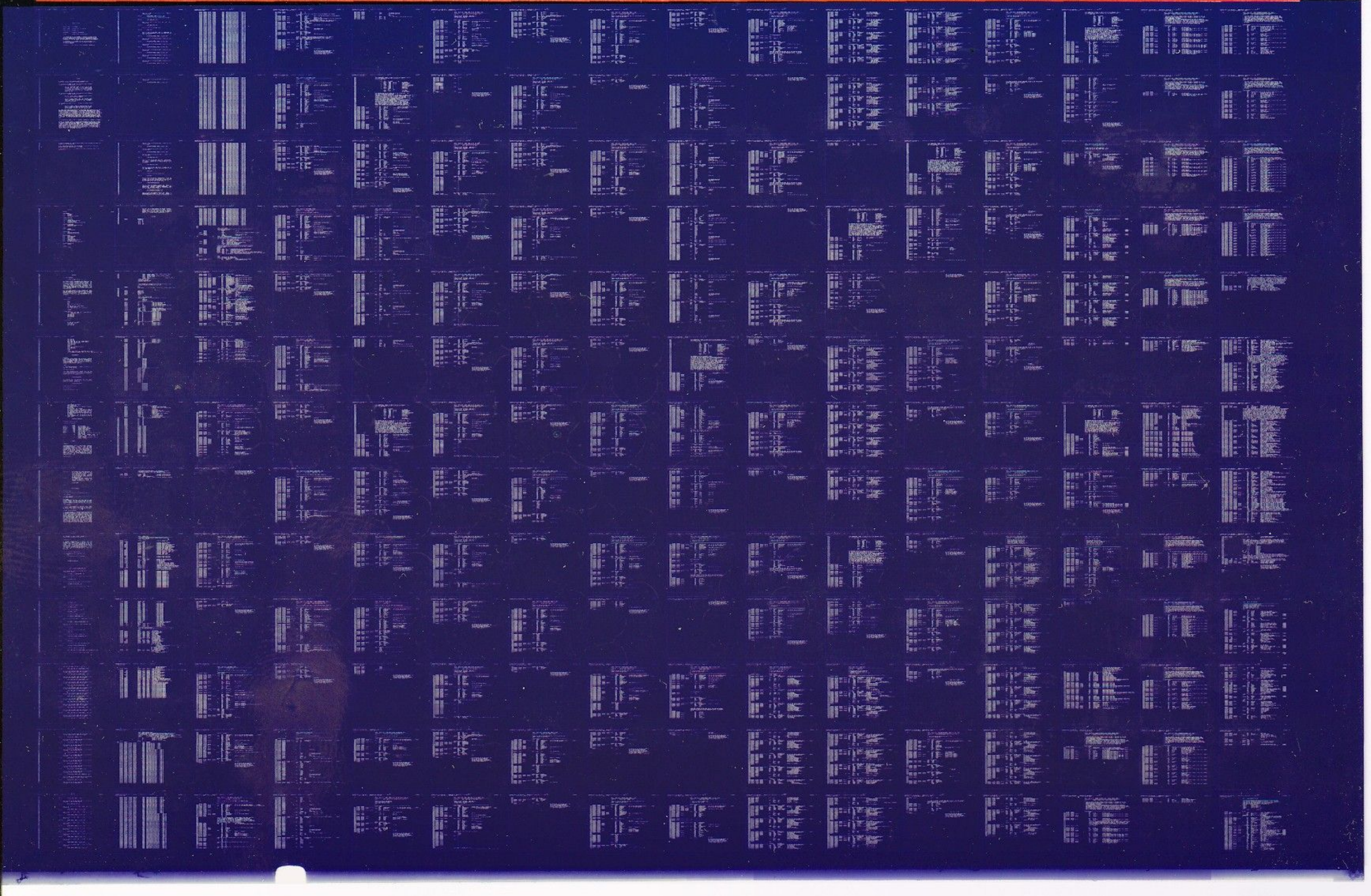
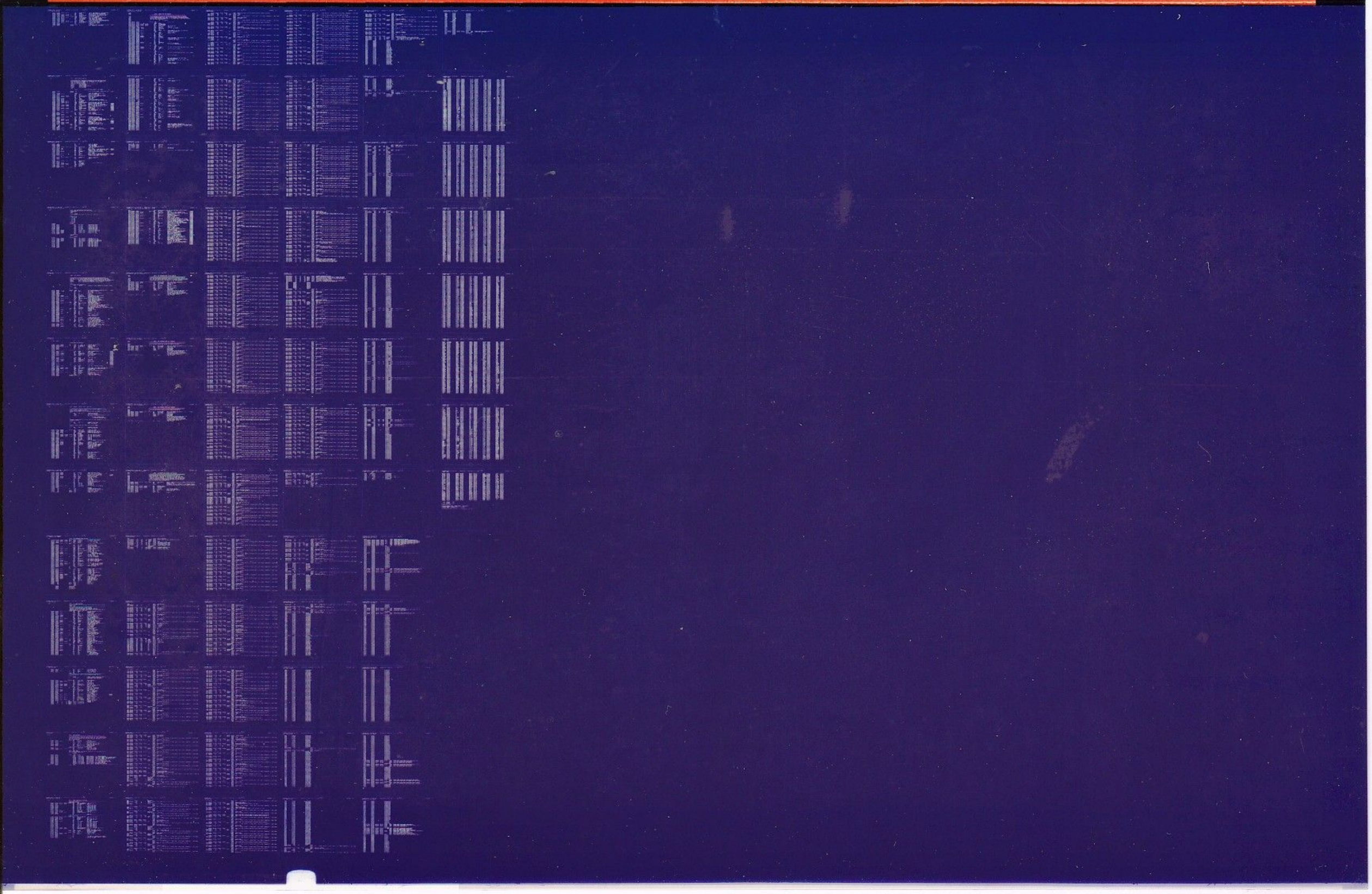
FP11-F FP11F FLTG PNT PRT C AH-F638D-MC
CKFPCD0 FICHE 1 OF 2



FP11-F FP11F FLTG PNT PRT C AH-F638D-MC
CKFPCDO FICHE 2 OF 2



```
                        .REM    &
```

IDENTIFICATION

PRODUCT CODE: AC-F636D-MC

PRODUCT NAME: CKFPCD0 FP11F FLTG PNT PRT C

PRODUCT DATE: OCTOBER, 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.

THE FOLLOWING WAS ADDED TO THE 'D' VERSION: (LABELED BY ';DPM002' IN COMMENTS)

IN TEST 74 (TESTING 'STEXP'), IN EACH LOCATION WHERE THE CODE GOES TO CHECK THE 'STEXP' INSTRUCTION IN THE SUBROUTINE, IT NOW DOES THAT SECTION 3 TIMES IN ORDER TO CHECK THE ADDITIONAL MODES 2 AND 4 (AUTO INCREMENT/DECREMENT). A TABLE WAS ADDED CONSISTING OF THREE 3-WORD DATA GROUPS. THE FIRST AND LAST GROUPS PROVIDE THE DATA TO LOAD AND CHECK THE PROPER PRE AND POST VALUES RESPECTIVELY OF R0 USED IN EXECUTING THE INSTRUCTION. THE SECOND GROUP IS THE OP CODES OF THE THREE MODES OF THE INSTRUCTION. THE 'STEXP' OP CODE IS PLACED IN THE FLOW JUST BEFORE EXECUTION.

```
                        IN TESTS 76 THROUGH 114, LOOP ON ERROR ADDRESS LOAD TO $LPERR WAS ADDED JUST
                        BEFORE EACH TEST INSTRUCTION.

                        IN THE END-OF-PASS SECTION, THE EOP MESSAGE IS PRINTED EVERY 1000 PASSES
                        BECAUSE EXECUTION TIME PER PASS IS SO SHORT.

                        IN THE $TYPOCS ROUTINE, IT NO LONGER PRINTS SPACE CHARACTERS AHEAD OF NON-
                        ZERO DIGITS.
```

CONTENTS

1. ABSTRACT

THE THREE PROGRAMS:

CKFPAC0 CKFPBB0 CKFPCD0

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. CKFPAC0

CKFPAC0 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. CKFPBB0

CKFPBB0 TESTS:

- ADDF, ADDD AND SUBD (ALL CONDITIONS NOT TESTED IN CKFPAC0)
- CMPD AND CMPF
- DIVD AND DIVF
- MULD AND MULF
- MODD AND MODF

C. CKFPCD0

CKFPCD0 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 MANUFACTURING ENVIRONMENT. WHEN THIS DEVICE IS PRESENT THE PROGRAM CKFPBB0 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 CKFPAC0.
SW<7>=1....	200	SELECT CORRECT INTERRUPT TEST IN PROGRAM CKFPBB0.

6. ERRORS

6.1 SUMMARIES

IN PROGRAM CKFPAC0 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 CKFPAC0 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 CKFPBB0 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
```

```
1974                                    .MCALL  .HEADER,.SWRHI,.EQUAT,.SETUP,.$CATCH,.$ACT11
1975                                    .MCALL  .$SAVE,.$CMTAG
1976                                    .MCALL  .$TYPDEC,.$TRAP,.$POWER,.$APTHDR,.$APTBLS
1977                                    .MCALL  .$APTYPE,.$READ
1978                                    .MCALL  .EQUIV                          ;REMOVE FOR PDP-10
1979                                .TITLE  CKFPCDO 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
1980
1981
1982    000244                      FPVECT=244
1983    000250                      MMVECT=250
1984    177400                      $SWR=177400
1985    000200                      $SWRMSK=200
1986    000011                      TAB=11
1987    000015                      CRLF=15
1988
1989                                .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

```
000200                  PR4=    200             ;;PRIORITY LEVEL 4
000240                  PR5=    240             ;;PRIORITY LEVEL 5
000300                  PR6=    300             ;;PRIORITY LEVEL 6
000340                  PR7=    340             ;;PRIORITY LEVEL 7
                        ;*''SWITCH REGISTER'' SWITCH DEFINITIONS
100000                  SW15=   100000
040000                  SW14=   40000
020000                  SW13=   20000
010000                  SW12=   10000
004000                  SW11=   4000
002000                  SW10=   2000
001000                  SW09=   1000
000400                  SW08=   400
000200                  SW07=   200
000100                  SW06=   100
000040                  SW05=   40
000020                  SW04=   20
000010                  SW03=   10
000004                  SW02=   4
000002                  SW01=   2
000001                  SW00=   1
001000                          SW9=SW09
000400                          SW8=SW08
000200                          SW7=SW07
000100                          SW6=SW06
000040                          SW5=SW05
000020                          SW4=SW04
000010                          SW3=SW03
000004                          SW2=SW02
000002                          SW1=SW01
000001                          SW0=SW00
                        ;*DATA BIT DEFINITIONS (BIT00 TO BIT15)
100000                  BIT15=  100000
040000                  BIT14=  40000
020000                  BIT13=  20000
010000                  BIT12=  10000
004000                  BIT11=  4000
002000                  BIT10=  2000
001000                  BIT09=  1000
000400                  BIT08=  400
000200                  BIT07=  200
000100                  BIT06=  100
000040                  BIT05=  40
000020                  BIT04=  20
000010                  BIT03=  10
000004                  BIT02=  4
000002                  BIT01=  2
000001                  BIT00=  1
001000                          BIT9=BIT09
000400                          BIT8=BIT08
000200                          BIT7=BIT07
000100                          BIT6=BIT06
000040                          BIT5=BIT05
000020                          BIT4=BIT04
000010                          BIT3=BIT03
000004                          BIT2=BIT02
000002                          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
  1990                                                  .SBTTL  FPP REGISTER DEFINITIONS
  1991                  000000                  AC0     =%0
  1992                  000001                  AC1     =%1
  1993                  000002                  AC2     =%2
  1994                  000003                  AC3     =%3
  1995                  000004                  AC4     =%4
  1996                  000005                  AC5     =%5
  1997                  000006                  AC6     =%6
  1998                  000007                  AC7     =%7
  1999                  172300                  KIPDR0  =172300
  2000                  172302                  KIPDR1  =172302
  2001                  172304                  KIPDR2  =172304
  2002                  172306                  KIPDR3  =172306
  2003                  172310                  KIPDR4  =172310
  2004                  172316                  KIPDR7  =172316
  2005                  172340                  KIPAR0  =172340
  2006                  172342                  KIPAR1  =172342
  2007                  172344                  KIPAR2  =172344
  2008                  172346                  KIPAR3  =172346
  2009                  172350                  KIPAR4  =172350
  2010                  172356                  KIPAR7  =172356
  2011                  172320                  KDPDR0  =172320
  2012                  172322                  KDPDR1  =172322
  2013                  172324                  KDPDR2  =172324
  2014                  172326                  KDPDR3  =172326
  2015                  172330                  KDPDR4  =172330
  2016                  172336                  KDPDR7  =172336
  2017                  172360                  KDPAR0  =172360
  2018                  172362                  KDPAR1  =172362
  2019                  172364                  KDPAR2  =172364
  2020                  172366                  KDPAR3  =172366
  2021                  172370                  KDPAR4  =172370
  2022                  172376                  KDPAR7  =172376
  2023                  177572                  MMR0    =177572
  2024                  177574                  SR1     =177574
  2025                  177576                  MMR2    =177576
  2026                  172516                  MMR3    =172516
  2027                  117760                  DATA    =117760
  2028                  000020                  IOTRAP  =000020
  2029
  2031
  2032                                                  .SBTTL  TRAP CATCHER
                        000000                          .=0
```

TRAP CATCHER

```
                                ;*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
```

```
                                .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:
```

ERROR POINTER TABLE

```
                                        .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:
2037            000444                          .REPT   MNUMBER
2039 001442     052346  071204  073122          .WORD   EM1,DH1,DT1,DF1     ;ITEM 1
.    001452     052422  071274  073142          .WORD   EM2,DH2,DT2,DF2     ;ITEM 2
     001462     052452  071340  073164          .WORD   EM3,DH3,DT3,DF3     ;ITEM 3
     001472     052502  071404  073206          .WORD   EM4,DH4,DT4,DF4     ;ITEM 4
     001502     052563  071447  073230          .WORD   EM5,DH5,DT5,DF5     ;ITEM 5
     001512     052574  071447  073256          .WORD   EM6,DH6,DT6,DF6     ;ITEM 6
     001522     052737  071404  073206          .WORD   EM7,DH7,DT7,DF7     ;ITEM 7
     001532     052761  071447  073230          .WORD   EM10,DH10,DT10,DF10     ;ITEM 10
     001542     052774  071404  073206          .WORD   EM11,DH11,DT11,DF11     ;ITEM 11
     001552     053024  071447  073230          .WORD   EM12,DH12,DT12,DF12     ;ITEM 12
     001562     053036  071460  073256          .WORD   EM13,DH13,DT13,DF13     ;ITEM 13
     001572     053036  071460  073256          .WORD   EM14,DH14,DT14,DF14     ;ITEM 14
     001602     053104  071447  073230          .WORD   EM15,DH15,DT15,DF15     ;ITEM 15
     001612     053116  071520  073270          .WORD   EM16,DH16,DT16,DF16     ;ITEM 16
     001622     053142  071460  073256          .WORD   EM17,DH17,DT17,DF17     ;ITEM 17
     001632     053166  071404  073270          .WORD   EM20,DH20,DT20,DF20     ;ITEM 20
     001642     053204  071447  073230          .WORD   EM21,DH21,DT21,DF21     ;ITEM 21
     001652     053204  071447  073230          .WORD   EM22,DH22,DT22,DF22     ;ITEM 22
     001662     053216  071460  073256          .WORD   EM23,DH23,DT23,DF23     ;ITEM 23
     001672     053243  071404  073270          .WORD   EM24,DH24,DT24,DF24     ;ITEM 24
     001702     053260  071447  073230          .WORD   EM25,DH25,DT25,DF25     ;ITEM 25
     001712     053272  071460  073256          .WORD   EM26,DH26,DT26,DF26     ;ITEM 26
     001722     053317  071404  073270          .WORD   EM27,DH27,DT27,DF27     ;ITEM 27
     001732     053334  071447  073230          .WORD   EM30,DH30,DT30,DF30     ;ITEM 30
     001742     053346  071460  073256          .WORD   EM31,DH31,DT31,DF31     ;ITEM 31
     001752     053372  071404  073270          .WORD   EM32,DH32,DT32,DF32     ;ITEM 32
     001762     053410  071447  073230          .WORD   EM33,DH33,DT33,DF33     ;ITEM 33
     001772     053422  071460  073256          .WORD   EM34,DH34,DT34,DF34     ;ITEM 34
     002002     053447  071404  073270          .WORD   EM35,DH35,DT35,DF35     ;ITEM 35
     002012     053464  071447  073230          .WORD   EM36,DH36,DT36,DF36     ;ITEM 36
     002022     053476  071563  073312          .WORD   EM37,DH37,DT37,DF37     ;ITEM 37
     002032     053556  071563  073312          .WORD   EM40,DH40,DT40,DF40     ;ITEM 40
     002042     053556  071626  073356          .WORD   EM41,DH41,DT41,DF41     ;ITEM 41
     002052     053476  071563  073312          .WORD   EM42,DH42,DT42,DF42     ;ITEM 42
     002062     053556  071563  073312          .WORD   EM43,DH43,DT43,DF43     ;ITEM 43
     002072     053476  071563  073312          .WORD   EM44,DH44,DT44,DF44     ;ITEM 44
     002102     053476  071563  073312          .WORD   EM45,DH45,DT45,DF45     ;ITEM 45
     002112     053556  071563  073312          .WORD   EM46,DH46,DT46,DF46     ;ITEM 46
     002122     053476  071563  073312          .WORD   EM47,DH47,DT47,DF47     ;ITEM 47
     002132     053476  071563  073312          .WORD   EM50,DH50,DT50,DF50     ;ITEM 50
     002142     054235  071563  073312          .WORD   EM51,DH51,DT51,DF51     ;ITEM 51
     002152     054274  071563  073312          .WORD   EM52,DH52,DT52,DF52     ;ITEM 52
     002162     054274  071626  073356          .WORD   EM53,DH53,DT53,DF53     ;ITEM 53
     002172     054235  071563  073312          .WORD   EM54,DH54,DT54,DF54     ;ITEM 54
     002202     054235  071563  073312          .WORD   EM55,DH55,DT55,DF55     ;ITEM 55
```

ERROR POINTER TABLE

```
002212  054274  071563  073312          .WORD   EM56,DH56,DT56,DF56      ;ITEM 56
002222  054274  071563  073312          .WORD   EM57,DH57,DT57,DF57      ;ITEM 57
002232  054235  071563  073312          .WORD   EM60,DH60,DT60,DF60      ;ITEM 60
002242  054274  071563  073312          .WORD   EM61,DH61,DT61,DF61      ;ITEM 61
002252  054771  071274  073270          .WORD   EM62,DH62,DT62,DF62      ;ITEM 62
002262  055067  071340  073270          .WORD   EM63,DH63,DT63,DF63      ;ITEM 63
002272  055104  071447  073230          .WORD   EM64,DH64,DT64,DF64      ;ITEM 64
002302  055154  071274  073270          .WORD   EM65,DH65,DT65,DF65      ;ITEM 65
002312  055200  071404  073206          .WORD   EM66,DH66,DT66,DF66      ;ITEM 66
002322  055226  071274  073206          .WORD   EM67,DH67,DT67,DF67      ;ITEM 67
002332  055310  071340  073206          .WORD   EM70,DH70,DT70,DF70      ;ITEM 70
002342  055333  071447  073432          .WORD   EM71,DH71,DT71,DF71      ;ITEM 71
002352  055350  071274  073206          .WORD   EM72,DH72,DT72,DF72      ;ITEM 72
002362  055364  071447  073466          .WORD   EM73,DH73,DT73,DF73      ;ITEM 73
002372  055400  071404  073206          .WORD   EM74,DH74,DT74,DF74      ;ITEM 74
002402  055414  071274  073142          .WORD   EM75,DH75,DT75,DF75      ;ITEM 75
002412  055430  071460  073256          .WORD   EM76,DH76,DT76,DF76      ;ITEM 76
002422  055503  071447  073466          .WORD   EM77,DH77,DT77,DF77      ;ITEM 77
002432  055516  071404  073206          .WORD   EM100,DH100,DT100,DF100  ;ITEM 100
002442  055532  071274  073142          .WORD   EM101,DH101,DT101,DF101  ;ITEM 101
002452  055546  071460  073256          .WORD   EM102,DH102,DT102,DF102  ;ITEM 102
002462  055571  071447  073466          .WORD   EM103,DH103,DT103,DF103  ;ITEM 103
002472  055604  071404  073206          .WORD   EM104,DH104,DT104,DF104  ;ITEM 104
002502  055620  071274  073142          .WORD   EM105,DH105,DT105,DF105  ;ITEM 105
002512  055634  071460  073256          .WORD   EM106,DH106,DT106,DF106  ;ITEM 106
002522  055660  071460  073256          .WORD   EM107,DH107,DT107,DF107  ;ITEM 107
002532  055674  071447  073466          .WORD   EM110,DH110,DT110,DF110  ;ITEM 110
002542  055710  071404  073206          .WORD   EM111,DH111,DT111,DF111  ;ITEM 111
002552  055724  071274  073142          .WORD   EM112,DH112,DT112,DF112  ;ITEM 112
002562  055740  071460  073256          .WORD   EM113,DH113,DT113,DF113  ;ITEM 113
002572  055764  071447  073466          .WORD   EM114,DH114,DT114,DF114  ;ITEM 114
002602  056000  071404  073206          .WORD   EM115,DH115,DT115,DF115  ;ITEM 115
002612  056014  071274  073142          .WORD   EM116,DH116,DT116,DF116  ;ITEM 116
002622  056030  071460  073256          .WORD   EM117,DH117,DT117,DF117  ;ITEM 117
002632  056053  071447  073466          .WORD   EM120,DH120,DT120,DF120  ;ITEM 120
002642  056066  071404  073206          .WORD   EM121,DH121,DT121,DF121  ;ITEM 121
002652  056102  071274  073142          .WORD   EM122,DH122,DT122,DF122  ;ITEM 122
002662  056116  071460  073256          .WORD   EM123,DH123,DT123,DF123  ;ITEM 123
002672  056142  071447  073466          .WORD   EM124,DH124,DT124,DF124  ;ITEM 124
002702  056156  071404  073206          .WORD   EM125,DH125,DT125,DF125  ;ITEM 125
002712  056172  071274  073142          .WORD   EM126,DH126,DT126,DF126  ;ITEM 126
002722  056206  071460  073256          .WORD   EM127,DH127,DT127,DF127  ;ITEM 127
002732  056232  071447  073466          .WORD   EM130,DH130,DT130,DF130  ;ITEM 130
002742  056246  071274  073142          .WORD   EM131,DH131,DT131,DF131  ;ITEM 131
002752  056262  071460  073256          .WORD   EM132,DH132,DT132,DF132  ;ITEM 132
002762  056307  071447  073466          .WORD   EM133,DH133,DT133,DF133  ;ITEM 133
002772  056322  071274  073142          .WORD   EM134,DH134,DT134,DF134  ;ITEM 134
003002  056336  071447  073230          .WORD   EM135,DH135,DT135,DF135  ;ITEM 135
003012  056406  071447  073230          .WORD   EM136,DH136,DT136,DF136  ;ITEM 136
003022  056422  071274  073270          .WORD   EM137,DH137,DT137,DF137  ;ITEM 137
003032  056436  071447  073230          .WORD   EM140,DH140,DT140,DF140  ;ITEM 140
003042  056452  071404  073206          .WORD   EM141,DH141,DT141,DF141  ;ITEM 141
003052  056510  071274  073206          .WORD   EM142,DH142,DT142,DF142  ;ITEM 142
003062  056524  071447  073230          .WORD   EM143,DH143,DT143,DF143  ;ITEM 143
003072  056540  071404  073206          .WORD   EM144,DH144,DT144,DF144  ;ITEM 144
003102  056556  071274  073206          .WORD   EM145,DH145,DT145,DF145  ;ITEM 145
003112  056572  071447  073230          .WORD   EM146,DH146,DT146,DF146  ;ITEM 146
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003142  056642  071447  073230          .WORD   EM151,DH151,DT151,DF151    ;ITEM 151
003152  056656  071404  073206          .WORD   EM152,DH152,DT152,DF152    ;ITEM 152
003162  056676  071274  073206          .WORD   EM153,DH153,DT153,DF153    ;ITEM 153
003172  056712  071447  073230          .WORD   EM154,DH154,DT154,DF154    ;ITEM 154
003202  056726  071404  073206          .WORD   EM155,DH155,DT155,DF155    ;ITEM 155
003212  056746  071274  073206          .WORD   EM156,DH156,DT156,DF156    ;ITEM 156
003222  056762  071447  073230          .WORD   EM157,DH157,DT157,DF157    ;ITEM 157
003232  057005  071404  073206          .WORD   EM160,DH160,DT160,DF160    ;ITEM 160
003242  057053  071274  073206          .WORD   EM161,DH161,DT161,DF161    ;ITEM 161
003252  057066  071447  073230          .WORD   EM162,DH162,DT162,DF162    ;ITEM 162
003262  057112  071274  073206          .WORD   EM163,DH163,DT163,DF163    ;ITEM 163
003272  057126  071520  073206          .WORD   EM164,DH164,DT164,DF164    ;ITEM 164
003302  057156  071563  073312          .WORD   EM165,DH165,DT165,DF165    ;ITEM 165
003312  057172  071563  073312          .WORD   EM166,DH166,DT166,DF166    ;ITEM 166
003322  057206  071563  073312          .WORD   EM167,DH167,DT167,DF167    ;ITEM 167
003332  057222  071563  073312          .WORD   EM170,DH170,DT170,DF170    ;ITEM 170
003342  057236  071563  073312          .WORD   EM171,DH171,DT171,DF171    ;ITEM 171
003352  057252  071563  073312          .WORD   EM172,DH172,DT172,DF172    ;ITEM 172
003362  057266  071626  073356          .WORD   EM173,DH173,DT173,DF173    ;ITEM 173
003372  057302  071626  073356          .WORD   EM174,DH174,DT174,DF174    ;ITEM 174
003402  057316  071626  073356          .WORD   EM175,DH175,DT175,DF175    ;ITEM 175
003412  057332  071274  073206          .WORD   EM176,DH176,DT176,DF176    ;ITEM 176
003422  057354  071677  073422          .WORD   EM177,DH177,DT177,DF177    ;ITEM 177
003432  057410  071563  073312          .WORD   EM200,DH200,DT200,DF200    ;ITEM 200
003442  057463  071563  073312          .WORD   EM201,DH201,DT201,DF201    ;ITEM 201
003452  057534  071563  073312          .WORD   EM202,DH202,DT202,DF202    ;ITEM 202
003462  057606  071563  073312          .WORD   EM203,DH203,DT203,DF203    ;ITEM 203
003472  057730  071563  073312          .WORD   EM204,DH204,DT204,DF204    ;ITEM 204
003502  060003  071563  073312          .WORD   EM205,DH205,DT205,DF205    ;ITEM 205
003512  060054  071563  073312          .WORD   EM206,DH206,DT206,DF206    ;ITEM 206
003522  060126  071563  073312          .WORD   EM207,DH207,DT207,DF207    ;ITEM 207
003532  060200  071563  073312          .WORD   EM210,DH210,DT210,DF210    ;ITEM 210
003542  060252  071563  073312          .WORD   EM211,DH211,DT211,DF211    ;ITEM 211
003552  060331  071563  073312          .WORD   EM212,DH212,DT212,DF212    ;ITEM 212
003562  060402  071563  073312          .WORD   EM213,DH213,DT213,DF213    ;ITEM 213
003572  060513  071563  073312          .WORD   EM214,DH214,DT214,DF214    ;ITEM 214
003602  060600  071520  073206          .WORD   EM215,DH215,DT215,DF215    ;ITEM 215
003612  060735  071447  073230          .WORD   EM216,DH216,DT216,DF216    ;ITEM 216
003622  060750  071404  073206          .WORD   EM217,DH217,DT217,DF217    ;ITEM 217
003632  060770  071274  073206          .WORD   EM220,DH220,DT220,DF220    ;ITEM 220
003642  061004  071520  073206          .WORD   EM221,DH221,DT221,DF221    ;ITEM 221
003652  061054  071447  073230          .WORD   EM222,DH222,DT222,DF222    ;ITEM 222
003662  061070  071404  073206          .WORD   EM223,DH223,DT223,DF223    ;ITEM 223
003672  061110  071274  073206          .WORD   EM224,DH224,DT224,DF224    ;ITEM 224
003702  061124  071404  073206          .WORD   EM225,DH225,DT225,DF225    ;ITEM 225
003712  061147  071274  073206          .WORD   EM226,DH226,DT226,DF226    ;ITEM 226
003722  061160  071726  073256          .WORD   EM227,DH227,DT227,DF227    ;ITEM 227
003732  061211  071404  073206          .WORD   EM230,DH230,DT230,DF230    ;ITEM 230
003742  061234  071274  073206          .WORD   EM231,DH231,DT231,DF231    ;ITEM 231
003752  061246  071726  073256          .WORD   EM232,DH232,DT232,DF232    ;ITEM 232
003762  061260  071404  073206          .WORD   EM233,DH233,DT233,DF233    ;ITEM 233
003772  061304  071274  073206          .WORD   EM234,DH234,DT234,DF234    ;ITEM 234
004002  061316  071726  073256          .WORD   EM235,DH235,DT235,DF235    ;ITEM 235
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004052  061425  071274  073206          .WORD   EM242,DH242,DT242,DF242    ;ITEM 242
004062  061436  071726  073256          .WORD   EM243,DH243,DT243,DF243    ;ITEM 243
004072  061450  071404  073206          .WORD   EM244,DH244,DT244,DF244    ;ITEM 244
004102  061474  071274  073206          .WORD   EM245,DH245,DT245,DF245    ;ITEM 245
004112  061506  071520  073206          .WORD   EM246,DH246,DT246,DF246    ;ITEM 246
004122  061557  071726  073256          .WORD   EM247,DH247,DT247,DF247    ;ITEM 247
004132  061570  071404  073206          .WORD   EM250,DH250,DT250,DF250    ;ITEM 250
004142  061615  071274  073206          .WORD   EM251,DH251,DT251,DF251    ;ITEM 251
004152  061506  071520  073206          .WORD   EM252,DH252,DT252,DF252    ;ITEM 252
004162  061642  071726  073256          .WORD   EM253,DH253,DT253,DF253    ;ITEM 253
004172  061506  071520  073206          .WORD   EM254,DH254,DT254,DF254    ;ITEM 254
004202  061672  071726  073256          .WORD   EM255,DH255,DT255,DF255    ;ITEM 255
004212  061716  071404  073206          .WORD   EM256,DH256,DT256,DF256    ;ITEM 256
004222  061744  071274  073206          .WORD   EM257,DH257,DT257,DF257    ;ITEM 257
004232  061756  071563  073312          .WORD   EM260,DH260,DT260,DF260    ;ITEM 260
004242  062014  071563  073312          .WORD   EM261,DH261,DT261,DF261    ;ITEM 261
004252  062026  071563  073312          .WORD   EM262,DH262,DT262,DF262    ;ITEM 262
004262  062114  071563  073312          .WORD   EM263,DH263,DT263,DF263    ;ITEM 263
004272  062141  071563  073312          .WORD   EM264,DH264,DT264,DF264    ;ITEM 264
004302  062226  071563  073312          .WORD   EM265,DH265,DT265,DF265    ;ITEM 265
004312  062277  071563  073312          .WORD   EM266,DH266,DT266,DF266    ;ITEM 266
004322  062353  071563  073312          .WORD   EM267,DH267,DT267,DF267    ;ITEM 267
004332  062440  071563  073312          .WORD   EM270,DH270,DT270,DF270    ;ITEM 270
004342  062472  071563  073312          .WORD   EM271,DH271,DT271,DF271    ;ITEM 271
004352  062531  071563  073312          .WORD   EM272,DH272,DT272,DF272    ;ITEM 272
004362  062601  071563  073312          .WORD   EM273,DH273,DT273,DF273    ;ITEM 273
004372  062636  071563  073312          .WORD   EM274,DH274,DT274,DF274    ;ITEM 274
004402  062650  071563  073312          .WORD   EM275,DH275,DT275,DF275    ;ITEM 275
004412  062733  071563  073312          .WORD   EM276,DH276,DT276,DF276    ;ITEM 276
004422  063020  071563  073312          .WORD   EM277,DH277,DT277,DF277    ;ITEM 277
004432  063065  071563  073312          .WORD   EM300,DH300,DT300,DF300    ;ITEM 300
004442  063162  071563  073522          .WORD   EM301,DH301,DT301,DF301    ;ITEM 301
004452  063207  071563  073522          .WORD   EM302,DH302,DT302,DF302    ;ITEM 302
004462  063220  071626  073574          .WORD   EM303,DH303,DT303,DF303    ;ITEM 303
004472  063232  071563  073522          .WORD   EM304,DH304,DT304,DF304    ;ITEM 304
004502  063312  071563  073522          .WORD   EM305,DH305,DT305,DF305    ;ITEM 305
004512  063406  071563  073522          .WORD   EM306,DH306,DT306,DF306    ;ITEM 306
004522  063514  071563  073522          .WORD   EM307,DH307,DT307,DF307    ;ITEM 307
004532  063564  071563  073522          .WORD   EM310,DH310,DT310,DF310    ;ITEM 310
004542  063640  071563  073522          .WORD   EM311,DH311,DT311,DF311    ;ITEM 311
004552  063710  071563  073522          .WORD   EM312,DH312,DT312,DF312    ;ITEM 312
004562  063760  071563  073522          .WORD   EM313,DH313,DT313,DF313    ;ITEM 313
004572  064030  071563  073522          .WORD   EM314,DH314,DT314,DF314    ;ITEM 314
004602  064100  071563  073522          .WORD   EM315,DH315,DT315,DF315    ;ITEM 315
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004622  064220  071563  073522          .WORD   EM317,DH317,DT317,DF317    ;ITEM 317
004632  064270  071563  073522          .WORD   EM320,DH320,DT320,DF320    ;ITEM 320
004642  064340  071563  073522          .WORD   EM321,DH321,DT321,DF321    ;ITEM 321
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004662  064446  071563  073646          .WORD   EM323,DH323,DT323,DF323    ;ITEM 323
004672  064460  071626  073712          .WORD   EM324,DH324,DT324,DF324    ;ITEM 324
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004722  064616  071563  073646          .WORD   EM327,DH327,DT327,DF327    ;ITEM 327
004732  064666  071563  073646          .WORD   EM330,DH330,DT330,DF330    ;ITEM 330
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004762  064446  071563  073646          .WORD   EM333,DH333,DT333,DF333    ;ITEM 333
004772  065110  071563  073646          .WORD   EM334,DH334,DT334,DF334    ;ITEM 334
005002  065173  071563  073646          .WORD   EM335,DH335,DT335,DF335    ;ITEM 335
005012  065242  071563  073646          .WORD   EM336,DH336,DT336,DF336    ;ITEM 336
005022  065277  071563  073646          .WORD   EM337,DH337,DT337,DF337    ;ITEM 337
005032  065353  071563  073646          .WORD   EM340,DH340,DT340,DF340    ;ITEM 340
005042  065422  071563  073646          .WORD   EM341,DH341,DT341,DF341    ;ITEM 341
005052  065472  071563  073646          .WORD   EM342,DH342,DT342,DF342    ;ITEM 342
005062  065542  071563  073646          .WORD   EM343,DH343,DT343,DF343    ;ITEM 343
005072  065617  071563  073646          .WORD   EM344,DH344,DT344,DF344    ;ITEM 344
005102  065724  071563  073646          .WORD   EM345,DH345,DT345,DF345    ;ITEM 345
005112  065774  071563  073646          .WORD   EM346,DH346,DT346,DF346    ;ITEM 346
005122  066073  071563  073646          .WORD   EM347,DH347,DT347,DF347    ;ITEM 347
005132  066117  071563  073646          .WORD   EM350,DH350,DT350,DF350    ;ITEM 350
005142  066130  071460  073256          .WORD   EM351,DH351,DT351,DF351    ;ITEM 351
005152  066232  071563  073646          .WORD   EM352,DH352,DT352,DF352    ;ITEM 352
005162  066302  071563  073646          .WORD   EM353,DH353,DT353,DF353    ;ITEM 353
005172  066352  071563  073646          .WORD   EM354,DH354,DT354,DF354    ;ITEM 354
005202  066422  071563  073646          .WORD   EM355,DH355,DT355,DF355    ;ITEM 355
005212  066472  071404  073142          .WORD   EM356,DH356,DT356,DF356    ;ITEM 356
005222  066576  071746  073164          .WORD   EM357,DH357,DT357,DF357    ;ITEM 357
005232  066632  071460  073256          .WORD   EM360,DH360,DT360,DF360    ;ITEM 360
005242  066722  071274  073522          .WORD   EM361,DH361,DT361,DF361    ;ITEM 361
005252  066740  072012  073756          .WORD   EM362,DH362,DT362,DF362    ;ITEM 362
005262  067050  072034  073774          .WORD   EM363,DH363,DT363,DF363    ;ITEM 363
005272  067116  072074  074016          .WORD   EM364,DH364,DT364,DF364    ;ITEM 364
005302  067216  072143  073256          .WORD   EM365,DH365,DT365,DF365    ;ITEM 365
005312  067301  072154  074030          .WORD   EM366,DH366,DT366,DF366    ;ITEM 366
005322  067364  072206  074076          .WORD   EM367,DH367,DT367,DF367    ;ITEM 367
005332  067447  072253  074122          .WORD   EM370,DH370,DT370,DF370    ;ITEM 370
005342  067503  072316  074166          .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
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005452  067655  071274  073206          .WORD   EM402,DH402,DT402,DF402    ;ITEM 402
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005502  070030  071404  073206          .WORD   EM405,DH405,DT405,DF405    ;ITEM 405
005512  070044  071274  073206          .WORD   EM406,DH406,DT406,DF406    ;ITEM 406
005522  070060  071460  073256          .WORD   EM407,DH407,DT407,DF407    ;ITEM 407
005532  070130  071726  073256          .WORD   EM410,DH410,DT410,DF410    ;ITEM 410
005542  070144  071404  073206          .WORD   EM411,DH411,DT411,DF411    ;ITEM 411
005552  070170  071274  073206          .WORD   EM412,DH412,DT412,DF412    ;ITEM 412
005562  070202  071460  073256          .WORD   EM413,DH413,DT413,DF413    ;ITEM 413
005572  070252  071726  073256          .WORD   EM414,DH414,DT414,DF414    ;ITEM 414
005602  070264  071404  073206          .WORD   EM415,DH415,DT415,DF415    ;ITEM 415
005612  070311  071274  073206          .WORD   EM416,DH416,DT416,DF416    ;ITEM 416
005622  070322  071460  073256          .WORD   EM417,DH417,DT417,DF417    ;ITEM 417
005632  070366  071726  073256          .WORD   EM420,DH420,DT420,DF420    ;ITEM 420
005642  070400  071404  073206          .WORD   EM421,DH421,DT421,DF421    ;ITEM 421
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005672  070450  071726  073256          .WORD   EM424,DH424,DT424,DF424    ;ITEM 424
005702  070462  071404  073206          .WORD   EM425,DH425,DT425,DF425    ;ITEM 425
005712  070506  071274  073206          .WORD   EM426,DH426,DT426,DF426    ;ITEM 426
005722  070520  071460  073256          .WORD   EM427,DH427,DT427,DF427    ;ITEM 427
005732  070572  071726  073256          .WORD   EM430,DH430,DT430,DF430    ;ITEM 430
005742  070604  071460  073256          .WORD   EM431,DH431,DT431,DF431    ;ITEM 431
005752  070632  071404  073206          .WORD   EM432,DH432,DT432,DF432    ;ITEM 432
005762  070657  071274  073206          .WORD   EM433,DH433,DT433,DF433    ;ITEM 433
005772  070670  071460  073256          .WORD   EM434,DH434,DT434,DF434    ;ITEM 434
006002  070740  071726  073256          .WORD   EM435,DH435,DT435,DF435    ;ITEM 435
006012  070752  071460  073256          .WORD   EM436,DH436,DT436,DF436    ;ITEM 436
006022  071000  071404  073206          .WORD   EM437,DH437,DT437,DF437    ;ITEM 437
006032  071022  071404  073206          .WORD   EM440,DH440,DT440,DF440    ;ITEM 440
006042  071044  072412  074210          .WORD   EM441,DH441,DT441,DF441    ;ITEM 441
006052  071044  072143  074226          .WORD   EM442,DH442,DT442,DF442    ;ITEM 442
006062  071044  072143  074226          .WORD   EM443,DH443,DT443,DF443    ;ITEM 443
006072  071171  071340  073206          .WORD   EM444,DH444,DT444,DF444    ;ITEM 444
2040
2041
2042                                    .SBTTL  ACT11 HOOKS
                                        ;;**************************************************************************
                                        ;HOOKS REQUIRED BY ACT11
                006102                          $SVPC=.                 ;SAVE PC
                000046                          .=46
        000046  046104                          $ENDAD                  ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
                000052                          .=52
        000052  000000                          .WORD   0               ;;2)SET LOC.52 TO ZERO
                006102                          .=$SVPC                 ;; RESTORE PC
2043                                    .SBTTL  APT PARAMETER BLOCK
                                        ;;**************************************************************************
                                        ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
                                        ;;**************************************************************************
                006102                  .$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)
2044
2045
2046 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                          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  046170  000020          MOV     #$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
006144  012737  000340  000022          MOV     #340,@#IOTVEC+2 ;;LEVEL 7
006152  012737  046514  000030          MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
006160  012737  000340  000032          MOV     #340,@#EMTVEC+2 ;;LEVEL 7
006166  012737  050704  000034          MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
006174  012737  000340  000036          MOV     #340,@#TRAPVEC+2;LEVEL 7
006202  012737  050766  000024          MOV     #$PWRDN,@#PWRVEC ;;POWER FAILURE VECTOR
006210  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;LEVEL 7
006216  013737  045464  045452          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  046150  000014          MOV     #$RTRN,@#TBITVEC ;;SET "T" BIT VECTOR TO $RTRN
006250  012737  000340  000016          MOV     #340,@#TBITVEC+2 ;;LEVEL 7
006256  012737  045210  046150          MOV     #RTI,$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$,-(SP)      ;;AND PC
006300  000006                          RTT                     ;;TRY THE RTT
006302  012737  000006  046150  64$:    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  046156                  CLR     $TBIT           ;;CLEAR "T" BIT SWITCH
006330  012737  006330  001106          MOV     #.,$LPADR       ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
006336  012737  006336  001110          MOV     #.,$LPERR       ;;SETUP THE ERROR LOOP ADDRESS
                                ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
                                ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
006344  013746  0000C4                  MOV     @#ERRVEC,-(SP)  ;;SAVE ERROR VECTOR
006350  012737  006404  000004          MOV     #67$,@#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     #$SWREG,SWR     ;;NO,USE APT SWITCH REGISTER
006454                          70$:
2047                            .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  046104  000042          CMP     #$ENDAD,@#42    ;;ACT-11?
```

```
                                                                    G 3
        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$:  .ASCIZ  <CRLF>*CKFPCD0 FP11F FLTG PNT PRT C*<CRLF>
        006600                          71$:
  2048  006600  104401  006606                  TYPE    ,76$            ;;TYPE ASCIZ STRING
        006604  000434                          BR      75$             ;;GET OVER THE ASCIZ
                                        ;;76$:  .ASCIZ  !EOP MESSAGE WILL PRINT EVERY 1000 PASSES (15 SECONDS)!<CRLF>
        006676                          75$:
  2049  006676  104401  006704                  TYPE    ,78$            ;;TYPE ASCIZ STRING
        006702  000426                          BR      77$             ;;GET OVER THE ASCIZ
                                        ;;78$:  .ASCIZ  !HIT ANY KEY TO ENABLE/DISABLE EOP MESSAGES!<CRLF>
        006760                          77$:
  2050  006760  005037  046164                  CLR     EPENDS          ;CLR EOP FLAG INITIALLY ENABLING EOP'S  ;DPM002
  2051  006764                          LOOP:
```

TEST # 1 - STF WITH ILLEGAL ACCUMULATOR TEST

```
2057                                    .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.
                                        ;*
                                        ;;*****************************************************************
     006764  000004                     TST1:   SCOPE
2058 006766  012737  006774  001110             MOV     #1000$,$LPERR   ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2059 006774  005000                     1000$:  CLR     R0              ;SET THE FPS.
2060
2061 006776  170100                             LDFPS   R0
2062 007000  012737  007036  000244             MOV     #200$,FPVECT    ;SET UP FOR FP TRAPS.
2063 007006  012737  007014  001236             MOV     #1$,$TMP2
2064
2065 007014  174007                     1$:     STF     AC0,AC7         ;THIS TEST INSTRUCTION SHOULD
2066                                                                     ;CAUSE A TRAP.
2067
2068                                    ;REPORT FAILURE OF USE OF ILLEGAL ACCUMULATOR 7 TO CAUSE AN FPP TRAP.
2069
2070 007016  170200                     210$:   STFPS   R0              ;GET FPS.
2071 007020  010037  001240                     MOV     R0,$TMP3
2072 007024  170300                             STST    R0              ;GET FEC.
2073 007026  010037  001242                     MOV     R0,$TMP4
2074 007032  104001                             ERROR   +1              ;STF WITH ILLEGAL ACCUMULATOR, MODE
2075                                                                     ;0, DIDN'T TRAP. ST 765 TO ST 537.
2076 007034  000434                             BR      240$
2077
2078                                    ;TRAP TO 200$, HERE, WHEN THE EXPECTED ERROR OCCURS.
2079 007036  011600                     200$:   MOV     (SP),R0         ;MAKE SURE THE ERROR OCCURRED
2080 007040  022700  007016                     CMP     #210$,R0        ;AT THE CORRECT ADDRESS.
2081 007044  001402                             BEQ     220$            ;BRANCH IF TRAP ADDRESS CORRECT.
2082 007046  000137  051732                     JMP     FPSPUR  ;IF INCORRECT GO REPORT SPURIOUS
2083                                                                     ;FP TRAP.
2084
2085 007052  170204                     220$:   STFPS   R4              ;GET FPS.
2086 007054  170305                             STST    R5              ;GET FEC.
2087 007056  010437  001240                     MOV     R4,$TMP3        ;SAVE DATA INCASE OF ERROR.
2088 007062  010537  001242                     MOV     R5,$TMP4
2089 007066  012702  100000                     MOV     #100000,R2      ;EXPECTED FPS
2090 007072  012703  000002                     MOV     #2,R3           ;EXPECTED FEC
2091 007076  010237  001244                     MOV     R2,$TMP5
2092 007102  010337  001246                     MOV     R3,$TMP6
2093 007106  022626                             CMP     (SP)+,(SP)+     ;RESET THE STACK.
2094
2095 007110  020204                             CMP     R2,R4           ;WAS FPS CORRECT?
2096 007112  001402                             BEQ     230$            ;BRANCH IF YES.
2097                                                                     ;OTHERWISE REPORT FPS INCORRECTLY
2098 007114  104002                             ERROR   +2              ;SET AFTER USE OF ILLEGAL ACC.
2099 007116  000403                             BR      240$
2100
2101 007120  020305                     230$:   CMP     R3,R5           ;WAS THE FEC CORPECT?
2102 007122  001401                             BEQ     240$            ;BRANCH IF CORRECT.
2103                                                                     ;OTHERWISE REPORT INCORRECT FEC
2104 007124  104003                             ERROR   +3              ;AFTER USE OF ILLEGAL ACC.
2105
2106 007126                             240$:
```

```
        007126  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 # 2 - FDST MODE 1, FLOATING MODE, TEST

```
2112                                    .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.
                                        ;*
                                        ;;*****************************************************************
    007130  000004                      TST2:   SCOPE
2113 007132  012737  007140  001110             MOV     #1000$,$LPERR   ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2114 007140  012700  177777             1000$:  MOV     #-1,R0          ;SET UP A BACKROUND PATTERN IN THE
2115 007144  012701  007274                     MOV     #200$,R1        ;INPUT BUFFER.
2116 007150  012702  000014                     MOV     #14,R2
2117 007154  010021                      210$:  MOV     R0,(R1)+
2118 007156  077202                             SOB     R2,210$
2119
2120 007160  012700  000200                     MOV     #200,R0         ;SET FD MODE.
2121 007164  170100                             LDFPS   R0
2122 007166  012700  007324                     MOV     #220$,R0        ;PUT TEST DATA INTO AC0.
2123 007172  172410                             LDD     (R0),AC0
2124
2125 007174  012700  007310                     MOV     #230$,R0        ;FDST ADDRESS.
2126 007200  005002                             CLR     R2              ;CLEAR THE FPS.
2127 007202  170102                             LDFPS   R2
2128 007204  012737  007216  001236             MOV     #240$,$TMP2
2129 007212  010037  001240                     MOV     R0,$TMP3
2130
2131 007216  174010                      240$:  STF     AC0,(R0)        ;TEST INSTRUCTION.
2132
2133 007220  022700  007310                     CMP     #230$,R0        ;WAS R0 MODIFIED DURING EXECUTION?
2134 007224  001404                             BEQ     245$            ;BRANCH IF R0 NOT MODIFIED, CORRECT.
2135
2136 007226  010037  001242                     MOV     R0,$TMP4        ;OTHERWISE REPORT ERROR, R0 MODIFIED.
2137 007232  104004                             ERROR   +4
2138 007234  000456                             BR      250$            ;GO TO NEXT TEST.
2139
2140 007236  012700  007310              245$:  MOV     #230$,R0        ;CHECK THE DATA IN THE OUTPUT BUFFER.
2141 007242  012701  007324                     MOV     #220$,R1
2142 007246  022021                             CMP     (R0)+,(R1)+
2143 007250  001031                             BNE     260$            ;BRANCH IF INCORRECT.
2144 007252  022011                             CMP     (R0)+,(R1)
2145 007254  001027                             BNE     260$            ;BRANCH IF INCORRECT.
2146 007256  022720  177777                     CMP     #-1,(R0)+       ;WAS FLOATING MODE USED?
2147 007262  001034                             BNE     270$            ;BRANCH IF NOT.
2148 007264  022710  177777                     CMP     #-1,(R0)
2149 007270  001031                             BNE     270$
2150 007272  000437                             BR      250$    ;GO TO NEXT TEST.
2151
2152 007274  177777  177777  177777      200$:  .WORD   -1,-1,-1,-1,-1,-1
2153
2154 007310  177777  177777  177777      230$:  .WORD   -1,-1,-1,-1,-1,-1
2155
2156 007324  123456  023456              220$:  .WORD   123456,23456
2157 007330  034567  045671                     .WORD   34567,45671
2158
2159                                    ;REPORT DATA IN OUT PUT BUFFER INCORRECT.
2160 007334  012737  007324  001242      260$:  MOV     #220$,$TMP4
2161 007342  012737  007310  001240             MOV     #230$,$TMP3
```

```
                                                ERROR   +5              ;BAD DATA.
                                                BR      250$
                                        ;REPORT FLOATING MODE NOT USED, BUT FD FAILED.
                                270$:   MOV     #220$,$TMP4
                                        MOV     #230$,$TMP3
                                        ERROR   +6              ;ST 707 TO 245 INTO 244 (BUT FD).
                                250$:
                                        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 # 3 - FDST MODE 2 TEST

```
                                .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.
                                ;*
                                ;;*****************************************************************
007374  000004                  TST3:   SCOPE
                                ;FIRST TEST STF.
007376  012737  007404  001110          MOV     #1000$,$LPERR   ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
007404  012700  177777          1000$:  MOV     #-1,R0  ;SET UP THE OUTPUT BUFFER.
007410  012701  007542                  MOV     #200$,R1
007414  012702  000014                  MOV     #14,R2
007420  010021                  210$:   MOV     R0,(R1)+
007422  077202                          SOB     R2,210$

007424  012700  000200                  MOV     #200,R0         ;SET FD MODE.
007430  170100                          LDFPS   R0
007432  012700  007572                  MOV     #220$,R0        ;SETUP AC0.
007436  172410                          LDD     (R0),AC0

007440  012700  007556                  MOV     #230$,R0        ;FDST ADDRESS.
007444  005002                          CLR     R2
007446  170102                          LDFPS   R2              ;SET FPS.
007450  012737  007456  001236          MOV     #240$,$TMP2

007456  174020                  240$:   STF     AC0,(R0)+       ;TEST INSTRUCTION.

007460  022700  007562                  CMP     #230$+4,R0      ;WAS R0 INCREMENTED BY 4 PROPERLY?

007464  001407                          BEQ     250$            ;BRANCH IF R0 CORRECT.
007466  010037  001242                  MOV     R0,$TMP4        ;REPORT R0 INCORRECT AFTER FDST MODE 2.
007472  012737  007562  001240          MOV     #230$+4,$TMP3
007500  104007                          ERROR   +7              ;BAD CONSTANT USED OR DIDN'T GO 527 TO 642
007502  000530                          BR      260$
007504  012700  007556          250$:   MOV     #230$,R0        ;WAS THE OUTPUT DATA CORRECT?
007510  012701  007572                  MOV     #220$,R1
007514  022021                          CMP     (R0)+,(R1)+
007516  001031                          BNE     270$            ;BRANCH IF INCORRECT.
007520  022021                          CMP     (R0)+,(R1)+
007522  001027                          BNE     270$            ;BRANCH IF INCORRECT.
007524  022027  177777                  CMP     (R0)+,#-1       ;SEE IF ANY OTHER DATA BUFFER WORDS WERE MODIFIED.
007530  001024                          BNE     270$            ;BRANCH IF INCORRECT.
007532  022027  177777                  CMP     (R0)+,#-1
007536  001021                          BNE     270$            ;BRANCH IF INCORRECT.
007540  000433                          BR      280$
007542  177777  177777  177777  200$:   .WORD   -1,-1,-1,-1,-1,-1
007556  177777  177777  177777  230$:   .WORD   -1,-1,-1,-1,-1,-1
007572  076543                  220$:   76543
007574  065432                          65432
007576  054321                          54321
007600  043210                          43210
                                ;REPORT OUTPUT DATA INCORRECT:
007602  012737  007572  001240  270$:   MOV     #220$,$TMP3
007610  012737  007556  001242          MOV     #230$,$TMP4
007616  104010                          ERROR   +10             ;BAD DATA
007620  000461                          BR      260$
```

```
2226
2227                                    ;NOW TEST STD MODE 2.
2228
2229 007622  012737  007630  001110            MOV     #280$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2230 007630  012700  007542            280$:   MOV     #200$,R0        ;SET UP DEFAULT INPUT DATA BUFFER.
2231 007634  010001                            MOV     R0,R1
2232 007636  012702  000014                    MOV     #14,R2                                                  !
2233 007642  010021                    290$:   MOV     R0,(R1)+
2234 007644  077202                            SOB     R2,290$
2235 007646  012700  000200                    MOV     #200,R0         ;ENTER FLOATING DOUBLE MODE.
2236 007652  170100                            LDFPS   R0
2237 007654  012700  007572                    MOV     #220$,R0        ;LOAD AC0.
2238 007660  172410                            LDD     (R0),AC0
2239 007662  012700  007556                    MOV     #230$,R0        ;SET DESTINATION ADDRESS.
2240 007666  012737  007674  001236            MOV     #300$,$TMP2
2241 007674  174020                    300$:   STD     AC0,(R0)+       ;TEST INSTRUCTION.
2242 007676  022700  007566                    CMP     #230$+10,R0     ;WAS R0 INCREMENTED BY 10 CORRECTLY?
2243 007702  001407                            BEQ     310$            ;BRANCH IF CORRECT.
2244 007704  010037  001242                    MOV     R0,$TMP4        ;REPORT R0 INCORRECTLY INCREMENTED.
2245 007710  012737  007566  001240            MOV     #230$+10,$TMP3
2246 007716  104011                            ERROR   +11             ;DO NOT INCREM BY 10 BAD CONSTANT
2247 007720  000421                            BR      260$
2248 007722  012700  007556            310$:   MOV     #230$,R0        ;DID THE DATA REACH THE OUTPUT BUFFER CORRECTLY?
2249 007726  012701  007572                    MOV     #220$,R1
2250 007732  012702  000004                    MOV     #4,R2
2251 007736  022021                    1$:     CMP     (R0)+,(R1)+
2252 007740  001002                            BNE     320$            ;BRANCH IF INCORRECT.
2253 007742  077203                            SOB     R2,1$
2254 007744  000407                            BR      260$
2255                                    ;REPORT DATA INCORRECT.
2256 007746  012737  007572  001240    320$:   MOV     #220$,$TMP3
2257 007754  012737  007556  001242            MOV     #230$,$TMP4
2258 007762  104012                            ERROR   +12             ;BAD DATA
2259 007764                            260$:
     007764  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 # 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.
                                        ;*
                                        ;;*****************************************************************
 007766  000004                         TST4:   SCOPE
2266 007770  012737  007776  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2267 007776  012700  010054             200$:   MOV     #210$,R0        ;SET UP THE DATA BUFFER FOLLOWING THE TEST INSTRUCTION.
2268 010002  012701  010122                     MOV     #220$,R1
2269 010006  012702  000004                     MOV     #4,R2
2270 010012  012021                     1$:     MOV     (R0)+,(R1)+
2271 010014  077202                             SOB     R2,1$
2272 010016  012700  000200                     MOV     #200,R0         ;ENTER FLOATING DOUBLE MODE.
2273 010022  170100                             LDFPS   R0
2274 010024  012700  010132                     MOV     #230$,R0        ;SET UP AC0.
2275 010030  172410                             LDD     (R0),AC0
2276 010032  012737  010152  000004             MOV     #240$,ERRVECT   ;SET UP FOR AN ODD ADDRESS.
2277 010040  012737  010052  001236             MOV     #250$,$TMP2
2278 010046  005001                             CLR     R1
2279 010050  005004                             CLR     R4
2280                                    ;THIS IS THE TEST INSTRUCTION. IT SHOULD MODIFY THE FIRST LOCATION
2281                                    ;AFTER IT TO BE AN INCREMENT R4, INC R4, INSTRUCTION INSTEAD
2282                                    ;OF AN INCREMENT R1 INSTRUCTION. THE INCREMENT R4 SHOULD NOT BE
2283                                    ;EXECUTED SINCE THE PC SHOULD BE INCREMENTED BY TWO DURING IMMEDIATE
2284                                    ;MODE ADDRESSING. THUS AFTER THE EXECUTION OF THE NEXT 5 INSTRUCTIONS
2285                                    ;R1 SHOULD CONTAIN 3 AND R4 SHOULD CONTAIN 0.
2286 010052  174027                     250$:   STD     AC0,(R7)+       ;TEST INSTRUCTION.
2287 010054  005201                     210$:   INC     R1              ;THE STD INSTRUCTION SHOULD CHANGE THIS TO INC R4.
2288 010056  005201                             INC     R1
2289 010060  005201                             INC     R1
2290 010062  005201                             INC     R1
2291 010064  012700  0101<2                     MOV     #260$,R0        ;SEE IF THE DATA WAS OUTPUT CORRECTLY.
2292 010070  012702  010054                     MOV     #210$,R2
2293 010074  012703  000004                     MOV     #4,R3
2294 010100  022022                     280$:   CMP     (R0)+,(R2)+
2295 010102  001051                             BNE     270$            ;BRANCH IF INCORRECT.
2296 010104  077303                             SOB     R3,280$
2297 010106  005704                             TST     R4              ;MAKE SURE R4 IS 0.
2298 010110  001056                             BNE     290$            ;BRANCH IF R4 IS INCORRECT.
2299 010112  022701  000003                     CMP     #3,R1           ;SEE IF R1 IS CORRECT.
2300 010116  001053                             BNE     290$            ;BRANCH IF R1 IS INCORRECT.
2301 010120  000474                             BR      300$
2302                                    ;THESE ARE TEST DATA PATTERNS USED TO SET UP THE OUTPUT BUFFER AT 210$.
2303 010122  005201                     220$:   INC     R1
2304 010124  005201                             INC     R1
2305 010126  005201                             INC     R1
2306 010130  005201                             INC     R1
2307                                    ;THIS IS THE DATA PUT IN AC0 BEFORE EXECUTION OF THE STD.
2308 010132  005204                     230$:   INC     R4
2309 010134  005204                             INC     R4
2310 010136  005204                             INC     R4
2311 010140  005204                             INC     R4
2312                                    ;THIS IS THE EXPECTED DATA AT 210$ AFTER EXECUTION OF THE STD.
2313 010142  005204                     260$:   INC     R4
2314 010144  005201                             INC     R1
```

```
2315 010146  005201                          INC     R1
2316 010150  005201                          INC     R1
2317                                 ;IF A FAILURE IN THE FDST FLOWS RESULTS IN AN ODD ADDRESS TRAP THROUGH
2318                                 ;4 TO HERE:
2319 010152  011602                  240$:   MOV     (SP),R2         ;SEE IF THE TRAP WAS BECAUSE OF AN ODD ADDRESS.
2320 010154  032702  000001                  BIT     #1,R2
2321 010160  001005                          BNE     310$            ;BRANCH IF YES.
2322 010162  020227  010056                  CMP     R2,#210$+2      ;SEE IF THE TRAP OCCURRED AT THE TEST INSTRUCTION.
2323 010166  001412                          BEQ     320$            ;BRANCH IF YES.
2324 010170  000137  051774                  JMP     CPSPUR  ;OTHERWISE REPORT A SPURIOUS TRAP THROUGH VECTOR 4.
2325                                 ;REPORT A FAILURE IN THE FDST FLOWS RESULTED IN AN ODD ADDRESS TRAP.
2326 010174  010237  001236          310$:   MOV     R2,$TMP2
2327 010200  012737  010056  001240          MOV     #210$+2,$TMP3
2328 010206  022626                          CMP     (SP)+,(SP)+
2329 010210  104013                          ERROR   +13             ;BAD CONSTANT #2 + PC ODD ADDR.
2330 010212  000437                          BR      300$
2331 010214  010237  001236          320$:   MOV     R2,$TMP2
2332 010220  022626                          CMP     (SP)+,(SP)+
2333 010222  104014                          ERROR   +14             ;ODD ADDRESS TRAP
2334 010224  000432                          BR      300$            ;WRONG MODE USED.
2335
2336                                 ;REPORT DATA INCORRECT:
2337 010226  012737  010054  001240  270$:   MOV     #210$,$TMP3
2338 010234  012737  010142  001242          MOV     #260$,$TMP4
2339 010242  104015                          ERROR   +15             ;BAD DATA BUT GR7 FAIL
2340 010244  000422                          BR      300$
2341
2342                                 ;REPORT PC INCORRECT MODIFIED DURING THE EXECUTION OF FDST IMMEDIATE
2343                                 ;MODE. THE PC SHOULD HAVE BEEN INCREMENTED BY 2 BUT IT WASN'T.
2344                                 ;USE R1 AND R4 TO COMPUTE THE ACTUAL ACTION THAT WAS TAKEN ON THE PC.
2345 010246  012737  010056  001240  290$:   MOV     #210$+2,$TMP3
2346 010254  005704                          TST     R4              ;IS R4 CLEAR.
2347 010256  001404                          BEQ     100$
2348 010260  012737  010054  001242          MOV     #210$,$TMP4
2349 010266  000410                          BR      110$
2350 010270  012702  010056          100$:   MOV     #210$+2,R2
2351 010274  062701  177775                  ADD     #-3,R1
2352 010300  006301                          ASL     R1
2353 010302  160102                          SUB     R1,R2
2354 010304  010237  001242                  MOV     R2,$TMP4
2355 010310  104016                  110$:   ERROR   +16             ;BAD CONSTANT PC+
2356 010312                          300$:
     010312  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 # 5 - FDST MODE 4 TEST
                                ;;*****************************************************************
                                ;*TEST 5         FDST MODE 4 TEST
                                ;*
                                ;*THIS IS A TEST OF STD WITH FDST MODE 4.
                                ;*
                                ;;*****************************************************************
    010314  000004              TST5:   SCOPE
2363 010316  012737  010324  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2364 010324  012700  177777     200$:      MOV     #-1,R0          ;SET UP THE OUTPUT BUFFER.
2365 010330  012701  010460                MOV     #210$,R1
2366 010334  012702  000010                MOV     #10,R2
2367 010340  010021              1$:       MOV     R0,(R1)+
2368 010342  077202                        SOB     R2,1$
2369 010344  012700  000200                MOV     #200,R0         ;ENTER FLOATING DOUBLE MODE.
2370 010350  170100                        LDFPS   R0
2371 010352  012700  010500                MOV     #220$,R0        ;SET UP AC0.
2372 010356  172410                        LDD     (R0),AC0
2373 010360  012737  010520  000004        MOV     #240$,ERRVECT ;SET UP FOR A TRAP TO 4.
2374 010366  012737  010400  001236        MOV     #230$,$TMP2
2375 010374  012700  010470                MOV     #250$,R0        ;SET UP THE DESTINATION ADDRESS.
2376
2377 010400  174040              230$:     STD     AC0,-(R0)       ;TEST INSTRUCTION.
2378 010402  005201                        INC     R1
2379 010404  020027  010460                CMP     R0,#210$        ;SEE IF R0 WAS DECREMENTED PROPERLY.
2380 010410  001060                        BNE     260$            ;BRANCH IF R0 IS INCORRECT.
2381 010412  012700  010460                MOV     #210$,R0        ;WAS THE OUTPUT DATA CORRECT?
2382 010416  012701  010500                MOV     #220$,R1
2383 010422  012702  000004                MOV     #4,R2
2384 010426  022021              110$:     CMP     (R0)+,(R1)+
2385 010430  001057                        BNE     270$            ;BRANCH IF INCORRECT.
2386 010432  077203                        SOB     R2,110$
2387 010434  012700  177777                MOV     #-1,R0          ;IS THE REST OF THE OUTPUT BUFFER CORRECT, -1?
2388 010440  012701  010470                MOV     #250$,R1
2389 010444  012702  000004                MOV     #4,R2
2390 010450  020021              120$:     CMP     R0,(R1)+
2391 010452  001056                        BNE     280$            ;BRANCH IF INCORRECT.
2392 010454  077203                        SOB     R2,120$
2393 010456  000463                        BR      290$
2394
2395                            ;THIS IS THE OUTPUT DATA BUFFER.
2396 010460  177777              210$:     -1
2397 010462  177777                        -1
2398 010464  177777                        -1
2399 010466  177777                        -1
2400 010470  177777              250$:     -1
2401 010472  177777                        -1
2402 010474  177777                        -1
2403 010476  177777                        -1
2404
2405                            ;THIS IS THE TEST DATA LOADED INTO AC0:
2406 010500  147250              220$:     147250
2407 010502  036147                        36147
2408 010504  025036                        25036
2409 010506  147250                        147250
2410 010510  177777              300$:     -1
2411 010512  177777                        -1
```

