCIZ  !S!
8502 050610     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
```

ERROR MESSAGES

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8503 050612  050620  050374  000000            .WORD   EM26B,EM13B,0
8504 050620     124     104     040  EM26B:     .ASCIZ  !TD A,@-(R)!
8505 050633     123     000          EM27:      .ASCIZ  !S!
8506 050635     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8507 050636  050620  050045  050057            .WORD   EM26B,EM4B,EM4C,EM4D,0
8508 050650     123     000          EM30:      .ASCIZ  !S!
8509 050652     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8510 050654  050620  050066  000000            .WORD   EM26B,EM4D,0
8511 050662     123     000          EM31:      .ASCIZ  !S!
8512 050664     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8513 050666  050674  050374  000000            .WORD   EM31B,EM13B,0
8514 050674     124     104     040  EM31B:     .ASCIZ  !TD A,N(R)!
8515 050706     123     000          EM32:      .ASCIZ  !S!
8516 050710     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8517 050712  050674  050045  050057            .WORD   EM31B,EM4B,EM4C,EM4D,0
8518 050724     123     000          EM33:      .ASCIZ  !S!
8519 050726     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8520 050730  050674  050066  000000            .WORD   EM31B,EM4D,0
8521 050736     123     000          EM34:      .ASCIZ  !S!
8522 050740     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8523 050742  050750  050374  000000            .WORD   EM34B,EM13B,0
8524 050750     124     104     040  EM34B:     .ASCIZ  !TD A,@N(R)!
8525 050763     123     000          EM35:      .ASCIZ  !S!
8526 050765     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8527 050766  050750  050045  050057            .WORD   EM34B,EM4B,EM4C,EM4D,0
8528 051000     123     000          EM36:      .ASCIZ  !S!
8529 051002     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8530 051004  050750  050066  000000            .WORD   EM34B,EM4D,0
8531 051012     123     124     103  EM37:      .ASCIZ  !STCFD A,(R) FAILED.!
8532 051036     376                             .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                                .EVEN
8533 051040  000037  000042  000044            .WORD   37,42,44,45,47,50,0
8534 051056  000000  051132  051245            .WORD   0,EM42B,EM44B,EM45B,EM47B,EM50B
8535 051072     123     124     103  EM40:      .ASCIZ  !STCFD A,(R)!
8536 051106     376                             .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                                .EVEN
8537 051110  000040  000041  000043            .WORD   40,41,43,46,0
8538 051122  047752  050002  051166            .WORD   EM2B,EM3B,EM43B,EM46B
8539         051072                 EM41=EM40
8540         051012                 EM42=EM37
8541 051132     200     111     116  EM42B:     .ASCIZ  <CRLF>!INVERT FDFL ST 767 FAILED.!
8542         051072                 EM43=EM40
8543 051166     056     040     106  EM43B:     .ASCIZ  !. FPS BAD.!
8544 051201     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     051202  050167  051240  050176            .WORD   CRBUT,IEZBT,PRST,N5,N6,N0,WENTTO,N0,N6,N1,INSTOF,N2,N6,N1,0
8545 051240     105     132     102  IEZBT:     .ASCIZ  !EZBT!
8546         051012                 EM44=EM37
8547 051245     200     114     117  EM44B:     .ASCIZ  <CRLF>!LOW ORDER BITS OF X11 DID NOT GET 0 ST 766.!
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                    051012                          EM45=EM37
                    051322      200     050     102 EM45B:  .ASCIZ  <CRLF>!(BUT OP1C) ST 251 FAILED.!
                    051072                          EM46=EM40
                    051355      056     040     106 EM46B:  .ASCIZ  !. FPS BAD.!
                    051370      377                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                    .EVEN
                    051372  050167  051240  050176 .WORD   CRBUT,IEZBT,PRST,N4,N2,N1,WENTTO,N2,N6,N2,INSTOF,N0,N6,N2,0
                    051012                          EM47=EM37
                    051430      040     000         EM47B:  .ASCIZ  ! !
                    051432      377                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                    .EVEN
                    051434  050167  050164  050176 .WORD   CRBUT,IFD,PRST,N1,N1,N3,WENTTO,N4,N1,N5,INSTOF,N4,N1,N4,0
                    051012                          EM50=EM37
                    051472      040     123     111 EM50B:  .ASCIZ  ! SIGN BAD.!
                    051505      377                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                    .EVEN
                    051506  050167  051544  050176 .WORD   CRBUT,IENBT,PRST,N5,N6,N7,WENTTO,N0,N6,N0,INSTOF,N4,N6,N0,0
                    051544      105     116     102 IENBT:  .ASCIZ  !ENBT!
                    051551      123     124     103 EM51:   .ASCIZ  !STCDF A,(R)!
                    051565      376                 .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                                    .EVEN
                    051566  000051  000054  000055 .WORD   51,54,55,60,0
                    051600  050066  051652  051716 .WORD   EM4D,EM54B,EM55B,EM60B
                    051610      123     124     104 EM52:   .ASCIZ  !STD A,(R)!
                    051622      376                 .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                                    .EVEN
                    051624  000052  000053  000056 .WORD   52,53,56,57,61,0
                    051640  047752  050002  052007 .WORD   EM2B,EM3B,EM56B,EM57B,EM61B
                    051610                          EM53=EM52
                    051551                          EM54=EM51
                    051652      040     106     101 EM54B:  .ASCIZ  ! FAILED.!<CRLF>!INVERT FDFL ST 767 FAILED.!
                    051551                          EM55=EM51
                    051716      200     122     117 EM55B:  .ASCIZ  <CRLF>!ROUND ERROR, OR!
                    051737      377                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                    .EVEN
                    051740  050167  051776  050176 .WORD   CRBUT,IBKOUT,PRST,N4,N0,N0,WENTTO,N7,N6,N6,INSTOF,N7,N6,N7,0
                    051776      102     122     105 IBKOUT: .ASCIZ  !BREAKOUT!
                    051610                          EM56=EM52
                    052007      056     040     106 EM56B:  .ASCIZ  !. FPS BAD.!
                    052022      377                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                    .EVEN
                    052024  050167  051240  050176 .WORD   CRBUT,IEZBT,PRST,N4,N2,N1,WENTTO,N0,N6,N2,INSTOF,N2,N6,N2,0
                    051610                          EM57=EM52
                    052062      040     106     120 EM57B:  .ASCIZ  ! FPS BAD. FIV=0.!
                    052103      377                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                    .EVEN
                    052104  050167  052142  050176 .WORD   CRBUT,IFIV,PRST,N2,N6,N2,WENTTO,N1,N2,N3,INSTOF,N1,N0,N3,0
                    052142      106     111     126 IFIV:   .ASCIZ  !FIV!
                    051551                          EM60=EM51
                    052146      040     106     101 EM60B:  .ASCIZ  ! FAILED. FIV=1.!
                    052166      377                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                    .EVEN
                    052170  050167  052142  050176 .WORD   CRBUT,IFIV,PRST,N2,N6,N2,WENTTO,N1,N0,N3,INSTOF,N1,N2,N3,0
                    051610                          EM61=EM52
                    052226      056     040     106 EM61B:  .ASCIZ  !. FPS BAD.!
                    052241      377                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                    .EVEN
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ERROR MESSAGES

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      052242  050167  052300  050176                .WORD   CRBUT,IFLAG,PRST,N1,N4,N7,WENTTO,N3,N6,N1,INSTOF,N3,N6,N5,0
 8588 052300     106     114     101  IFLAG:   .ASCIZ  !FLAG!
 8589 052305     123     124     103  EM62:    .ASCIZ  !STCF!
 8590 052312     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 8591 052314  052324  047752  052334          .WORD   EM62A,EM2B,EM62B,0
 8592 052324     104     040     101  EM62A:   .ASCIZ  !D A,AC6!
 8593 052334     040     000          EM62B:   .ASCIZ  ! !
 8594 052336     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      052340  050167  052376  050176          .WORD   CRBUT,IFDST,PRST,N7,N6,N7,WENTTO,N5,N6,N7,INSTOF,N5,N7,N7,0
 8595 052376     106     104     123  IFDST:   .ASCIZ  !FDST!
 8596 052403     123     124     103  EM63:    .ASCIZ  !STCF!
 8597 052410     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 8598 052412  052324  050002  000000          .WORD   EM62A,EM3B,0
 8599 052420     103     114     122  EM64:    .ASCIZ  !CLRD (R) FAILED!<CRLF>!ZERO X11 AT ST 770!
 8600 052463     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 8601 052464  050066  000000                  .WORD   EM4D,0
 8605 052470                          EM65:
      052470     103     114     122          .ASCIZ  !CLRD (R). FPS BAD.!
 8606 052513     000                          .BYTE   0
 8607 052514     103     114     122  EM66:    .ASCIZ  !CLR!
 8608 052520     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 8609 052522  052534  050045  050057          .WORD   EM66B,EM4B,EM4C,EM4D,0
 8610 052534     104     040     050  EM66B:   .ASCIZ  !D (R)!
 8611 052542                          EM67:
      052542     103     114     122          .ASCIZ  !CLRD AC7. FPS BAD.!
 8612 052565     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      052566  050167  052376  050176          .WORD   CRBUT,IFDST,PRST,N7,N7,N0,WENTTO,N6,N0,N7,INSTOF,N6,N1,N7,0
 8613 052624                          EM70:
      052624     103     114     122          .ASCIZ  !CLRD AC7. FEC BAD.!
 8614 052647     116     105     107  EM71:    .ASCIZ  !NEGF A!
 8615 052656     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 8616 052660  050066  000000                  .WORD   EM4D,0
 8617 052664     116     105     107  EM72:    .ASCIZ  !NEGF A!
 8618 052673     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 8619 052674  047752  000000                  .WORD   EM2B,0
 8620 052700     116     105     107  EM73:    .ASCIZ  !NEG!
 8621 052704     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 8622 052706  052534  050066  000000          .WORD   EM66B,EM4D,0
 8623 052714     116     105     107  EM74:    .ASCIZ  !NEG!
 8624 052720     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 8625 052722  052534  050045  000000          .WORD   EM66B,EM4B,0
 8626 052730     116     105     107  EM75:    .ASCIZ  !NEG!
 8627 052734     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 8628 052736  052534  047752  000000          .WORD   EM66B,EM2B,0
 8629 052744     101     102     123  EM76:    .ASCIZ  !ABS!
 8630 052750     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
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                                                .EVEN
 8631 052752  052760  052767  000000           .WORD   EM76A,EM76B,0
 8632 052760     104     040     050  EM76A:     .ASCIZ  !D (R)+!
 8633 052767     040     124     122  EM76B:     .ASCIZ  ! TRAP TO 4 IN SRC MODE.!
 8634 053017     101     102     123  EM77:      .ASCIZ  !ABS!
 8635 053023     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8636 053024  052760  050066  000000           .WORD   EM76A,EM4D,0
 8637 053032     101     102     123  EM100:     .ASCIZ  !ABS!
 8638 053036     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8639 053040  052760  050045  000000           .WORD   EM76A,EM4B,0
 8640 053046     101     102     123  EM101:     .ASCIZ  !ABS!
 8641 053052     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8642 053054  052760  047752  000000           .WORD   EM76A,EM2B,0
 8643 053062     101     102     123  EM102:     .ASCIZ  !ABS!
 8644 053066     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8645 053070  053076  052767  000000           .WORD   EM102B,EM76B,0
 8646 053076     104     040     055  EM102B:    .ASCIZ  !D -(R)!
 8647 053105     101     102     123  EM103:     .ASCIZ  !ABS!
 8648 053111     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8649 053112  053076  050066  000000           .WORD   EM102B,EM4D,0
 8650 053120     101     102     123  EM104:     .ASCIZ  !ABS!
 8651 053124     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8652 053126  053076  050045  000000           .WORD   EM102B,EM4B,0
 8653 053134     101     102     123  EM105:     .ASCIZ  !ABS!
 8654 053140     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8655 053142  053076  047752  000000           .WORD   EM102B,EM2B,0
 8656 053150     101     102     123  EM106:     .ASCIZ  !ABS!
 8657 053154     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8658 053156  053164  052767  000000           .WORD   EM106B,EM76B,0
 8659 053164     104     040     100  EM106B:    .ASCIZ  !D @(R)+!
 8660 053174     116     105     107  EM107:     .ASCIZ  !NEG!
 8661 053200     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8662 053202  052534  052767  000000           .WORD   EM66B,EM76B,0
 8663 053210     101     102     123  EM110:     .ASCIZ  !ABS!
 8664 053214     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8665 053216  053164  050066  000000           .WORD   EM106B,EM4D,0
 8666 053224     101     102     123  EM111:     .ASCIZ  !ABS!
 8667 053230     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8668 053232  053164  050045  000000           .WORD   EM106B,EM4B,0
 8669 053240     101     102     123  EM112:     .ASCIZ  !ABS!
 8670 053244     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 8671 053246  053164  047752  000000           .WORD   EM106B,EM2B,0
 8672 053254     116     105     107  EM113:     .ASCIZ  !NEG!
 8673 053260     377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
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ERROR MESSAGES

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8674 053262  053270  052767  000000          .WORD   EM113B,EM76B,0
8675 053270    104     040     100  EM113B:   .ASCIZ  !D @-(R)!
8676 053300    116     105     107  EM114:    .ASCIZ  !NEG!
8677 053304    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8678 053306  053270  050066  000000          .WORD   EM113B,EM4D,0
8679 053314    116     105     107  EM115:    .ASCIZ  !NEG!
8680 053320    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8681 053322  053270  050045  000000          .WORD   EM113B,EM4B,0
8682 053330    116     105     107  EM116:    .ASCIZ  !NEG!
8683 053334    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8684 053336  053270  047752  000000          .WORD   EM113B,EM2B,0
8685 053344    101     102     123  EM117:    .ASCIZ  !ABS!
8686 053350    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8687 053352  053360  052767  000000          .WORD   EM117B,EM76B,0
8688 053360    104     040     116  EM117B:   .ASCIZ  !D N(R)!
8689 053367    101     102     123  EM120:    .ASCIZ  !ABS!
8690 053373    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8691 053374  053360  050066  000000          .WORD   EM117B,EM4D,0
8692 053402    101     102     123  EM121:    .ASCIZ  !ABS!
8693 053406    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8694 053410  053360  050045  000000          .WORD   EM117B,EM4B,0
8695 053416    101     102     123  EM122:    .ASCIZ  !ABS!
8696 053422    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8697 053424  053360  047752  000000          .WORD   EM117B,EM2B,0
8698 053432    116     105     107  EM123:    .ASCIZ  !NEG!
8699 053436    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8700 053440  053446  052767  000000          .WORD   EM123B,EM76B,0
8701 053446    104     040     100  EM123B:   .ASCIZ  !D @N(R)!
8702 053456    116     105     107  EM124:    .ASCIZ  !NEG!
8703 053462    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8704 053464  053446  050066  000000          .WORD   EM123B,EM4D,0
8705 053472    116     105     107  EM125:    .ASCIZ  !NEG!
8706 053476    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8707 053500  053446  050045  000000          .WORD   EM123B,EM4B,0
8708 053506    116     105     107  EM126:    .ASCIZ  !NEG!
8709 053512    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8710 053514  053446  047752  000000          .WORD   EM123B,EM2B,0
8711 053522    116     105     107  EM127:    .ASCIZ  !NEG!
8712 053526    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8713 053530  053536  052767  000000          .WORD   EM127B,EM76B,0
8714 053536    104     040     116  EM127B:   .ASCIZ  !D N(R7)!
8715 053546    116     105     107  EM130:    .ASCIZ  !NEG!
8716 053552    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
8717 053554  053536  050066  000000          .WORD   EM127B,EM4D,0
```

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8718 053562     116     105     107  EM131:  .ASCIZ  !NEG!
8719 053566     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8720 053570  053536  047752  000000          .WORD   EM127B,EM2B,0
8721 053576     101     102     123  EM132:  .ASCIZ  !ABS!
8722 053602     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8723 053604  053612  052767  000000          .WORD   EM132B,EM76B,0
8724 053612     104     040     100  EM132B: .ASCIZ  !D @N(R7)!
8725 053623     101     102     123  EM133:  .ASCIZ  !ABS!
8726 053627     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8727 053630  053612  050066  000000          .WORD   EM132B,EM4D,0
8728 053636     101     102     123  EM134:  .ASCIZ  !ABS!
8729 053642     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8730 053644  053612  047752  000000          .WORD   EM132B,EM2B,0
8731 053652     116     105     107  EM135:  .ASCIZ  !NEGD A FAILED.!<CRLF>!XOR SIGN BIT ST 336!
8732 053715     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8733 053716  050066  000000                  .WORD   EM4D,0
8734 053722     116     105     107  EM136:  .ASCIZ  !NEGD A!
8735 053731     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8736 053732  050066  000000                  .WORD   EM4D,0
8737 053736     116     105     107  EM137:  .ASCIZ  !NEGD A!
8738 053745     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8739 053746  047752  000000                  .WORD   EM2B,0
8740 053752     116     105     107  EM140:  .ASCIZ  !NEG!
8741 053756     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8742 053760  052534  050066  000000          .WORD   EM66B,EM4D,0
8743 053766     116     105     107  EM141:  .ASCIZ  !NEG!
8744 053772     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8745 053774  052534  050045  054006          .WORD   EM66B,EM4B,EM141C,EM4D,0
8746 054006     040     123     120  EM141C: .ASCIZ  ! SPECIAL DEST!
8747 054024     116     105     107  EM142:  .ASCIZ  !NEG!
8748 054030     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8749 054032  052534  047752  000000          .WORD   EM66B,EM2B,0
8750 054040     116     105     107  EM143:  .ASCIZ  !NEG!
8751 054044     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8752 054046  052760  050066  000000          .WORD   EM76A,EM4D,0
8753 054054     116     105     107  EM144:  .ASCIZ  !NEG!
8754 054060     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8755 054062  052760  050045  054006          .WORD   EM76A,EM4B,EM141C,0
8756 054072     116     105     107  EM145:  .ASCIZ  !NEG!
8757 054076     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8758 054100  052760  047752  000000          .WORD   EM76A,EM2B,0
8759 054106     116     105     107  EM146:  .ASCIZ  !NEG!
8760 054112     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
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ERROR MESSAGES

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8761 054114  053076  050066  000000          .WORD   EM102B,EM4D,0
8762 054122     116     105     107  EM147:   .ASCIZ  !NEG!
8763 054126     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8764 054130  053076  050045  054006          .WORD   EM102B,EM4B,EM141C,EM4D,0
8765 054142     116     105     107  EM150:   .ASCIZ  !NEG!
8766 054146     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8767 054150  053076  047752  000000          .WORD   EM102B,EM2B,0
8768 054156     116     105     107  EM151:   .ASCIZ  !NEG!
8769 054162     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8770 054164  053164  050066  000000          .WORD   EM106B,EM4D,0
8771 054172     116     105     107  EM152:   .ASCIZ  !NEG!
8772 054176     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8773 054200  053164  050045  054006          .WORD   EM106B,EM4B,EM141C,EM4D,0
8774 054212     116     105     107  EM153:   .ASCIZ  !NEG!
8775 054216     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8776 054220  053164  047752  000000          .WORD   EM106B,EM2B,0
8777 054226     116     105     107  EM154:   .ASCIZ  !NEG!
8778 054232     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8779 054234  053270  050066  000000          .WORD   EM113B,EM4D,0
8780 054242     116     105     107  EM155:   .ASCIZ  !NEG!
8781 054246     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8782 054250  053270  050045  054006          .WORD   EM113B,EM4B,EM141C,EM4D,0
8783 054262     116     105     107  EM156:   .ASCIZ  !NEG!
8784 054266     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8785 054270  053270  047752  000000          .WORD   EM113B,EM2B,0
8786 054276     116     105     107  EM157:   .ASCIZ  !NEG!
8787 054302     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8788 054304  054312  050066  000000          .WORD   EM157B,EM4D,0
8789 054312     106     040     050  EM157B:  .ASCIZ  !F (R)+!
8790 054321     116     105     107  EM160:   .ASCIZ  !NEG!
8791 054325     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8792 054326  054312  050045  054342          .WORD   EM157B,EM4B,EM160B,EM141C,EM4D,0
8793 054342     056     040     102  EM160B:  .ASCIZ  !. BAD CONSTANT USED.!
8794 054367     116     105     107  EM161:   .ASCIZ  !NEG!
8795 054373     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8796 054374  054312  047752  000000          .WORD   EM157B,EM2B,0
8797 054402     116     105     107  EM162:   .ASCIZ  !NEG!
8798 054406     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8799 054410  054416  050066  000000          .WORD   EM162B,EM4D,0
8800 054416     104     040     050  EM162B:  .ASCIZ  !D (R7)+!
8801 054426     116     105     107  EM163:   .ASCIZ  !NEG!
8802 054432     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
8803 054434  054416  047752  000000          .WORD   EM162B,EM2B,0
8804 054442     120     103     040  EM164:   .ASCIZ  !PC BAD AFTER NEG!
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ERROR MESSAGES