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2412 010514  177777                          -1
2413 010516  177777                          -1
2414
2415                                 ;IF AN ODD ADDRESS TRAP OCCURS  COME HERE:
2416 010520  011600                  240$:   MOV     (SP),R0         ;SEE IF THE TRAP ACCURRED ON THE TEST INSTRUCTION.
2417 010522  020027  010402                  CMP     R0,#230$+2
2418 010526  001405                          BEQ     310$            ;BRANCH IF YES.
2419 010530  020027  010404                  CMP     R0,#230$+4
2420 010534  001402                          BEQ     310$            ;BRANCH IF YES.
2421 010536  000137  051774                  JMP     CPSPUR          ;OTHERWISE GO REPORT A SPURIOUS TRAP THROUGH 4.
2422                                 ;REPORT FAILURE IN FDST FLOWS RESULTED IN AN ODD ADDRESS.
2423 010542  010037  001236          310$:   MOV     R0,$TMP2
2424 010546  104017                          ERROR   +17             ;FDST FORK X ODD AD RES.
2425 010550  000426                          BR      290$
2426
2427                                 ;REPORT R0 INCORRECTLY DECREMENTED.
2428 010552  010037  001242          260$:   MOV     R0,$TMP4
2429 010556  012737  010460  001240          MOV     #210$,$TMP3
2430 010564  104020                          ERROR   +20             ;R0 NOT DECRE PROP
2431 010566  000417                          BR      290$
2432
2433                                 ;REPORT OUTPUT DATA INCORRECT:
2434 010570  012737  010460  001240  270$:   MOV     #210$,$TMP3
2435 010576  012737  010500  001242          MOV     #220$,$TMP4
2436 010604  104021                          ERROR   +21             ;BAD DATA
2437 010606  000407                          BR      290$
2438 010610  012737  010470  001242  280$:   MOV     #250$,$TMP4
2439 010616  012737  010510  001240          MOV     #300$,$TMP3
2440 010624  104022                          ERROR   +22             ;DATA BAD OUTSIDE TARGET AREA
2441 010626                          290$:
     010626  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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```
                                .SBTTL  TEST # 6 - FDST MODE 3 TEST
                                ;;*****************************************************************
                                ;*TEST 6         FDST MODE 3 TEST
                                ;*
                                ;*THIS IS A TEST OF FDST MODE 3 USING STD.
                                ;*
                                ;;*****************************************************************
 010630  000004                 TST6:   SCOPE
2448 010632  012737  010640  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2449 010640  012701  010756                200$:   MOV     #210$,R1        ;SET UP THE OUTPUT DATA BUFFER.
2450 010644  012700  177777                        MOV     #-1,R0
2451 010650  012702  000012                        MOV     #12,R2
2452 010654  010021                        1$:     MOV     R0,(R1)+
2453 010656  077202                                SOB     R2,1$
2454 010660  012737  010756  010772                MOV     #210$,220$
2455 010666  012700  000200                        MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2456 010672  170100                                LDFPS   R0
2457 010674  012700  011002                        MOV     #230$,R0        ;SET UP AC0.
2458 010700  172410                                LDD     (R0),AC0
2459 010702  012737  011012  000004                MOV     #240$,ERRVECT ;SET UP FOR TRAPS TO 4.
2460 010710  013737  010722  001236                MOV     250$,$TMP2
2461 010716  012700  010772                        MOV     #220$,R0        ;SET UP THE DESTINATION ADDRESS.
2462
2463 010722  174030                        250$:   STD     AC0,@(R0)+      ;TEST INSTRUCTION.
2464
2465 010724  020027  010774                        CMP     R0,#220$+2      ;SEE IF R0 WAS INCREMENTED CORRECTLY.
2466 010730  001046                                BNE     260$            ;BRANCH IF INCORRECT.
2467 010732  012701  010756                        MOV     #210$,R1        ;CHECK THE OUTPUT DATA BUFFER.
2468 010736  012702  011002                        MOV     #230$,R2
2469 010742  012703  000004                        MOV     #4,R3
2470 010746  022122                        270$:   CMP     (R1)+,(R2)+
2471 010750  001045                                BNE     280$            ;BRANCH IF NOT CORRECT.
2472 010752  077303                                SOB     R3,270$
2473 010754  000452                                BR      300$
2474
2475                                    ;THIS IS THHE OUTPUT DATA BUFFER:
2476 010756  177777                    210$:   -1
2477 010760  177777                            -1
2478 010762  177777                            -1
2479 010764  177777                            -1
2480 010766  177777                            -1
2481 010770  177777                            -1
2482 010772  010756                    220$:   210$
2483 010774  177777                            -1
2484 010776  177777                            -1
2485 011000  177777                            -1
2486 011002  101213                    230$:   101213
2487 011004  141516                            141516
2488 011006  071727                            71727
2489 011010  037475                            37475
2490
2491                                    ;TRAP THROUGH VECTOR 4 TO HERE.
2492 011012  011602                    240$:   MOV     (SP),R2         ;SEE IF THE TRAP ADDRESS IS THAT OF THE TEST INSTRUCTION.
2493 011014  020227  010724                    CMP     R2,#250$+2
2494 011020  001405                            BEQ     290$            ;BRANCH IF YES.
2495 011022  020227  010726                    CMP     R2,#250$+4
2496 011026  001402                            BEQ     290$            ;BRANCH IF YES.
```

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2497 011030  000137  051774                    JMP     CPSPUR  ;OTHERWISE GO REPORT A SPURIOUS TRAP TO 4.
2498
2499                                    ;REPORT A FAILURE IN THE FDST FLOWS RESULTED IN AN ODD ADDRESS TRAP.
2500 011034  010237  001236              290$: MOV     R2,$TMP2
2501 011040  022626                          CMP     (SP)+,(SP)+
2502 011042  104023                          ERROR   +23             ;BET FDST X ODD ADR
2503 011044  000416                          BR      300$
2504
2505                                    ;REPORT R0 INCORRECT:
2506 011046  010037  001242              260$: MOV     R0,$TMP4
2507 011052  012737  010774  001240          MOV     #220$+2,$TMP3
2508 011060  104024                          ERROR   +24             ;R0 NOT INCREMENT PROPERLY
2509 011062  000407                          BR      300$
2510
2511                                    ;REPORT INCORRECT OUTPUT DATA:
2512 011064  012737  010756  001240    280$: MOV     #210$,$TMP3
2513 011072  012737  011002  001242          MOV     #230$,$TMP4
2514 011100  104025                          ERROR   +25             ;BAD DATA
2515 011102                             300$:
     011102  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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                                .SBTTL  TEST # 7 - FDST MODE 5 TEST
                                ;;*****************************************************************
                                ;*TEST 7         FDST MODE 5 TEST
                                ;*
                                ;*THIS IS A TEST OF FDST MODE 5 USING STD.
                                ;*
                                ;;*****************************************************************
011104  000004                  TST7:   SCOPE
2522 011106  012737  011114  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2523 011114  012701  011232    200$:       MOV     #210$,R1        ;SET UP THE OUTPUT DATA BUFFER.
2524 011120  012700  177777                MOV     #-1,R0
2525 011124  012702  000012                MOV     #12,R2
2526 011130  010021            1$:         MOV     R0,(R1)+
2527 011132  077202                        SOB     R2,1$
2528 011134  012737  011232  011244        MOV     #210$,220$
2529 011142  012700  000200                MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2530 011146  170100                        LDFPS   R0
2531 011150  012700  011256                MOV     #230$,R0        ;SET UP AC0.
2532 011154  172410                        LDD     (R0),AC0
2533 011156  012737  011266  000004        MOV     #240$,ERRVECT   ;GET READY FOR ANY TRAPS TO 4.
2534 011164  013737  011176  001236        MOV     250$,$TMP2
2535 011172  012700  011246                MOV     #260$,R0        ;SET UP THE DESTINATION ADDRESS.
2536 011176  174050            250$:       STD     AC0,@-(R0)      ;TEST INSTRUCTION.
2537 011200  020027  011244                CMP     R0,#260$-2      ;WAS R0 DECRIMENTED PROPERLY?
2538 011204  001046                        BNE     270$            ;BRANCH IF R0 IS INCORRECT.
2539 011206  012701  011232                MOV     #210$,R1        ;WAS THE DATA OUTPUT CORRECTLY?
2540 011212  012702  011256                MOV     #230$,R2
2541 011216  012703  000004                MOV     #4,R3
2542 011222  022122            280$:       CMP     (R1)+,(R2)+
2543 011224  001045                        BNE     310$            ;BRANCH IF DATA IS INCORRECT.
2544 011226  077303                        SOB     R3,280$
2545 011230  000452                        BR      290$
2546
2547                            ;THIS IS THE OUTPUT DATA BUFFER
2548 011232  177777            210$:       -1
2549 011234  177777                        -1
2550 011236  177777                        -1
2551 011240  177777                        -1
2552 011242  177777                        -1
2553 011244  011232            220$:       210$
2554 011246  177777            260$:       -1
2555 011250  177777                        -1
2556 011252  177777                        -1
2557 011254  177777                        -1
2558 011256  020212            230$:       20212
2559 011260  023242                        23242
2560 011262  026273                        26273
2561 011264  031323                        031323
2562
2563                            ;IF A TRAP TO 4 OCCURS COME HERE.
2564 011266  011602            240$:       MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
2565 011270  020227  011200                CMP     R2,#250$+2
2566 011274  001405                        BEQ     300$            ;BRANCH IF YES.
2567 011276  020227  011202                CMP     R2,#250$+4
2568 011302  001402                        BEQ     300$            ;BRANCH IF YES.
2569 011304  000137  051774                JMP     CPSPUR  ;OTHERWISE REPORT A SPURIOUS TRAP TO 4.
2570                            ;REPORT FAILURE OF FDST RESULTED IN AN ODD ADDRESS TRAP TO 4.
```

```
011310  010237  001236           300$:   MOV     R2,$TMP2
011314  022626                           CMP     (SP)+,(SP)+
011316  104026                           ERROR   +26                     ;BET FDST X ODD ADR
011320  000416                           BR      290$

                                 ;REPORT R0 INCORRECT.
011322  010037  001242           270$:   MOV     R0,$TMP4
011326  012737  011250  001240           MOV     #260$+2,$TMP3
011334  104027                           ERROR   +27                     ;R0 NOT INCREMENT PROPERLY
011336  000407                           BR      290$

                                 ;REPORT BAD DATA.
011340  012737  011232  001242   310$:   MOV     #210$,$TMP4
011346  012737  011256  001240           MOV     #230$,$TMP3
011354  104030                           ERROR   +30                     ;BAD DATA
011356                           290$:
011356  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 # 10 - FDST MODE 6, INDEX MODE, TEST

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2592                                    .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.
                                        ;*
                                        ;;*****************************************************************
    011360  000004                      TST10:  SCOPE
2593                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
2594 011362  012767  011370  167520             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2595 011370  012700  000200          200$:      MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2596 011374  170100                              LDFPS   R0
2597 011376  012701  011506                      MOV     #210$,R1        ;SET UP THE OUT PUT DATA BUFFER.
2598 011402  012700  177777                      MOV     #-1,R0
2599 011406  012702  000004                      MOV     #4,R2
2600 011412  010021                  1$:         MOV     R0,(R1)+
2601 011414  077202                              SOB     R2,1$
2602 011416  012767  011526  166360             MOV     #220$,ERRVECT   ;SET UP VECTOR 4 INCASE OF EPROR.
2603 011424  012700  011516                      MOV     #230$,R0        ;SET UP AC0.
2604 011430  172410                              LDD     (R0),AC0
2605 011432  012767  011450  167576             MOV     #240$,$TMP2
2606 011440  012700  003605                      MOV     #210$-5701,R0   ;SET UP THE DESTINATION ADDRESS.
2607 011444  012701  000001                      MOV     #1,R1
2608 011450  174060  005701          240$:      STD     AC0,5701(R0)    ;TEST INSTRUCTION.
2609
2610 011454  020027  003605                      CMP     R0,#210$-5701   ;SEE IF R0 WAS MODIFIED.
2611 011460  001040                              BNE     250$            ;BRANCH IF INCORRECT.
2612 011462  012702  011506                      MOV     #210$,R2        ;WAS THE OUTPUT DATA CORRECT.
2613 011466  012703  011516                      MOV     #230$,R3
2614 011472  012704  000004                      MOV     #4,R4
2615 011476  022223                  2$:         CMP     (R2)+,(R3)+
2616 011500  001037                              BNE     260$            ;BRANCH IF INCORRECT DATA.
2617 011502  077403                              SOB     R4,2$
2618 011504  000444                              BR      270$
2619 011506  177777                  210$:       -1
2620 011510  177777                              -1
2621 011512  177777                              -1
2622 011514  177777                              -1
2623 011516  030313                  230$:       30313
2624 011520  023334                              23334
2625 011522  035363                              35363
2626 011524  074041                              74041
2627
2628                                    ;COME HERE AFTER A TRAP THROUGH VECTOR 4.
2629 011526  011602                  220$:       MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTR.
2630 011530  020227  011452                      CMP     R2,#240$+2
2631 011534  001405                              BEQ     280$            ;BRANCH IF YES.
2632 011536  020227  011454                      CMP     R2,#240$+4
2633 011542  001402                              BEQ     280$            ;BRANCH IF YES.
2634 011544  000167  040162                      JMP     FPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
2635                                    ;REPORT FAILURE OF FDST RESULTED IN AN ODD ADDRESS TRAP TO 4.
2636 011550  010267  167462          280$:       MOV     R2,$TMP2
2637 011554  022626                              CMP     (SP)+,(SP)+
2638 011556  104031                              ERROR   +31             ;FDST FORK X ODD ADD
2639 011560  000416                              BR      270$
2640
2641                                    ;REPORT R0 MODIFIED.
```

```
2642 011562  010067  167454          250$:   MOV     R0,$TMP4
2643 011566  012767  003605  167444          MOV     #210$-5701,$TMP3
2644 011574  104032                          ERROR   +32             ;R0 MODIFIED!
2645 011576  000407                          BR      270$
2646
2647                                ;REPORT INCORRECT DATA.
2648 011600  012767  011506  167432  260$:   MOV     #210$,$TMP3
2649 011606  012767  011516  167426          MOV     #230$,$TMP4
2650 011614  104033                          ERROR   +33             ;BAD DATA
2651 011616                         270$:
     011616  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?).
2652                                        .ENABL  AMA              ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
```

```
2658                                    .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.
                                        ;*
                                        ;;*****************************************************************
    011620  000004                      TST11:  SCOPE
2659 011622  012737  011630  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2660 011630  012700  000200             200$:   MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
2661 011634  170100                             LDFPS   R0
2662 011636  012701  011754                     MOV     #210$,R1        ;SET UP THE OUTPUT DATA BUFFER.
2663 011642  012700  177777                     MOV     #-1,R0
2664 011646  012702  000004                     MOV     #4,R2
2665 011652  010021                     100$:   MOV     R0,(R1)+
2666 011654  077202                             SOB     R2,100$
2667 011656  012737  012004  000004             MOV     #220$,ERRVECT   ;SET UP FOR TRAPS TO 4.
2668 011664  012700  011764                     MOV     #230$,R0        ;SET UP AC0.
2669 011670  172410                             LDD     (R0),AC0
2670 011672  012737  011716  001236             MOV     #240$,$TMP2
2671 011700  012700  004073                     MOV     #250$-5701,R0   ;SET UP THE DESTINATION ADDRESS.
2672 011704  012701  000001                     MOV     #1,R1
2673 011710  012737  011754  011774             MOV     #210$,250$
2674 011716  174070  005701             240$:   STD     AC0,@5701(R0)   ;TEST INSTRUCTION.
2675
2676 011722  020027  004073                     CMP     R0,#250$-5701   ;IS R0 CORRECT?
2677 011726  001044                             BNE     260$            ;BRANCH IF INCORRECT.
2678 011730  012702  011754                     MOV     #210$,R2        ;WAS THE DATA OUTPUT CORRECTLY?
2679 011734  012703  011764                     MOV     #230$,R3
2680 011740  012704  000004                     MOV     #4,R4
2681 011744  022223                     110$:   CMP     (R2)+,(R3)+
2682 011746  001043                             BNE     270$            ;BRANCH IF DATA IS INCORRECT.
2683 011750  077403                             SOB     R4,110$
2684 011752  000450                             BR      280$
2685 011754  177777                     210$:   -1
2686 011756  177777                             -1
2687 011760  177777                             -1
2688 011762  177777                             -1
2689 011764  041424                     230$:   41424
2690 011766  034445                             34445
2691 011770  046475                             46475
2692 011772  051525                             051525
2693 011774  177777                     250$:   -1
2694 011776  177777                             -1
2695 012000  177777                             -1
2696 012002  177777                             -1
2697
2698
                                        ;TRAP THROUGH 4 TO HERE.
2699 012004  011602                     220$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTR.
2700 012006  020227  011720                     CMP     R2,#240$+2
2701 012012  001405                             BEQ     290$            ;BRANCH IF YES.
2702 012014  020227  011722                     CMP     R2,#240$+4
2703 012020  001402                             BEQ     290$            ;BRANCH IF YES.
2704 012022  000137  051732                     JMP     FPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
2705                                    ;REPORT FAILURE OF FDST FORK RESULTED IN AN ODD ADDRESS TRAP TO 4.
2706 012026  010237  001236             290$:   MOV     R2,$TMP2
2707 012032  022626                             CMP     (SP)+,(SP)+
```

```
 2708 012034  104034                          ERROR   +34             ;FDST FORK X ODD ADD
 2709 012036  000416                          BR      280$
 2710
 2711                                 ;REPORT RO MODIFIED.
 2712 012040  010037  001242          260$:   MOV     R0,$TMP4
 2713 012044  012737  004053  001240          MOV     #210$-5701,$TMP3
 2714 012052  104035                          ERROR   +35             ;RO MODIFIED!
 2715 012054  000407                          BR      280$
 2716
 2717                                 ;REPORT DATA INCORRECT
 2718 012056  012737  011754  001240  270$:   MOV     #210$,$TMP3
 2719 012064  012737  011764  001242          MOV     #230$,$TMP4
 2720 012072  104036                          ERROR   +36             ;BAD DATA
 2721 012074                          280$:
      012074  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?).
```

```
2727                                    .SBTTL  TEST # 12 - STCFD TEST
                                        ;;*****************************************************************
                                        ;*TEST 12       STCFD TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE STCFD INSTRUCTION.
                                        ;*
                                        ;;*****************************************************************
     012076  000004                     TST12:  SCOPE
2728                                    ;AC=0
2729 012100  012737  012106  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2730 012106  004737  012462             200$:   JSR     PC,1000$
2731 012112  000000                     1$:     0               ;AC
2732 012114  000000                             0
2733 012116  000000                             0
2734 012120  000000                             0
2735 012122  000000                     2$:     0               ;RES
2736 012124  000000                             0
2737 012126  000000                             0
2738 012130  000000                             0
2739 012132  000000                     3$:     0               ;ERROR RES.
2740 012134  000000                             0
2741 012136  177777                             -1
2742 012140  177777                             -1
2743 012142  047000                     4$:     47000           ;FPS BEFORE EXECUTION.
2744 012144  047004                             47004           ;FPS AFTER EXECUTION.
2745 012146  177777                             -1              ;FEC
2746 012150  147004                             147004          ;ERROR FPS.
2747 012152  104042                     5$:     ERROR   +42             ;FDFL<---FDFLXST 767
2748 012154  000401                             BR      6$
2749 012156  104043                             ERROR   +43             ;BUT EZBT X ST560 TO 061 INTO 261
2750 012160                             6$:
2751                                    ;
2752 012160  012737  012166  001110             MOV     #210$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2753 012166  004737  012462             210$:   JSR     PC,1000$
2754 012172  017203                     11$:    17203           ;AC
2755 012174  142536                             142536
2756 012176  047506                             47506
2757 012200  172031                             172031
2758 012202  017203                     12$:    17203           ;RES
2759 012204  142536                             142536
2760 012206  000000                             0
2761 012210  000000                             0
2762 012212  017203                     13$:    17203           ;ERROR RES.
2763 012214  142536                             142536
2764 012216  047506                             47506
2765 012220  172031                             172031
2766 012222  040000                     14$:    40000           ;FPS BEFORE EXECUTION.
2767 012224  040000                             40000           ;FPS AFTER EXECUTION.
2768 012226  177777                             -1              ;FEC
2769 012230  177777                             -1              ;ERROR FPS.
2770 012232  104044                     15$:    ERROR   +44             ;X11(1,0)<---0 X ST766
2771 012234  000401                             BR      16$
2772 012236  104040                             ERROR   +40
2773 012240                             16$:
2774                                    ;
2775 012240  012737  012246  001110             MOV     #220$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2776 012246  004737  012462             220$:   JSR     PC,1000$
```

```
2777 012252  050717                  21$:   50717          ;AC
2778 012254  027374                         27374
2779 012256  075767                         75767
2780 012260  077071                         77071
2781 012262  050717                  22$:   50717          ;RES
2782 012264  027374                         27374
2783 012266  000000                         0
2784 012270  000000                         0
2785 012272  000000                  23$:   0              ;ERROR RES.
2786 012274  000000                         0
2787 012276  000000                         0
2788 012300  000000                         0
2789 012302  047000                  24$:   47000          ;FPS BEFORE EXECUTION.
2790 012304  047000                         47000          ;FPS AFTER EXECUTION.
2791 012306  177777                         -1             ;FEC
2792 012310  174002                         174002         ;ERROR FPS.
2793 012312  104045                  25$:   ERROR  +45             ;BUT OPIC X ST251
2794 012314  000401                         BR     26$
2795 012316  104046                         ERROR  +46             ;BUT EZBT X ST421
2796 012320                          26$:
2797                                 ;
2798 012320  012737  012326  001110        MOV    #230$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2799 012326  004737  012462          230$:  JSR    PC,1000$
2800 012332  020212                  31$:   20212          ;AC
2801 012334  032425                         32425
2802 012336  026272                         26272
2803 012340  002123                         02123
2804 012342  020212                  32$:   20212          ;RES
2805 012344  032425                         32425
2806 012346  000000                         0
2807 012350  000000                         0
2808 012352  020212                  33$:   20212          ;ERROR RES.
2809 012354  032425                         32425
2810 012356  100000                         100000
2811 012360  000000                         0
2812 012362  040000                  34$:   40000          ;FPS BEFORE EXECUTION.
2813 012364  040000                         40000          ;FPS AFTER EXECUTION.
2814 012366  177777                         -1             ;FEC
2815 012370  177777                         -1             ;ERROR FPS.
2816 012372  104047                  35$:   ERROR  +47             ;BUT FD IN ROUND X ST113
2817 012374  000401                         BR     36$
2818 012376  104040                         ERROR  -40
2819 012400                          36$:
2820                                 ;
2821 012400  012737  012406  001110        MOV    #240$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2822 012406  004737  012462          240$:  JSR    PC,1000$
2823 012412  121314                  41$:   121314         ;AC
2824 012414  151617                         151617
2825 012416  101112                         101112
2826 012420  131415                         131415
2827 012422  121314                  42$:   121314         ;RES
2828 012424  151617                         151617
2829 012426  000000                         0
2830 012430  000000                         0
2831 012432  021314                  43$:   21314          ;ERROR RES.
2832 012434  151617                         151617
2833 012436  000000                         0
```

```
2834 012440  000000                        0
2835 012442  040000              44$:      40000          ;FPS BEFORE EXECUTION.
2836 012444  040010                        40010          ;FPS AFTER EXECUTION.
2837 012446  177777                        -1             ;FEC
2838 012450  177777                        -1             ;ERROR FPS.
2839 012452  104050              45$:      ERROR   +50            ;BUT ENBT X ST567 OR BAD SIGN ST460
2840 012454  000401                        BR      46$
2841 012456  104040                        ERROR   +40
2842 012460  000535              46$:      BR      250$
```

```
                        ;THIS SUBROUTINE, 1000$, IS USED TO SET UP THE OPERANDS, EXECUTE
                        ;THE STCFD INSTRUCTION AND CHECK THE RESULTS. A CALL
                        ;TO IT IS MADE THUS:
                        ;
                        ;               JSR     PC,1000$
                        ;ACARG:         .WORD   X,X,X,X         ;AC OPERAND
                        ;RES:           .WORD   X,X,X,X         ;EXPECTED RESULT
                        ;ERRES:         .WORD   X,X,X,X         ;ERROR RESULT
                        ;FPSB:          .WORD   X               ;FPS BEFORE EXECUTION
                        ;FPSA:          .WORD   X               ;FPS AFTER EXECUTION
                        ;FEC:           .WORD   X               ;EXPECTED FEC
                        ;ERFPS:         .WORD   X               ;ERROR FPS.
                        ;ERR1:          ERROR   +X              ;DATA ERROR.
                        ;               BR      CONT
                        ;ERR2:          ERROR   +X              ;FPS ERROR.
                        ;CONT:                                  ;RETURN ADDRESS
                        ;
                        ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
                        ;THE STCFD 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 1000$ RETURNS CONTROL
                        ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD 1000$
                        ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN 1000$ WILL RETURN
                        ;TO THE ERROR CALL AT ERR2, OTHERWISE 1000$ ITSELF
                        ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
                        ;STCFD 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 1000$
                        ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
                        ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND 1000$ WILL
                        ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
                        ;
012462  012601          1000$:  MOV     (SP)+,R1                ;PICK UP THE POINTER TO THE OPERANDS.
012464  012700  000200          MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
012470  170100                  LDFPS   R0
012472  010100                  MOV     R1,R0           ;LOAD AC0.
012474  172410                  LDD     (R0),AC0
012476  012700  177777          MOV     #-1,R0          ;FILL THE OUTPUT BUFFER WITH -1'S.
012502  012702  012744          MOV     #245$,R2
012506  012703  000004          MOV     #4,R3
012512  010022          51$:    MOV     R0,(R2)+
012514  077302                  SOB     R3,51$
012516  016100  000030          MOV     30(R1),R0       ;LOAD THE FPS.
012522  170100                  LDFPS   R0
012524  012737  012536  001236  MOV     #52$,$TMP2
012532  012700  012744          MOV     #245$,R0        ;SET UP THE DESTINATION ADDRESS.
012536  176010          52$:    STCFD   AC0,(R0)        ;TEST INSTRUCTION.
                        ;
012540  170204                  STFPS   R4              ;GET THE FPS.
012542  170305                  STST    R5              ;GET THE FEC.
012544  010102                  MOV     R1,R2           ;SAVE THE DATA IN CASE OF ERROR.
012546  010237  001240          MOV     R2,$TMP3
012552  062702  000010          ADD     #10,R2
012556  010237  001244          MOV     R2,$TMP5
012562  012737  012744  001242  MOV     #245$,$TMP4
012570  010437  001250          MOV     R4,$TMP7
012574  016137  000032  001252  MOV     32(R1),$TMP10
```

```
2900
2901 012602  010102                    MOV     R1,R2           ;CHECK THE RESULT.
2902 012604  062702  000010              ADD     #10,R2
2903 012610  012703  012744              MOV     #245$,R3
2904 012614  012700  000004              MOV     #4,R0
2905 012620  022223              53$:    CMP     (R2)+,(R3)+
2906 012622  001014                      BNE     65$             ;BRANCH IF INCORRECT.
2907 012624  077003                      SOB     R0,53$
2908
2909 012626  016102  000032              MOV     32(R1),R2
2910 012632  020204                      CMP     R2,R4           ;IS THE FPS CORRECT?
2911 012634  001025                      BNE     70$             ;BRANCH IF FPS INCORRECT.
2912 012636  005702                      TST     R2              ;IF EXPECTED FPS IS NEGATIVE, THEN
2913 012640  100003                      BPL     54$             ;GO AHEAD AND CHECK THE FEC.
2914 012642  026105  000036              CMP     36(R1),R5
2915 012646  001027                      BNE     75$             ;BRANCH IF FEC IS INCORRECT.
2916 012650  000161  000046      54$:    JMP     46(R1)          ;RETURN.
2917
2918                              ;RESULT INCORRECT:
2919 012654  010102              65$:    MOV     R1,R2           ;SEE IF ERROR WAS ANTICIPATED.
2920 012656  062702  000020              ADD     #20,R2
2921 012662  012703  012744              MOV     #245$,R3
2922 012666  012700  000004              MOV     #4,R0
2923 012672  022223              66$:    CMP     (R2)+,(R3)+
2924 012674  001003                      BNE     67$             ;BRANCH IF NOT ANTICIPATED.
2925 012676  077003                      SOB     R0,66$
2926 012700  000161  000040              JMP     40(R1)          ;IF ERROR WAS ANTICIPATED RETURN.
2927                              ;OTHERWISE REPORT RESULT INCORRECT HERE.
2928 012704                      67$:
2929 012704  104037              68$:    ERROR   +37             ;DATA ERROR
2930 012706  000760                      BR      54$
2931
2932                              ;FPS INCORRECT:
2933 012710  020461  000034      70$:    CMP     R4,34(R1)       ;WAS THE ERROR ANTICIPATED.
2934 012714  001002                      BNE     71$             ;BRANCH IF NOT ANTICIPATED.
2935 012716  000161  000044              JMP     44(R1)          ;IF IT WAS ANTICIPATED RETURN.
2936
2937                              ;THE FPS ERROR WAS NOT ANTICIPATED SO REPORT FPS INCORRECT HERE.
2938 012722                      71$:
2939 012722  104040              72$:    ERROR   +40             ;FPS X
2940 012724  000751                      BR      54$
2941
2942                              ;REPORT FEC INCORRECT:
2943 012726  016137  000036  001256 75$:    MOV     36(R1),$TMP12
2944 012734  010537  001254              MOV     R5,$TMP11
2945 012740  104041              76$:    ERROR   +41             ;FEC X
2946 012742  000742                      BR      54$
2947 012744  177777  177777  177777 245$:   -1,-1,-1,-1
2948 012754                      250$:
     012754  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 # 13 - STCDF TEST

```
2954                                    .SBTTL  TEST # 13 - STCDF TEST
                                        ;;*****************************************************************
                                        ;*TEST 13       STCDF TEST
                                        ;*
                                        ;*THIS IS A TEST OF THE STCDF INSTRUCTION.
                                        ;*
                                        ;;*****************************************************************
     012756  000004                     TST13:  SCOPE
2955                                    ;AC=0
2956 012760  012737  012766  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2957 012766  004737  013342             200$:   JSR     PC,1000$
2958 012772  000000                     1$:     0                       ;AC
2959 012774  000000                             0
2960 012776  000000                             0
2961 013000  000000                             0
2962 013002  000000                     2$:     0                       ;RES
2963 013004  000000                             0
2964 013006  177777                             -1
2965 013010  177777                             -1
2966 013012  000000                     3$:     0                       ;ERROR RES.
2967 013014  000000                             0
2968 013016  000000                             0
2969 013020  000000                             0
2970 013022  047200                     4$:     47200                   ;FPS BEFORE EXECUTION.
2971 013024  047204                             47204                   ;FPS AFTER EXECUTION.
2972 013026  177777                             -1                      ;FEC
2973 013030  177777                             -1                      ;ERROR FPS.
2974 013032  104054                     5$:     ERROR   +54             ;FDFL<---FDFL X ST767
2975 013034  000401                             BR      6$
2976 013036  104052                             ERROR   +52             ;FPS INCORRECT.
2977 013040                             6$:
2978                                    ;
2979 013040  012737  013046  001110             MOV     #210$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
2980 013046  004737  013342             210$:   JSR     PC,1000$
2981 013052  067574                     11$:    67574                   ;AC0
2982 013054  073727                             73727
2983 013056  170777                             170777
2984 013060  067574                             67574
2985 013062  067574                     12$:    67574                   ;RES
2986 013064  073730                             73730
2987 013066  177777                             -1
2988 013070  177777                             -1
2989 013072  067574                     13$:    67574                   ;ERROR RES.
2990 013074  073727                             73727
2991 013076  177777                             -1
2992 013100  177777                             -1
2993 013102  040200                     14$:    40200                   ;FPS BEFORE EXECUTION.
2994 013104  040200                             40200                   ;FPS AFTER EXECUTION.
2995 013106  177777                             -1                      ;FEC
2996 013110  177777                             -1                      ;ERROR FPS.
2997 013112  104055                     15$:    ERROR   +55             ;EITHER ROUND FAILED OR WENT TO 766 X1(1,0)<---0 INTO 767
2998 013114  000401                             BR      16$
2999 013116  104052                             ERROR   +52
3000 013120                             16$:
3001                                    ;
3002 013120  012737  013126  001110             MOV     #220$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3003 013126  004737  013342             220$:   JSR     PC,1000$
```

```
3004 013132  077777                  21$:   77777                  ;AC0
3005 013134  177777                         -1
3006 013136  100000                         100000
3007 013140  000000                         0
3008 013142  000000                  22$:   0                      ;RES
3009 013144  000000                         0
3010 013146  177777                         -1
3011 013150  177777                         -1
3012 013152  077777                  23$:   77777                  ;ERROR RES.
3013 013154  177777                         -1
3014 013156  177777                         -1
3015 013160  177777                         -1
3016 013162  040200                  24$:   40200                  ;FPS BEFORE EXECUTION.
3017 013164  040206                         40206                  ;FPS AFTER EXECUTION.
3018 013166  177777                         -1                     ;FEC
3019 013170  040204                         40204                  ;ERROR FPS.
3020 013172  104055                  25$:   ERROR  +55
3021 013174  000401                         BR     26$
3022 013176  104056                         ERROR  +56             ;BUT EZBT X ST421 TO 062 INTO 262
3023 013200                          26$:
3024                                 ;
3025 013200  012737  013206  001110         MOV    #230$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3026 013206  004737  013342          230$:  JSR    PC,1000$
3027 013212  077777                  31$:   77777                  ;AC0
3028 013214  177777                         -1
3029 013216  100000                         100000
3030 013220  000000                         0
3031 013222  000000                  32$:   0                      ;RES
3032 013224  000000                         0
3033 013226  177777                         -1
3034 013230  177777                         -1
3035 013232  077777                  33$:   77777                  ;ERROR RES.
3036 013234  177777                         -1
3037 013236  177777                         -1
3038 013240  177777                         -1
3039 013242  040200                  34$:   40200                  ;FPS BEFORE EXECUTION.
3040 013244  040206                         40206                  ;FPS AFTER EXECUTION.
3041 013246  177777                         -1                     ;FEC
3042 013250  140206                         140206                 ;ERROR FPS.
3043 013252  104055                  35$:   ERROR  +55
3044 013254  000401                         BR     36$
3045 013256  104057                         ERROR  +57             ;BUT FIV ST262 TO 123 INTO 103
3046 013260                          36$:
3047                                 ;
3048 013260  012737  013266  001110         MOV    #240$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3049 013266  004737  013342          240$:  JSR    PC,1000$
3050 013272  177777                  41$:   177777                 ;AC0
3051 013274  177777                         -1
3052 013276  100000                         100000
3053 013300  000000                         0
3054 013302  100000                  42$:   100000                 ;RES
3055 013304  000000                         0
3056 013306  177777                         -1
3057 013310  177777                         -1
3058 013312  000000                  43$:   0                      ;ERROR RES.
3059 013314  000000                         0
3060 013316  177777                         -1
```

TEST # 13 - STCDF TEST

```
3061 013320  177777                        -1
3062 013322  047200              44$:      47200                ;FPS BEFORE EXECUTION.
3063 013324  147216                        147216               ;FPS AFTER EXECUTION.
3064 013326  000010                        10                   ;FEC
3065 013330  047206                        47206                ;ERROR FPS.
3066 013332  104060              45$:      ERROR    +60         ;BUT FIV ST262 FAIL TO 103 INT 123
3067 013334  000401                        BR       46$
3068 013336  104061                        ERROR    +61         ;BUT FLAG ST 147 X TO ST 361 INTO 365
3069 013340  000535              46$:      BR       250$
```

```
                                ;THIS SUBROUTINE, 1000$, IS USED TO SET UP THE OPERANDS, EXECUTE
                                ;THE STCDF INSTRUCTION AND CHECK THE RESULTS. A CALL
                                ;TO IT IS MADE THUS:
                                ;
                                ;       JSR     PC,1000$
                                ;ACARG: .WORD   X,X,X,X          ;AC OPERAND
                                ;RES:   .WORD   X,X,X,X          ;EXPECTED RESULT
                                ;ERRES: .WORD   X,X,X,X          ;ERROR RESULT
                                ;FPSB:  .WORD   X                ;FPS BEFORE EXECUTION
                                ;FPSA:  .WORD   X                ;FPS AFTER EXECUTION
                                ;FEC:   .WORD   X                ;EXPECTED FEC
                                ;ERFPS: .WORD   X                ;ERROR FPS.
                                ;ERR1:  ERROR   +X               ;DATA ERROR.
                                ;       BR      CONT
                                ;ERR2:  ERROR   +X               ;FPS ERROR.
                                ;CONT:                           ;RETURN ADDRESS
                                ;
                                ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
                                ;THE STCFD 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 STCFDS RETURNS CONTROL
                                ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD STCFDS
                                ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN STCFDS WILL RETURN
                                ;TO THE ERROR CALL AT ERR2, OTHERWISE STCFDS ITSELF
                                ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
                                ;STCFD 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 STCFDS
                                ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
                                ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND STCFDS WILL
                                ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.

013342  012601                  1000$:  MOV     (SP)+,R1        ;PICK UP THE POINTER TO THE OPERANDS.
013344  012700  000200                  MOV     #200,R0         ;ENTER DOUBLE FLOATING MODE.
013350  170100                          LDFPS   R0
013352  010100                          MOV     R1,R0           ;LOAD AC0.
013354  172410                          LDD     (R0),AC0
013356  012700  177777                  MOV     #-1,R0          ;FILL THE OUTPUT BUFFER WITH -1'S.
013362  012702  013624                  MOV     #260$,R2
013366  012703  000004                  MOV     #4,R3
013372  010022                  51$:    MOV     R0,(R2)+
013374  077302                          SOB     R3,51$
013376  016100  000030                  MOV     30(R1),R0       ;LOAD THE FPS.
013402  170100                          LDFPS   R0
013404  012737  013416  001236          MOV     #52$,$TMP2
013412  012700  013624                  MOV     #260$,R0        ;SET UP THE DESTINATION ADDRESS.
013416  176010                  52$:    STCDF   AC0,(R0)        ;TEST INSTRUCTION.

013420  170204                          STFPS   R4              ;GET THE FPS.
013422  170305                          STST    R5              ;GET THE FEC.
013424  010102                          MOV     R1,R2           ;SAVE THE DATA IN CASE OF ERROR.
013426  010237  001240                  MOV     R2,$TMP3
013432  062702  000010                  ADD     #10,R2
013436  010237  001244                  MOV     R2,$TMP5
013442  012737  013624  001242          MOV     #260$,$TMP4
013450  010437  001250                  MOV     R4,$TMP7
013454  016137  000032  001252          MOV     32(R1),$TMP10
```

```

013462  010102                          MOV     R1,R2           ;CHECK THE RESULT.
013464  062702  000010                  ADD     #10,R2
013470  012703  013624                  MOV     #260$,R3
013474  012700  000004                  MOV     #4,R0
013500  022223                  53$:    CMP     (R2)+,(R3)+
013502  001014                          BNE     65$             ;BRANCH IF INCORRECT.
013504  077003                          SOB     R0,53$

013506  016102  000032                  MOV     32(R1),R2
013512  020204                          CMP     R2,R4           ;IS THE FPS CORRECT?
013514  001025                          BNE     70$             ;BRANCH IF FPS INCORRECT.
013516  005702                          TST     R2              ;IF EXPECTED FPS IS NEGATIVE, THEN
013520  100003                          BPL     54$             ;GO AHEAD AND CHECK THE FEC.
013522  026105  000034                  CMP     34(R1),R5
013526  001027                          BNE     75$             ;BRANCH IF FEC IS INCORRECT.
013530  000161  000046          54$:    JMP     46(R1)          ;RETURN.


                                ;RESULT INCORRECT:
013534  010102                  65$:    MOV     R1,R2           ;SEE IF ERROR WAS ANTICIPATED.
013536  062702  000020                  ADD     #20,R2
013542  012703  013624                  MOV     #260$,R3
013546  012700  000004                  MOV     #4,R0
013552  022223                  66$:    CMP     (R2)+,(R3)+
013554  001003                          BNE     67$             ;BRANCH IF NOT ANTICIPATED.
013556  077003                          SOB     R0,66$
013560  000161  000040                  JMP     40(R1)          ;IF ERROR WAS ANTICIPATED RETURN.
                                ;OTHERWISE REPORT RESULT INCORRECT HERE.
013564                          67$:
013564  104051                  68$:    ERROR   +51             ;DATA ERROR
013566  000760                          BR      54$


                                ;FPS INCORRECT:
013570  020461  000034          70$:    CMP     R4,34(R1)               ;WAS THE ERROR ANTICIPATED.
013574  001002                          BNE     71$             ;BRANCH IF NOT ANTICIPATED.
013576  000161  000044                  JMP     44(R1)          ;IF IT WAS ANTICIPATED RETURN.


                                ;THE FPS ERROR WAS NOT ANTICIPATED SO REPORT FPS INCORRECT HERE.
013602                          71$:
013602  104052                  72$:    ERROR   +52             ;FPS X
013604  000751                          BR      54$


                                ;REPORT FEC INCORRECT:
013606  016137  000036  001256  75$:    MOV     36(R1),$TMP12
013614  010537  001254                  MOV     R5,$TMP11
013620  104053                  76$:    ERROR   +53             ;FEC X
013622  000742                          BR      54$
013624  177777  177777  177777  260$:   .WORD   -1,-1,-1,-1
013634                          250$:
013634  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

```
3181                                    .SBTTL  TEST # 14 - STCFD WITH ILLEGAL ACCUMULATOR TEST
                                        ;;**********************************************************************
                                        ;*TEST 14       STCFD WITH ILLEGAL ACCUMULATOR TEST
                                        ;*
                                        ;*THIS TEST STCFD WITH ILLEGAL AC 6.
                                        ;*
                                        ;;**********************************************************************
     013636  000004                     TST14:  SCOPE
3182
3183 013640  012737  013646  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3184 013646  012700  040000             200$:   MOV     #40000,R0       ;DISSABLE INTERRUPTS.
3185 013652  170100                             LDFPS   R0
3186 013654  012737  013662  001236             MOV     #210$,$TMP2
3187 013662  176006                     210$:   STCFD   AC0,AC6         ;THIS TEST INSTRUCTION SHOULD CAUSE AN ERROR.
3188
3189 013664  170204                             STFPS   R4              ;GET FPS.
3190 013666  170305                             STST    R5              ;GET FEC.
3191 013670  020427  140000                     CMP     R4,#140000      ;IS FPS CORRECT?
3192 013674  001004                             BNE     220$            ;BRANCH IF INCORRECT FPS.
3193 013676  022705  000002                     CMP     #2,R5           ;IS FEC CORRECT?
3194 013702  001010                             BNE     230$            ;BRANCH IF INCORRECT.
3195 013704  000415                             BR      240$
3196
3197                                    ;REPORT FPS INCORRECT AFTER USE OF ILLEGAL ACCUMULATOR.
3198 013706  010437  001242             220$:   MOV     R4,$TMP4
3199 013712  012737  140000  001240             MOV     #140000,$TMP3
3200 013720  104062                             ERROR   +62             ;BUT FDST ST767 X TO 567 INTO 577
3201 013722  000406                             BR      240$
3202
3203                                    ;REPORT FEC INCORRECT AFTER USE OF ILLEGAL ACCUMULATOR.
3204 013724  010537  001242             230$:   MOV     R5,$TMP4
3205 013730  012737  000002  001240             MOV     #2,$TMP3
3206 013736  104063                             ERROR   +63             ;FEC<---2 ST577 X
3207 013740                             240$:
     013740  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 # 15 - CLRD TEST
                                ;;*****************************************************************
                                ;*TEST 15        CLRD TEST
                                ;*
                                ;*THIS IS A TEST OF THE CRLF AND CLRD INSTRUCTIONS.
                                ;*
                                ;;*****************************************************************
013742  000004                  TST15:  SCOPE
3214 013744  012737  013752  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3215 013752  012700  014136    200$:      MOV     #210$,R0        ;SET UP OUTPUT BUFFER
3216 013756  012701  014126               MOV     #220$,R1
3217 013762  012702  000004               MOV     #4,R2
3218 013766  012021                1$:     MOV     (R0)+,(R1)+
3219 013770  077202                        SOB     R2,1$
3220 013772  012700  014126               MOV     #220$,R0        ;SET UP DESTINATION OPERAND ADDRESS.
3221 013776  012701  000213               MOV     #213,R1         ;SET UP FPS.
3222 014002  170101                        LDFPS   R1
3223 014004  012737  014012  001236       MOV     #2$,$TMP2
3224 014012  170410                2$:     CLRD    (R0)            ;TEST INSTRUCTION.
3225
3226 014014  170205                        STFPS   R5              ;GET FPS.
3227 014016  012702  000004               MOV     #4,R2           ;SEE IF RESULT CLEAR, 0.
3228 014022  012701  014126               MOV     #220$,R1
3229 014026  005721                3$:     TST     (R1)+
3230 014030  001010                        BNE     230$            ;BRANCH IF RESULT INCORRECT, NOT 0.
3231 014032  077203                        SOB     R2,3$
3232 014034  022705  000204               CMP     #204,R5         ;SEE IF FPS IS CORRECT.
3233 014040  001014                        BNE     240$            ;BRANCH IF INCORRECT.
3234 014042  020027  014126               CMP     R0,#220$        ;SEE IF R0 IS CORRECT.
3235 014046  001020                        BNE     250$            ;BRANCH IF R0 IS INCORRECT.
3236 014050  000442                        BR      260$
3237
3238                                ;RESULT NOT 0, REPORT ERROR.
3239 014052  012737  014126  001240  230$:   MOV     #220$,$TMP3
3240 014060  012737  014146  001242        MOV     #270$,$TMP4
3241 014066  104064                        ERROR   +64             ;BAD DATA = 0 X 11+ZERO ST770 X
3242 014070  000432                        BR      260$
3243
3244                                ;REPORT FPS INCORRECT:
3245 014072  010437  001242    240$:      MOV     R4,$TMP4
3246 014076  012737  000204  001240        MOV     #204,$TMP3
3247 014104  104065                        ERROR   +65             ;BAD FPS
3248 014106  000423                        BR      260$
3249
3250                                ;REPORT R0 INCORRECT.
3251 014110  010037  001242    250$:      MOV     R0,$TMP4
3252 014114  012737  014126  001240        MOV     #220$,$TMP3
3253 014122  104066                        ERROR   +66
3254 014124  000414                        BR      260$
3255
3256                                ;THIS IS THE TEST DATA BUFFER, OUTPUT DATA BUFFER.
3257 014126  073475                220$:   73475
3258 014130  067707                        67707
3259 014132  127347                        127347
3260 014134  056770                        56770
3261                                ;THIS IS THE DATA USED TO SET UP THE OUTPUT BUFFER.
3262 014136  073475                210$:   73475
```

TEST # 15 - CLRD TEST

```
3263 014140  067707                        67707
3264 014142  127347                        127347
3265 014144  056770                        56770
3266                              ;THIS IS THE EXPECTED DATA, RESULT:
3267 014146  000000               270$:    0
3268 014150  000000                         0
3269 014152  000000                         0
3270 014154  000000                         0
3271 014156                       260$:
     014156  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 # 16 - CLRD WITH ILLEGAL ACCUMULATOR TEST

```
3277                                    .SBTTL  TEST # 16 - CLRD WITH ILLEGAL ACCUMULATOR TEST
                                        ;;**********************************************************************
                                        ;*TEST 16       CLRD WITH ILLEGAL ACCUMULATOR TEST
                                        ;*
                                        ;*THIS IS A TEST OF CLRD WITH ILLEGAL AC7.
                                        ;*
                                        ;;**********************************************************************
     014160  000004                     TST16:  SCOPE
3278 014162  012737  014170  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3279 014170  012700  040200             200$:   MOV     #40200,R0       ;SET UP THE FPS, NO INTERRUPTS AND FD=1.
3280 014174  170100                             LDFPS   R0
3281 014176  012737  014204  001236             MOV     #210$,$TMP2
3282 014204  170407                     210$:   CLRD    AC7             ;TEST INSTRUCTION.
3283
3284 014206  170204                             STFPS   R4              ;GET FPS.
3285 014210  170305                             STST    R5              ;GET FEC.
3286 014212  020427  140200                     CMP     R4,#140200      ;IS THE FPS CORRECT?
3287 014216  001004                             BNE     220$            ;BRANCH IF FPS IS INCORRECT.
3288 014220  022705  000002                     CMP     #2,R5           ;IS THE FEC CORRECT?
3289 014224  001010                             BNE     230$            ;BRANCH IF FEC IS INCORRECT.
3290 014226  000415                             BR      240$
3291
3292                                    ;REPORT INCORRECT FPS:
3293 014230  010437  001242             220$:   MOV     R4,$TMP4
3294 014234  012737  140200  001240             MOV     #140200,$TMP3
3295 014242  104067                             ERROR   +67             ;BUT FDST ST 700X TO 607 INTO 677
3296 014244  000406                             BR      240$
3297
3298                                    ;REPORT INCORRECT FEC:
3299 014246  010537  001242             230$:   MOV     R5,$TMP4
3300 014252  012737  000002  001240             MOV     #2,$TMP3
3301 014260  104070                             ERROR   +70             ;FEC<---2 ST 677 X
3302 014262                             240$:
     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?).
```

```
                                        .SBTTL  TEST # 17 - NEGF, ABSF & TSTF SRC MD 0 WITH ILLGL AC7
                                        ;;*****************************************************************
                                        ;*TEST 17       NEGF, ABSF & TSTF SRC MD 0 WITH ILLGL AC7
                                        ;*
                                        ;*THIS IS A TEST OF THE SPECIAL
                                        ;*DEST FLOWS USING THE NEGD INST
                                        ;*WITH MODE ZERO AND ILLEGAL
                                        ;*AC7.
                                        ;*
                                        ;;*****************************************************************
     014264  000004                     TST17:  SCOPE
3312 014266  012737  014274  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3313 014274  012700  040200             200$:   MOV     #40200,R0               ;SET UP THE FPS, FID=1 AND FD=1.
3314 014300  170100                             LDFPS   R0
3315 014302  012737  014310  001236             MOV     #210$,$TMP2
3316
3317 014310  170707                     210$:   NEGD    AC7             ;TEST INSTRUCTION.
3318
3319 014312  170204                             STFPS   R4              ;GET FPS.
3320 014314  170305                             STST    R5              ;GET FEC.
3321
3322 014316  022704  140200                     CMP     #140200,R4              ;IS FPS CORRECT?
3323 014322  001004                             BNE     220$            ;BRANCH IF FPS IS INCORRECT.
3324 014324  022705  000002                     CMP     #2,R5           ;IS FEC CORRECT?
3325 014330  001010                             BNE     230$            ;BRANCH IF FEC IS INCORRECT.
3326 014332  000416                             BR      240$
3327
3328                                    ;REPORT INCORRECT FPS:
3329 014334  012737  140200  001240     220$:   MOV     #140200,$TMP3
3330 014342  010437  001242                     MOV     R4,$TMP4
3331 014346  104176                             ERROR   +176            ;FPS BAD
3332 014350  000407                             BR      240$
3333
3334                                    ;REPORT FEC INCORRECT:
3335 014352  012737  000002  001240     230$:   MOV     #2,$TMP3
3336 014360  010537  001242                     MOV     R5,$TMP4
3337 014364  104377                             ERROR   +377            ;FEC BAD
3338 014366  000044                             .WORD   44
3339 014370                             240$:
     014370  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?).
```

```
3347                                    .SBTTL  TEST # 20 - NEGF, ABSF & TSTF SRC MODE 0 TEST
                                        ;;*****************************************************************
                                        ;*TEST 20       NEGF, ABSF & TSTF SRC MODE 0 TEST
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE NEGD INSTRUCTION
                                        ;*IS USED TO TEST MODE 0
                                        ;*
                                        ;;*****************************************************************
     014372  000004                     TST20:  SCOPE
3348 014374  012737  014402  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3349 014402  012700  000200             200$:   MOV     #200,R0         ;SET FD MODE.
3350 014406  170100                             LDFPS   R0
3351 014410  012700  014552                     MOV     #210$,R0        ;SET UP AC0.
3352 014414  172410                             LDD     (R0),AC0                ;SET AC0 = 0
3353 014416  005000                             CLR     R0              ;CLEAR THE FPS.
3354 014420  170100                             LDFPS   R0
3355 014422  012700  014562                     MOV     #220$,R0                ;LOAD AC0 TO BE A FLOATING 0.
3356 014426  172410                             LDF     (R0),AC0        ;SET AC0=ZERO
3357                                                                     ;FLOAT
3358 014430  012700  000201                     MOV     #201,R0         ;SET FD MODE.
3359 014434  170100                             LDFPS   R0
3360 014436  012737  014444  001236             MOV     #230$,$TMP2
3361
3362 014444  170700                     230$:   NEGD    AC0             ;TEST INSTRUCTION.
3363
3364 014446  170205                             STFPS   R5              ;GET FPS.
3365 014450  012700  000200                     MOV     #200,R0         ;SET FD MODE.
3366 014454  170100                             LDFPS   R0
3367 014456  012700  014572                     MOV     #240$,R0        ;GET THE RESULT OUT OF AC0.
3368 014462  174010                             STD     AC0,(R0)
3369                                                                     ;SEE IF THE RESULT IS CORRECT.
3370 014464  012701  000004                     MOV     #4,R1
3371 014470  005720                     1$:     TST     (R0)+
3372 014472  001005                             BNE     250$            ;BRANCH IF THE RESULT IS INCORRECT.
3373 014474  077103                             SOB     R1,1$
3374 014476  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3375 014502  001014                             BNE     260$            ;BRANCH IF THE FPS IS INCORRECT.
3376 014504  000442                             BR      270$
3377
3378                                    ;RESULT INCORRECT, REPORT FAILURE:
3379 014506  012737  014562  001242     250$:   MOV     #220$,$TMP4     ;EXPECT D0
3380 014514  012737  014602  001240             MOV     #280$,$TMP3     ;PREV F0 IMPURE
3381 014522  012737  014572  001244             MOV     #240$,$TMP5     ;GOT
3382 014530  104071                             ERROR   +71
3383 014532  000427                             BR      270$
3384
3385                                    ;REPORT FPS INCORRECT:
3386 014534  012737  000204  001240     260$:   MOV     #204,$TMP3
3387 014542  010537  001242                     MOV     R5,$TMP4
3388 014546  104072                             ERROR   +72
3389 014550  000420                             BR      270$
3390
3391                                    ;THESE ARE TEST DATA TABLES AND AN OUTPUT BUFFER.
3392 014552  101112                     210$:    101112
3393 014554  131415                              131415
3394 014556  161710                              161710
```

```
3395 014560  111213                        111213
3396 014562  000000              220$:     0
3397 014564  000000                        0
3398 014566  000000                        0
3399 014570  000000                        0
3400
3401 014572  177777              240$:     -1
3402 014574  177777                        -1
3403 014576  177777                        -1
3404 014600  177777                        -1
3405 014602  000000              280$:     0
3406 014604  000000                        0
3407 014606  161710                        161710
3408 014610  111213                        111213
3409
3410 014612                      270$:
     014612  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 # 21 - NEGF, ABSF & TSTF SRC MODE 1
                                ;;*****************************************************************
                                ;*TEST 21       NEGF, ABSF & TSTF SRC MODE 1
                                ;*
                                ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                ;*SOURCE FLOWS.  THE NEGD INSTRUCTION
                                ;*IS USED TO TEST MODE 1
                                ;*
                                ;;*****************************************************************
 014614  000004                 TST21:  SCOPE
3412 014616  012737  014624  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3413 014624  012700  014732    200$:      MOV     #210$,R0        ;SET UP THE DATA BUFFER.
3414 014630  012701  014762                MOV     #220$,R1
3415 014634  012702  000004                MOV     #4,R2
3416 014640  012021                1$:     MOV     (R0)+,(R1)+
3417 014642  077202                        SOB     R2,1$
3418 014644  012700  000200                MOV     #200,R0         ;SET FD MODE.
3419 014650  170100                        LDFPS   R0
3420 014652  012700  014762                MOV     #220$,R0        ;SET UP THE OPERAND ADDRESS.
3421 014656  012737  014672  001236        MOV     #230$,$TMP2
3422 014664  012737  014772  000004        MOV     #240$,ERRVECT ;SET UP VECTOR 4 IN CASE OF ERROR.
3423 014672  170710                230$:   NEGD    (R0)            ;TEST INSTRUCTION.
3424
3425 014674  170205                        STFPS   R5              ;GET FPS.
3426 014676  012701  014762                MOV     #220$,R1        ;SEE IF RESULT IS CORRECT.
3427 014702  012702  000004                MOV     #4,R2
3428 014706  005721                2$:     TST     (R1)+
3429 014710  001046                        BNE     250$            ;BRANCH IF NOT CORRECT.
3430 014712  077203                        SOB     R2,2$
3431
3432 014714  020027  014762                CMP     R0,#220$        ;IS R0 CORRECT?
3433 014720  001055                        BNE     260$                    ;BRANCH IF NOT CORRECT.
3434 014722  022705  000204                CMP     #204,R5         ;IS THE FPS CORRECT?
3435 014726  001061                        BNE     270$            ;BRANCH IF NOT CORRECT.
3436 014730  000466                        BR      280$
3437
3438                            ;THESE ARE TEST DATA TABLES AND A BUFFER.
3439 014732  000177                210$:   177
3440 014734  167574                        167574
3441 014736  137271                        137271
3442 014740  107675                        107675
3443 014742  000000                214$:   0
3444 014744  000000                        0
3445 014746  000000                        0
3446 014750  000000                        0
3447 014752  177777                        -1
3448 014754  177777                        -1
3449 014756  177777                        -1
3450 014760  177777                        -1
3451 014762  177777                220$:   -1
3452 014764  177777                        -1
3453 014766  177777                        -1
3454 014770  177777                        -1
3455
3456                            ;IF A TRAP TO 4 OCCURS COME HERE:
3457 014772  011602                240$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTR.
3458 014774  020227  014674                CMP     R2,#230$+2
```