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8805 054463     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8806 054464  054416  054342  000000                .WORD   EM162B,EM160B,0
8807 054472     116     105     107  EM165:        .ASCIZ  !NEG!
8808 054476     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8809 054500  052534  050066  000000                .WORD   EM66B,EM4D,0
8810 054506     101     102     123  EM166:        .ASCIZ  !ABS!
8811 054512     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8812 054514  052534  050066  000000                .WORD   EM66B,EM4D,0
8813 054522     124     123     124  EM167:        .ASCIZ  !TST!
8814 054526     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8815 054530  052534  050066  000000                .WORD   EM66B,EM4D,0
8816 054536     116     105     107  EM170:        .ASCIZ  !NEG!
8817 054542     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8818 054544  052534  047752  000000                .WORD   EM66B,EM2B,0
8819 054552     101     102     123  EM171:        .ASCIZ  !ABS!
8820 054556     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8821 054560  052534  047752  000000                .WORD   EM66B,EM2B,0
8822 054566     124     123     124  EM172:        .ASCIZ  !TST!
8823 054572     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8824 054574  052534  047752  000000                .WORD   EM66B,EM2B,0
8825 054602     116     105     107  EM173:        .ASCIZ  !NEG!
8826 054606     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8827 054610  052534  050002  000000                .WORD   EM66B,EM3B,0
8828 054616     101     102     123  EM174:        .ASCIZ  !ABS!
8829 054622     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8830 054624  052534  050002  000000                .WORD   EM66B,EM3B,0
8831 054632     124     123     124  EM175:        .ASCIZ  !TST!
8832 054636     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8833 054640  052534  050002  000000                .WORD   EM66B,EM3B,0
8834 054646     116     105     107  EM176:        .ASCIZ  !NEG!
8835 054652     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8836 054654  054662  047752  000000                .WORD   EM176B,EM2B,0
8837 054662     106     040     101  EM176B:       .ASCIZ  !F AC7!
8838 054670     120     117     127  EM177:        .ASCIZ  !POWER MONITOR BIT FOUND SET!
8839 054724     116     105     107  EM200:        .ASCIZ  !NEG!
8840 054730     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8841 054732  052534  050066  054742                .WORD   EM66B,EM4D,EM200C,0
8842 054742     200     130     117  EM200C:       .ASCIZ  <CRLF>!XOR SIGN BIT FAILED ST 336.!
8843 054777     116     105     107  EM201:        .ASCIZ  !NEG!
8844 055003     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
8845 055004  052534  047752                        .WORD   EM66B,EM2B
8846 055010     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
     055012  050167  051544  050176                .WORD   CRBUT,IENBT,PRST,N3,N3,N6,WENTTO,N0,N5,N3,INSTOF,N4,N5,N3,0
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     055050      116     105     107  EM202:   .ASCIZ   !NEG!
     055054      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055056   052534  047752                   .WORD    EM66B,EM2B
     055062      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055064   050167  051544  050176           .WORD    CRBUT,IENBT,PRST,N3,N3,N6,WENTTO,N4,N5,N3,INSTOF,N0,N5,N3,0
     055122      101     102     123  EM203:   .ASCIZ   !ABS!
     055126      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055130   052534  050066                   .WORD    EM66B,EM4D
     055134      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055136   050167  055237  050176           .WORD    CRBUT,IOP1B,PRST,N0,N5,N5,WENTTO,N3,N3,N6,INSTOF,N3,N3,N5,OR
     055174   050167  051544  050176           .WORD    CRBUT,IENBT,PRST,N3,N3,N5,WENTTO,N4,N5,N2,INSTOF,N0,N5,N2,0
     055232      054     040     117  OR:      .ASCIZ   !, OR!
     055237      117     120     061  IOP1B:   .ASCIZ   !OP1B!
     055244      101     102     123  EM204:   .ASCIZ   !ABS!
     055250      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055252   052534  050066  055262           .WORD    EM66B,EM4D,EM204C,0
     055262      200     130     117  EM204C:  .ASCIZ   <CRLF>!XOR SIGN BIT FAILED ST 452.!
     055317      124     123     124  EM205:   .ASCIZ   !TST!
     055323      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055324   052534  050066                   .WORD    EM66B,EM4D
     055330      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055332   050167  055237  050176           .WORD    CRBUT,IOP1B,PRST,N0,N5,N5,WENTTO,N3,N3,N6,INSTOF,N3,N3,N4,0
     055370      124     123     124  EM206:   .ASCIZ   !TST!
     055374      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055376   052534  047752                   .WORD    EM66B,EM2B
     055402      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055404   050167  051544  050176           .WORD    CRBUT,IENBT,PRST,N3,N3,N4,WENTTO,N4,N5,N3,INSTOF,N0,N5,N3,0
     055442      124     123     124  EM207:   .ASCIZ   !TST!
     055446      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055450   052534  050066                   .WORD    EM66B,EM4D
     055454      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055456   050167  055237  050176           .WORD    CRBUT,IOP1B,PRST,N0,N5,N7,WENTTO,N3,N3,N5,INSTOF,N3,N3,N4,0
     055514      124     123     124  EM210:   .ASCIZ   !TST!
     055520      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055522   052534  050066                   .WORD    EM66B,EM4D
     055526      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055530   050167  051544  050176           .WORD    CRBUT,IENBT,PRST,N3,N3,N4,WENTTO,N0,N5,N3,INSTOF,N4,N5,N3,0
     055566      124     123     124  EM211:   .ASCIZ   !TST!
     055572      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
                                               .EVEN
     055574   052534  050066  050167           .WORD    EM66B,EM4D,CRBUT,IOP1B,PRST,N2,N5,N5,WENTTO,N3132,INSTOF,N3,N1,M0,0
     055632      063     061     061  N3132:   .ASCIZ   !311 OR 312!
     055645      124     123     124  EM212:   .ASCIZ   !TST!
     055651      377                           .BYTE    377      ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS. ADDRESSES 2 LINES DOWN
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                                        .EVEN
 8884 055652  052534  047752            .WORD   EM66B,EM2B
 8885 055656     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
      055660  050167  051544  050176     .WORD   CRBUT,IENBT,PRST,N3,N1,N0,WENTTO,N4,N0,N2,INSTOF,N0,N0,N2,0
 8886 055716     124     123     124  EM213:  .ASCIZ  |TST|
 8887 055722     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 8888 055724  052534  047752  055774     .WORD   EM66B,EM2B,EM213C,EM213D
 8889 055734     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
      055736  050167  056022  050176     .WORD   CRBUT,IFIUV,PRST,N2,N5,N7,WENTTO,N3,N5,N5,INSTOF,N2,N5,N5,0
 8890 055774     040     106     111  EM213C: .ASCIZ  | FIUV=0|
 8891 056004     054     040     117  EM213D: .ASCIZ  |, OPERAND=-0.|
 8892 056022     106     111     125  IFIUV:  .ASCIZ  |FIUV|
 8893 056027     124     123     124  EM214:  .ASCIZ  |TST|
 8894 056033     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 8895 056034  052534  047752  056104     .WORD   EM66B,EM2B,EM214B,EM213D
 8896 056044     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
      056046  050167  056022  050176     .WORD   CRBUT,IFIUV,PRST,N2,N5,N7,WENTTO,N2,N5,N5,INSTOF,N3,N5,N5,0
 8897 056104     040     106     111  EM214B: .ASCIZ  | FIUV=1|
 8903 056114     120     000          EM215:  .ASCIZ  |P|
 8904 056116     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 8905 056120  056163  056151  056200     .WORD   PCBAD,NEGDNR,BADCON,N746T2,BUTIN,EM141C,EM4D,0
 8906 056140     067     064     066  N746T2: .ASCIZ  |746 746.|
 8907 056151     116     105     107  NEGDNR: .ASCIZ  |NEGD N(R)|
 8908 056163     103     040     102  PCBAD:  .ASCIZ  |C BAD AFTER |
 8909 056200     056     040     102  BADCON: .ASCIZ  |. BAD CONSTANT USED |
 8910 056225     056     000          PERIOD: .ASCIZ  |.|
 8911 056227     200     117     122  BUTIN:  .ASCIZ  <CRLF>|OR (BUT FDST) |N|
 8912 056251     116     105     107  EM216:  .ASCIZ  |NEG|
 8913 056255     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 8914 056256  053360  050066  000000     .WORD   EM117B,EM4D,0
 8915 056264     116     105     107  EM217:  .ASCIZ  |NEG|
 8916 056270     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 8917 056272  053360  050045  054006     .WORD   EM117B,EM4B,EM141C,EM4D,0
 8918 056304     116     105     107  EM220:  .ASCIZ  |NEG|
 8919 056310     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 8920 056312  053360  047752  000000     .WORD   EM117B,EM2B,0
 8921 056320     120     000          EM221:  .ASCIZ  |P|
 8922 056322     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 8923 056324  056163  056355  056200     .WORD   PCBAD,NEGDAR,BADCON,N747T2,BUTIN,EM141C,EM4D,0
 8924 056344     067     064     067  N747T2: .ASCIZ  |747 747.|
 8925 056355     116     105     107  NEGDAR: .ASCIZ  |NEGD @N(R)|
 8926 056370     116     105     107  EM222:  .ASCIZ  |NEG|
 8927 056374     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 8928 056376  053446  050066  000000     .WORD   EM123B,EM4D,0
 8929 056404     116     105     107  EM223:  .ASCIZ  |NEG|
 8930 056410     377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
```

```
                                        .EVEN
8931 056412  053446  050045  054006       .WORD   EM123B,EM4B,EM141C,EM4D,0
8932 056424    116     105     107  EM224: .ASCIZ  !NEG!
8933 056430    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8934 056432  053446  047752  000000       .WORD   EM123B,EM2B,0
8935 056440    114     000          EM225: .ASCIZ  !L!
8936 056442    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8937 056444  056452  050045  000000       .WORD   EM225B,EM4B,0
8938 056452    104     106     120  EM225B: .ASCIZ  !DFPS (R)!
8939 056463    114     000          EM226: .ASCIZ  !L!
8940 056465    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8941 056466  056452  047752  000000       .WORD   EM225B,EM2B,0
8942 056474    114     000          EM227: .ASCIZ  !L!
8943 056476    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8944 056500  056452  056506  000000       .WORD   EM225B,EM227B,0
8945 056506    040     124     122  EM227B: .ASCIZ  ! TRAPPED TO 4.!
8946 056525    114     000          EM230: .ASCIZ  !L!
8947 056527    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8948 056530  056536  050045  000000       .WORD   EM230B,EM4B,0
8949 056536    104     106     120  FM230B: .ASCIZ  !DFPS (R)+!
8950 056550    114     000          EM231: .ASCIZ  !L!
8951 056552    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8952 056554  056536  047752  000000       .WORD   EM230B,EM2B,0
8953 056562    114     000          EM232: .ASCIZ  !L!
8954 056564    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8955 056566  056536  056506  000000       .WORD   EM230B,EM227B,0
8956 056574    114     000          EM233: .ASCIZ  !L!
8957 056576    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8958 056600  056606  050045  000000       .WORD   EM233B,EM4B,0
8959 056606    104     106     120  EM233B: .ASCIZ  !DFPS -(R)!
8960 056620    114     000          EM234: .ASCIZ  !L!
8961 056622    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8962 056624  056606  047752  000000       .WORD   EM233B,EM2B,0
8963 056632    114     000          EM235: .ASCIZ  !L!
8964 056634    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8965 056636  056606  056506  000000       .WORD   EM233B,EM227B,0
8966 056644    114     000          EM236: .ASCIZ  !L!
8967 056646    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8968 056650  056656  050045  000000       .WORD   EM236B,EM4B,0
8969 056656    104     106     120  EM236B: .ASCIZ  !DFPS @(R)+!
8970 056671    114     000          EM237: .ASCIZ  !L!
8971 056673    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8972 056674  056656  047752  000000       .WORD   EM236B,EM2B,0
8973 056702    114     000          EM240: .ASCIZ  !L!
8974 056704    377                       .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
```

ERROR MESSAGES

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                                        .EVEN
8975 056706  056656  056506  000000        .WORD   EM236B,EM227B,0
8976 056714     114     000        EM241:  .ASCIZ  !L!
8977 056716     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8978 056720  056726  050045  000000        .WORD   EM241B,EM4B,0
8979 056726     104     106     120 EM241B: .ASCIZ  !DFPS @-(R)!
8980 056741     114     000        EM242:  .ASCIZ  !L!
8981 056743     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8982 056744  056726  047752  000000        .WORD   EM241B,EM2B,0
8983 056752     114     000        EM243:  .ASCIZ  !L!
8984 056754     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8985 056756  056726  056506  000000        .WORD   EM241B,EM227B,0
8986 056764     114     000        EM244:  .ASCIZ  !L!
8987 056766     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8988 056770  056776  050045  000000        .WORD   EM244B,EM4B,0
8989 056776     104     106     120 EM244B: .ASCIZ  !DFPS N(R)!
8990 057010     114     000        EM245:  .ASCIZ  !L!
8991 057012     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
8992 057014  056776  047752  000000        .WORD   EM244B,EM2B,0
8993 057022     120     103     040 FM246:  .ASCIZ  !PC BAD AFTER !
8994 057040     376                .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                        .EVEN
8995 057042  000246  000252  000254        .WORD   246,252,254,0
8996 057052  057060  057142  057170        .WORD   EM246B,EM252B,EM254B
8997 057060     114     104     106 EM246B: .ASCIZ  !LDFPS N(R)!
8998 057073     114     000        EM247:  .ASCIZ  !L!
8999 057075     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9000 057076  056776  056506  000000        .WORD   EM244B,EM227B,0
9001 057104     114     000        EM250:  .ASCIZ  !L!
9002 057106     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9003 057110  057116  050045  000000        .WORD   EM250B,EM4B,0
9004 057116     104     106     120 EM250B: .ASCIZ  !DFPS @N(R)!
9005 057131     114     000        EM251:  .ASCIZ  !L!
9006 057133     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9007 057134  057116  047752  000000        .WORD   EM250B,EM2B,0
9008         057022             EM252=EM246
9009 057142     114     104     106 EM252B: .ASCIZ  !LDFPS @N(R)!
9010 057156     114     000        EM253:  .ASCIZ  !L!
9011 057160     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9012 057162  057116  056506  000000        .WORD   EM250B,EM227B,0
9013         057022             EM254=EM246
9014 057170     114     104     103 EM254B: .ASCIZ  !LDCLD (R7)+,A!
9015 057206     114     104     103 EM255:  .ASCIZ  !LDCLD (R7)+,A!
9016 057224     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9017 057226  056506  000000        .WORD   EM227B,0
9018 057232     114     000        EM256:  .ASCIZ  !L!
9019 057234     377                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
```

ERROR MESSAGES

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                                                .EVEN
9020 057236  057244  050045  000000            .WORD   EM256B,EM4B,0
9021 057244     104     103     114  EM256B:    .ASCIZ  !DCLD (R)+,A!
9022 057260     114     000          EM257:     .ASCIZ  !L!
9023 057262     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9024 057264  057244  047752  000000            .WORD   EM256B,EM2B,0
9025 057272     114     000          EM260:     .ASCIZ  !L!
9026 057274     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9027 057276  057304  050066  000000            .WORD   EM260B,EM4D,0
9028 057304     104     103     111  EM260B:    .ASCIZ  !DCIF OR LDCLF (R),A!
9029 057330     114     000          EM261:     .ASCIZ  !L!
9030 057332     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9031 057334  057304  047752  000000            .WORD   EM260B,EM2B,0
9032 057342     114     000          EM262:     .ASCIZ  !L!
9033 057344     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9034 057346  057415  050066                     .WORD   EM262B,EM4D
9035 057352     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     057354  050167  057412  050176            .WORD   CRBUT,IFL,PRST,N2,N7,N7,WENTTO,N3,N0,N0,INSTOF,N3,N0,N1,0
9036 057412     106     114     000  IFL:       .ASCIZ  !FL!
9037 057415     104     103     111  FM262B:    .ASCIZ  !DCIF (R),A!
9038 057430     114     000          EM263:     .ASCIZ  !L!
9039 057432     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9040 057434  057442  047752  000000            .WORD   EM263B,EM2B,0
9041 057442     104     103     114  EM263B:    .ASCIZ  !DCLF (R),A!
9042 057455     114     000          EM264:     .ASCIZ  !L!
9043 057457     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9044 057460  057415  050066  057470            .WORD   EM262B,EM4D,EM264C,0
9045 057470     200     125     123  EM264C:    .ASCIZ  <CRLF>!USED CONSTANT 237 INSTEAD OF 217 ST 107.!
9046 057542     114     000          EM265:     .ASCIZ  !L!
9047 057544     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9048 057546  057304  050066  057556            .WORD   EM260B,EM4D,EM265C,0
9049 057556     200     123     105  EM265C:    .ASCIZ  <CRLF>!SET SIGN BIT FAILED ST 146.!
9050 057613     114     000          EM266:     .ASCIZ  !L!
9051 057615     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9052 057616  057304  050066                     .WORD   EM260B,EM4D
9053 057622     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     057624  050167  057662  050176            .WORD   CRBUT,IXNBT,PRST,N3,N7,N2,WENTTO,N1,N5,N2,INSTOF,N1,N1,N2,0
9054 057662     130     116     102  IXNBT:     .ASCIZ  !XNBT!
9055 057667     114     000          EM267:     .ASCIZ  !L!
9056 057671     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9057 057672  057442  050066  057702            .WORD   EM263B,EM4D,EM267C,0
9058 057702     200     125     123  EM267C:    .ASCIZ  <CRLF>!USED CONSTANT 217 INSTEAD OF 237 ST 107.!
9059 057754     114     000          EM270:     .ASCIZ  !L!
9060 057756     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9061 057760  057442  050066  057770            .WORD   EM263B,EM4D,EM270C,0
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ERROR MESSAGES