```
 3459 015000  001405                        BEQ     3$                  ;BRANCH IF YES.
 3460 015002  020227  014676                CMP     R2,#230$+4
 3461 015006  001402                        BEQ     3$                  ;BRANCH IF YES.
 3462 015010  000137  051774                JMP     CPSPUR  ;OTHERWISE GO REPORT A SPURIOUS TRAP TO 4.
 3463                              ;REPORT A FAILURE IN THE FDST FLOWS RESULTED IN AN ODD ADDRESS TRAP TO 4.
 3464 015014  022626               3$:     CMP     (SP)+,(SP)+         ;RESET THE STACK.
 3465 015016  010237  001236                MOV     R2,$TMP2
 3466 015022  104107                        ERROR   +107                ;ODD ADRES
 3467 015024  000430                        BR      280$                ;BUT FDSTX IN ST 771
 3468
 3469                              ;REPORT RESULT INCORRECT.
 3470 015026  012737  014742  001242 250$:  MOV     #214$,$TMP4
 3471 015034  012737  014732  001240       MOV     #210$,$TMP3
 3472 015042  012737  014762  001244       MOV     #220$,$TMP5
 3473 015050  104073                        ERROR   +73                 ;BAD DATA X11*0 ST 312X
 3474 015052  000415                        BR      280$
 3475
 3476                              ;R0 INCORRECT:
 3477 015054  012737  014762  001240 260$:  MOV     #220$,$TMP3
 3478 015062  010037  001242                MOV     R0,$TMP4
 3479 015066  104074                        ERROR   +74                 ;R0 BADX
 3480 015070  000406                        BR      280$
 3481
 3482                              ;REPORT FPS INCORRECT:
 3483 015072  010537  001240       270$:   MOV     R5,$TMP3
 3484 015076  012737  000204  001244       MOV     #204,$TMP5
 3485 015104  104075                        ERROR   +75                 ;FPS X
 3486
 3487 015106                       280$:
      015106  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 # 22 - NEGF, ABSF & TSTF SRC MODE 2 TEST

```
3488                                    .SBTTL  TEST # 22 - NEGF, ABSF & TSTF SRC MODE 2 TEST
                                        ;;*****************************************************************
                                        ;*TEST 22       NEGF, ABSF & TSTF SRC MODE 2 TEST
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                        ;*IS USED TO TEST MODE 2
                                        ;*
                                        ;;*****************************************************************
   015110  000004                       TST22:  SCOPE
3489 015112  012737  015120  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3490 015120  012700  015226             200$:   MOV     #210$,R0                ;SET UP THE DATA BUFFER.
3491 015124  012701  015256                     MOV     #220$,R1
3492 015130  012702  000004                     MOV     #4,R2
3493 015134  012021                     1$:     MOV     (R0)+,(R1)+
3494 015136  077202                             SOB     R2,1$
3495 015140  012700  000200                     MOV     #200,R0         ;SET FD.
3496 015144  170100                             LDFPS   R0
3497 015146  012700  015256                     MOV     #220$,R0        ;SET UP THE OPERAND ADDRESS.
3498 015152  012737  015166  001236             MOV     #230$,$TMP2
3499 015160  012737  015266  000004             MOV     #240$,ERRVECT   ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3500
3501 015166  170620                     230$:   ABSD    (R0)+           ;TEST INSTRUCTION.
3502
3503 015170  170205                             STFPS   R5              ;GET FPS.
3504 015172  012701  015256                     MOV     #220$,R1                ;CHECK RESULT.
3505 015176  012702  000004                     MOV     #4,R2
3506 015202  005721                     2$:     TST     (R1)+
3507 015204  001046                             BNE     250$            ;BRANCH IF INCORRECT.
3508 015206  077203                             SOB     R2,2$
3509
3510 015210  020027  015266                     CMP     R0,#220$+10     ;IS R0 CORRECT?
3511 015214  001055                             BNE     260$            ;BRANCH IF INCORRECT.
3512 015216  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3513 015222  001061                             BNE     270$            ;BRANCH IF INCORRECT.
3514 015224  000466                             BR      280$
3515
3516                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3517 015226  000177                     210$:   177
3518 015230  167574                             167574
3519 015232  137271                             137271
3520 015234  107675                             107675
3521 015236  000000                     290$:   0
3522 015240  000000                             0
3523 015242  000000                             0
3524 015244  000000                             0
3525 015246  177777                             -1
3526 015250  177777                             -1
3527 015252  177777                             -1
3528 015254  177777                             -1
3529 015256  177777                     220$:   -1
3530 015260  177777                             -1
3531 015262  177777                             -1
3532 015264  177777                             -1
3533
3534                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3535 015266  011602                     240$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
```

```
 3536 015270  020227  015170                    CMP     R2,#230$+2
 3537 015274  001405                            BEQ     3$                ;BRANCH IF YES.
 3538 015276  020227  015172                    CMP     R2,#230$+4
 3539 015302  001402                            BEQ     3$                ;BRANCH IF YES.
 3540 015304  000137  051774    .               JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
 3541                          ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
 3542 015310  022626            3$:     CMP     (SP)+,(SP)+
 3543 015312  010237  001236                    MOV     R2,$TMP2
 3544 015316  104076                            ERROR   +76               ;ODD ADRES
 3545 015320  000430                            BR      280$              ;BUT FDSTX IN ST 771
 3546
 3547                          ;REPORT RESULT INCORRECT:
 3548 015322  012737  015236  001240  250$:     MOV     #290$,$TMP3
 3549 015330  012737  015226  001242            MOV     #210$,$TMP4
 3550 015336  012737  015256  001244            MOV     #220$,$TMP5
 3551 015344  104077                            ERROR   +77               ;BAD DATA X11*0 ST 312X
 3552 015346  000415                            BR      280$
 3553
 3554                          ;REPORT R0 INCORRECT:
 3555 015350  012737  015262  001240  260$:     MOV     #220$+4,$TMP3
 3556 015356  010037  001242                    MOV     R0,$TMP4
 3557 015362  104100                            ERROR   +100              ;R0 BADX
 3558 015364  000406                            BR      280$
 3559
 3560                          ;REPORT FPS INCORRECT:
 3561 015366  010537  001240            270$:   MOV     R5,$TMP3
 3562 015372  012737  000204  001244            MOV     #204,$TMP5
 3563 015400  104101                            ERROR   +101              ;FPS X
 3564
 3565 015402                            280$:
      015402  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 # 23 - NEGF, ABSF & TSTF SRC MODE 4 TEST
                                        ;;*****************************************************************
                                        ;*TEST 23       NEGF, ABSF & TSTF SRC MODE 4 TEST
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                        ;*IS USED TO TEST MODE 4
                                        ;*
                                        ;;*****************************************************************
 015404  000004                         TST23:  SCOPE
3567 015406  012737  015414  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3568 015414  012700  015522             200$:   MOV     #210$,R0                ;SET UP THE DATA BUFFER.
3569 015420  012701  015542                     MOV     #220$,R1
3570 015424  012702  000004                     MOV     #4,R2
3571 015430  012021                     1$:     MOV     (R0)+,(R1)+
3572 015432  077202                             SOB     R2,1$
3573 015434  012700  000200                     MOV     #200,R0         ;SET FD.
3574 015440  170100                             LDFPS   R0
3575 015442  012700  015552                     MOV     #230$,R0        ;SET UP THE OPERAND ADDRESS.
3576 015446  012737  015462  001236             MOV     #240$,$TMP2
3577 015454  012737  015562  000004             MOV     #250$,ERRVECT   ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3578
3579 015462  170640                     240$:   ABSD    -(R0)           ;TEST INSTRUCTION.
3580
3581 015464  170205                             STFPS   R5              ;GET FPS.
3582 015466  012701  015542                     MOV     #220$,R1                ;CHECK RESULT.
3583 015472  012702  000004                     MOV     #4,R2
3584 015476  005721                     2$:     TST     (R1)+
3585 015500  001046                             BNE     260$            ;BRANCH IF INCORRECT.
3586 015502  077203                             SOB     R2,2$
3587
3588 015504  020027  015542                     CMP     R0,#220$        ;IS R0 CORRECT?
3589 015510  001055                             BNE     270$            ;BRANCH IF INCORRECT.
3590 015512  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3591 015516  001061                             BNE     280$            ;BRANCH IF INCORRECT.
3592 015520  000466                             BR      290$
3593
3594                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3595 015522  000177                     210$:   177
3596 015524  117273                             117273
3597 015526  147576                             147576
3598 015530  177071                             177071
3599 015532  000000                     300$:   0
3600 015534  000000                             0
3601 015536  000000                             0
3602 015540  000000                             0
3603 015542  177777                     220$:   -1
3604 015544  177777                             -1
3605 015546  177777                             -1
3606 015550  177777                             -1
3607 015552  177777                     230$:   -1
3608 015554  177777                             -1
3609 015556  177777                             -1
3610 015560  177777                             -1
3611
3612                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3613 015562  011602                     250$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
```

```
3614 015564  020227  015464                    CMP     R2,#240$+2
3615 015570  001405                            BEQ     3$                ;BRANCH IF YES.
3616 015572  020227  015466                    CMP     R2,#240$+4
3617 015576  001402                            BEQ     3$                ;BRANCH IF YES.
3618 015600  000137  051774                    JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3619                              ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3620 015604  022626                 3$:       CMP     (SP)+,(SP)+
3621 015606  010237  001236                    MOV     R2,$TMP2
3622 015612  104102                            ERROR   +102              ;ODD ADRES
3623 015614  000430                            BR      290$              ;BUT FDSTX IN ST 771
3624
3625                              ;REPORT RESULT INCORRECT:
3626 015616  012737  015532  001240  260$:     MOV     #300$,$TMP3
3627 015624  012737  015522  001242            MOV     #210$,$TMP4
3628 015632  012737  015542  001244            MOV     #220$,$TMP5
3629 015640  104103                            ERROR   +103              ;BAD DATA X11*0 ST 312X
3630 015642  000415                            BR      290$
3631
3632                              ;REPORT R0 INCORRECT:
3633 015644  012737  015542  001240  270$:     MOV     #220$,$TMP3
3634 015652  010037  001242                    MOV     R0,$TMP4
3635 015656  104104                            ERROR   +104              ;R0 BADX
3636 015660  000406                            BR      290$
3637
3638                              ;REPORT FPS INCORRECT:
3639 015662  010537  001240            280$:   MOV     R5,$TMP3
3640 015666  012737  000204  001244            MOV     #204,$TMP5
3641 015674  104105                            ERROR   +105              ;FPS X
3642
3643 015676                       290$:
     015676  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?).
```

```
3644                                    .SBTTL  TEST # 24 - NEGF, ABSF & TSTF SRC MODE 3 TEST
                                        ;;*****************************************************************
                                        ;*TEST 24       NEGF, ABSF & TSTF SRC MODE 3 TEST
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                        ;*IS USED TO TEST MODE 3
                                        ;*
                                        ;;*****************************************************************
     015700  000004                     TST24:  SCOPE
3645 015702  012737  015710  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3646 015710  012700  016016             200$:   MOV     #210$,R0                ;SET UP THE DATA BUFFER.
3647 015714  012701  016046                     MOV     #220$,R1
3648 015720  012702  000010                     MOV     #10,R2
3649 015724  012021                     1$:     MOV     (R0)+,(R1)+
3650 015726  077202                             SOB     R2,1$
3651 015730  012700  000200                     MOV     #200,R0         ;SET FD.
3652 015734  170100                             LDFPS   R0
3653 015736  012700  016056                     MOV     #230$,R0        ;SET UP THE OPERAND ADDRESS.
3654 015742  012737  015756  001236             MOV     #240$,$TMP2
3655 015750  012737  016066  000004             MOV     #250$,ERRVECT   ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3656
3657 015756  170630                     240$:   ABSD    @(R0)+          ;TEST INSTRUCTION.
3658
3659 015760  170205                             STFPS   R5              ;GET FPS.
3660 015762  012701  016046                     MOV     #220$,R1                ;CHECK RESULT.
3661 015766  012702  000004                     MOV     #4,R2
3662 015772  005721                     2$:     TST     (R1)+
3663 015774  001052                             BNE     260$            ;BRANCH IF INCORRECT.
3664 015776  077203                             SOB     R2,2$
3665 016000  020027  016060                     CMP     R0,#230$+2      ;IS R0 CORRECT?
3666 016004  001061                             BNE     270$            ;BRANCH IF INCORRECT.
3667 016006  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3668 016012  001065                             BNE     280$            ;BRANCH IF INCORRECT.
3669 016014  000472                             BR      290$
3670
3671                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3672 016016  000177                     210$:   177
3673 016020  147576                             147576
3674 016022  177071                             177071
3675 016024  107576  016046  177777             107576,220$,-1,-1,-1
3676 016036  000000  000000  000000     300$:   0,0,0,0
3677 016046  177777                     220$:   -1
3678 016050  177777                             -1
3679 016052  177777                             -1
3680 016054  177777                             -1
3681 016056  177777                     230$:   -1
3682 016060  177777                             -1
3683 016062  177777                             -1
3684 016064  177777                             -1
3685
3686                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3687 016066  011602                     250$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3688 016070  020227  015760                     CMP     R2,#240$+2
3689 016074  001405                             BEQ     3$              ;BRANCH IF YES.
3690 016076  020227  015762                     CMP     R2,#240$+4
3691 016102  001402                             BEQ     3$              ;BRANCH IF YES.
```

```
3692 016104  000137  051774                    JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3693                                 ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3694 016110  022626                  3$:     CMP     (SP)+,(SP)+
3695 016112  010237  001236                  MOV     R2,$TMP2
3696 016116  104106                          ERROR   +106            ;ODD ADRES
3697 016120  000430                          BR      290$            ;BUT FDSTX IN ST 771
3698
3699                                 ;REPORT RESULT INCORRECT:
3700 016122  012737  016036  001240  260$:   MOV     #300$,$TMP3
3701 016130  012737  016016  001242          MOV     #210$,$TMP4
3702 016136  012737  016046  001244          MOV     #220$,$TMP5
3703 016144  104110                          ERROR   +110            ;BAD DATA X11*0 ST 3127
3704 016146  000415                          BR      290$
3705
3706                                 ;REPORT R0 INCORRECT:
3707 016150  012737  016060  001240  270$:   MOV     #230$+2,$TMP3
3708 016156  010037  001242                  MOV     R0,$TMP4
3709 016162  104111                          ERROR   +111            ;R0 INCORRECT.
3710 016164  000406                          BR      290$
3711                                 ;REPORT FPS INCORRECT:
3712 016166  010537  001240          280$:   MOV     R5,$TMP3
3713 016172  012737  000204  001244          MOV     #204,$TMP5
3714 016200  104112                          ERROR   +112            ;FPSX
3715
3716 016202                          290$:
     016202  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 # 25 - NEGF, ABSF & TSTF SRC MODE 5 TEST
                                        ;;*****************************************************************
                                        ;*TEST 25       NEGF, ABSF & TSTF SRC MODE 5 TEST
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE NEGD INSTRUCTION
                                        ;*IS USED TO TEST MODE 5
                                        ;*
                                        ;;*****************************************************************
 016204  000004                         TST25:  SCOPE
3718 016206  012737  016214  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3719 016214  012700  016322             200$:   MOV     #210$,R0                ;SET UP THE DATA BUFFER.
3720 016220  012701  016352                     MOV     #220$,R1
3721 016224  012702  000010                     MOV     #10,R2
3722 016230  012021                     1$:     MOV     (R0)+,(R1)+
3723 016232  077202                             SOB     R2,1$
3724 016234  012700  000200                     MOV     #200,R0         ;SET FD.
3725 016240  170100                             LDFPS   R0
3726 016242  012700  016364                     MOV     #230$+2,R0      ;SET UP THE OPERAND ADDRESS.
3727 016246  012737  016262  001236             MOV     #240$,$TMP2
3728 016254  012737  016372  000004             MOV     #250$,ERRVECT   ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3729
3730 016262  170750                     240$:   NEGD    @-(R0)          ;TEST INSTRUCTION.
3731
3732 016264  170205                             STFPS   R5              ;GET FPS.
3733 016266  012701  016352                     MOV     #220$,R1                ;CHECK RESULT.
3734 016272  012702  000004                     MOV     #4,R2
3735 016276  005721                     2$:     TST     (R1)+
3736 016300  001052                             BNE     260$            ;BRANCH IF INCORRECT.
3737 016302  077203                             SOB     R2,2$
3738 016304  020027  016362                     CMP     R0,#230$        ;IS R0 CORRECT?
3739 016310  001061                             BNE     270$            ;BRANCH IF INCORRECT.
3740 016312  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3741 016316  001065                             BNE     280$            ;BRANCH IF INCORRECT.
3742 016320  000472                             BR      290$
3743
3744                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3745 016322  000176                     210$:   176
3746 016324  177074                             177074
3747 016326  127374                             127374
3748 016330  157677  016352  177777             157677,220$,-1,-1,-1
3749 016342  000000                     300$:   0
3750 016344  000000                             0
3751 016346  000000                             0
3752 016350  000000                             0
3753 016352  177777                     220$:   -1
3754 016354  177777                             -1
3755 016356  177777                             -1
3756 016360  177777                             -1
3757 016362  177777                     230$:   -1
3758 016364  177777                             -1
3759 016366  177777                             -1
3760 016370  177777                             -1
3761
3762                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3763 016372  011602                     250$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3764 016374  020227  016264                     CMP     R2,#240$+2
```

```
 3765 016400  001405                        BEQ     3$                ;BRANCH IF YES.
 3766 016402  020227  016266                CMP     R2,#240$+4
 3767 016406  001402 *                      BEQ     3$                ;BRANCH IF YES.
 3768 016410  000137  051774                JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
 3769                              ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
 3770 016414  022626                3$:     CMP     (SP)+,(SP)+
 3771 016416  010237  001236                MOV     R2,$TMP2
 3772 016422  104113                        ERROR   +113              ;ODD ADRES
 3773 016424  000430                        BR      290$              ;BUT FDSTX IN ST 771
 3774
 3775                              ;REPORT RESULT INCORRECT:
 3776 016426  012737  016342  001240 260$:  MOV     #300$,$TMP3
 3777 016434  012737  016322  001242        MOV     #210$,$TMP4
 3778 016442  012737  016352  001244        MOV     #220$,$TMP5
 3779 016450  104114                        ERROR   +114              ;BAD DATA X11+0 ST 3127
 3780 016452  000415                        BR      290$
 3781
 3782                              ;REPORT R0 INCORRECT:
 3783 016454  012737  016362  001240 270$:  MOV     #230$,$TMP3
 3784 016462  010037  001242                MOV     R0,$TMP4
 3785 016466  104115                        ERROR   +115              ;R0 BADX
 3786 016470  000406                        BR      290$
 3787                              ;REPORT FPS INCORRECT:
 3788 016472  010537  001240        280$:   MOV     R5,$TMP3
 3789 016476  012737  000204  001244        MOV     #204,$TMP5
 3790 016504  104116                        ERROR   +116              ;FPSX
 3791
 3792 016506                       290$:
      016506  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?).
```

```
3793                                    .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
                                        ;*
                                        ;;*****************************************************************
    016510  000004                      TST26:  SCOPE
3794                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
3795 016512  012767  016520  162370             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3796 016520  012700  016630             200$:   MOV     #210$,R0                ;SET UP THE DATA BUFFER.
3797 016524  012701  016652                     MOV     #220$,R1
3798 016530  012702  000004                     MOV     #4,R2
3799 016534  012021                     1$:     MOV     (R0)+,(R1)+
3800 016536  077202                             SOB     R2,1$
3801 016540  012700  000200                     MOV     #200,R0         ;SET FD.
3802 016544  170100                             LDFPS   R0
3803 016546  012700  016643                     MOV     #220$-7,R0      ;SET UP THE OPERAND ADDRESS.
3804 016552  012767  016566  162456             MOV     #230$,$TMP2
3805 016560  012767  016672  161216             MOV     #240$,ERRVECT   ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3806
3807 016566  170660  000007             230$:   ABSD    7(R0)           ;TEST INSTRUCTION.
3808
3809 016572  170205                             STFPS   R5              ;GET FPS.
3810 016574  012701  016652                     MOV     #220$,R1                ;CHECK RESULT.
3811 016600  012702  000004                     MOV     #4,R2
3812 016604  005721                     2$:     TST     (R1)+
3813 016606  001047                             BNE     250$            ;BRANCH IF INCORRECT.
3814 016610  077203                             SOB     R2,2$
3815 016612  020027  016643                     CMP     R0,#220$-7      ;IS R0 CORRECT?
3816 016616  001056                             BNE     260$            ;BRANCH IF INCORRECT.
3817 016620  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3818 016624  001062                             BNE     270$            ;BRANCH IF INCORRECT.
3819 016626  000467                             BR      280$
3820
3621                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3822 016630  000177                     210$:   177
3823 016632  161524                             161524
3824 016634  131273                             131273
3825 016636  107174  000000                     107174,
3826 016642  000000                     290$:   0
3827 016644  000000                             0
3828 016646  000000                             0
3829 016650  000000                             0
3830 016652  177777                     220$:   -1
3831 016654  177777                             -1
3832 016656  177777                             -1
3833 016660  177777                             -1
3834 016662  177777                             -1
3835 016664  177777                             -1
3836 016666  177777                             -1
3837 016670  177777                             -1
3838
3839                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3840 016672  011602                     240$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
```

```
3841 016674  020227  016570                    CMP     R2,#230$+2
3842 016700  001405                            BEQ     3$                ;BRANCH IF YES.
3843 016702  020227  016572                    CMP     R2,#230$+4
3844 016706  001402                            BEQ     3$                ;BRANCH IF YES.
3845 016710  000167  033060                    JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3846                              ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3847 016714  022626                 3$:       CMP     (SP)+,(SP)+
3848 016716  010267  162314                    MOV     R2,$TMP2
3849 016722  104117                            ERROR   +117              ;ODD ADRES
3850 016724  000422                            BR      270$              ;BUT FDSTX IN ST 771
3851
3852                              ;REPORT RESULT INCORRECT:
3853 016726  012767  016642  162304  250$:     MOV     #290$,$TMP3
3854 016734  012767  016630  162300            MOV     #210$,$TMP4
3855 016742  012767  016652  162274            MOV     #220$,$TMP5
3856 016750  104120                            ERROR   +120              ;BAD DATA X11*0 ST 3127
3857 016752  000407                            BR      270$
3858
3859                              ;REPORT R0 INCORRECT:
3860 016754  012767  016643  162256  260$:     MOV     #220$-7,$TMP3
3861 016762  010067  162254                    MOV     R0,$TMP4
3862 016766  104124                            ERROR   +124              ;R0 BADX
3863 016770  000400                            BR      270$
3864                              ;REPORT FPS INCORRECT:
3865 016772  010567  162242          270$:     MOV     R5,$TMP3
3866 016776  012767  000204  162240            MOV     #204,$TMP5
3867 017004  104122                            ERROR   +122              ;FPSX
3868 017006                       280$:
     017006  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?).
3869                                           .ENABL  AMA               ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
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                                        .SBTTL  TEST # 27 - NEGF, ABSF AND TSTF SRC MODE 7 TEST
                                        ;;*********************************************************************
                                        ;*TEST 27       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
                                        ;*
                                        ;;*********************************************************************
    017010  000004                      TST27:  SCOPE
3871 017012  012737  017020  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3872 017020  012700  017130             200$:   MOV     #210$,R0                ;SET UP THE DATA BUFFER.
3873 017024  012701  017160                     MOV     #220$,R1
3874 017030  012702  000010                     MOV     #10,R2
3875 017034  012021                     1$:     MOV     (R0)+,(R1)+
3876 017036  077202                             SOB     R2,1$
3877 017040  012700  000200                     MOV     #200,R0         ;SET FD.
3878 017044  170100                             LDFPS   R0
3879 017046  012700  017161                     MOV     #230$-7,R0      ;SET UP THE OPERAND ADDRESS.
3880 017052  012737  017066  001236             MOV     #240$,$TMP2
3881 017060  012737  017200  000004             MOV     #250$,ERRVECT   ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3882
3883 017066  170770  000007             240$:   NEGD    @7(R0)          ;TEST INSTRUCTION.
3884
3885 017072  170205                             STFPS   R5              ;GET FPS.
3886 017074  012701  017160                     MOV     #220$,R1                ;CHECK RESULT.
3887 017100  012702  000004                     MOV     #4,R2
3888 017104  005721                     2$:     TST     (R1)+
3889 017106  001052                             BNE     260$            ;BRANCH IF INCORRECT.
3890 017110  077203                             SOB     R2,2$
3891 017112  020027  017161                     CMP     R0,#230$-7      ;IS R0 CORRECT?
3892 017116  001061                             BNE     270$            ;BRANCH IF INCORRECT.
3893 017120  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3894 017124  001065                             BNE     280$            ;BRANCH IF INCORRECT.
3895 017126  000472                             BR      290$
3896
3897                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3898 017130  000177                     210$:   177
3899 017132  167574                             167574
3900 017134  137271                             137271
3901 017136  107675  017160  177777             107675,220$,-1,-1,-1
3902 017150  000000                     300$:   0
3903 017152  000000                             0
3904 017154  000000                             0
3905 017156  000000                             0
3906 017160  177777                     220$:   -1
3907 017162  177777                             -1
3908 017164  177777                             -1
3909 017166  177777                             -1
3910 017170  177777                     230$:   -1
3911 017172  177777                             -1
3912 017174  177777                             -1
3913 017176  177777                             -1
3914
3915                                    ;IF A TRAP TO 4 OCCURS COME HERE.
3916 017200  011602                     250$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3917 017202  020227  017070                     CMP     R2,#240$+2
```

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3918 017206  001405                        BEQ     3$                ;BRANCH IF YES.
3919 017210  020227  017072                CMP     R2,#240$+4
3920 017214  001402                        BEQ     3$                ;BRANCH IF YES.
3921 017216  000137  051774                JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
3922                              ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
3923 017222  022626                3$:     CMP     (SP)+,(SP)+
3924 017224  010237  001236                MOV     R2,$TMP2
3925 017230  104123                        ERROR   +123              ;ODD ADRES
3926 017232  000430                        BR      290$              ;BUT FDSTX IN ST 771
3927
3928                              ;REPORT RESULT INCORRECT:
3929 017234  012737  017150  001240 260$:  MOV     #300$,$TMP3
3930 017242  012737  017130  001242        MOV     #210$,$TMP4
3931 017250  012737  017160  001244        MOV     #220$,$TMP5
3932 017256  104124                        ERROR   +124              ;BAD DATA X11*0 ST 3127
3933 017260  000415                        BR      290$
3934
3935                              ;REPORT R0 INCORRECT:
3936 017262  012737  017161  001240 270$:  MOV     #230$-7,$TMP3
3937 017270  010037  001242                MOV     R0,$TMP4
3938 017274  104125                        ERROR   +125              ;R0 BADX
3939 017276  000406                        BR      290$
3940                              ;REPORT FPS INCORRECT:
3941 017300  010537  001240        280$:   MOV     R5,$TMP3
3942 017304  012737  000204  001244        MOV     #204,$TMP5
3943 017312  104126                        ERROR   +126              ;FPSX
3944
3945 017314                        290$:
     017314  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?).
```

```
3946                                    .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
                                        ;*
                                        ;;*****************************************************************
    017316  000004                      TST30:  SCOPE
3947                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
3948 017320  012767  017326  161562             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
3949 017326  012700  017424             200$:   MOV     #210$,R0                ;SET UP THE DATA BUFFER.
3950 017332  012701  017444                     MOV     #220$,R1
3951 017336  012702  000004                     MOV     #4,R2
3952 017342  012021                     1$:     MOV     (R0)+,(R1)+
3953 017344  077202                             SOB     R2,1$
3954 017346  012700  000200                     MOV     #200,R0         ;SET FD.
3955 017352  170100                             LDFPS   R0
3956 017354  012767  017370  161654             MOV     #230$,$TMP2
3957 017362  012767  017464  160414             MOV     #240$,ERRVECT   ;SET UP VECTOR 4 IN CASE OF AN ERROR.
3958
3959 017370  170767  000050             230$:   NEGD    220$            ;TEST INSTRUCTION.
3960
3961 017374  170205                             STFPS   R5              ;GET FPS.
3962 017376  012701  017444                     MOV     #220$,R1                ;CHECK RESULT.
3963 017402  012702  000004                     MOV     #4,R2
3964 017406  005721                     2$:     TST     (R1)+
3965 017410  001043                             BNE     250$            ;BRANCH IF INCORRECT.
3966 017412  077203                             SOB     R2,2$
3967 017414  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
3968 017420  001052                             BNE     260$            ;BRANCH IF INCORRECT.
3969 017422  000457                             BR      270$
3970
3971                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
3972 017424  000127                     210$:   127
3973 017426  137475                             137475
3974 017430  147372                             147372
3975 017432  117057                             117057
3976 017434  000000                     280$:   0
3977 017436  000000                             0
3978 017440  000000                             0
3979 017442  000000                             0
3980 017444  177777                     220$:   -1
3981 017446  177777                             -1
3982 017450  177777                             -1
3983 017452  177777                             -1
3984 017454  177777                             -1
3985 017456  177777                             -1
3986 017460  177777                             -1
3987 017462  177777                             -1
3988
3989
                                        ;IF A TRAP TO 4 OCCURS COME HERE.
3990 017464  011602                     240$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
3991 017466  020227  017372                     CMP     R2,#230$+2
3992 017472  001405                             BEQ     3$              ;BRANCH IF YES.
3993 017474  020227  017374                     CMP     R2,#230$+4
```

```
                                        BEQ     3$                      ;BRANCH IF YES.
                                        JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
                                ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
                                3$:     CMP     (SP)+,(SP)+
                                        MOV     R2,$TMP2
                                        ERROR   +127                    ;ODD ADRES
                                        BR      270$                    ;BUT FDSTX IN ST 771

                                ;REPORT RESULT INCORRECT:
                                250$:   MOV     #280$,$TMP3
                                        MOV     #210$,$TMP4
                                        MOV     #220$,$TMP5
                                        ERROR   +130                    ;BAD DATA X11*0 ST 3127
                                        BR      270$
                                ;REPORT FPS INCORRECT:
                                260$:   MOV     R5,$TMP3
                                        MOV     #204,$TMP5
                                        ERROR   +131                    ;FPSX

                                270$:
017562  104412                         RSETUP                          ;GO INITIALIZE THE FPS AND STACK; AND
                                                                        ;SEE IF THE USER HAS EXPRESSED
                                                                        ;THE DESIRE TO CHANGE THE SOFTWARE
                                                                        ;VIRTUAL CONSOLE SWITCH REGISTER (HAS
                                                                        ;THE USER TYPED CONTROL G?).
                                        .ENABL  AMA                     ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
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```
4015                                    .SBTTL  TEST # 31 - NEGF, ABSF AND TSTF SRC MODE 7, GR7
                                        ;;*****************************************************************
                                        ;*TEST 31       NEGF, ABSF AND TSTF SRC MODE 7, GR7
                                        ;*
                                        ;*THIS IS A TEST THE NEGF,  ABSF AND TSTF
                                        ;*SOURCE FLOWS.  THE ABSD INSTRUCTION
                                        ;*IS USED TO TEST MODE 7
                                        ;*
                                        ;;*****************************************************************
     017564  000004                     TST31:  SCOPE
4016 017566  012737  017574  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4017 017574  012700  017672             200$:   MOV     #210$,R0                ;SET UP THE DATA BUFFER.
4018 017600  012701  017722                     MOV     #220$,R1
4019 017604  012702  000010                     MOV     #10,R2
4020 017610  012021                     1$:     MOV     (R0)+,(R1)+
4021 017612  077202                             SOB     R2,1$
4022 017614  012700  000200                     MOV     #200,R0         ;SET FD.
4023 017620  170100                             LDFPS   R0
4024 017622  012737  017636  001236             MOV     #230$,$TMP2
4025 017630  012737  017742  000004             MOV     #240$,ERRVECT   ;SET UP VECTOR 4 IN CASE OF AN ERROR.
4026
4027 017636  170677  000070             230$:   ABSD    @250$           ;TEST INSTRUCTION.
4028
4029 017642  170205                             STFPS   R5              ;GET FPS.
4030 017644  012701  017722                     MOV     #220$,R1                ;CHECK RESULT.
4031 017650  012702  000004                     MOV     #4,R2
4032 017654  005721                     2$:     TST     (R1)+
4033 017656  001047                             BNE     260$            ;BRANCH IF INCORRECT.
4034 017660  077203                             SOB     R2,2$
4035 017662  022705  000204                     CMP     #204,R5         ;IS THE FPS CORRECT?
4036 017666  001056                             BNE     270$            ;BRANCH IF INCORRECT.
4037 017670  000463                             BR      280$
4038
4039                                    ;THESE ARE TEST DATA TABLES AND DATA BUFFER.
4040 017672  000137                     210$:   137
4041 017674  045607                             045607
4042 017676  101230                             101230
4043 017700  045607  017722  177777             45607,220$,-1,-1,-1
4044 017712  000000                     290$:   0
4045 017714  000000                             0
4046 017716  000000                             0
4047 017720  000000                             0
4048 017722  177777                     220$:   -1
4049 017724  177777                             -1
4050 017726  177777                             -1
4051 017730  177777                             -1
4052 017732  177777                     250$:   -1
4053 017734  177777                             -1
4054 017736  177777                             -1
4055 017740  177777                             -1
4056
4057                                    ;IF A TRAP TO 4 OCCURS COME HERE.
4058 017742  011602                     240$:   MOV     (SP),R2         ;SEE IF THE TRAP OCCURRED ON THE TEST INSTRUCTION.
4059 017744  020227  017640                     CMP     R2,#230$+2
4060 017750  001405                             BEQ     3$              ;BRANCH IF YES.
4061 017752  020227  017642                     CMP     R2,#230$+4
4062 017756  001402                             BEQ     3$              ;BRANCH IF YES.
```

```
4063 017760  000137  051774                    JMP     CPSPUR  ;OTHERWISE GO REPORT SPURIOUS TRAP TO 4.
4064                                 ;REPORT AN FDST FLOW FAILURE RESULTED IN A TRAP TO 4.
4065 017764  022626                  3$:     CMP     (SP)+,(SP)+
4066 017766  010237  001236                  MOV     R2,$TMP2
4067 017772  104132                          ERROR   +132            ;ODD ADRES
4068 017774  000421                          BR      280$            ;BUT FDSTX IN ST 771
4069
4070                                 ;REPORT RESULT INCORRECT:
4071 017776  012737  017712  001240  260$:   MOV     #290$,$TMP3
4072 020004  012737  017672  001242          MOV     #210$,$TMP4
4073 020012  012737  017722  001244          MOV     #220$,$TMP5
4074 020020  104133                          ERROR   +133            ;BAD DATA X11*0 ST 3127
4075 020022  000406                          BR      280$
4076                                 ;REPORT FPS INCORRECT:
4077 020024  010537  001240          270$:   MOV     R5,$TMP3
4078 020030  012737  000204  001244          MOV     #204,$TMP5
4079 020036  104134                          ERROR   +134            ;FPSX
4080
4081 020040                          280$:
     020040  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 # 32 - SPECIAL DEST, MODE 0, TEST

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                                        .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.
                                        ;*
                                        ;;*****************************************************************
 020042  000004                        TST32:  SCOPE
4089 020044  012737  020052  001110            MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4090 020052  012700  000200            200$:   MOV     #200,R0         ;SET FD.
4091 020056  170100                            LDFPS   R0
4092 020060  012700  020146                    MOV     #210$,R0                ;SET UP AC0.
4093 020064  172410                            LDD     (R0),AC0
4094 020066  012737  020074  001236            MOV     #220$,$TMP2
4095
4096 020074  170700                    220$:   NEGD    AC0             ;TEST INSTRUCTION.
4097
4098 020076  170205                            STFPS   R5              ;GET FPS.
4099 020100  012700  000200                    MOV     #200,R0         ;SET FD.
4100 020104  170100                            LDFPS   R0
4101 020106  012700  020166                    MOV     #230$,R0                ;GET THE RESULT.
4102 020112  174010                            STD     AC0,(R0)
4103 020114  012700  020166                    MOV     #230$,R0                ;IS THE RESULT CORRECT?
4104 020120  012701  020156                    MOV     #240$,R1
4105 020124  012702  000004                    MOV     #4,R2
4106 020130  022021                    1$:     CMP     (R0)+,(R1)+
4107 020132  001021                            BNE     250$            ;BRANCH IF INCORRECT.
4108 020134  077203                            SOB     R2,1$
4109 020136  022705  000210                    CMP     #210,R5         ;IS THE FPS CORRECT?
4110 020142  001033                            BNE     260$            ;BRANCH IF INCORRECT.
4111 020144  000440                            BR      270$
4112
4113                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4114 020146  013572                    210$:   013572
4115 020150  046013                            46013
4116 020152  057246                            57246
4117 020154  013570                            013570
4118 020156  113572                    240$:   113572
4119 020160  046013                            46013
4120 020162  057246                            57246
4121 020164  013570                            013570
4122 020166  000000                    230$:   0
4123 020170  000000                            0
4124 020172  000000                            0
4125 020174  000000                            0
4126
4127                                    ;REPORT RESULT INCORRECT:
4128 020176  012737  020166  001240    250$:   MOV     #230$,$TMP3
4129 020204  012737  020156  001242            MOV     #240$,$TMP4
4130 020212  023737  020146  020166            CMP     210$,230$
4131 020220  001002                            BNE     280$
4132 020222  104135                            ERROR   +135            ;E10*200X ST 336
4133 020224  000410                            BR      270$
4134
4135                                    ;REPORT RESULT INCORRECT:
4136 020226  104136                    280$:   ERROR   +136            ;BAD DATA NEGF
```

```
4137 020230  000406                          BR      270$
4138
4139                                 ;REPORT FPS INCORRECT:
4140 020232  010537  001242          260$:   MOV     R5,$TMP4
4141 020236  012737  000210  001240          MOV     #210,$TMP3
4142 020244  104137                          ERROR   +137            ;FPSX
4143
4144 020246                          270$:
     020246  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 # 33 - SPECIAL DEST, MODE 1, TEST

```
4145                                    .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.
                                        ;*
                                        ;;*****************************************************************
     020250  000004                     TST33:  SCOPE
4146 020252  012737  020260  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4147 020260  012701  020370             200$:   MOV     #210$,R1        ;SET UP THE DATA BUFFER.
4148 020264  012700  020400                     MOV     #220$,R0
4149 020270  012702  000004                     MOV     #4,R2
4150 020274  012021                     1$:     MOV     (R0)+,(R1)+
4151 020276  077202                             SOB     R2,1$
4152 020300  012700  020370                     MOV     #210$,R0
4153 020304  042710  100000                     BIC     #100000,(R0)    ;MAKE OPERAND POSITIVE.
4154 020310  012737  020324  001236             MOV     #230$,$TMP2
4155 020316  012701  000200                     MOV     #200,R1         ;SET FD.
4156 020322  170101                             LDFPS   R1
4157
4158 020324  170710                     230$:   NEGD    (R0)            ;TEST INSTRUCTION.
4159 020326  170205                             STFPS   R5              ;GET FPS.
4160 020330  012701  020370                     MOV     #210$,R1                ;IS THE RESULT CORRECT.
4161 020334  012702  020400                     MOV     #220$,R2
4162 020340  012703  000004                     MOV     #4,R3
4163 020344  022122                     2$:     CMP     (R1)+,(R2)+
4164 020346  001020                             BNE     240$            ;BRANCH IF INCORRECT.
4165 020350  077303                             SOB     R3,2$
4166 020352  022700  020370                     CMP     #210$,R0        ;IS R0 CORRECT.
4167 020356  001024                             BNE     250$            ;BRANCH IF INCORRECT.
4168 020360  022705  000210                     CMP     #210,R5         ;IS THE FPS CORRECT?
4169 020364  001030                             BNE     260$            ;BRANCH IF INCORRECT.
4170 020366  000435                             BR      270$
4171
4172                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4173 020370  023245                     210$:   023245
4174 020372  026720                             26720
4175 020374  122324                             122324
4176 020376  052672                             52672
4177 020400  123245                     220$:   123245
4178 020402  026720                             26720
4179 020404  122324                             122324
4180 020406  052672                             52672
4181
4182                                    ;REPORT RESULT INCORRECT:
4183 020410  012737  020370  001240     240$:   MOV     #210$,$TMP3
4184 020416  012737  020400  001242             MOV     #220$,$TMP4
4185 020424  104140                             ERROR   +140            ;BAD DATA
4186 020426  000415                             BR      270$
4187
4188                                    ;REPORT R0 INCORRECT:
4189 020430  012737  020370  001240     250$:   MOV     #210$,$TMP3
4190 020436  010037  001242                     MOV     R0,$TMP4
4191 020442  104141                             ERROR   +141            ;SPEC DESTX
4192 020444  000406                             BR      270$            ;R0X
4193
```

```
                                                ;REPORT FPS INCORRECT:
4195 020446  012737  000210  001240  260$:     MOV     #210,$TMP3
4196 020454  010537  001242                    MOV     R5,$TMP4
4197 020460  104142                            ERROR   +142
4198
4199 020462                             270$:
     020462  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?).
```

```
4200                                    .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.
                                        ;*
                                        ;;*****************************************************************
020464  000004                        TST34:  SCOPE
4201 020466  012737  020474  001110            MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4202 020474  012701  020604            200$:   MOV     #210$,R1        ;SET UP THE DATA BUFFER.
4203 020500  012700  020614                    MOV     #220$,R0
4204 020504  012702  000004                    MOV     #4,R2
4205 020510  012021                    1$:     MOV     (R0)+,(R1)+
4206 020512  077202                            SOB     R2,1$
4207 020514  012700  020604                    MOV     #210$,R0
4208 020520  042710  100000                    BIC     #100000,(R0)    ;MAKE OPERAND POSITIVE.
4209 020524  012737  020540  001236            MOV     #230$,$TMP2
4210 020532  012701  000200                    MOV     #200,R1         ;SET FD.
4211 020536  170101                            LDFPS   R1
4212
4213 020540  170720                    230$:   NEGD    (R0)+           ;TEST INSTRUCTION.
4214
4215 020542  170205                            STFPS   R5              ;GET FPS.
4216 020544  012701  020604                    MOV     #210$,R1                ;IS THE RESULT CORRECT.
4217 020550  012702  020614                    MOV     #220$,R2
4218 020554  012703  000004                    MOV     #4,R3
4219 020560  022122                    2$:     CMP     (R1)+,(R2)+
4220 020562  001020                            BNE     240$            ;BRANCH IF INCORRECT.
4221 020564  077303                            SOB     R3,2$
4222 020566  022700  020614                    CMP     #210$+10,R0     ;IS R0 CORRECT.
4223 020572  001024                            BNE     250$            ;BRANCH IF INCORRECT.
4224 020574  022705  000210                    CMP     #210,R5         ;IS THE FPS CORRECT?
4225 020600  001030                            BNE     260$            ;BRANCH IF INCORRECT.
4226 020602  000435                            BR      270$
4227
4228                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4229 020604  023245                    210$:   023245
4230 020606  026720                            26720
4231 020610  122324                            122324
4232 020612  052672                            52672
4233 020614  123245                    220$:   123245
4234 020616  026720                            26720
4235 020620  122324                            122324
4236 020622  052672                            52672
4237
4238                                    ;REPORT RESULT INCORRECT:
4239 020624  012737  020604  001240    240$:   MOV     #210$,$TMP3
4240 020632  012737  020614  001242            MOV     #220$,$TMP4
4241 020640  104143                            ERROR   +143            ;BAD DATA
4242 020642  000415                            BR      270$
4243
4244                                    ;REPORT R0 INCORRECT:
4245 020644  012737  020614  001240    250$:   MOV     #210$+10,$TMP3
4246 020652  010037  001242                    MOV     R0,$TMP4
4247 020656  104144                            ERROR   +144            ;SPEC DESTX R0X
4248 020660  000406                            BR      270$
```

```
 4249
 4250                                        ;REPORT FPS INCORRECT:
 4251 020662  012737  000210  001240  260$:  MOV     #210,$TMP3
 4252 020670  010537  001242                 MOV     R5,$TMP4
 4253 020674  104145                         ERROR   +145
 4254
 4255 020676                                 270$:
      020676  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 # 35 - SPECIAL DEST, MODE 4, TEST

```
4256                                    .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.
                                        ;*
                                        ;;*******************************************************************
     020700  000004                     TST35:  SCOPE
4257 020702  012737  020710  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4258 020710  012701  021022             200$:   MOV     #210$,R1        ;SET UP THE DATA BUFFER.
4259 020714  012700  021042                     MOV     #220$,R0
4260 020720  012702  000004                     MOV     #4,R2
4261 020724  012021                     1$:     MOV     (R0)+,(R1)+
4262 020726  077202                             SOB     R2,1$
4263 020730  012700  021032                     MOV     #210$+10,R0
4264 020734  042760  100000  177770             BIC     #100000,-10(R0) ;MAKE OPERAND POSITIVE.
4265 020742  012737  020756  001236             MOV     #230$,$TMP2
4266 020750  012701  000200                     MOV     #200,R1         ;SET FD.
4267 020754  170101                             LDFPS   R1
4268
4269 020756  170740                     230$:   NEGD    -(R0)           ;TEST INSTRUCTION.
4270
4271 020760  170205                             STFPS   R5              ;GET FPS.
4272 020762  012701  021022                     MOV     #210$,R1                ;IS THE RESULT CORRECT.
4273 020766  012702  021042                     MOV     #220$,R2
4274 020772  012703  000004                     MOV     #4,R3
4275 020776  022122                     2$:     CMP     (R1)+,(R2)+
4276 021000  001024                             BNE     240$            ;BRANCH IF INCORRECT.
4277 021002  077303                             SOB     R3,2$
4278 021004  022700  021022                     CMP     #210$,R0        ;IS R0 CORRECT.
4279 021010  001030                             BNE     250$            ;BRANCH IF INCORRECT.
4280 021012  022705  000210                     CMP     #210,R5         ;IS THE FPS CORRECT?
4281 021016  001034                             BNE     260$            ;BRANCH IF INCORRECT.
4282 021020  000441                             BR      270$
4283
4284                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4285 021022  023245                     210$:   023245
4286 021024  026720                             26720
4287 021026  122324                             122324
4288 021030  052672                             52672
4289 021032  177777  177777  177777             .WORD   -1,-1,-1,-1
4290 021042  123245                     220$:   123245
4291 021044  026720                             26720
4292 021046  122324                             122324
4293 021050  052672                             52672
4294
4295                                    ;REPORT RESULT INCORRECT:
4296 021052  012737  021022  001240     240$:   MOV     #210$,$TMP3
4297 021060  012737  021042  001242             MOV     #220$,$TMP4
4298 021066  104146                             ERROR   +146            ;BAD DATA
4299 021070  000415                             BR      270$
4300
4301                                    ;REPORT R0 INCORRECT:
4302 021072  012737  021022  001240     250$:   MOV     #210$,$TMP3
4303 021100  010037  001242                     MOV     R0,$TMP4
4304 021104  104147                             ERROR   +147            ;SPEC DESTX R0X
```

```
 4305 021106  000406                          BR      270$
 4306
 4307                                ;REPORT FPS INCORRECT:
 4308 021110  012737  000210  001240 260$:    MOV     #210,$TMP3
 4309 021116  010537  001242                   MOV     R5,$TMP4
 4310 021122  104150                           ERROR   +150
 4311
 4312 021124                         270$:
      021124  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 # 36 - SPECIAL DEST, MODE 3, TEST

```
                                .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.
                                ;*
                                ;;*****************************************************************
021126 000004                   TST36:  SCOPE
4314 021130 012737 021136 001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4315 021136 012701 021254       200$:   MOV     #210$,R1        ;SET UP THE DATA BUFFER.
4316 021142 012700 021264               MOV     #220$,R0
4317 021146 012702 000004               MOV     #4,R2
4318 021152 012021              1$:     MOV     (R0)+,(R1)+
4319 021154 077202                      SOB     R2,1$
4320 021156 012700 021274               MOV     #230$,R0
4321 021162 012710 021254               MOV     #210$,(R0)
4322 021166 042737 100000 021254        BIC     #100000,210$    ;MAKE THE OPERAND POSITIVE.
4323 021174 012737 021210 001236        MOV     #240$,$TMP2
4324 021202 012701 000200               MOV     #200,R1         ;SET FD.
4325 021206 170101                      LDFPS   R1
4326
4327 021210 170730              240$:   NEGD    @(R0)+          ;TEST INSTRUCTION.
4328
4329 021212 170205                      STFPS   R5              ;GET FPS.
4330 021214 012701 021254               MOV     #210$,R1                ;IS THE RESULT CORRECT.
4331 021220 012702 021264               MOV     #220$,R2
4332 021224 012703 000004               MOV     #4,R3
4333 021230 022122              2$:     CMP     (R1)+,(R2)+
4334 021232 001021                      BNE     250$            ;BRANCH IF INCORRECT.
4335 021234 077303                      SOB     R3,2$
4336 021236 022700 021276               CMP     #230$+2,R0      ;IS R0 CORRECT.
4337 021242 001025                      BNE     260$            ;BRANCH IF INCORRECT.
4338 021244 022705 000210               CMP     #210,R5         ;IS THE FPS CORRECT?
4339 021250 001031                      BNE     270$            ;BRANCH IF INCORRECT.
4340 021252 000436                      BR      280$
4341
4342                            ;THESE ARE DATA TABLES AND A DATA BUFFER.
4343 021254 023245              210$:   023245
4344 021256 026720                      26720
4345 021260 122324                      122324
4346 021262 052672                      52672
4347 021264 123245              220$:   123245
4348 021266 026720                      26720
4349 021270 123324                      123324
4350 021272 052672                      52672
4351 021274 021254              230$:   210$
4352
4353                            ;REPORT RESULT INCORRECT:
4354 021276 012737 021254 001240 250$:  MOV     #210$,$TMP3
4355 021304 012737 021264 001242        MOV     #220$,$TMP4
4356 021312 104150                      ERROR   +150            ;BAD DATA
4357 021314 000415                      BR      280$
4358
4359                            ;REPORT R0 INCORRECT:
4360 021316 012737 021276 001240 260$:  MOV     #230$+2,$TMP3
4361 021324 010037 001242               MOV     R0,$TMP4
```

TEST # 36 - SPECIAL DEST, MODE 3, TEST

```
 4362 021330  104152                          ERROR   +152            ;SPEC DESTX ROX
 4363 021332  000406                          BR      280$
 4364
 4365                                 ;REPORT FPS INCORRECT:
 4366 021334  012737  000210  001240 270$:    MOV     #210,$TMP3
 4367 021342  010537  001242                  MOV     R5,$TMP4
 4368 021346  104153                          ERROR   +153
 4369
 4370 021350                          280$:
      021350  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 # 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.
                                ;*
                                ;;*****************************************************************
 021352  000004
4372 021354  012737  021362  001110  TST37:  SCOPE
                                        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4373 021362  012701  021502          200$:  MOV     #210$,R1        ;SET UP THE DATA BUFFER.
4374 021366  012700  021512                 MOV     #220$,R0
4375 021372  012702  000004                 MOV     #4,R2
4376 021376  012021                  1$:    MOV     (R0)+,(R1)+
4377 021400  077202                         SOB     R2,1$
4378 021402  012700  021524                 MOV     #230$+2,R0
4379 021406  012760  021502  177776         MOV     #210$,-2(R0)
4380 021414  042737  100000  021502         BIC     #100000,210$    ;MAKE THE OPERAND POSITIVE.
4381 021422  012737  021436  001236         MOV     #240$,$TMP2
4382 021430  012701  000200                 MOV     #200,R1         ;SET FD.
4383 021434  170101                         LDFPS   R1
4384
4385 021436  170750                  240$:  NEGD    @-(R0)          ;TEST INSTRUCTION.
4386
4387 021440  170205                         STFPS   R5              ;GET FPS.
4388 021442  012701  021502                 MOV     #210$,R1                ;IS THE RESULT CORRECT.
4389 021446  012702  021512                 MOV     #220$,R2
4390 021452  012703  000004                 MOV     #4,R3
4391 021456  022122                  2$:    CMP     (R1)+,(R2)+
4392 021460  001021                         BNE     250$            ;BRANCH IF INCORRECT.
4393 021462  077303                         SOB     R3,2$
4394 021464  022700  021522                 CMP     #230$,R0        ;IS R0 CORRECT.
4395 021470  001025                         BNE     260$            ;BRANCH IF INCORRECT.
4396 021472  022705  000210                 CMP     #210,R5         ;IS THE FPS CORRECT?
4397 021476  001031                         BNE     270$            ;BRANCH IF INCORRECT.
4398 021500  000436                         BR      280$
4399
4400                                ;THESE ARE DATA TABLES AND A DATA BUFFER.
4401 021502  023245                  210$:  023245
4402 021504  026720                         26720
4403 021506  122324                         122324
4404 021510  052672                         52672
4405 021512  123245                  220$:  123245
4406 021514  026270                         26270
4407 021516  122324                         122324
4408 021520  052672                         52672
4409 021522  021502                  230$:  210$
4410
4411                                ;REPORT RESULT INCORRECT:
4412 021524  012737  021502  001240  250$:  MOV     #210$,$TMP3
4413 021532  012737  021512  001242         MOV     #220$,$TMP4
4414 021540  104154                         ERROR   +154            ;BAD DATA
4415 021542  000415                         BR      280$
4416
4417                                ;REPORT R0 INCORRECT:
4418 021544  012737  021522  001240  260$:  MOV     #230$,$TMP3
4419 021552  010037  001242                 MOV     R0,$TMP4
```

```
 4420 021556  104155                          ERROR   +155            ;SPEC DESTX R0X
 4421 021560  000406                          BR      280$
 4422
 4423                                ;REPORT FPS INCORRECT:
 4424 021562  012737  000210  001240 270$:    MOV     #210,$TMP3
 4425 021570  010537  001242                  MOV     R5,$TMP4
 4426 021574  104156                          ERROR   +156
 4427
 4428 021576                         280$:
      021576  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?).
```

```
4429                                    .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.
                                        ;*
                                        ;;*****************************************************************
     021600  000004                     TST40:  SCOPE
4430 021602  012737  021610  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4431 021610  012701  021720             200$:   MOV     #210$,R1        ;SET UP THE DATA BUFFER.
4432 021614  012700  021730                     MOV     #220$,R0
4433 021620  012702  000004                     MOV     #4,R2
4434 021624  012021                     1$:     MOV     (R0)+,(R1)+
4435 021626  077202                             SOB     R2,1$
4436 021630  012700  021720                     MOV     #210$,R0
4437 021634  042710  100000                     BIC     #100000,(R0)    ;MAKE OPERAND POSITIVE.
4438 021640  012737  021654  001236             MOV     #230$,$TMP2
4439 021646  012701  000000                     MOV     #000,R1         ;SET FD.
4440 021652  170101                             LDFPS   R1
4441
4442 021654  170720                     230$:   NEGF    (R0)+           ;TEST INSTRUCTION.
4443
4444 021656  170205                             STFPS   R5              ;GET FPS.
4445 021660  012701  021720                     MOV     #210$,R1                ;IS THE RESULT CORRECT.
4446 021664  012702  021730                     MOV     #220$,R2
4447 021670  012703  000004                     MOV     #4,R3
4448 021674  022122                     2$:     CMP     (R1)+,(R2)+
4449 021676  001020                             BNE     240$            ;BRANCH IF INCORRECT.
4450 021700  077303                             SOB     R3,2$
4451 021702  022700  021724                     CMP     #210$+4,R0      ;IS R0 CORRECT.
4452 021706  001024                             BNE     250$            ;BRANCH IF INCORRECT.
4453 021710  022705  000010                     CMP     #010,R5         ;IS THE FPS CORRECT?
4454 021714  001030                             BNE     260$            ;BRANCH IF INCORRECT.
4455 021716  000435                             BR      270$
4456
4457                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4458 021720  023245                     210$:   023245
4459 021722  026720                             26720
4460 021724  122324                             122324
4461 021726  052672                             52672
4462 021730  123245                     220$:   123245
4463 021732  026720                             26720
4464 021734  122324                             122324
4465 021736  052672                             52672
4466
4467                                    ;REPORT RESULT INCORRECT:
4468 021740  012737  021720  001240     240$:   MOV     #210$,$TMP3
4469 021746  012737  021730  001242             MOV     #220$,$TMP4
4470 021754  104150                             ERROR   +150            ;BAD DATA
4471 021756  000415                             BR      270$
4472
4473                                    ;REPORT R0 INCORRECT:
4474 021760  012737  021724  001240     250$:   MOV     #210$+4,$TMP3
4475 021766  010037  001242                     MOV     R0,$TMP4
4476 021772  104160                             ERROR   +160            ;SPEC DESTX ROX
4477 021774  000406                             BR      270$
```

```
                                                                I 8
4478
4479                                    ;REPORT FPS INCORRECT:
4480 021776  012737  000010  001240  260$:   MOV     #010,$TMP3
4481 022004  010537  001242                   MOV     R5,$TMP4
4482 022010  104161                           ERROR   +161
4483
4484 022012                             270$:
     022012  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?).
```

```
 4485                                   .SBTTL  TEST # 41 - SPECIAL DEST, MODE2, GR7
                                        ;;*****************************************************************
                                        ;*TEST 41       SPECIAL DEST, MODE2, GR7
                                        ;*
                                        ;*THIS IS A TEST OF THE NEGF ABSF AND TSTF DESTINATION FLOWS
                                        ;*MODE 2(IMMEDIATE) USING THE NEGD INSTR.
                                        ;*
                                        ;;*****************************************************************
      022014  000004                    TST41:  SCOPE
 4486 022016  012737  022024  001110            MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 4487 022024  012700  022150            200$:   MOV     #210$,R0
 4488 022030  012701  022076                    MOV     #220$,R1        ;SET UP THE DATA BUFFER.
 4489 022034  012702  000004                    MOV     #4,R2
 4490 022040  012021                    1$:     MOV     (R0)+,(R1)+
 4491 022042  077202                            SOB     R2,1$
 4492 022044  012700  022076                    MOV     #220$,R0
 4493 022050  042737  100000  022076            BIC     #100000,220$    ;MAKE THE OPERAND POSITIVE.
 4494 022056  012737  022074  001236            MOV     #230$,$TMP2
 4495 022064  012701  000200                    MOV     #200,R1         ;SET FD.
 4496 022070  170101                            LDFPS   R1
 4497 022072  005001                            CLR     R1
 4498
 4499 022074  170727                    230$:   NEGD    (R7)+           ;TEST INSTRUCTION.
 4500 022076  005201  005201  005201    220$:   5201,5201,5201,5201
 4501                                   ;NOTE THAT AFTER EXECUTING THIS INSTRUCTION R1 SHOULD CONTAIN 3.
 4502 022106  170205                            STFPS   R5              ;GET FPS.
 4503 022110  012703  022076                    MOV     #220$,R3        ;IS THE RESULT CORRECT.
 4504 022114  012702  022150                    MOV     #210$,R2
 4505 022120  012704  000004                    MOV     #4,R4
 4506 022124  022322                    2$:     CMP     (R3)+,(R2)+
 4507 022126  001014                            BNE     240$            ;BRANCH IF INCORRECT.
 4508 022130  077403                            SOB     R4,2$
 4509 022132  022701  000003                    CMP     #3,R1           ;WAS R1 INCREMENTED CORRECTLY.
 4510 022136  001027                            BNE     250$            ;BRANCH IF INCORRECT.
 4511 022140  022705  000210                    CMP     #210,R5         ;IS THE FPS CORRECT?
 4512 022144  001015                            BNE     260$            ;BRANCH IF INCORRECT.
 4513 022146  000436                            BR      270$
 4514
 4515                                   ;THESE ARE DATA TABLE.
 4516 022150  105201                    210$:   105201
 4517 022152  005201                            5201
 4518 022154  005201                            5201
 4519 022156  005201                            5201
 4520
 4521                                   ;REPORT RESULT INCORRECT:
 4522 022160  012737  022076  001240    240$:   MOV     #220$,$TMP3
 4523 022166  012737  022150  001242            MOV     #210$,$TMP4
 4524 022174  104162                            ERROR   +162            ;BAD DATA
 4525 022176  000422                            BR      270$
 4526
 4527                                   ;REPORT FPS INCORRECT:
 4528 022200  012737  000210  001240    260$:   MOV     #210,$TMP3
 4529 022206  010537  001242                    MOV     R5,$TMP4
 4530 022212  104163                            ERROR   +163            ;FPS
 4531 022214  000413                            BR      270$
 4532
 4533                                   ;REPORT PC INCORRECTLY INCREMENTED DURING EXECUTION.
```

```
 4534 022216  162701  000003          250$:   SUB     #3,R1
 4535 022222  006301                          ASL     R1
 4536 022224  012702  022100                  MOV     #220$+2,R2
 4537 022230  010237  001240                  MOV     R2,$TMP3
 4538 022234  160102                          SUB     R1,R2
 4539 022236  010237  001242                  MOV     R2,$TMP4
 4540 022242  104164                          ERROR   +164            ;PC BAD CONSTAND B GR7X
 4541
 4542 022244                          270$:
      022244  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?).
```

```
4543                                    .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.
                                        ;*
                                        ;;*****************************************************************
     022246  000004                     TST42:  SCOPE
4544                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
4545 022250  012767  022256  156632             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4546 022256  012701  022400             200$:   MOV     #210$,R1        ;SET UP THE DATA BUFFER.
4547 022262  012700  022410                     MOV     #220$,R0
4548 022266  012702  000004                     MOV     #4,R2
4549 022272  012021                     1$:     MOV     (R0)+,(R1)+
4550 022274  077202                             SOB     R2,1$
4551 022276  012700  015177                     MOV     #210$-5201,R0
4552 022302  042767  100000  000070             BIC     #100000,210$    ;MAKE OPERAND POSITIVE.
4553 022310  012767  022326  156720             MOV     #230$,$TMP2
4554 022316  012701  000200                     MOV     #200,R1         ;SET FD.
4555 022322  170101                             LDFPS   R1
4556
4557 022324  005001                             CLR     R1
4558 022326  170760  005201             230$:   NEGD    5201(R0)                ;TEST INSTRUCTION.
4559 022332  170205                             STFPS   R5              ;GET FPS.
4560 022334  005701                             TST     R1
4561 022336  001030                             BNE     240$            ;WAS THE PC CORRECT AFTER EXECUTION?
4562 022340  012701  022400                     MOV     #210$,R1                ;IS THE RESULT CORRECT.
4563 022344  012702  022410                     MOV     #220$,R2
4564 022350  012703  000004                     MOV     #4,R3
4565 022354  022122                     2$:     CMP     (R1)+,(R2)+
4566 022356  001030                             BNE     250$            ;BRANCH IF INCORRECT.
4567 022360  077303                             SOB     R3,2$
4568 022362  022700  015177                     CMP     #210$-5201,R0   ;IS R0 CORRECT.
4569 022366  001034                             BNE     260$            ;BRANCH IF INCORRECT.
4570 022370  022705  000210                     CMP     #210,R5         ;IS THE FPS CORRECT?
4571 022374  001040                             BNE     270$            ;BRANCH IF INCORRECT.
4572 022376  000445                             BR      280$
4573
4574                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4575 022400  023245                     210$:   023245
4576 022402  026720                             26720
4577 022404  122324                             122324
4578 022406  052672                             52672
4579 022410  123245                     220$:   123245
4580 022412  026720                             26720
4581 022414  122324                             122324
4582 022416  052672                             52672
4583
4584
4585                                    ;REPORT PC INCORRECT AFTER EXECUTION.
4586 022420  012767  022330  156614     240$:   MOV     #230$+2,$TMP4
4587 022426  012767  022332  156604             MOV     #230$+4,$TMP3
4588 022434  104215                             ERROR   +215            ;PC NOT INCREMENTED BY 2.
4589 022436  000425                             BR      280$
4590
4591                                    ;REPORT RESULT INCORRECT:
```

```
 4592 022440  012767  022400  156572  250$:   MOV     #210$,$TMP3
 4593 022446  012767  022410  156566          MOV     #220$,$TMP4
 4594 022454  104216                          ERROR   +216            ;BAD DATA
 4595 022456  000415                          BR      280$
 4596
 4597                                 ;REPORT R0 INCORRECT:
 4598 022460  012767  015177  156552  260$:   MOV     #210$-5201,$TMP3
 4599 022466  010067  156550                  MOV     R0,$TMP4
 4600 022472  104217                          ERROR   +217            ;SPEC DESTX ROX
 4601 022474  000406                          BR      280$
 4602
 4603
 4604                                 ;REPORT FPS INCORRECT:
 4605 022476  012767  000210  156534  270$:   MOV     #210,$TMP3
 4606 022504  010567  156532                  MOV     R5,$TMP4
 4607 022510  104220                          ERROR   +220
 4608
 4609 022512                          280$:
      022512  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?).
 4610                                         .ENABL  AMA             ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
```

```
4611                                    .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.
                                        ;*
                                        ;;*********************************************************************
    022514  000004                      TST43:  SCOPE
4612 022516  012737  022524  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4613 022524  012701  022654             200$:   MOV     #210$,R1        ;SET UP THE DATA BUFFER.
4614 022530  012700  022664                     MOV     #220$,R0
4615 022534  012702  000004                     MOV     #4,R2
4616 022540  012021                     1$:     MOV     (R0)+,(R1)+
4617 022542  077202                             SOB     R2,1$
4618 022544  012700  015473                     MOV     #230$-5201,R0
4619 022550  012760  022654  005201             MOV     #210$,5201(R0)
4620 022556  042737  100000  022654             BIC     #100000,210$    ;MAKE THE OPERAND POSITIVE.
4621 022564  012737  022602  001236             MOV     #240$,$TMP2
4622 022572  012701  000200                     MOV     #200,R1         ;SET FD.
4623 022576  170101                             LDFPS   R1
4624
4625 022600  005001                             CLR     R1
4626 022602  170770  005201             240$:   NEGD    @5201(R0)               ;TEST INSTRUCTION.
4627
4628 022606  170205                             STFPS   R5              ;GET FPS.
4629 022610  005701                             TST     R1              ;WAS THE PC CORRECT AFTER EXECUTION?
4630 022612  001031                             BNE     250$
4631 022614  012701  022654                     MOV     #210$,R1                ;IS THE RESULT CORRECT.
4632 022620  012702  022664                     MOV     #220$,R2
4633 022624  012703  000004                     MOV     #4,R3
4634 022630  022122                     2$:     CMP     (R1)+,(R2)+
4635 022632  001031                             BNE     260$            ;BRANCH IF INCORRECT.
4636 022634  077303                             SOB     R3,2$
4637 022636  022700  015473                     CMP     #230$-5201,R0   ;IS R0 CORRECT.
4638 022642  001035                             BNE     270$            ;BRANCH IF INCORRECT.
4639 022644  022705  000210                     CMP     #210,R5         ;IS THE FPS CORRECT?
4640 022650  001041                             BNE     280$            ;BRANCH IF INCORRECT.
4641 022652  000446                             BR      290$
4642
4643                                    ;THESE ARE DATA TABLES AND A DATA BUFFER.
4644 022654  023245                     210$:   023245
4645 022656  026720                             26720
4646 022660  122324                             122324
4647 022662  052672                             52672
4648 022664  123245                     220$:   123245
4649 022666  026720                             26720
4650 022670  123324                             123324
4651 022672  052672                             52672
4652 022674  022654                     230$:   210$
4653
4654                                    ;REPORT PC INCORRECT AFTER EXECUTION.
4655 022676  013737  022604  001242     250$:   MOV     240$+2,$TMP4
4656 022704  013737  022606  001240             MOV     240$+4,$TMP3
4657 022712  104221                             ERROR   +221            ;PC NOT INCREMENTED BY 2.
4658 022714  000425                             BR      290$
4659
```

```
 4660                                        ;REPORT RESULT INCORRECT:
 4661 022716  012737  022654  001240  260$:  MOV     #210$,$TMP3
 4662 022724  012737  022664  001242         MOV     #220$,$TMP4
 4663 022732  104222                         ERROR   +222            ;BAD DATA
 4664 022734  000415                         BR      290$
 4665
 4666                                        ;REPORT R0 INCORRECT:
 4667 022736  012737  015473  001240  270$:  MOV     #230$-5201,$TMP3
 4668 022744  010037  001242                 MOV     R0,$TMP4
 4669 022750  104223                         ERROR   +223            ;SPEC DESTX R0X
 4670 022752  000406                         BR      290$
 4671
 4672                                        ;REPORT FPS INCORRECT:
 4673 022754  012737  000210  001240  280$:  MOV     #210,$TMP3
 4674 022762  010537  001242                 MOV     R5,$TMP4
 4675 022766  104224                         ERROR   +224
 4676
 4677 022770                            290$:
      022770  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?).
```

```
 4683                                   .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.
                                        ;*
                                        ;;*****************************************************************
      022772  000004                    TST44:  SCOPE
 4684                                   ;TEST NEGD WITH POS NONZERO OPERAND
 4685 022774  012737  023002  001110            MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 4686 023002  004737  023702            200$:   JSR     PC,1000$
 4687 023006  000000                    1$:     0                       ;FLAG=NEGD.
 4688 023010  016341                    2$:     16341                   ;OPERAND.
 4689 023012  055772                            55772
 4690 023014  021133                            21133
 4691 023016  055447                            55447
 4692 023020  116341                    3$:     116341                  ;RESULT.
 4693 023022  055772                            55772
 4694 023024  021133                            21133
 4695 023026  055447                            55447
 4696 023030  016341                    4$:     16341                   ;ERROR RES.
 4697 023032  055772                            55772
 4698 023034  021133                            21133
 4699 023036  055447                            55447
 4700 023040  000207                    5$:     207                     ;FPS BEFORE EXECUTION.
 4701 023042  000210                            210                     ;FPS AFTER EXECUTION.
 4702 023044  000200                            200                     ;ERROR FPS.
 4703 023046  177777                            -1                      ;FEC
 4704 023050  104200                    6$:     ERROR   +200            ;E10<---E10*200X ST 336
 4705 023052  000401                            BR      7$
 4706 023054  104201                            ERROR   +201            ;BUT ENBT ST 336X WENT TO 053 INTO 453
 4707 023056                            7$:
 4708                                   ;TEST NEGD WITH NEG OPERAND.
 4709 023056  012737  023064  001110            MOV     #210$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 4710 023064  004737  023702            210$:   JSR     PC,1000$
 4711 023070  000000                    11$:    0                       ;FLAG=NEGD.
 4712 023072  152525                    12$:    152525                  ;OPERAND.
 4713 023074  053545                            53545
 4714 023076  055565                            55565
 4715 023100  057505                            57505
 4716 023102  052525                    13$:    52525                   ;RESULT.
 4717 023104  053545                            53545
 4718 023106  055565                            55565
 4719 023110  057505                            57505
 4720 023112  152525                    14$:    152525                  ;ERROR RES.
 4721 023114  053545                            53545
 4722 023116  055565                            55565
 4723 023120  057505                            57505
 4724 023122  000217                    15$:    217                     ;FPS BEFORE EXECUTION.
 4725 023124  000200                            200                     ;FPS AFTER EXECUTION.
 4726 023126  000210                            210                     ;ERROR FPS.
 4727 023130  177777                            -1                      ;FEC
 4728 023132  104200                    16$:    ERROR   +200            ;E10<---E10*200X S336
 4729 023134  000401                            BR      17$
 4730 023136  104202                            ERROR   +202            ;BUT ENBT X ST336 TO 453 INTO 053
 4731 023140                            17$:
 4732                                   ;TEST ABSD WITH POSITIVE OPERAND
```

```
4733 023140  012737  023146  001110          MOV     #220$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4734 023146  004737  023702            220$: JSR     PC,1000$
4735 023152  000001                    21$:  1                       ;FLAG=ABSD.
4736 023154  060705                    22$:  60705                   ;OPERAND.
4737 023156  124735                          124735
4738 023160  060124                          60124
4739 023162  073560                          73560
4740 023164  060705                    23$:  60705                   ;RESULT.
4741 023166  124735                          124735
4742 023170  060124                          60124
4743 023172  073560                          73560
4744 023174  160705                    24$:  160705                  ;ERROR RES.
4745 023176  124735                          124735
4746 023200  060124                          60124
4747 023202  073560                          73560
4748 023204  000217                    25$:  217                     ;FPS BEFORE EXECUTION.
4749 023206  000200                          200                     ;FPS AFTER EXECUTION.
4750 023210  000210                          210                     ;ERROR FPS.
4751 023212  177777                          -1                      ;EITHER BUT OP1B
4752 023214  104203                    26$:  ERROR   +203            ;BUT ST 055 TO 336 INTO 335
4753 023216  000401                          BR      27$
4754 023220  104203                          ERROR   +203            ;OR BUT ENBT ST 335 TO 452 INTO 052
4755 023222                            27$:
4756                                   ;TEST ABSD WITH NEG. OPERAND
4757 023222  012737  023230  001110          MOV     #230$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4758 023230  004737  023702            230$: JSR     PC,1000$
4759 023234  000001                    31$:  1                       ;FLAG=ABSD.
4760 023236  154345                    32$:  154345                  ;OPERAND.
4761 023240  076567                          76567
4762 023242  032123                          32123
4763 023244  043234                          43234
4764 023246  054345                    33$:  54345                   ;RESULT.
4765 023250  076567                          76567
4766 023252  032123                          32123
4767 023254  043234                          43234
4768 023256  154345                    34$:  154345                  ;ERROR RES.
4769 023260  076567                          76567
4770 023262  032123                          32123
4771 023264  043234                          43234
4772 023266  000217                    35$:  217                     ;FPS BEFORE EXECUTION.
4773 023270  000200                          200                     ;FPS AFTER EXECUTION.
4774 023272  177777                          -1                      ;ERROR FPS.
4775 023274  177777                          -1
4776 023276  104204                    36$:  ERROR   +204            ;E10*E10*200X ST 452
4777 023300  000401                          BR      37$
4778 023302  104171                          ERROR   +171
4779 023304                            37$:
4780                                   ;TEST WITH POSITIVE OP
4781 023304  012737  023312  001110          MOV     #240$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4782 023312  004737  023702            240$: JSR     PC,1000$
4783 023316  000002                    41$:  2                       ;FLAG=TSTD.
4784 023320  012321                    42$:  12321                   ;OPERAND.
4785 023322  045654                          45654
4786 023324  070107                          70107
4787 023326  034543                          34543
4788 023330  012321                    43$:  12321                   ;RESULT.
4789 023332  045654                          45654
```