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9062 057770      040      122      117  EM270C: .ASCIZ  ! ROUND ERROR.!
9063 060006      114      000           EM271:  .ASCIZ  !L!
9064 060010      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9065 060012  057442   050066   060022          .WORD   EM263B,EM4D,EM271C,0
9066 060022      040      124      122  EM271C: .ASCIZ  ! TRUNCATION ERROR.!
9067 060045      114      000           EM272:  .ASCIZ  !L!
9068 060047      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9069 060050  057304   050066   060060          .WORD   EM260B,EM4D,EM272C,0
9070 060060      200      122       061  EM272C: .ASCIZ  <CRLF>!R14 NOT INCREMENTED ST 630.!
9071 060115      114      000           EM273:  .ASCIZ  !L!
9072 060117      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9073 060120  060126   050066   000000          .WORD   EM273B,EM4D,0
9074 060126      104      103       111  EM273B: .ASCIZ  !DCID OR LDCLD (R),A!
9075 060152      114      000           EM274:  .ASCIZ  !L!
9076 060154      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9077 060156  060126   047752   000000          .WORD   EM273B,EM2B,0
9078 060164      114      000           EM275:  .ASCIZ  !L!
9079 060166      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9080 060170  060234   050066                   .WORD   EM275B,EM4D
9081 060174      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
     060176  050167   057412   050176          .WORD   CRBUT,IFL,PRST,N2,N7,N7,WENTTO,N3,N0,N0,INSTOF,N3,N0,N1,0
9082 060234      104      103       111  EM275B: .ASCIZ  !DCID (R),A!
9083 060247      114      000           EM276:  .ASCIZ  !L!
9084 060251      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9085 060252  060234   050066   060262          .WORD   EM275B,EM4D,EM276C,0
9086 060262      200      125       123  EM276C: .ASCIZ  <CRLF>!USED CONSTANT 237 INSTEAD OF 217 ST 107.!
9087 060334      114      000           EM277:  .ASCIZ  !L!
9088 060336      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9089 060340  060234   050066   060350          .WORD   EM275B,EM4D,EM277C,0
9090 060350      200      123       105  EM277C: .ASCIZ  <CRLF>!SET SIGN FAILED ST 146.!
9091 060401      114      104       103  EM300:  .ASCIZ  !LDCLD (R),A!
9092 060415      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9093 060416  050066   060424   000000          .WORD   EM4D,EM300C,0
9094 060424      200      125       123  EM300C: .ASCIZ  <CRLF>!USED CONSTANT 217 INSTEAD OF 237 ST 107.!
9095 060476      114      000           EM301:  .ASCIZ  !L!
9096 060500      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9097 060502  060510   050066   000000          .WORD   EM301B,EM4D,0
9098 060510      104      105       130  EM301B: .ASCIZ  !DEXP (R),A!
9099 060523      114      000           EM302:  .ASCIZ  !L!
9100 060525      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9101 060526  060510   047752   000000          .WORD   EM301B,EM2B,0
9102 060534      114      000           EM303:  .ASCIZ  !L!
9103 060536      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
9104 060540  060510   050002   000000          .WORD   EM301B,EM3B,0
9105 060546      114      000           EM304:  .ASCIZ  !L!
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                                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9107 060552  060510  050066  060562            .WORD   EM301B,EM4D,EM304C,0
 9108 060562     200     105     130  EM304C:   .ASCIZ  <CRLF>!EXCESS 200 CALCULATION ST 624 BAD.!
 9109 060626     114     000          EM305:    .ASCIZ  !L!
 9110 060630     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9111 060632  060510  047752  060642            .WORD   EM301B,EM2B,EM305C,0
 9112 060642     200     050     102  EM305C:   .ASCIZ  <CRLF>!(BUT ENBT,EZBT,XNBT) ST 625 DID NOT GO TO 304.!
 9113 060722     114     000          EM306:    .ASCIZ  !L!
 9114 060724     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9115 060726  060510  047752                     .WORD   EM301B,EM2B
 9116 060732     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      060734  050167  051240  050176             .WORD   CRBUT,IEZBT,PRST,N5,N4,N4,WENTTO,N5,N0,N4,INSTOF,N7,N0,N4,OR
 9117 060772  050167  051240  050176             .WORD   CRBUT,IEZBT,PRST,N7,N0,N4,WENTTO,N2,N6,N4,INSTOF,N0,N6,N4,0
 9118 061030     114     000          EM307:    .ASCIZ  !L!
 9119 061032     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9120 061034  060510  050066                     .WORD   EM301B,EM4D
 9121 061040     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      061042  050167  051240  050176             .WORD   CRBUT,IEZBT,PRST,N7,N0,N4,WENTTO,N0,N6,N4,INSTOF,N2,N6,N4,0
 9122 061100     114     000          FM310:    .ASCIZ  !L!
 9123 061102     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9124 061104  060510  047752                     .WORD   EM301B,EM2B
 9125 061110     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      061112  050167  061150  050176             .WORD   CRBUT,IFIU,PRST,N2,N6,N4,WENTTO,N1,N1,N5,INSTOF,N1,N5,N5,0
 9126 061150     106     111     125  IFIU:     .ASCIZ  !FIU!
 9127 061154     114     000          EM311:    .ASCIZ  !L!
 9128 061156     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9129 061160  060510  050066                     .WORD   EM301B,EM4D
 9130 061164     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      061166  050167  061150  050176             .WORD   CRBUT,IFIU,PRST,N2,N6,N4,WENTTO,N1,N5,N5,INSTOF,N1,N1,N5,0
 9131 061224     114     000          EM312:    .ASCIZ  !L!
 9132 061226     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9133 061230  060510  050066                     .WORD   EM301B,EM4D
 9134 061234     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      061236  050167  051240  050176             .WORD   CRBUT,IEZBT,PRST,N5,N4,N4,WENTTO,N7,N0,N4,INSTOF,N5,N0,N4,0
 9135 061274     114     000          EM313:    .ASCIZ  !L!
 9136 061276     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9137 061300  060510  050066                     .WORD   EM301B,EM4D
 9138 061304     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      061306  050167  061150  050176             .WORD   CRBUT,IFIU,PRST,N5,N0,N4,WENTTO,N1,N5,N5,INSTOF,N1,N1,N5,0
 9139 061344     114     000          EM314:    .ASCIZ  !L!
 9140 061346     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9141 061350  060510  050066                     .WORD   EM301B,EM4D
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ERROR MESSAGES

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9142 061354     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
     061356  050167  052142  050176                .WORD   CRBUT,IFIV,PRST,N1,N0,N4,WENTTO,N1,N1,N6,INSTOF,N1,N3,N6,0
9143 061414     114     000        EM315:          .ASCIZ  !L!
9144 061416     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
9145 061420  060510  050066                        .WORD   EM301B,EM4D
9146 061424     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
     061426  050167  052142  050176                .WORD   CRBUT,IFIV,PRST,N1,N0,N4,WENTTO,N1,N3,N6,INSTOF,N1,N1,N6,0
9147 061464     114     000        EM316:          .ASCIZ  !L!
9148 061466     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
9149 061470  060510  050066                        .WORD   EM301B,EM4D
9150 061474     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
     061476  050167  052142  050176                .WORD   CRBUT,IFIV,PRST,N1,N4,N4,WENTTO,N1,N1,N6,INSTOF,N1,N3,N6,0
9151 061534     114     000        EM317:          .ASCIZ  !L!
9152 061536     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
9153 061540  060510  050066                        .WORD   EM301B,EM4D
9154 061544     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
     061546  050167  052142  050176                .WORD   CRBUT,IFIV,PRST,N1,N4,N4,WENTTO,N1,N3,N6,INSTOF,N1,N1,N6,0
9155 061604     114     000        FM320:          .ASCIZ  !L!
9156 061606     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
9157 061610  060510  050066                        .WORD   EM301B,EM4D
9158 061614     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
     061616  050167  052142  050176                .WORD   CRBUT,IFIV,PRST,N3,N4,N4,WENTTO,N1,N1,N6,INSTOF,N1,N3,N6,0
9159 061654     114     000        EM321:          .ASCIZ  !L!
9160 061656     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
9161 061660  060510  050066                        .WORD   EM301B,EM4D
9162 061664     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
     061666  050167  052142  050176                .WORD   CRBUT,IFIV,PRST,N3,N4,N4,WENTTO,N1,N3,N6,INSTOF,N1,N1,N6,0
9163 061724     123     000        EM322:          .ASCIZ  !S!
9164 061726     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
9165 061730  061736  050066  000000                .WORD   EM322B,EM4D,0
9166 061736     124     103     104   EM322B:      .ASCIZ  !TCDI OR STCDL (R),A!
9167 061762     123     000        EM323:          .ASCIZ  !S!
9168 061764     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
9169 061766  061736  047752  000000                .WORD   EM322B,EM2B,0
9170 061774     123     000        EM324:          .ASCIZ  !S!
9171 061776     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
9172 062000  061736  050002  000000                .WORD   EM322B,EM3B,0
9173 062006     123     000        EM325:          .ASCIZ  !S!
9174 062010     377                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                   .EVEN
9175 062012  062022  047752  062035                .WORD   EM325B,EM2B,EM325C,0
9176 062022     124     103     104   EM325B:      .ASCIZ  !TCDL (R),A!
9177 062035     200     103     114   EM325C:      .ASCIZ  <CRLF>!CLEAR FLAG ST 774 FAILED, OR!
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ERROR MESSAGES

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9178 062073     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     062074  050167  052300  050176               .WORD   CRBUT,IFLAG,PRST,N6,N6,N2,WENTTO,N3,N6,N5,INSTOF,N3,N6,N1,0
9179         062006                  EM326=EM325
9180 062132     123     000         EM327:      .ASCIZ  !S!
9181 062134     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9182 062136  062022  050066                     .WORD   EM325B,EM4D
9183 062142     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     062144  050167  051544  050176               .WORD   CRBUT,IENBT,PRST,N6,N3,N2,WENTTO,N4,N7,N3,INSTOF,N0,N7,N3,0
9184 062202     123     000         EM330:      .ASCIZ  !S!
9185 062204     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9186 062206  062022  047752                     .WORD   EM325B,EM2B
9187 062212     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     062214  050167  062252  050176               .WORD   CRBUT,IFIC,PRST,N0,N0,N4,WENTTO,N3,N0,N5,INSTOF,N3,N1,N5,0
9188 062252     106     111     103 IFIC:       .ASCIZ  !FIC!
9189 062256     123     000         EM331:      .ASCIZ  !S!
9190 062260     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9191 062262  062022  047752                     .WORD   EM325B,EM2B
9192 062266     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     062270  050167  062252  050176               .WORD   CRBUT,IFIC,PRST,N0,N0,N4,WENTTO,N3,N1,N5,INSTOF,N3,N0,N5,0
9193 062326     123     000         EM332:      .ASCIZ  !S!
9194 062330     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9195 062332  062342  050066  062355               .WORD   EM332B,EM4D,EM332C,0
9196 062342     124     103     104 EM332B:     .ASCIZ  !TCDI (R),A!
9197 062355     200     125     123 EM332C:     .ASCIZ  <CRLF>!USED CONSTANT 37 INSTEAD OF 17 ST 66.!
9198         061762                  EM333=EM323
9199 062424     123     000         EM334:      .ASCIZ  !S!
9200 062426     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9201 062430  062342  047752  062440               .WORD   EM332B,EM2B,EM334C,0
9202 062440     200     125     123 EM334C:     .ASCIZ  <CRLF>!USED CONSTANT 37 INSTEAD OF 17 ST 66.!
9203 062507     123     000         EM335:      .ASCIZ  !S!
9204 062511     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9205 062512  062342  050066                     .WORD   EM332B,EM4D
9206 062516     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     062520  050167  051544  050176               .WORD   CRBUT,IENBT,PRST,N6,N3,N2,WENTTO,N0,N7,N3,INSTOF,N4,N7,N3,0
9207 062556     123     000         EM336:      .ASCIZ  !S!
9208 062560     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9209 062562  062342  047752  062574               .WORD   EM332B,EM2B,EM336C,EM4D,0
9210 062574     200     123     105 EM336C:     .ASCIZ  <CRLF>!SET FN ST 473!
9211 062613     123     000         EM337:      .ASCIZ  !S!
9212 062615     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9213 062616  062022  050066                     .WORD   EM325B,EM4D
9214 062622     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
     062624  050167  062662  050176               .WORD   CRBUT,ICOUT,PRST,N2,N7,N5,WENTTO,N0,N7,N4,INSTOF,N2,N7,N4,0
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9215 062662  103  117  125  ICOUT:  .ASCIZ  |COUT|
9216 062667  123  000       EM340:  .ASCIZ  |S|
9217 062671  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
9218 062672  062022  050066   .WORD   EM325B,EM4D
9219 062676  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
     062700  050167  062662  050176   .WORD   CRBUT,ICOUT,PRST,N2,N7,N5,WENTTO,N2,N7,N4,INSTOF,N0,N7,N4,0
9220 062736  123  000       EM341:  .ASCIZ  |S|
9221 062740  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
9222 062742  062022  047752   .WORD   EM325B,EM2B
9223 062746  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
     062750  050167  051240  050176   .WORD   CRBUT,IEZBT,PRST,N3,N7,N7,WENTTO,N6,N3,N3,INSTOF,N4,N3,N3,0
9224 063006  123  000       EM342:  .ASCIZ  |S|
9225 063010  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
9226 063012  062022  050066   .WORD   EM325B,EM4D
9227 063016  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
     063020  050167  062662  050176   .WORD   CRBUT,ICOUT,PRST,N3,N6,N0,WENTTO,N6,N5,N4,INSTOF,N4,N5,N4,0
9228 063056  123  000       EM343:  .ASCIZ  |S|
9229 063060  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
9230 063062  062022  050066   .WORD   EM325B,EM4D
9231 063066  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
     063070  050167  063126  050176   .WORD   CRBUT,INBIT,PRST,N6,N5,N4,WENTTO,N5,N3,N1,INSTOF,N4,N3,N1,0
9232 063126  116  102  111  INBIT:  .ASCIZ  |NBIT|
9233 063133  123  000       EM344:  .ASCIZ  |S|
9234 063135  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
9235 063136  062022  050066   .WORD   EM325B,EM4D
9236 063142  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
     063144  050167  062662  050176   .WORD   CRBUT,ICOUT,PRST,N3,N6,N0,WENTTO,N4,N5,N4,INSTOF,N6,N5,N4,OR
9237 063202  050167  063126  050176   .WORD   CRBUT,INBIT,    ,N6,N5,N4,WENTTO,N4,N3,N1,INSTOF,N5,N3,N1,0
9238 063240  123  000       EM345:  .ASCIZ  |S|
9239 063242  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
9240 063244  062342  050066   .WORD   EM332B,EM4D
9241 063250  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
     063252  050167  057412  050176   .WORD   CRBUT,IFL,PRST,N6,N3,N3,WENTTO,N6,N5,N5,INSTOF,N6,N5,N4,0
9242 063310  123  124  103  EM346:  .ASCIZ  |STCFL (R),A|
9243 063324  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
9244 063326  050066  063334  000000   .WORD   EM4D,EM346C,0
9245 063334  200  132  105  EM346C: .ASCIZ  <CRLF>|ZERO LOW ORDER PART OF X11 FAILED ST 773.|
9246 063407  123  000       EM347:  .ASCIZ  |S|
9247 063411  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                              .EVEN
9248 063412  063420  050066  000000   .WORD   EM347B,EM4D,0
9249 063420  124  105  130  EM347B: .ASCIZ  |TEXP A,(R)|
9250 063433  123  000       EM350:  .ASCIZ  |S|
9251 063435  377              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
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                                                        .EVEN
9252 063436  063420  047752  000000                    .WORD   EM347B,EM2B,0
9253 063444     115     117     122  EM351:             .ASCII  !MORE THAN ONE WORD !
9254 063467     127     122     111                     .ASCIZ  !WRITTEN BY STEXP A,(R).!<CRLF>!ZERO FDFL ST 347!
9255 063540     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
9256 063542  050066  000000                            .WORD   EM4D,0
9257 063546     123     000          EM352:             .ASCIZ  !S!
9258 063550     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
9259 063552  063420  047752                            .WORD   EM347B,EM2B
9260 063556     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
     063560  050167  051544  050176                    .WORD   CRBUT,IENBT,PRST,N3,N7,N6,WENTTO,N0,N7,N1,INSTOF,N4,N7,N1,0
9261 063616     123     000          EM353:             .ASCIZ  !S!
9262 063620     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
9263 063622  063420  047752                            .WORD   EM347B,EM2B
9264 063626     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
     063630  050167  051240  050176                    .WORD   CRBUT,IEZBT,PRST,N0,N7,N1,WENTTO,N0,N7,N2,INSTOF,N2,N7,N2,0
9265 063666     123     000          EM354:             .ASCIZ  !S!
9266 063670     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
9267 063672  063420  047752                            .WORD   EM347B,EM2B
9268 063676     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
     063700  050167  051240  050176                    .WORD   CRBUT,IEZBT,PRST,N0,N7,N1,WENTTO,N2,N7,N2,INSTOF,N0,N7,N2,0
9269 063736     123     000          EM355:             .ASCIZ  !S!
9270 063740     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
9271 063742  063420  047752                            .WORD   EM347B,EM2B
9272 063746     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
     063750  050167  051544  050176                    .WORD   CRBUT,IENBT,PRST,N3,N7,N6,WENTTO,N4,N7,N1,INSTOF,N0,N7,N1,0
9273 064006     123     124     123  EM356:             .ASCIZ  !STST (R) GOT BAD FEC.!<CRLF>
9274 064035     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
9275 064036  064042  000000                            .WORD   EM356B,0
9276 064042     101     106     124  EM356B:            .ASCIZ  !AFTER EXECUTING AN ILLEGAL FPP OP CODE.!
9277 064112     123     124     123  EM357:             .ASCIZ  !STST (R) GOT BAD FEA.!<CRLF>
9278 064141     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
9279 064142  064042  000000                            .WORD   EM356B,0
9280 064146     117     116     114  EM360:             .ASCII  !ONLY ONE WORD WRITTEN BY STST (R). !
9281 064211     123     105     124                     .ASCIZ  !SET FDFL ST 636!
9282 064231     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
9283 064232  050066  000000                            .WORD   EM4D,0
9284 064236     123     124     123  EM361:             .ASCIZ  !STST (R)!
9285 064247     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
9286 064250  047752  000000                            .WORD   EM2B,0
9287 064254     116     117     116  EM362:             .ASCII  !NON-RESIDENT MEMORY MANAGEMENT TRAP - !
9288 064322     111     115     120                     .ASCIZ  !IMPROPER D-SPACE ACCESS ATTEMPTED!
9289 064364     104     111     106  EM363:             .ASCIZ  !DIFFERENCE BETWEEN SR1 AND CALCULATED!
9290 064432     106     120     120  EM364:             .ASCII  !FPP INSTRUCTION FAILED TO ABORT, NOT !
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ERROR MESSAGES

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 9291 064477   101   114   114            .ASCIZ  |ALLOWNG EXAMINATION OF SR1|
 9292 064532   115   117   104  EM365:    .ASCIZ  |MODE 0 INSTRUCTION ABORTED WHEN IT SHOULD NOT HAVE|
 9293 064615   106   120   120  EM366:    .ASCIZ  |FPP ACCUMULATOR WAS CHANGED IN THE EXPECTED ABORT.|
 9294 064700   107   105   116  EM367:    .ASCIZ  |GENERAL REGISTER WAS CHANGED IN THE EXPECTED ABORT|
 9295 064763   106   120   120  EM370:    .ASCIZ  |FPP UNABLE TO RESTORE AN AC|
 9296          000000             EM371=0
 9297          000000             EM372=0
 9298          000000             EM373=0
 9299          000000             EM374=0
 9300          000000             EM375=0
 9301          000000             EM376=0
 9302          000000             EM377=0
 9303          000000             EM400=0
 9304 065017   123   000          EM401:    .ASCIZ  |S|
 9305 065021   377                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
 9306 065022 065030 050045 000000          .WORD   EM401B,EM4B,0
 9307 065030   124   106   120  EM401B:   .ASCIZ  |TFPS (R)|
 9308 065041   123   000        EM402:    .ASCIZ  |S|
 9309 065043   377                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
 9310 065044 065030 050066 000000          .WORD   EM401B,EM4D,0
 9311 065052   115   000        EM403:    .ASCIZ  |M|
 9312 065054   377                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
 9313 065056 065132 065171 056225          .WORD   EM403B,EM403C,PERIOD
 9314 065064 050167 065122 050176          .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
 9315 065122   107   122   067  IGR7FL:   .ASCIZ  |GR7,-FL|
 9316 065132   117   122   105  EM403B:   .ASCIZ  |ORE THAN ONE WORD WRITTEN BY S|
 9317 065171   124   106   120  EM403C:   .ASCIZ  |TFPS (R)|
 9318 065202   123   000        EM404:    .ASCIZ  |S|
 9319 065204   377                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
 9320 065206 065030 056506 000000          .WORD   EM401B,EM227B,0
 9321 065214   123   000        EM405:    .ASCIZ  |S|
 9322 065216   377                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
 9323 065220 065171 050272 050045          .WORD   EM403C,EM7B,EM4B,0
 9324 065230   123   000        EM406:    .ASCIZ  |S|
 9325 065232   377                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
 9326 065234 065171 050272 050066          .WORD   EM403C,EM7B,EM4D,0
 9327 065244   115   000        EM407:    .ASCIZ  |M|
 9328 065246   377                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
 9329 065250 065132 065171 050272          .WORD   EM403B,EM403C,EM7B
 9330 065256 050167 065122 050176          .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
 9331 065314   123   000        EM410:    .ASCIZ  |S|
 9332 065316   377                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
 9333 065320 065171 050272 056506          .WORD   EM403C,EM7B,EM227B,0
 9334 065330   123   000        EM411:    .ASCIZ  |S|
 9335 065332   377                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
 9336 065334 065342 050045 000000          .WORD   EM411B,EM4B,0
 9337 065342   124   106   120  EM411B:   .ASCIZ  |TFPS -(R)|
 9338 065354   123   000        EM412:    .ASCIZ  |S|
```

ERROR MESSAGES