TEST # 44 - NEGD, ABSD AND TSTD TEST

```
4790 023334  070107                          70107
4791 023336  034543                          34543
4792 023340  112321              44$:        112321                  ;ERROR RES.
4793 023342  045654                          45654
4794 023344  070107                          70107
4795 023346  034543                          34543
4796 023350  000217              45$:        217                     ;FPS BEFORE EXECUTION.
4797 023352  000200                          200                     ;FPS AFTER EXECUTION.
4798 023354  000210                          210                     ;ERROR FPS.
4799 023356  177777                          -1
4800 023360  104205              46$:        ERROR   +205            ;BUT (OP1B) X ST044 TO 336 INTO 334
4801 023362  000401                          BR      47$
4802 023364  104206                          ERROR   +206            ;BUT ENBT ST 334 TO 453 INTO 053
4803 023366                      47$:
4804                             ;TEST TSTD WITH NEG OP
4805 023366  012737  023374  001110          MOV     #250$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4806 023374  004737  023702              250$:JSR     PC,1000$
4807 023400  000002              51$:        2                       ;FLAG=TSTD.
4808 023402  123765              52$:        123765                  ;OPERAND.
4809 023404  023407                          23407
4810 023406  034510                          34510
4811 023410  045621                          45621
4812 023412  123765              53$:        123765                  ;RESULT.
4813 023414  023407                          23407
4814 023416  034510                          34510
4815 023420  045621                          45621
4816 023422  023765              54$:        23765                   ;ERROR RES.
4817 023424  023407                          23407
4818 023426  034510                          34510
4819 023430  045621                          45621
4820 023432  000207              55$:        207                     ;FPS BEFORE EXECUTION.
4821 023434  000210                          210                     ;FPS AFTER EXECUTION.
4822 023436  000200                          200                     ;ERROR FPS.
4823 023440  177777                          -1
4824 023442  104207              56$:        ERROR   +207            ;BUT OPB1 ST 055 TO 335 INTO 334
4825 023444  000401                          BR      57$
4826 023446  104210                          ERROR   +210            ;BUT ENBT ST 334 TO 053 INTO 453
4827 023450                      57$:
4828                             ;TEST TSTD 0 OP
4829 023450  012737  023456  001110          MOV     #260$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
4830 023456  004737  023702              260$:JSR     PC,1000$
4831 023462  000002              61$:        2                       ;FLAG=TSTD.
4832 023464  000175              62$:        175                     ;OPERAND.
4833 023466  176737                          176737
4834 023470  071727                          71727
4835 023472  037574                          37574
4836 023474  000175              63$:        175                     ;RESULT.
4837 023476  176737                          176737
4838 023500  071727                          71727
4839 023502  037574                          37574
4840 023504  000000              64$:        0                       ;ERROR RES.
4841 023506  000000                          0
4842 023510  000000                          0
4843 023512  000000                          0
4844 023514  000200              65$:        200                     ;FPS BEFORE EXECUTION.
4845 023516  000204                          204                     ;FPS AFTER EXECUTION.
4846 023520  000214                          214                     ;ERROR FPS.
```

```
4847 023522  177777                        -1
4848 023524  104211              66$:      ERROR   +211          ;BUT OP1B ST 255 TO 311 OR 312 INTO 310
4849 023526  000401                        BR      67$
4850 023530  104212                        ERROR   +212          ;BUT ENBT ST 310 TO 402 INTO 002
4851 023532                      67$:
4852                             ;TEST TSTD -0 OP FIUV=0
4853 023532  012737  023540  001110        MOV     #270$,$LPERR  ;SET UP THE LOOP ON ERROR ADDRESS.    ;DPM002
4854 023540  004737  023702              270$:   JSR     PC,1000$
4855 023544  000002                      71$:    2             ;FLAG=TSTD.
4856 023546  100123                      72$:    100123        ;OPERAND.
4857 023550  021012                              21012
4858 023552  034565                              34565
4859 023554  043210                              43210
4860 023556  100123                      73$:    100123        ;RESULT.
4861 023560  021012                              21012
4862 023562  034565                              34565
4863 023564  043210                              43210
4864 023566  000000                      74$:    0             ;ERROR RES.
4865 023570  000000                              0
4866 023572  000000                              0
4867 023574  000000                              0
4868 023576  040203                      75$:    40203         ;FPS BEFORE EXECUTION.
4869 023600  040214                              040214        ;FPS AFTER EXECUTION.
4870 023602  140214                              140214        ;ERROR FPS.
4871 023604  177777                              -1
4872 023606  104211                      76$:    ERROR   +211  ;+
4873 023610  000401                              BR      77$
4874 023612  104213                              ERROR   +213  ;BUT FIUV ST 257 TO 355 INTO 255
4875 023614                      77$:
4876                             ;TEST TSTD -0 OP FIUV=1
4877 023614  012737  023622  001110        MOV     #280$,$LPERR  ;SET UP THE LOOP ON ERROR ADDRESS.    ;DPM002
4878 023622  004737  023702              280$:   JSR     PC,1000$
4879 023626  000002                      81$:    2             ;FLAG=TSTD.
4880 023630  100137                      82$:    100137        ;OPERAND.
4881 023632  024613                              24613
4882 023634  057024                              57024
4883 023636  060137                              60137
4884 023640  100137                      83$:    100137        ;RESULT.
4885 023642  024613                              24613
4886 023644  057024                              57024
4887 023646  060137                              60137
4888 023650  000000                      84$:    0             ;ERROR RES.
4889 023652  000000                              0
4890 023654  000000                              0
4891 023656  000000                              0
4892 023660  044200                      85$:    44200         ;FPS BEFORE EXECUTION.
4893 023662  144214                              144214        ;FPS AFTER EXECUTION.
4894 023664  044214                              044214        ;ERROR FPS.
4895 023666  000014                              14
4896 023670  104211                      86$:    ERROR   +211  ;+
4897 023672  000401                              BR      87$
4898 023674  104214                              ERROR   +214  ;BUT FIUV ST 257 TO 255 INTO 355
4899 023676                      87$:
4900 023676  000137  024316                      JMP     290$
```

```
                                ;THIS SUBROUTINE, 1000$, IS USED TO SET UP THE OPERANDS, EXECUTE
                                ;THE EITHER A TSTD, AN ABSD OR A NEGD INSTRUCTION AND CHECK THE RESULTS. A CALL
                                ;TO IT IS MADE THUS:
                                ;
                                ;       JSR     PC,1000$
                                ;       FLAG:   .WORD   X               ;INSTRUCTION TYPE FLAG.
                                ;       ACARG:  .WORD   X,X,X,X         ;OPERAND
                                ;       RES:    .WORD   X,X,X,X         ;EXPECTED RESULT
                                ;       ERRES:  .WORD   X,X,X,X         ;ERROR RESULT
                                ;       FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
                                ;       FPSA:   .WORD   X               ;FPS AFTER EXECUTION
                                ;       FEC:    .WORD   X               ;EXPECTED FEC
                                ;       ERFPS:  .WORD   X               ;ERROR FPS.
                                ;       ERR1:   ERROR   +X              ;DATA ERROR.
                                ;               BR      CONT
                                ;       ERR2:   ERROR   +X              ;FPS ERROR.
                                ;       CONT:                           ;RETURN ADDRESS
                                ;
                                ;THE OPERAND IS SET UP IN NATBF1. THEN
                                ;THE EITHER THE TSTD, NEGD OR ABSD INSTRUCTION IS EXECUTED.
                                ;1000$ USES THE FIRST OPERAND AS A FLAG TO DETERMINE WHICH INSTRUCTION
                                ;IS TO BE EXECUTED: 0 = NEGD, 1 = ABSD, 2 = TSTD.
                                ;THE RESULT IS CHECKED AGAINST RES. IF THE RESULT IS CORRECT THEN THE FPS IS
                                ;COMPARED WITH FPSA. IF THIS TOO IS CORRECT 1000$ RETURNS CONTROL
                                ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD 1000$
                                ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN 1000$ WILL RETURN
                                ;TO THE ERROR CALL AT ERR2, OTHERWISE 1000$ ITSELF
                                ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
                                ;INSTRUCTION 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 1000$
                                ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
                                ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND 1000$ WILL
                                ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
                                
                                
023702  012601          1000$:  MOV     (SP)+,R1                ;GET A POINTER TO THE ARGUMENTS.
023704  010102                  MOV     R1,R2           ;COPY THE OPERAND.
023706  062702  000002          ADD     #2,R2
023712  012703  024304          MOV     #1200$,R3
023716  012704  000004          MOV     #4,R4
023722  012223          91$:    MOV     (R2)+,(R3)+
023724  077402                  SOB     R4,91$
023726  016100  000032          MOV     32(R1),R0       ;LOAD THE FPS.
023732  170100                  LDFPS   R0
023734  012700  024304          MOV     #1200$,R0       ;SET UP THE OPERAND ADDRESS.
023740  011102                  MOV     (R1),R2         ;GET THE FLAG TO DETERMINE WHICH
023742  006302                  ASL     R2              ;INSTRUCTION TO EXECUTE.
023744  006302                  ASL     R2              ;0 = NEGD, 1 = ABSD, 2 = TSTD
023746  012703  023762          MOV     #1210$,R3
023752  060203                  ADD     R2,R3
023754  010337  001236          MOV     R3,$TMP2
023760  000113                  JMP     (R3)            ;GO EXECUTE THE INSTRUCTION.
023762  170710          1210$:  NEGD    (R0)
023764  000403                  BR      92$
023766  170610                  ABSD    (R0)
023770  000401                  BR      92$
```

```
                                        TSTD    (R0)

                                92$:    STFPS   R4              ;GET THE FPS.
                                        STST    R5              ;GET THE FEC.
                                        MOV     R1,R2
                                        ADD     #2,R2
                                        MOV     R2,$TMP3
                                        ADD     #10,R2
                                        MOV     R2,$TMP5
                                        MOV     #1200$,$TMP4
                                        MOV     R4,$TMP7
                                        MOV     34(R1),$TMP10
                                        MOV     R1,R0           ;WAS THE RESULT CORRECT?
                                        ADD     #12,R0
                                        MOV     #1200$,R2
                                        MOV     #4,R3
                                93$:    CMP     (R0)+,(R2)+
                                        BNE     100$            ;BRANCH IF INCORRECT.
                                        SOB     R3,93$
                                        CMP     34(R1),R4       ;WAS THE FPS CORRECT?
                                        BNE     105$            ;BRANCH IF INCORRECT.
                                        TST     34(R1)          ;IF THE EXPECTED FPS WAS NEGATIVE CHECK THE FEC.
                                        BPL     94$
                                        CMP     40(R1),R5       ;WAS THE FEC CORRECT.
                                        BNE     110$            ;BRANCH IF INCORRECT.
                                94$:    JMP     50(R1)          ;RETURN.

                                ;THE RESULT WAS INCORRECT BUT WAS THIS FAILURE ANTICIPATED?
                                ;SEE IF THE RESULT WAS ANTICIPATED:
                                100$:
                                        MOV     (R1),R5
                                        ASL     R5
                                        ASL     R5
                                        ADD     #1220$,R5
                                        MOV     R1,R0
                                        ADD     #22,R0
                                        MOV     #1200$,R2
                                        MOV     #4,R3
                                101$:   CMP     (R0)+,(R2)+
                                        BNE     102$            ;BRANCH IF NOT ANTICIPATED.
                                        SOB     R3,101$

                                ;THE ERROR WAS ANTICIPATED SO RETURN.
                                        JMP     42(R1)

                                ;THE ERROR WAS NOT ANTICIPATED SO REPORT IT HERE.
                                102$:   JMP     (R5)            ;GO TO THE PROPER ERROR CALL.

                                ;THE FPS WAS INCORRECT.
                                105$:   CMP     36(R1),R5       ;WAS THIS ERROR ANTICIPATED?
                                        BNE     106$            ;BRANCH IF NOT ANTICIPATED.

                                ;THE FPS ERROR WAS ANTICIPATED SO RETURN.
                                        JMP     46(R1)

                                ;THE FPS FAILURE WAS NOT ANTICIPATED SO REPORT IT HERE.
                                106$:   MOV     (R1),R2
```

```
5015 024174  006302                          ASL     R2
5016 024176  006302                          ASL     R2
5017 024200  062702  024252                  ADD     #1230$,R2
5018 024204  000112                          JMP     (R2)            ;GO TO THE PROPER ERROR CALL.
5019
5020                                ;REPORT THAT THE FEC WAS INCORRECT.
5021 024206  016137  000040  001256 110$:    MOV     40(R1),$TMP12
5022 024214  010537  001254                  MOV     R5,$TMP11
5023 024220  011102                          MOV     (R1),R2
5024 024222  006302                          ASL     R2
5025 024224  006302                          ASL     R2
5026 024226  062702  024266                  ADD     #1240$,R2
5027 024232  000112                          JMP     (R2)            ;GO TO THE PROPER ERROR CALL.
5028
5029                                ;THESE ARE THE ERROR CALLS FOR EACH INDIVIDUAL INSTRUCTION AND CONDITION.
5030 024234  104165                1220$:  ERROR   +165            ;NEGD BAD DATA
5031 024236  000403                        BR      1250$
5032 024240  104166                        ERROR   +166            ;ABSD BAD DATA
5033 024242  000401                        BR      1250$
5034 024244  104167                        ERROR   +167            ;TSTD BAD DATA
5035 024246  000161  000050        1250$:  JMP     50(R1)
5036
5037                                ;FPS INCORRECT:
5038 024252  104170                1230$:  ERROR   +170            ;NEGD FPSX
5039 024254  000774                        BR      1250$
5040 024256  104171                        ERROR   +171            ;ABSD FPSX
5041 024260  000772                        BR      1250$
5042 024262  104172                        ERROR   +172            ;TSTD FPSX
5043 024264  000770                        BR      1250$
5044
5045                                ;FEC INCORRECT:
5046 024266  104173                1240$:  ERROR   +173            ;NEGD FECX
5047 024270  000766                        BR      1250$
5048 024272  104174                        ERROR   +174            ;ABSD FECX
5049 024274  000764                        BR      1250$
5050 024276  104175                        ERROR   +175            ;TSTD FECX
5051 024300  000762                        BR      1250$
5052
5053 024302  177777                        .WORD   -1
5054 024304  177777  177777  177777 1200$:  .WORD   -1,-1,-1,-1,-1
5055
5056 024316                        290$:
     024316  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?).
```

```
5063                                    .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
                                        ;*
                                        ;;*****************************************************************
     024320  000004                     TST45:  SCOPE
5064 024322  012737  024330  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5065 024330  012700  024406             200$:   MOV     #210$,R0        ;SET UP TEST DATA IN BUFFER.
5066 024334  012710  147517                     MOV     #147517,(R0)
5067 024340  012737  147517  001240             MOV     #147517,$TMP3   ;SAVE DATA IN CASE OF ERROR.
5068 024346  012737  024362  001236             MOV     #220$,$TMP2
5069 024354  012737  024446  000004             MOV     #230$,ERRVECT   ;SET UP FOR TRAPS TO 4.
5070 024362  170110                     220$:   LDFPS   (R0)            ;TEST INSTRUCTION.
5071
5072 024364  170205                             STFPS   R5              ;GET FPS
5073
5074 024366  020027  024406                     CMP     R0,#210$        ;IS R0 CORRECT?
5075 024372  001007                             BNE     240$            ;BR IF NOT.
5076 024374  022705  147517                     CMP     #147517,R5      ;IS FPS CORRECT?
5077 024400  001013                             BNE     250$            ;BR IF NOT.
5078 024402  000436                             BR      260$
5079
5080                                    ;TEST BUFFER AND DATA:
5081 024404  177777                             -1
5082 024406  147517                     210$:   147517
5083 024410  177777                             -1
5084
5085                                    ;REPORT R0 INCORRECT.
5086 024412  012737  024406  001240     240$:   MOV     #210$,$TMP3
5087 024420  010037  001242                     MOV     R0,$TMP4
5088 024424  104225                             ERROR   +225            ;R0 BAD BUT FSRC FAILED
5089 024426  000424                             BR      260$
5090
5091                                    ;REPORT FPS INCORRECT.
5092 024430  012737  147517  001240     250$:   MOV     #147517,$TMP3   ;REPORT FPS INCORRECT.
5093 024436  010537  001242                     MOV     R5,$TMP4
5094 024442  104226                             ERROR   +226
5095 024444  000415                             BR      260$
5096
5097                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5098                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5099                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5100 024446                             230$:
5101 024446  011602                             MOV     (SP),R2
5102 024450  020227  024364                     CMP     R2,#220$+2
5103 024454  001405                             BEQ     1$
5104 024456  020227  024366                     CMP     R2,#220$+4
5105 024462  001402                             BEQ     1$
5106 024464  000137  051774                     JMP     CPSPUR
5107 024470  022626                     1$:     CMP     (SP)+,(SP)+
5108 024472  010237  001236                     MOV     R2,$TMP2
5109 024476  104227                             ERROR   +227            ;ODD ADRES
5110
5111 024500                             260$:
```

```
        024500  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 # 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
                                ;*
                                ;;*****************************************************************
     024502  000004             TST46:  SCOPE
5113 024504  012737  024512  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5114 024512  012700  024570     200$:      MOV     #210$,R0        ;SET UP TEST DATA IN BUFFER.
5115 024516  012710  145212                MOV     #145212,(R0)
5116 024522  012737  145212  001240        MOV     #145212,$TMP3   ;SAVE DATA IN CASE OF ERROR.
5117 024530  012737  024544  001236        MOV     #220$,$TMP2
5118 024536  012737  024630  000004        MOV     #230$,ERRVECT   ;SET UP FOR TRAPS TO 4.
5119
5120 024544  170120             220$:      LDFPS   (R0)+           ;TEST INSTRUCTION.
5121
5122 024546  170205                        STFPS   R5              ;GET FPS
5123
5124 024550  020027  024572                CMP     R0,#210$+2      ;IS R0 CORRECT?
5125 024554  001007                        BNE     240$            ;BR IF NOT.
5126 024556  022705  145212                CMP     #145212,R5      ;IS THE FPS CORRECT?
5127 024562  001013                        BNE     250$            ;BR IF NOT.
5128 024564  000436                        BR      260$
5129
5130
5131                                ;TEST BUFFER AND DATA:
5132 024566  177777                        -1
5133 024570  177777             210$:      .WORD   -1
5134 024572  177777                        -1
5135
5136
5137                                ;REPORT R0 INCORRECT.
5138 024574  012737  024572  001240 240$:      MOV     #210$+2,$TMP3
5139 024602  010037  001242                    MOV     R0,$TMP4
5140 024606  104230                        ERROR   +230            ;R0 BAD BUT FSRC FAILED
5141 024610  000424                        BR      260$
5142
5143                                ;REPORT FPS INCORRECT.
5144 024612  012737  145212  001240 250$:      MOV     #145212,$TMP3   ;REPORT FPS INCORRECT.
5145 024620  010537  001242                    MOV     R5,$TMP4
5146 024624  104231                        ERROR   +231
5147 024626  000415                        BR      260$
5148
5149                                ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5150                                ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5151                                ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5152 024630                     230$:
5153 024630  011602                        MOV     (SP),R2
5154 024632  020227  024546                CMP     R2,#220$+2
5155 024636  001405                        BEQ     1$
5156 024640  020227  024550                CMP     R2,#220$+4
5157 024644  001402                        BEQ     1$
5158 024646  000137  051774                JMP     CPSPUR
5159 024652  022626             1$:        CMP     (SP)+,(SP)+
5160 024654  010237  001236                MOV     R2,$TMP2
```

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

```
5161 024660  104232                    ERROR   +232          ;ODD ADRES
5162                                                         ;BUT FDSTX IN ST 771
5163 024662                      260$:
     024662  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?).
```

```
5164                                    .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
                                        ;*
                                        ;;*****************************************************************
     024664  000004                     TST47:  SCOPE
5165 024666  012737  024674  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5166 024674  012700  024764             200$:   MOV     #210$+2,R0      ;SET UP THE TEST DATA BUFFER.
5167 024700  012760  105252  177776             MOV     #105252,-2(R0)
5168 024706  012737  105252  001240             MOV     #105252,$TMP3   ;SAVE DATA IN CASE OF ERROR.
5169 024714  012737  024730  001236             MOV     #220$,$TMP2
5170 024722  012737  025030  000004             MOV     #230$,ERRVEC
5171 024730  170140                     220$:   LDFPS   -(R0)
5172 024732  170205                             STFPS   R5
5173 024734  020027  024762                     CMP     R0,#210$
5174 024740  001015                             BNE     240$
5175 024742  022705  105252                     CMP     #105252,R5
5176 024746  001021                             BNE     250$
5177 024750  000444                             BR      260$
5178
5179 024752  177777  177777  177777             -1,-1,-1,-1
5180 024762  177777                     210$:   -1
5181 024764  177777  177777  177777             -1,-1,-1,-1
5182
5183 024774  012737  024762  001240  240$:     MOV     #210$,$TMP3
5184 025002  010037  001242                     MOV     R0,$TMP4
5185 025006  104233                             ERROR   +233            ;R0 BAD BUT FSRC FAILED
5186 025010  000424                             BR      260$
5187 025012  012737  105252  001240  250$:     MOV     #105252,$TMP3   ;REPORT FPS INCORRECT.
5188 025020  010537  001242                     MOV     R5,$TMP4
5189 025024  104234                             ERROR   +234
5190 025026  000415                             BR      260$
5191 025030  011602                     230$:   MOV     (SP),R2
5192 025032  020227  024732                     CMP     R2,#220$+2
5193 025036  001405                             BEQ     1$
5194 025040  020227  024734                     CMP     R2,#220$+4
5195 025044  001402                             BEQ     1$
5196 025046  000137  051774                     JMP     CPSPUR
5197 025052  022626                     1$:     CMP     (SP)+,(SP)+
5198 025054  010237  001236                     MOV     R2,$TMP2
5199 025060  104235                             ERROR   +235            ;DDD ADRES
5200 025062                             260$:
     025062  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?).
```

```
5201                                    .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
                                        ;*
                                        ;;*****************************************************************
     025064  000004                     TST50:  SCOPE
5202 025066  012737  025074  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5203 025074  012700  025176             200$:   MOV     #210$,R0
5204 025100  012710  025166                     MOV     #220$,(R0)
5205 025104  012737  103456  025166             MOV     #103456,220$
5206 025112  012737  103456  001240             MOV     #103456,$TMP3
5207 025120  012737  025134  001236             MOV     #230$,$TMP2
5208 025126  012737  025244  000004             MOV     #240$,ERRVECT ;SET UP FOR TRAPS TO 4.
5209 025134  170130                     230$:   LDFPS   @(R0)+          ;TEST INSTRUCTION.
5210 025136  170205                             STFPS   R5              ;GET THE FPS.
5211 025140  020027  025200                     CMP     R0,#210$+2      ;IS R0 CORRECT?
5212 025144  001021                             BNE     250$            ;BR IF NOT.
5213 025146  022705  103456                     CMP     #103456,R5      ;IS THE FPS CORRECT?
5214 025152  001025                             BNE     260$            ;BR IF NOT.
5215 025154  000450                             BR      270$
5216
5217
5218                                    ;TEST BUFFER AND DATA:
5219 025156  177777  177777  177777             -1,-1,-1,-1
5220 025166  177777                     220$:   -1
5221 025170  177777  177777  177777             -1,-1,-1
5222 025176  025166  177777  177777     210$:   220$,-1,-1,-1,
5223
5224
5225                                    ;REPORT R0 INCORRECT.
5226 025210  012737  025200  001240     250$:   MOV     #210$+2,$TMP3
5227 025216  010037  001242                     MOV     R0,$TMP4
5228 025222  104236                             ERROR   +236            ;R0 BAD BUT FSRC FAILED
5229 025224  000424                             BR      270$
5230
5231                                    ;REPORT FPS INCORRECT.
5232 025226  012737  103456  001240     260$:   MOV     #103456,$TMP3   ;REPORT FPS INCORRECT.
5233 025234  010537  001242                     MOV     R5,$TMP4
5234 025240  104237                             ERROR   +237
5235 025242  000415                             BR      270$
5236                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5237                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT .
5238                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5239 025244  011602                     240$:   MOV     (SP),R2
5240 025246  020227  025136                     CMP     R2,#230$+2
5241 025252  001405                             BEQ     1$
5242 025254  020227  025140                     CMP     R2,#230$+4
5243 025260  001402                             BEQ     1$
5244 025262  000137  051774                     JMP     CPSPUR
5245 025266  022626                     1$:     CMP     (SP)+,(SP)+
5246 025270  010237  001236                     MOV     R2,$TMP2
5247 025274  104240                             ERROR   +240            ;DDD ADRES
5248 025276                             270$:
     025276  104412                             RSETUP                  ;GO INITIALIZE THE FPS AND STACK; AND
```

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                                        ;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
                                        ;*
                                        ;;*****************************************************************
     025300  000004                     TST51:  SCOPE
5250 025302  012737  025310  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5251 025310  012700  025410             200$:   MOV     #210$+2,R0      ;SET UP THE TEST DATA BUFFER.
5252 025314  012760  025376  177776             MOV     #220$,-2(R0)
5253 025322  012737  045412  025376             MOV     #45412,220$
5254 025330  012737  045412  001240             MOV     #45412,$TMP3    ;SAVE DATA IN CASE OF ERROR.
5255 025336  012737  025352  001236             MOV     #230$,$TMP2
5256 025344  012737  025452  000004             MOV     #240$,ERRVECT ;SET UP FOR TRAPS TO 4.
5257 025352  170150                     230$:   LDFPS   @-(R0)          ;TEST INSTRUCTION.
5258 025354  170205                             STFPS   R5              ;GET THE FPS.
5259 025356  020027  025406                     CMP     R0,#210$        ;IS R0 CORRECT?
5260 025362  001015                             BNE     250$            ;BR IF NOT.
5261 025364  022705  045412                     CMP     #45412,R5       ;IS THE FPS CORRECT?
5262 025370  001021                             BNE     260$            ;BR IF NOT.
5263 025372  000444                             BR      270$
5264
5265
5266                                    ;TEST BUFFER AND DATA:
5267 025374  177777                             -1
5268 025376  177777                     220$:   -1
5269 025400  177777  177777  177777             -1,-1,-1
5270 025406  025376  177777  177777     210$:   220$,-1,-1,-1
5271
5272
5273                                    ;REPORT R0 INCORRECT.
5274 025416  012737  025406  001240     250$:   MOV     #210$,$TMP3
5275 025424  010037  001242                     MOV     R0,$TMP4
5276 025430  104241                             ERROR   +241            ;R0 BAD BUT FSRC FAILED
5277 025432  000424                             BR      270$
5278
5279                                    ;REPORT FPS INCORRECT.
5280 025434  012737  045412  001240     260$:   MOV     #45412,$TMP3    ;REPORT FPS INCORRECT.
5281 025442  010537  001242                     MOV     R5,$TMP4
5282 025446  104242                             ERROR   +242
5283 025450  000415                             BR      270$
5284                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5285                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5286                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5287 025452  011602                     240$:   MOV     (SP),R2
5288 025454  020227  025354                     CMP     R2,#230$+2
5289 025460  001405                             BEQ     1$
5290 025462  020227  025356                     CMP     R2,#230$+4
5291 025466  001402                             BEQ     1$
5292 025470  000137  051774                     JMP     CPSPUR
5293 025474  022626                     1$:     CMP     (SP)+,(SP)+
5294 025476  010237  001236                     MOV     R2,$TMP2
5295 025502  104243                             ERROR   +243            ;ODD ADRES
5296 025504                             270$:
     025504  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 # 52 - SOURCE MODES, MODE 6 (FL=0), TEST

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5297                                    .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
                                        ;*
                                        ;;*****************************************************************
     025506  000004                     TST52:  SCOPE
5298                                            .DSABLE AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
5299 025510  012767  025516  153372             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5300 025516  012700  020405             200$:   MOV     #210$-5201,R0   ;SET UP THE TEST DATA BUFFER.
5301 025522  012767  046543  000056             MOV     #46543,210$
5302 025530  012767  046543  153502             MOV     #46543,$TMP3    ;SAVE DATA IN CASE OF ERROR.
5303 025536  012767  025554  153472             MOV     #220$,$TMP2
5304 025544  005001                             CLR     R1
5305 025546  012767  025674  152230             MOV     #230$,ERRVECT   ;SET UP FOR TRAPS TO 4.
5306 025554  170160  005201             220$:   LDFPS   5201(R0)                ;TEST INSTRUCTION.
5307 025560  170204                             STFPS   R4              ;GET THE FPS.
5308 025562  005701                             TST     R1              ;WAS PC CORRECT AFTER EXECUTION?
5309 025564  001033                             BNE     240$            ;BR IF NOT.
5310 025566  020027  020405                     CMP     R0,#210$-5201   ;IS R0 CORRECT?
5311 025572  001012                             BNE     250$            ;BR IF NOT.
5312 025574  022704  046543                     CMP     #46543,R4       ;IS THE FPS CORRECT?
5313 025600  001016                             BNE     260$            ;BR IF NOT.
5314 025602  000451                             BR      270$
5315
5316
5317                                    ;TEST BUFFER AND DATA:
5318 025604  177777                             -1
5319 025606  177777  177777  177777     210$:   -1,-1,-1,-1
5320 025616  177777                             -1
5321
5322                                    ;REPORT R0 INCORRECT.
5323 025620  012767  020405  153412     250$:   MOV     #210$-5201,$TMP3
5324 025626  010067  153410                     MOV     R0,$TMP4
5325 025632  104244                             ERROR   +244            ;R0 BAD BUT FSRC FAILED
5326 025634  000434                             BR      270$
5327
5328                                    ;REPORT FPS INCORRECT.
5329 025636  012767  046543  153374     260$:   MOV     #46543,$TMP3    ;REPORT FPS INCORRECT.
5330 025644  010467  153372                     MOV     R4,$TMP4
5331 025650  104245                             ERROR   +245
5332 025652  000425                             BR      270$
5333
5334                                    ;REPORT PC INCORRECT AFTER INSTRUCTION.
5335 025654  012767  025560  153356     240$:   MOV     #220$+4,$TMP3
5336 025662  012767  025556  153352             MOV     #220$+2,$TMP4
5337 025670  104246                             ERROR   +246            ;PC X
5338 025672  000415                             BR      270$
5339                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5340                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5341                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5342 025674  011602                     230$:   MOV     (SP),R2
5343 025676  020227  025556                     CMP     R2,#220$+2
5344 025702  001405                             BEQ     1$
5345 025704  020227  025560                     CMP     R2,#220$+4
```

```
 5346 025710  001402                        BEQ     1$
 5347 025712  000167  024056                JMP     CPSPUR
 5348 025716  022626                1$:     CMP     (SP)+,(SP)+
 5349 025720  010267  153312                MOV     R2,$TMP2
 5350 025724  104247                        ERROR   +247            ;ODD ADRES
 5351 025726                        270$:
      025726  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?).
 5352                                       .ENABL  AMA     ;REENABLE MODE 6 TO MODE 7 COMVERSIONS
```

```
5353                                    .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
                                        ;*
                                        ;;*****************************************************************
     025730  000004                     TST53:  SCOPE
5354 025732  012737  025740  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5355 025740  012700  020645             200$:   MOV     #210$-5201,R0   ;SET UP THE TEST DATA BUFFER.
5356 025744  012760  026036  005201             MOV     #220$,5201(R0)
5357 025752  012737  004547  026036             MOV     #4547,220$
5358 025760  012737  004547  001240             MOV     #4547,$TMP3     ;SAVE DATA IN CASE OF ERROR.
5359 025766  012737  026004  001236             MOV     #230$,$TMP2
5360 025774  005001                             CLR     R1
5361 025776  012737  026132  000004             MOV     #240$,ERRVECT   ;SET UP FOR TRAPS TO 4.
5362 026004  170170  005201             230$:   LDFPS   @5201(R0)               ;TEST INSTRUCTION.
5363 026010  170204                             STFPS   R4              ;GET THE FPS.
5364 026012  005701                             TST     R1              ;WAS PC CORRECT AFTER EXECUTION?
5365 026014  001036                             BNE     250$            ;BR IF NOT.
5366 026016  020027  020645                     CMP     R0,#210$-5201   ;IS R0 CORRECT?
5367 026022  001015                             BNE     260$            ;BR IF NOT.
5368 026024  022704  004547                     CMP     #4547,R4        ;IS THE FPS CORRECT?
5369 026030  001021                             BNE     270$            ;BR IF NOT.
5370 026032  000454                             BR      280$
5371
5372
5373                                    ;TEST BUFFER AND DATA:
5374 026034  177777                             -1
5375 026036  177777  177777  177777     220$:   .WORD -1,-1,-1,-1
5376 026046  177777  177777  177777     210$:   .WORD -1,-1,-1,-1
5377
5378                                    ;REPORT R0 INCORRECT.
5379 026056  012737  020645  001240     260$:   MOV     #210$-5201,$TMP3
5380 026064  010037  001242                     MOV     R0,$TMP4
5381 026070  104250                             ERROR   +250            ;R0 BAD BUT FSRC FAILED
5382 026072  000434                             BR      280$
5383
5384                                    ;REPORT FPS INCORRECT.
5385 026074  012737  004547  001240     270$:   MOV     #4547,$TMP3     ;REPORT FPS INCORRECT.
5386 026102  010437  001242                     MOV     R4,$TMP4
5387 026106  104251                             ERROR   +251
5388 026110  000425                             BR      280$
5389
5390                                    ;REPORT PC INCORRECT AFTER INSTRUCTION.
5391 026112  012737  026010  001240     250$:   MOV     #230$+4,$TMP3
5392 026120  012737  026006  001242             MOV     #230$+2,$TMP4
5393 026126  104252                             ERROR   +252            ;PC X
5394 026130  000415                             BR      280$
5395                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5396                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5397                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5398 026132  011602                     240$:   MOV     (SP),R2
5399 026134  020227  026006                     CMP     R2,#230$+2
5400 026140  001405                             BEQ     1$
5401 026142  020227  026010                     CMP     R2,#230$+4
```

```
 5402 026146  001402                    BEQ     1$
 5403 026150  000137  051774            JMP     CPSPUR
 5404 026154  022626              1$:   CMP     (SP)+,(SP)+
 5405 026156  010237  001236            MOV     R2,$TMP2
 5406 026162  104253                    ERROR   +253            ;DDD ADDRESS
 5407 026164                      280$:
      026164  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?).
 5408                                   .ENABL  AMA
```

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5415                                    .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
                                        ;*
                                        ;;*****************************************************************
     026166  000004                     TST54:  SCOPE
5416 026170  012737  026176  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5417 026176  012737  026222  001236     200$:   MOV     #210$,$TMP2     ;SAVE DATA IN CASE OF ERROR.
5418 026204  012737  026274  000004             MOV     #220$,ERRVECT   ;SET UP FOR TRAPS TO 4.
5419 026212  012700  000300                     MOV     #300,R0
5420 026216  170100                             LDFPS   R0
5421 026220  005001                             CLR     R1
5422
5423 026222  177027                     210$:   LDCLD   (R7)+,AC0               ;TEST INSTRUCTION.
5424 026224  005201                             5201
5425 026226  005201                             5201
5426 026230  005201                             5201
5427 026232  005201                             5201
5428
5429 026234  020127  000003                     CMP     R1,#3           ;WAS PC CORRECT AFTER EXECUTION?
5430 026240  001421                             BEQ     230$            ;BR IF YES.
5431
5432
5433                                    ;REPORT PC INCORRECT AFTER INSTRUCTION.
5434 026242  012704  026226                     MOV     #210$+4,R4
5435 026246  162701  000003                     SUB     #3,R1
5436 026252  006301                             ASL     R1
5437 026254  160104                             SUB     R1,R4
5438 026256  010437  001242                     MOV     R4,$TMP4
5439 026262  012737  026226  001240             MOV     #210$+4,$TMP3
5440 026270  104254                             ERROR   +254            ;BAD CONSTANT
5441 026272  000404                             BR      230$
5442                                    ;TRAP HERE THROUGH VECTOR FOUR. SEE IF THE TRAP WAS DURING
5443                                    ;EXECUTION OF THE FPS INSTRUCTION BEING TESTED. IF SO REPORT
5444                                    ;FAILURE. OTHERWISE GO TO THE SPURIOUS TRAP TO 4 HANDLING.
5445 026274  011637  001236     220$:   MOV     (SP),$TMP2
5446 026300  022626                             CMP     (SP)+,(SP)+
5447 026302  104255                             ERROR   +255            ;BAD CONSTANT ODD ADD
5448
5449 026304                             230$:
     026304  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 # 55 - SOURCE MODES, MODE 2 (FL=1), TEST

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                                .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.
                                ;*
                                ;;*********************************************************************
 026306  000004                TST55:  SCOPE
5457 026310  012737  026316  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5458 026316  013737  026336  001236 200$:  MOV     210$,$TMP2      ;SAVE DATA IN CASE OF ERROR.
5459 026324  012700  000300              MOV     #300,R0
5460 026330  170100                      LDFPS   R0
5461 026332  012700  026426              MOV     #220$,R0        ;SET UP THE TEST DATA BUFFER.
5462 026336  177020                210$:  LDCLD   (R0)+,AC0               ;TEST INSTRUCTION.
5463
5464 026340  170204                      STFPS   R4              ;GET THE FPS.
5465 026342  012701  026436              MOV     #230$,R1        ;GET THE RESULT.
5466 026346  012702  000200              MOV     #200,R2
5467 026352  170102                      LDFPS   R2
5468 026354  174011                      STD     AC0,(R1)
5469 026356  020027  026432              CMP     R0,#220$+4      ;IS R0 CORRECT?
5470 026362  001407                      BEQ     240$
5471                                ;REPORT R0 INCORRECT.
5472 026364  010037  001242              MOV     R0,$TMP4
5473 026370  012737  026432  001240      MOV     #220$+4,$TMP3
5474 026376  104256                      ERROR   +256            ;BAD CONST
5475 026400  000422                      BR      250$
5476
5477 026402  022704  000300        240$: CMP     #300,R4 ;IS THE FPS CORRECT?
5478 026406  001417                      BEQ     250$
5479
5480                                ;REPORT FPS INCORRECT.
5481 026410  010437  001242              MOV     R4,$TMP4
5482 026414  012737  000300  001240      MOV     #300,$TMP3
5483 026422  104257                      ERROR   +257            ;FPS X
5484 026424  000410                      BR      250$
5485
5486                                ;TEST BUFFER AND DATA:
5487 026426  001234  067076  054321 220$:   .WORD   01234,67076,54321,012345
5488 026436  177777  177777  177777 230$:   -1,-1,-1,-1
5489
5490 026446                        250$:
     026446  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 # 56 - LDCIF AND LDCLF TEST

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5497                                    .SBTTL  TEST # 56 - LDCIF AND LDCLF TEST
                                        ;;*****************************************************************
                                        ;*TEST 56       LDCIF AND LDCLF TEST
                                        ;*
                                        ;* THIS IS A TEST OF THE LDCIF AND
                                        ;* THE LDCLF INSTRUCTIONS.
                                        ;*
                                        ;;*****************************************************************
     026450  000004                     TST56:  SCOPE
5498                                    ;ZERO   OPERAND FL=0
5499 026452  012737  026460  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5500 026460  004737  027724             200$:   JSR     PC,1000$        ;GO EXECUTE INSTRUCTION.
5501
5502 026464  000000  000000             1$:     .WORD   0,0             ;FSRC OPERAND.
5503 026470  000000  000000             2$:     .WORD   0,0             ;EXPECTED RESULT.
5504 026474  177777  177777             3$:     .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
5505 026500  000000                     4$:     0                       ;FPS BEFORE EXECUTION.
5506 026502  000004                             4                       ;FPS AFTER EXECUTION.
5507 026504  177777                             -1                      ;ANTICIPATED ERRONEOUS FPS.
5508 026506  104260                     5$:     ERROR   +260            ;REPORT RESULT INCORRECT.
5509 026510  000401                             BR      6$
5510 026512  104261                             ERROR   +261            ;REPORT FPS INCORRECT.
5511 026514                             6$:
5512                                    ;ZERO   OPERAND FL=0
5513
5514 026514  012737  026522  001110             MOV     #210$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5515 026522  004737  027724             210$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5516
5517 026526  000000  177777             11$:    .WORD   0,-1            ;FSRC OPERAND.
5518 026532  000000  000000             12$:    .WORD   0,0             ;EXPECTED RESULT.
5519 026536  004177  177400             13$:    4177,177400             ;ANTICIPATED ERRONEOUS RESULT.
5520 026542  000000                     14$:    0                       ;FPS BEFORE EXECUTION.
5521 026544  000004                             4                       ;FPS AFTER EXECUTION.
5522 026546  177777                             -1                      ;ANTICIPATED ERRONEOUS FPS.
5523 026550  104262                     15$:    ERROR   +262            ;(BUT FL) ST
5524 026552  000401                             BR      16$             ;277 TO 300
5525 026554  104261                             ERROR   +261            ;INTO 301
5526 026556                             16$:
5527                                    ;ZERO   OPERAND FL=1
5528
5529 026556  012737  026564  001110             MOV     #220$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5530 026564  004737  027724             220$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5531 026570  000000  000000             21$:    .WORD   0,0             ;FSRC OPERAND.
5532 026574  000000  000000             22$:    .WORD   0,0             ;EXPECTED RESULT.
5533 026600  177777  177777             23$:    .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
5534 026604  000100                     24$:    100                     ;FPS BEFORE EXECUTION.
5535 026606  000104                             104                     ;FPS AFTER EXECUTION.
5536 026610  000004                             4                       ;ANTICIPATED ERRONEOUS FPS.
5537 026612  104260                     25$:    ERROR   +260            ;REPORT RESULT INCORRECT.
5538 026614  000401                             BR      26$
5539 026616  104263                             ERROR   +263    ;FL WAS CLR'ED
5540 026620                             26$:
5541                                    ;OPERAND        POSITIVE        FL=0
5542 026620  012737  026626  001110             MOV     #230$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5543 026626  004737  027724             230$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5544 026632  040000  000000             31$:    .WORD   40000,0         ;FSRC OPERAND.
5545 026636  043600  000000             32$:    .WORD   43600,0         ;EXPECTED RESULT.
```

TEST # 56 - LDCIF AND LDCLF TEST

```
5546 026642 047600 000000          33$:    .WORD   47600,0          ;ANTICIPATED ERRONEOUS RESULT.
5547 026646 000017                 34$:    17                       ;FPS BEFORE EXECUTION.
5548 026650 000000                         0                        ;FPS AFTER EXECUTION.
5549 026652 177777                         -1                       ;ANTICIPATED ERRONEOUS FPS.
5550 026654 104264                 35$:    ERROR   +264     ;ST 107 BAD
5551 026656 000401                         BR      36$              ;CONSTANT 231 !NSD
5552 026660 104261                         ERROR   +261             ;215
5553 026662                        36$:
5554                               ;OPERAND=1,      FL=0
5555 026662 012737 026670 001110           MOV     #240$,$LPERR     ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5556 026670 004737 027724          240$:   JSR     PC,1000$         ;GO EXECUTE THE INSTRUCTION.
5557 026674 000001 000000          41$:    .WORD   1,0              ;FSRC OPERAND.
5558 026700 040200 000000          42$:    .WORD   40200,0          ;EXPECTED RESULT.
5559 026704 044200 000000          43$:    .WORD   44200,0          ;ANTICIPATED ERRONEOUS RESULT.
5560 026710 000017                 44$:    17                       ;FPS BEFORE EXECUTION.
5561 026712 000000                         0                        ;FPS AFTER EXECUTION.
5562 026714 177777                         -1                       ;ANTICIPATED ERRONEOUS FPS.
5563 026716 104264                 45$:    ERROR   +264             ;REPORT RESULT INCORRECT.
5564 026720 000401                         BR      46$
5565 026722 104261                         ERROR   +261             ;REPORT FPS INCORRECT.
5566 026724                        46$:
5567
5568
5569                               ;OPERAND=        PATTERN FL=0
5570 026724 012737 026732 001110           MOV     #250$,$LPERR     ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5571 026732 004737 027724          250$:   JSR     PC,1000$         ;GO EXECUTE THE INSTRUCTION.
5572 026736 000252 000000          51$:    .WORD   252,0            ;FSRC OPERAND.
5573 026742 042052 000000          52$:    .WORD   42052,0          ;EXPECTED RESULT.
5574 026746 046052 000000          53$:    .WORD   46052,0          ;ANTICIPATED ERRONEOUS RESULT.
5575 026752 000000                 54$:    0                        ;FPS BEFORE EXECUTION.
5576 026754 000000                         0                        ;FPS AFTER EXECUTION.
5577 026756 177777                         -1                       ;ANTICIPATED ERRONEOUS FPS.
5578 026760 104264                 55$:    ERROR   +264             ;REPORT RESULT INCORRECT.
5579 026762 000401                         BR      56$
5580 026764 104261                         ERROR   +261             ;REPORT FPS INCORRECT.
5581 026766                        56$:
5582
5583                               ;OPERAND=-40000 FL=0
5584 026766 012737 026774 001110           MOV     #260$,$LPERR     ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5585 026774 004737 027724          260$:   JSR     PC,1000$         ;GO EXECUTE THE INSTRUCTION.
5586 027000 140000 000000          61$:    .WORD   -40000,0                 ;FSRC OPERAND.
5587 027004 143600 000000          62$:    .WORD   143600,0                 ;EXPECTED RESULT.
5588 027010 043600 000000          63$:    .WORD   43600,0          ;ANTICIPATED ERRONEOUS RESULT.
5589 027014 000007                 64$:    7                        ;FPS BEFORE EXECUTION.
5590 027016 000010                         10                       ;FPS AFTER EXECUTION.
5591 027020 177777                         -1                       ;ANTICIPATED ERRONEOUS FPS.
5592 027022 104265                 65$:    ERROR   +265             ;(SET SIGN) ST 146
5593 027024 000401                         BR      66$
5594 027026 104261                         ERROR   +261             ;REPORT FPS INCORRECT.
5595 027030                        66$:
5596
5597                               ;OPERAND=-1      FL-0
5598 027030 012737 027036 001110           MOV     #270$,$LPERR     ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5599 027036 004737 027724          270$:   JSR     PC,1000$         ;GO EXECUTE THE INSTRUCTION.
5600 027042 177777 000000          71$:    .WORD   -1,0             ;FSRC OPERAND.
5601 027046 140200 000000          72$:    .WORD   140200,0                 ;EXPECTED RESULT.
5602 027052 144000 000400          73$:    .WORD   144000,400               ;ANTICIPATED ERRONEOUS RESULT.
```

```
5603 027056  000000                    74$:    0                       ;FPS BEFORE EXECUTION.
5604 027060  000010                            10                      ;FPS AFTER EXECUTION.
5605 027062  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
5606 027064  104266                    75$:    ERROR   +266            ;ST 372 TO 152 INTO
5607 027066  000612                            BR      6$              ;112 (BUF XNBT)
5608 027070  104261                            ERROR   +261            ;REPORT FPS INCORRECT.
5609 027072                            76$:
5610
5611                                   ;OPERAND=PATTERN        FL=0
5612 027072  012737  027100  001110            MOV     #280$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5613 027100  004737  027724            280$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5614 027104  125252  000000            81$:    .WORD   125252,0                ;FSRC OPERAND.
5615 027110  143652  126000            82$:    .WORD   143652,126000           ;EXPECTED RESULT.
5616 027114  043652  126000            83$:    .WORD   43652,126000            ;ANTICIPATED ERRONEOUS RESULT.
5617 027120  000007                    84$:    7                       ;FPS BEFORE EXECUTION.
5618 027122  000010                            10                      ;FPS AFTER EXECUTION.
5619 027124  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
5620 027126  104265                    85$:    ERROR   +265            ;REPORT RESULT INCORRECT.
5621 027130  000401                            BR      86$
5622 027132  104261                            ERROR   +261            ;REPORT FPS INCORRECT.
5623 027134                            86$:
5624
5625                                   ;OPERAND        POS     FL-1
5626 027134  012737  027142  001110            MOV     #290$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5627 027142  004737  027724            290$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5628 027146  040000  000000            91$:    .WORD   40000,0         ;FSRC OPERAND.
5629 027152  047600  000000            92$:    .WORD   47600,0         ;EXPECTED RESULT.
5630 027156  043600  000000            93$:    .WORD   43600,0         ;ANTICIPATED ERRONEOUS RESULT.
5631 027162  000117                    94$:    117                     ;FPS BEFORE EXECUTION.
5632 027164  000100                            100                     ;FPS AFTER EXECUTION.
5633 027166  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
5634 027170  104267                    95$:    ERROR   +267    ;ST 107 CONSTANT
5635 027172  000401                            BR      96$             ;BAD 237 INST 217
5636 027174  104261                            ERROR   +261            ;REPORT FPS INCORRECT.
5637 027176                            96$:
5638
5639                                   ;OPERAND=1      FL=1
5640 027176  012737  027204  001110            MOV     #300$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5641 027204  004737  027724            300$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5642 027210  000000  000001            101$:   .WORD   0,1             ;FSRC OPERAND.
5643 027214  040200  000000            102$:   .WORD   40200,0         ;EXPECTED RESULT.
5644 027220  034200  000000            103$:   .WORD   34200,0         ;ANTICIPATED ERRONEOUS RESULT.
5645 027224  000100                    104$:   100                     ;FPS BEFORE EXECUTION.
5646 027226  000100                            100                     ;FPS AFTER EXECUTION.
5647 027230  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
5648 027232  104267                    105$:   ERROR   +267            ;REPORT RESULT INCORRECT.
5649 027234  000401                            BR      106$
5650 027236  104261                            ERROR   +261            ;REPORT FPS INCORRECT.
5651 027240                            106$:
5652
5653                                   ;OPERAND=       PATTERN FL=1
5654 027240  012737  027246  001110            MOV     #310$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5655 027246  004737  027724            310$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5656 027252  000000  000252            111$:   .WORD   0,252           ;FSRC OPERAND.
5657 027256  042052  000000            112$:   .WORD   42052,0         ;EXPECTED RESULT.
5658 027262  036052  000000            113$:   .WORD   36052,0         ;ANTICIPATED ERRONEOUS RESULT.
5659 027266  000111                    114$:   111                     ;FPS BEFORE EXECUTION.
```

```
5660 027270  000100                          100                     ;FPS AFTER EXECUTION.
5661 027272  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5662 027274  104267                  115$:   ERROR   +267            ;REPORT RESULT INCORRECT.
5663 027276  000401                          BR      116$
5664 027300  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5665 027302                          116$:
5666
5667                                 ;OPERAND=-40000,0       FL=1
5668 027302  012737  027310  001110          MOV     #320$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5669 027310  004737  027724          320$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5670 027314  140000  000000          121$:   .WORD   -40000,0                ;FSRC OPERAND.
5671 027320  147600  000000          122$:   .WORD   147600,0                ;EXPECTED RESULT.
5672 027324  047600  000000          123$:   .WORD   47600,0         ;ANTICIPATED ERRONEOUS RESULT.
5673 027330  000107                  124$:   107                     ;FPS BEFORE EXECUTION.
5674 027332  000110                          110                     ;FPS AFTER EXECUTION.
5675 027334  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5676 027336  104265                  125$:   ERROR   +265    ;SET SIGN
5677 027340  000401                          BR      126$
5678 027342  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5679 027344                          126$:
5680
5681                                 ;OPERAND=-1,-1  FL=1
5682 027344  012737  027352  001110          MOV     #330$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5683 027352  004737  027724          330$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5684 027356  177777  177777          131$:   .WORD   -1,-1           ;FSRC OPERAND.
5685 027362  140200  000000          132$:   .WORD   140200,0                ;EXPECTED RESULT.
5686 027366  150000  000000          133$:   .WORD   150000,0                ;ANTICIPATED ERRONEOUS RESULT.
5687 027372  000100                  134$:   100                     ;FPS BEFORE EXECUTION.
5688 027374  000110                          110                     ;FPS AFTER EXECUTION.
5689 027376  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5690 027400  104266                  135$:   ERROR   +266            ;(BUT XNBT)
5691 027402  000401                          BR      136$
5692 027404  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5693 027406                          136$:
5694
5695                                 ;OPERAND=-PATTERN       FL=1,   ROUND MODE
5696 027406  012737  027414  001110          MOV     #340$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5697 027414  004737  027724          340$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5698 027420  125252  125252          141$:   .WORD   125252,125252           ;FSRC OPERAND.
5699 027424  147652  125253          142$:   .WORD   147652,125253           ;EXPECTED RESULT.
5700 027430  047652  125253          143$:   .WORD   47652,125253            ;ANTICIPATED ERRONEOUS RESULT.
5701 027434  000105                  144$:   105                     ;FPS BEFORE EXECUTION.
5702 027436  000110                          110                     ;FPS AFTER EXECUTION.
5703 027440  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5704 027442  104265                  145$:   ERROR   +265            ;REPORT RESULT INCORRECT.
5705 027444  000401                          BR      146$
5706 027446  104261                          ERROR   +261            ;REPORT FPS INCORRECT.
5707 027450                          146$:
5708
5709                                 ;OPERAND=77777,177500   FL=1,   ROUND MODE
5710 027450  012737  027456  001110          MOV     #350$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5711 027456  004737  027724          350$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5712 027462  077777  177500          151$:   .WORD   77777,177500           ;FSRC OPERAND.
5713 027466  047777  177777          152$:   .WORD   47777,177777           ;EXPECTED RESULT.
5714 027472  047777  177776          153$:   .WORD   47777,177776           ;ANTICIPATED ERRONEOUS RESULT.
5715 027476  000117                  154$:   117                     ;FPS BEFORE EXECUTION.
5716 027500  000100                          100                     ;FPS AFTER EXECUTION.
```

```
5717 027502  177777                          -1                          ;ANTICIPATED ERRONEOUS FPS.
5718 027504  104270              155$:       ERROR   +270                ;ST 631 INTO RND
5719 027506  000401                          BR      156$
5720 027510  104261                          ERROR   +261                ;REPORT FPS INCORRECT.
5721 027512                      156$:
5722
5723                             ;OPERAND=40000,000100   FL=1,            ROUND MODE
5724 027512  012737  027520 001110           MOV     #360$,$LPERR        ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5725 027520  004737  027724              360$:  JSR     PC,1000$            ;GO EXECUTE THE INSTRUCTION.
5726 027524  040000  000100              161$:  .WORD   40000,100               ;FSRC OPERAND.
5727 027530  047600  000001              162$:  .WORD   47600,1             ;EXPECTED RESULT.
5728 027534  047600  000000              163$:  .WORD   47600,0             ;ANTICIPATED ERRONEOUS RESULT.
5729 027540  000102                      164$:  102                         ;FPS BEFORE EXECUTION.
5730 027542  000100                             100                         ;FPS AFTER EXECUTION.
5731 027544  177777                             -1                          ;ANTICIPATED ERRONEOUS FPS.
5732 027546  104270                      165$:  ERROR   +270                ;REPORT RESULT INCORRECT.
5733 027550  000401                             BR      166$
5734 027552  104261                             ERROR   +261                ;REPORT FPS INCORRECT.
5735 027554                              166$:
5736
5737                             ;OPERAND=40000,000100   FL=1,            TRUNC MODE
5738 027554  012737  027562 001110           MOV     #370$,$LPERR        ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5739 027562  004737  027724              370$:  JSR     PC,1000$            ;GO EXECUTE VHE INSTRUCTION.
5740 027566  040000  000100              171$:  .WORD   40000,100               ;FSRC OPERAND.
5741 027572  047600  000000              172$:  .WORD   47600,0             ;EXPECTED RESULT.
5742 027576  047600  000001              173$:  .WORD   47600,1             ;ANTICIPATED ERRONEOUS RESULT.
5743 027602  000157                      174$:  157                         ;FPS BEFORE EXECUTION.
5744 027604  000140                             140                         ;FPS AFTER EXECUTION.
5745 027606  177777                             -1                          ;ANTICIPATED ERRONEOUS FPS.
5746 027610  104271                      175$:  ERROR   +271                ;ST 631 ... INTO TRNC
5747 027612  000401                             BR      176$
5748 027614  104261                             ERROR   +261                ;REPORT FPS INCORRECT.
5749 027616                              176$:
5750                             ;OPERAND=100000,0 (MOST NEG #)  FL=0
5751 027616  012737  027624 001110           MOV     #380$,$LPERR        ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5752 027624  004737  027724              380$:  JSR     PC,1000$            ;GO EXECUTE THE INSTRUCTION.
5753 027630  100000  000000              181$:  .WORD   100000,0                ;FSRC OPERAND.
5754 027634  144000  000000              182$:  .WORD   144000,0                ;EXPECTED RESULT.
5755 027640  143600  000000              183$:  .WORD   143600,0                ;ANTICIPATED ERRONEOUS RESULT.
5756 027644  000007                      184$:  7                           ;FPS BEFORE EXECUTION.
5757 027646  000010                             10                          ;FPS AFTER EXECUTION.
5758 027650  177777                             -1                          ;ANTICIPATED ERRONEOUS FPS.
5759 027652  104272                      185$:  ERROR   +272                ;ST 630 RH*R14+1
5760 027654  000401                             BR      186$
5761 027656  104261                             ERROR   +261                ;REPORT FPS INCORRECT.
5762 027660                              186$:
5763
5764                             ;OPERAND=100000,0       FL=1
5765 027660  012737  027666 001110           MOV     #390$,$LPERR        ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5766 027666  004737  027724              390$:  JSR     PC,1000$            ;GO EXECUTE THE INSTRUCTION.
5767 027672  100000  000000              191$:  .WORD   100000,0                ;FSRC OPERAND.
5768 027676  150000  000000              192$:  .WORD   150000,0                ;EXPECTED RESULT.
5769 027702  147600  000000              193$:  .WORD   147600,0                ;ANTICIPATED ERRONEOUS RESULT.
5770 027706  000107                      194$:  107                         ;FPS BEFORE EXECUTION.
5771 027710  000110                             110                         ;FPS AFTER EXECUTION.
5772 027712  177777                             -1                          ;ANTICIPATED ERRONEOUS FPS.
5773 027714  104272                      195$:  ERROR   +272                ;REPORT RESULT INCORRECT.
```