```
9339 065356     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9340 065360  065342  050066  000000             .WORD   EM411B,EM4D,0
9341 065366     115     000          EM413:     .ASCIZ  |M|
9342 065370     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9343 065372  065132  065342  056225             .WORD   EM403B,EM411B,PERIOD
9344 065400  050167  065122  050176             .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
9345 065436     123     000          EM414:     .ASCIZ  |S|
9346 065440     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9347 065442  065342  056506  000000             .WORD   EM411B,EM227B,0
9348 065450     123     000          EM415:     .ASCIZ  |S|
9349 065452     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9350 065454  065462  050045  000000             .WORD   EM415B,EM4B,0
9351 065462     124     106     120  EM415B:    .ASCIZ  |TFPS @(R)+|
9352 065475     123     000          EM416:     .ASCIZ  |S|
9353 065477     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9354 065500  065462  050066  000000             .WORD   EM415B,EM4D,0
9355 065506     123     000          EM417:     .ASCIZ  |S|
9356 065510     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9357 065512  065462  065520  000000             .WORD   EM415B,EM417B,0
9358 065520     040     104     111  EM417B:    .ASCIZ  | DID NOT DEFER THE WRITE.|
9359 065552     123     000          EM420:     .ASCIZ  |S|
9360 065554     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9361 065556  065462  056506  000000             .WORD   EM415B,EM227B,0
9362 065564     123     000          EM421:     .ASCIZ  |S|
9363 065566     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9364 065570  065576  050045  000000             .WORD   EM421B,EM4B,0
9365 065576     124     106     120  EM421B:    .ASCIZ  |TFPS @-(R)|
9366 065611     123     000          EM422:     .ASCIZ  |S|
9367 065613     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9368 065614  065576  050066  000000             .WORD   EM421B,EM4D,0
9369 065622     123     000          EM423:     .ASCIZ  |S|
9370 065624     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9371 065626  065576  065520  000000             .WORD   EM421B,EM417B,0
9372 065634     123     000          EM424:     .ASCIZ  |S|
9373 065636     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9374 065640  065576  056506  000000             .WORD   EM421B,EM227B,0
9375 065646     123     000          EM425:     .ASCIZ  |S|
9376 065650     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9377 065652  065660  050045  000000             .WORD   EM425B,EM4B,0
9378 065660     124     106     120  EM425B:    .ASCIZ  |TFPS N(R)|
9379 065672     123     000          EM426:     .ASCIZ  |S|
9380 065674     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9381 065676  065660  050066  000000             .WORD   EM425B,EM4D,0
9382 065704     115     000          EM427:     .ASCIZ  |M|
```

ERROR MESSAGES

```
 9383 065706     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9384 065710  065132  065660  056225            .WORD   EM403B,EM425B,PERIOD
 9385 065716     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      065720  050167  065122  050176            .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
 9386 065756     123     000            EM430:  .ASCIZ  !S!
 9387 065760     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9388 065762  065660  056506  000000            .WORD   EM425B,EM227B,0
 9389 065770     120     103     040    EM431:  .ASCIZ  !PC BAD AFTER S!
 9390 066007     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9391 066010  065660  054342  000000            .WORD   EM425B,EM160B,0
 9392 066016     123     000            EM432:  .ASCIZ  !S!
 9393 066020     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9394 066022  066030  050045  000000            .WORD   EM432B,EM4B,0
 9395 066030     124     106     120    EM432B: .ASCIZ  !TFPS @N(R)!
 9396 066043     123     000            EM433:  .ASCIZ  !S!
 9397 066045     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9398 066046  066030  050066  000000            .WORD   EM432B,EM4D,0
 9399 066054     115     000            EM434:  .ASCIZ  !M!
 9400 066056     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9401 066060  065132  066030  056225            .WORD   EM403B,EM432B,PERIOD
 9402 066066  050167  065122  050176            .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
 9403 066124     123     000            EM435:  .ASCIZ  !S!
 9404 066126     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9405 066130  066030  056506  000000            .WORD   EM432B,EM227B,0
 9406 066136     120     103     040    EM436:  .ASCIZ  !PC BAD AFTER S!
 9407 066155     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9408 066156  066030  054342  000000            .WORD   EM432B,EM160B,0
 9409 066164     123     124     103    EM437:  .ASCIZ  !STCDL A,(R)+!
 9410 066201     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9411 066202  050045  000000                    .WORD   EM4B,0
 9412 066206     123     124     103    EM440:  .ASCIZ  !STCDL A,-(R)!
 9413 066223     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9414 066224  050045  000000                    .WORD   EM4B,0
 9415 066230     125     116     105    EM441:  .ASCIZ  !UNEXPECTED !
 9416 066244     376                            .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                                .EVEN
 9417 066246  000441  000442  000443            .WORD   441,442,443,0
 9418 066256  066264  066333  066333            .WORD   EM441B,EM442B,EM442B
 9419 066264     106     120     120    EM441B: .ASCIZ  !FPP !
 9420 066271     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9421 066272  066276  000000                    .WORD   TRAPTO,0
 9422 066276     124     122     101    TRAPTO: .ASCIZ  !TRAP TO !
 9423 066307     376                            .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                                .EVEN
 9424 066310  000441  000442  000443            .WORD   441,442,443,0
```

ERROR MESSAGES

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 9425 066320  066326  066346  066351          .WORD   N244,N04,N10
 9426 066326     062     064     064  N244:    .ASCIZ  !244.!
 9427            066230                EM442=EM441
 9428 066333     103     120     125  EM442B:  .ASCIZ  !CPU !
 9429 066340     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9430 066342  066276  000000                  .WORD   TRAPTO,0
 9431 066346     064     056     000  N04:     .ASCIZ  !4.!
 9432            066230                EM443=EM441
 9433 066351     061     060     056  N10:     .ASCIZ  !10.!
 9434 066355     116     105     107  EM444:   .ASCIZ  !NEG!
 9435 066361     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9436 066362  054662  050002  000000          .WORD   EM1768,EM3B,0
```

DATA TABLE HEADERS

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                                                .SBTTL  DATA TABLE HEADERS
066370      040      000            DH1:        .ASCIZ  ! !
066372      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
066374   066404   066436   066445                .WORD   DH1B,DH1C,DH1D,0
066404      040      124      105   DH1B:       .ASCIZ  ! TEST.!<TAB>!PC OF CALL.!<TAB>!PC OF !
066436      105      122      122   DH1C:       .ASCIZ  !ERROR.!
066445      011      106      120   DH1D:       .ASCIZ  <TAB>!FPS.!<TAB>!FEC.!
066460      040      000            DH2:        .ASCIZ  ! !
066462      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
066464   066404   066436   066474                .WORD   DH1B,DH1C,DH2B,0
066474      011      107      117   DH2B:       .ASCIZ  <TAB>!GOT FPS.!<TAB>!EXPECTED FPS.!
066524      040      000            DH3:        .ASCIZ  ! !
066526      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
066530   066404   066436   066540                .WORD   DH1B,DH1C,DH3B,0
066540      011      107      117   DH3B:       .ASCIZ  <TAB>!GOT FEC.!<TAB>!EXPECTED FEC.!
066570      040      000            DH4:        .ASCIZ  ! !
066572      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
066574   066404   066436   066604                .WORD   DH1B,DH1C,DH4B,0
066604      011      107      117   DH4B:       .ASCIZ  <TAB>!GOT R0. !<TAB>!EXPECTED R0.!
066633      040      000            DH5:        .ASCIZ  ! !
066635      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
066636   066404   066436   000000                .WORD   DH1B,DH1C,0
            066633                  DH6=DH5
            066570                  DH7=DH4
            066633                  DH10=DH5
            066570                  DH11=DH4
            066633                  DH12=DH5
066644      040      040      124   DH13:       .ASCIZ  !  TEST.!<TAB>!PC OF CALL.!<TAB>!PC OF TRAP.!
            066644                  DH14=DH13
            066633                  DH15=DH5
066704      040      000            DH16:       .ASCIZ  ! !
066706      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
066710   066404   066436   066720                .WORD   DH1B,DH1C,DH16B,0
066720      011      107      117   DH16B:      .ASCIZ  <TAB>!GOT PC. !<TAB>!EXPECTED PC.!
            066644                  DH17=DH13
            066570                  DH20=DH4
            066633                  DH21=DH5
            066633                  DH22=DH5
            066644                  DH23=DH13
            066570                  DH24=DH4
            066633                  DH25=DH5
            066644                  DH26=DH13
            066570                  DH27=DH4
            066633                  DH30=DH5
            066644                  DH31=DH13
            066570                  DH32=DH4
            066633                  DH33=DH5
            066644                  DH34=DH13
            066570                  DH35=DH4
            066633                  DH36=DH5
066747      040      000            DH37:       .ASCIZ  ! !
```

DATA TABLE HEADERS

```
9488 066751     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9489 066752  066404  066436  066762             .WORD   DH1B,DH1C,DH37B,0
9490 066762     011     107     117  DH37B:     .ASCIZ  <TAB>¦GOT FPS.¦<TAB>¦EXPECTED FPS.¦
9491         066747                  DH40=DH37
9492 067012     040     000          DH41:      .ASCIZ  ¦ ¦
9493 067014     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9494 067016  066404  066436  067026             .WORD   DH1B,DH1C,DH41B,0
9495 067026     011     106     120  DH41B:     .ASCIZ  <TAB>¦FPS.¦<TAB>¦GOT FEC. EXPECTED FEC.¦
9496         066747                  DH42=DH37
9497         066747                  DH43=DH37
9498         066747                  DH44=DH37
9499         066747                  DH45=DH37
9500         066747                  DH46=DH37
9501         066747                  DH47=DH37
9502         066747                  DH50=DH37
9503         066747                  DH51=DH37
9504         066747                  DH52=DH37
9505         067012                  DH53=DH41
9506         066747                  DH54=DH37
9507         066747                  DH55=DH37
9508         066747                  DH56=DH37
9509         066747                  DH57=DH37
9510         066747                  DH60=DH37
9511         066747                  DH61=DH37
9512         066460                  DH62=DH2
9513         066524                  DH63=DH3
9514         066633                  DH64=DH5
9515         066460                  DH65=DH2
9516         066570                  DH66=DH4
9517         066460                  DH67=DH2
9518         066524                  DH70=DH3
9519         066460                  DH176=DH2
9520 067063     124     105     123  DH177:     .ASCIZ  ¦TESTNO  ERR PC  CPUERR¦
9521         066633                  DH71=DH5
9522         066460                  DH72=DH2
9523         066644                  DH107=DH13
9524         066633                  DH73=DH5
9525         066570                  DH74=DH4
9526         066460                  DH75=DH2
9527         066644                  DH76=DH107
9528         066633                  DH77=DH5
9529         066570                  DH100=DH4
9530         066460                  DH101=DH2
9531         066644                  DH102=DH107
9532         066633                  DH103=DH5
9533         066570                  DH104=DH4
9534         066460                  DH105=DH2
9535         066644                  DH106=DH107
9536         066633                  DH110=DH5
9537         066570                  DH111=DH4
9538         066460                  DH112=DH2
9539         066644                  DH113=DH107
9540         066633                  DH114=DH5
9541         066570                  DH115=DH4
9542         066460                  DH116=DH2
```

DATA TABLE HEADERS

```
9543    066644          DH117=DH107
9544    066633          DH120=DH5
9545    066570          DH121=DH4
9546    066460          DH122=DH2
9547    066644          DH123=DH107
9548    066633          DH124=DH5
9549    066570          DH125=DH4
9550    066460          DH126=DH2
9551    066644          DH127=DH107
9552    066633          DH130=DH5
9553    066460          DH131=DH2
9554    066644          DH132=DH107
9555    066633          DH133=DH5
9556    066460          DH134=DH2
9557    066633          DH135=DH5
9558    066633          DH136=DH5
9559    066460          DH137=DH2
9560    066633          DH140=DH5
9561    066570          DH141=DH4
9562    066460          DH142=DH2
9563    066633          DH143=DH5
9564    066570          DH144=DH4
9565    066460          DH145=DH2
9566    066633          DH146=DH5
9567    066570          DH147=DH4
9568    066460          DH150=DH2
9569    066633          DH151=DH5
9570    066570          DH152=DH4
9571    066460          DH153=DH2
9572    066633          DH154=DH5
9573    066570          DH155=DH4
9574    066460          DH156=DH2
9575    066633          DH157=DH5
9576    066570          DH160=DH4
9577    066460          DH161=DH2
9578    066633          DH162=DH5
9579    066460          DH163=DH2
9580    066704          DH164=DH16
9581    066747          DH165=DH37
9582    066747          DH166=DH37
9583    066747          DH167=DH37
9584    066747          DH170=DH37
9585    066747          DH171=DH37
9586    066747          DH172=DH37
9587    067012          DH173=DH41
9588    067012          DH174=DH41
9589    067012          DH175=DH41
9590    066747          DH200=DH37
9591    066747          DH201=DH37
9592    066747          DH202=DH37
9593    066747          DH203=DH37
9594    066747          DH204=DH37
9595    066747          DH205=DH37
9596    066747          DH206=DH37
9597    066747          DH207=DH37
9598    066747          DH210=DH37
9599    066747          DH211=DH37
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DATA TABLE HEADERS

```
9600            066747                  DH212=DH37
9601            066747                  DH213=DH37
9602            066747                  DH214=DH37
9603            066704                  DH215=DH16
9604            066633                  DH216=DH5
9605            066570                  DH217=DH4
9606            066460                  DH220=DH2
9607            066704                  DH221=DH16
9608            066633                  DH222=DH5
9609            066570                  DH223=DH4
9610            066460                  DH224=DH2
9611            066570                  DH225=DH4
9612            066460                  DH226=DH2
9613 067112       040       000         DH227:  .ASCIZ  ! !
9614 067114       377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9615 067116    066404    067124    000000       .WORD   DH1B,DH227B,0
9616 067124       124       122       101   DH227B: .ASCIZ  !TRAP.!
9617            066570                  DH230=DH4
9618            066460                  DH231=DH2
9619            067112                  DH232=DH227
9620            066570                  DH233=DH4
9621            066460                  DH234=DH2
9622            067112                  DH235=DH227
9623            066570                  DH236=DH4
9624            066460                  DH237=DH2
9625            067112                  DH240=DH227
9626            066570                  DH241=DH4
9627            066460                  DH242=DH2
9628            067112                  DH243=DH227
9629            066570                  DH244=DH4
9630            066460                  DH245=DH2
9631            066704                  DH246=DH16
9632            067112                  DH247=DH227
9633            066570                  DH250=DH4
9634            066460                  DH251=DH2
9635            066704                  DH252=DH16
9636            067112                  DH253=DH227
9637            066704                  DH254=DH16
9638            067112                  DH255=DH227
9639            066570                  DH256=DH4
9640            066460                  DH257=DH2
9641            066747                  DH260=DH37
9642            066747                  DH261=DH37
9643            066747                  DH262=DH37
9644            066747                  DH263=DH37
9645            066747                  DH264=DH37
9646            066747                  DH265=DH37
9647            066747                  DH266=DH37
9648            066747                  DH267=DH37
9649            066747                  DH270=DH37
9650            066747                  DH271=DH37
9651            066747                  DH272=DH37
9652            066747                  DH273=DH37
9653            066747                  DH274=DH37
9654            066747                  DH275=DH37
9655            066747                  DH276=DH37
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DATA TABLE HEADERS

```
9656            066747          DH277=DH37
9657            066747          DH300=DH37
9658            066747          DH301=DH37
9659            066747          DH302=DH37
9660            067012          DH303=DH41
9661            066747          DH304=DH37
9662            066747          DH305=DH37
9663            066747          DH306=DH37
9664            066747          DH307=DH37
9665            066747          DH310=DH37
9666            066747          DH311=DH37
9667            066747          DH312=DH37
9668            066747          DH313=DH37
9669            066747          DH314=DH37
9670            066747          DH315=DH37
9671            066747          DH316=DH37
9672            066747          DH317=DH37
9673            066747          DH320=DH37
9674            066747          DH321=DH37
9675            066747          DH322=DH37
9676            066747          DH323=DH37
9677            067012          DH324=DH41
9678            066747          DH325=DH37
9679            066747          DH326=DH37
9680            066747          DH327=DH37
9681            066747          DH330=DH37
9682            066747          DH331=DH37
9683            066747          DH332=DH37
9684            066747          DH333=DH37
9685            066747          DH334=DH37
9686            066747          DH335=DH37
9687            066747          DH336=DH37
9688            066747          DH337=DH37
9689            066747          DH340=DH37
9690            066747          DH341=DH37
9691            066747          DH342=DH37
9692            066747          DH343=DH37
9693            066747          DH344=DH37
9694            066747          DH345=DH37
9695            066747          DH346=DH37
9696            066747          DH347=DH37
9697            066747          DH350=DH37
9698            066644          DH351=DH13
9699            066747          DH352=DH37
9700            066747          DH353=DH37
9701            066747          DH354=DH37
9702            066747          DH355=DH37
9703            066570          DH356=DH11
9704 067132      040     000    DH357:  .ASCIZ  ; ;
9705 067134      377             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                 .EVEN
9706 067136  066404  066436 067146      .WORD   DH1B,DH1C,DH357B,0
9707 067146      011     107     117 DH357B: .ASCIZ  <TAB>!GOT FEA.!<TAB>!EXPECTED FEA.!
9708            066644          DH360=DH13
9709            066460          DH361=DH2
9710 067176      040     000    DH362:  .ASCIZ  ; ;
9711 067200      377             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
```

DATA TABLE HEADERS

```
                                                .EVEN
 9712 067202  066404  066436  067212           .WORD   DH1B,DH1C,DH362B,0
 9713 067212     011     115     115  DH362B:  .ASCIZ  <TAB>!MMR0!
 9714 067220     040     000          DH363:   .ASCIZ  ! !
 9715 067222     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9716 067224  066404  066436  067234           .WORD   DH1B,DH1C,DH363B,0
 9717 067234     011     123     122  DH363B:  .ASCIZ  <TAB>!SR1!<TAB>!CALCD!<TAB>!EXPECTED!
 9718 067260     040     000          DH364:   .ASCIZ  ! !
 9719 067262     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9720 067264  066404  067272  000000           .WORD   DH1B,DH364B,0
 9721 067272     111     116     123  DH364B:  .ASCIZ  !INSTRUCTION FAILING TO ABORT!
 9722 067327     040     000          DH365:   .ASCIZ  ! !
 9723 067331     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9724 067332  066404  066436  000000           .WORD   DH1B,DH1C,0
 9725 067340     040     000          DH366:   .ASCIZ  ! !
 9726 067342     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9727 067344  066404  066436  067354           .WORD   DH1B,DH1C,DH366B,0
 9728 067354     011     101     103  DH366B:  .ASCIZ  <TAB>!AC # CHANGED!
 9729 067372     040     000          DH367:   .ASCIZ  ! !
 9730 067374     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9731 067376  066404  066436  067406           .WORD   DH1B,DH1C,DH367B,0
 9732 067406     011     122     105  DH367B:  .ASCIZ  <TAB>!REG #!<TAB>!RECEIVED!<TAB>!EXPECTED!
 9733 067437     040     040     124  DH370:   .ASCIZ  !  TEST!<TAB>!PC OF CALL!<TAB>!AC #!<TAB>!PC OF ERROR!
 9734         000000               DH371=0
 9735         000000               DH372=0
 9736         000000               DH373=0
 9737         000000               DH374=0
 9738         000000               DH375=0
 9739         000000               DH376=0
 9740         000000               DH377=0
 9741         000000               DH400=0
 9742         066570               DH401=DH4
 9743         066460               DH402=DH2
 9744         066644               DH403=DH13
 9745         067112               DH404=DH227
 9746         066570               DH405=DH4
 9747         066460               DH406=DH2
 9748         066644               DH407=DH13
 9749         067112               DH410=DH227
 9750         066570               DH411=DH4
 9751         066460               DH412=DH2
 9752         066644               DH413=DH13
 9753         067112               DH414=DH227
 9754         066570               DH415=DH4
 9755         066460               DH416=DH2
 9756         066644               DH417=DH13
 9757         067112               DH420=DH227
 9758         066570               DH421=DH4
 9759         066460               DH422=DH2
 9760         066644               DH423=DH13
 9761         067112               DH424=DH227
 9762         066570               DH425=DH4
```

DATA TABLE HEADERS