TEST # 56 - LDCIF AND LDCLF TEST

```
 5774 027716  000401                      BR      196$
 5775 027720  104261                      ERROR   +261          ;REPORT FPS INCORRECT.
 5776 027722  000506            196$:     BR      400$
```

```
                                ;THIS SUBROUTINE, 1000$, IS USED TO SET UP THE OPERANDS, EXECUTE
                                ;THE LDCIF OR LDCLF INSTRUCTION AND CHECK THE RESULTS. A CALL
                                ;TO IT IS MADE THUS:
                                ;
                                ;       JSR     PC,1000$
                                ;ACARG: .WORD   X,X              ;AC OPERAND
                                ;RES:   .WORD   X,X              ;EXPECTED RESULT
                                ;ERRES: .WORD   X,X              ;ERROR RESULT
                                ;FPSB:  .WORD   X                ;FPS BEFORE EXECUTION
                                ;FPSA:  .WORD   X                ;FPS AFTER EXECUTION
                                ;ERFPS: .WORD   X                ;ERROR FPS
                                ;ERR1:  ERROR   +X               ;DATA ERROR
                                ;       BR      CONT
                                ;ERR2:  ERROR   +X               ;FPS ERROR
                                ;CONT:                           ;RETURN ADDRESS
                                ;
                                ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
                                ;THE LDCIF OR LDCLF 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 1000$ RETURNS CONTROL
                                ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD 1000$ WILL
                                ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN 1000$ WILL RETURN
                                ;TO THE ERROR CALL AT ERR2, OTHERWISE 1000$ ITSELF
                                ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
                                ;LDCIF OR LDCLF 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 1000$
                                ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
                                ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND 1000$
                                ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.

027724 012601                   1000$:  MOV     (SP)+,R1        ;GET A POINTER TO THE ARGUMENTS.
027726 016100 000014                    MOV     14(R1),R0       ;SET THE FPS.
027732 170100                           LDFPS   R0
027734 012737 026464 001236             MOV     #1$,$TMP2
027742 010100                           MOV     R1,R0

027744 177010                   1001$:  LDCIF   (R0),AC0                ;TEST INSTRUCTION LDCIF OR LDCLF.

027746 170204                           STFPS   R4              ;GET FPS.
027750 012700 030130                    MOV     #1200$,R0       ;GET THE RESULT.
027754 012702 000200                    MOV     #200,R2
027760 170102                           LDFPS   R2
027762 174010                           STD     AC0,(R0)

027764 012702 030130                    MOV     #1200$,R2       ;SEE IF THE RESULT WAS CORRECT.
027770 010237 001242                    MOV     R2,$TMP4
027774 010137 001240                    MOV     R1,$TMP3
030000 010103                           MOV     R1,R3
030002 062703 000004                    ADD     #4,R3
030006 010337 001244                    MOV     R3,$TMP5
030012 010437 001250                    MOV     R4,$TMP7
030016 016137 000016 001252             MOV     16(R1),$TMP10
030024 010100                           MOV     R1,R0
030026 062700 000004                    ADD     #4,R0
030032 012703 000002                    MOV     #2,R3
030036 022022                   1002$:  CMP     (R0)+,(R2)+
```

```
 5834 030040  001006                        BNE     1010$           ;BR IF INCORRECT.
 5835 030042  077303                        SOB     R3,1002$
 5836
 5837 030044  026104  000016                CMP     16(R1),R4       ;SEE IF THE FPS WAS CORRECT.
 5838 030050  001020                        BNE     1015$           ;BR IF INCORRECT.
 5839 030052  000161  000030          1003$: JMP     30(R1)          ;RETURN.
 5840
 5841                              ;RESULT IN CORRECT SO SEE IF THE FAILURE WAS ANTICIPATED.
 5842 030056  012702  030130          1010$: MOV     #1200$,R2
 5843 030062  010100                        MOV     R1,R0
 5844 030064  062700  000010                ADD     #10,R0
 5845 030070  012703  000002                MOV     #2,R3
 5846 030074  022022                  1011$: CMP     (R0)+,(R2)+
 5847 030076  001003                        BNE     1013$
 5848 030100  077303                        SOB     R3,1011$
 5849 030102  000161  000022                JMP     22(R1)
 5850
 5851                              ;THE FAILURE WAS NOT ANTICIPATED SO REPORT THE ERROR HERE.
 5852 030106                        1013$:
 5853
 5854 030106  104260                  1014$: ERROR   +260            ;BAD RES
 5855 030110  000760                        BR      1003$
 5856
 5857
 5858                              ;THE FPS WAS INCORRECT SO SEE IF IT WAS ANTICIPATED.
 5859 030112  026104  000020          1015$: CMP     20(R1),R4
 5860 030116  001002                        BNE     1016$
 5861 030120  000161  000026                JMP     26(R1)
 5862
 5863                              ;FPS ERROR NOT ANTICIPATED SO REPORT IT HERE.
 5864 030124                        1016$:
 5865 030124  104261                  1017$: ERROR   +261            ;BAD FPS
 5866 030126  000751                        BR      1003$
 5867
 5868                              ;DATA BUFFER:
 5869 030130  000000  000000  000000 1200$: .WORD   0,0,0,0
 5870
 5871 030140                        400$:
      030140  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?).
```

```
5877                                    .SBTTL  TEST # 57 - LDCID AND LDCLD TEST
                                        ;;*****************************************************************
                                        ;*TEST 57       LDCID AND LDCLD TEST
                                        ;*
                                        ;* THIS IS A TEST OF LDCID AND LDCLD
                                        ;*
                                        ;;*****************************************************************
     030142  000004                     TST57:  SCOPE
5878                                    ;OPERAND=0      FL=0,   FD=1
5879 030144  012737  030152  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5880 030152  004737  031012             200$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5881 030156  000000  000000             1$:     .WORD   0,0             ;FSRC OPERAND.
5882 030162  000000  000000  000000     2$:     .WORD   0,0,0,0         ;EXPECTED RESULT.
5883 030172  177777  177777  177777     3$:     .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
5884 030202  000213                     4$:     213                     ;FPS BEFORE EXECUTION.
5885 030204  000204                             204                     ;FPS AFTER EXECUTION.
5886 030206  177777                             -1                      ;ANTICIPATED ERRONEOUS FPS.
5887 030210  104273                     5$:     ERROR   +273            ;REPORT RESULT INCORRECT.
5888 030212  000401                             BR      6$
5889 030214  104274                             ERROR   +274            ;REPORT FPS INCORRECT.
5890 030216                             6$:
5891                                    ;OPERAND=0      FL=0,   FD=1
5892 030216  012737  030224  001110             MOV     #210$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5893 030224  004737  031012             210$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5894 030230  000000  177777             11$:    .WORD   0,-1            ;FSRC OPERAND.
5895 030234  000000  000000  000000     12$:    .WORD   0,0,0,0         ;EXPECTED RESULT.
5896 030244  004177  177400  000000     13$:    .WORD   4177,177400,0,0         ;ANTICIPATED ERRONEOUS RESULT.
5897 030254  000200                     14$:    200                     ;FPS BEFORE EXECUTION.
5898 030256  000204                             204                     ;FPS AFTER EXECUTION.
5899 030260  177777                             -1                      ;ANTICIPATED ERRONEOUS FPS.
5900 030262  104275                     15$:    ERROR   +275            ;(BUT FL)S+277
5901 030264  000401                             BR      16$             ;TO 300 INTO 301
5902 030266  104274                             ERROR   +274            ;REPORT FPS INCORRECT.
5903 030270                             16$:
5904
5905                                    ;OPERAND=0      FL=1    FD=1
5906 030270  012737  030276  001110             MOV     #220$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5907 030276  004737  031012             220$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5908 030302  000000  000000             21$:    .WORD   0,0             ;FSRC OPERAND.
5909 030306  000000  000000  000000     22$:    .WORD   0,0,0,0         ;EXPECTED RESULT.
5910 030316  177777  177777  177777     23$:    .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
5911 030326  000211                     24$:    211                     ;FPS BEFORE EXECUTION.
5912 030330  000204                             204                     ;FPS AFTER EXECUTION.
5913 030332  177777                             -1                      ;ANTICIPATED ERRONEOUS FPS.
5914 030334  104273                     25$:    ERROR   +273            ;REPORT RESULT INCORRECT.
5915 030336  000401                             BR      26$
5916 030340  104274                             ERROR   +274            ;REPORT FPS INCORRECT.
5917 030342                             26$:
5918
5919                                    ;OPERAND=40000  FL=0    FD=1
5920 030342  012737  030350  001110             MOV     #230$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5921 030350  004737  031012             230$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5922 030354  040000  000000             31$:    .WORD   40000,0         ;FSRC OPERAND.
5923 030360  043600  000000  000000     32$:    .WORD   43600,0,0,0             ;EXPECTED RESULT.
5924 030370  047600  000000  000000     33$:    .WORD   47600,0,0,0             ;ANTICIPATED ERRONEOUS RESULT.
5925 030400  000217                     34$:    217                     ;FPS BEFORE EXECUTION.
5926 030402  000200                             200                     ;FPS AFTER EXECUTION.
```

TEST # 57 - LDCID AND LDCLD TEST

```
5927 030404  177777                          -1                      ;ANTICIPATED ERRONEOUS FPS.
5928 030406  104276              35$:        ERROR   +276            ;ST 107 BAD CONST
5929 030410  000401                          BR      36$
5930 030412  104274                          ERROR   +274            ;REPORT FPS INCORRECT.
5931 030414                      36$:
5932
5933                             ;OPERAND=-40000 FL=0    FD=1
5934 030414  012737  030422  001110          MOV     #240$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5935 030422  004737  031012              240$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5936 030426  140000  000000              41$:    .WORD   -40000,0                ;FSRC OPERAND.
5937 030432  143600  000000  000000      42$:    .WORD   143600,0,0,0            ;EXPECTED RESULT.
5938 030442  043600  000000  000000      43$:    .WORD   43600,0,0,0             ;ANTICIPATED ERRONEOUS RESULT.
5939 030452  000200                      44$:    200                     ;FPS BEFORE EXECUTION.
5940 030454  000210                              210                     ;FPS AFTER EXECUTION.
5941 030456  177777                              -1                      ;ANTICIPATED ERRONEOUS FPS.
5942 030460  104277                      45$:    ERROR   +277            ;(SET SIGN) ST 176
5943 030462  000401                              BR      46$
5944 030464  104274                              ERROR   +274            ;REPORT FPS INCORRECT.
5945 030466                              46$:
5946
5947                             ;OPERAND=40000,0        FL=1    FD=1
5948 030466  012737  030474  001110          MOV     #250$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5949 030474  004737  031012              250$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5950 030500  040000  000000              51$:    .WORD   40000,0         ;FSRC OPERAND.
5951 030504  047600  000000  000000      52$:    .WORD   47600,0,0,0             ;EXPECTED RESULT.
5952 030514  043600  000000  000000      53$:    .WORD   43600,0,0,0             ;ANTICIPATED ERRONEOUS RESULT.
5953 030524  000317                      54$:    317                     ;FPS BEFORE EXECUTION.
5954 030526  000300                              300                     ;FPS AFTER EXECUTION.
5955 030530  177777                              -1                      ;ANTICIPATED ERRONEOUS FPS.
5956 030532  104300                      55$:    ERROR   +300            ;ST 107 BAD CONS
5957 030534  000401                              BR      56$
5958 030536  104274                              ERROR   +274            ;REPORT FPS INCORRECT.
5959 030540                              56$:
5960
5961                             ;OPERAND=0,1    FL=1    FD=1
5962 030540  012737  030546  001110          MOV     #260$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5963 030546  004737  031012              260$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5964 030552  000000  000001              61$:    .WORD   0,1             ;FSRC OPERAND.
5965 030556  040200  000000  000000      62$:    .WORD   40200,0,0,0             ;EXPECTED RESULT.
5966 030566  034200  000000  000000      63$:    .WORD   34200,0,0,0             ;ANTICIPATED ERRONEOUS RESULT.
5967 030576  000300                      64$:    300                     ;FPS BEFORE EXECUTION.
5968 030600  000300                              300                     ;FPS AFTER EXECUTION.
5969 030602  177777                              -1                      ;ANTICIPATED ERRONEOUS FPS.
5970 030604  104300                      65$:    ERROR   +300            ;REPORT FPS INCORRECT.
5971 030606  000401                              BR      66$
5972 030610  104274                              ERROR   +274            ;REPORT FPS INCORRECT.
5973 030612                              66$:
5974
5975                             ;OPERAND=77777,177777   FL=1    FD=1
5976 030612  012737  030620  001110          MOV     #270$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
5977 030620  004737  031012              270$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
5978 030624  077777  177777              71$:    .WORD   77777,177777            ;FSRC OPERAND.
5979 030630  047777  177777  177000      72$:    .WORD   47777,177777,177000,0           ;EXPECTED RESULT.
5980 030640  177777  177777  177777      73$:    .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
5981 030650  000317                      74$:    317                     ;FPS BEFORE EXECUTION.
5982 030652  000300                              300                     ;FPS AFTER EXECUTION.
5983 030654  177777                              -1                      ;ANTICIPATED ERRONEOUS FPS.
```

```
 5984 030656  104273                    75$:    ERROR   +273            ;REPORT RESULT INCORRECT.
 5985 030660  000401                            BR      76$
 5986 030662  104274                            ERROR   +274            ;REPORT FPS INCORRECT.
 5987 030664                             76$:
 5988
 5989                                    ;OPERAND=-PATTERN       FL=1    FD=1
 5990
 5991 030664  012737  030672  001110            MOV     #280$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 5992 030672  004737  031012             280$:  JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
 5993 030676  177777  177526             81$:   .WORD   -1,-252         ;FSRC OPERAND.
 5994 030702  142052  000000  000000     82$:   .WORD   142052,0,0,0            ;EXPECTED RESULT.
 5995 030712  136052  000000  000000     83$:   .WORD   136052,0,0,0            ;ANTICIPATED ERRONEOUS RESULT.
 5996 030722  000307                     84$:   307                     ;FPS BEFORE EXECUTION.
 5997 030724  000310                            310                     ;FPS AFTER EXECUTION.
 5998 030726  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
 5999 030730  104300                     85$:   ERROR   +300            ;REPORT RESULT INCORRECT.
 6000 030732  000401                            BR      86$
 6001 030734  104274                            ERROR   +274            ;REPORT FPS INCORRECT.
 6002 030736                             86$:
 6003
 6004                                    ;OPERAND=PATTERN        FL=1    FD=1    FT=1
 6005 030736  012737  030744  001110            MOV     #290$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 6006 030744  004737  031012             290$:  JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
 6007 030750  012345  067012             91$:   .WORD   12345,67012             ;FSRC OPERAND.
 6008 030754  047247  025560  050000     92$:   .WORD   47247,025560,050000,0           ;EXPECTED RESULT.
 6009 030764  177777  177777  177777     93$:   .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
 6010 030774  000352                     94$:   352                     ;FPS BEFORE EXECUTION.
 6011 030776  000340                            340                     ;FPS AFTER EXECUTION.
 6012 031000  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
 6013 031002  104273                     95$:   ERROR   +273            ;REPORT RESULT INCORRECT.
 6014 031004  000401                            BR      96$
 6015 031006  104274                            ERROR   +274            ;REPORT FPS INCORRECT.
 6016 031010  000506                     96$:   BR      300$
```

TEST # 57 - LDCID AND LDCLD TEST

```
                                ;THIS SUBROUTINE, 1000$, IS USED TO SET UP THE OPERANDS, EXECUTE
                                ;THE LDCID OR LDCLD INSTRUCTION AND CHECK THE RESULTS. A CALL
                                ;TO IT IS MADE THUS:
                                ;
                                ;       JSR     PC,1000$
                                ;       ACARG:  .WORD   X,X             ;AC OPERAND
                                ;       RES:    .WORD   X,X,X,X         ;EXPECTED RESULT
                                ;       ERRES:  .WORD   X,X,X,X         ;ERROR RESULT
                                ;       FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
                                ;       FPSA:   .WORD   X               ;FPS AFTER EXECUTION
                                ;       ERFPS:  .WORD   X               ;ERROR FPS.
                                ;       ERR1:   ERROR   +X              ;DATA ERROR.
                                ;               BR      CONT
                                ;       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 1000$ RETURNS CONTROL
                                ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD 1000$
                                ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN 1000$ WILL RETURN
                                ;TO THE ERROR CALL AT ERR2, OTHERWISE 1000$ 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 1000$
                                ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
                                ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND 1000$ WILL
                                ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.

031012  012601                  1000$:  MOV     (SP)+,R1        ;GET A POINTER TO THE ARGUMENTS.
031014  016100  000024                  MOV     24(R1),R0       ;SET THE FPS.
031020  170100                          LDFPS   R0
031022  012737  031032  001236          MOV     #101$,$TMP2
031030  010100                          MOV     R1,R0
031032  177010                  101$:   LDCID   (R0),AC0        ;TEST INSTRUCTION, LDCID OR LDCLD.

031034  170204                          STFPS   R4              ;GET FPS.
031036  012700  031216                  MOV     #1200$,R0       ;GET THE RESULT.
031042  012702  000200                  MOV     #200,R2
031046  170102                          LDFPS   R2
031050  174010                          STD     AC0,(R0)

                                ;SEE IF THE RESULT IS CORRECT.
031052  012702  031216                  MOV     #1200$,R2
031056  010237  001242                  MOV     R2,$TMP4
031062  010137  001240                  MOV     R1,$TMP3
031066  010103                          MOV     R1,R3
031070  062703  000004                  ADD     #4,R3
031074  010337  001244                  MOV     R3,$TMP5
031100  010437  001250                  MOV     R4,$TMP7
031104  016137  000026  001252          MOV     26(R1),$TMP10
031112  010100                          MOV     R1,R0
031114  062700  000004                  ADD     #4,R0
031120  012703  000002                  MOV     #2,R3
031124  022022                  102$:   CMP     (R0)+,(R2)+
```

TEST # 57 - LDCID AND LDCLD TEST

```
 6074 031126  001006                        BNE     110$            ;BR IF INCORRECT.
 6075 031130  077303                        SOB     R3,102$
 6076
 6077 031132  026104  000026                CMP     26(R1),R4               ;IS THE FPS CORRECT?
 6078 031136  001020                        BNE     115$            ;BR IF INCORRECT.
 6079 031140  000161  000040          103$: JMP     40(R1)          ;RETURN.
 6080
 6081                                ;THE RESULT WAS INCORRECT SO SEE IF THE ERROR WAS ANTICIPATED.
 6082 031144  012702  031216          110$: MOV     #1200$,R2
 6083 031150  010100                        MOV     R1,R0
 6084 031152  062700  000014                ADD     #14,R0
 6085 031156  012703  000002                MOV     #2,R3
 6086 031162  022022                  111$: CMP     (R0)+,(R2)+
 6087 031164  001003                        BNE     113$
 6088 031166  077303                        SOB     R3,111$
 6089 031170  000161  000032                JMP     32(R1)
 6090 031174                          113$:
 6091                                ;ERROR NOT ANTICIPATED SO REPORT RESULT INCORRECT HERE.
 6092 031174  104273                  114$: ERROR   +273                    ;BAD RES
 6093 031176  000760                        BR      103$
 6094
 6095                                ;THE FPS WAS INCORRECT. SEE IF FAILURE WAS ANTICIPATED.
 6096 031200  026104  000030          115$: CMP     30(R1),R4
 6097 031204  001002                        BNE     116$
 6098 031206  000161  000036                JMP     36(R1)
 6099                                ;FPS ERROR WAS NOT ANTICIPATED SO REPORT FAILURE HERE.
 6100 031212                          116$:
 6101
 6102 031212  104274                  117$: ERROR   +274                    ;BAD FPS
 6103 031214  000751                        BR      103$
 6104
 6105
 6106                                ;DATA BUFFER:
 6107 031216  000000  000000  000000 1200$: .WORD   0,0,0,0
 6108
 6109 031226                          300$:
      031226  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 # 60 - LDEXP TEST

```
6118                                    .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.
                                        ;*
                                        ;;*****************************************************************
     031230  000004                     TST60:  SCOPE
6119                                    ; NON-ZERO RES. VALID EXPON=210 (EXCESS 200)=10
6120 031232  012737  031240  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6121 031240  004737  032674             200$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
6122 031244  012345  067012  034567     1$:     .WORD   12345,67012,34567,012345        ;AC0 OPERAND.
6123 031254  000010                     2$:     .WORD   10              ;EXPONENT OPERAND.
6124 031256  042145  067012  034567     3$:     .WORD   42145,67012,34567,012345                ;EXPECTED RESULT.
6125 031266  002145  067012  034567     4$:     .WORD   2145,67012,34567,012345         ;ANTICIPATED ERRONEOUS RESULT.
6126 031276  047217                     5$:     47217                   ;FPS BEFORE EXECUTION.
6127 031300  047200                             47200                   ;FPS AFTER EXECUTION.
6128 031302  147200                             147200                  ;ANTICIPATED ERRONEOUS FPS.
6129 031304  177777                             -1              ;EXPECTED FEC.
6130 031306  104304                     6$:     ERROR   +304            ;E12+E12+200 BAD
6131 031310  000400                             BR      7$              ;ST 624
6132 031312  104305                     7$:     ERROR   +305            ;REPORT FPS INCORRECT.
6133                                                                     ;ST 625 INTO 304
6134                                    ;NON-ZERO       RES     NEG.
6135 031314  012737  031322  001110             MOV     #210$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6136 031322  004737  032674             210$:   JSR     PC,1000$        ;EXPON=377
6137 031326  123456  070123  045670     11$:    .WORD   123456,70123,45670,123456       ;AC0 OPERAND.
6138 031336  000177                     12$:    .WORD   177             ;EXPONENT OPERAND.
6139 031340  177656  070123  045670     13$:    .WORD   177656,70123,45670,123456               ;EXPECTED RESULT.
6140 031350  137656  070123  045670     14$:    .WORD   137656,70123,45670,123456               ;ANTICIPATED ERRONEOUS RESULT.
6141 031360  047207                     15$:    47207                   ;FPS BEFORE EXECUTION.
6142 031362  047210                             47210                   ;FPS AFTER EXECUTION.
6143 031364  147210                             147210                  ;ANTICIPATED ERRONEOUS FPS.
6144 031366  177777                             -1              ;EXPECTED FEC.
6145 031370  104304                     16$:    ERROR   +304            ;REPORT RESULT INCORRECT.
6146 031372  000401                             BR      17$
6147 031374  104305                             ERROR   +305            ;REPORT FPS INCORRECT.
6148 031376                             17$:
6149
6150                                    ;NON-ZERO       RES     EXP=256=(56)REAL
6151 031376  012737  031404  001110             MOV     #220$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6152 031404  004737  032674             220$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
6153 031410  073261  057645  043323     21$:    .WORD   73261,057645,43323,101760       ;AC0 OPERAND.
6154 031420  000056                     22$:    .WORD   56              ;EXPONENT OPERAND.
6155 031422  053461  057645  043323     23$:    .WORD   53461,057645,43323,101760               ;EXPECTED RESULT.
6156 031432  177777  177777  177777     24$:    .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
6157 031442  047200                     25$:    47200                   ;FPS BEFORE EXECUTION.
6158 031444  047200                             47200                   ;FPS AFTER EXECUTION.
6159 031446  147200                             147200                  ;ANTICIPATED ERRONEOUS FPS.
6160 031450  177777                             -1              ;EXPECTED FEC.
6161 031452  104301                     26$:    ERROR   +301            ;REPORT RESULT INCORRECT.
6162 031454  000401                             BR      27$
6163 031456  104305                             ERROR   +305            ;REPORT FPS INCORRECT.
6164 031460                             27$:
```

```
                                        ;EXP=27 (EXCESS 200)=-151 (OCT)
031460  012737  031466  001110            MOV     #230$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
031466  004737  032674                230$: JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
031472  012223  024252  062720        31$:  .WORD   12223,24252,62720,21222 ;AC0 OPERAND.
031502  177627                        32$:  .WORD   -151            ;EXPONENT OPERAND.
031504  005623  024252  062720        33$:  .WORD   5623,24252,62720,21222        ;EXPECTED RESULT.
031514  177777  177777  177777        34$:  .WORD   -1,-1,-1,-1             ;ANTICIPATED ERRONEOUS RESULT.
031524  047200                        35$:  47200                   ;FPS BEFORE EXECUTION.
031526  047200                              47200                   ;FPS AFTER EXECUTION.
031530  147200                              147200                  ;ANTICIPATED ERRONEOUS FPS.
031532  177777                              -1              ;EXPECTED FEC.
031534  104301                        36$:  ERROR   +301            ;REPORT RESULT INCORRECT.
031536  000401                              BR      37$
031540  104306                              ERROR   +306            ;(BUT EZBT) ST 544 TO 504 INTO 704 0 (BUT EXBT) ST 704 INTO
031542                                37$:
                                        ;EXP=0 (EXCESS 200)=-200 (OCT), POSITIVE FRAC
                                        ; FIV=1
031542  012737  031550  001110            MOV     #240$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
031550  004737  032674                240$: JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
031554  030131  032334  035363        41$:  .WORD   30131,32334,35363,73031 ;AC0 OPERAND.
031564  177600                        42$:  .WORD   -200            ;EXPONENT OPERAND.
031566  000131  032334  035363        43$:  .WORD   00131,32334,35363,73031       ;EXPECTED RESULT.
031576  000000  000000  000000        44$:  .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
031606  042200                        45$:  42200                   ;FPS BEFORE EXECUTION.
031610  142204                              142204                  ;FPS AFTER EXECUTION.
031612  042202                              42202                   ;ANTICIPATED ERRONEOUS FPS.
031614  000012                              12              ;EXPECTED FEC.
031616  104307                        46$:  ERROR   +307            ;(BUT EXBT) ST 704 TO 64 INST 264
031620  000401                              BR      47$
031622  104310                              ERROR   +310    ;(BUT FIU) ST 264 X
031624                                47$:

                                        ;EXP=0  (EXCESS 200)=-200 (OCT), NEG FRACT,FIU=1
031624  012737  031632  001110            MOV     #250$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
031632  004737  032674                250$: JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
031636  140414  024344  045464        51$:  .WORD   140414,24344,45464,74045        ;AC0 OPERAND.
031646  177600                        52$:  .WORD   -200            ;EXPONENT OPERAND.
031650  100014  024344  045464        53$:  .WORD   100014,24344,45464,74045        ;-0                     ;EXPECTED RESULT.
031660  000000  000000  000000        54$:  .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
031670  042200                        55$:  42200                   ;FPS BEFORE EXECUTION.
031672  142214                              142214                  ;FPS AFTER EXECUTION.
031674  042214                              42214                   ;ANTICIPATED ERRONEOUS FPS.
031676  000012                              12              ;EXPECTED FEC.
031700  104307                        56$:  ERROR   +307            ;REPORT RESULT INCORRECT.
031702  000401                              BR      57$
031704  104310                              ERROR   +310            ;REPORT FPS INCORRECT.
031706                                57$:

                                        ;EXP=0 (EXCESS 200)=-200 (OCT),POS FRAC, FIU=0

031706  012737  031714  001110            MOV     #260$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
031714  004737  032674                260$: JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
031720  051525  035455  005675        61$:  .WORD   51525,35455,5675,05152  ;AC0 OPERAND.
031730  177600                        62$:  .WORD   -200            ;EXPONENT OPERAND.
031732  000000  000000  000000        63$:  .WORD   0,0,0,0         ;EXPECTED RESULT.
```

TEST # 60 - LDEXP TEST

```
6222 031742  000125  035455  005675  64$:    .WORD   00125,35455,5675,05152          ;ANTICIPATED ERRONEOUS RESULT.
6223 031752  045200                          45200                   ;FPS BEFORE EXECUTION.
6224 031754  045204                          45204                   ;FPS AFTER EXECUTION.
6225 031756  145204                          145204                  ;ANTICIPATED ERRONEOUS FPS.
6226 031760  177777                          -1              ;EXPECTED FEC.
6227 031762  104311                  66$:    ERROR   +311            ;(BUT FIU) ST 264 X          ;REPORT RESULT INCORRECT.
6228 031764  000401                          BR      67$
6229 031766  104302                          ERROR   +302            ;REPORT FPS INCORRECT.
6230 031770                          67$:
6231
6232                                 ;EXP=-1405 (EXCESS 200)=-1605 (OCT), FIU=1
6233 031770  012737  031776  001110          MOV     #270$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6234 031776  004737  032674          270$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
6235 032002  061626  062636  046566  71$:    .WORD   61626,62636,46566,67606 ;AC0 OPERAND.
6236 032012  176173                  72$:    .WORD   -1605           ;EXPONENT OPERAND.
6237 032014  076626  062636  046566  73$:    .WORD   76626,62636,46566,67606         ;EXPECTED RESULT.
6238 032024  000000  000000  000000  74$:    .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
6239 032034  042200                  75$:    42200                   ;FPS BEFORE EXECUTION.
6240 032036  142200                          142200                  ;FPS AFTER EXECUTION.
6241 032040  042204                          42204                   ;ANTICIPATED ERRONEOUS FPS.
6242 032042  000012                          12              ;EXPECTED FEC.
6243 032044  104312                  76$:    ERROR   +312            ;(BUT EZBT) ST 544 TO 704 INTO 504
6244 032046  000401                          BR      77$
6245 032050  104302                          ERROR   +302            ;REPORT FPS INCORRECT.
6246 032052                          77$:
6247                                 ;EXP=-17416 (EXCESS 200)=-17616 (OCT), FIU=0
6248 032052  012737  032060  001110          MOV     #280$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6249 032060  004737  032674          280$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
6250 032064  071727  037475  076777  81$:    .WORD   71727,37475,76777,17273 ;AC0 OPERAND.
6251 032074  160162                  82$:    .WORD   -17616          ;EXPONENT OPERAND.
6252 032076  000000  000000  000000  83$:    .WORD   0,0,0,0         ;EXPECTED RESULT.
6253 032106  074527  037475  076777  84$:    .WORD   74527,37475,76777,17273         ;ANTICIPATED ERRONEOUS RESULT.
6254 032116  045200                  85$:    45200                   ;FPS BEFORE EXECUTION.
6255 032120  045204                          45204                   ;FPS AFTER EXECUTION.
6256 032122  145200                          145200                  ;ANTICIPATED ERRONEOUS FPS.
6257 032124  177777                          -1              ;EXPECTED FEC.
6258 032126  104313                  86$:    ERROR   +313            ;(BUT FIU) ST 504
6259 032130  000401                          BR      87$
6260 032132  104302                          ERROR   +302            ;REPORT FPS INCORRECT.
6261 032134                          87$:
6262
6263                                 ;EXP=-1601 (EXCESS 200)=-2001 (OCT), FIU=1
6264 032134  012737  032142  001110          MOV     #290$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6265 032142  004737  032674          290$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
6266 032146  001020  030405  006070  91$:    .WORD   01020,30405,06070,00102 ;AC0 OPERAND.
6267 032156  175777                  92$:    .WORD   -2001           ;EXPONENT OPERAND.
6268 032160  037620  030405  006070  93$:    .WORD   37620,30405,06070,00102         ;EXPECTED RESULT.
6269 032170  000000  000000  000000  94$:    .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
6270 032200  042200                  95$:    42200                   ;FPS BEFORE EXECUTION.
6271 032202  142200                          142200                  ;FPS AFTER EXECUTION.
6272 032204  042204                          42204                   ;ANTICIPATED ERRONEOUS FPS.
6273 032206  000012                          12              ;EXPECTED FEC.
6274 032210  104312                  96$:    ERROR   +312            ;(BUT FIU) ST 504
6275 032212  000401                          BR      97$
6276 032214  104302                          ERROR   +302            ;REPORT FPS INCORRECT.
6277 032216                          97$:
6278
```

```
                                        ;EXP=1206 (EXCESS 200)=1006 (OCT) FIV =1
032216  012737  032224  001110                MOV     #300$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
032224  004737  032674                300$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
032230  012131  014151  016171        101$:   .WORD   12131,14151,16171,10111 ;AC0 OPERAND.
032240  001006                        102$:   .WORD   1006            ;EXPONENT OPERAND.
032242  041531  014151  016171        103$:   .WORD   41531,14151,16171,10111         ;EXPECTED RESULT.
032252  000000  000000  000000        104$:   .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
032262  041200                        105$:   41200                   ;FPS BEFORE EXECUTION.
032264  141202                                141202                  ;FPS AFTER EXECUTION.
032266  041204                                41204                   ;ANTICIPATED ERRONEOUS FPS.
032270  000010                                10              ;EXPECTED FEC.
032272  104314                        106$:   ERROR   +314            ;(BUT FIV) ST 104
032274  000401                                BR      107$
032276  104302                                ERROR   +302            ;REPORT FPS INCORRECT.
032300                                107$:

                                        ;EXP=16315 (EXCESS 200)=16115 (OCT) FIV=0
032300  012737  032306  001110                MOV     #310$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
032306  004737  032674                310$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
032312  027262  025242  023222        111$:   .WORD   27262,25242,23222,21202 ;AC0 OPERAND.
032322  016115                        112$:   .WORD   16115           ;EXPONENT OPERAND.
032324  000000  000000  000000        113$:   .WORD   0,0,0,0         ;EXPECTED RESULT.
032334  063262  025242  023222        114$:   .WORD   63262,25242,23222,21202         ;ANTICIPATED ERRONEOUS RESULT.
032344  046200                        115$:   46200                   ;FPS BEFORE EXECUTION.
032346  046206                                46206                   ;FPS AFTER EXECUTION.
032350  146202                                146202                  ;ANTICIPATED ERRONEOUS FPS.
032352  177777                                -1              ;EXPECTED FEC.
032354  104315                        116$:   ERROR   +315            ;(BUT FIV) ST 104
032356  000401                                BR      117$
032360  104302                                ERROR   +302            ;REPORT FPS INCORRECT.
032362                                117$:

                                        ;EXP=11011 (EXCESS 200)=10611 (OCT) FIV=1

032362  012737  032370  001110                MOV     #320$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
032370  004737  032674                320$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
032374  030313  032333  034353        121$:   .WORD   30313,32333,34353,36373 ;AC0 OPERAND.
032404  010611                        122$:   .WORD   10611           ;EXPONENT OPERAND.
032406  002313  032333  034353        123$:   .WORD   2313,32333,34353,36373          ;EXPECTED RESULT.
032416  000000  000000  000000        124$:   .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
032426  041200                        125$:   41200                   ;FPS BEFORE EXECUTION.
032430  141202                                141202                  ;FPS AFTER EXECUTION.
032432  041204                                41204                   ;ANTICIPATED ERRONEOUS FPS.
032434  000010                                10              ;EXPECTED FEC.
032436  104316                        126$:   ERROR   +316            ;(BUT FIV) ST 144
032440  000401                                BR      127$
032442  104302                                ERROR   +302            ;REPORT FPS INCORRECT.
032444                                127$:

                                        ;EXP=17123 (EXCESS 200)=16723 (OCT) FIV=0

032444  012737  032452  001110                MOV     #330$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
032452  004737  032674                330$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
032456  040414  042434  044454        131$:   .WORD   40414,42434,44454,46474 ;AC0 OPERAND.
032466  016723                        132$:   .WORD   16723           ;EXPONENT OPERAND.
032470  000000  000000  000000        133$:   .WORD   0,0,0,0         ;EXPECTED RESULT.
032500  024614  042434  044454        134$:   .WORD   24614,42434,44454,46474         ;ANTICIPATED ERRONEOUS RESULT.
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```
6336 032510  046200                135$:   46200                   ;FPS BEFORE EXECUTION.
6337 032512  046206                        46206                   ;FPS AFTER EXECUTION.
6338 032514  146202                        146202                  ;ANTICIPATED ERRONEOUS FPS.
6339 032516  177777                        -1              ;EXPECTED FEC.
6340 032520  104317                136$:   ERROR   +317            ;(BUT FIV) ST 144
6341 032522  000401                        BR      137$
6342 032524  104302                        ERROR   +302            ;REPORT FPS INCORRECT.
6343 032526                        137$:
6344
6345                               ;EXP=   254 (OCT)=      454 (EXCESS 200)        FIV=1
6346
6347 032526  012737  032534  001110        MOV     #340$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6348 032534  004737  032674        340$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
6349 032540  050515  052535  054555  141$:  .WORD   50515,52535,54555,56575 ;AC0 OPERAND.
6350 032550  000254                142$:   .WORD   254             ;EXPONENT OPERAND.
6351 032552  013115  052535  054555  143$:  .WORD   13115,52535,54555,56575        ;EXPECTED RESULT.
6352 032562  000000  000000  000000  144$:  .WORD   0,0,0,0         ;ANTICIPATED ERRONEOUS RESULT.
6353 032572  041200                145$:   41200                   ;FPS BEFORE EXECUTION.
6354 032574  141202                        141202                  ;FPS AFTER EXECUTION.
6355 032576  041204                        41204                   ;ANTICIPATED ERRONEOUS FPS.
6356 032600  000010                        10              ;EXPECTED FEC.
6357 032602  104320                146$:   ERROR   +320                    ;(BUT FIV) ST344
6358 032604  000401                        BR      147$
6359 032606  104302                        ERROR   +302            ;REPORT FPS INCORRECT.
6360 032610                        147$:
6361
6362                               ;EXP=   313 (OCT)=      513(EXCESS 200) FIV=0
6363
6364 032610  012737  032616  001110        MOV     #350$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6365 032616  004737  032674        350$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
6366 032622  060616  062636  064656  151$:  .WORD   60616,62636,64656,66676 ;AC0 OPERAND.
6367 032632  000313                152$:   .WORD   313             ;EXPONENT OPERAND.
6368 032634  000000  000000  000000  153$:  .WORD   0,0,0,0         ;EXPECTED RESULT.
6369 032644  022616  062636  064656  154$:  .WORD   22616,62636,64656,66676        ;ANTICIPATED ERRONEOUS RESULT.
6370 032654  046200                155$:   46200                   ;FPS BEFORE EXECUTION.
6371 032656  046206                        46206                   ;FPS AFTER EXECUTION.
6372 032660  146202                        146202                  ;ANTICIPATED ERRONEOUS FPS.
6373 032662  177777                        -1              ;EXPECTED FEC.
6374 032664  104321                156$:   ERROR   +321                    ;(BUT FIV) ST 344
6375 032666  000401                        BR      157$
6376 032670  104302                        ERROR   +302            ;REPORT FPS INCORRECT.
6377 032672                        157$:
6378 032672  000540                        BR      360$
```

```
                                ;THIS SUBROUTINE, 1000$, IS USED TO SET UP THE OPERANDS, EXECUTE
                                ;THE LDEXP INSTRUCTION AND CHECK THE RESULTS. A CALL
                                ;TO IT IS MADE THUS:
                                ;
                                ;       JSR     PC,1000$
                                ;ACARG: .WORD   X,X,X,X          ;AC OPERAND
                                ;EXP:   .WORD   X                ;EXPONENT
                                ;RES:   .WORD   X,X,X,X          ;EXPECTED RESULT
                                ;ERRES: .WORD   X,X,X,X          ;ERROR RESULT
                                ;FPSB:  .WORD   X                ;FPS BEFORE EXECUTION
                                ;FPSA:  .WORD   X                ;FPS AFTER EXECUTION
                                ;ERFPS: .WORD   X                ;ERROR FPS.
                                ;FEC:   .WORD   X                ;EXPECTED FEC
                                ;ERR1:  ERROR   +X               ;DATA ERROR.
                                ;       BR      CONT
                                ;ERR2:  ERROR   +X               ;FPS ERROR.
                                ;CONT:                           ;RETURN ADDRESS
                                ;
                                ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
                                ;THE LDEXP 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 1000$ RETURNS CONTROL
                                ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD 1000$
                                ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN 1000$ WILL RETURN
                                ;TO THE ERROR CALL AT ERR2, OTHERWISE 1000$ ITSELF
                                ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
                                ;LDEXP 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 1000$
                                ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
                                ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND 1000$ WILL
                                ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
                                
032674  012601          1000$:  MOV     (SP)+,R1        ;GET A POINTER TO THE ARGUMENTS.
032676  012700  000200          MOV     #200,R0         ;LOAD THE AC0 OPERAND.
032702  170100                  LDFPS   R0
032704  010100                  MOV     R1,R0
032706  172410                  LDD     (R0),AC0
032710  012737  032732  001236  MOV     #161$,$TMP2
032716  016100  000032          MOV     32(R1),R0       ;SET UP THE FPS.
032722  170100                  LDFPS   R0
032724  010100                  MOV     R1,R0
032726  062700  000010          ADD     #10,R0
                                
032732  176410          161$:   LDEXP   (R0),AC0        ;TEST INSTRUCTION.
                                
032734  170204                  STFPS   R4              ;GET THE FPS.
032736  170305                  STST    R5              ;GET THE FEC.
032740  012700  000200          MOV     #200,R0         ;GET THE RESULT.
032744  170100                  LDFPS   R0
032746  012700  033164          MOV     #1200$,R0
032752  174010                  STD     AC0,(R0)
032754  010437  001250          MOV     R4,$TMP7
032760  016137  000034  001252  MOV     34(R1),$TMP10
032766  010537  001254          MOV     R5,$TMP11
032772  016137  000040  001256  MOV     40(R1),$TMP12
033000  010102                  MOV     R1,R2
```

```
6436 033002  010237  001240                    MOV     R2,$TMP3
6437 033006  062702  000010                    ADD     #10,R2
6438 033012  011237  001242                    MOV     (R2),$TMP4
6439 033016  062702  000002                    ADD     #2,R2
6440 033022  010237  001244                    MOV     R2,$TMP5
6441 033026  012737  033164  001246            MOV     #1200$,$TMP6
6442 033034  012702  033164                    MOV     #1200$,R2       ;SEE IF THE RESULT WAS CORRECT.
6443 033040  010103                            MOV     R1,R3
6444 033042  062703  000012                    ADD     #12,R3
6445 033046  012700  000004                    MOV     #4,R0
6446 033052  022223                  162$:     CMP     (R2)+,(R3)+
6447 033054  001014                            BNE     170$            ;BRANCH IF NOT CORRECT.
6448 033056  077003                            SOB     R0,162$
6449 033060  020461  000034                    CMP     R4,34(R1)       ;SEE IF THE FPS WAS CORRECT.
6450 033064  001026                            BNE     175$            ;BRANCH IF NOT CORRECT.
6451 033066  005761  000034                    TST     34(R1)
6452 033072  100003                            BPL     163$
6453 033074  020561  000040                    CMP     R5,40(R1)       ;SEE IF THE FEC WAS CORRECT.
6454 033100  001027                            BNE     180$            ;BRANCH IF NOT CORRECT.
6455
6456 033102  000161  000050            163$:   JMP     50(R1)          ;RETURN.
6457
6458                                  ;THE RESULT WAS INCORRECT SO SEE IF THE FAILURE WAS ANTICIPATED.
6459 033106  012702  033164            170$:   MOV     #1200$,R2
6460 033112  010103                            MOV     R1,R3
6461 033114  062703  000022                    ADD     #22,R3
6462 033120  012700  000004                    MOV     #4,R0
6463 033124  022223                  171$:     CMP     (R2)+,(R3)+
6464 033126  001003                            BNE     172$
6465 033130  077003                            SOB     R0,171$
6466 033132  000161  000042                    JMP     42(R1)
6467
6468                                  ;THE ERROR WAS NOT ANTICIPATED SO REPORT IT HERE.
6469 033136                           172$:
6470 033136  104301                  173$:     ERROR   +301                    ;BAD RES
6471 033140  000760                            BR      163$
6472
6473                                  ;SEE IF THE FPS ERROR WAS ANTICIPATED.
6474 033142  026104  000036            175$:   CMP     36(R1),R4
6475 033146  001002                            BNE     176$
6476 033150  000161  000046                    JMP     46(R1)
6477 033154                           176$:
6478                                  ;THE FPS WAS NOT ANTICIPATED SO REPORT IT HERE.
6479 033154  104302                  177$:     ERROR   +302                    ;BAD FPS
6480 033156  000751                            BR      163$                    ;BUT EZBTY8
6481                                                                          ;ST 063
6482
6483 033160                           180$:
6484                                  ;REPORT FEC INCORRECT.
6485 033160  104303                  181$:     ERROR   +303                    ;BAD FEC
6486 033162  000747                            BR      163$
6487
6488                                  ;DATA BUFFER:
6489 033164  000000  000000  000000  1200$:   .WORD   0,0,0,0
6490
6491 033174                           360$:
     033174  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 # 61 - DESTINATION MODES, MODE 1 (FL=0), TEST

```
 6498                                   .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
                                        ;*
                                        ;;*****************************************************************
     033176  000004                     TST61:  SCOPE
 6499 033200  012737  033206  001110            MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 6500 033206  012700  033304            200$:   MOV     #210$,R0        ;SET UP THE DATA BUFFER.
 6501 033212  012701  000006                    MOV     #6,R1
 6502 033216  012720  177777            1$:     MOV     #-1,(R0)+
 6503 033222  077103                            SOB     R1,1$
 6504 033224  012700  102345                    MOV     #102345,R0
 6505 033230  012737  033252  001236            MOV     #220$,$TMP2
 6506 033236  012737  033404  000004            MOV     #230$,ERRVECT ;SET UP FOR TRAPS TO 4.
 6507 033244  170100                            LDFPS   R0              ;SET UP FPS.
 6508 033246  012700  033310                    MOV     #240$,R0
 6509
 6510 033252  170210                    220$:   STFPS   (R0)            ;TEST INSTRUCTION.
 6511 033254  020027  033310                    CMP     R0,#240$        ;IS R0 CORRECT?
 6512 033260  001017                            BNE     250$            ;BRANCH IF NOT CORRECT.
 6513 033262  023727  033310  102345            CMP     240$,#102345    ;IS RESULT CORRECT?
 6514 033270  001023                            BNE     260$            ;BRANCH IF NOT CORRECT.
 6515 033272  023727  033312  177777            CMP     240$+2,#-1      ;IS THE RESULT CORRECT?
 6516 033300  001030                            BNE     270$            ;BRANCH IF NOT CORRECT.
 6517 033302  000453                            BR      280$
 6518
 6519                                   ;TEST DATA BUFFER:
 6520 033304  177777  177777            210$:   .WORD   -1,-1
 6521 033310  177777  177777  177777    240$:   .WORD   -1,-1,-1,-1
 6522
 6523                                   ;REPORT R0 INCORRECT.
 6524 033320  010037  001242            250$:   MOV     R0,$TMP4
 6525 033324  012737  033310  001240            MOV     #240$,$TMP3
 6526 033332  104377                            ERROR   +377
     033334  000001                             .WORD   1
 6527                                                                   ;R0 BAD (BUT
 6528 033336  000435                            BR      280$            ;    FDST)X
 6529
 6530                                   ;REPORT RESULT INCORRECT.
 6531 033340  012737  102345  001240    260$:   MOV     #102345,$TMP3                   ;    ST 634
 6532 033346  013737  033310  001242            MOV     240$,$TMP4
 6533 033354  104377                            ERROR   +377
     033356  000002                             .WORD   2
 6534                                                                   ;BAD DATA
 6535 033360  000424                            BR      280$
 6536
 6537
 6538                                   ;REPORT RESULT INCORRECT.
 6539 033362  012737  177777  001240    270$:   MOV     #-1,$TMP3
 6540 033370  013737  033312  001242            MOV     240$+2,$TMP4
 6541 033376  104377                            ERROR   +377
     033400  000003                             .WORD   3
 6542                                                                   ;(BUT GR7,FL)
 6543 033402  000413                            BR      280$            ;ST 357 TO 416
```

```
                                                                ;INTO 417
                                ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
                                ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
                                ;TO THE SPURIOUS TRAP TO 4 HANDLER.
033404  011604                  230$:   MOV     (SP),R4
033406  020427  033254                  CMP     R4,#220$+2
033412  001402                          BEQ     2$
033414  000137  051774                  JMP     CPSPUR

033420  011637  001236          2$:     MOV     (SP),$TMP2
033424  022626                          CMP     (SP)+,(SP)+
033426  104377                          ERROR   +377
033430  000004                          .WORD   4
                                                                ;(BUT FDST)+ ST634

033432                          280$:
033432  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 # 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
                                ;*
                                ;;*****************************************************************
    033434  000004              TST62:  SCOPE
6561 033436  012737  033444  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6562 033444  012700  033542     200$:      MOV     #210$,R0        ;SET UP THE DATA BUFFER.
6563 033450  012701  000006              MOV     #6,R1
6564 033454  012720  177777     1$:      MOV     #-1,(R0)+
6565 033460  077103                      SOB     R1,1$
6566 033462  012700  105412              MOV     #105412,R0
6567 033466  012737  033510  001236      MOV     #220$,$TMP2
6568 033474  012737  033642  000004      MOV     #230$,ERRVECT   ;SET UP FOR TRAPS TO VECTOR 4.
6569 033502  170100                      LDFPS   R0              ;SET UP FPS.
6570 033504  012700  033546              MOV     #240$,R0
6571
6572 033510  170220     220$:      STFPS   (R0)+           ;TEST INSTRUCTION.
6573 033512  020027  033550              CMP     R0,#240$+2      ;IS R0 CORRECT?
6574 033516  001017                      BNE     250$            ;BRANCH IF NOT CORRECT.
6575 033520  023727  033546  105412      CMP     240$,#105412  ;IS THE RESULT CORRECT?
6576 033526  001023                      BNE     260$            ;BRANCH IF NOT CORRECT.
6577 033530  023727  033550  177777      CMP     240$+2,#-1  ;IS THE RESULT CORRECT?
6578 033536  001030                      BNE     270$            ;BRANCH IF NOT CORRECT.
6579 033540  000453                      BR      280$
6580
6581                            ;TEST DATA BUFFER:
6582 033542  177777  177777     210$:    .WORD   -1,-1
6583 033546  177777  177777  177777  240$:    .WORD   -1,-1,-1,-1
6584
6585                            ;REPORT R0 INCORRECT.
6586 033556  010037  001242     250$:    MOV     R0,$TMP4
6587 033562  012737  033550  001240      MOV     #240$+2,$TMP3
6588 033570  104377                      ERROR   +377
    033572  000005                      .WORD   5
6589                                                            ;R0 BAD (BUT
6590 033574  000435                      BR      280$           ;    FDST)X
6591
6592                            ;REPORT RESULT INCORRECT.
6593 033576  012737  105412  001240  260$:    MOV     #105412,$TMP3                   ;    ST 634
6594 033604  013737  033546  001242      MOV     240$,$TMP4
6595 033612  104377                      ERROR   +377
    033614  000006                      .WORD   6
6596                                                            ;BAD DATA
6597 033616  000424                      BR      280$
6598
6599
6600                            ;REPORT RESULT INCORRECT.
6601 033620  012737  177777  001240  270$:    MOV     #-1,$TMP3
6602 033626  013737  033550  001242      MOV     240$+2,$TMP4
6603 033634  104377                      ERROR   +377
    033636  000007                      .WORD   7
6604                                                            ;(BUT GR7,FL)
6605 033640  000413                      BR      280$           ;ST 357 TO 416
```

```
6606                                                                    ;INTO 417
6607
6608                                    ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6609                                    ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6610                                    ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6611 033642  011604                    230$:   MOV     (SP),R4
6612 033644  020427  033512                    CMP     R4,#220$+2
6613 033650  001402                            BEQ     2$
6614 033652  000137  051774                    JMP     CPSPUR
6615
6616 033656  011637  001236            2$:     MOV     (SP),$TMP2
6617 033662  022626                            CMP     (SP)+,(SP)+
6618 033664  104377                            ERROR   +377
     033666  000010                            .WORD   10
6619                                                                    ;(BUT FDST)+ ST634
6620
6621 033670                             280$:
     033670  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?).
```

```
6622                                    .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
                                        ;*
                                        ;;*****************************************************************
     033672  000004                     TST63:  SCOPE
6623 033674  012737  033702  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6624 033702  012700  034000             200$:   MOV     #210$,R0        ;SET UP THE DATA BUFFER.
6625 033706  012701  000006                     MOV     #6,R1
6626 033712  012720  177777             1$:     MOV     #-1,(R0)+
6627 033716  077103                             SOB     R1,1$
6628 033720  012700  105555                     MOV     #105555,R0
6629 033724  012737  033746  001236             MOV     #220$,$TMP2
6630 033732  012737  034100  000004             MOV     #230$,ERRVECT   ;SET UP FOR TRAPS TO VECTOR 4.
6631 033740  170100                             LDFPS   R0              ;SET UP FPS.
6632 033742  012700  034006                     MOV     #240$+2,R0
6633
6634 033746  170240                     220$:   STFPS   -(R0)           ;TEST INSTRUCTION.
6635 033750  020027  034004                     CMP     R0,#240$        ;IS R0 CORRECT?
6636 033754  001017                             BNE     250$            ;BRANCH IF NOT CORRECT.
6637 033756  023727  034004  105555             CMP     240$,#105555    ;IS THE RESULT CORRECT?
6638 033764  001023                             BNE     260$            ;BRANCH IF NOT CORRECT.
6639 033766  023727  034006  177777             CMP     240$+2,#-1      ;IS THE RESULT CORRECT?
6640 033774  001030                             BNE     270$            ;BRANCH IF NOT CORRECT.
6641 033776  000453                             BR      280$
6642
6643                                    ;TEST DATA BUFFER:
6644 034000  177777  177777             210$:   .WORD   -1,-1
6645 034004  177777  177777  177777     240$:   .WORD   -1,-1,-1,-1
6646
6647                                    ;REPORT R0 INCORRECT.
6648 034014  010037  001242             250$:   MOV     R0,$TMP4
6649 034020  012737  034004  001240             MOV     #240$,$TMP3
6650 034026  104377                             ERROR   +377
     034030  000011                             .WORD   11
6651                                                                    ;R0 BAD (BUT
6652 034032  000435                             BR      280$           ;    FDST)X
6653
6654                                    ;REPORT RESULT INCORRECT.
6655 034034  012737  105555  001240     260$:   MOV     #105555,$TMP3                   ;    ST 634
6656 034042  013737  034004  001242             MOV     240$,$TMP4
6657 034050  104377                             ERROR   +377
     034052  000012                             .WORD   12
6658                                                                    ;BAD DATA
6659 034054  000424                             BR      280$
6660
6661
6662                                    ;REPORT RESULT INCORRECT.
6663 034056  012737  177777  001240     270$:   MOV     #-1,$TMP3
6664 034064  013737  034006  001242             MOV     240$+2,$TMP4
6665 034072  104377                             ERROR   +377
     034074  000013                             .WORD   13
6666                                                                    ;(BUT GR7,FL)
6667 034076  000413                             BR      280$           ;ST 357 TO 416
```

```
6668                                                                    ;INTO 417
6669
6670                                    ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6671                                    ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6672                                    ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6673 034100  011604                    230$:   MOV     (SP),R4
6674 034102  020427  033750                    CMP     R4,#220$+2
6675 034106  001402                            BEQ     2$
6676 034110  000137  051774                    JMP     CPSPUR
6677
6678 034114  011637  001236            2$:     MOV     (SP),$TMP2
6679 034120  022626                            CMP     (SP)+,(SP)+
6680 034122  104377                            ERROR   +377
     034124  000014                            .WORD   14
6681                                                                    ;(BUT FDST)+ ST634
6682 034126                             280$:
     034126  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 # 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
                                ;*
                                ;;*****************************************************************
    034130  000004              TST64:  SCOPE
6684 034132  012737  034140  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6685 034140  012700  034242      200$:    MOV     #210$,R0        ;SET UP THE DATA BUFFER.
6686 034144  012701  000010              MOV     #10,R1
6687 034150  012720  177777      1$:     MOV     #-1,(R0)+
6688 034154  077103                      SOB     R1,1$
6689 034156  012700  106653              MOV     #106653,R0
6690 034162  012737  034210  001236      MOV     #220$,$TMP2
6691 034170  012737  034346  000004      MOV     #230$,ERRVECT   ;SET UP FOR TRAPS TO VECTOR 4.
6692 034176  170100                      LDFPS   R0              ;SET UP FPS.
6693 034200  012700  034256              MOV     #240$,R0
6694 034204  012710  034246              MOV     #250$,(R0)
6695
6696 034210  170230      220$:    STFPS   @(R0)+          ;TEST INSTRUCTION.
6697 034212  020027  034260              CMP     R0,#240$+2      ;IS R0 CORRECT?
6698 034216  001021                      BNE     260$            ;BRANCH IF NOT CORRECT.
6699 034220  023727  034246  106653      CMP     250$,#106653    ;IS THE RESULT CORRECT?
6700 034226  001025                      BNE     270$            ;BRANCH IF NOT CORRECT.
6701 034230  023727  034256  034246      CMP     240$,#250$      ;IS THE RESULT CORRECT?
6702 034236  001032                      BNE     280$            ;BRANCH IF NOT CORRECT.
6703 034240  000455                      BR      290$
6704
6705                            ;TEST DATA BUFFER:
6706 034242  177777  177777      210$:   .WORD   -1,-1
6707 034246  177777  177777  177777  250$:   .WORD   -1,-1,-1,-1
6708 034256  177777  177777      240$:   .WORD   -1,-1
6709
6710                            ;REPORT R0 INCORRECT.
6711 034262  010037  001242      260$:   MOV     R0,$TMP4
6712 034266  012737  034260  001240        MOV     #240$+2,$TMP3
6713 034274  104377                      ERROR   +377
    034276  000015                      .WORD   15
6714                                                            ;R0 BAD (BUT
6715 034300  000435                      BR      290$           ;    FDST)X
6716
6717                            ;REPORT RESULT INCORRECT.
6718 034302  012737  106653  001240  270$:   MOV     #106653,$TMP3                   ;    ST 634
6719 034310  013737  034246  001242        MOV     250$,$TMP4
6720 034316  104377                      ERROR   +377
    034320  000016                      .WORD   16
6721                                                            ;BAD DATA
6722 034322  000424                      BR      290$
6723
6724
6725                            ;REPORT RESULT INCORRECT.
6726 034324  012737  034256  001240  280$:   MOV     #240$,$TMP3                     ;(BUT FDST)
6727 034332  013737  034250  001242        MOV     250$+2,$TMP4
6728 034340  104377                      ERROR   +377
    034342  000017                      .WORD   17
```