```
 9763           066460                  DH426=DH2
 9764           066644                  DH427=DH13
 9765           067112                  DH430=DH227
 9766           066644                  DH431=DH13
 9767           066570                  DH432=DH4
 9768           066460                  DH433=DH2
 9769           066644                  DH434=DH13
 9770           067112                  DH435=DH227
 9771           066644                  DH436=DH13
 9772           066570                  DH437=DH4
 9773           066570                  DH440=DH4
 9774 067502      040      000          DH441:  .ASCIZ  ! !
 9775 067504      377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9776 067506   066404   066436   067516         .WORD   DH1B,DH1C,DH441B,0
 9777 067516      011      106      105  DH441B: .ASCIZ  <TAB>!FEC.!
 9778           067327                  DH442=DH365
 9779           067327                  DH443=DH442
 9780           066524                  DH444=DH3
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
                                                .SBTTL  FORMAT SPECIFICATIONS FOR THE DATA TABLES
067524      004     000     005     DF1:    .BYTE   4,0,5,0,5,0,0
067533      004     000     005     DF2:    .BYTE   4,0,5,0,5,0,5,0
        067533                      DF3=DF2
        067533                      DF4=DF2
067543      004     000     005     DF5:    .BYTE   4,0,5,0,5,5,2,5,5,2
067555      004     000     005     DF6:    .BYTE   4,0,5,0
        067533                      DF7=DF4
        067543                      DF10=DF5
        067533                      DF11=DF4
067561      004     000     005     DF12:   .BYTE   4,0,5,0,5,5,3,5,5,3
        067555                      DF13=DF6
        067555                      DF14=DF6
        067561                      DF15=DF12
        067533                      DF16=DF2
        067555                      DF17=DF6
        067533                      DF20=DF2
        067561                      DF21=DF12
        067561                      DF22=DF12
        067555                      DF23=DF6
        067533                      DF24=DF2
        067561                      DF25=DF12
        067555                      DF26=DF6
        067533                      DF27=DF2
        067561                      DF30=DF12
        067555                      DF31=DF6
        067533                      DF32=DF2
        067561                      DF33=DF12
        067555                      DF34=DF6
        067533                      DF35=DF2
        067561                      DF36=DF12
067573      004     000     005     DF37:   .BYTE   4,0,5,0,5,0,5,0,5,5,3,5,5,3,5,5,3
        067573                      DF40=DF37
067614      004     000     005     DF41:   .BYTE   4,0,5,0,5,0,0,0,5,5,3,5,5,3,5,5,3
        067573                      DF42=DF37
        067573                      DF43=DF37
        067573                      DF44=DF37
        067573                      DF45=DF37
        067573                      DF46=DF37
        067573                      DF47=DF37
        067573                      DF50=DF37
        067573                      DF51=DF37
        067573                      DF52=DF37
        067573                      DF53=DF37
        067573                      DF54=DF37
        067573                      DF55=DF37
        067573                      DF56=DF37
        067573                      DF57=DF37
        067573                      DF60=DF37
        067573                      DF61=DF37
        067533                      DF62=DF2
        067533                      DF63=DF2
        067543                      DF64=DF5
        067533                      DF65=DF2
        067533                      DF66=DF2
        067533                      DF67=DF2
        067533                      DF70=DF2
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
9838            067533                  DF176=DF2
9839 067635        004      000    000  DF177:   .BYTE   4,0,0
9840 067640        004      000    005  DF71:    .BYTE   4,0,5,0,5,5,3,5,5,3,5,5,3
9841            067533                  DF72=DF2
9842            067555                  DF107=DF6
9843            067640                  DF73=DF71
9844            067533                  DF74=DF2
9845            067533                  DF75=DF2
9846            067555                  DF76=DF6
9847            067640                  DF77=DF71
9848            067533                  DF100=DF2
9849            067533                  DF101=DF2
9850            067555                  DF102=DF6
9851            067640                  DF103=DF71
9852            067533                  DF104=DF2
9853            067533                  DF105=DF2
9854            067555                  DF106=DF6
9855            067640                  DF110=DF71
9856            067533                  DF111=DF2
9857            067533                  DF112=DF2
9858            067555                  DF113=DF6
9859            067640                  DF114=DF71
9860            067533                  DF115=DF2
9861            067533                  DF116=DF2
9862            067555                  DF117=DF6
9863            067640                  DF120=DF71
9864            067533                  DF121=DF2
9865            067533                  DF122=DF2
9866            067555                  DF123=DF6
9867            067640                  DF124=DF71
9868            067533                  DF125=DF2
9869            067533                  DF126=DF2
9870            067555                  DF127=DF6
9871            067640                  DF130=DF71
9872            067533                  DF131=DF2
9873            067555                  DF132=DF6
9874            067640                  DF133=DF71
9875            067533                  DF134=DF2
9876            067561                  DF135=DF12
9877            067561                  DF136=DF12
9878            067533                  DF137=DF2
9879            067561                  DF140=DF12
9880            067533                  DF141=DF2
9881            067533                  DF142=DF2
9882            067561                  DF143=DF12
9883            067533                  DF144=DF2
9884            067533                  DF145=DF2
9885            067561                  DF146=DF12
9886            067533                  DF147=DF2
9887            067533                  DF150=DF2
9888            067561                  DF151=DF12
9889            067533                  DF152=DF2
9890            067533                  DF153=DF2
9891            067561                  DF154=DF12
9892            067533                  DF155=DF2
9893            067533                  DF156=DF2
9894            067561                  DF157=DF12
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
 9895          067533                  DF160=DF2
 9896          067533                  DF161=DF2
 9897          067561                  DF162=DF12
 9898          067533                  DF163=DF2
 9899          067533                  DF164=DF2
 9900          067533                  DF215=DF2
 9901          067561                  DF216=DF12
 9902          067533                  DF217=DF2
 9903          067533                  DF220=DF2
 9904          067533                  DF221=DF2
 9905          067561                  DF222=DF12
 9906          067533                  DF223=DF2
 9907          067533                  DF224=DF2
 9908          067573                  DF165=DF37
 9909          067573                  DF166=DF37
 9910          067573                  DF167=DF37
 9911          067573                  DF170=DF37
 9912          067573                  DF171=DF37
 9913          067573                  DF172=DF37
 9914          067614                  DF173=DF41
 9915          067614                  DF174=DF41
 9916          067614                  DF175=DF41
 9917          067573                  DF200=DF37
 9918          067573                  DF201=DF37
 9919          067573                  DF202=DF37
 9920          067573                  DF203=DF37
 9921          067573                  DF204=DF37
 9922          067573                  DF205=DF37
 9923          067573                  DF206=DF37
 9924          067573                  DF207=DF37
 9925          067573                  DF210=DF37
 9926          067573                  DF211=DF37
 9927          067573                  DF212=DF37
 9928          067573                  DF213=DF37
 9929          067573                  DF214=DF37
 9930 067655      004      000    005   DF225:  .BYTE   4,0,5,0,5,0,5,0
 9931          067655                  DF226=DF225
 9932 067665      004      000    005   DF227:  .BYTE   4,0,5,0
 9933          067655                  DF230=DF225
 9934          067655                  DF231=DF225
 9935          067665                  DF232=DF227
 9936          067655                  DF233=DF225
 9937          067655                  DF234=DF225
 9938          067665                  DF235=DF227
 9939          067655                  DF236=DF225
 9940          067655                  DF237=DF225
 9941          067665                  DF240=DF227
 9942          067655                  DF241=DF225
 9943          067655                  DF242=DF225
 9944          067665                  DF243=DF227
 9945          067655                  DF244=DF225
 9946          067655                  DF245=DF225
 9947          067655                  DF246=DF225
 9948          067665                  DF247=DF227
 9949          067655                  DF250=DF225
 9950          067655                  DF251=DF225
 9951          067655                  DF252=DF225
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
 9952            067665                  DF253=DF227
 9953            067655                  DF254=DF225
 9954            067665                  DF255=DF227
 9955            067655                  DF256=DF225
 9956            067655                  DF257=DF225
 9957 067671       004       000   005   DF260:  .BYTE   4,0,5,0,5,0,5,0,5,5,2,5,5,2,5,5,2
 9958            067671                  DF261=DF260
 9959            067671                  DF262=DF260
 9960            067671                  DF263=DF260
 9961            067671                  DF264=DF260
 9962            067671                  DF265=DF260
 9963            067671                  DF266=DF260
 9964            067671                  DF267=DF260
 9965            067671                  DF270=DF260
 9966            067671                  DF271=DF260
 9967            067671                  DF272=DF260
 9968 067712       004       000   005   DF273:  .BYTE   4,0,5,0,5,0,5,0,5,5,2,5,5,3,5,5,3
 9969            067712                  DF274=DF273
 9970            067712                  DF275=DF273
 9971            067712                  DF276=DF273
 9972            067712                  DF277=DF273
 9973            067712                  DF300=DF273
 9974 067733       004       000   005   DF301:  .BYTE   4,0,5,0,5,0,5,0,5,5,3,5,5,0,5,5,3,5,5,3
 9975            067733                  DF302=DF301
 9976 067757       004       000   005   DF303:  .BYTE   4,0,5,0,5,0,0,0,5,5,3,5,5,0,5,5,3,5,5,3
 9977            067733                  DF304=DF301
 9978            067733                  DF305=DF301
 9979            067733                  DF306=DF301
 9980            067733                  DF307=DF301
 9981            067733                  DF310=DF301
 9982            067733                  DF311=DF301
 9983            067733                  DF312=DF301
 9984            067733                  DF313=DF301
 9985            067733                  DF314=DF301
 9986            067733                  DF315=DF301
 9987            067733                  DF316=DF301
 9988            067733                  DF317=DF301
 9989            067733                  DF320=DF301
 9990            067733                  DF321=DF301
 9991 070003       004       000   005   DF322:  .BYTE   4,0,5,0,5,0,5,0,5,5,3,5,5,2,5,5,2
 9992            070003                  DF323=DF322
 9993 070024       004       000   005   DF324:  .BYTE   4,0,5,0,5,0,0,0,5,5,3,5,5,2,5,5,2
 9994            070003                  DF325=DF322
 9995            070003                  DF326=DF322
 9996            070003                  DF327=DF322
 9997            070003                  DF330=DF322
 9998            070003                  DF331=DF322
 9999            070003                  DF332=DF322
10000            070003                  DF333=DF322
10001            070003                  DF334=DF322
10002            070003                  DF335=DF322
10003            070003                  DF336=DF322
10004            070003                  DF337=DF322
10005            070003                  DF340=DF322
10006            070003                  DF341=DF322
10007            070003                  DF342=DF322
10008            070003                  DF343=DF322
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
10009           070003                  DF344=DF322
10010           070003                  DF345=DF322
10011           070003                  DF346=DF322
10012 070045      004       000   005   DF347:  .BYTE   4,0,5,0,5,0,5,0,5,5,3,5,5,0,5,5,0
10013           070045                  DF350=DF347
10014           067665                  DF351=DF227
10015           070045                  DF352=DF347
10016           070045                  DF353=DF347
10017           070045                  DF354=DF347
10018           070045                  DF355=DF347
10019           067655                  DF356=DF225
10020           067655                  DF357=DF225
10021           067665                  DF360=DF227
10022 070066      004       000   005   DF361:  .BYTE   4,0,5,0,5,0,5,0,5,5,0,5,5,0,5,5,0,5,5,0
10023 070112      004       000   005   DF362:  .BYTE   4,0,5,0,5,0
10024 070120      004       000   005   DF363:  .BYTE   4,0,5,0,5,0,0,0
10025           067555                  DF364=DF6
10026           067555                  DF365=DF6
10027 070130      004       000   005   DF366:  .BYTE   4,0,5,0,5,0,5,5,0,0,0,0,5,5,0,0,0,0
10028 070152      004       000   005   DF367:  .BYTE   4,0,5,0,5,0,0,0
10029 070162      004       000   005   DF370:  .BYTE   4,0,5,0,0,5,5,0,0,0,0,5,5,0,0,0,0
10030           000000                  DF371=0
10031           000000                  DF372=0
10032           000000                  DF373=0
10033           000000                  DF374=0
10034           000000                  DF375=0
10035           000000                  DF376=0
10036           000000                  DF377=0
10037           000000                  DF400=0
10038           067655                  DF401=DF225
10039           067655                  DF402=DF225
10040           067665                  DF403=DF227
10041           067665                  DF404=DF227
10042           067655                  DF405=DF225
10043           067655                  DF406=DF225
10044           067665                  DF407=DF227
10045           067665                  DF410=DF227
10046           067655                  DF411=DF225
10047           067655                  DF412=DF225
10048           067665                  DF413=DF227
10049           067665                  DF414=DF227
10050           067655                  DF415=DF225
10051           067655                  DF416=DF225
10052           067665                  DF417=DF227
10053           067665                  DF420=DF227
10054           067655                  DF421=DF225
10055           067655                  DF422=DF225
10056           067665                  DF423=DF227
10057           067665                  DF424=DF227
10058           067655                  DF425=DF225
10059           067655                  DF426=DF225
10060           067665                  DF427=DF227
10061           067665                  DF430=DF227
10062           067665                  DF431=DF227
10063           067655                  DF432=DF225
10064           067655                  DF433=DF225
10065           067665                  DF434=DF227
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
10066           067665                          [illegible]35=DF227
10067           067665                          [illegible]436=DF227
10068           067655                          DF437=DF225
10069           067655                          DF440=DF225
10070 070203      004       000       005       DF441:  .BYTE   4,0,5,0,5,0
10071           070203                          DF442=DF441
10072           070203                          DF443=DF441
10073           067533                          DF444=DF2
10074                                                   .EVEN
```

ERROR MESSAGE DATA TABLES

```
10075                                                   .SBTTL  ERROR MESSAGE DATA TABLES
10076 070212  001232  001234  047503  DT1:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP3,$TMP4,0
10077 070232  001232  001234  047503  DT2:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP3,$TAB,$TMP5,0
10078 070254  001232  001234  047503  DT3:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP4,$TAB,$TMP6,0
10079 070276  001232  001234  047503  DT4:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP4,$TAB,$TMP3,0
10080 070320  001232  001234  047503  DT5:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$CRLF,MS1,$TMP3
10081 070336  001313  047523  001242          .WORD   $CRLF,MS2,$TMP4,0
10082 070346  001232  001234  047503  DT6:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,0
10083         070276                  DT7=DT4
10084         070320                  DT10=DT5
10085         070276                  DT11=DT4
10086         070320                  DT12=DT5
10087         070346                  DT13=DT6
10088         070346                  DT14=DT6
10089         070320                  DT15=DT5
10090 070360  001232  001234  047503  DT16:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP4,$TAB,$TMP3,0
10091         070346                  DT17=DT6
10092         070360                  DT20=DT16
10093         070320                  DT21=DT5
10094         070320                  DT22=DT5
10095         070346                  DT23=DT6
10096         070360                  DT24=DT16
10097         070320                  DT25=DT5
10098         070346                  DT26=DT6
10099         070360                  DT27=DT16
10100         070320                  DT30=DT5
10101         070346                  DT31=DT6
10102         070360                  DT32=DT16
10103         070320                  DT33=DT5
10104         070346                  DT34=DT6
10105         070360                  DT35=DT16
10106         070320                  DT36=DT5
10107 070402  001232  001234  047503  DT37:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TAB,$TMP10,$CRLF
10108 070424  047563  001240  001313          .WORD   MS4,$TMP3,$CRLF,MS1,$TMP4,$CRLF,MS2,$TMP5,0
10109         070402                  DT40=DT37
10110 070446  001232  001234  047503  DT41:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TMP11,$TMP12
10111 070466  001313  047563  001240          .WORD   $CRLF,MS4,$TMP3,$CRLF,MS1,$TMP4,$CRLF,MS2,$TMP5,0
10112         070402                  DT42=DT37
10113         070402                  DT43=DT37
10114         070402                  DT44=DT37
10115         070402                  DT45=DT37
10116         070402                  DT46=DT37
10117         070402                  DT47=DT37
10118         070402                  DT50=DT37
10119         070402                  DT51=DT37
10120         070402                  DT52=DT37
10121         070446                  DT53=DT41
10122         070402                  DT54=DT37
10123         070402                  DT55=DT37
10124         070402                  DT56=DT37
10125         070402                  DT57=DT37
10126         070402                  DT60=DT37
10127         070402                  DT61=DT37
10128         070360                  DT62=DT16
10129         070360                  DT63=DT16
10130         070320                  DT64=DT5
10131         070360                  DT65=DT16
```

ERROR MESSAGE DATA TABLES

```
10132           070276                  DT66=DT4
10133           070276                  DT67=DT4
10134           070276                  DT70=DT4
10135           070276                  DT176=DT4
10136 070512    001232  001116  044020  DT177:  .WORD   $TMP0,$ERRPC,CPSAVE,0
10137 070522    001232  001234  047503  DT71:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$CRLF,MS3,$TMP3,$CRLF,MS1
10138 070544    001244  001313  047523          .WORD   $TMP5,$CRLF,MS2,$TMP4,0
10139           070276                  DT72=DT4
10140           070346                  DT107=DT6
10141 070556    001232  001234  047503  DT73:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$CRLF,MS4,$TMP4
10142 070574    001313  047505  001244          .WORD   $CRLF,MS1,$TMP5,$CRLF,MS2,$TMP3,0
10143           070276                  DT74=DT4
10144           070232                  DT75=DT2
10145           070346                  DT76=DT6
10146           070556                  DT77=DT73
10147           070276                  DT100=DT4
10148           070232                  DT101=DT2
10149           070346                  DT102=DT6
10150           070556                  DT103=DT73
10151           070276                  DT104=DT4
10152           070232                  DT105=DT2
10153           070346                  DT106=DT6
10154           070556                  DT110=DT73
10155           070276                  DT111=DT4
10156           070232                  DT112=DT2
10157           070346                  DT113=DT6
10158           070556                  DT114=DT73
10159           070276                  DT115=DT4
10160           070232                  DT116=DT2
10161           070346                  DT117=DT6
10162           070556                  DT120=DT73
10163           070276                  DT121=DT4
10164           070232                  DT122=DT2
10165           070346                  DT123=DT6
10166           070556                  DT124=DT73
10167           070276                  DT125=DT4
10168           070232                  DT126=DT2
10169           070346                  DT127=DT6
10170           070556                  DT130=DT73
10171           070232                  DT131=DT2
10172           070346                  DT132=DT6
10173           070556                  DT133=DT73
10174           070232                  DT134=DT2
10175           070320                  DT135=DT5
10176           070320                  DT136=DT5
10177           070360                  DT137=DT16
10178           070320                  DT140=DT5
10179           070276                  DT141=DT4
10180           070276                  DT142=DT4
10181           070320                  DT143=DT5
10182           070276                  DT144=DT4
10183           070276                  DT145=DT4
10184           070320                  DT146=DT5
10185           070276                  DT147=DT4
10186           070276                  DT150=DT4
10187           070320                  DT151=DT5
10188           070276                  DT152=DT4
```

ERROR MESSAGE DATA TABLES

10189	070276	DT153=DT4
10190	070320	DT154=DT5
10191	070276	DT155=DT4
10192	070276	DT156=DT4
10193	070320	DT157=DT5
10194	070276	DT160=DT4
10195	070276	DT161=DT4
10196	070320	DT162=DT5
10197	070276	DT163=DT4
10198	070276	DT164=DT4
10199	070276	DT215=DT4
10200	070320	DT216=DT5
10201	070276	DT217=DT4
10202	070276	DT220=DT4
10203	070276	DT221=DT4
10204	070320	DT222=DT5
10205	070276	DT223=DT4
10206	070276	DT224=DT4
10207	070402	DT165=DT37
10208	070402	DT166=DT37
10209	070402	DT167=DT37
10210	070402	DT170=DT37
10211	070402	DT171=DT37
10212	070402	DT172=DT37
10213	070446	DT173=DT41
10214	070446	DT174=DT41
10215	070446	DT175=DT41
10216	070402	DT200=DT37
10217	070402	DT201=DT37
10218	070402	DT202=DT37
10219	070402	DT203=DT37
10220	070402	DT204=DT37
10221	070402	DT205=DT37
10222	070402	DT206=DT37
10223	070402	DT207=DT37
10224	070402	DT210=DT37
10225	070402	DT211=DT37
10226	070402	DT212=DT37
10227	070402	DT213=DT37
10228	070402	DT214=DT37
10229	070276	DT225=DT4
10230	070276	DT226=DT4
10231	070346	DT227=DT6
10232	070276	DT230=DT4
10233	070276	DT231=DT4
10234	070346	DT232=DT6
10235	070276	DT233=DT4
10236	070276	DT234=DT4
10237	070346	DT235=DT6
10238	070276	DT236=DT4
10239	070276	DT237=DT4
10240	070346	DT240=DT6
10241	070276	DT241=DT4
10242	070276	DT242=DT4
10243	070346	DT243=DT6
10244	070276	DT244=DT4
10245	070276	DT245=DT4

ERROR MESSAGE DATA TABLES

```
 10246          070276                  DT246=DT4
 10247          070346                  DT247=DT6
 10248          070276                  DT250=DT4
 10249          070276                  DT251=DT4
 10250          070276                  DT252=DT4
 10251          070346                  DT253=DT6
 10252          070276                  DT254=DT4
 10253          070346                  DT255=DT6
 10254          070276                  DT256=DT4
 10255          070276                  DT257=DT4
 10256          070402                  DT260=DT37
 10257          070402                  DT261=DT37
 10258          070402                  DT262=DT37
 10259          070402                  DT263=DT37
 10260          070402                  DT264=DT37
 10261          070402                  DT265=DT37
 10262          070402                  DT266=DT37
 10263          070402                  DT267=DT37
 10264          070402                  DT270=DT37
 10265          070402                  DT271=DT37
 10266          070402                  DT272=DT37
 10267          070402                  DT273=DT37
 10268          070402                  DT274=DT37
 10269          070402                  DT275=DT37
 10270          070402                  DT276=DT37
 10271          070402                  DT277=DT37
 10272          070402                  DT300=DT37
 10273 070612   001232  001234  047503  DT301:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TAB,$TMP10
 10274 070632   001313  047545  001240          .WORD   $CRLF,MS10,$TMP3,$CRLF,MS11,$TMP4
 10275 070646   001313  047505  001246          .WORD   $CRLF,MS1,$TMP6,$CRLF,MS2,$TMP5,0
 10276          070612                  DT302=DT301
 10277 070664   001232  001234  047503  DT303:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TMP11,$TMP12
 10278 070704   001313  047545  001240          .WORD   $CRLF,MS10,$TMP3,$CRLF,MS11,$TMP4
 10279 070720   001313  047505  001246          .WORD   $CRLF,MS1,$TMP6,$CRLF,MS2,$TMP5,0
 10280          070612                  DT304=DT301
 10281          070612                  DT305=DT301
 10282          070612                  DT306=DT301
 10283          070612                  DT307=DT301
 10284          070612                  DT310=DT301
 10285          070612                  DT311=DT301
 10286          070612                  DT312=DT301
 10287          070612                  DT313=DT301
 10288          070612                  DT314=DT301
 10289          070612                  DT315=DT301
 10290          070612                  DT316=DT301
 10291          070612                  DT317=DT301
 10292          070612                  DT320=DT301
 10293          070612                  DT321=DT301
 10294 070736   001232  001234  047503  DT322:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TAB,$TMP10
 10295 070756   001313  047545  001240          .WORD   $CRLF,MS10,$TMP3,$CRLF,MS1,$TMP4,$CRLF,MS2,$TMP5,0
 10296          070736                  DT323=DT322
 10297 071002   001232  001234  047503  DT324:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TMP11,$TMP12
 10298 071022   001313  047545  001240          .WORD   $CRLF,MS10,$TMP3,$CRLF,MS1,$TMP4,$CRLF,MS2,$TMP5,0
 10299          070736                  DT325=DT322
 10300          070736                  DT326=DT322
 10301          070736                  DT327=DT322
 10302          070736                  DT330=DT322
```

ERROR MESSAGE DATA TABLES

```
10303           070736                  DT331=DT322
10304           070736                  DT332=DT322
10305           070736                  DT333=DT322
10306           070736                  DT334=DT322
10307           070736                  DT335=DT322
10308           070736                  DT336=DT322
10309           070736                  DT337=DT322
10310           070736                  DT340=DT322
10311           070736                  DT341=DT322
10312           070736                  DT342=DT322
10313           070736                  DT343=DT322
10314           070736                  DT344=DT322
10315           070736                  DT345=DT322
10316           070736                  DT346=DT322
10317           070736                  DT347=DT322
10318           070736                  DT350=DT322
10319           070346                  DT351=DT6
10320           070736                  DT352=DT322
10321           070736                  DT353=DT322
10322           070736                  DT354=DT322
10323           070736                  DT355=DT322
10324           070232                  DT356=DT2
10325           070254                  DT357=DT3
10326           070346                  DT360=DT6
10327           070612                  DT361=DT302
10328 071046    001232  001234  047503  DT362:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP3,0
10329 071064    001232  001234  047503  DT363:  .WORD   $TMP0,$TMP1,$TAB,$TMP13,$TAB,$TMP2,$TMP3,EXPCTD,0
10330 071106    001232  001234  047503  DT364:  .WORD   $TMP0,$TMP1,$TAB,$TMP13,0
10331           070346                  DT365=DT6
10332 071120    001232  001234  047503  DT366:  .WORD   $TMP0,$TMP1,$TAB,$TMP13,$TAB,$TMP2
10333 071134    001313  047523  001240          .WORD   $CRLF,MS2,$TMP3,$TMP4,$TMP6,$TMP7
10334 071150    001313  047505  001252          .WORD   $CRLF,MS1,$TMP10,$TMP11,$TMP12,$TMP21,0
10335 071166    001232  001234  047503  DT367:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TMP13,$TAB,$TMP6,$TAB,$TMP3,0
10336 071212    001232  001234  047503  DT370:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TMP13
10337 071224    001313  047642  001240          .WORD   $CRLF,MS21,$TMP3,$TMP4,$TMP6,$TMP7
10338 071240    001313  047630  001252          .WORD   $CRLF,MS20,$TMP10,$TMP11,$TMP12,$TMP21,0
10339           000000                  DT371=0
10340           000000                  DT372=0
10341           000000                  DT373=0
10342           000000                  DT374=0
10343           000000                  DT375=0
10344           000000                  DT376=0
10345           000000                  DT377=0
10346           000000                  DT400=0
10347           070276                  DT401=DT4
10348           070276                  DT402=DT4
10349           070346                  DT403=DT6
10350           070346                  DT404=DT6
10351           070276                  DT405=DT4
10352           070276                  DT406=DT4
10353           070346                  DT407=DT6
10354           070346                  DT410=DT6
10355           070276                  DT411=DT4
10356           070276                  DT412=DT4
10357           070346                  DT413=DT6
10358           070346                  DT414=DT6
10359           070276                  DT415=DT4
```

ERROR MESSAGE DATA TABLES

```
10360           070276                  DT416=DT4
10361           070346                  DT417=DT6
10362           070346                  DT420=DT6
10363           070276                  DT421=DT4
10364           070276                  DT422=DT4
10365           070346                  DT423=DT6
10366           070346                  DT424=DT6
10367           070276                  DT425=DT4
10368           070276                  DT426=DT4
10369           070346                  DT427=DT6
10370           070346                  DT430=DT6
10371           070346                  DT431=DT6
10372           070276                  DT432=DT4
10373           070276                  DT433=DT4
10374           070346                  DT434=DT6
10375           070346                  DT435=DT6
10376           070346                  DT436=DT6
10377           070276                  DT437=DT4
10378           070276                  DT440=DT4
10379 071256  001232  001234  047503   DT441:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP3,0
10380 071274  001232  001234  047503   DT442:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,0
10381           071274                  DT443=DT442
10382           070276                  DT444=DT4
10383           000001                          .END
```

SYMBOL TABLE

```
AABBF0  013612        AMSGLG= 000000        CCB10   013710        DF13  = 067555        DF211 = 067573
AABDON  013642        AMSGTY= 000000        CCB15   013726        DF130 = 067640        DF212 = 067573
AABTP1  013622        AMTYP1= 000000        CCB2    013664        DF131 = 067533        DF213 = 067573
AABTP2  013632        AMTYP2= 000000        CKSWR = 104406        DF132 = 067555        DF214 = 067573
AAB1    013434        AMTYP3= 000000        CNT   = 000445        DF133 = 067640        DF215 = 067533
AAB2    013536        AMTYP4= 000000        CPSAVE  044020        DF134 = 067533        DF216 = 067561
AAB3    013556        APASS = 000000        CPSPUR  047302        DF135 = 067561        DF217 = 067533
AAB4    013574        APRIOR= 000000        CPTWO   047330        DF136 = 067561        DF22  = 067561
AACDON  023766        APTCSU= 000040        CR    = 000015        DF137 = 067533        DF220 = 067533
AACTP1  023672        APTENV= 000001        CRBUT   050167        DF14  = 067555        DF221 = 067533
AAC1    023612        APTSIZ= 000200        CRLF  = 000200        DF140 = 067561        DF222 = 067561
AAC10   023676        APTSPO= 000100        DATA  = 117760        DF141 = 067533        DF223 = 067533
AAC11   023714        ASWREG= 000000        DDBBF0  014242        DF142 = 067533        DF224 = 067533
AAC2    023646        ATESTN= 000000        DDBDON  014262        DF143 = 067561        DF225   067655
AAC20   023732        AUNIT = 000000        DDBTP1  014222        DF144 = 067533        DF226 = 067655
ABASE = 000000        AUSWR = 000000        DDBTP2  014232        DF145 = 067533        DF227   067665
ACDW1 = 000000        AVECT1= 000000        DDBTP3  014252        DF146 = 067561        DF23  = 067555
ACDW2 = 000000        AVECT2= 000000        DDB1    014050        DF147 = 067533        DF230 = 067655
ACPUOP= 000000        BADCON  056200        DDB2    014114        DF15  = 067561        DF231 = 067655
AC0   =%000000        BBCDON  024144        DDB5    014156        DF150 = 067533        DF232 = 067665
AC1   =%000001        BBCTP1  024052        DDB6    014204        DF151 = 067561        DF233 = 067655
AC2   =%000002        BBC1    023772        DDCDON  024340        DF152 = 067533        DF234 = 067655
AC3   =%000003        BBC10   024056        DDCTP1  024240        DF153 = 067533        DF235 = 067665
AC4   =%000004        BBC11   024074        DDC1    024150        DF154 = 067561        DF236 = 067655
AC5   =%000005        BBC2    024026        DDC10   024252        DF155 = 067533        DF237 = 067655
AC6   =%000006        BBC20   024112        DDC11   024270        DF156 = 067533        DF24  = 067533
AC7   =%000007        BIT0  = 000001        DDC2    024206        DF157 = 067561        DF240 = 067665
ADDW0 = 000000        BIT00 = 000001        DDC20   024306        DF16  = 067533        DF241 = 067655
ADDW1 = 000000        BIT01 = 000002        DDISP = 177570        DF160 = 067533        DF242 = 067655
ADDW10= 000000        BIT02 = 000004        DF1     067524        DF161 = 067533        DF243 = 067665
ADDW11= 000000        BIT03 = 000010        DF10  = 067543        DF162 = 067561        DF244 = 067655
ADDW12= 000000        BIT04 = 000020        DF100 = 067533        DF163 = 067533        DF245 = 067655
ADDW13= 000000        BIT05 = 000040        DF101 = 067533        DF164 = 067533        DF246 = 067655
ADDW14= 000000        BIT06 = 000100        DF102 = 067555        DF165 = 067573        DF247 = 067665
ADDW15= 000000        BIT07 = 000200        DF103 = 067640        DF166 = 067573        DF25  = 067561
ADDW2 = 000000        BIT08 = 000400        DF104 = 067533        DF167 = 067573        DF250 = 067655
ADDW3 = 000000        BIT09 = 001000        DF105 = 067533        DF17  = 067555        DF251 = 067655
ADDW4 = 000000        BIT1  = 000002        DF106 = 067555        DF170 = 067573        DF252 = 067655
ADDW5 = 000000        BIT10 = 002000        DF107 = 067555        DF171 = 067573        DF253 = 067665
ADDW6 = 000000        BIT11 = 004000        DF11  = 067533        DF172 = 067573        DF254 = 067655
ADDW7 = 000000        BIT12 = 010000        DF110 = 067640        DF173 = 067614        DF255 = 067665
ADDW8 = 000000        BIT13 = 020000        DF111 = 067533        DF174 = 067614        DF256 = 067655
ADDW9 = 000000        BIT14 = 040000        DF112 = 067533        DF175 = 067614        DF257 = 067655
ADEVCT= 000000        BIT15 = 100000        DF113 = 067555        DF176 = 067533        DF26  = 067555
ADEVM = 000000        BIT2  = 000004        DF114 = 067640        DF177   067635        DF260   067671
AENV  = 000000        BIT3  = 000010        DF115 = 067533        DF2     067533        DF261 = 067671
AENVM = 000000        BIT4  = 000020        DF116 = 067533        DF20  = 067533        DF262 = 067671
AFATAL= 000000        BIT5  = 000040        DF117 = 067555        DF200 = 067573        DF263 = 067671
AMADR1= 000000        BIT6  = 000100        DF12    067561        DF201 = 067573        DF264 = 067671
AMADR2= 000000        BIT7  = 000200        DF120 = 067640        DF202 = 067573        DF265 = 067671
AMADR3= 000000        BIT8  = 000400        DF121 = 067533        DF203 = 067573        DF266 = 067671
AMADR4= 000000        BIT9  = 001000        DF122 = 067533        DF204 = 067573        DF267 = 067671
AMAMS1= 000000        BPTVEC= 000014        DF123 = 067555        DF205 = 067573        DF27  = 067533
AMAMS2= 000000        BUTIN   056227        DF124 = 067640        DF206 = 067573        DF270 = 067671
AMAMS3= 000000        BYTABL  043074        DF125 = 067533        DF207 = 067573        DF271 = 067671
AMAMS4= 000000        CCBDON  013742        DF126 = 067533        DF21  = 067561        DF272 = 067671
AMSGAD= 000000        CCB1    013646        DF127 = 067555        DF210 = 067573        DF273   067712
```

SYMBOL TABLE