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

```
 6729 034344  000413                        BR      290$
 6730
 6731
 6732                                ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
 6733                                ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
 6734                                ;TO THE SPURIOUS TRAP TO 4 HANDLER.
 6735 034346  011604                230$:   MOV     (SP),R4
 6736 034350  020427  034212                CMP     R4,#220$+2
 6737 034354  001402                        BEQ     2$
 6738 034356  000137  051774                JMP     CPSPUR
 6739
 6740 034362  011637  001236        2$:     MOV     (SP),$TMP2
 6741 034366  022626                        CMP     (SP)+,(SP)+
 6742 034370  104377                        ERROR   +377
      034372  000020                        .WORD   20
                                                                ;(BUT FDST)+ ST634
 6743
 6744 034374                        290$:
      034374  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 # 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
                                ;*
                                ;;*****************************************************************
 034376  000004                 TST65:  SCOPE
6746 034400  012737  034406  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6747 034406  012700  034512     200$:      MOV     #210$,R0        ;SET UP THE DATA BUFFER.
6748 034412  012701  000006                MOV     #6,R1
6749 034416  012720  177777     1$:        MOV     #-1,(R0)+
6750 034422  077103                        SOB     R1,1$
6751 034424  012700  004301                MOV     #004301,R0
6752 034430  012737  034460  001236        MOV     #220$,$TMP2
6753 034436  012737  034616  000004        MOV     #230$,ERRVECT   ;SET UP FOR TRAPS TO VECTOR 4.
6754 034444  170100                        LDFPS   R0              ;SET UP FPS.
6755 034446  012700  034530                MOV     #240$+2,R0
6756 034452  012760  034516  177776        MOV     #250$,-2(R0)
6757
6758 034460  170250     220$:      STFPS   @-(R0)          ;TEST INSTRUCTION.
6759 034462  020027  034526                CMP     R0,#240$        ;IS R0 CORRECT?
6760 034466  001021                        BNE     260$            ;BRANCH IF NOT CORRECT.
6761 034470  023727  034516  004301        CMP     250$,#004301    ;IS THE RESULT CORRECT?
6762 034476  001025                        BNE     270$            ;BRANCH IF NOT CORRECT.
6763 034500  023727  034526  034516        CMP     240$,#250$      ;IS THE RESULT CORRECT?
6764 034506  001032                        BNE     280$            ;BRANCH IF NOT CORRECT.
6765 034510  000455                        BR      290$
6766
6767                            ;TEST DATA BUFFER:
6768 034512  177777  177777     210$:      .WORD   -1,-1
6769 034516  177777  177777  177777  250$: .WORD   -1,-1,-1,-1
6770 034526  177777  177777     240$:      .WORD   -1,-1
6771
6772                            ;REPORT R0 INCORRECT.
6773 034532  010037  001242     260$:      MOV     R0,$TMP4
6774 034536  012737  034526  001240        MOV     #240$,$TMP3
6775 034544  104377                        ERROR   +377
 034546  000021                            .WORD   21
6776                                                            ;RC BAD (BUT
6777 034550  000435                        BR      290$        ;    FDST)X
6778
6779                            ;REPORT RESULT INCORRECT.
6780 034552  012737  004301  001240  270$: MOV     #004301,$TMP3                   ;    ST 634
6781 034560  013737  034516  001242        MOV     250$,$TMP4
6782 034566  104377                        ERROR   +377
 034570  000022                            .WORD   22
6783                                                            ;BAD DATA
6784 034572  000424                        BR      290$
6785
6786
6787                            ;REPORT RESULT INCORRECT.
6788 034574  012737  034526  001240  280$: MOV     #240$,$TMP3                     ;BUT FDST)
6789 034602  013737  034520  001242        MOV     250$+2,$TMP4
6790 034610  104377                        ERROR   +377
 034612  000023                            .WORD   23
```

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

```
6791                                                                    ;(BUT GR7,FL)
6792 034614  000413                    BR      290$                     ;ST 357 TO 416
6793                                                                    ;INTO 417
6794
6795                            ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6796                            ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6797                            ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6798 034616  011604            230$:   MOV     (SP),R4
6799 034620  020427  034462            CMP     R4,#220$+2
6800 034624  001402                    BEQ     2$
6801 034626  000137  051774            JMP     CPSPUR
6802
6803 034632  011637  001236    2$:     MOV     (SP),$TMP2
6804 034636  022626                    CMP     (SP)+,(SP)+
6805 034640  104377                    ERROR   +377
     034642  000024                    .WORD   24
6806                                                                    ;(BUT FDST)+ ST634
6807 034644                    290$:
     034644  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 # 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
                                ;*
                                ;;*****************************************************************
 034646  000004                 TST66:  SCOPE
                                        .DSABL  AMA                     ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
 034650  012767  034656  144232         MOV     #200$,$LPERR            ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 034656  012700  034766         200$:   MOV     #210$,R0                ;SET UP THE DATA BUFFER.
 034662  012701  000006                 MOV     #6,R1
 034666  012720  177777         1$:     MOV     #-1,(R0)+
 034672  077103                         SOB     R1,1$
 034674  012700  102514                 MOV     #102514,R0
 034700  012767  034724  144330         MOV     #220$,$TMP2
 034706  012767  035066  143070         MOV     #230$,ERRVECT           ;SET UP FOR TRAPS TO VECTOR 4.
 034714  170100                         LDFPS   R0                      ;SET UP FPS.
 034716  005001                         CLR     R1
 034720  012700  027571                 MOV     #240$-5201,R0
                                
 034724  170260  005201         220$:   STFPS   5201(R0)                        ;TEST INSTRUCTION.
 034730  020127  000000                 CMP     R1,#0                   ;WAS PC CORRECT AFTER EXECUTION?
 034734  001070                         BNE     250$                    ;BRANCH IF NOT CORRECT.
 034736  020027  027571                 CMP     R0,#240$-5201           ;IS R0 CORRECT?
 034742  001017                         BNE     260$                    ;BRANCH IF NOT CORRECT.
 034744  026727  000022  102514         CMP     240$,#102514            ;IS THE RESULT CORRECT?
 034752  001023                         BNE     270$                    ;BRANCH IF NOT CORRECT.
 034754  026727  000014  177777         CMP     240$+2,#-1              ;IS THE RESULT CORRECT?
 034762  001030                         BNE     280$                    ;BRANCH IF NOT CORRECT.
 034764  000456                         BR      290$
                                
                                ;TEST DATA BUFFER:
 034766  177777  177777         210$:   .WORD   -1,-1
 034772  177777  177777  177777 240$:   .WORD   -1,-1,-1,-1
                                
                                ;REPORT R0 INCORRECT.
 035002  010067  144234         260$:   MOV     R0,$TMP4
 035006  012767  027571  144224         MOV     #240$-5201,$TMP3
 035014  104377                         ERROR   +377
 035016  000025                         .WORD   25
                                                                        ;R0 BAD
 035020  000440                         BR      290$
                                
                                ;REPORT RESULT INCORRECT.
 035022  012767  102534  144210 270$:   MOV     #102534,$TMP3
 035030  016767  177736  144204         MOV     240$,$TMP4
 035036  104377                         ERROR   +377
 035040  000026                         .WORD   26
                                                                        ;BAD DATA
 035042  000427                         BR      290$
                                
                                
                                ;REPORT RESULT INCORRECT.
 035044  012767  177777  144166 280$:   MOV     #-1,$TMP3
 035052  016767  177716  144162         MOV     240$+2,$TMP4
```

```
6855 035060  104377                    ERROR   +377
     035062  000027                    .WORD   27
6856                                                        ;(BUT GR7,FL)
6857 035064  000416                    BR      290$         ;ST 357 TO 416
6858                                                        ;INTO 417
6859
6860                                ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
6861                                ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
6862                                ;TO THE SPURIOUS TRAP TO 4 HANDLER.
6863 035066  011604                230$:   MOV     (SP),R4
6864 035070  020427  034726               CMP     R4,#220$+2
6865 035074  001402                        BEQ     2$
6866 035076  000167  014672               JMP     CPSPUR
6867
6868 035102  011667  144130        2$:     MOV     (SP),$TMP2
6869 035106  022626                        CMP     (SP)+,(SP)+
6870 035110  104377                        ERROR   +377
     035112  000030                        .WORD   30
6871                                                        ;(BUT FDST)+ ST634
6872 035114  000402                        BR      290$
6873
6874                                ;REPORT PC NOT INCREMENTED BY 2 DURING EXECUTION.
6875 035116                         250$:
6876 035116  104377                        ERROR   +377
     035120  000031                        .WORD   31
6877                                                        ;PC NOT INCREMENTED BY 2
6878 035122                         290$:
     035122  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?).
6879                                    .ENABL  AMA         ;RESET MODE 6 TO MODE 3 CONVERSIONS
```

```
6880                                    .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
                                        ;*
                                        ;;**********************************************************************
     035124  000004                     TST67:  SCOPE
6881 035126  012737  035134  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6882 035134  012700  035252             200$:   MOV     #210$,R0        ;SET UP THE DATA BUFFER.
6883 035140  012701  000010                     MOV     #10,R1
6884 035144  012720  177777             1$:     MOV     #-1,(R0)+
6885 035150  077103                             SOB     R1,1$
6886 035152  012700  103747                     MOV     #103747,R0
6887 035156  012737  035210  001236             MOV     #220$,$TMP2
6888 035164  012737  035356  000004             MOV     #230$,ERRVECT   ;SET UP FOR TRAPS TO VECTOR 4.
6889 035172  170100                             LDFPS   R0              ;SET UP FPS.
6890 035174  005001                             CLR     R1
6891 035176  012700  030065                     MOV     #240$-5201,R0
6892 035202  012760  035256  005201             MOV     #250$,5201(R0)
6893
6894 035210  170270  005201             220$:   STFPS   @5201(R0)               ;TEST INSTRUCTION.
6895 035214  022701  000000                     CMP     #0,R1           ;WAS PC CORRECT AFTER EXECUTION?
6896 035220  001072                             BNE     260$            ;BRANCH IF NOT CORRECT.
6897 035222  020027  030065                     CMP     R0,#240$-5201   ;IS R0 CORRECT?
6898 035226  001021                             BNE     270$            ;BRANCH IF NOT CORRECT.
6899 035230  023727  035256  103747             CMP     250$,#103747    ;IS THE RESULT CORRECT?
6900 035236  001025                             BNE     280$            ;BRANCH IF NOT CORRECT.
6901 035240  023727  035260  177777             CMP     250$+2,#-1      ;IS THE RESULT CORRECT?
6902 035246  001032                             BNE     290$            ;BRANCH IF NOT CORRECT.
6903 035250  000460                             BR      300$
6904
6905                                    ;TEST DATA BUFFER:
6906 035252  177777  177777             210$:   .WORD   -1,-1
6907 035256  177777  177777  177777     250$:   .WORD   -1,-1,-1,-1
6908 035266  177777  177777             240$:   .WORD   -1,-1
6909
6910                                    ;REPORT R0 INCORRECT.
6911 035272  010037  001242             270$:   MOV     R0,$TMP4
6912 035276  012737  030065  001240             MOV     #240$-5201,$TMP3
6913 035304  104377                             ERROR   +377
     035306  000032                             .WORD   32
6914                                                                    ;R0 BAD
6915 035310  000440                             BR      300$
6916
6917
6918                                    ;REPORT RESULT INCORRECT.
6919 035312  012737  103747  001240     280$:   MOV     #103747,$TMP3
6920 035320  013737  035256  001242             MOV     250$,$TMP4
6921 035326  104377                             ERROR   +377
     035330  000033                             .WORD   33
6922                                                                    ;BAD DATA
6923 035332  000427                             BR      300$
6924
6925
6926                                    ;REPORT RESULT INCORRECT.
```

```
 6927 035334  012737  177777  001240  290$:   MOV     #-1,$TMP3
 6928 035342  013737  035260  001242          MOV     250$+2,$TMP4
 6929 035350  104377                          ERROR   +377
      035352  000034                          .WORD   34
 6930                                                                ;(BUT GR7,FL)
 6931 035354  000416                          BR      300$           ;ST 357 TO 416
 6932                                                                ;INTO 417
 6933
 6934                              ;IF A TRAP TO VECTOR 4 OCCURS COME HERE TO SEE IF THE TRAP OCCURRED
 6935                              ;DURING EXECUTION OF THE FPP INSTRUCTION BEING TESTED, IF NOT GO
 6936                              ;TO THE SPURIOUS TRAP TO 4 HANDLER.
 6937 035356  011604              230$:   MOV     (SP),R4
 6938 035360  020427  035212              CMP     R4,#220$+2
 6939 035364  001402                      BEQ     2$
 6940 035366  000137  051774              JMP     CPSPUR
 6941 035372  011637  001236      2$:     MOV     (SP),$TMP2
 6942 035376  022626                      CMP     (SP)+,(SP)+
 6943 035400  104377                      ERROR   +377
      035402  000035                      .WORD   35
 6944                                                                ;(BUT FSDT)+ ST634
 6945 035404  000402                      BR      300$
 6946
 6947                              ;REPORT PC NOT INCREMENTED BY 2 DURING EXECUTION.
 6948 035406                      260$:
      035406  104377                      ERROR   +377
      035410  000036                      .WORD   36
 6949                                                                ;PC NOT
 6950                                                                ;INCREMENTED
 6951 035412                      300$:
      035412  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 # 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
                                ;*
                                ;;*****************************************************************
 035414  000004                 TST70:  SCOPE
6959 035416  012737  035424  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
6960 035424  012700  000300     200$:     MOV     #300,R0         ;SET UP FPS.
6961 035430  170100                       LDFPS   R0
6962 035432  012700  035502               MOV     #210$,R0        ;SET UP THE AC0 OPERAND.
6963 035436  172410                       LDD     (R0),AC0
6964 035440  012737  035452  001236        MOV     #220$,$TMP2
6965 035446  012700  035514               MOV     #230$,R0
6966
6967 035452  175420             220$:     STCDL   AC0,(R0)+       ;TEST INSTRUCTION.
6968
6969 035454  020027  035520               CMP     R0,#230$+4      ;IS R0 CORRECT?
6970 035460  001420                       BEQ     240$            ;BRANCH IF CORRECT.
6971
6972                             ;REPORT R0 INCORRECT.
6973 035462  010037  001242               MOV     R0,$TMP4
6974 035466  012737  035520  001240        MOV     #230$+4,$TMP3
6975 035474  104377                       ERROR   +377
 035476  000037                           .WORD   37
6976                                                             ;R0 NOT INCR BY 4
6977 035500  000410                       BR      240$
6978                            ;TEST DATA BUFFER:
6979 035502  000000  000000  000000  210$:   .WORD   0,0,0,0
6980 035512  177777                       -1
6981 035514  177777  177777  177777  230$:   .WORD   -1,-1,-1
6982
6983 035522             240$:
 035522  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?).
```

```
 6990                                   .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
                                        ;*
                                        ;;*****************************************************************
     035524  000004                     TST71:  SCOPE
 6991 035526  012737  035534  001110             MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 6992 035534  012700  000300             200$:   MOV     #300,R0         ;SET UP FPS.
 6993 035540  170100                             LDFPS   R0
 6994 035542  012700  035612                     MOV     #210$,R0        ;SET UP THE AC0 OPERAND.
 6995 035546  172410                             LDD     (R0),AC0
 6996 035550  012737  035562  001236             MOV     #220$,$TMP2
 6997 035556  012700  035630                     MOV     #230$+4,R0
 6998
 6999 035562  175440                     220$:   STCDL   AC0,-(R0)               ;TEST INSTRUCTION.
 7000
 7001 035564  020027  035624                     CMP     R0,#230$        ;IS R0 CORRECT?
 7002 035570  001420                             BEQ     240$
 7003
 7004                                    ;REPORT R0 INCORRECT.
 7005 035572  010037  001242                     MOV     R0,$TMP4
 7006 035576  012737  035624  001240             MOV     #230$,$TMP3
 7007 035604  104377                             ERROR   +377
      035606  000040                             .WORD   40
 7008                                                                    ;R0 NOT DECR BY 4
 7009 035610  000410                             BR      240$
 7010                                    ;TEST DATA BUFFER:
 7011 035612  000000  000000  000000     210$:   .WORD   0,0,0,0
 7012 035622  177777                             -1
 7013 035624  177777  177777  177777     230$:   .WORD   -1,-1,-1
 7014
 7015 035632                             240$:
      035632  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 # 72 - STCDI AND STCDL TEST

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7025                                    .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.
                                        ;*
                                        ;;*****************************************************************
    035634  000004                      TST72:  SCOPE
7026
7027 035636  012737  035644  001110              MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7028 035644  004737  037110            200$:    JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
7029 035650  020000  000000  000000    1$:      .WORD   20000,0,0,0     ;AC0 OPERAND.
7030 035660  000000  000000            2$:      .WORD   0,0             ;EXPECTED RESULT.
7031 035664  177777  177777            3$:      .WORD   -1,-1           ;ERROR RES.
7032 035670  040300                    4$:      40300                   ;FPS BEFORE EXECUTION.
7033 035672  040304                             40304                   ;FPS AFTER EXECUTION.
7034 035674  140304                             140304                  ;ANTICIPATED ERRONEOUS FPS.
7035 035676  177777                             -1              ;REPORT RESULT INCORRECT.
7036 035700  104322                    5$:      ERROR   +322            ;RESULT INCORP.
7037 035702  000401                             BR      6$
7038 035704  104325                             ERROR   +325            ;EITHER (BUT FLAG)
7039 035706                            6$:                             ;ST 662
7040                                                                    ;OR CLEAR FLAG
7041                                                                    ;ST 774
7042
7043                                    ;EXP=0 (OCT)    FL=1    FIC=0
7044 035706  012737  035714  001110              MOV     #210$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7045 035714  004737  037110            210$:    JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
7046 035720  040000  000000  000000    11$:     .WORD   40000,0,0,0     ;AC     ;AC0 OPERAND.
7047 035730  000000  000000            12$:     .WORD   0,0             ;EXPECTED RESULT.
7048 035734  177777  177777            13$:     .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
7049 035740  040313                    14$:     40313                   ;FPS BEFORE EXECUTION.
7050 035742  040304                             40304                   ;FPS AFTER EXECUTION.
7051 035744  140304                             140304                  ;ANTICIPATED ERRONEOUS FPS.
7052 035746  177777                             -1              ;EXPECTED FEC.
7053 035750  104322                    15$:     ERROR   +322            ;REPORT RESULT INCORRECT.
7054 035752  000401                             BR      16$
7055 035754  104326                             ERROR   +326            ;REPORT FPS INCORRECT.
7056 035756                            16$:
7057
7058                                    ;EXP=37 (OCT)   FL=1    FIC=1
7059 035756  012737  035764  001110              MOV     #220$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7060 035764  004737  037110            220$:    JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
7061 035770  047667  075757  157737    21$:     .WORD   47667,75757,157737,167773       ;AC0 OPERAND.
7062 036000  055675  173757            22$:     .WORD   55675,173757            ;EXPECTED RESULT.
7063 036004  122102  004021            23$:     .WORD   122102,004021           ;ANTICIPATED ERRONEOUS RESULT.
7064 036010  040717                    24$:     40717                   ;FPS BEFORE EXECUTION.
7065 036012  040700                             40700                   ;FPS AFTER EXECUTION.
7066 036014  140705                             140705                  ;ANTICIPATED ERRONEOUS FPS.
7067 036016  177777                             -1              ;EXPECTED FEC.
7068 036020  104327                    25$:     ERROR   +327            ;(BUT ENBT) ST 632
7069 036022  000401                             BR      26$
7070 036024  104326                             ERROR   +326            ;REPORT FPS INCORRECT.
```

```
7071 036026                          26$:
7072
7073                                 ;EXP=40 (OCT)   FL=1    FIC=1
7074 036026  012737  036034  001110          MOV     #230$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7075 036034  004737  037110             230$: JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
7076 036040  050000  000000  000000     31$:  .WORD   50000,0,0,0     ;AC0 OPERAND.
7077 036050  000000  000000             32$:  .WORD   0,0             ;EXPECTED RESULT.
7078 036054  177777  177777             33$:  .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
7079 036060  040700                     34$:  40700                   ;FPS BEFORE EXECUTION.
7080 036062  140705                           140705                  ;FPS AFTER EXECUTION.
7081 036064  040705                           40705                   ;ANTICIPATED ERRONEOUS FPS.
7082 036066  000006                           6               ;EXPECTED FEC.
7083 036070  104322                     35$:  ERROR   +322            ;REPORT RESULT INCORRECT.
7084 036072  000401                           BR      36$
7085 036074  104330                           ERROR   +330            ;(BUT FIC) ST 004               ;REPORT FPS INCORRECT.
7086                                                                  ;TO 305 INTO
7087 036076                          36$:                            ;315
7088
7089                                 ;EXP=40 (OCT)    FL=1   FIC=0
7090 036076  012737  036104  001110          MOV     #240$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7091 036104  004737  037110             240$: JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
7092 036110  050000  000000  000000     41$:  .WORD   50000,0,0,0     ;AC0 OPERAND.
7093 036120  000000  000000             42$:  .WORD   0,0             ;EXPECTED RESULT.
7094 036124  177777  177777             43$:  .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
7095 036130  040312                     44$:  40312                   ;FPS BEFORE EXECUTION.
7096 036132  040305                           40305                   ;FPS AFTER EXECUTION.
7097 036134  140305                           140305                  ;ANTICIPATED ERRONEOUS FPS.
7098 036136  177777                           -1              ;EXPECTED FEC.
7099 036140  104322                     45$:  ERROR   +322            ;REPORT RESULT INCORRECT.
7100 036142  000401                           BR      46$
7101 036144  104331                           ERROR   +331            ;(BUT FIC) ST 004 TO
7102 036146                          46$:                            ;315 INTO 305
7103
7104                                 ;EXP=30 (OCT)   FL=1    FIC=1
7105 036146  012737  036154  001110          MOV     #250$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7106 036154  004737  037110             250$: JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
7107 036160  046000  000001  000000     51$:  .WORD   46000,1,0,0     ;AC0 OPERAND.
7108 036170  000200  000001             52$:  .WORD   200,1           ;EXPECTED RESULT.
7109 036174  177777  177777             53$:  .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
7110 036200  040700                     54$:  40700                   ;FPS BEFORE EXECUTION.
7111 036202  040700                           40700                   ;FPS AFTER EXECUTION.
7112 036204  177777                           -1                      ;ANTICIPATED ERRONEOUS FPS.
7113 036206  177777                           -1              ;EXPECTED FEC.
7114 036210  104322                     55$:  ERROR   +322            ;REPORT RESULT INCORRECT.
7115 036212  000401                           BR      56$
7116 036214  104323                           ERROR   +323            ;REPORT FPS INCORRECT.
7117 036216                          56$:
7118
7119                                 ;EXP=27 (OCT)   FL=1    FIC=1
7120 036216  012737  036224  001110          MOV     #260$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7121 036224  004737  037110             260$: JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
7122 036230  045600  000001  000000     61$:  .WORD   45600,1,0,0     ;AC0 OPERAND.
7123 036240  000100  000000             62$:  .WORD   100,0           ;EXPECTED RESULT.
7124 036244  177777  177777             63$:  .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
7125 036250  040707                     64$:  40707                   ;FPS BEFORE EXECUTION.
7126 036252  040700                           40700                   ;FPS AFTER EXECUTION.
7127 036254  177777                           -1                      ;ANTICIPATED ERRONEOUS FPS.
```

```
                                        -1                      ;EXPECTED FEC.
                                65$:    ERROR   +322            ;REPORT RESULT INCORRECT.
                                        BR      66$
                                        ERROR   +323            ;REPORT FPS INCORRECT.
                                66$:
                                ;EXP=17 (OCT)   FL=0    FIC=1
036266  012737  036274  001110        MOV     #270$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
036274  004737  037110        270$:   JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
036300  043600  000000  000000  71$:   .WORD   43600,0,0,0     ;ACO OPERAND.
036310  040000  177777        72$:    .WORD   40000,-1                ;EXPECTED RESULT.
036314  000000  177777        73$:    .WORD   0,-1            ;ANTICIPATED ERRONEOUS RESULT.
036320  040600                74$:    40600                   ;FPS BEFORE EXECUTION.
036322  040600                        40600                   ;FPS AFTER EXECUTION.
036324  140604                        140604                  ;ANTICIPATED ERRONEOUS FPS.
036326  177777                        -1              ;EXPECTED FEC.
036330  104332                75$:    ERROR   +332            ;BAD CONSTANT ST 066
036332  000401                        BR      76$
036334  104333                        ERROR   +333            ;REPORT FPS INCORRECT.
036336                        76$:
                                ;EXP=20 (OCT)   FL=0    FIC=1
036336  012737  036344  001110        MOV     #280$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
036344  004737  037110        280$:   JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
036350  044000  000000  000000  81$:   .WORD   44000,0,0,0     ;ACO OPERAND.
036360  000000  177777        82$:    .WORD   0,-1            ;EXPECTED RESULT.
036364  177777  177777        83$:    .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
036370  040600                84$:    40600                   ;FPS BEFORE EXECUTION.
036372  140605                        140605                  ;FPS AFTER EXECUTION.
036374  040600                        40600                   ;ANTICIPATED ERRONEOUS FPS.
036376  000006                        6               ;EXPECTED FEC.
036400  104322                85$:    ERROR   +322            ;REPORT RESULT INCORRECT.
036402  000401                        BR      86$
036404  104334                        ERROR   +334            ;BAD CONSTANT ST 066
036406                        86$:
                                ;EXP=10 (OCT), AC NEGATIVE, FL=0, FIC=1
036406  012737  036414  001110        MOV     #290$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
036414  004737  037110        290$:   JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
036420  142000  000000  000000  91$:   .WORD   142000,0,0,0    ;ACO OPERAND.
036430  177600  177777        92$:    .WORD   177600,-1               ;EXPECTED RESULT.
036434  000200  000000        93$:    .WORD   200,0           ;ANTICIPATED ERRONEOUS RESULT.
036440  040600                94$:    40600                   ;FPS BEFORE EXECUTION.
036442  040610                        40610                   ;FPS AFTER EXECUTION.
036444  040600                        40600                   ;ANTICIPATED ERRONEOUS FPS.
036446  177777                        -1              ;EXPECTED FEC.
036450  104335                95$:    ERROR   +335    ;(BUT ENBT) ST 632
036452  000401                        BR      96$
036454  104336                        ERROR   +336    ;(SET FN) ST 473
036456                        96$:
                                ;EXP=37 (OCT), FL=1, FIC=1, AC NEG.
036456  012737  036464  001110        MOV     #300$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
036464  004737  037110        300$:   JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
036470  147600  000000  000000  101$:  .WORD   147600,0,0,0    ;ACO OPERAND.
036500  140000  000000        102$:   .WORD   140000,0                ;EXPECTED RESULT.
036504  137777  000000        103$:   .WORD   137777,0                ;ANTICIPATED ERRONEOUS RESULT.
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 7185 036510  040700                    104$:   40700                   ;FPS BEFORE EXECUTION.
 7186 036512  040710                            40710                   ;FPS AFTER EXECUTION.
 7187 036514  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
 7188 036516  177777                            -1              ;EXPECTED FEC.
 7189 036520  104337                    105$:   ERROR   +337            ;(BUT COUT) ST 375
 7190 036522  000401                            BR      106$            ;ST 275 TO 074
 7191 036524  104323                            ERROR   +323            ;INTO 274
 7192 036526                            106$:
 7193
 7194                                   ;EXP=37  (OCT),  FL=1,  FIC=1,  AC  NEG
 7195 036526  012737  036534  001110            MOV     #310$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 7196 036534  004737  037110            310$:   JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
 7197 036540  147600  000000  001000    111$:   .WORD   147600,0,1000,0 ;AC0 OPERAND.
 7198 036550  137777  177777            112$:   .WORD   137777,177777           ;EXPECTED RESULT.
 7199 036554  140000  177777            113$:   .WORD   140000,177777           ;ANTICIPATED ERRONEOUS RESULT.
 7200 036560  040707                    114$:   40707                   ;FPS BEFORE EXECUTION.
 7201 036562  040710                            40710                   ;FPS AFTER EXECUTION.
 7202 036564  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
 7203 036566  177777                            -1              ;EXPECTED FEC.
 7204 036570  104340                    115$:   ERROR   +340            ;(BUT COUT) ST 375
 7205 036572  000401                            BR      116$            ;TO 274 INTO 074
 7206 036574  104323                            ERROR   +323            ;REPORT FPS INCORRECT.
 7207 036576                            116$:
 7208
 7209                                   ;EXP=41 (OCT),  AC NEG, FL=1, FIC=1
 7210 036576  012737  036604  001110            MOV     #320$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 7211 036604  004737  037110            320$:   JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
 7212 036610  150200  000000  000000    121$:   .WORD   150200,0,0,0    ;AC0 OPERAND.
 7213 036620  000000  000000            122$:   .WORD   0,0             ;EXPECTED RESULT.
 7214 036624  177777  177777            123$:   .WORD   -1,-1           ;ANTICIPATED ERRONEOUS RESULT.
 7215 036630  040700                    124$:   40700                   ;FPS BEFORE EXECUTION.
 7216 036632  140705                            140705                  ;FPS AFTER EXECUTION.
 7217 036634  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
 7218 036636  000006                            6               ;EXPECTED FEC.
 7219 036640  104322                    125$:   ERROR   +322            ;REPORT RESULT INCORRECT.
 7220 036642  000401                            BR      126$
 7221 036644  104341                            ERROR   +341            ;(BUT EZBT) ST 377
 7222 036646                            126$:
 7223                                   ;EXP=40 (OCT),  AC NEG,  FL=1,  FIC=1
 7224 036646  012737  036654  001110            MOV     #330$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 7225 036654  004737  037110            330$:   JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
 7226 036660  150000  000001  000000    131$:   .WORD   150000,1,0,0    ;AC0 OPERAND.
 7227 036670  000000  000000            132$:   .WORD   0,0             ;EXPECTED RESULT.
 7228 036674  100000  177600            133$:   .WORD   100000,-200             ;ANTICIPATED ERRONEOUS RESULT.
 7229 036700  040700                    134$:   40700                   ;FPS BEFORE EXECUTION.
 7230 036702  140705                            140705                  ;FPS AFTER EXECUTION.
 7231 036704  040700                            40700                   :ANTICIPATED ERRONEOUS FPS.
 7232 036706  000006                            6               ;EXPECTED FEC.
 7233 036710  104342                    135$:   ERROR   +342            ;(BUT COUT) ST 360
 7234 036712  000401                            BR      136$            ;TO 654 INTO 454
 7235 036714  104323                            ERROR   +323            ;REPORT FPS INCORRECT.
 7236 036716                            136$:
 7237
 7238                                   ;EXP=40, AC NEGATIVE, FL=1, FIC=1
 7239 036716  012737  036724  001110            MOV     #340$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 7240 036724  004737  037110            340$:   JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
 7241 036730  150001  000000  000000    141$:   .WORD   150001,0,0,0    ;AC0 OPERAND.
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7242 036740  000000  000000          142$:   .WORD   0,0                 ;EXPECTED RESULT.
7243 036744  077400  000000          143$:   .WORD   77400,0             ;ANTICIPATED ERRONEOUS RESULT.
7244 036750  040700                  144$:   40700                       ;FPS BEFORE EXECUTION.
7245 036752  140705                          140705                      ;FPS AFTER EXECUTION.
7246 036754  177777                          -1                          ;ANTICIPATED ERRONEOUS FPS.
7247 036756  000006                          6               ;EXPECTED FEC.
7248 036760  104343                  145$:   ERROR   +343                ;REPORT RESULT INCORRECT.
7249 036762  000401                          BR      146$
7250 036764  104323                          ERROR   +323                ;REPORT FPS INCORRECT.
7251 036766                          146$:
7252
7253                                 ;EXP 40    (OCT), AC MOST NEG LONG INT, FL=1
7254                                 ;FIC=1
7255 036766  012737  036774  001110          MOV     #350$,$LPERR        ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7256 036774  004737  037110          350$:   JSR     PC,STCSUB           ;GO EXECUTE THE INSTRUCTION.
7257 037000  150000  000000  000000  151$:   .WORD   150000,0,0,0        ;AC0 OPERAND.
7258 037010  100000  000000          152$:   .WORD   100000,0                    ;EXPECTED RESULT.
7259 037014  000000  000000          153$:   .WORD   0,0                 ;ANTICIPATED ERRONEOUS RESULT.
7260 037020  040700                  154$:   40700                               ;FPS BEFORE EXECUTION.
7261 037022  040710                          40710                       ;FPS AFTER EXECUTION.
7262 037024  140705                          140705                      ;ANTICIPATED ERRONEOUS FPS.
7263 037026  177777                          -1              ;EXPECTED FEC.
7264 037030  104344                  155$:   ERROR   +344                        ;(BUT NBIT) ST 654
7265 037032  000401                          BR      156$                        ;OR (BUT COUT) ST 454
7266 037034  104323                          ERROR   +323                ;REPORT FPS INCORRECT.
7267 037036                          156$:
7268
7269                                 ;EXP=20, AC = MOST NEG INTEGER, FL=0, FIC=1
7270
7271 037036  012737  037044  001110          MOV     #360$,$LPERR        ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7272 037044  004737  037110          360$:   JSR     PC,STCSUB           ;GO EXECUTE THE INSTRUCTION.
7273 037050  144000  000001  000000  161$:   .WORD   144000,1,0,0        ;AC0 OPERAND.
7274 037060  100000  177777          162$:   .WORD   100000,-1                   ;EXPECTED RESULT.
7275 037064  100000  177400          163$:   .WORD   100000,177400               ;ANTICIPATED ERRONEOUS RESULT.
7276 037070  040600                  164$:   40600                       ;FPS BEFORE EXECUTION.
7277 037072  040610                          40610                       ;FPS AFTER EXECUTION.
7278 037074  140605                          140605                      ;ANTICIPATED ERRONEOUS FPS.
7279 037076  177777                          -1              ;EXPECTED FEC.
7280 037100  104345                  165$:   ERROR   +345                        ;(BUT FL) ST 633
7281 037102  000401                          BR      166$                        ;TO 655 INTO 654
7282 037104  104323                          ERROR   +323                ;REPORT FPS INCORRECT.
7283
7284 037106  000534                  166$:   BR      WWCDONE
```

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                        ;THIS SUBROUTINE, STCSUB, IS USED TO SET UP THE OPERANDS, EXECUTE
                        ;THE STCDI OR STCDL INSTRUCTION AND CHECK THE RESULTS. A CALL
                        ;TO IT IS MADE THUS:
                        ;
                        ;       JSR     PC,STCSUB
                        ;ACARG: .WORD   X,X,X,X          ;AC OPERAND
                        ;RES:   .WORD   X,X              ;EXPECTED RESULT
                        ;ERRES: .WORD   X,X              ;ERROR RESULT
                        ;FPSB:  .WORD   X                ;FPS BEFORE EXECUTION
                        ;FPSA:  .WORD   X                ;FPS AFTER EXECUTION
                        ;ERFPS: .WORD   X                ;ERROR FPS.
                        ;FEC:   .WORD   X                ;EXPECTED FEC
                        ;ERR1:  ERROR   +X               ;DATA ERROR.
                        ;       BR      CONT
                        ;ERR2:  ERROR   +X               ;FPS ERROR.
                        ;CONT:                           ;RETURN ADDRESS
                        ;
                        ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
                        ;THE STCDI OR STCDL 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 STCSUB RETURNS CONTROL
                        ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD STCSUB
                        ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN STCSUB WILL RETURN
                        ;TO THE ERROR CALL AT ERR2, OTHERWISE STCSUB ITSELF
                        ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
                        ;STCDI OR STCDL 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 STCSUB
                        ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
                        ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND STCSUB WILL
                        ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.

037110  012601          STCSUB: MOV     (SP)+,R1        ;GET A POINTER TO THE ARGUMENTS.
037112  012700  000200          MOV     #200,R0         ;SET UP THE AC0 OPERAND.
037116  170100                  LDFPS   R0
037120  010100                  MOV     R1,R0
037122  172410                  LDD     (R0),AC0
037124  012702  037370          MOV     #1200$,R2       ;INITIALIZE THE OUT PUT BUFFER.
037130  012700  000004          MOV     #4,R0
037134  012722  177777  1$:     MOV     #-1,(R2)+
037140  077003                  SOB     R0,1$
037142  016100  000020          MOV     20(R1),R0       ;SET THE FPS.
037146  170100                  LDFPS   R0
037150  012737  037162  001236  MOV     #2$,$TMP2
037156  012700  037370          MOV     #1200$,R0
037162  175410          2$:     STCDL   AC0,(R0)        ;TEST INSTRUCTION.

037164  170204                  STFPS   R4              ;GET THE FPS.
037166  170305                  STST    R5              ;GET THE FEC.
037170  010102                  MOV     R1,R2
037172  010237  001240          MOV     R2,$TMP3
037176  062702  000010          ADD     #10,R2
037202  010237  001244          MOV     R2,$TMP5
037206  012737  037370  001242  MOV     #1200$,$TMP4
037214  010437  001250          MOV     R4,$TMP7
037220  016137  000022  001252  MOV     22(R1),$TMP10
037226  010102                  MOV     R1,R2
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 7342 037230  062702  000010                ADD     #10,R2
 7343 037234  012700  037370                MOV     #1200$,R0       ;SEE IF THE RESULT IS CORRECT.
 7344 037240  012703  000002                MOV     #2,R3
 7345 037244  022022                3$:     CMP     (R0)+,(R2)+
 7346 037246  001014                        BNE     15$
 7347 037250  077303                        SOB     R3,3$
 7348 037252  016102  000022                MOV     22(R1),R2
 7349 037256  020204                        CMP     R2,R4           ;SEE IF THE FPS IS CORRECT.
 7350 037260  001025                        BNE     20$             ;BRANCH IF INCORRECT.
 7351 037262  005702                        TST     R2
 7352 037264  100003                        BPL     4$
 7353 037266  026105  000026                CMP     26(R1),R5       ;SEE IF THE FEC IS CORRECT.
 7354 037272  001027                        BNE     25$             ;BRANCH IF INCORRECT.
 7355
 7356 037274  000161  000036          4$:   JMP     36(R1)          ;RETURN.
 7357                                ;DATA ERROR.
 7358                                ;SEE IF THE FAILURE WAS ANTICIPATED.
 7359 037300  010102                15$:    MOV     R1,R2
 7360 037302  062702  000014                ADD #14,R2
 7361 037306  012700  037370                MOV     #1200$,R0
 7362 037312  012703  000002                MOV     #2,R3
 7363 037316  022022                16$:    CMP     (R0)+,(R2)+
 7364 037320  001003                        BNE     17$
 7365 037322  077303                        SOB     R3,16$
 7366 037324  000161  000030                JMP     30(R1)
 7367 037330                        17$:
 7368                                ;FAILURE WAS NOT ANTICIPATED SO REPORT INCORRECT RESULT HERE.
 7369 037330  104322                18$:    ERROR   +322                    ;DATA BAD
 7370 037332  000760                        BR      4$
 7371
 7372                                ;FPS INCORRECT, SO SEE IF FAILURE WAS ANTICIPATED.
 7373 037334  020461  000024          20$:    CMP     R4,24(R1)
 7374 037340  001002                        BNE     21$
 7375 037342  000161  000034                JMP     34(R1)
 7376 037346                        21$:
 7377                                ;NOT ANTICIPATED SO REPORT BAD FPS HERE.
 7378 037346  104323                22$:    ERROR   +323                    ;FPS BAD
 7379 037350  000751                        BR      4$
 7380
 7381                                ;REPORT INCORRECT FEC.
 7382 037352  016137  000026  001256  25$:    MOV     26(R1),$TMP12
 7383 037360  010537  001254                MOV     R5,$TMP11
 7384 037364  104324                26$:    ERROR   +324
 7385 037366  000742                        BR      4$
 7386
 7387                                ;DATA BUFFER:
 7388 037370  177777  177777  177777  1200$:  .WORD   -1,-1,-1,-1
 7389
 7390 037400                        WWCDONE:
      037400  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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 7398                                   .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.
                                        ;*
                                        ;;*****************************************************************
     037402  000004                     TST73:  SCOPE
 7399                                   ;EXPONENT=37, FL=1
 7400 037404  012737  037412  001110            MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
 7401 037412  004737  037110            200$:   JSR     PC,STCSUB       ;GO EXECUTE THE INSTRUCTION.
 7402 037416  047777  177777  177777    1$:     .WORD   47777,-1,-1,-1  ;AC0 OPERAND.
 7403 037426  077777  177600            2$:     .WORD   77777,177600            ;EXPECTED RESULT.
 7404 037432  077777  177777            3$:     .WORD   77777,177777            ;ANTICIPATED ERRONEOUS RESULT.
 7405 037436  040100                    4$:     40100                   ;FPS BEFORE EXECUTION.
 7406 037440  040100                            40100                   ;FPS AFTER EXECUTION.
 7407 037442  177777                            -1                      ;ANTICIPATED ERRONEOUS FPS.
 7408 037444  177777                            -1                ;EXPECTED FEC.
 7409 037446  104346                    5$:     ERROR   +346                    ;X11(1,0)+0 ST 773X
 7410 037450  000401                            BR      6$
 7411 037452  104323                            ERROR   +323            ;REPORT FPS INCORRECT.
 7412 037454                            6$:
      037454  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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                                        .SBTTL  TEST # 74 - STEXP TEST
                                        ;;*****************************************************************
                                        ;*TEST 74       STEXP TEST
                                        ;*
                                        ;* THIS IS A TEST OF THE STEXP
                                        ;* INSTRUCTION
                                        ;*
                                        ;;*****************************************************************
037456  000004                        TST74:  SCOPE
                                        ; EXP = 100 (EXCESS 200)
037460  012737  037472  001110                MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
037466  012703  040372                        MOV     #1200$,R3       ;SETUP DATA TABLE POINTER               ;DPM002
037472  004737  040106                200$:   JSR     PC,1000$
037476  020000  000000  000000        1$:     .WORD   20000,0,0,0     ;AC
037506  177700                        2$:     -100                    ;EXP RES
037510  052525                        3$:     52525                   ;ERROR EXP.
037512  040000                        4$:     40000                   ;FPSB
037514  040010                                40010                   ;FPSA
037516  040000                                40000                   ;ERROR FPS
037520  104347                        5$:     ERROR   +347            ;BAD EXP
037522  000401                                BR      6$
037524  104352                                ERROR   +352            ;+(BUT ENBT) ST 376
037526  005723                        6$:     TST     (R3)+           ;ADVANCE POINTER                        ;DPM002
037530  022703  040400                        CMP     #1200$+6,R3     ;HAVE WE TESTED ALL 3 STATES?           ;DPM002
037534  001356                                BNE     200$            ;BRANCH IF NOT                          ;DPM002
                                        ; EXP = 200 (EXCESS 200)
037536  012737  037550  001110                MOV     #210$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
037544  012703  040372                        MOV     #1200$,R3       ;SETUP DATA TABLE POINTER               ;DPM002
037550  004737  040106                210$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
037554  040000  000000  000000        11$:    .WORD   40000,0,0,0     ;AC0 OPERAND.
037564  000000                        12$:    0                       ;EXPECTED EXPONENT RESULT.
037566  052525                        13$:    52525                   ;ANTICIPATED ERRONEOUS RESULT.
037570  040000                        14$:    40000                   ;FPS BEFORE EXECUTION.
037572  040004                                40004                   ;FPS AFTER EXECUTION.
037574  040000                                40000                   ;ANTICIPATED ERRONEOUS FPS.
037576  104347                        15$:    ERROR   +347            ;REPORT RESULT INCORRECT.
037600  000401                                BR      16$
037602  104353                                ERROR   +353            ;(BUT EZBT) ST 071
                                                                      ;TO 072 INT 272
037604  005723                        16$:    TST     (R3)+           ;ADVANCE POINTER                        ;DPM002
037606  022703  040400                        CMP     #1200$+6,R3     ;HAVE WE TESTED ALL 3 STATES?           ;DPM002
037612  001356                                BNE     210$            ;BRANCH IF NOT                          ;DPM002


                                        ; EXP = 201  (EXCESS 200)

037614  012737  037626  001110                MOV     #220$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
037622  012703  040372                        MOV     #1200$,R3       ;SETUP DATA TABLE POINTER               ;DPM002
037626  004737  040106                220$:   JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
037632  040200  000000  000000        21$:    .WORD   40200,0,0,0     ;AC0 OPERAND.
037642  000001                        22$:    1                       ;EXPECTED EXPONENT RESULT.
037644  052525                        23$:    52525                   ;ANTICIPATED ERRONEOUS RESULT.
037646  040000                        24$:    40000                   ;FPS BEFORE EXECUTION.
037650  040000                                40000                   ;FPS AFTER EXECUTION.
037652  040004                                40004                   ;ANTICIPATED ERRONEOUS FPS.
037654  104347                        25$:    ERROR   +347            ;REPORT RESULT INCORRECT.
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7468 037656  000401                        BR      26$
7469 037660  104354                        ERROR   +354            ;(BUT EZBT) ST 071 TO 272 INTO 072
7470 037662  005723                 26$:    TST     (R3)+           ;ADVANCE POINTER                    ;DPM002
7471 037664  022703  040400                CMP     #1200$+6,R3     ;HAVE WE TESTED ALL 3 STATES?       ;DPM002
7472 037670  001356                        BNE     220$            ;BRANCH IF NOT                      ;DPM002
7473
7474
7475                                ; EXP = 375  (EXCESS 200)
7476
7477 037672  012737  037704  001110        MOV     #230$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.  ;DPM002
7478 037700  012703  040372                MOV     #1200$,R3       ;SETUP DATA TABLE POINTER           ;DPM002
7479 037704  004737  040106         230$:  JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
7480 037710  077200  000000  000000  31$:   .WORD   77200,0,0,0     ;AC0 OPERAND.
7481 037720  000175                 32$:   175                     ;EXPECTED EXPONENT RESULT.
7482 037722  052525                 33$:   52525                   ;ANTICIPATED ERRONEOUS RESULT.
7483 037724  040000                 34$:   40000                   ;FPS BEFORE EXECUTION.
7484 037726  040000                        40000                   ;FPS AFTER EXECUTION.
7485 037730  040010                        40010                   ;ANTICIPATED ERRONEOUS FPS.
7486 037732  104347                 35$:   ERROR   +347            ;REPORT RESULT INCORRECT.
7487 037734  000401                        BR      36$
7488 037736  104355                        ERROR   +355            ;(BUT ENBT) ST 376 TO 471 INTO 071
7489 037740  005723                 36$:   TST     (R3)+           ;ADVANCE POINTER                    ;DPM002
7490 037742  022703  040400                CMP     #1200$+6,R3     ;HAVE WE TESTED ALL 3 STATES?       ;DPM002
7491 037746  001356                        BNE     230$            ;BRANCH IF NOT                      ;DPM002
7492
7493
7494                                ; EXP = 1  (EXCESS 200)
7495
7496 037750  012737  037762  001110        MOV     #240$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.  ;DPM002
7497 037756  012703  040372                MOV     #1200$,R3       ;SETUP DATA TABLE POINTER           ;DPM002
7498 037762  004737  040106         240$:  JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
7499 037766  000200  000000  000000  41$:   .WORD   200,0,0,0       ;AC0 OPERAND.
7500 037776  177601                 42$:   -177                    ;EXPECTED EXPONENT RESULT.
7501 040000  052525                 43$:   52525                   ;ANTICIPATED ERRONEOUS RESULT.
7502 040002  040000                 44$:   40000                   ;FPS BEFORE EXECUTION.
7503 040004  040010                        40010                   ;FPS AFTER EXECUTION.
7504 040006  040000                        40000                   ;ANTICIPATED ERRONEOUS FPS.
7505 040010  104347                 45$:   ERROR   +347            ;REPORT RESULT INCORRECT.
7506 040012  000401                        BR      46$
7507 040014  104352                        ERROR   +352            ;REPORT FPS INCORRECT.
7508 040016  005723                 46$:   TST     (R3)+           ;ADVANCE POINTER                    ;DPM002
7509 040020  022703  040400                CMP     #1200$+6,R3     ;HAVE WE TESTED ALL 3 STATES?       ;DPM002
7510 040024  001356                        BNE     240$            ;BRANCH IF NOT                      ;DPM002
7511
7512
7513                                ; EXP = 156  (EXCESS 200)
7514
7515 040026  012737  040040  001110        MOV     #250$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.  ;DPM002
7516 040034  012703  040372                MOV     #1200$,R3       ;SETUP DATA TABLE POINTER           ;DPM002
7517 040040  004737  040106         250$:  JSR     PC,1000$        ;GO EXECUTE THE INSTRUCTION.
7518 040044  033400  000000  000000  51$:   .WORD   33400,0,0,0     ;AC0 OPERAND.
7519 040054  177756                 52$:   -22                     ;EXPECTED EXPONENT RESULT.
7520 040056  052525                 53$:   52525                   ;ANTICIPATED ERRONEOUS RESULT.
7521 040060  047707                 54$:   47707                   ;FPS BEFORE EXECUTION.
7522 040062  047710                        47710                   ;FPS AFTER EXECUTION.
7523 040064  177777                        -1                      ;ANTICIPATED ERRONEOUS FPS.
7524 040066  104347                 55$:   ERROR   +347            ;REPORT RESULT INCORRECT.
```

```
7525 040070  000401                    BR      56$
7526 040072  104350                    ERROR   +350            ;REPORT FPS INCORRECT.
7527
7528 040074  005723              56$:  TST     (R3)+           ;ADVANCE POINTER                    ;DPM002
7529 040076  022703  040400            CMP     #1200$+6,R3     ;HAVE WE TESTED ALL 3 STATES?       ;DPM002
7530 040102  001356                    BNE     250$            ;BRANCH IF NOT                      ;DPM002
7531 040104  000543                    BR      260$
```

```
                                ;THIS SUBROUTINE, 1000$, IS USED TO SET UP THE OPERANDS, EXECUTE
                                ;THE STEXP INSTRUCTION AND CHECK THE RESULTS. A CALL
                                ;TO IT IS MADE THUS:
                                ;
                                ;       JSR     PC,1000$
                                ;       ACARG:  .WORD   X,X,X,X         ;AC OPERAND
                                ;       RES:    .WORD   X               ;EXPECTED RESULT
                                ;       ERRES:  .WORD   X               ;ERROR RESULT
                                ;       FPSB:   .WORD   X               ;FPS BEFORE EXECUTION
                                ;       FPSA:   .WORD   X               ;FPS AFTER EXECUTION
                                ;       ERFPS:  .WORD   X               ;ERROR FPS.
                                ;       ERR1:   ERROR   +X              ;DATA ERROR.
                                ;               BR      CONT
                                ;       ERR2:   ERROR   +X              ;FPS ERROR.
                                ;       CONT:                           ;RETURN ADDRESS
                                ;
                                ;THE OPERANDS ARE SET UP (USING AC0 AS THE ACCUMULATOR). THEN
                                ;THE STEXP 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 1000$ RETURNS CONTROL
                                ;TO THE CALLING ROUTINE AT CONT. IF THE FPS IS BAD 1000$
                                ;COMPARE IT TO ERROR FPS. IF THIS MATCHES THEN 1000$ WILL RETURN
                                ;TO THE ERROR CALL AT ERR2, OTHERWISE 1000$ ITSELF
                                ;REPORTS THIS FAILURE AND THEN RETURNS TO CONT. IF THE RESULT OF THE
                                ;STEXP 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 1000$
                                ;WILL TRANSFER CONTROL TO THE ERROR CALL AT ERR1. OTHERWISE THE
                                ;RESULT WAS INCORRECT BUT WAS NOT ANTICIPATED AND 1000$ WILL
                                ;REPORT THE FAILURE AFTER WHICH CONTROL WILL BE PASSED TO CONT.
                                
040106  012601                  1000$:  MOV     (SP)+,R1        ;GET A POINTER TO THE ARGUMENTS.
040110  010102                          MOV     R1,R2
040112  010237  001240                  MOV     R2,$TMP3
040116  062702  000010                  ADD     #10,R2
040122  012237  001244                  MOV     (R2)+,$TMP5
040126  012737  040200  001236          MOV     #61$,$TMP2
040134  012737  123456  040360          MOV     #123456,1210$
040142  012737  076543  040362          MOV     #76543,1210$+2
040150  012700  000200                  MOV     #200,R0
040154  170100                          LDFPS   R0
040156  010100                          MOV     R1,R0           ;SET UP THE AC0 OPERAND.
040160  172410                          LDD     (R0),AC0
040162  016100  000016                  MOV     16(R1),R0       ;SET THE FPS.
040166  170100                          LDFPS   R0
040170  011300                          MOV     (R3),R0         ;SETUP R0 FROM THE TABLE                        ;DPM002
040172  016337  000006  040200          MOV     6(R3),61$       ;MOVE TEST INSTRUCTION TO ITS POSITION          ;DPM002
040200  000000                  61$:    .WORD   0               ;LOCATION FOR TEST INSTRUCTION.                 ;DPM002
040202  170204                          STFPS   R4              ;GET FPS.                                       ;DPM002
040204  026300  000014                  CMP     14(R3),R0       ;SEE IF R0 WAS PROPER                           ;DPM002
040210  001411                          BEQ     101$            ;BRANCH IF OK                                   ;DPM002
040212  013737  040200  001260          MOV     61$,$TMP13      ;MOVE OP CODE OF FAILING INST TO $TMP13         ;DPM002
040220  016337  000014  001240          MOV     14(R3),$TMP3    ;MOVE EXPECTED DATA TO $TMP3                    ;DPM002
040226  010037  001242                  MOV     R0,$TMP4        ;MOVE RECEIVED DATA TO $TMP4                    ;DPM002
040232  104371                          ERROR   +371            ;STEXP AUTO INCREMENTED/DECREMENTED             ;DPM002
                                                                ;R0 INCORRECTLY                                 ;DPM002
                                ;;*******************************************************************************
```

```
                                        ;       IF THIS FAILURE OCCURED, IS M7095 ECO #10 IN?
                                        ;*************************************************************
040234  010437  001250                  101$:   MOV     R4,$TMP7
040240  016137  000016  001252                  MOV     16(R1),$TMP10
040246  013737  040360  001242                  MOV     1210$,$TMP4
040254  026137  000010  040360                  CMP     10(R1),1210$    ;WAS RESULT CORRECT?
040262  001411                                  BEQ     65$             ;BRANCH IF CORRECT.
040264  026137  000012  040360                  CMP     12(R1),1210$    ;OTHERWISE SEE IF THE FAILURE WAS ANTICIPATED.
040272  001002                                  BNE     62$
040274  000161  000022                          JMP     22(R1)

                                        ;IF NOT ANTICIPATED REPORT ERROR HERE.
040300                                  62$:
040300  104347                          63$:    ERROR   +347                    ;EXP BAD
040302  000161  000030                  64$:    JMP     30(R1)

040306  020461  000016                  65$:    CMP     R4,16(R1)       ;SEE IF THE FPS IS CORRECT.
040312  001407                                  BEQ     70$             ;BRANCH IF CORRECT.
040314  020461  000020                          CMP     R4,20(R1)       ;SEE IF THE FAILURE WAS ANTICIPATED.
040320  001002                                  BNE     66$
040322  000161  000026                          JMP     26(R1)

                                        ;FPS ERROR WAS NOT ANTICIPATED SO REPORT ERROR HERE.
040326                                  66$:
040326  104350                          67$:    ERROR   +350                    ;FPS BAD
040330  000764                                  BR      64$

                                        ;SEE IF MORE THAN ONE WORD WAS WRITTEN IN THE OUTPUT BUFFER.
040332  022737  076543  040362          70$:    CMP     #76543,1210$+2
040340  001760                                  BEQ     64$
040342  104351                          71$:    ERROR   +351                    ;FDFL+0 ST 347X
040344  000756                                  BR      64$

040346  177777  177777  177777                  .WORD   -1,-1,-1,-1,-1
040360  177777  177777  177777          1210$:  .WORD   -1,-1,-1,-1,-1
040372  040360  040360  040362          1200$:  .WORD   1210$,1210$,1210$+2 ;DATA FOR R0 LOAD                   ;DPM002
040400  175010                                  STEXP   AC0,(R0)        ;TEST INSTRUCTION (NOT EXECUTED HERE)   ;DPM002
040402  175020                                  STEXP   AC0,(R0)+       ;TEST INSTRUCTION (NOT EXECUTED HERE)   ;DPM002
040404  175040                                  STEXP   AC0,-(R0)       ;TEST INSTRUCTION (NOT EXECUTED HERE)   ;DPM002
040406  040360  040362  040360                  .WORD   1210$,1210$+2,1210$ ;EXPECTED R0 END VALUE              ;DPM002

040414                                  260$:
040414  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 # 75 - STST TEST

```
                                .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
                                ;*
                                ;;*****************************************************************
 040416  000004                 TST75:  SCOPE
7642 040420  012737  040426  001110        MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7643 040426  012700  040000     200$:   MOV     #40000,R0       ;SET FPS. FID=1.
7644 040432  170100                     LDFPS   R0
7645 040434  170003             210$:   .WORD   170003                  ;ILLEGAL FPP
7646                                                                    ;OP CODE
7647 040436  012700  040612                MOV     #220$,R0        ;SET UP THE OUTPUT BUFFER.
7648 040442  012710  177777                MOV     #-1,(R0)
7649 040446  012760  177777  000002        MOV     #-1,2(R0)
7650 040454  012737  040462  001236        MOV     #230$,$TMP2
7651 040462  170310             230$:   STST    (R0)                    ;GET FEC AND
7652                                                                    ;FEA
7653 040464  170204                     STFPS   R4              ;GET FPS.
7654 040466  012700  040612                MOV     #220$,R0
7655 040472  011037  001240                MOV     (R0),$TMP3
7656 040476  016037  000002  001242        MOV     2(R0),$TMP4
7657 040504  012737  000002  001244        MOV     #2,$TMP5
7658 040512  012737  040434  001246        MOV     #210$,$TMP6
7659 040520  010437  001250                MOV     R4,$TMP7
7660 040524  012737  140000  001252        MOV     #140000,$TMP10
7661
7662 040532  022710  000002                CMP     #2,(R0) ;SEE IF FEC IS CORRECT.
7663 040536  001010                     BNE     240$            ;BRANCH IF INCORRECT.
7664 040540  022760  040434  000002        CMP     #210$,2(R0)     ;SEE IF FEA, ADDRESS, IS CORRECT.
7665 040546  001006                     BNE     250$            ;BRANCH IF INCORRECT.
7666 040550  022704  140000                CMP     #140000,R4      ;SEE IF FPS IS CORRECT.
7667 040554  001013                     BNE     260$            ;BRANCH IF INCORRECT.
7668 040556  000422                     BR      270$
7669
7670                            ;REPORT FEC INCORRECT
7671 040560  104356             240$:   ERROR   +356                            ;STST BAD
7672 040562  000420                     BR      270$                    ;FECX
7673
7674                            ;REPORT FEA INCORRECT
7675 040564  022760  177777  000002    250$:   CMP     #-1,2(R0)
7676 040572  001402                     BEQ     280$
7677 040574  104357                     ERROR   +357                            ;STST BAD FEA
7678 040576  000412                     BR      270$
7679 040600  104360             280$:   ERROR   +360                            ;SET FD FL ST 636
7680 040602  000410                     BR      270$
7681
7682                            ;REPORT FPS INCORRECT
7683 040604  104361             260$:   ERROR   +361                            ;FPS X AFTER ST ST
7684 040606  000406                     BR      270$
7685
```

```
 7686                                   ;DATA BUFFER:
 7687 040610  177777                                -1
 7688 040612  177777  177777  177777  220$:    .WORD   -1,-1,-1,-1
 7689 040622  177777                                -1
 7690
 7691 040624                            270$:
```

```
        040624  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?).
   7692
   7693 040626  005037  177572                  .SBTTL  SETUP FOR TESTS 76 THROUGH 104
   7694 040632  170127  040000                  CLR     MMR0            ;MAKE SURE MEMORY MANAGEMENT IS OFF.
   7695 040636  012700  077406                  LDFPS   #40000          ;LOAD FPS STATUS.
   7696 040642  012701  077400                  MOV     #77406,R0       ;LOAD R0 WITH 77406
   7697 040646  010037  172320                  MOV     #77400,R1       ;LOAD R1 WITH 77400
   7698 040652  010137  172322                  MOV     R0,KDPDR0       ;MAKE KDPDR0 RESIDENT.
   7699 040656  010137  172324                  MOV     R1,KDPDR1       ;MAKE KDPDR1 NON-RESIDENT.
   7700 040662  010037  172326                  MOV     R1,KDPDR2       ;MAKE KDPDR2 NON-RESIDENT.
   7701 040666  010037  172330                  MOV     R0,KDPDR3       ;MAKE KDPDR3 RESIDENT FOR ADDRESSES 60000-77756.
   7702 040672  010037  172336                  MOV     R0,KDPDR4       ;MAKE KDPDR4 RESIDENT FOR ADDRESSES 77760-77776.
   7703                                         MOV     R0,KDPDR7       ;MAKE KDPDR7 RESIDENT (I/O PAGE).
   7704 040676  005037  172360                  CLR     KDPAR0          ;MAP D-PAGE 0 FOR 0-4K.
   7705 040702  012737  000200  172362          MOV     #200,KDPAR1     ;MAP D-PAGE 1 FOR 4-8K.
   7706 040710  012737  000400  172364          MOV     #400,KDPAR2     ;MAP D-PAGE 2 FOR 8-12K.
   7707 040716  012737  000600  172366          MOV     #600,KDPAR3     ;MAP D-PAGE 3 FOR ACCESSING ADDRESSES 60000-77756.
   7708 040724  012737  000600  172370          MOV     #600,KDPAR4     ;MAP D-PAGE 4 FOR ACCESSING ADDRESSES 77760-77776.
   7709 040732  012737  177600  172376          MOV     #177600,KDPAR7  ;MAP D-PAGE 7 FOR I/O PAGE.
   7710
   7711 040740  010037  172300                  MOV     R0,KIPDR0       ;MAKE KIPDR0 RESIDENT.
   7712 040744  010037  172302                  MOV     R0,KIPDR1       ;MAKE KIPDR1 RESIDENT.
   7713 040750  010037  172304                  MOV     R0,KIPDR2       ;MAKE KIPDR2 RESIDENT.
   7714 040754  010137  172306                  MOV     R1,KIPDR3       ;MAKE KIPDR3 NON-RESIDENT FOR USING ADDRESSES 60000-77756.
   7715 040760  010137  172310                  MOV     R1,KIPDR4       ;MAKE KIPDR4 NON-RESIDENT FOR USING ADDRESSES 77760-77776.
   7716 040764  010037  172316                  MOV     R0,KIPDR7       ;MAKE KIPDR7 RESIDENT (I/O PAGE).
   7717
   7718 040770  005037  172340                  CLR     KIPAR0          ;MAP I-PAGE 0 FOR 0-4K.
   7719 040774  012737  000200  172342          MOV     #200,KIPAR1     ;MAP I-PAGE 1 FOR 4-8K.
   7720 041002  012737  000400  172344          MOV     #400,KIPAR2     ;MAP I-PAGE 2 FOR 8-12K.
   7721 041010  012737  000600  172346          MOV     #600,KIPAR3     ;MAP I-PAGE 3 FOR ACCESSING ADDRESSES 60000-77756.
   7722 041016  012737  000600  172350          MOV     #600,KIPAR4     ;MAP I-PAGE 4 FOR ACCESSING ADDRESSES 77760-77776.
   7723 041024  012737  177600  172356          MOV     #177600,KIPAR7  ;MAP I-PAGE 7 FOR I/O PAGE.
   7724
   7725 041032  013737  000250  001262          MOV     MMVECT,$TMP14   ;MOVE MM TRAP VECTOR TO $TMP14 FOR TEMP STORAGE.
   7726 041040  012701  117760                  MOV     #DATA,R1        ;SET UP R1.
   7727 041044  012702  117770                  MOV     #DATA+10,R2     ;SET UP R2.
   7728 041050  012703  117772                  MOV     #DATA+12,R3     ;SET UP R3.
   7729 041054  012737  041714  000250          MOV     #TRAPV,MMVECT   ;SET UP FOR FP TRAPS FOR THIS TEST.
   7730 041062  012737  000340  000252          MOV     #340,MMVECT+2
   7731 041070  012737  000024  172516          MOV     #24,MMR3        ;TURN ON 22-BIT KERNEL D-SPACE.
   7732 041076  012737  117760  077770          MOV     #DATA,77770     ;SET UP ADDRESS POINTER.
```

```
7746                                    .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.
                                        ;*
                                        ;;*****************************************************************
     041104  000004
7747 041106  012737  041114  001110     TST76:  SCOPE
                                                MOV     #200$,$LPERR    ;SET UP THE LOOP ON ERROR ADDRESS.      ;DPM002
7748                                    ;* THIS INSTRUCTION WILL TEST FOR A WORST-CASE HARDWARE PROBLEM.
7749 041114  170000                     200$:   CFCC                    ;* TEST INSTRUCTION WHICH SHOULD ALWAYS INVOKE D-SPACE.
7750 041116  010100                             MOV     R1,R0           ;SETTING UP R0.
7751 041120  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7752 041124  170410                             CLRF    (R0)            ;TESTING BLOCKS 27-K AND 27-R.
7753 041126  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7754 041132  177010                             LDCIF   (R0),AC0        ;TESTING BLOCKS 28-F AND 28-P.
7755 041134  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7756 041140  172410                             LDF     (R0),AC0        ;TESTING BLOCKS 4-J, 4-X, 4-Z AND 4-BB.
7757 041142  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7758 041146  170310                             STST    (R0)            ;TESTING BLOCKS 33-E AND 33-P.
7759 041150  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7760 041154  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
```