```
DF274 = 067712
DF275 = 067712
DF276 = 067712
DF277 = 067712
DF3   = 067533
DF30  = 067561
DF300 = 067712
DF301   067733
DF302 = 067733
DF303   067757
DF304 = 067733
DF305 = 067733
DF306 = 067733
DF307 = 067733
DF31  = 067555
DF310 = 067733
DF311 = 067733
DF312 = 067733
DF313 = 067733
DF314 = 067733
DF315 = 067733
DF316 = 067733
DF317 = 067733
DF32  = 067533
DF320 = 067733
DF321 = 067733
DF322   070003
DF323 = 070003
DF324   070024
DF325 = 070003
DF326 = 070003
DF327 = 070003
DF33  = 067561
DF330 = 070003
DF331 = 070003
DF332 = 070003
DF333 = 070003
DF334 = 070003
DF335 = 070003
DF336 = 070003
DF337 = 070003
DF34  = 067555
DF340 = 070003
DF341 = 070003
DF342 = 070003
DF343 = 070003
DF344 = 070003
DF345 = 070003
DF346 = 070003
DF347   070045
DF35  = 067533
DF350 = 070045
DF351 = 067665
DF352 = 070045
DF353 = 070045
DF354 = 070045
DF355 = 070045
DF356 = 067655
DF357 = 067655
DF36  = 067561
DF360 = 067665
DF361   070066
DF362   070112
DF363   070120
DF364 = 067555
DF365 = 067555
DF366   070130
DF367   070152
DF37    067573
DF370   070162
DF371 = 000000
DF372 = 000000
DF373 = 000000
DF374 = 000000
DF375 = 000000
DF376 = 000000
DF377 = 000000
DF4   = 067533
DF40  = 067573
DF400 = 000000
DF401 = 067655
DF402 = 067655
DF403 = 067665
DF404 = 067665
DF405 = 067655
DF406 = 067655
DF407 = 067665
DF41    067614
DF410 = 067665
DF411 = 067655
DF412 = 067655
DF413 = 067665
DF414 = 067665
DF415 = 067655
DF416 = 067655
DF417 = 067665
DF42  = 067573
DF420 = 067665
DF421 = 067655
DF422 = 067655
DF423 = 067665
DF424 = 067665
DF425 = 067655
DF426 = 067655
DF427 = 067665
DF43  = 067573
DF430 = 067665
DF431 = 067665
DF432 = 067655
DF433 = 067655
DF434 = 067665
DF435 = 067665
DF436 = 067665
DF437 = 067655
DF44  = 067573
DF440 = 067655
DF441   070203
DF442 = 070203
DF443 = 070203
DF444 = 067533
DF45  = 067573
DF46  = 067573
DF47  = 067573
DF5     067543
DF50  = 067573
DF51  = 067573
DF52  = 067573
DF53  = 067573
DF54  = 067573
DF55  = 067573
DF56  = 067573
DF57  = 067573
DF6     067555
DF60  = 067573
DF61  = 067573
DF62  = 067533
DF63  = 067533
DF64  = 067543
DF65  = 067533
DF66  = 067533
DF67  = 067533
DF7   = 067533
DF70  = 067533
DF71    067640
DF72  = 067533
DF73  = 067640
DF74  = 067533
DF75  = 067533
DF76  = 067555
DF77  = 067640
DH1     066370
DH1B    066404
DH1C    066436
DH1D    066445
DH10  = 066633
DH100 = 066570
DH101 = 066460
DH102 = 066644
DH103 = 066633
DH104 = 066570
DH105 = 066460
DH106 = 066644
DH107 = 066644
DH11  = 066570
DH110 = 066633
DH111 = 066570
DH112 = 066460
DH113 = 066644
DH114 = 066633
DH115 = 066570
DH116 = 066460
DH117 = 066644
DH12  = 066633
DH120 = 066633
DH121 = 066570
DH122 = 066460
DH123 = 066644
DH124 = 066633
DH125 = 066570
DH126 = 066460
DH127 = 066644
DH13    066644
DH130 = 066633
DH131 = 066460
DH132 = 066644
DH133 = 066633
DH134 = 066460
DH135 = 066633
DH136 = 066633
DH137 = 066460
DH14  = 066644
DH140 = 066633
DH141 = 066570
DH142 = 066460
DH143 = 066633
DH144 = 066570
DH145 = 066460
DH146 = 066633
DH147 = 066570
DH15  = 066633
DH150 = 066460
DH151 = 066633
DH152 = 066570
DH153 = 066460
DH154 = 066633
DH155 = 066570
DH156 = 066460
DH157 = 066633
DH16    066704
DH16B   066720
DH160 = 066570
DH161 = 066460
DH162 = 066633
DH163 = 066460
DH164 = 066704
DH165 = 066747
DH166 = 066747
DH167 = 066747
DH17  = 066644
DH170 = 066747
DH171 = 066747
DH172 = 066747
DH173 = 067012
DH174 = 067012
DH175 = 067012
DH176 = 066460
DH177   067063
DH2     066460
DH2B    066474
DH20  = 066570
DH200 = 066747
DH201 = 066747
DH202 = 066747
DH203 = 066747
DH204 = 066747
DH205 = 066747
DH206 = 066747
DH207 = 066747
DH21  = 066633
DH210 = 066747
DH211 = 066747
DH212 = 066747
DH213 = 066747
DH214 = 066747
DH215 = 066704
DH216 = 066633
DH217 = 066570
DH22  = 066633
DH220 = 066460
DH221 = 066704
DH222 = 066633
DH223 = 066570
DH224 = 066460
DH225 = 066570
DH226 = 066460
DH227   067112
DH227B  067124
DH23  = 066644
DH230 = 066570
DH231 = 066460
DH232 = 067112
DH233 = 066570
DH234 = 066460
DH235 = 067112
DH236 = 066570
DH237 = 066460
DH24  = 066570
DH240 = 067112
DH241 = 066570
DH242 = 066460
DH243 = 067112
DH244 = 066570
DH245 = 066460
DH246 = 066704
DH247 = 067112
DH25  = 066633
DH250 = 066570
DH251 = 066460
DH252 = 066704
DH253 = 067112
DH254 = 066704
DH255 = 067112
DH256 = 066570
DH257 = 066460
DH26  = 066644
```

SYMBOL TABLE

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DH260 = 066747
DH261 = 066747
DH262 = 066747
DH263 = 066747
DH264 = 066747
DH265 = 066747
DH266 = 066747
DH267 = 066747
DH27  = 066570
DH270 = 066747
DH271 = 066747
DH272 = 066747
DH273 = 066747
DH274 = 066747
DH275 = 066747
DH276 = 066747
DH277 = 066747
DH3     066524
DH3B    066540
DH30  = 066633
DH300 = 066747
DH301 = 066747
DH302 = 066747
DH303 = 067012
DH304 = 066747
DH305 = 066747
DH306 = 066747
DH307 = 066747
DH31  = 066644
DH310 = 066747
DH311 = 066747
DH312 = 066747
DH313 = 066747
DH314 = 066747
DH315 = 066747
DH316 = 066747
DH317 = 066747
DH32  = 066570
DH320 = 066747
DH321 = 066747
DH322 = 066747
DH323 = 066747
DH324 = 067012
DH325 = 066747
DH326 = 066747
DH327 = 066747
DH33  = 066633
DH330 = 066747
DH331 = 066747
DH332 = 066747
DH333 = 066747
DH334 = 066747
DH335 = 066747
DH336 = 066747
DH337 = 066747
DH34  = 066644
DH340 = 066747
DH341 = 066747
DH342 = 066747
DH343 = 066747
DH344 = 066747
DH345 = 066747
DH346 = 066747
DH347 = 066747
DH35  = 066570
DH350 = 066747
DH351 = 066644
DH352 = 066747
DH353 = 066747
DH354 = 066747
DH355 = 066747
DH356 = 066570
DH357   067132
DH357B  067146
DH36  = 066633
DH360 = 066644
DH361 = 066460
DH362   067176
DH362B  067212
DH363   067220
DH363B  067234
DH364   067260
DH364B  067272
DH365   067327
DH366   067340
DH366B  067354
DH367   067372
DH367B  067406
DH37    066747
DH37B   066762
DH370   067437
DH371 = 000000
DH372 = 000000
DH373 = 000000
DH374 = 000000
DH375 = 000000
DH376 = 000000
DH377 = 000000
DH4     066570
DH4B    066604
DH40  = 066747
DH400 = 000000
DH401 = 066570
DH402 = 066460
DH403 = 066644
DH404 = 067112
DH405 = 066570
DH406 = 066460
DH407 = 066644
DH41    067012
DH41B   067026
DH410 = 067112
DH411 = 066570
DH412 = 066460
DH413 = 066644
DH414 = 067112
DH415 = 066570
DH416 = 066460
DH417 = 066644
DH42  = 066747
DH420 = 067112
DH421 = 066570
DH422 = 066460
DH423 = 066644
DH424 = 067112
DH425 = 066570
DH426 = 066460
DH427 = 066644
DH43  = 066747
DH430 = 067112
DH431 = 066644
DH432 = 066570
DH433 = 066460
DH434 = 066644
DH435 = 067112
DH436 = 066644
DH437 = 066570
DH44  = 066747
DH440 = 066570
DH441   067502
DH441B  067516
DH442 = 067327
DH443 = 067327
DH444 = 066524
DH45  = 066747
DH46  = 066747
DH47  = 066747
DH5     066633
DH50  = 066747
DH51  = 066747
DH52  = 066747
DH53  = 067012
DH54  = 066747
DH55  = 066747
DH56  = 066747
DH57  = 066747
DH6   = 066633
DH60  = 066747
DH61  = 066747
DH62  = 066460
DH63  = 066524
DH64  = 066633
DH65  = 066460
DH66  = 066570
DH67  = 066460
DH7   = 066570
DH70  = 066524
DH71  = 066633
DH72  = 066460
DH73  = 066633
DH74  = 066570
DH75  = 066460
DH76  = 066644
DH77  = 066633
DIDONE  043200
DISPLA  001142
DISPRE  000174
DSWR  = 177570
DT1     070212
DT10  = 070320
DT100 = 070276
DT101 = 070232
DT102 = 070346
DT103 = 070556
DT104 = 070276
DT105 = 070232
DT106 = 070346
DT107 = 070346
DT11  = 070276
DT110 = 070556
DT111 = 070276
DT112 = 070232
DT113 = 070346
DT114 = 070556
DT115 = 070276
DT116 = 070232
DT117 = 070346
DT12  = 070320
DT120 = 070556
DT121 = 070276
DT122 = 070232
DT123 = 070346
DT124 = 070556
DT125 = 070276
DT126 = 070232
DT127 = 070346
DT13  = 070346
DT130 = 070556
DT131 = 070232
DT132 = 070346
DT133 = 070556
DT134 = 070232
DT135 = 070320
DT136 = 070320
DT137 = 070360
DT14  = 070346
DT140 = 070320
DT141 = 070276
DT142 = 070276
DT143 = 070320
DT144 = 070276
DT145 = 070276
DT146 = 070320
DT147 = 070276
DT15  = 070320
DT150 = 070276
DT151 = 070320
DT152 = 070276
DT153 = 070276
DT154 = 070320
DT155 = 070276
DT156 = 070276
DT157 = 070320
DT16    070360
DT160 = 070276
DT161 = 070276
DT162 = 070320
DT163 = 070276
DT164 = 070276
DT165 = 070402
DT166 = 070402
DT167 = 070402
DT17  = 070346
DT170 = 070402
DT171 = 070402
DT172 = 070402
DT173 = 070446
DT174 = 070446
DT175 = 070446
DT176 = 070276
DT177   070512
DT2     070232
DT20  = 070360
DT200 = 070402
DT201 = 070402
DT202 = 070402
DT203 = 070402
DT204 = 070402
DT205 = 070402
DT206 = 070402
DT207 = 070402
DT21  = 070320
DT210 = 070402
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DT212 = 070402
DT213 = 070402
DT214 = 070402
DT215 = 070276
DT216 = 070320
DT217 = 070276
DT22  = 070320
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DT221 = 070276
DT222 = 070320
DT223 = 070276
DT224 = 070276
DT225 = 070276
DT226 = 070276
DT227 = 070346
DT23  = 070346
DT230 = 070276
DT231 = 070276
DT232 = 070346
DT233 = 070276
DT234 = 070276
```

SYMBOL TABLE

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DT235 = 070346
DT236 = 070276
DT237 = 070276
DT24  = 070360
DT240 = 070346
DT241 = 070276
DT242 = 070276
DT243 = 070346
DT244 = 070276
DT245 = 070276
DT246 = 070276
DT247 = 070346
DT25  = 070320
DT250 = 070276
DT251 = 070276
DT252 = 070276
DT253 = 070346
DT254 = 070276
DT255 = 070346
DT256 = 070276
DT257 = 070276
DT26  = 070346
DT260 = 070402
DT261 = 070402
DT262 = 070402
DT263 = 070402
DT264 = 070402
DT265 = 070402
DT266 = 070402
DT267 = 070402
DT27  = 070360
DT270 = 070402
DT271 = 070402
DT272 = 070402
DT273 = 070402
DT274 = 070402
DT275 = 070402
DT276 = 070402
DT277 = 070402
DT3   = 070254
DT30  = 070320
DT300 = 070402
DT301   070612
DT302 = 070612
DT303   070664
DT304 = 070612
DT305 = 070612
DT306 = 070612
DT307 = 070612
DT31  = 070346
DT310 = 070612
DT311 = 070612
DT312 = 070612
DT313 = 070612
DT314 = 070612
DT315 = 070612
DT316 = 070612
DT317 = 070612
DT32  = 070360
DT320 = 070612
DT321 = 070612
DT322   070736
DT323 = 070736
DT324   071002
DT325 = 070736
DT326 = 070736
DT327 = 070736
DT33  = 070320
DT330 = 070736
DT331 = 070736
DT332 = 070736
DT333 = 070736
DT334 = 070736
DT335 = 070736
DT336 = 070736
DT337 = 070736
DT34  = 070346
DT340 = 070736
DT341 = 070736
DT342 = 070736
DT343 = 070736
DT344 = 070736
DT345 = 070736
DT346 = 070736
DT347 = 070736
DT35  = 070360
DT350 = 070736
DT351 = 070346
DT352 = 070736
DT353 = 070736
DT354 = 070736
DT355 = 070736
DT356 = 070232
DT357 = 070254
DT36  = 070320
DT360 = 070346
DT361 = 070612
DT362   071046
DT363   071064
DT364   071106
DT365 = 070346
DT366   071120
DT367   071166
DT37    070402
DT370   071212
DT371 = 000000
DT372 = 000000
DT373 = 000000
DT374 = 000000
DT375 = 000000
DT376 = 000000
DT377 = 000000
DT4     070276
DT40  = 070402
DT400 = 000000
DT401 = 070276
DT402 = 070276
DT403 = 070346
DT404 = 070346
DT405 = 070276
DT406 = 070276
DT407 = 070346
DT41    070446
DT410 = 070346
DT411 = 070276
DT412 = 070276
DT413 = 070346
DT414 = 070346
DT415 = 070276
DT416 = 070276
DT417 = 070346
DT42  = 070402
DT420 = 070346
DT421 = 070276
DT422 = 070276
DT423 = 070346
DT424 = 070346
DT425 = 070276
DT426 = 070276
DT427 = 070346
DT43  = 070402
DT430 = 070346
DT431 = 070346
DT432 = 070276
DT433 = 070276
DT434 = 070346
DT435 = 070346
DT436 = 070346
DT437 = 070276
DT44  = 070402
DT440 = 070276
DT441   071256
DT442   071274
DT443 = 071274
DT444 = 070276
DT45  = 070402
DT46  = 070402
DT47  = 070402
DT5     070320
DT50  = 070402
DT51  = 070402
DT52  = 070402
DT53  = 070446
DT54  = 070402
DT55  = 070402
DT56  = 070402
DT57  = 070402
DT6     070346
DT60  = 070402
DT61  = 070402
DT62  = 070360
DT63  = 070360
DT64  = 070320
DT65  = 070360
DT66  = 070276
DT67  = 070276
DT7   = 070276
DT70  = 070276
DT71    070522
DT72  = 070276
DT73    070556
DT74  = 070276
DT75  = 070232
DT76  = 070346
DT77  = 070556
EEBBF0  014416
EEBBF1  014426
EEBDON  014552
EEBTP1  014376
EEBTP2  014406
EEB1    014266
EEB10   014436
EEB15   014472
EEB2    014336
EEB20   014520
EEB25   014536
EECDON  024550
EECTP1  024440
EECTP2  024450
EEC1    024344
EEC10   024462
EEC11   024500
EEC2    024406
EEC20   024516
EMTVEC= 000030
EM1     047662
EM1B    047676
EM1C    047707
EM1D    047726
EM10    050275
EM100   053032
EM101   053046
EM102   053062
EM102B  053076
EM103   053105
EM104   053120
EM105   053134
EM106   053150
EM106B  053164
EM107   053174
EM11    050310
EM11B   050326
EM110   053210
EM111   053224
EM112   053240
EM113   053254
EM113B  053270
EM114   053300
EM115   053314
EM116   053330
EM117   053344
EM117B  053360
EM12    050340
EM120   053367
EM121   053402
EM122   053416
EM123   053432
EM123B  053446
EM124   053456
EM125   053472
EM126   053506
EM127   053522
EM127B  053536
EM13    050352
EM13A   050364
EM13B   050374
EM130   053546
EM131   053562
EM132   053576
EM132B  053612
EM133   053623
EM134   053636
EM135   053652
EM136   053722
EM137   053736
EM14  = 050352
EM140   053752
EM141   053766
EM141C  054006
EM142   054024
EM143   054040
EM144   054054
EM145   054072
EM146   054106
EM147   054122
EM15    050420
EM150   054142
EM151   054156
EM152   054172
EM153   054212
EM154   054226
EM155   054242
EM156   054262
EM157   054276
EM157B  054312
EM16    050432
EM160   054321
EM160B  054342
EM161   054367
EM162   054402
EM162B  054416
EM163   054426
EM164   054442
EM165   054472
EM166   054506
```

SYMBOL TABLE

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EM167   054522
EM17    050456
EM17B   050470
EM170   054536
EM171   054552
EM172   054566
EM173   054602
EM174   054616
EM175   054632
EM176   054646
EM176B  054662
EM177   054670
EM2     047736
EM2B    047752
EM20    050502
EM200   054724
EM200C  054742
EM201   054777
EM202   055050
EM203   055122
EM204   055244
EM204C  055262
EM205   055317
EM206   055370
EM207   055442
EM21    050520
EM210   055514
EM211   055566
EM212   055645
EM213   055716
EM213C  055774
EM213D  056004
EM214   056027
EM214B  056104
EM215   056114
EM216   056251
EM217   056264
EM22  = 050520
EM220   056304
EM221   056320
EM222   056370
EM223   056404
EM224   056424
EM225   056440
EM225B  056452
EM226   056463
EM227   056474
EM227B  056506
EM23    050532
EM23B   050544
EM230   056525
EM230B  056536
EM231   056550
EM232   056562
EM233   056574
EM233B  056606
EM234   056620
EM235   056632
EM236   056644
EM236B  056656
EM237   056671
EM24    050557
EM240   056702
EM241   056714
EM241B  056726
EM242   056741
EM243   056752
EM244   056764
EM244B  056776
EM245   057010
EM246   057022
EM246B  057060
EM247   057073
EM25    050574
EM250   057104
EM250B  057116
EM251   057131
EM252 = 057022
EM252B  057142
EM253   057156
EM254 = 057022
EM254B  057170
EM255   057206
EM256   057232
EM256B  057244
EM257   057260
EM26    050606
EM26B   050620
EM260   057272
EM260B  057304
EM261   057330
EM262   057342
EM262B  057415
EM263   057430
EM263B  057442
EM264   057455
EM264C  057470
EM265   057542
EM265C  057556
EM266   057613
EM267   057667
EM267C  057702
EM27    050633
EM270   057754
EM270C  057770
EM271   060006
EM271C  060022
EM272   060045
EM272C  060060
EM273   060115
EM273B  060126
EM274   060152
EM275   060164
EM275B  060234
EM276   060247
EM276C  060262
EM277   060334
EM277C  060350
EM3     047766
EM3B    050002
EM30    050650
EM300   060401
EM300C  060424
EM301   060476
EM301B  060510
EM302   060523
EM303   060534
EM304   060546
EM304C  060562
EM305   060626
EM305C  060642
EM306   060722
EM307   061030
EM31    050662
EM31B   050674
EM310   061100
EM311   061154
EM312   061224
EM313   061274
EM314   061344
EM315   061414
EM316   061464
EM317   061534
EM32    050706
EM320   061604
EM321   061654
EM322   061724
EM322B  061736
EM323   061762
EM324   061774
EM325   062006
EM325B  062022
EM325C  062035
EM326 = 062006
EM327   062132
EM33    050724
EM330   062202
EM331   062256
EM332   062326
EM332B  062342
EM332C  062355
EM333 = 061762
EM334   062424
EM334C  062440
EM335   062507
EM336   062556
EM336C  062574
EM337   062613
EM34    050736
EM34B   050750
EM340   062667
EM341   062736
EM342   063006
EM343   063056
EM344   063133
EM345   063240
EM346   063310
EM346C  063334
EM347   063407
EM347B  063420
EM35    050763
EM350   063433
EM351   063444
EM352   063546
EM353   063616
EM354   063666
EM355   063736
EM356   064006
EM356B  064042
EM357   064112
EM36    051000
EM360   064146
EM361   064236
EM362   064254
EM363   064364
EM364   064432
EM365   064532
EM366   064615
EM367   064700
EM37    051012
EM370   064763
EM371 = 000000
EM372 = 000000
EM373 = 000000
EM374 = 000000
EM375 = 000000
EM376 = 000000
EM377 = 000000
EM4     050016
EM4A    050034
EM4B    050045
EM4C    050057
EM4D    050066
EM40    051072
EM400 = 000000
EM401   065017
EM401B  065030
EM402   065041
EM403   065052
EM403B  065132
EM403C  065171
EM404   065202
EM405   065214
EM406   065230
EM407   065244
EM41  = 051072
EM410   065314
EM411   065330
EM411B  065342
EM412   065354
EM413   065366
EM414   065436
EM415   065450
EM415B  065462
EM416   065475
EM417   065506
EM417B  065520
EM42  = 051012
EM42B   051132
EM420   065552
EM421   065564
EM421B  065576
EM422   065611
EM423   065622
EM424   065634
EM425   065646
EM425B  065660
EM426   065672
EM427   065704
EM43  = 051072
EM43B   051166
EM430   065756
EM431   065770
EM432   066016
EM432B  066030
EM433   066043
EM434   066054
EM435   066124
EM436   066136
EM437   066164
EM44  = 051012
EM44B   051245
EM440   066206
EM441   066230
EM441B  066264
EM442 = 066230
EM442B  066333
EM443 = 066230
EM444   066355
EM45  = 051012
EM45B   051322
EM46  = 051072
EM46B   051355
EM47  = 051012
EM47B   051430
EM5     050077
EM50  = 051012
EM50B   051472
EM51    051551
EM52    051610
EM53  = 051610
EM54  = 051551
EM54B   051652
EM55  = 051551
EM55B   051716
```