TEST # 77 - ENABLE D-SPACE & SEE I-SPACE FORCED, MODE 2

```
                                .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 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.
                                ;*
                                ;;*****************************************************************
     041160  000004             TST77:  SCOPE
7762 041162  010100                     MOV     R1,R0           ;SETTING UP R0.
7763 041164  004737  042430             JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7764 041170  170520                     TSTF    (R0)+           ;TESTING BLOCK 21-AA.
7765 041172  004737  042430             JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7766 041176  170527  001000             TSTF    #1000           ;TESTING BLOCK 21-AA.
7767
7768 041202  010100                     MOV     R1,R0           ;CORRECTING R0.
7769 041204  004737  042430             JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7770 041210  170420                     CLRF    (R0)+           ;TESTING BLOCKS 27-K AND 27-R.
7771                                    ;**NOTE**: THE LOCATION AFTER THE CLRF, AND STST MODE 2 REG 7 INSTRUCTIONS
7772                                    ;*WILL* BE CHANGED ON SUBSEQUENT PASSES, BUT IS **NOT** INCORRECT.  THE
7773                                    ;ACTUAL CONTENTS OF THOSE LOCATIONS IS IMMATERIAL, AS THIS TEST INSURES
7774                                    ;THAT THE INSTRUCTION DOES EXECUTE WITHOUT ACCESSING THAT LOCATION AS
7775                                    ;A D-SPACE ACCESS.
7776 041212  170427  001000             CLRF    #1000           ;TESTING BLOCKS 27-K AND 27-R.
7777
7778 041216  010100                     MOV     R1,R0           ;CORRECTING R0.
7779 041220  004737  042430             JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7780 041224  177020                     LDCIF   (R0)+,AC0       ;TESTING BLOCKS 28-F AND 28-P.
7781 041226  004737  042430             JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7782 041232  177027  001000             LDCIF   #1000,AC0       ;TESTING BLOCKS 28-F AND 28-P.
7783
7784 041236  010100                     MOV     R1,R0           ;CORRECTING R0.B
7785 041240  004737  042430             JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7786 041244  172420                     LDF     (R0)+,AC0       ;TESTING BLOCKS 4-NN, 4-X, 4-Z AND 4-BB.
7787 041246  004737  042430             JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7788 041252  172427  042572             LDF     #1000,AC0       ;TESTING BLOCKS 4-NN, 4-X, 4-Z AND 4-BB.
7789
7790 041256  010100                     MOV     R1,R0           ;CORRECTING R0.
7791 041260  004737  042430             JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7792 041264  170320                     STST    (R0)+           ;TESTING BLOCKS 33-J AND 33-P.
7793 041266  004737  042430             JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7794 041272  170327  001000             STST    #1000           ;TESTING BLOCKS 33-J AND 33-P.
7795 041276  005037  177572             CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
```

```
 7796                                   .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.
                                        ;*
                                        ;;*****************************************************************
     041302  000004                     TST100: SCOPE
 7797 041304  010200                             MOV     R2,R0           ;SETTING UP R0.
 7798 041306  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7799 041312  170530                             TSTF    @(R0)+          ;TESTING BLOCK 21-N.
 7800 041314  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7801 041320  170537  117760                     TSTF    DATA            ;TESTING BLOCK 21-N.
 7802
 7803 041324  010200                             MOV     R2,R0           ;CORRECTING R0.
 7804 041326  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7805 041332  170430                             CLRF    @(R0)+          ;TESTING BLOCKS 27-U, 27-T AND 27-R.
 7806 041334  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7807 041340  170437  117760                     CLRF    DATA            ;TESTING BLOCKS 27-U, 27-T AND 27-R.
 7808
 7809 041344  010200                             MOV     R2,R0           ;CORRECTING R0.
 7810 041346  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7811 041352  177030                             LDCIF   @(R0)+,AC0      ;TESTING BLOCKS 28-L, 28-N AND 28-P.
 7812 041354  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7813 041360  177037  117760                     LDCIF   DATA,AC0        ;TESTING BLOCKS 28-L, 28-N AND 28-P.
 7814
 7815 041364  010200                             MOV     R2,R0           ;CORRECTING R0.
 7816 041366  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7817 041372  172430                             LDF     @(R0)+,AC0      ;TESTING BLOCKS 4-R, 4-T, 4-X, 4-Z AND 4-BB.
 7818 041374  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7819 041400  172437  117760                     LDF     DATA,AC0        ;TESTING BLOCKS 4-R, 4-T, 4-X, 4-Z AND 4-BB.
 7820
 7821 041404  010200                             MOV     R2,R0           ;CORRECTING R0.
 7822 041406  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7823 041412  170330                             STST    @(R0)+          ;TESTING BLOCKS 33-L, 33-N AND 33-P.
 7824 041414  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7825 041420  170337  117760                     STST    DATA            ;TESTING BLOCKS 33-L, 33-N AND 33-P.
 7826 041424  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
```

```
 7827                                   .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.
                                        ;*
                                        ;;*****************************************************************
     041430  000004                     TST101: SCOPE
 7828 041432  010200                             MOV     R2,R0           ;SETTING UP R0.
 7829 041434  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7830 041440  172440                             LDF     -(R0),AC0       ;TESTING BLOCKS 4-J, 4-X, 4-Z AND 4-BB.
 7831 041442  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
```

```
 7832                                   .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.
                                        ;*
                                        ;;*****************************************************************
      041446  000004                    TST102: SCOPE
 7833 041450  010300                            MOV     R3,R0           ;SETTING UP R0.
 7834 041452  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7835 041456  170550                            TSTF    @-(R0)          ;TESTING BLOCK 21-U.
 7836
 7837 041460  010300                            MOV     R3,R0           ;CORRECTING R0.
 7838 041462  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7839 041466  170450                            CLRF    @-(R0)          ;TESTING BLOCKS 27-X, 27-T AND 27-R.
 7840
 7841 041470  010300                            MOV     R3,R0           ;CORRECTING R0.
 7842 041472  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7843 041476  177050                            LDCIF   @-(R0),AC0      ;TESTING BLOCKS 28-S, 28-N AND 28-P.
 7844
 7845 041500  010300                            MOV     R3,R0           ;CORRECTING R0.
 7846 041502  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7847 041506  172450                            LDF     @-(R0),AC0      ;TESTING BLOCKS 4-U, 4-T, 4-X, 4-Z AND 4-BB.
 7848
 7849 041510  010300                            MOV     R3,R0           ;CORRECTING R0.
 7850 041512  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7851 041516  170350                            STST    @-(R0)          ;TESTING BLOCKS 33-S, 33-N ADN 33-P.
 7852 041520  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
```

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

```
                                .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.
                                ;*
                                ;;*****************************************************************
     041524  000004             TST103: SCOPE
7854                                    .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSION
7855 041526  004767  000676            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7856 041532  170567  056222            TSTF    DATA            ;TESTING BLOCK 21-0.
7857 041536  004767  000666            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7858 041542  170467  056212            CLRF    DATA            ;TESTING BLOCKS 27-DD, 27-T AND 27-R.
7859 041546  004767  000656            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7860 041552  177067  056202            LDCIF   DATA,AC0        ;TESTING BLOCKS 28-T, 28-N ADN 28-P.
7861 041556  004767  000646            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7862 041562  172467  056172            LDF     DATA,AC0        ;TESTING BLOCKS 4-DD, 4-T, 4-X, 4-Z AND 4-BB.
7863 041566  004767  000636            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
7864 041572  170367  056162            STST    DATA            ;TESTING BLOCKS 33-T, 33-N AND 33-P.
7865 041576  005067  135770            CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7866                                    .ENABL  AMA             ;REENABLE MODE 6 TO MODE 3 CONVERSION
```

```
 7867                                   .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.
                                        ;*
                                        ;;*****************************************************************
      041602  000004                    TST104: SCOPE
 7868 041604  010200                            MOV     R2,R0           ;SETTING UP R0.
 7869 041606  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7870 041612  170470  000000                    CLRF    @0(R0)          ;TESTING BLOCKS 27-GG, 27-JJ, 27-T AND 27-R.
 7871 041616  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7872 041622  170477  056142                    CLRF    @DATA+10        ;TESTING BLOCKS 27-GG, 27-JJ, 27-T AND 27-R.
 7873 041626  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7874 041632  177070  000000                    LDCIF   @0(R0),AC0      ;TESTING BLOCKS 28-W, 28-Z, 28-N AND 28-P.
 7875 041636  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7876 041642  177077  056122                    LDCIF   @DATA+10,AC0    ;TESTING BLOCKS 28-W, 28-Z, 28-N AND 28-P.
 7877 041646  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7878 041652  172470  000000                    LDF     @0(R0),AC0      ;TESTING BLOCKS 4-GG, 4-JJ, 4-T, 4-X 4-Z AND 4-BB.
 7879 041656  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7880 041662  172477  056102                    LDF     @DATA+10,AC0    ;TESTING BLOCKS 4-GG, 4-JJ, 4-T, 4-X 4-Z AND 4-BB.
 7881 041666  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7882 041672  170370  000000                    STST    @0(R0)          ;TESTING BLOCKS 33-W, 33-Z, 33-N AN 33-P.
 7883 041676  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7884 041702  170377  056062                    STST    @DATA+10        ;TESTING BLOCKS 33-W, 33-Z, 33-N AN 33-P.
 7885 041706  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 7886
 7887 041712  000431                    BR      ENDTST          ;BRANCH TO END OF TEST ROUTINE.
```

TRAP HANDLER FOR UNEXPECTED MEMORY MANAGEMENT ABORTS

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 7888                                           .SBTTL  TRAP HANDLER FOR UNEXPECTED MEMORY MANAGEMENT ABORTS
 7889 041714  042737  000001  177572  TRAPV:    BIC     #1,MMR0          ;TURN OFF MEMORY MANAGEMENT.
 7890 041722  013737  177572  001240            MOV     MMR0,$TMP3       ;TRANSFER MMR0 TO $TMP3 FOR ERROR PRINTING.
 7891 041730  005237  001240                    INC     $TMP3            ;REPLACE BIT CLEARED TURNING OFF MEMORY MANAGEMENT.
 7892 041734  013737  177576  001236            MOV     MMR2,$TMP2       ;MOVE THE TRAP INSTRUCTION ADDRESS TO $TMP13.
 7893 041742  005037  177572                    CLR     MMR0             ;CLEAR ERROR BITS.
 7894 041746  012637  001266                    MOV     (SP)+,$TMP16     ;POP STACK AND SAVE 1ST CONTENTS.
 7895 041752  012637  001270                    MOV     (SP)+,$TMP17     ;POP STACK AGAIN AND SAVE 2ND CONTENTS.
 7896 041756  104362                            ERROR   +362             ;FPP TRAP/ABORT ERROR CALL.
 7897 041760  013746  001270                    MOV     $TMP17,-(SP)     ;PUSH 2ND SAVED CONTENTS BACK ON STACK.
 7898 041764  013746  001266                    MOV     $TMP16,-(SP)     ;PUSH 1ST SAVED CONTENTS BACK ON STACK.
 7899 041770  005237  177572                    INC     MMR0             ;TURN ON MEMORY MANAGEMENT.
 7900 041774  000002                            RTI                      ;RETURN FROM INTERRUPT.
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7901 041776  005037  177572          ENDTST: CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
7902 042002  013737  001262  000250          MOV     $TMP14,MMVECT   ;RESTORE MMVECT TO ITS ORIGINAL CONTENTS.
7903 042010                          IDONE:
     042010  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?).
7904 042012  005037  177572          CLR     MMR0            ;MAKE SURE MEMORY MANAGEMENT IS OFF.
7905 042016  170127  040000          LDFPS   #40000          ;LOAD FLOATING POINT STATUS.
7906 042022  005037  001272          CLR     $TMP20          ;CLEAR THE TEMPORARY LOCATION.
7907 042026  012737  000252  045232  MOV     #252,STORE      ;CLEAR UPPER BYTE - ALTERNATING BITS IN LOWER BYTE.
7908 042034  012737  125252  045234  MOV     #125252,STORE+2 ;MOVE ALTERNATING BITS TO 2ND WORD.
7909 042042  012737  125252  045236  MOV     #125252,STORE+4 ;MOVE ALTERNATING BITS TO 3RD WORD.
7910 042050  012737  125252  045240  MOV     #125252,STORE+6 ;MOVE ALTERNATING BITS TO 4TH WORD.
7911 042056  172437  045232          LDF     STORE,AC0       ;LOAD AC0.
7912 042062  172537  045232          LDF     STORE,AC1       ;LOAD AC1.
7913 042066  172637  045232          LDF     STORE,AC2       ;LOAD AC2.
7914 042072  172737  045232          LDF     STORE,AC3       ;LOAD AC3.
7915 042076  012700  045232          MOV     #STORE,R0       ;MOVE ADDRESS OF STORE TO R0.
7916 042102  012701  000030          MOV     #30,R1          ;MOVE LOOP COUNTER (CLEARING 30 WORDS) TO R1.
7917 042106  005020                  1$:     CLR     (R0)+           ;CLEAR THE WORD.
7918 042110  077102                  SOB     R1,1$           ;SUBTRACT 1 FROM R1 AND BRANCH IF NOT 0.
7919 042112  174037  045232          STF     AC0,STORE       ;STORE AC0.
7920 042116  174137  045242          STF     AC1,STORE+10    ;STORE AC1.
7921 042122  174237  045252          STF     AC2,STORE+20    ;STORE AC2.
7922 042126  174337  045262          STF     AC3,STORE+30    ;STORE AC3.
7923
7924 042132  012737  077406  172320  MOV     #77406,KDPDR0   ;MAKE KDPDR0 RESIDENT.
7925 042140  012737  077406  172322  MOV     #77406,KDPDR1   ;MAKE KDPDR1 RESIDENT.
7926 042146  012737  077400  172324  MOV     #77400,KDPDR2   ;MAKE KDPDR2 NON-RESIDENT.
7927 042154  012737  077406  172326  MOV     #77406,KDPDR3   ;MAKE KDPDR3 RESIDENT.
7928 042162  012737  077406  172336  MOV     #77406,KDPDR7   ;MAKE KDPDR7 RESIDENT.
7929
7930 042170  012737  077406  172300  MOV     #77406,KIPDR0   ;MAKE KIPDR0 RESIDENT.
7931 042176  012737  077406  172302  MOV     #77406,KIPDR1   ;MAKE KIPDR1 RESIDENT.
7932 042204  012737  077406  172304  MOV     #77406,KIPDR2   ;MAKE KIPDR2 RESIDENT.
7933 042212  012737  077406  172306  MOV     #77406,KIPDR3   ;MAKE KIPDR3 RESIDENT.
7934 042220  012737  077406  172316  MOV     #77406,KIPDR7   ;MAKE KIPDR7 RESIDENT.
7935
7936 042226  005037  172360          CLR     KDPAR0          ;MAP D-PAGE 0 FOR 0-4K.
7937 042232  012737  000200  172362  MOV     #200,KDPAR1     ;MAP D-PAGE 1 FOR 4-8K.
7938 042240  012737  000400  172364  MOV     #400,KDPAR2     ;MAP D-PAGE 2 FOR 8-12K.
7939 042246  012737  000600  172366  MOV     #600,KDPAR3     ;MAP D-PAGE 3 FOR 12-16K.
7940 042254  012737  177600  172376  MOV     #177600,KDPAR7  ;MAP D-PAGE 7 FOR I/O PAGE.
7941
7942 042262  005037  172340          CLR     KIPAR0          ;MAP I-PAGE 0 FOR 0-4K.
7943 042266  012737  000200  172342  MOV     #200,KIPAR1     ;MAP I-PAGE 1 FOR 4-8K.
7944 042274  012737  000400  172344  MOV     #400,KIPAR2     ;MAP I-PAGE 2 FOR 8-12K.
7945 042302  012737  000600  172346  MOV     #600,KIPAR3     ;MAP I-PAGE 3 FOR 12-16K.
7946 042310  012737  177600  172356  MOV     #177600,KIPAR7  ;MAP I-PAGE 7 FOR I/O PAGE.
7947
7948 042316  012705  045312          MOV     #BYTABL,R5      ;SET UP BYTE TABLE POINTER R5.
7949 042322  013737  000250  001262  MOV     MMVECT,$TMP14   ;TEMPORARILY STORE THE MMVECT VALUE.
7950 042330  012737  044054  000250  MOV     #TRPV,MMVECT    ;SET UP FOR FP TRAPS FOR THIS TEST.
7951 042336  012737  000340  000252  MOV     #340,MMVECT+2
7952 042344  013737  000020  042426  MOV     IOTRAP,SAVIOT   ;STORE THE IOTRAP VALUE IN SAVIOT
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7953 042352  012737  000340  000022          MOV     #340,IOTRAP+2
7954
7955 042360  012737  000024  172516          MOV     #24,MMR3          ;TURN ON 22-BIT KERNEL D-SPACE.
7956 042366  012737  045216  045226          MOV     #NODAT,NODAT+10   ;SET UP ADDRESS POINTER.
7957 042374  012700  045216                  MOV     #NODAT,R0         ;SET UP R0.
7958 042400  012702  045226                  MOV     #NODAT+10,R2      ;SET UP R2.
7959 042404  012703  045230                  MOV     #NODAT+12,R3      ;SET UP R3.
7960 042410  010037  045272                  MOV     R0,STORE+40       ;STORE R0.
7961 042414  010237  045274                  MOV     R2,STORE+42       ;STORE R2.
7962 042420  010337  045276                  MOV     R3,STORE+44       ;STORE R3.
7963 042424  000410                          BR      TST105            ;BRANCH OVER LOCATION SAVIOT AND SETERL SUBROUTINE
7964
7965 042426  000000              SAVIOT:     .WORD   0                 ;LOCATION TO SAVE THE SCOPE VECTOR ADDRESS
7966
7967 042430  005037  177572      SETERL:     CLR     MMR0              ;TURN OFF MEMORY MANAGEMENT                ;DPM002
7968 042434  011637  001110                  MOV     (SP),$LPERR       ;MOVE RETURN ADDRESS TO $LPERR             ;DPM002
7969 042440  005237  177572                  INC     MMR0              ;TURN MEMORY MANAGEMENT BACK ON            ;DPM002
7970 042444  000207                          RTS     PC                ;RETURN                                    ;DPM002
```

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 7983                                   .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.
                                        ;*
                                        ;;*****************************************************************
     042446  000004                     TST105: SCOPE
 7984
 7985                                           ;* THE FOLLOWING TESTS ARE FOR MODE 0 REG 1 (THESE SHOULD *NOT* ABORT).
 7986
 7987 042450  012737  044006  000020            MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
 7988 042456  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7989 042462  170501                            TSTF    R1              ;FDST-NOTCLR PAGE 21.
 7990 042464  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7991 042470  170401                            CLRF    R1              ;FDST MODES PAGE 27.
 7992 042472  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7993 042476  177001                            LDCIF   R1,AC0          ;SOURCE MODES PAGE 28.
 7994 042500  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7995 042504  172401                            LDF     R1,AC0          ;FSRC MODES PAGE 4.
 7996 042506  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 7997 042512  170301                            STST    R1              ;DEST MODES PAGE 33.
 7998 042514  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 7999 042520  172437  045232                    LDF     STORE,AC0       ;RESTORE AC0.
 8000 042524  172537  045232                    LDF     STORE,AC1       ;RESTORE AC1.
 8001 042530  010046                            MOV     R0,-(SP)        ;SAVE R0 FOR NEXT TEST
 8002 042532  010246                            MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
 8003 042534  013737  042426  000020            MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
```

TEST # 106 - AUTO INCREMENT/DECREMENT TEST, MODE 1

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 8004                                   .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.
                                        ;*
                                        ;;*****************************************************************
     042542  000004                     TST106: SCOPE
 8005 042544  012602                             MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
 8006 042546  012600                             MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
 8007 042550  012737  044006  000020             MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
 8008 042556  010001                 MODE1:      MOV     R0,R1           ;SET UP R1.
 8009 042560  010004                             MOV     R0,R4           ;MOVE 'START' VALUE INTO R4.
 8010 042562  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8011 042566  170511                             TSTF    (R1)            ;FDST-NOTCLR PAGE 21.
 8012 042570  000004                             IOT                     ;FORCE A TRAP.
 8013 042572  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8014 042576  170411                             CLRF    (R1)            ;FDST MODES PAGE 27.
 8015 042600  000004                             IOT                     ;FORCE A TRAP.
 8016 042602  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8017 042606  177011                             LDCIF   (R1),AC0        ;SOURCE MODES PAGE 28.
 8018 042610  000004                             IOT                     ;FORCE A TRAP.
 8019 042612  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8020 042616  172411                             LDF     (R1),AC0        ;FSRC MODES PAGE 4.
 8021 042620  000004                             IOT                     ;FORCE A TRAP.
 8022 042622  004737  042430                     JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8023 042626  170311                             STST    (R1)            ;DEST MODES PAGE 33.
 8024 042630  000004                             IOT                     ;FORCE A TRAP.
 8025 042632  005037  177572                     CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 8026 042636  010046                             MOV     R0,-(SP)        ;SAVE R0 FOR NEXT TEST
 8027 042640  010246                             MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
 8028 042642  013737  042426  000020             MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
```

```
 8029                                   .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.
                                        ;*
                                        ;;*****************************************************************
    042650  000004                      TST107: SCOPE
 8030 042652  012737  044006  000020            MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
 8031 042660  012602                            MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
 8032 042662  012600                            MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
 8033 042664  010001                            MOV     R0,R1           ;CORRECT R1
 8034 042666  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8035 042672  170521                            TSTF    (R1)+           ;FDST-NOTCLR PAGE 21.
 8036 042674  000004                LABEL1:     IOT                     ;FORCE A TRAP.
 8037
 8038 042676  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8039 042702  010001                            MOV     R0,R1           ;CORRECT R1.
 8040 042704  170421                            CLRF    (R1)+           ;FDST MODES PAGE 27.
 8041 042706  000004                            IOT                     ;FORCE A TRAP.
 8042
 8043 042710  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8044 042714  010001                            MOV     R0,R1           ;CORRECT R1.
 8045 042716  177021                            LDCIF   (R1)+,AC0       ;SOURCE MODES PAGE 28.
 8046 042720  000004                            IOT                     ;FORCE A TRAP.
 8047
 8048 042722  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8049 042726  010001                            MOV     R0,R1           ;CORRECT R1.
 8050 042730  172421                            LDF     (R1)+,AC0       ;FSRC MODES PAGE 4.
 8051 042732  000004                            IOT                     ;FORCE A TRAP.
 8052
 8053 042734  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8054 042740  010001                            MOV     R0,R1           ;CORRECT R1.
 8055 042742  170321                            STST    (R1)+           ;DEST MODES PAGE 33.
 8056 042744  000004                            IOT                     ;FORCE A TRAP.
 8057 042746  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 8058 042752  013737  042426  000020            MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
 8059 042760  010046                            MOV     R0,-(SP)        ;SAVE R0 FOR NEXT TEST
 8060 042762  010246                            MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
```

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 8061                                   .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.
                                        ;*
                                        ;;*****************************************************************
    042764  000004                      TST110: SCOPE
 8062 042766  012737  044006  000020            MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
 8063 042774  012602                    MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
 8064 042776  012600                    MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
 8065 043000  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8066 043004  010201                    MOV     R2,R1           ;SET UP R1 FOR MODE 3.
 8067 043006  010204                    MOV     R2,R4           ;MOVE 'START' VALUE INTO R4.
 8068 043010  170531                    TSTF    @(R1)+          ;FDST-NOTCLR PAGE 21.
 8069 043012  000004                    IOT                     ;FORCE A TRAP.
 8070 043014  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8071 043020  170537  045216            TSTF    NODAT
 8072 043024  000004                    IOT                     ;FORCE A TRAP.
 8073
 8074 043026  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8075 043032  010201                    MOV     R2,R1           ;CORRECT R1.
 8076 043034  170431                    CLRF    @(R1)+          ;FDST MODES PAGE 27.
 8077 043036  000004                    IOT                     ;FORCE A TRAP.
 8078 043040  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8079 043044  170437  045216            CLRF    NODAT
 8080 043050  000004                    IOT                     ;FORCE A TRAP.
 8081
 8082 043052  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8083 043056  010201                    MOV     R2,R1           ;CORRECT R1.
 8084 043060  177031                    LDCIF   @(R1)+,AC0      ;SOURCE MODES PAGE 28.
 8085 043062  000004                    IOT                     ;FORCE A TRAP.
 8086 043064  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8087 043070  177037  045216            LDCIF   NODAT,AC0
 8088 043074  000004                    IOT                     ;FORCE A TRAP.
 8089
 8090 043076  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8091 043102  010201                    MOV     R2,R1           ;CORRECT R1.
 8092 043104  172431                    LDF     @(R1)+,AC0      ;FSRC MODES PAGE 4.
 8093 043106  000004                    IOT                     ;FORCE A TRAP.
 8094 043110  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8095 043114  172437  045216            LDF     NODAT,AC0
 8096 043120  000004                    IOT                     ;FORCE A TRAP.
 8097
 8098 043122  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8099 043126  010201                    MOV     R2,R1           ;CORRECT R1.
 8100 043130  170331                    STST    @(R1)+          ;DEST MODES PAGE 33.
 8101 043132  000004                    IOT                     ;FORCE A TRAP.
 8102 043134  004737  042430            JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8103 043140  170337  045216            STST    NODAT
```

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

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 8104 043144  000004                        IOT                ;FORCE A TRAP.
 8105 043146  005037  177572                CLR     MMR0       ;TURN OFF MEMORY MANAGEMENT.
 8106 043152  010046                        MOV     R0,-(SP)   ;SAVE R0 FOR NEXT TEST
 8107 043154  010246                        MOV     R2,-(SP)   ;SAVE R2 FOR NEXT TEST
 8108 043156  013737  042426  000020        MOV     SAVIOT,IOTRAP ;RESTORE SCOPE TRAP VECTOR
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 8109                                   .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.
                                        ;*
                                        ;;*****************************************************************
     043164  000004                     TST111: SCOPE
 8110 043166  012737  044006  000020            MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
 8111 043174  012602                            MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
 8112 043176  012600                            MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
 8113 043200  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8114 043204  010201                            MOV     R2,R1           ;SET UP R1 FOR MODE 4.
 8115 043206  170541                            TSTF    -(R1)           ;FDST-NOTCLR PAGE 21.
 8116 043210  000004                            IOT                     ;FORCE A TRAP.
 8117
 8118 043212  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8119 043216  010201                            MOV     R2,R1           ;CORRECT R1.
 8120 043220  170441                            CLRF    -(R1)           ;FDST MODES PAGE 27.
 8121 043222  000004                            IOT                     ;FORCE A TRAP.
 8122
 8123 043224  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8124 043230  010201                            MOV     R2,R1           ;CORRECT R1.
 8125 043232  177041                            LDCIF   -(R1),AC0       ;SOURCE MODES PAGE 28.
 8126 043234  000004                            IOT                     ;FORCE A TRAP.
 8127
 8128 043236  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8129 043242  010201                            MOV     R2,R1           ;CORRECT R1.
 8130 043244  172441                            LDF     -(R1),AC0       ;FSRC MODES PAGE 4.
 8131 043246  000004                            IOT                     ;FORCE A TRAP.
 8132
 8133 043250  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8134 043254  010201                            MOV     R2,R1           ;CORRECT R1.
 8135 043256  170341                            STST    -(R1)           ;DEST MODES PAGE 33.
 8136 043260  000004                            IOT                     ;FORCE A TRAP.
 8137 043262  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 8138 043266  010046                            MOV     R0,-(SP)        ;SAVE R0 FOR NEXT TEST
 8139 043270  010246                            MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
 8140 043272  013737  042426  000020            MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
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 8141                                   .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.
                                        ;*
                                        ;;*****************************************************************
    043300  000004                      TST112: SCOPE
 8142 043302  012737  044006  000020            MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
 8143 043310  012602                            MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
 8144 043312  012600                            MOV     (SP)+,R0        ;RESTORE R0 FOR THIS TEST
 8145 043314  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8146 043320  010301                            MOV     R3,R1           ;SET UP R1 FOR MODE 5.
 8147 043322  010304                            MOV     R3,R4           ;MOVE 'START' VALUE INTO R4.
 8148 043324  170551                            TSTF    @-(R1)          ;FDST-NOTCLR PAGE 21.
 8149 043326  000004                            IOT                     ;FORCE A TRAP.
 8150
 8151 043330  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8152 043334  010301                            MOV     R3,R1           ;CORRECT R1.
 8153 043336  170451                            CLRF    @-(R1)          ;FDST MODES PAGE 27.
 8154 043340  000004                            IOT                     ;FORCE A TRAP.
 8155
 8156 043342  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8157 043346  010301                            MOV     R3,R1           ;CORRECT R1.
 8158 043350  177051                            LDCIF   @-(R1),AC0      ;SOURCE MODES PAGE 28.
 8159 043352  000004                            IOT                     ;FORCE A TRAP.
 8160
 8161 043354  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8162 043360  010301                            MOV     R3,R1           ;CORRECT R1.
 8163 043362  172451                            LDF     @-(R1),AC0      ;FSRC MODES PAGE 4.
 8164 043364  000004                            IOT                     ;FORCE A TRAP.
 8165
 8166 043366  004737  042430                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
 8167 043372  010301                            MOV     R3,R1           ;CORRECT R1.
 8168 043374  170351                            STST    @-(R1)          ;DEST MODES PAGE 33.
 8169 043376  000004                            IOT                     ;FORCE A TRAP.
 8170 043400  005037  177572                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 8171 043404  013737  042426  000020            MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
```

```
8172                                    .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.
                                        ;*
                                        ;;*****************************************************************
    043412  000004                      TST113: SCOPE
8173                                            .DSABL  AMA             ;DISABLE MODE 6 TO MODE 3 CONVERSIONS
8174 043414  012767  044006  134376            MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
8175 043422  004767  177002                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8176 043426  010301                            MOV     R3,R1           ;SET UP R1 FOR MODE 6.
8177 043430  010304                            MOV     R3,R4           ;MOVE 'START' VALUE INTO R4.
8178 043432  170561  000000                    TSTF    0(R1)           ;FDST-NOTCLR PAGE 21.
8179 043436  000004                            IOT                     ;FORCE A TRAP.
8180 043440  004767  176764                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8181 043444  170567  001546                    TSTF    NODAT           ;FDST-NOTCLR PAGE 21.
8182 043450  000004                            IOT                     ;FORCE A TRAP.
8183 043452  004767  176752                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8184 043456  170461  000000                    CLRF    0(R1)           ;FDST MODES PAGE 27.
8185 043462  000004                            IOT                     ;FORCE A TRAP.
8186 043464  004767  176740                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8187 043470  170467  001522                    CLRF    NODAT           ;FDST MODES PAGE 27.
8188 043474  000004                            IOT                     ;FORCE A TRAP.
8189 043476  004767  176726                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8190 043502  177061  000000                    LDCIF   0(R1),AC0       ;SOURCE MODES PAGE 28.
8191 043506  000004                            IOT                     ;FORCE A TRAP.
8192 043510  004767  176714                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8193 043514  177067  001476                    LDCIF   NODAT,AC0       ;SOURCE MODES PAGE 28.
8194 043520  000004                            IOT                     ;FORCE A TRAP.
8195 043522  004767  176702                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8196 043526  172461  000000                    LDF     0(R1),AC0       ;FSRC MODES PAGE 4.
8197 043532  000004                            IOT                     ;FORCE A TRAP.
8198 043534  004767  176670                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8199 043540  172467  001452                    LDF     NODAT,AC0       ;FSRC MODES PAGE 4.
8200 043544  000004                            IOT                     ;FORCE A TRAP.
8201 043546  004767  176656                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8202 043552  170361  000000                    STST    0(R1)           ;DEST MODES PAGE 33.
8203 043556  000004                            IOT                     ;FORCE A TRAP.
8204 043560  004767  176644                    JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8205 043564  170367  001426                    STST    NODAT           ;DEST MODES PAGE 33.
8206 043570  000004                            IOT                     ;FORCE A TRAP.
8207 043572  005067  133774                    CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
8208 043576  010246                            MOV     R2,-(SP)        ;SAVE R2 FOR NEXT TEST
8209 043600  016767  176622  134212            MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
8210                                            .ENABL  AMA             ;REENABLE MODE 6 TO MODE 3 CONVERSIONS
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8211                                    .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.
                                        ;*
                                        ;;*****************************************************************
    043606  000004                      TST114: SCOPE
8212 043610  012737  044006  000020             MOV     #FALTRP,IOTRAP;SET UP FOR FAILURE OF TRAPS FOR THIS TEST.
8213 043616  012602                      MOV     (SP)+,R2        ;RESTORE R2 FOR THIS TEST
8214 043620  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8215 043624  010201                      MOV     R2,R1           ;SET UP R1 FOR MODE 7.
8216 043626  010204                      MOV     R2,R4           ;MOVE 'START' VALUE TO R4.
8217 043630  170571  000000              TSTF    @0(R1)          ;FDST-NOTCLR PAGE 21.
8218 043634  000004                      IOT                     ;FORCE A TRAP.
8219 043636  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8220 043642  170577  001360              TSTF    @NODAT+10       ;FDST-NOTCLR PAGE 21.
8221 043646  000004                      IOT                     ;FORCE A TRAP.
8222 043650  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8223 043654  170471  000000              CLRF    @0(R1)          ;FDST MODES PAGE 27.
8224 043660  000004                      IOT                     ;FORCE A TRAP.
8225 043662  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8226 043666  170477  001334              CLRF    @NODAT+10       ;FDST MODES PAGE 27.
8227 043672  000004                      IOT                     ;FORCE A TRAP.
8228 043674  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8229 043700  177071  000000              LDCIF   @0(R1),AC0      ;SOURCE MODES PAGE 28.
8230 043704  000004                      IOT                     ;FORCE A TRAP.
8231 043706  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8232 043712  177077  001310              LDCIF   @NODAT+10,AC0   ;SOURCE MODES PAGE 28.
8233 043716  000004                      IOT                     ;FORCE A TRAP.
8234 043720  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8235 043724  172471  000000              LDF     @0(R1),AC0      ;FSRC MODES PAGE 4.
8236 043730  000004                      IOT                     ;FORCE A TRAP.
8237 043732  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8238 043736  172477  001264              LDF     @NODAT+10,AC0   ;FSRC MODES PAGE 4.
8239 043742  000004                      IOT                     ;FORCE A TRAP.
8240 043744  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8241 043750  170371  000000              STST    @0(R1)          ;DEST MODES PAGE 33.
8242 043754  000004                      IOT                     ;FORCE A TRAP.
8243 043756  004737  042430              JSR     PC,SETERL       ;GO SET ERROR LOOP TO ADRS OF NEXT INST ;DPM002
8244 043762  170377  001240              STST    @NODAT+10,      ;DEST MODES PAGE 33.
8245 043766  000004                      IOT                     ;FORCE A TRAP.
8246 043770  005037  177572              CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
8247 043774  013737  042426  000020      MOV     SAVIOT,IOTRAP   ;RESTORE SCOPE TRAP VECTOR
8248 044002  000137  045376              JMP     ENDTES          ;JUMP TO END TEST.
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 8249 044006  005037  177572          FALTRP: CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 8250 044012  011637  001260                  MOV     (SP),$TMP13     ;MOVE NEXT''INSTRUCTION ADDRESS TO $TMP13.
 8251
 8252                                         ;THIS NEXT SECTION NOW CORRECTS THE CONTENTS OF $TMP13 SO THAT IT POINTS
 8253                                         ;TO THE PREVIOUS FPP INSTRUCTION.  IT DOES THIS BY SUBTRACTING 2 FROM THE
 8254                                         ;ADDRESS IN $TMP13, REPLACING THE 170000 THAT THE BIC INSTRUCTION USES,
 8255                                         ;AND BIT CLEARING THE INSTRUCTION WITH 170000.  IF THE INSTRUCTION THAT
 8256                                         ;$TMP13 IS POINTING TO IS NOT AN FPP INSTRUCTION, THE 170000 WILL NOT
 8257                                         ;CLEAR, SATISFYING THE NEXT BRANCH.  THE ADDRESS IS AGAIN CORRECTED,
 8258                                         ;AND THE TESTING PROCESS STARTS OVER.  THIS CONTINUES UNTIL $TMP13 IS
 8259                                         ;POITING TO AN FPP INSTRUCTION, AND NORMALLY WILL NOT BE EXECUTED MORE
 8260                                         ;THAN THREE TIMES BEFORE FINDING THE INSTRUCTION.
 8261 044016  162737  000002  001260  1$:     SUB     #2,$TMP13       ;SUBTRACT 2 FROM $TMP13.
 8262 044024  012737  170000  044036          MOV     #170000,2$+4    ;SET UP BIC DATA LOCATION.
 8263 044032  047727  135222  170000  2$:     BIC     @$TMP13,#170000 ;TEST TO SEE IF FPP INSTRUCTION.
 8264 044040  001366                          BNE     1$              ;BRANCH BACK FOR ANOTHER TRY IF NOT.
 8265 044042  012737  000364  001272          MOV     #364,$TMP20     ;MOVE FAILURE TO ABORT ERROR TO $TMP20.
 8266 044050  000137  045104                  JMP     MULTER          ;JUMP TO MULTIPLE ERROR HANDLER.
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 8267 044054  013737  177574  001236  TRPV:   MOV     SR1,$TMP2       ;MOVE SR1 TO $TMP2 FOR TESTING.
 8268 044062  013737  177576  001260          MOV     MMR2,$TMP13     ;TRANSFER ADDRESS OF INST. CAUSING TRAP TO $TMP13.
 8269 044070  005037  177572                  CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
 8270 044074  112737  000365  001272          MOVB    #365,$TMP20     ;MOVE 365, THE MODE 0 ERROR, TO LOWER BYTE IN ERROR POINTER.
 8271 044102  022737  042556  001260          CMP     #MODE1,$TMP13   ;SEE IF INSTRUCTION CAUSING TRAP IS BEFORE MODE 1 (MODE 0).
 8272 044110  002402                          BLT     1$              ;BRANCH AROUND MODE 0 ERROR JUMP IF NOT.
 8273 044112  000137  045104                  JMP     MULTER          ;JUMP TO ERROR NEST.
 8274 044116  017737  135136  001266  1$:     MOV     @$TMP13,$TMP16  ;MOVE INSTRUCTION CAUSING TRAP TO $TMP16.
 8275 044124  112737  000363  001272          MOVB    #363,$TMP20     ;MOVE 363, SR1 WRONG ERROR, TO LOWER BYTE IN ERROR POINTER.
 8276 044132  005037  001240                  CLR     $TMP3           ;CLEAR CALCULATED LOCATION.
 8277 044136  012737  044330  001244          MOV     #65$,$TMP5      ;MOVE NEXT CHECK ADDRESS TO $TMP5.
 8278 044144  022737  042674  001260          CMP     #LABEL1,$TMP13  ;SEE IF TRAP IS BEFORE MODE 2 REG 1 CLRF INST.
 8279 044152  100053                          BPL     61$             ;BRANCH TO SR1=0 TEST IF SO.
 8280 044154  012737  000060  044166          MOV     #60,200$        ;SET UP BIC DATA POSITION.
 8281 044162  043727  001266          2$:     BIC     $TMP16,(PC)+    ;TEST TO SEE IF MODE 6 OR 7 INSTRUCTION.
 8282 044166  000060                  200$:   .WORD   60              ;LOCATION TO HOLD 60
 8283 044170  001444                          BEQ     61$             ;BRANCH DIRECTLY TO BYTE TABLE TESTING IF SO.
 8284                                         ;THIS NEXT ROUTINE DETERMINES WHICH REGISTER WAS IN THE INSTRUCTION, AND
 8285                                         ;LOADS THE START AND END VALUES OF EITHER R1 OR R7 (PROGRAM COUNTER) INTO
 8286                                         ;$TMP17 AND $TMP3 RESPECTIVELY.  THEY ARE THEN SUBTRACTED TO FIND THE
 8287                                         ;DIFFERENCE THAT ACTUALLY OCCURED.  IF NO DIFFERENCE WAS FOUND, THE TEST
 8288                                         ;FOR ZERO IN SR1 IS ACCOMPLISHED.  IF A DIFFERENCE IS FOUND, THE DIFFERENCE
 8289                                         ;IS SHIFTED LEFT 3 PLACES, THE TOP BYTE IS CLEARED, AND THE REGISTER
 8290                                         ;OF THE INSTRUCTION IS ADDED.  $TMP3 NOW CONTAINS WHAT SHOULD APPEAR
 8291                                         ;IN SR1, ACCORDING TO WHAT ACTUALLY HAPPENED TO THE REGISTER.
 8292 044172  042737  177770  001266  4$:     BIC     #177770,$TMP16  ;BIT CLEAR THE INSTRUCTION, LEAVING THE REG EXPOSED.
 8293 044200  023727  001266  000007          CMP     $TMP16,#7       ;COMPARE REGISTER TO DETERMINE IF IT IS REG 7.
 8294 044206  001405                          BEQ     5$              ;BRANCH TO THE REG 7 SETUP IF EQUAL TO REG 7.
 8295 044210  010437  001270                  MOV     R4,$TMP17       ;MOVE THE START VALUE TO $TMP17.
 8296 044214  010137  001240                  MOV     R1,$TMP3        ;MOVE THE END VALUE TO $TMP3.
 8297 044220  000410                          BR      6$              ;BRANCH TO CONTINUE.
 8298 044222  013737  001260  001270  5$:     MOV     $TMP13,$TMP17   ;MOVE THE START VALUE TO $TMP17.
 8299 044230  062737  000002  001270          ADD     #2,$TMP17       ;ADD 2 TO START VALUE FOR NORMAL INCREMENTING.
 8300 044236  011637  001240                  MOV     (SP),$TMP3      ;MOVE THE END VALUE TO $TMP3.
 8301 044242  163737  001270  001240  6$:     SUB     $TMP17,$TMP3    ;FIND THE DIFFERENCE THAT OCCURED.
 8302 044250  001414                          BEQ     61$             ;BRANCH TO TEST FOR SR1=0 IF NO DIFFERENCE.
 8303 044252  006337  001240                  ASL     $TMP3           ;ARITHMETIC SHIFT LEFT $TMP3 3
 8304 044256  006337  001240                  ASL     $TMP3           ;PLACES TO PUT DIFFERENCE FOUND
 8305 044262  006337  001240                  ASL     $TMP3           ;IN BITS 3 THROUGH 7.
 8306 044266  042737  177400  001240          BIC     #177400,$TMP3   ;BIT CLEAR UPPER BYTE OF $TMP3.
 8307 044274  063737  001266  001240          ADD     $TMP16,$TMP3    ;ADD THE REGISTER THAT WAS CHANGED, AND
 8308 044302  111537  001276          61$:    MOVB    (R5),$TMP22     ;MOVE EXPECTED DATA TO $TMP22.
 8309 044306  123725  001236                  CMPB    $TMP2,(R5)+     ;COMPARE SR1 WITH TABLE DATA.
 8310 044312  001004                          BNE     62$             ;BRANCH TO ERROR JUMP IF WRONG.
 8311 044314  005305                          DEC     R5              ;CORRECT R5 BEFORE NEXT COMPARE.
 8312 044316  123725  001240                  CMPB    $TMP3,(R5)+     ;COMPARE CALCULATED WITH TABLE DATA.
 8313 044322  001402                          BEQ     65$             ;BRANCH AROUND ERROR JUMP IF OK.
 8314 044324  000137  045002          62$:    JMP     7$              ;JUMP TO ERROR REPORT IF INCORRECT.
 8315 044330  132737  000001  001273  65$:    BITB    #1,$TMP20+1     ;TEST TO SEE IF BIT 8 IS SET.
 8316 044336  001402                          BEQ     66$             ;BRANCH AROUND AC SKIP JUMP IF NOT.
 8317 044340  000137  045166                  JMP     RETURN          ;JUMP TO RETURN - AC TESTS ARE TO BE SKIPPED.
 8318 044344  112737  000366  001272  66$:    MOVB    #366,$TMP20     ;MOVE 366, AC LOAD ERROR, TO ERROR POINTER.
 8319 044352  010037  045310                  MOV     R0,STORE+56     ;STORE R0 FOR USE LATER IN THIS ROUTINE.
 8320 044356  005037  001236                  CLR     $TMP2           ;MOVE A '0' IN 'AC CHANGED' LOCATION.
 8321 044362  012737  044426  001244          MOV     #101$,$TMP5     ;MOVE RETURN TO $TMP5.
 8322 044370  173437  045232                  CMPF    STORE,AC0       ;SEE IF AC0 WAS CHANGED.
 8323 044374  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
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 8324 044376  001413                          BEQ     101$            ;BRANCH TO NEXT TEST IF OK.
 8325 044400  174037  045300                  STF     AC0,STORE+46    ;STORE ACTUAL AC0 FOR ERROR PRINTING.
 8326 044404  012700  045232                  MOV     #STORE,R0       ;MOVE ADDRESS OF EXPECTED AC0 TO R0.
 8327                                ;THE NEXT TWO INSTRUCTIONS TRY TO RESTORE THE ACCUMULATOR AND CHECK THE ACCUMULATOR
 8328                                ;TO MAKE SURE IT WAS RESTORED PROPERLY FOR THE NEXT RUN THROUGH THIS TRAP HANDLER.
 8329                                ;IT IS *IMPORTANT* TO REALIZE THAT IF THE "CMPF" FINDS A DIFFERENCE, THAT THE
 8330                                ;*FLOATING*POINT*STATUS* IS BEING CHANGED MISTAKENLY.  AN ERROR IN THE MICROCODE
 8331                                ;HAS BEEN FOUND TO CAUSE THIS, SO CHECK THE REVISION OF THE ROM/PROM SET IN THE
 8332                                ;FPP YOU HAVE.  IF YOU DO HAVE WHAT *SEEMS* TO BE THE LATEST REV, A NEW REV WILL
 8333                                ;BE COMMING OUT TO CORRECT THIS PROBLEM.  THIS SAME "LDF/CMPF" SET OF RESTORE/
 8334                                ;CHECK INSTRUCTIONS IS ACCOMPLISHED FOR EACH ACCUMULATOR CHECK. IT IS ALSO
 8335                                ;IMPORTANT TO NOTE THAT IF AN ACCUMULATOR FAILS TO RESTORE PROPERLY, SUBSEQUENT
 8336                                ;PASSES THROUGH THE TRAP HANDLER WILL SKIP THE ACCUMULATOR CHECKS DUE TO THE
 8337                                ;BIT TEST #400 ABOVE.  FOR EXAMPLE, IF AC0 FAILS TO LOAD PROPERLY, AC1 THROUGH
 8338                                ;AC3 WILL STILL BE CHECKED.  AS SOON AS ANOTHER FPP INSTRUCTION TRAPS IN THE
 8339                                ;MAIN TEST, ALL *FURTHER* AC0-AC3 CHECKS WILL BE SKIPPED.
 8340 044410  172437  045232                  LDF     STORE,AC0       ;RESTORE AC0.
 8341 044414  173437  045232                  CMPF    STORE,AC0       ;SEE IF IT WAS RESTORED PROPERLY.
 8342 044420  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8343 044422  001567                          BEQ     7$              ;BRANCH TO ERROR CALL IF OK.
 8344 044424  000476                          BR      113$            ;BRANCH TO ERROR SETUP ROUTINE.
 8345 044426  012737  000001  001236  101$:   MOV     #1,$TMP2        ;PUT A '1' IN 'AC CHANGED' LOCATION.
 8346 044434  012737  044500  001244          MOV     #102$,$TMP5     ;MOVE RETURN TO $TMP5.
 8347 044442  173537  045242                  CMPF    STORE+10,AC1    ;SEE IF AC1 WAS CHANGED.
 8348 044446  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8349 044450  001413                          BEQ     102$            ;BRANCH TO NEXT TEST IF OK.
 8350 044452  174137  045300                  STF     AC1,STORE+46    ;STORE ACTUAL AC1 FOR ERROR PRINTING.
 8351 044456  012700  045242                  MOV     #STORE+10,R0    ;MOVE ADDRESS OF EXPECTED AC1 TO R0.
 8352 044462  172537  045242                  LDF     STORE+10,AC1    ;RESTORE AC1.
 8353 044466  173537  045242                  CMPF    STORE+10,AC1    ;SEE IF IT WAS RESTORED PROPERLY.
 8354 044472  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8355 044474  001542                          BEQ     7$              ;BRANCH TO ERROR CALL IF OK.
 8356 044476  000451                          BR      113$            ;BRANCH TO ERROR SETUP ROUTINE.
 8357 044500  012737  000002  001236  102$:   MOV     #2,$TMP2        ;PUT A '2' IN 'AC CHANGED' LOCATION.
 8358 044506  012737  044552  001244          MOV     #103$,$TMP5     ;MOVE RETURN TO $TMP5.
 8359 044514  173637  045252                  CMPF    STORE+20,AC2    ;SEE IF AC2 WAS CHANGED.
 8360 044520  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8361 044522  001413                          BEQ     103$            ;BRANCH TO NEXT TEST IF OK.
 8362 044524  174237  045300                  STF     AC2,STORE+46    ;STORE ACTUAL AC2 FOR ERROR PRINTING.
 8363 044530  012700  045252                  MOV     #STORE+20,R0    ;MOVE ADDRESS OF EXPECTED AC2 TO R0.
 8364 044534  172637  045252                  LDF     STORE+20,AC2    ;RESTORE AC2.
 8365 044540  173637  045252                  CMPF    STORE+20,AC2    ;SEE IF IT WAS RESTORED PROPERLY.
 8366 044544  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8367 044546  001515                          BEQ     7$              ;BRANCH TO ERROR CALL IF OK.
 8368 044550  000424                          BR      113$            ;BRANCH TO ERROR SETUP ROUTINE.
 8369 044552  012737  000003  001236  103$:   MOV     #3,$TMP2        ;PUT A '3' IN 'AC CHANGED' LOCATION.
 8370 044560  012737  044632  001244          MOV     #100$,$TMP5     ;MOVE RETURN TO $TMP5.
 8371 044566  173737  045262                  CMPF    STORE+30,AC3    ;SEE IF AC3 WAS CHANGED.
 8372 044572  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8373 044574  001416                          BEQ     100$            ;BRANCH TO NEXT TEST IF OK.
 8374 044576  174337  045300                  STF     AC3,STORE+46    ;STORE ACTUAL AC3 FOR ERROR PRINTING.
 8375 044602  012700  045262                  MOV     #STORE+30,R0    ;MOVE ADDRESS OF EXPECTED AC3 TO R0.
 8376 044606  172737  045262                  LDF     STORE+30,AC3    ;RESTORE AC3.
 8377 044612  173737  045262                  CMPF    STORE+30,AC3    ;SEE IF IT WAS RESTORED PROPERLY.
 8378 044616  170000                          CFCC                    ;COPY FPP CONDITION CODES TO CPU CODES.
 8379 044620  001470                          BEQ     7$              ;BRANCH TO ERROR CALL IF OK.
 8380 044622  012737  000770  001272  113$:   MOV     #770,$TMP20     ;MOVE 370 FOR AC LOAD FAILURE, & SET BIT 8 OF ERROR POINTER.
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8381 044630  000464                        BR      7$              ;BRANCH TO ERROR CALL.
8382 044632  005037  001236          100$:  CLR     $TMP2           ;CLEAR 'REGISTER CHANGED' LOCATION.
8383 044636  112737  000367  001272        MOVB    #367,$TMP20     ;MOVE 367, GENERAL REGISTER CHANGED ERROR, TO POINTER.
8384 044644  012737  044700  001244        MOV     #120$,$TMP5     ;MOVE RETURN TO $TMP5.
8385 044652  023700  045272                CMP     STORE+40,R0     ;SEE IF R0 WAS CHANGED.
8386 044656  001410                        BEQ     120$            ;BRANCH TO NEXT TEST IF OK.
8387 044660  010037  001246                MOV     R0,$TMP6        ;MOVE ACTUAL R0 TO LOCATION FOR ERROR PRINTING.
8388 044664  013737  045272  001240        MOV     STORE+40,$TMP3  ;MOVE EXPECTED TO LOCATION FOR ERROR PRINTING.
8389 044672  013700  045272                MOV     STORE+40,R0     ;RESTORE R0.
8390 044676  000441                        BR      7$              ;BRANCH TO ERROR CALL.
8391 044700  012737  000002  001236  120$:  MOV     #2,$TMP2        ;PUT A '2' IN 'REGISTER CHANGED' LOCATION.
8392 044706  012737  044742  001244        MOV     #130$,$TMP5     ;MOVE RETURN TO $TMP5.
8393 044714  023702  045274                CMP     STORE+42,R2     ;SEE IF R2 WAS CHANGED.
8394 044720  001410                        BEQ     130$            ;BRANCH TO NEXT TEST IF OK.
8395 044722  010237  001246                MOV     R2,$TMP6        ;MOVE ACTUAL R2 TO LOCATION FOR ERROR PRINTING.
8396 044726  013737  045274  001240        MOV     STORE+42,$TMP3  ;MOVE EXPECTED TO LOCATION FOR ERROR PRINTING.
8397 044734  013702  045274                MOV     STORE+42,R2     ;RESTORE R2.
8398 044740  000420                        BR      7$              ;BRANCH TO ERROR CALL.
8399 044742  012737  000003  001260  130$:  MOV     #3,$TMP13       ;PUT A '3' IN 'REGISTER CHANGED' LOCATION.
8400 044750  012737  045166  001244        MOV     #RETURN,$TMP5   ;MOVE RETURN TO $TMP5.
8401 044756  023703  045276                CMP     STORE+44,R3     ;SEE IF R3 WAS CHANGED.
8402 044762  001501                        BEQ     RETURN          ;BRANCH TO RETURN IF OK.
8403 044764  010337  001246                MOV     R3,$TMP6        ;MOVE ACTUAL R3 TO LOCATION FOR ERROR PRINTING.
8404 044770  013737  045276  001240        MOV     STORE+44,$TMP3  ;MOVE EXPECTED TO LOCATION FOR ERROR PRINTING.
8405 044776  013703  045276                MOV     STORE+44,R3     ;RESTORE R3.
8406 045002  116537  177777  045374  7$:   MOVB    -1(R5),EXPCTD   ;MOVE DATA FROM TABLE FOR POSSIBLE USE  ;DPM001
8407 045010  122737  000370  001272        CMPB    #370,$TMP20     ;TEST TO SEE IF AC INFO NEEDS TO BE STORED.
8408 045016  001404                        BEQ     71$             ;BRANCH TO INFO STORE ROUTINE IF SO.
8409 045020  122737  000366  001272        CMPB    #366,$TMP20     ;TEST TO SEE IF AC INFO NEEDS TO BE STORED.
8410 045026  001026                        BNE     MULTER          ;SKIP AC INFO ROUTINE IF NOT.
8411 045030  012037  001240          71$:  MOV     (R0)+,$TMP3     ;MOVE 1ST WORD OF ACTUAL AC DATA TO $TMP3.
8412 045034  012037  001242                MOV     (R0)+,$TMP4     ;MOVE 2ND WORD OF ACTUAL AC DATA TO $TMP4.
8413 045040  012037  001246                MOV     (R0)+,$TMP6     ;MOVE 3RD WORD OF ACTUAL AC DATA TO $TMP6.
8414 045044  012037  001250                MOV     (R0)+,$TMP7     ;MOVE 4TH WORD OF ACTUAL AC DATA TO $TMP7.
8415 045050  013700  045310                MOV     STORE+56,R0     ;RESTORE R0 TO WHAT IT HAD AT BEGINNING OF TRAP.
8416 045054  013737  045300  001252        MOV     STORE+46,$TMP10 ;MOVE 1ST WORD OF EXPECTED AC DATA TO $TMP10.
8417 045062  013737  045302  001254        MOV     STORE+50,$TMP11 ;MOVE 2ND WORD OF EXPECTED AC DATA TO $TMP11.
8418 045070  013737  045304  001256        MOV     STORE+52,$TMP12 ;MOVE 3RD WORD OF EXPECTED AC DATA TO $TMP12.
8419 045076  013737  045306  001274        MOV     STORE+54,$TMP21 ;MOVE 4TH WORD OF EXPECTED AC DATA TO $TMP21.
8420 045104  012637  001266          MULTER: MOV     (SP)+,$TMP16    ;SAVE 1ST CONTENTS OF STACK AND POP IT ONCE.
8421 045110  012637  001270                MOV     (SP)+,$TMP17    ;SAVE 2ND CONTENTS OF STACK AND POP IT AGAIN.
8422 045114  142737  000377  045130        BICB    #377,74$        ;CLEAR OUT LAST ERROR OFFSET FROM ERROR INSTRUCTION.
8423 045122  153737  001272  045130        BISB    $TMP20,74$      ;PUT ERROR NUMBER TO BE ACCOMPLISHED IN ERROR INSTRUCTION.
8424                                       ;THIS ERROR IS DEFINED BY THE CONTENTS OF THE LOWER BYTE OF LOCATION [1272]
8425 045130  104000                  74$:  ERROR   +0
8426 045132  013746  001270                MOV     $TMP17,-(SP)    ;PUSH 2ND CONTENTS BACK ON THE STACK.
8427 045136  013746  001266                MOV     $TMP16,-(SP)    ;PUSH 1ST CONTENTS BACK ON THE STACK.
8428 045142  022737  000364  001272        CMP     #364,$TMP20     ;SEE IF RETURN ROUTINE IS TO BE SKIPPED.
8429 045150  001417                        BEQ     RTI             ;BRANCH TO RTI IF SO.
8430 045152  022737  000365  001272        CMP     #365,$TMP20     ;SEE IF RETURN ROUTINE IS TO BE SKIPPED.
8431 045160  001413                        BEQ     RTI             ;BRANCH TO RTI IF SO.
8432 045162  000177  134056                JMP     @$TMP5          ;JUMP TO CONTINUE CHECKING.
8433 045166  022776  000004  000000  RETURN: CMP     #4,@0(SP)       ;SEE IF INSTRUCTION IS THE IOT.
8434 045174  001403                        BEQ     9$              ;BRANCH IF THE IOT HAS BEEN FOUND.
8435 045176  062716  000002                ADD     #2,(SP)         ;CORRECT PC RETURN.
8436 045202  000771                        BR      RETURN          ;BRANCH BACK FOR ANOTHER TRY.
8437 045204  062716  000002          9$:   ADD     #2,(SP)         ;CORRECT PC RETURN TO POINT AFTER IOT FOUND.
```

```
8438 045210  005237  177572          RTI:    INC     MMR0            ;TURN ON MEMORY MANAGEMENT, AND
8439 045214  000002                          RTI                     ;RETURN FROM INTERRUPT.
8440
8441 045216                          NODAT:  .BLKW   6               ;LOCATION IN NON-RES. D-SPACE USED TO FORCE A TRAP.
8442                                 ;THE 'STORE' LOCATION BELOW IS PARTITIONED TO RESERVE *4* WORDS FOR EACH FP
8443                                 ;ACCUMULATOR, EVEN THOUGH ONLY 2 ARE REQUIRED FOR STORING A FLOATING NUMBER.
8444                                 ;THIS IS BECAUSE *IF* THE FPS IS CHANGED BY A PROBLEM IN THE FPP, SO THAT A
8445                                 ;*DOUBLE* IS STORED, *4* WORDS RESERVED WILL GUARANTEE THAT THE NEXT DATA BLOCK
8446                                 ;WILL NOT BE DISTURBED.  PARTITIONING IS AS FOLLOWS:
8447                                 ;       WORD(S)         USE
8448                                 ;       -------         -------------
8449                                 ;       1 - 4           STORE AC0
8450                                 ;       5 -10           STORE AC1
8451                                 ;       11-14           STORE AC2
8452                                 ;       15-20           STORE AC3
8453                                 ;        21             STORE R0
8454                                 ;        22             STORE R2
8455                                 ;        23             STORE R3
8456                                 ;       24-27           STORE ACTUAL AC
8457                                 ;        30             STORE ACTUAL R0 SO R0 CAN BE USED IN AC ERROR CALLS
8458 045232                          STORE:  .BLKW   30      ;STORAGE LOCATIONS FOR THE FLOATING ACCUMULATORS & DATA.
8459                                 ;THE FOLLOWING BYTE TABLE WILL BE USED TO CHECK THE VALUES OF SR1 AND THE CALCULATED
8460                                 ;VALUES.  SR1 MAY TRACK THE ACTIVE REGISTER PROPERLY, BUT IF THE *VALUE* OF THE
8461                                 ;INCREMENT/DECREMENT IS WRONG, AN ERROR STILL EXISTS.
8462 045312     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
8463 045342     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
8464 045374  000000                 EXPCTD: .WORD   0               ;LOCATION TO HOLD DATA FROM BYTE TABLE  ;DPM001
8465 045376  005037  177572         ENDTES: CLR     MMR0            ;TURN OFF MEMORY MANAGEMENT.
8466 045402  013737  001262  000250         MOV     $TMP14,MMVECT   ;RESTORE MMVECT CONTENTS.
8467 045410  013737  042426  000020         MOV     SAVIOT,IOTRAP   ;RESTORE IOTRAP CONTENTS.
8468 045416                          DIDONE:
     045416  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?).
8469
8470 045420                          TST115:
8471
8472
```

END OF PASS ROUTINE