SYMBOL TABLE

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EM56  = 051610
EM56B   052007
EM57  = 051610
EM57B   052062
EM6     050110
EM6C    050124
EM60  = 051551
EM60B   052146
EM61  = 051610
EM61B   052226
EM62    052305
EM62A   052324
EM62B   052334
EM63    052403
EM64    052420
EM65    052470
EM66    052514
EM66B   052534
EM67    052542
EM7     050253
EM7B    050272
EM70    052624
EM71    052647
EM72    052664
EM73    052700
EM74    052714
EM75    052730
EM76    052744
EM76A   052760
EM76B   052767
EM77    053017
ENDTES  043160
ENDTST  040072
EOASCI  044504
ERM10   044406
ERRNUM  047104
ERROR = 104000
ERRVEC= 000004
ERTYPE  046460
ERT1    046654
ERT2    047054
ERT3    047060
ERT4    047066
ERT5    047100
EXPCTD  043156
FALTRP  041570
FFBBF0  014706
FFBBF1  014716
FFBDON  015042
FFBTP1  014666
FFBTP2  014676
FFB1    014556
FFB10   014726
FFB15   014762
FFB2    014626
FFB20   015010
FFB25   015026
FFCDON  024752
FFCTP1  024644
FFCTP2  024654
FFC1    024554
FFC10   024664
FFC11   024702
FFC2    024620
FFC20   024720
FPSPUR  047240
FPVECT= 000244
GGBBF0  015176
GGBBF1  015206
GGBDON  015332
GGBTP1  015156
GGBTP2  015166
GGB1    015046
GGB10   015216
GGB15   015252
GGB2    015116
GGB20   015300
GGB25   015316
GGCDON  025170
GGCTP1  025050
GGC1    024756
GGC10   025062
GGC11   025100
GGC2    025016
GGC20   025136
GGC25   025116
GTSWR = 104405
HHBBF0  015476
HHBBF1  015506
HHBDON  015632
HHBTP1  015446
HHBTP2  015466
HHB1    015336
HHB10   015516
HHB15   015552
HHB2    015406
HHB20   015600
HHB25   015616
HHCDON  025422
HHCTP1  025274
HHCTP2  025304
HHC1    025174
HHC10   025314
HHC11   025332
HHC2    025242
HHC20   025370
HHC25   025350
HT    = 000011
IBKOUT  051776
IBSAVE  044024
ICOUT   062662
IDONE   040104
IENBT   051544
IEZBT   051240
IFD     050164
IFDST   052376
IFIC    062252
IFIU    061150
IFIUV   056022
IFIV    052142
IFL     057412
IFLAG   052300
IGR7FL  065122
IIBBF0  015776
IIBBF1  016006
IIBDON  016132
IIBTP1  015746
IIBTP2  015766
IIB1    015636
IIB10   016016
IIB15   016052
IIB2    015706
IIB20   016100
IIB25   016116
IICDON  025536
IIC1    025426
IIC2    025454
IIC20   025526
IIC3    025474
INBIT   063126
INSTOF  050216
IOP1B   055237
IOTRAP= 000020
IOTVEC= 000020
IXNBT   057662
JJBBF0  016272
JJBBF1  016302
JJBDON  016426
JJBTP1  016250
JJBTP2  016262
JJB1    016136
JJB10   016312
JJB15   016346
JJB2    016206
JJB20   016374
JJB25   016412
KDPAR0= 172360
KDPAR1= 172362
KDPAR2= 172364
KDPAR3= 172366
KDPAR4= 172370
KDPAR7= 172376
KDPDR0= 172320
KDPDR1= 172322
KDPDR2= 172324
KDPDR3= 172326
KDPDR4= 172330
KDPDR7= 172336
KIPAR0= 172340
KIPAR1= 172342
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KIPAR3= 172346
KIPAR4= 172350
KIPAR7= 172356
KIPDR0= 172300
KIPDR1= 172302
KIPDR2= 172304
KIPDR3= 172306
KIPDR4= 172310
KIPDR7= 172316
KKBBF0  016574
KKBBF1  016604
KKBDON  016730
KKBTP1  016544
KKBTP2  016564
KKB1    016432
KKB10   016614
KKB15   016650
KKB2    016502
KKB20   016676
KKB25   016714
KKCDON  027246
KKC1    025700
KKC10   026316
KKC11   026354
KKC12   026412
KKC13   026450
KKC14   026506
KKC15   026544
KKC16   026602
KKC17   026640
KKC18   026676
KKC19   026734
KKC2    025736
KKC20   026772
KKC3    025774
KKC4    026032
KKC5    026070
KKC6    026126
KKC7    026164
KKC8    026222
KKC9    026260
LABEL1  040712
LDCDSU  030050
LDCFSU  027032
LDCT    027236
LDXSUB  031622
LDXT    032112
LF    = 000012
LLBBF0  017054
LLBBF1  017064
LLBDON  017172
LLBTP1  017034
LLBTP2  017044
LLB1    016734
LLB10   017074
LLB15   017130
LLB2    017000
LLB25   017156
LLCDON  030254
LLC1    027252
LLC10   030000
LLC2    027320
LLC3    027366
LLC4    027434
LLC5    027502
LLC6    027550
LLC7    027616
LLC8    027664
LLC9    027732
LOOP    006600
LPERR = 104413
MMBBF0  017326
MMBBF1  017336
MMBDON  017444
MMBTP1  017276
MMBTP2  017316
MMB1    017176
MMB10   017346
MMB15   017402
MMB2    017242
MMB25   017430
MMCDON  032122
MMC1    030260
MMC10   031116
MMC11   031174
MMC12   031252
MMC13   031330
MMC14   031406
MMC15   031464
MMC16   031542
MMC2    030336
MMC3    030414
MMC4    030472
MMC5    030550
MMC6    030626
MMC7    030704
MMC8    030762
MMC9    031040
MMR0  = 177572
MMR2  = 177576
MMR3  = 172516
MMVECT= 000250
MNUMBE= 000444
MODE1   040622
MS1     047505
MS10  = 047545
MS11    047605
MS2     047523
MS20    047630
MS21    047642
MS3     047545
MS4     047563
MULTER  042666
NATBF1  023574
```

SYMBOL TABLE

```
NATER1  023524    OOC25   032560    QQB1    020272    RRR10   007742    STORE   043014
NATER2  023542    OODON   006736    QQB10   020436    RRR11   007764    STXBF   036726
NATER3  023556    OOT     006646    QQB15   020456    RRR12   010004    STXSUB  036520
NATINS  023252    OO1     006602    QQB2    020342    RRR15   010036    SWR     001140
NATRET  023536    OO2     006626    QQB20   020474    RRR2    007642    SWREG   000176
NATSUB  023172    OO3     006662    QQCDON  033302    RRR25   010016    SW0   = 000001
NEGDAR  056355    OO4     006730    QQCTB0  033150    RRR3    007644    SW00  = 000001
NEGDNR  056151    OR      055232    QQCTB1  033154    RRR4    007670    SW01  = 000002
NNBBF0  017566    PASCIZ  047106    QQCTB2  033164    RSETUP= 104412    SW02  = 000004
NNBDON  017646    PCBAD   056163    QQC1    033044    RTI     042772    SW03  = 000010
NNBTP1  017546    PERIOD  056225    QQC10   033170    R6    =%000006    SW04  = 000020
NNBTP2  017556    PIRQ  = 177772    QQC15   033210    R7    =%000007    SW05  = 000040
NNB1    017450    PIRQVE= 000240    QQC2    033116    SAVIOT  040522    SW06  = 000100
NNB10   017576    POWERM  047434    QQC20   033232    SAVREG= 104410    SW07  = 000200
NNB11   017626    PPBDON  020266    QQC25   033254    SCOPE = 000004    SW08  = 000400
NNB15   017632    PPBTP1  020174    QQQBF0  007342    SPACE   047500    SW09  = 001000
NNB2    017474    PPBTP2  020204    QQQBF1  007356    SR1   = 177574    SW1   = 000002
NNCDON  032354    PPB1    020062    QQQDON  007560    SSBDON  021152    SW10  = 002000
NNCTB0  032226    PPB10   020214    QQQTP1  007372    SSBTP1  021056    SW11  = 004000
NNCTB1  032232    PPB15   020234    QQQ1    007202    SSBTP2  021066    SW12  = 010000
NNC1    032126    PPB2    020130    QQQ10   007402    SSBTP3  021076    SW13  = 020000
NNC10   032242    PPB20   020252    QQQ2    007220    SSB1    020734    SW14  = 040000
NNC15   032262    PPCDON  033040    QQQ20   007422    SSB10   021100    SW15  = 100000
NNC2    032174    PPCTB0  032712    QQQ22   007436    SSB15   021120    SW2   = 000004
NNC20   032304    PPCTB1  032716    QQQ23   007470    SSB2    021012    SW3   = 000010
NNC25   032326    PPC1    032612    QQQ24   007516    SSB20   021136    SW4   = 000020
NODAT   043000    PPC10   032726    QQQ25   007542    SSCDON  034020    SW5   = 000040
NO      050233    PPC15   032746    QQQ3    007256    SSCTB0  033664    SW6   = 000100
NO4     066346    PPC2    032660    QQQ4    007304    SSCTB1  033670    SW7   = 000200
N1      050235    PPC20   032770    RDCHR = 104407    SSC1    033552    SW8   = 000400
N10     066351    PPC25   033012    RESREG= 104411    SSC10   033700    SW9   = 001000
N2      050237    PPPBF0  007100    RESVEC= 000010    SSC15   033720    TAB   = 000011
N244    066326    PPPBF1  007114    RETURN  042750    SSC2    033622    TBITVE= 000014
N3      050241    PPPDON  007176    RRBDON  020730    SSC20   033742    TCCBF0  025654
N3132   055632    PPPTP1  007130    RRBTP1  020634    SSC25   033764    TCCBF1  025664
N4      050243    PPP1    006742    RRBTP2  020644    SSC30   034014    TCCDON  025674
N5      050245    PPP10   007140    RRBTP3  020654    SSSA1   010254    TCC1    025542
N6      050247    PPP15   007160    RRB1    020514    SSSBF0  010244    TCC2    025564
N7      050251    PPP2    006760    RRB10   020656    SSSDON  010412    TCC3    025630
N746T2  056140    PPP3    007022    RRB15   020676    SSSTP1  010264    TKVEC = 000060
N747T2  056344    PPP4    007042    RRB2    020570    SSSTP2  010274    TPVEC = 000064
OOBDON  020056    PROGNU= 000003    RRB20   020714    SSS1    010106    TRAPTO  066276
OOBTP1  017764    PRST    050176    RRCDON  033546    SSS10   010304    TRAPV   040010
OOBTP2  017774    PR0   = 000000    RRCTB0  033414    SSS11   010326    TRAPVE= 000034
OOB1    017652    PR1   = 000040    RRCTB1  033420    SSS15   010336    TRPV    041636
OOB10   020004    PR2   = 000100    RRCTB2  033430    SSS2    010164    TRTVEC= 000014
OOB15   020024    PR3   = 000140    RRC1    033306    SSS20   010354    TST1    006600
OOB2    017720    PR4   = 000200    RRC10   033434    SSS25   010374    TST10   011134
OOB20   020042    PR5   = 000240    RRC15   033454    STACK = 001100    TST100  037536
OOCDON  032606    PR6   = 000300    RRC2    033362    START   006116    TST101  037620
OOCTB0  032460    PR7   = 000340    RRC20   033476    STCDFS  013036    TST102  037636
OOCTB1  032464    PS    = 177776    RRC25   033520    STCDT   013320    TST103  037674
OOC1    032360    PSW   = 177776    RRRDON  010102    STCFDS  012202    TST104  037732
OOC10   032474    PWRVEC= 000024    RRREXP  007732    STCFT   012464    TST105  040524
OOC15   032514    QQBDON  020510    RRRTP1  007712    STCIBF  036146    TST106  040602
OOC2    032426    QQBTP1  020406    RRRTP2  007722    STCSUB  035666    TST107  040670
OOC20   032536    QQBTP2  020426    RRR1    007564    STKLMT= 177774    TST11   011370
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SYMBOL TABLE

TST110	040762	TST7	010664	UUC2	034340	WWC2	034564	ZZCBF	037132		
TST111	041116	TST70	034306	UUC3	034350	WWC4	034630	ZZCDON	037144		
TST112	041212	TST71	034412	UUUA1	011020	WWC5	034674	ZZC1	036744		
TST113	041304	TST72	034516	UUUA2	011022	WWC6	034740	ZZC10	037104		
TST114	041434	TST73	036160	UUUA3	011024	WWC7	035004	ZZC12	037120		
TST115	043202	TST74	036230	UUUBF0	011006	WWC8	035050	ZZC15	037124		
TST12	011642	TST75	036742	UUUDON	011132	WWC9	035114	ZZC2	036754		
TST13	012476	TST76	037424	UUUTP1	011032	WWWBF0	011520	ZZC3	037002		
TST14	013332	TST77	037454	UUU1	010666	WWWBF1	011540	ZZC5	037100		
TST15	013432	TTBDON	021362	UUU10	011042	WWWDON	011640	ZZF1	037426		
TST16	013644	TTBTP1	021270	UUU11	011064	WWWTP1	011530	ZZZDON	013430		
TST17	013744	TTBTP2	021300	UUU15	011076	WWW1	011372	ZZZ1	013334		
TST2	006740	TTB1	021156	UUU2	010752	WWW10	011550	ZZZ10	013376		
TST20	014046	TTB10	021310	UUU20	011114	WWW11	011572	ZZZ15	013414		
TST21	014264	TTB15	021330	UUU3	010776	WWW15	011604	ZZZ2	013352		
TST22	014554	TTB2	021224	VVBDON	014044	WWW2	011462	$APTHD	006102		
TST23	015044	TTB20	021346	VVB1	013746	WWW20	011622	$ATYC	045320		
TST24	015334	TTCDON	034304	VVB10	014010	XXBDON	022052	$ATY1	045274		
TST25	015634	TTCTB0	034144	VVB15	014026	XXBTP1	021740	$ATY3	045302		
TST26	016134	TTCTB1	034150	VVB2	013764	XXBTP2	021750	$ATY4	045312		
TST27	016430	TTCTB2	034160	VVCBF0	034506	XXB1	021614	$AUTOB	001134		
TST3	007200	TTC1	034024	VVCDON	034514	XXB10	022000	$BASE	001372		
TST30	016732	TTC10	034164	VVCTP1	034474	XXB15	022020	$BDADR	001122		
TST31	017174	TTC15	034204	VVC1	034414	XXB2	021666	$BDDAT	001126		
TST32	017446	TTC2	034102	VVC2	034444	XXB20	022036	$BELL	001306		
TST33	017650	TTC20	034226	VVC3	034454	XXB25	021760	$CDW1	001376		
TST34	020060	TTC25	034250	VVVBF0	011256	XXCDON	036226	$CDW2	001400		
TST35	020270	TTC30	034300	VVVDON	011366	XXC1	036162	$CHARC	045042		
TST36	020512	TTTA1	010550	VVVTP1	011266	XXXDON	012474	$CKSWR	045542		
TST37	020732	TTTA2	010552	VVV1	011136	XXX1	011644	$CLR.T	043412		
TST4	007562	TTTA3	010554	VVV10	011276	XXX2	011720	$CMTAG	001100		
TST40	021154	TTTBF0	010536	VVV11	011320	XXX3	011774	$CM1	= 000024		
TST41	021364	TTTDON	010662	VVV15	011332	XXX4	012050	$CM2	= 000050		
TST42	021612	TTTTP1	010562	VVV2	011220	XXX5	012124	$CM3	= 000024		
TST43	022054	TTT1	010416	VVV20	011350	YYBDON	022324	$CM4	= 000024		
TST44	022326	TTT10	010572	WENTTO	050204	YYBTP1	022210	$CNTLG	046161		
TST45	023610	TTT11	010614	WWBDON	023606	YYBTP2	022220	$CNTLU	046154		
TST46	023770	TTT15	010626	WWB1	022330	YYBTP3	022230	$CPUOP	001344		
TST47	024146	TTT2	010502	WWB2	022406	YYB1	022056	$CRLF	001313		
TST5	010104	TTT20	010644	WWB3	022464	YYB10	022252	$DDW0	001402		
TST50	024342	TTT3	010526	WWB4	022542	YYB15	022272	$DDW1	001404		
TST51	024552	TYPE	= 104401	WWB5	022620	YYB2	022136	$DDW10	001426		
TST52	024754	TYPOC	= 104402	WWB6	022676	YYB20	022310	$DDW11	001430		
TST53	025172	TYPON	= 104404	WWB7	022754	YYB25	022232	$DDW12	001432		
TST54	025424	TYPOS	= 104403	WWB8	023032	YYCDON	036740	$DDW13	001434		
TST55	025540	UUBDON	021610	WWB9	023110	YYC1	036232	$DDW14	001436		
TST56	025676	UUBTP1	021442	WWCDON	036156	YYC2	036270	$DDW15	001440		
TST57	027250	UUBTP2	021514	WWC1	034520	YYC3	036326	$DDW2	001406		
TST6	010414	UUB1	021366	WWC10	035160	YYC4	036364	$DDW3	001410		
TST60	030256	UUB10	021524	WWC11	035224	YYC5	036422	$DDW4	001412		
TST61	032124	UUB15	021562	WWC12	035270	YYC6	036460	$DDW5	001414		
TST62	032356	UUB2	021440	WWC13	035334	YYYDON	013330	$DDW6	001416		
TST63	032610	UUB20	021544	WWC14	035400	YYY1	012500	$DDW7	001420		
TST64	033042	UUCBF0	034402	WWC15	035444	YYY2	012554	$DDW8	001422		
TST65	033304	UUCDON	034410	WWC16	035510	YYY3	012630	$DDW9	001424		
TST66	033550	UUCTP1	034370	WWC17	035554	YYY4	012704	$DEVCT	001326		
TST67	034022	UUC1	034310	WWC18	035620	YYY5	012760	$DEVM	001374		

SYMBOL TABLE

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$DOAGN  043432        $LOOP   043470        $PWRMG  046430        $SETUP= 000137        $TMP5   001244
$ENDAD  043422        $LPADR  001106        $PWRUP  046346        $STUP = 177777        $TMP6   001246
$ENDCT  043236        $LPERR  001110        $QUES   001312        $SVLAD  043750        $TMP7   001250
$ENULL  043476        $MADR1  001350        $RDCHR  046024        $SVPC = 006102        $TN   = 000115
$ENV    001336        $MADR2  001354        $RDSZ = 000001        $SWR  = 177400        $TPB    001152
$ENVM   001337        $MADR3  001360        $REGAD  001160        $SWREG  001340        $TPFLG  001157
$EOP    043202        $MADR4  001364        $REG0   001162        $SWRMK= 000000        $TPS    001150
$EOPCT  043230        $MAIL   001316        $REG1   001164        $SWRMS= 000200        $TRAP   046210
$ERFLG  001103        $MAMS1  001346        $REG10  001202        $TAB    047503        $TRAP2  046232
$ERMAX  001115        $MAMS2  001352        $REG11  001204        $TBIT   043474        $TRP  = 000014
$ERROR  044026        $MAMS3  001356        $REG12  001206        $TERM = 000030        $TRPAD  046244
$ERRPC  001116        $MAMS4  001362        $REG13  001210        $TESTN  001322        $TSTM   006106
$ERRTB  001442        $MBADR  006104        $REG14  001212        $TIMES  001302        $TSTNM  001102
$ERTTL  001112        $MFLG   045536        $REG15  001214        $TKB    001146        $TYPE   044506
$ESCAP  001304        $MNEW   046177        $REG16  001216        $TKS    001144        $TYPEC  044724
$ETABL  001336        $MSGAD  001332        $REG17  001220        $TMP0   001232        $TYPEX  045044
$ETEND  001442        $MSGLG  001334        $REG2   001166        $TMP1   001234        $TYPOC  045072
$FATAL  001320        $MSGTY  001316        $REG20  001222        $TMP10  001252        $TYPON  045106
$FFLG   045540        $MSWR   046166        $REG21  001224        $TMP11  001254        $TYPOS  045046
$FILLC  0C1156        $MTYP1  001347        $REG22  001226        $TMP12  001256        $UNIT   001330
$FILLS  001155        $MTYP2  001353        $REG23  001230        $TMP13  001260        $UNiTM  006112
$GDADR  001120        $MTYP3  001357        $REG3   001170        $TMP14  001262        $USWR   001342
$GDDAT  001124        $MTYP4  001363        $REG4   001172        $TMP15  001264        $VECT1  001366
$GET42  043374        $MXCNT  044022        $REG5   001174        $TMP16  001266        $VECT2  001370
$GTSWR  045612        $NULL   001154        $REG6   001176        $TMP17  001270        $XOFF = 000023
$HD   = 000003        $NWTST= 000001        $REG7   001200        $TMP2   001236        $XON  = 000021
$HIBTS  006102        $OCNT   045270        $RESRE  044446        $TMP20  001272        $XTSTR  043514
$ICNT   001104        $OMODE  045272        $RTNAD  043472        $TMP21  001274        $$GET4= 000001
$ILLUP  046452        $OVER   044004        $RTRN   043466        $TMP22  001276        $OFILL  045271
$INTAG  001135        $PASS   001324        $SAVRE  044410        $TMP23  001300        .LPER   047356
$ITEMB  001114        $PASTM  006110        $SAVR6  046456        $TMP3   001240        .RSET   047364
$LF     001314        $PWRAD  046434        $SCOPE  043502        $TMP4   001242        .$X   = 006102
$LFLG   045537        $PWRDN  046274

. ABS.  071306      000
        000000      001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  60456 WORDS  ( 237 PAGES)
DYNAMIC MEMORY:  20034 WORDS  ( 77 PAGES)
ELAPSED TIME:  00:50:11
CKFPCC.BIN,CKFPCC/CR/-SP/NL:TOC=CKFPCC.MLB/ML,CKFPCC.P11
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