```
 8474                                   .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
045420                                  $EOP:
045420  000004                                SCOPE
045422  005037  001102                      CLR     $TSTNM          ;;ZERO THE TEST NUMBER
045426  005037  001302                      CLR     $TIMES          ;;ZERO THE NUMBER OF ITERATIONS
045432  005237  001324                      INC     $PASS           ;;INCREMENT THE PASS NUMBER
045436  100004                            BPL     1000$           ;BRANCH IF STILL PLUS                   ;DPM002
045440  005037  001324                      CLR     $PASS           ;CLEAR THE PASS COUNTER                 ;DPM002
045444  005237  046166                      INC     $PASS2          ;INCREMENT OVERFLOW PASS COUNTER        ;DPM002
045450  005327                  1000$:      DEC     (PC)+           ;;LOOP?
045452  000001                  $EOPCT:     .WORD   1
045454  003402                            BLE     999$            ;NO                                     ;DPM002
045456  000137  046114                    JMP     $DOAGN          ;;YES
045462  012737                  999$:     MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
045464  000001                  $ENDCT:   .WORD   1
045466  045452                            $EOPCT
045470  005737  001112                    TST     $ERTTL          ;SEE IF ANY ERRORS THIS PASS            ;DPM002
045474  001007                            BNE     5000$           ;BRANCH IF SO TO PRINT THE EOP          ;DPM002
045476  005737  046164                    TST     EPENDS          ;SEE IF EOP MSGS ARE DISABLED           ;DPM002
045502  001120                            BNE     $GET42          ;BRANCH IF SO                           ;DPM002
045504  032737  000777  001324            BIT     #777,$PASS      ;PRINT EOP EVERY 1000TH PASS            ;DPM002
045512  001114                            BNE     $GET42          ;BRANCH IF NOT MULTIPLE OF 1000         ;DPM002
045514                                  5000$:
045514  104401  045522                    TYPE    ,65$            ;;TYPE ASCIZ STRING
045520  000407                            BR      64$             ;;GET OVER THE ASCIZ
                                        ;;65$:    .ASCIZ  <12><15>/END PASS # /
045540                                  64$:
045540  005737  046166                    TST     $PASS2          ;SEE IF OVERFLOW HAS NON-ZERO VALUE     ;DPM002
045544  001440                            BEQ     4900$           ;BRANCH IF ZERO
045546  013746  046166                    MOV     $PASS2,-(SP)    ;;SAVE $PASS2 FOR TYPEOUT
                                                                  ;;TYPE OVERFLOW PASS NUMBER IN OCTAL    ;DPM002
045552  104403                            TYPOS                   ;;GO TYPE--OCTAL ASCII
045554     006                            .BYTE   6               ;;TYPE 6 DIGITS
045555     000                            .BYTE   0               ;;SUPPRESS LEADING ZEROS
045556  005737  001324                    TST     $PASS           ;SEE IF PASS COUNT IS ZERO              ;DPM002
045562  001007                            BNE     3000$           ;BRANCH IF NOT                          ;DPM002
045564  104401  045572                    TYPE    ,67$            ;;TYPE ASCIZ STRING
045570  000403                            BR      66$             ;;GET OVER THE ASCIZ
                                        ;;67$:    .ASCIZ  !00000!
045600                                  66$:
045600  000426                            BR      4910$           ;GO TEST $ERTTL                         ;DPM002
045602  012737  070000  001244  3000$:   MOV     #70000,$TMP5    ;CHECK 5TH OCTAL DIGIT FIRST            ;DPM002
045610  033737  001244  001324  4000$:   BIT     $TMP5,$PASS     ;CHECK TO SEE IF OCTAL DIGIT IS ZERO    ;DPM002
045616  001013                            BNE     4900$           ;BRANCH OUT IF ZERO                     ;DPM002
045620  104401  045626                    TYPE    ,69$            ;;TYPE ASCIZ STRING
045624  000401                            BR      68$             ;;GET OVER THE ASCIZ
                                        ;;69$:    .ASCIZ  !0!
045630                                  68$:
045630  006237  001244                      ASR     $TMP5           ;SHIFT THE THREE BITS RIGHT 3 PLACES    ;DPM002
045634  006237  001244                      ASR     $TMP5           ;                                       ;DPM002
```

END OF PASS ROUTINE

```
045640  006237  001244                ASR     $TMP5           ;                               ;DPM002
045644  000761                        BR      4000$           ;BRANCH BACK TO CHECK $PASS     ;DPM002
045646                          4900$:
045646  013746  001324                MOV     $PASS,-(SP)     ;;SAVE $PASS FOR TYPEOUT
                                                                ;;TYPE PASS NUMBER IN OCTAL
045652  104403                        TYPOS                   ;;GO TYPE--OCTAL ASCII
045654     006                        .BYTE   6               ;;TYPE 6 DIGITS
045655     000                        .BYTE   0               ;;SUPPRESS LEADING ZEROS
045656  005737  001112          4910$:TST     $ERTTL          ;SEE IF ANY ERRORS THIS PASS    ;DPM002
045662  001426                        BEQ     5001$           ;BRANCH AROUND REPORT IF NONE   ;DPM002
045664  104401  045672                TYPE    ,71$            ;;TYPE ASCIZ STRING
045670  000415                        BR      70$             ;;GET OVER THE ASCIZ
                                ;;71$:  .ASCIZ  /  TOTAL ERRORS THIS PASS /
045724                          70$:
045724  013746  001112                MOV     $ERTTL,-(SP)    ;;SAVE $ERTTL FOR TYPEOUT
                                                                ;;TOTAL NUMBER OF ERRORS IN OCTAL
045730  104403                        TYPOS                   ;;GO TYPE--OCTAL ASCII
045732     006                        .BYTE   6               ;;TYPE 6 DIGITS
045733     000                        .BYTE   0               ;;SUPPRESS LEADING ZEROS
045734  005037  001112                CLR     $ERTTL          ;;CLEAR ERROR TOTAL
045740  104401  001313          5001$:TYPE    ,$CRLF          ;;TYPE CARRIAGE RETURN, LINE FEED
045744  105777  133174          $GET42:TSTB   @$TKS           ;IS A CHARACTER WAITING?        ;DPM002
045750  100042                        BPL     $GT42C          ;BRANCH IF NOT                  ;DPM002
045752  013737  001146  001244        MOV     $TKB,$TMP5      ;WASTE THE CHARACTER, CLEARING READY ;DPM002
045760  005737  046164                TST     EPENDS          ;SEE WHICH STATE ENABLE/DISABLE IS IN ;DPM002
045764  001017                        BNE     $DISAB          ;BRANCH IF EOP'S DISABLED       ;DPM002
045766  005237  046164                INC     EPENDS          ;SET FLAG DISABLING PRINTOUTS   ;DPM002
045772  104401  046000                TYPE    ,65$            ;;TYPE ASCIZ STRING
045776  000411                        BR      64$             ;;GET OVER THE ASCIZ
                                ;;65$:  .ASCIZ  <CRLF>!EOP'S DISABLED!<CRLF>
046022                          64$:
046022  000415                        BR      $GT42C          ;BRANCH OVER ENABLE ROUTINE     ;DPM002
046024  005037  046164          $DISAB:CLR    EPENDS          ;CLEAR FLAG ENABLING PRINTOUTS  ;DPM002
046030  104401  046036                TYPE    ,65$            ;;TYPE ASCIZ STRING
046034  000410                        BR      64$             ;;GET OVER THE ASCIZ
                                ;;65$:  .ASCIZ  <CRLF>!EOP'S ENABLED!<CRLF>
046056                          64$:
046056  013700  000042          $GT42C:MOV    @#42,R0         ;;GET MONITOR ADDRESS
046062  001414                        BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
046064  005046                        CLR     -(SP)           ;;INSURE THE "T" BIT IS CLEAR
046066  012746  046074                MOV     #$CLR.T,-(SP)   ;;SETUP FOR AN RTI OR RTT
046072  000426                        BR      $RTRN           ;;GO DO AN RTI OR RTT TO LOAD THE PSW
                                                                ;;WITH A CLEARED "T" BIT
046074                          $CLR.T:
046074  013700  000042                MOV     @#42,R0         ;;INSURE R0 CONTAINS THE MONITORS
046100  001405                        BEQ     $DOAGN          ;;RETURN ADDRESS
046102  000005                        RESET                   ;;CLEAR THE WORLD
046104  004710          $ENDAD: JSR     PC,(R0)         ;;GO TO MONITOR
046106  000240                        NOP                     ;;SAVE ROOM
046110  000240                        NOP                     ;;FOR
046112  000240                        NOP                     ;;ACT11
046114                          $DOAGN:
046114  104400                        TRAP                    ;;PUSH OLD PSW AND PC ON STACK
046116  042716  000020                BIC     #20,(SP)        ;;CLEAR THE "T" BIT
046122  032777  010000  133010        BIT     #BIT12,@SWR     ;;RUN WITH TRACE TRAP?
046130  001005                        BNE     1$              ;;BR IF NO
046132  005137  046156                COM     $TBIT           ;;IS IT TIME FOR TRACE TRAP
```

END OF PASS ROUTINE

```
046136  100402                          BMI     1$                      ;;BR IF NO
046140  052716  000020                  BIS     #20,(SP)                ;;SET TRACE TRAP
046144  012746  046152          1$:     MOV     #$LOOP,-(SP)            ;;JUMP TO START OF TEST
046150  000002                  $RTRN:  RTI                             ;;RETURN--THIS IS CHANGED TO
                                                                        ;;AN 'RTT' IF 'RTT' IS A LEGAL
                                                                        ;;INSTRUCTION
046152                          $LOOP:
046152  000137                          JMP     @(PC)+                  ;;RETURN
046154  006764                  $RTNAD: .WORD   LOOP
046156  000000                  $TBIT:  .WORD   0                       ;;"T" BIT STATE INDICATOR
046160     377     377     000  $ENULL: .BYTE   -1,-1,0                 ;;NULL CHARACTER STRING
                                        .EVEN
046164  000000                  EPENDS: .WORD   0                       ;LOCATION FOR EOP PRINT FLAG        ;DPM002
046166  000000                  $PASS2: .WORD   0                       ;LOCATION FOR PASS COUNT OVERFLOW   ;DPM002
```

SCOPE HANDLER ROUTINE

```
 8476                                   .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

046170                                  $SCOPE:
046170  104406                                 CKSWR                   ;;TEST  FOR CHANGE IN SOFT-SWR
046172  032777  040000  132740          1$:    BIT     #BIT14,@SWR     ;;LOOP ON PRESENT TEST?
046200  001134                                 BNE     $OVER           ;;YES IF SW14=1
                                        ;#####START OF CODE FOR THE XOR TESTER#####
046202  000416                          $XTSTR: BR      6$              ;;IF RUNNING ON THE "XOR" TESTER CHANGE
                                                                        ;;THIS INSTRUCTION TO A "NOP" (NOP=240)
046204  013746  000004                         MOV     ERRVEC,-(SP)    ;;SAVE THE CONTENTS OF THE ERROR VECTOR
046210  012737  046230  000004                 MOV     #5$,ERRVEC      ;;SET FOR TIMEOUT
046216  005737  177060                         TST     177060  ;;TIME OUT ON XOR?
046222  012637  000004                         MOV     (SP)+,ERRVEC    ;;RESTORE THE ERROR VECTOR
046226  000503                                 BR      $SVLAD          ;;GO TO THE NEXT TEST
046230  022626                          5$:    CMP     (SP)+,(SP)+     ;;CLEAR THE STACK AFTER A TIME OUT
046232  012637  000004                         MOV     (SP)+,ERRVEC    ;;RESTORE THE ERROR VECTOR
046236  000443                                 BR      7$              ;;LOOP ON THE PRESENT TEST
046240                                  6$:;#####END OF CODE FOR THE XOR TESTER#####
046240  032777  000400  132672                 BIT     #BIT08,@SWR     ;;LOOP ON SPEC. TEST?
046246  001404                                 BEQ     2$              ;;BR IF NO
046250  127737  132664  001102                 CMPB    @SWR,$TSTNM     ;;ON THE RIGHT TEST?    SWR<7:0>
046256  001505                                 BEQ     $OVER           ;;BR IF YES
046260  013737  177766  046506          2$:    MOV     177766,CPSAVE   ;MOVE CPU ERR REG VALUE TO LOC FOR TST  ;DPM001
046266  032737  000001  046506                 BIT     #BIT00,CPSAVE   ;SEE IF THE POWER MONITOR BIT IS ON     ;DPM001
046274  001411                                 BEQ     2000$           ;BRANCH TO CONTINUE ROUTINE IF CLEAR    ;DPM001
046276  042737  000001  177766                 BIC     #BIT00,177766   ;CLEAR THE BIT FOUND TO BE SET         ;DPM001
046304  012737  177777  001320                 MOV     #-1,$FATAL      ;MOVE -1 TO $FATAL INDICATING PWR MON ER;DPM001
046312  104177                                 ERROR   +177            ;CALL SPECIAL POWER FAIL BIT ERROR CALL ;DPM001
046314  105037  001103                         CLRB    $ERFLG          ;CLEAR ERROR FLAG FOR CHECK BELOW       ;DPM001
046320  105737  001103          2000$:         TSTB    $ERFLG          ;;HAS AN ERROR OCCURRED?
046324  001421                                 BEQ     3$              ;;BR IF NO
046326  123737  001115  001103                 CMPB    $ERMAX,$ERFLG   ;;MAX. ERRORS FOR THIS TEST OCCURRED?
046334  101015                                 BHI     3$              ;;BR IF NO
046336  032777  001000  132574                 BIT     #BIT09,@SWR     ;;LOOP ON ERROR?
046344  001404                                 BEQ     4$              ;;BR IF NO
046346  013737  001110  001106          7$:    MOV     $LPERR,$LPADR   ;;SET LOOP ADDRESS TO LAST SCOPE
046354  000446                                 BR      $OVER
046356  105037  001103          4$:    CLRB    $ERFLG          ;;ZERO THE ERROR FLAG
046362  005037  001302                         CLR     $TIMES          ;;CLEAR THE NUMBER OF ITERATIONS TO MAKE
046366  000415                                 BR      1$              ;;ESCAPE TO THE NEXT TEST
046370  032777  004000  132542          3$:    BIT     #BIT11,@SWR     ;;INHIBIT ITERATIONS?
046376  001011                                 BNE     1$              ;;BR IF YES
046400  005737  001324                         TST     $PASS           ;;IF FIRST PASS OF PROGRAM
046404  001406                                 BEQ     1$              ;;      INHIBIT ITERATIONS
046406  005237  001104                         INC     $ICNT           ;;INCREMENT ITERATION COUNT
```

SCOPE HANDLER ROUTINE

```
046412  023737  001302  001104          CMP     $TIMES,$ICNT    ;;CHECK THE NUMBER OF ITERATIONS MADE
046420  002024                          BGE     $OVER           ;;BR IF MORE ITERATION REQUIRED
046422  012737  000001  001104  1$:     MOV     #1,$ICNT        ;;REINITIALIZE THE ITERATION COUNTER
046430  013737  046510  001302          MOV     $MXCNT,$TIMES   ;;SET NUMBER OF ITERATIONS TO DO
046436  105237  001102          $SVLAD: INCB    $TSTNM          ;;COUNT TEST NUMBERS
046442  113737  001102  001322          MOVB    $TSTNM,$TESTN   ;;SET TEST NUMBER IN APT MAILBOX
046450  011637  001106                  MOV     (SP),$LPADR     ;;SAVE SCOPE LOOP ADDRESS
046454  011637  001110                  MOV     (SP),$LPERR     ;;SAVE ERROR LOOP ADDRESS
046460  005037  001304                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE FROM ERROR ADDRESS
046464  112737  000001  001115          MOVB    #1,$ERMAX       ;;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
046472  013777  001102  132442  $OVER:  MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER
046500  013716  001106                  MOV     $LPADR,(SP)     ;;FUDGE RETURN ADDRESS
046504  000002                          RTI                     ;;FIXES PS
046506  000000          CPSAVE: .WORD   0       ;LOCATION TO SAVE CPU ERR REG CONTENTS  ;DPM001
046510  000001          $MXCNT: 1               ;;MAX. NUMBER OF ITERATIONS
```

```
 8478                                   .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

046512  000000                  IBSAVE: .WORD   0               ;LOC'N TO HOLD $ERRPC DURING DUAL ERR   ;DPM001
046514                          $ERROR:
046514  104406                          CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
046516  105237  001103        7$:     INCB    $ERFLG          ;;SET THE ERROR FLAG
046522  001775                          BEQ     7$              ;;DON'T LET THE FLAG GO TO ZERO
046524  013777  001102  132410        MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER AND ERROR FLAG
046532  032777  002000  132400        BIT     #BIT10,@SWR     ;;BELL ON ERROR?
046540  001402                          BEQ     1$              ;;NO - SKIP
046542  104401  001306                TYPE    ,$BELL          ;;RING BELL
046546  005237  001112        1$:     INC     $ERTTL          ;;COUNT THE NUMBER OF ERRORS
046552  011637  001116                MOV     (SP),$ERRPC     ;;GET ADDRESS OF ERROR INSTRUCTION
046556  162737  000002  001116        SUB     #2,$ERRPC
046564  117737  132326  001114        MOVB    @$ERRPC,$ITEMB  ;;STRIP AND SAVE THE ERROR ITEM CODE
046572  122737  000177  001114        CMPB    #177,$ITEMB     ;SEE IF PWR MON ERROR CALL              ;DPM001
046600  001421                          BEQ     1000$           ;BRANCH IF SO TO CALL THE ERROR         ;DPM001
046602  013737  177766  046506        MOV     177766,CPSAVE   ;MOVE CPU ERR REG TO CPSAVE FOR TEST    ;DPM001
046610  032737  000001  046506        BIT     #BIT00,CPSAVE   ;SEE IF POWER MONITOR BIT IS SET        ;DPM001
046616  001412                          BEQ     1000$           ;BRANCH IF OK                           ;DPM001
046620  042737  000001  177766        BIC     #BIT00,177766   ;CLEAR THE BIT FOUND SET               ;DPM001
046626  013737  001116  046512        MOV     $ERRPC,IBSAVE   ;SAVE $ERROR                            ;DPM001
046634  104177                          ERROR   +177            ;CALL POWER MONITOR BIT ERROR           ;DPM001
046636  013737  046512  001116        MOV     IBSAVE,$ERRPC   ;RESTORE $ERROR                         ;DPM001
046644                          1000$:
046644  032777  020000  132266        BIT     #BIT13,@SWR     ;;SKIP TYPEOUT IF SET
046652  001004                          BNE     20$             ;;SKIP TYPEOUTS
046654  004737  051152                JSR     PC,ERTYPE       ;;GO TO USER ERROR ROUTINE
046660  104401  001313                TYPE    ,$CRLF
046664                          20$:
046664  122737  000001  001336        CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
046672  001023                          BNE     2$              ;;NO,SKIP APT ERROR REPORT
046674  005037  046736                CLR     21$             ;CLEAR ANY PREVIOUS NUMBER FROM 21$     ;DPM001
046700  113737  001114  046736        MOVB    $ITEMB,21$      ;;SET ITEM NUMBER AS ERROR NUMBER
046706  122737  000377  001114        CMPB    #377,$ITEMB     ;SEE IF ITEM # IS OVER 400              ;DPM001
046714  001006                          BNE     900$            ;BRANCH IF NOT                          ;DPM001
046716  012737  000400  046736        MOV     #400,21$        ;MOVE BASE OF 400 TO 21$                ;DPM001
046724  067737  132166  046736        ADD     @$ERRPC,21$     ;ADD NUMBER OVER 400 TO 21$             ;DPM001
046732  004737  050006          900$: JSR     PC,$ATY4        ;;REPORT FATAL ERROR TO APT
046736     000          21$:    .BYTE   0
046737     000                  .BYTE   0
046740  000777          22$:    BR      22$             ;;APT ERROR LOOP
046742  005737  046512    2$:   TST     IBSAVE          ;SEE IF POWER FAIL ERROR CALL           ;DPM001
046746  001005                  BNE     3$              ;BRANCH IF NOT - HALT NOT ALLOWED       ;DPM001
046750  005777  132164          TST     @SWR            ;;HALT ON ERROR
```

```
046754  100002                          BPL     3$              ;;SKIP IF CONTINUE
046756  000000                          HALT                    ;;HALT ON ERROR!
046760  104406                          CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
046762  032777  001000  132150  3$:     BIT     #BIT09,@SWR     ;;LOOP ON ERROR SWITCH SET?
046770  001405                          BEQ     4$              ;;BR IF NO
046772  005737  046512                  TST     IBSAVE          ;SEE IF ERROR IS PWR MONITOR BIT ERROR  ;DPM001
046776  001002                          BNE     4$              ;BRANCH IF SO - DON'T FUDGE RETURN      ;DPM001
047000  013716  001110                  MOV     $LPERR,(SP)     ;;FUDGE RETURN FOR LOOPING
047004  005737  001304          4$:     TST     $ESCAPE         ;;CHECK FOR AN ESCAPE ADDRESS
047010  001405                          BEQ     5$              ;;BR IF NONE
047012  005737  046512                  TST     IBSAVE          ;SEE IF ERROR IS PWR MONITOR BIT ERROR  ;DPM001
047016  001002                          BNE     5$              ;BRANCH IF SO - DON'T FUDGE RETURN      ;DPM001
047020  013716  001304                  MOV     $ESCAPE,(SP)    ;;FUDGE RETURN ADDRESS FOR ESCAPE
047024                          5$:
047024  022737  046104  000042          CMP     #$ENDAD,42      ;;ACT-11 AUTO-ACCEPT?
047032  001001                          BNE     6$              ;;BRANCH IF NO
047034  000000                          HALT                    ;;YES
047036                          6$:
047036  032777  001000  132074          BIT     #BIT09,@SWR
047044  001013                          BNE     ERM10
047046  011637  001162                  MOV     (SP),$REG0              ;SEE IF ERROR #377
047052  062737  177776  001162          ADD     #-2,$REG0
047060  122777  000377  132074          CMPB    #377,@$REG0
047066  001002                          BNE     ERM10
047070  062716  000002                  ADD     #2,(SP)
047074  000002                  ERM10:  RTI
```

```
SAVE AND RESTORE R0-R5 ROUTINES

  8480                          .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:
     047076
     047076  010046                     MOV     R0,-(SP)        ;;PUSH R0 ON STACK
     047100  010146                     MOV     R1,-(SP)        ;;PUSH R1 ON STACK
     047102  010246                     MOV     R2,-(SP)        ;;PUSH R2 ON STACK
     047104  010346                     MOV     R3,-(SP)        ;;PUSH R3 ON STACK
     047106  010446                     MOV     R4,-(SP)        ;;PUSH R4 ON STACK
     047110  010546                     MOV     R5,-(SP)        ;;PUSH R5 ON STACK
     047112  016646  000022             MOV     22(SP),-(SP)    ;;SAVE PS OF MAIN FLOW
     047116  016646  000022             MOV     22(SP),-(SP)    ;;SAVE PC OF MAIN FLOW
     047122  016646  000022             MOV     22(SP),-(SP)    ;;SAVE PS OF CALL
     047126  016646  000022             MOV     22(SP),-(SP)    ;;SAVE PC OF CALL
     047132  000002                     RTI
                                ;*RESTORE R0-R5
                                ;*CALL:
                                ;*      RESREG
     047134
                                $RESREG:
     047134  012666  000022             MOV     (SP)+,22(SP)    ;;RESTORE PC OF CALL
     047140  012666  000022             MOV     (SP)+,22(SP)    ;;RESTORE PS OF CALL
     047144  012666  000022             MOV     (SP)+,22(SP)    ;;RESTORE PC OF MAIN FLOW
     047150  012666  000022             MOV     (SP)+,22(SP)    ;;RESTORE PS OF MAIN FLOW
     047154  012605                     MOV     (SP)+,R5        ;;POP STACK INTO R5
     047156  012604                     MOV     (SP)+,R4        ;;POP STACK INTO R4
     047160  012603                     MOV     (SP)+,R3        ;;POP STACK INTO R3
     047162  012602                     MOV     (SP)+,R2        ;;POP STACK INTO R2
     047164  012601                     MOV     (SP)+,R1        ;;POP STACK INTO R1
     047166  012600                     MOV     (SP)+,R0        ;;POP STACK INTO R0
     047170  000002                     RTI
```

```
 8482                                   .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
                                        ;*
047172  000000                          EOASCI: .WORD   0               ;LOC TO HOLD ADRS OF TERMINATOR BYTE    ;DPM001
047174  105737  001157                  $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
047200  100002                                  BPL     1$              ;;BR IF YES
047202  000000                                  HALT                    ;;HALT HERE IF NO TERMINAL
047204  000432                                  BR      3$              ;;LEAVE
047206  010046                          1$:     MOV     R0,-(SP)        ;;SAVE R0
047210  017600  000002                          MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
047214  122737  000001  001336                  CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
047222  001011                                  BNE     62$             ;;NO,GO CHECK FOR APT CONSOLE
047224  132737  000100  001337                  BITB    #APTSPOOL,$ENVM ;;SPOOL MESSAGE TO APT
047232  001405                                  BEQ     62$             ;;NO,GO CHECK FOR CONSOLE
047234  010037  047244                          MOV     R0,61$          ;;SETUP MESSAGE ADDRESS FOR APT
047240  004737  047776                          JSR     PC,$ATY3        ;;SPOOL MESSAGE TO APT
047244  000000                          61$:    .WORD   0               ;;MESSAGE ADDRESS
047246  132737  000040  001337          62$:    BITB    #APTCSUP,$ENVM  ;;APT CONSOLE SUPPRESSED
047254  001005                                  BNE     60$             ;;YES,SKIP TYPE OUT
047256  112046                          2$:     MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
047260  001007                                  BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
047262  005726                                  TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
047264  010037  047172                          MOV     R0,EOASCI       ;SAVE ADRS OF TERMINATOR - POSSIBLY USED;DPM001
047270  012600                          60$:    MOV     (SP)+,R0        ;;RESTORE R0
047272  062716  000002                  3$:     ADD     #2,(SP)         ;;ADJUST RETURN PC
047276  000002                                  RTI                     ;;RETURN
047300  122716  000011                  4$:     CMPB    #HT,(SP)        ;;BRANCH IF <HT>
047304  001430                                  BEQ     8$
047306  122716  000200                          CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
047312  001006                                  BNE     5$
047314  005726                                  TST     (SP)+           ;;POP  <CR><LF> EQUIV
047316  104401                                  TYPE                    ;;TYPE A CR AND LF
047320  001313                                  $CRLF
047322  105037  047530                          CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
047326  000753                                  BR      2$              ;;GET NEXT CHARACTER
047330  004737  047412                  5$:     JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
047334  123726  001156                  6$:     CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
047340  001346                                  BNE     2$              ;;IF NO GO GET NEXT CHAR.
047342  013746  001154                          MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
                                                                        ;;AND THE NULL CHAR.
047346  105366  000001                  7$:     DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
047352  002770                                  BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
047354  004737  047412                          JSR     PC,$TYPEC       ;;GO TYPE A NULL
047360  105337  047530                          DECB    $CHARCNT        ;;DO NOT COUNT AS A COUNT
```

```
047364  000770                          BR      7$              ;;LOOP

                                ;HORIZONTAL TAB PROCESSOR

047366  112716  000040          8$:     MOVB    #' ,(SP)        ;;REPLACE TAB WITH SPACE
047372  004737  047412          9$:     JSR     PC,$TYPEC       ;;TYPE A SPACE
047376  132737  000007  047530          BITB    #7,$CHARCNT     ;;BRANCH IF NOT AT
047404  001372                          BNE     9$              ;;TAB STOP
047406  005726                          TST     (SP)+           ;;POP SPACE OFF STACK
047410  000722                          BR      2$              ;;GET NEXT CHARACTER
047412                          $TYPEC:
047412  105777  131526                  TSTB    @$TKS           ;;CHAR IN KYBD BUFFER?          ;MJD001
047416  100022                          BPL     10$             ;;BR IF NOT                     ;MJD001
047420  017746  131522                  MOV     @$TKB,-(SP)     ;;GET CHAR                      ;MJD001
047424  042716  177600                  BIC     #177600,(SP)    ;;STRIP EXTRANEOUS BITS         ;MJD001
047430  122716  000023                  CMPB    #$XOFF,(SP)     ;;WAS CHAR XOFF                 ;MJD001
047434  001012                          BNE     102$            ;;BR IF NOT                     ;MJD001
047436                          101$:                                                           ;MJD001
047436  105777  131502                  TSTB    @$TKS           ;;WAIT FOR CHAR                 ;MJD001
047442  100375                          BPL     101$                                            ;MJD001
047444  117716  131476                  MOVB    @$TKB,(SP)      ;;GET CHAR                      ;MJD001
047450  042716  177600                  BIC     #177600,(SP)    ;;STRIP IT                      ;MJD001
047454  122716  000021                  CMPB    #$XON,(SP)      ;;WAS IT XON?                   ;MJD001
047460  001366                          BNE     101$            ;;BR IF NOT                     ;MJD001
047462                          102$:                                                           ;MJD001
047462  005726                          TST     (SP)+           ;;FIX STACK                     ;MJD001
047464                          10$:                                                            ;MJD001
047464  105777  131460                  TSTB    @$TPS           ;;WAIT UNTIL PRINTER IS READY
047470  100375                          BPL     10$                                             ;MJD001
047472  116677  000002  131452          MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
047500  122766  000015  000002          CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
047506  001003                          BNE     1$              ;;BRANCH IF NO
047510  105037  047530                  CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
047514  000406                          BR      $TYPEX          ;;EXIT
047516  122766  000012  000002  1$:     CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
047524  001402                          BEQ     $TYPEX          ;;BRANCH IF YES
047526  105227                          INCB    (PC)+           ;;COUNT THE CHARACTER
047530  000000                  $CHARCNT:.WORD  0               ;;CHARACTER COUNT STORAGE
047532  000207                  $TYPEX: RTS     PC
```

```
                                .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.
                                ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
                                ;*CALL:
                                ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
                                ;*      TYPOS                   ;;CALL FOR TYPEOUT
                                ;*      .BYTE   N               ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
                                ;*      .BYTE   M               ;;M=1 OR 0
                                ;*                                      ;;1=TYPE LEADING ZEROS
                                ;*                                      ;;0=SUPPRESS LEADING ZEROS
                                ;*
                                ;*$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

047534  017646  000000          $TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
047540  116637  000001  047765          MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
047546  112637  047767                  MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
047552  062716  000002                  ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
047556  000406                          BR      $TYPON
047560  112737  000001  047765  $TYPOC: MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
047566  112737  000006  047767          MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
047574  112737  000005  047764  $TYPON: MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
047602  010346                          MOV     R3,-(SP)        ;;SAVE R3
047604  010446                          MOV     R4,-(SP)        ;;SAVE R4
047606  010546                          MOV     R5,-(SP)        ;;SAVE R5
047610  113704  047767                  MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
047614  005404                          NEG     R4
047616  062704  000006                  ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
047622  110437  047766                  MOVB    R4,$OMODE       ;;SAVE IT FOR USE
047626  113704  047765                  MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
047632  016605  000012                  MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
047636  005003                          CLR     R3              ;;CLEAR THE OUTPUT WORD
047640  006105                  1$:     ROL     R5              ;;ROTATE MSB INTO "C"
047642  000404                          BR      3$              ;;GO DO MSB
047644  006105                  2$:     ROL     R5              ;;FORM THIS DIGIT
047646  006105                          ROL     R5
047650  006105                          ROL     R5
047652  010503                          MOV     R5,R3
047654  006103                  3$:     ROL     R3              ;;GET LSB OF THIS DIGIT
047656  105337  047766                  DECB    $OMODE          ;;TYPE THIS DIGIT?
047662  100021                          BPL     7$              ;;BR IF NO
047664  042703  177770                  BIC     #177770,R3      ;;GET RID OF JUNK
047670  001002                          BNE     4$              ;;TEST FOR 0
047672  005704                          TST     R4              ;;SUPPRESS THIS 0?
047674  001403                          BEQ     5$              ;;BR IF YES
047676  005204                  4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
```

BINARY TO OCTAL (ASCII) AND TYPE

```
047700  052703  000060            BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
047704  052703  000040      5$:   BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
047710  122703  000040            CMPB    #' ,R3          ;IS THIS A SPACE CHARACTER?     ;DPM002
047714  001404                    BEQ     7$              ;BRANCH IF SO - DON'T TYPE      ;DPM002
047716  110337  047762            MOVB    R3,8$           ;;SAVE FOR TYPING
047722  104401  047762            TYPE    ,8$             ;;GO TYPE THIS DIGIT
047726  105337  047764      7$:   DECB    $OCNT           ;;COUNT BY 1
047732  003344                    BGT     2$              ;;BR IF MORE TO DO
047734  002402                    BLT     6$              ;;BR IF DONE
047736  005204                    INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
047740  000741                    BR      2$              ;;GO DO THE LAST DIGIT
047742  012605      6$:           MOV     (SP)+,R5        ;;RESTORE R5
047744  012604                    MOV     (SP)+,R4        ;;RESTORE R4
047746  012603                    MOV     (SP)+,R3        ;;RESTORE R3
047750  016666  000002  000004    MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
047756  012616                    MOV     (SP)+,(SP)
047760  000002                    RTI                     ;;RETURN
047762     000      8$:           .BYTE   0               ;;STORAGE FOR ASCII DIGIT
047763     000                    .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
047764     000      $OCNT:        .BYTE   0               ;;OCTAL DIGIT COUNTER
047765     000      $OFILL:       .BYTE   0               ;;ZERO FILL SWITCH
047766  000000      $OMODE:       .WORD   0               ;;NUMBER OF DIGITS TO TYPE
```

```
 8486                                   .SBTTL  APT COMMUNICATIONS ROUTINE
                                        ;;*****************************************************************
 047770  112737  000001  050234  $ATY1:  MOVB    #1,$FFLG        ;;TO REPORT FATAL ERROR
 047776  112737  000001  050232  $ATY3:  MOVB    #1,$MFLG        ;;TO TYPE A MESSAGE
 050004  000403                         BR      $ATYC
 050006  112737  000001  050234  $ATY4:  MOVB    #1,$FFLG        ;;TO ONLY REPORT FATAL ERROR
 050014                          $ATYC:
 050014  010046                         MOV     R0,-(SP)        ;;PUSH R0 ON STACK
 050016  010146                         MOV     R1,-(SP)        ;;PUSH R1 ON STACK
 050020  105737  050232                 TSTB    $MFLG           ;;SHOULD TYPE A MESSAGE?
 050024  001450                         BEQ     5$              ;;IF NOT:  BR
 050026  122737  000001  001336         CMPB    #APTENV,$ENV    ;;OPERATING UNDER APT?
 050034  001031                         BNE     3$              ;;IF NOT:  BR
 050036  132737  000100  001337         BITB    #APTSPOOL,$ENVM ;;SHOULD SPOOL MESSAGES?
 050044  001425                         BEQ     3$              ;;IF NOT:  BR
 050046  017600  000004                 MOV     @4(SP),R0       ;;GET MESSAGE ADDR.
 050052  062766  000002  000004         ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
 050060  005737  001316          1$:    TST     $MSGTYPE        ;;SEE IF DONE W/ LAST XMISSION?
 050064  001375                         BNE     1$              ;;IF NOT:  WAIT
 050066  010037  001332                 MOV     R0,$MSGAD       ;;PUT ADDR IN MAILBOX
 050072  105720                  2$:    TSTB    (R0)+           ;;FIND END OF MESSAGE
 050074  001376                         BNE     2$
 050076  163700  001332                 SUB     $MSGAD,R0       ;;SUB START OF MESSAGE
 050102  006200                         ASR     R0              ;;GET MESSAGE LNGTH IN WORDS
 050104  010037  001334                 MOV     R0,$MSGLGT      ;;PUT LENGTH IN MAILBOX
 050110  012737  000004  001316         MOV     #4,$MSGTYPE     ;;TELL APT TO TAKE MSG.
 050116  000413                         BR      5$
 050120  017637  000004  050144  3$:    MOV     @4(SP),4$       ;;PUT MSG ADDR IN JSR LINKAGE
 050126  062766  000002  000004         ADD     #2,4(SP)                ;;BUMP RETURN ADDRESS
 050134  013746  177776                 MOV     177776,-(SP)    ;;PUSH 177776 ON STACK
 050140  004737  047174                 JSR     PC,$TYPE        ;;CALL TYPE MACRO
 050144  000000                  4$:    .WORD   0
 050146                          5$:
 050146  105737  050234          10$:   TSTB    $FFLG           ;;SHOULD REPORT FATAL ERROR?
 050152  001416                         BEQ     12$             ;;IF NOT:  BR
 050154  005737  001336                 TST     $ENV            ;;RUNNING UNDER APT?
 050160  001413                         BEQ     12$             ;;IF NOT:  BR
 050162  005737  001316          11$:   TST     $MSGTYPE        ;;FINISHED LAST MESSAGE?
 050166  001375                         BNE     11$             ;;IF NOT:  WAIT
 050170  017637  000004  001320         MOV     @4(SP),$FATAL   ;;GET ERROR #
 050176  062766  000002  000004         ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
 050204  005237  001316                 INC     $MSGTYPE        ;;TELL APT TO TAKE ERROR
 050210  105037  050234          12$:   CLRB    $FFLG           ;;CLEAR FATAL FLAG
 050214  105037  050233                 CLRB    $LFLG           ;;CLEAR LOG FLAG
 050220  105037  050232                 CLRB    $MFLG           ;;CLEAR MESSAGE FLAG
 050224  012601                         MOV     (SP)+,R1        ;;POP STACK INTO R1
 050226  012600                         MOV     (SP)+,R0        ;;POP STACK INTO R0
 050230  000207                         RTS     PC              ;;RETURN
 050232     000          $MFLG:  .BYTE   0               ;;MESSG. FLAG
 050233     000          $LFLG:  .BYTE   0               ;;LOG FLAG
 050234     000          $FFLG:  .BYTE   0               ;;FATAL FLAG
                                 .EVEN
            000200       APTSIZE=200
            000001       APTENV=001
            000100       APTSPOOL=100
            000040       APTCSUP=040
```

```
 8488                                   .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.
050236  022737  000176  001140  $CKSWR: CMP     #SWREG,SWR      ;;IS THE SOFT-SWR SELECTED?
050244  001074                        BNE     15$             ;;BRANCH IF NO
050246  105777  130672                TSTB    @$TKS           ;;CHAR THERE?
050252  100071                        BPL     15$             ;;IF NO, DON'T WAIT AROUND
050254  117746  130666                MOVB    @$TKB,-(SP)     ;;SAVE THE CHAR
050260  042716  177600                BIC     #^C177,(SP)     ;;STRIP-OFF THE ASCII
050264  022726  000007                CMP     #7,(SP)+        ;;IS IT A CONTROL G?
050270  001062                        BNE     15$             ;;NO, RETURN TO USER
050272  123727  001134  000001        CMPB    $AUTOB,#1       ;;ARE WE RUNNING IN AUTO-MODE?
050300  001456                        BEQ     15$             ;;BRANCH IF YES
050302  104401  050655                TYPE    ,$CNTLG         ;;ECHO THE CONTROL-G (^G)
050306  104401  050662        $GTSWR: TYPE    ,$MSWR          ;;TYPE CURRENT CONTENTS
050312  013746  000176                MOV     SWREG,-(SP)     ;;SAVE SWREG FOR TYPEOUT
050316  104402                        TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
050320  104401  050673                TYPE    ,$MNEW          ;;PROMPT FOR NEW SWR
050324  005046                19$:    CLR     -(SP)           ;;CLEAR COUNTER
050326  005046                        CLR     -(SP)           ;;THE NEW SWR
050330  105777  130610        7$:     TSTB    @$TKS           ;;CHAR THERE?
050334  100375                        BPL     7$              ;;IF NOT TRY AGAIN
050336  117746  130604                MOVB    @$TKB,-(SP)     ;;PICK UP CHAR
050342  042716  177600                BIC     #^C177,(SP)     ;;MAKE IT 7-BIT ASCII
050346  021627  000025        9$:     CMP     (SP),#25        ;;IS IT A CONTROL-U?
050352  001005                        BNE     10$             ;;BRANCH IF NOT
050354  104401  050650                TYPE    ,$CNTLU         ;;YES, ECHO CONTROL-U (^U)
050360  062706  000006        20$:    ADD     #6,SP           ;;IGNORE PREVIOUS INPUT
050364  000757                        BR      19$             ;;LET'S TRY IT AGAIN
050366  021627  000015        10$:    CMP     (SP),#15        ;;IS IT A <CR>?
050372  001022                        BNE     16$             ;;BRANCH IF NO
050374  005766  000004                TST     4(SP)           ;;YES, IS IT THE FIRST CHAR?
050400  001403                        BEQ     11$             ;;BRANCH IF YES
050402  016677  000002  130530        MOV     2(SP),@SWR      ;;SAVE NEW SWR
050410  062706  000006        11$:    ADD     #6,SP           ;;CLEAR UP STACK
050414  104401  001313        14$:    TYPE    ,$CRLF          ;;ECHO <CR> AND <LF>
050420  123727  001135  000001        CMPB    $INTAG,#1       ;;RE-ENABLE TTY KBD INTERRUPTS?
050426  001003                        BNE     15$             ;;BRANCH IF NOT
050430  012777  000100  130506        MOV     #100,@$TKS      ;;RE-ENABLE TTY KBD INTERRUPTS
050436  000002                15$:    RTI                     ;;RETURN
050440  004737  047412        16$:    JSR     PC,$TYPEC       ;;ECHO CHAR
050444  021627  000060                CMP     (SP),#60        ;;CHAR < 0?
050450  002420                        BLT     18$             ;;BRANCH IF YES
050452  021627  000067                CMP     (SP),#67        ;;CHAR > 7?
050456  003015                        BGT     18$             ;;BRANCH IF YES
050460  042726  000060                BIC     #60,(SP)+       ;;STRIP-OFF ASCII
050464  005766  000002                TST     2(SP)           ;;IS THIS THE FIRST CHAR
050470  001403                        BEQ     17$             ;;BRANCH IF YES
050472  006316                        ASL     (SP)            ;;NO, SHIFT PRESENT
050474  006316                        ASL     (SP)            ;;    CHAR OVER TO MAKE
050476  006316                        ASL     (SP)            ;;    ROOM FOR NEW ONE.
050500  005266  000002        17$:    INC     2(SP)           ;;KEEP COUNT OF CHAR
```

```
050504  056616  177776                  BIS     -2(SP),(SP)     ;;SET IN NEW CHAR
050510  000707                          BR      7$              ;;GET THE NEXT ONE
050512  104401  001312          18$:    TYPE    ,$QUES          ;;TYPE ?<CR><LF>
050516  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
                                ;
050520  011646          $RDCHR: MOV     (SP),-(SP)      ;;PUSH DOWN THE PC
050522  016666  000004  000002  MOV     4(SP),2(SP)     ;;SAVE THE PS
050530  105777  130410          1$:     TSTB    @$TKS           ;;WAIT FOR
050534  100375                          BPL     1$              ;;A CHARACTER
050536  117766  130404  000004          MOVB    @$TKB,4(SP)     ;;READ THE TTY
050544  042766  177600  000004          BIC     #^C<177>,4(SP)  ;;GET RID OF JUNK IF ANY
050552  026627  000004  000023          CMP     4(SP),#23       ;;IS IT A CONTROL-S?
050560  001013                          BNE     3$              ;;BRANCH IF NO
050562  105777  130356          2$:     TSTB    @$TKS           ;;WAIT FOR A CHARACTER
050566  100375                          BPL     2$              ;;LOOP UNTIL ITS THERE
050570  117746  130352                  MOVB    @$TKB,-(SP)     ;;GET CHARACTER
050574  042716  177600                  BIC     #^C177,(SP)     ;;MAKE IT 7-BIT ASCII
050600  022627  000021                  CMP     (SP)+,#21       ;;IS IT A CONTROL-Q?
050604  001366                          BNE     2$              ;;IF NOT DISCARD IT
050606  000750                          BR      1$              ;;YES, RESUME
050610  026627  000004  000021  3$:     CMP     4(SP),#$XON     ;;IS IT A RANDOM XON?           ;RAN001
050616  001744                          BEQ     1$              ;;BRANCH IF YES                 ;RAN001
050620  026627  000004  000140          CMP     4(SP),#140      ;;IS IT UPPER CASE?
050626  002407                          BLT     4$              ;;BRANCH IF YES
050630  026627  000004  000175          CMP     4(SP),#175      ;;IS IT A SPECIAL CHAR?
050636  003003                          BGT     4$              ;;BRANCH IF YES
050640  042766  000040  000004          BIC     #40,4(SP)       ;;MAKE IT UPPER CASE
050646  000002                  4$:     RTI                     ;;GO BACK TO USER
050650     136     125     015  $CNTLU: .ASCIZ   /^U/<15><12>   ;;CONTROL 'U'
050655     136     107     015  $CNTLG: .ASCIZ   /^G/<15><12>   ;;CONTROL 'G'
050662     015     012     123  $MSWR:  .ASCIZ   <15><12>/SWR = /
050673     040     040     116  $MNEW:  .ASCIZ   /  NEW = /
```

```
 8490                                   .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.
 050704  010046                         $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
 050706  016600  000002                         MOV     2(SP),R0        ;;GET TRAP ADDRESS
 050712  005740                         .       TST     -(R0)           ;;BACKUP BY 2
 050714  111000                         .       MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
 050716  006300                         .       ASL     R0              ;;POSITION FOR INDEXING
 050720  016000  050740                 .       MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
 050724  000200                         .       RTS     R0              ;;GO TO ROUTINE
                                        ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO
 050726  011646                         $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
 050730  016666  000004  000002         .       MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
 050736  000002                         .       RTI                     ;;RESTORE THE PSW
                                        .SBTTL  TRAP TABLE
                                        ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
                                        ;*BY THE "TRAP" INSTRUCTION.
                                        ;       ROUTINE
                                        ;       -------
 050740  050726                         $TRPAD: .WORD   $TRAP2
 050742  047174                         .       $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
 050744  047560                         .       $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
 050746  047534                         .       $TYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
 050750  047574                         .       $TYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
 050752  050306                         .       $GTSWR  ;;CALL=GTSWR    TRAP+5(104405)  GET SOFT-SWR SETTING
 050754  050236                         .       $CKSWR  ;;CALL=CKSWR    TRAP+6(104406)  TEST FOR CHANGE IN SOFT-SWR
 050756  050520                         .       $RDCHR  ;;CALL=RDCHR    TRAP+7(104407)  TTY TYPEIN CHARACTER ROUTINE
 050760  047076                         .       $SAVREG ;;CALL=SAVREG   TRAP+10(104410) SAVE R0-R5 ROUTINE
 050762  047134                         .       $RESREG ;;CALL=RESREG   TRAP+11(104411) RESTORE R0-R5 ROUTINE
 8491    050764  052050                 .       .RSET   ;;CALL=RSETUP   TRAP+12(104412) ROUTINE TO INITIALIZE AT END OF EACH TEST
 8492            000026         $TERM=.-$TRPAD
```

```
 8494                                   .SBTTL  POWER DOWN AND UP ROUTINES
                                        ;;*****************************************************************
                                        ;POWER DOWN ROUTINE
 050766  012737  051144  000024 $PWRDN: MOV     #$ILLUP,@#PWRVEC ;;SET FOR FAST UP
 050774  012737  000340  000026         MOV     #340,@#PWRVEC+2 ;;PRIO:7
 051002  010046                        MOV     R0,-(SP)        ;;PUSH R0 ON STACK
 051004  010146                        MOV     R1,-(SP)        ;;PUSH R1 ON STACK
 051006  010246                        MOV     R2,-(SP)        ;;PUSH R2 ON STACK
 051010  010346                        MOV     R3,-(SP)        ;;PUSH R3 ON STACK
 051012  010446                        MOV     R4,-(SP)        ;;PUSH R4 ON STACK
 051014  010546                        MOV     R5,-(SP)        ;;PUSH R5 ON STACK
 051016  017746  130116                MOV     @SWR,-(SP)      ;;PUSH @SWR ON STACK
 051022  010637  051150                MOV     SP,$SAVR6       ;;SAVE SP
 051026  012737  051040  000024        MOV     #$PWRUP,@#PWRVEC ;;SET UP VECTOR
 051034  000000                        HALT
 051036  000776                        BR      .-2             ;;HANG UP
                                        ;;*****************************************************************
                                        ;POWER UP ROUTINE
 051040  012737  051144  000024 $PWRUP: MOV     #$ILLUP,@#PWRVEC ;;SET FOR FAST DOWN
 051046  013706  051150                MOV     $SAVR6,SP       ;;GET SP
 051052  005037  051150                CLR     $SAVR6          ;;WAIT LOOP FOR THE TTY
 051056  005237  051150         1$:    INC     $SAVR6          ;;WAIT FOR THE INC
 051062  001375                        BNE     1$              ;;OF  WORD
 051064  012677  130050                MOV     (SP)+,@SWR      ;;POP STACK INTO @SWR
 051070  012605                        MOV     (SP)+,R5        ;;POP STACK INTO R5
 051072  012604                        MOV     (SP)+,R4        ;;POP STACK INTO R4
 051074  012603                        MOV     (SP)+,R3        ;;POP STACK INTO R3
 051076  012602                        MOV     (SP)+,R2        ;;POP STACK INTO R2
 051100  012601                        MOV     (SP)+,R1        ;;POP STACK INTO R1
 051102  012600                        MOV     (SP)+,R0        ;;POP STACK INTO R0
 051104  012737  050766  000024        MOV     #$PWRDN,@#PWRVEC ;;SET UP THE POWER DOWN VECTOR
 051112  012737  000340  000026        MOV     #340,@#PWRVEC+2 ;;PRIO:7
 051120  104401                        TYPE                    ;;REPORT THE POWER FAILURE
 051122  052120              $PWRMG:   .WORD   POWERM          ;;POWER FAIL MESSAGE POINTER
 051124  012716                        MOV     (PC)+,(SP)      ;;RESTART AT START
 051126  006116              $PWRAD:   .WORD   START           ;;RESTART ADDRESS
 051130  042766  000020  000002        BIC     #20,2(SP)       ;;CLEAR "T" BIT
 051136  005037  046156                CLR     $TBIT           ;;CLEAR THE "T" BIT FLAG
 051142  000002                        RTI
 051144  000000              $ILLUP:   HALT                    ;;THE POWER UP SEQUENCE WAS STARTED
 051146  000776                        BR      .-2             ;; BEFORE THE POWER DOWN WAS COMPLETE
 051150  000000              $SAVR6:   0                       ;;PUT THE SP HERE
```

```
                                        .SBTTL  ERROR TYPE OUT ROUTINE
                                ;;******************************************************************
                                ;;******************************************************************
                                ;*THIS ROUTINE IS CALLED TO TYPE AN ERROR MESSAGE WHICH IS INCLUDED
                                ;*IN THE ERROR MESSAGE DATA TABLE. IT IS CALLED BY THE $ERROR ROUTINE
                                ;*OR BY FIRST SETTING $ITEMB EQUAL TO THE ERROR TABLE ITEM TO BE PRINTED
                                ;*OUT AND THEN ECECUTING A:
                                ;*              JSR     PC,ERTYPE
                                ;*
051152  104401                  ERTYPE: TYPE                            ;TYPE A CRLF
051154  001313                          .WORD   $CRLF
051156  113737  001102  001232          MOVB    $TSTNM,$TMP0
051164  042737  177400  001232          BIC     #177400,$TMP0
051172  013737  001116  001234          MOV     $ERRPC,$TMP1    ;GET PC OF CALL
051200  010046                          MOV     R0,-(SP)        ;SAVE R0
051202  117700  130026                  MOVB    @$TMP1,R0       ;GET THE ITEM NUMBER.
051206  042700  177400                  BIC     #177400,R0
051212  001006                          BNE     21$
051214  013746  001116                  MOV     $ERRPC,-(SP)    ;MOVE ERROR PC TO STACK FOR PRINTING
051220  104402                          TYPOC                   ;GO TYPE THE ERROR PC
051222  104401  001313                  TYPE    ,$CRLF          ;TYPE A <CRLF>
051226  000561                          BR      ERT5            ;BRANCH TO EXIT
051230  022700  000377          21$:    CMP     #377,R0
051234  001004                          BNE     20$
051236  017600  000004                  MOV     @4(SP),R0
051242  062700  000400                  ADD     #400,R0
051246  010037  051576          20$:    MOV     R0,ERRNUM       ;SAVE THE ERROR # FOR POSSIBLE USE      ;DPM001
051252  005300                          DEC     R0              ;OTHERWISE MAKE R0 AN
051254  006300                          ASL     R0              ;INDEX FOR THE TABLE.
051256  006300                          ASL     R0
051260  006300                          ASL     R0
051262  062700  001442                  ADD     #$ERRTB,R0
051266  012037  051276          22$:    MOV     (R0)+,2$        ;PICK UP THE ADDRESS
051272  001406                          BEQ     3$              ;OF THE EM, ERROR MESSAGE
051274  104401                          TYPE
051276  000000                  2$:     .WORD   0
051300  004737  051600                  JSR     PC,PASCIZ       ;GO CHECK FOR AND PRINT ANY ADDTL ASCIZ ;DPM001
051304  104401  001313                  TYPE    ,$CRLF
051310  012037  051320          3$:     MOV     (R0)+,4$        ;GET THE DH,DATA HEADER
051314  001406                          BEQ     5$
051316  104401                          TYPE
051320  000000                  4$:     .WORD   0
051322  004737  051600                  JSR     PC,PASCIZ       ;GO CHECK FOR AND PRINT ANY ADDTL ASCIZ ;DPM001
051326  104401                          TYPE
051330  001313                          .WORD   $CRLF
051332  010146                  5$:     MOV     R1,-(SP)        ;SAVE R1,R2 AND R3
051334  010246                          MOV     R2,-(SP)
051336  010346                          MOV     R3,-(SP)
051340  012001                          MOV     (R0)+,R1        ;GET THE ADDRESS OF THE DATA TABLE.
051342  001506                          BEQ     ERT4            ;RETURN IF NO DATA.
051344  011000                          MOV     (R0),R0         ;GET A POINTER TO THE DATA FORMAT TABLE.
051346  105710                  ERT1:   TSTB    (R0)            ;FORMAT ZERO?
051350  001003                          BNE     7$
051352  013146                          MOV     @(R1)+,-(SP)    ;FORMAT ZERO SO TYPE
051354  104402                          TYPOC                   ;AN OCTAL NUMBER.
051356  000473                          BR      ERT2
```

```
ERROR TYPE OUT ROUTINE

 8552 051360  122710  000002          7$:     CMPB    #2,(R0)         ;FORMAT TWO?
 8553 051364  001010                          BNE     9$
 8554 051366  013102                          MOV     @(R1)+,R2       ;FORMAT TWO SO TYPE TWO
 8555 051370  012246                          MOV     (R2)+,-(SP)     ;OCTAL NUMBERS.
 8556 051372  104402                          TYPOC
 8557 051374  104401                          TYPE
 3558 051376  052164                          .WORD   SPACE
 8559 051400  011246                          MOV     (R2),-(SP)
 8560 051402  104402                          TYPOC
 8561 051404  000460                          BR      ERT2
 8562 051406  122710  000003          9$:     CMPB    #3,(R0)         ;FORMAT THREE?
 8563 051412  001011                          BNE     10$
 8564 051414  013102                          MOV     @(R1)+,R2       ;FORMAT THREE SO TYPE 4 OCTAL NUMBERS.
 8565 051416  012703  000004                  MOV     #4,R3           ;LOOP COUNTER
 8566 051422  012246                  90$:    MOV     (R2)+,-(SP)     ;MOVE DATA TO THE STACK
 8567 051424  104402                          TYPOC                   ;TYPE AN OCTAL NUMBER
 8568 051426  104401                          TYPE                    ;TYPE A SPACE
 8569 051430  052164                          .WORD   SPACE
 8570 051432  077305                          SOB     R3,90$          ;SUBTRACT 1 AND BRANCH IF NOT DONE YET  ;DPM001
 8571 051434  000444                          BR      ERT2            ;EXIT
 8572 051436  122710  000004          10$:    CMPB    #4,(R0)         ;FORMAT FOUR?
 8573 051442  001004                          BNE     11$
 8574 051444  013146                          MOV     @(R1)+,-(SP)    ;FORMAR FOUR SO TYPE
 8575 051446  104403                          TYPOS                   ;AN OCTAL NUMBER
 8576 051450     016                          .BYTE   16              ;SUPPRESSING LEADING ZEROES.
 8577 051451     000                          .BYTE   0
 8578 051452  000435                          BR      ERT2
 8579 051454  122710  000005          11$:    CMPB    #5,(R0)         ;FORMAT FIVE?
 8580 051460  001005                          BNE     13$
 8581 051462  012137  051470                  MOV     (R1)+,12$       ;FORMAT FIVE SO TYPE AN
 8582 051466  104401                          TYPE                    ;ASCIZ STRING.
 8583 051470  000000                  12$:    .WORD   0
 8584 051472  000427                          BR      ERT3
 8585 051474  122710  000011          13$:    CMPB    #11,(R0)        ;FORMAT ELEVEN?
 8586 051500  001005                          BNE     15$
 8587 051502  013137  051510                  MOV     @(R1)+,14$      ;FORMAT ELEVEN SO PICK
 8588 051506  104401                          TYPE                    ;A POINTER TO AN ASCIZ
 8589 051510  000000                  14$:    .WORD   0               ;STRING.
 8590 051512  000417                          BR      ERT3
 8591 051514  122710  000012          15$:    CMPB    #12,(R0)        ;FORMAT TWELVE?
 8592 051520  001011                          BNE     17$
 8593 051522  013102                          MOV     @(R1)+,R2       ;FORMAT TWELVE SO TYPE
 8594 051524  012703  000006                  MOV     #6,R3           ;TYPE SIX OCTAL NUMBERS
 8595 051530  012246                  16$:    MOV     (R2)+,-(SP)
 8596 051532  104402                          TYPOC
 8597 051534  104401                          TYPE
 8598 051536  052164                          .WORD   SPACE
 8599 051540  077305                          SOB     R3,16$
 8600 051542  000401                          BR      ERT2
 8601 051544  000000                  17$:    HALT                    ;UNDEFINED FORMAT FOR DATA?????
 8602 051546  104401                  ERT2:   TYPE                    ;PRINT A TAB AFTER TYPING A DATA TABLE ENTRY
 8603 051550  052167                          .WORD   $TAB            ;OF ALL FORMATS EXCEPT ASCIZ, FORMATS 5 OR 11
 8604 051552  005200                  ERT3:   INC     R0              ;POINT TO THE NEXT FORMAT
 8605 051554  005711                          TST     (R1)            ;END OF DATA TABLE.
 8606 051556  001273                          BNE     ERT1
 8607 051560  104401                  ERT4:   TYPE                    ;DONE.
 8608 051562  001313                          .WORD   $CRLF
```

ERROR TYPE OUT ROUTINE

```
 8609 051564  012603                        MOV     (SP)+,R3        ;RESTORE R1,R2 AND R3
 8610 051566  012602                        MOV     (SP)+,R2
 8611 051570  012601                        MOV     (SP)+,R1
 8612 051572  012600                ERT5:   MOV     (SP)+,R0        ;RESTORE R0.
 8613 051574  000207                        RTS     PC              ;AND RETURN.
 8614
 8615 051576  000000                ERRNUM: .WORD   0               ;LOCATION TO HOLD CURRENT ERROR NUMBER  ;DPM001
```

```
SUBROUTINE TO LOOK FOR ANY ADDITIONAL MSGS TO PRINT

 8616                                    .SBTTL  SUBROUTINE TO LOOK FOR ANY ADDITIONAL MSGS TO PRINT
 8617 051600  010446                PASCIZ: MOV     R4,-(SP)        ;SAVE R4                                    ;DPM001
 8618 051602  013704  047172        1$:     MOV     EOASCI,R4       ;MOVE END OF ASCII ADDRESS TO R4            ;DPM001
 8619 051606  122714  000377                CMPB    #377,(R4)       ;SEE IF ADD'L MSGS NEED TO BE PRINTED       ;DPM001
 8620 051612  001013                        BNE     4$              ;BRANCH IF NOT                              ;DPM001
 8621 051614  005204                        INC     R4              ;INCREMENT TO NEXT BYTE                     ;DPM001
 8622 051616  032704  000001                BIT     #BIT00,R4       ;SEE IF ODD ADDRESS                         ;DPM001
 8623 051622  001401                        BEQ     2$              ;BRANCH IF NOT                              ;DPM001
 8624 051624  005204                        INC     R4              ;POINT TO WORD ADDRESS                      ;DPM001
 8625 051626  012437  051636        2$:     MOV     (R4)+,3$        ;MOVE ADDRESS TO LOCATION FOR TYPING        ;DPM001
 8626 051632  001763                        BEQ     1$              ;GO CHK FOR MORE MSG ADRS'S IF NO MORE      ;DPM001
 8627 051634  104401                        TYPE                    ;TYPE THE MESSAGE, ADDRESS IN NEXT WORD     ;DPM001
 8628 051636  000000                3$:     .WORD   0               ;LOCATION FOR MESSAGE ADDRESS               ;DPM001
 8629 051640  000772                        BR      2$              ;BRANCH BACK TO LOAD OTHER MESSAGES         ;DPM001
 8630 051642  122714  000376        4$:     CMPB    #376,(R4)       ;SEE IF SPECIFIC MSGS NEED PRINTING         ;DPM001
 8631 051646  001027                        BNE     11$             ;BRANCH TO EXIT IF NOT                      ;DPM001
 8632 051650  005204                        INC     R4              ;INCREMENT TO NEXT BYTE                     ;DPM001
 8633 051652  032704  000001                BIT     #BIT00,R4       ;SEE IF ODD ADDRESS                         ;DPM001
 8634 051656  001401                        BEQ     5$              ;BRANCH IF NOT                              ;DPM001
 8635 051660  005204                        INC     R4              ;POINT TO WORD ADDRESS                      ;DPM001
 8636 051662  005046                5$:     CLR     -(SP)           ;CLEAR COUNTER LOCATION ON STACK            ;DPM001
 8637 051664  005216                6$:     INC     (SP)            ;INCREMENT COUNTER                          ;DPM001
 8638 051666  023724  051576                CMP     ERRNUM,(R4)+    ;SEE IF ITEM NUMBER MATCHES ERROR           ;DPM001
 8639 051672  001374                        BNE     6$              ;BRANCH IF NOT TO SEARCH AGAIN              ;DPM001
 8640 051674  005724                7$:     TST     (R4)+           ;SEE IF AT TERMINATOR YET                   ;DPM001
 8641 051676  001376                        BNE     7$              ;BRANCH BACK UNTIL IT IS                    ;DPM001
 8642 051700  005744                        TST     -(R4)           ;PUT R4 AT THE TERMINATOR                   ;DPM001
 8643 051702  005724                8$:     TST     (R4)+           ;POINT R4 TO NEXT ADDRESS                   ;DPM001
 8644 051704  005316                        DEC     (SP)            ;SEE IF COUNTER DOWN TO ZERO YET            ;DPM001
 8645 051706  001375                        BNE     8$              ;BRANCH BACK IF NOT TO ADVANCE R4           ;DPM001
 8646 051710  005726                9$:     TST     (SP)+           ;POP COUNTER OFF STACK                      ;DPM001
 8647 051712  011437  051722                MOV     (R4),10$        ;MOVE ADDRESS TO LOCATION TO TYPE           ;DPM001
 8648 051716  001403                        BEQ     11$             ;BRANCH IF NO EXTRA MESSAGE TO PRINT        ;DPM001
 8649 051720  104401                        TYPE                    ;TYPE THE ASCII MESSAGE                     ;DPM001
 8650 051722  000000                10$:    .WORD   0               ;LOCATION FOR ASCII MESSAGE ADDRESS         ;DPM001
 8651 051724  000726                        BP      1$              ;GO BACK TO MAKE SURE NO MORE MSGS          ;DPM001
 8652 051726  012604                11$:    MOV     (SP)+,R4        ;RESTORE R4                                 ;DPM001
 8653 051730  000207                        RTS     PC              ;EXIT                                       ;DPM001
```

```
FPP SPURIOUS TRAP TO 244 HANDLER

                                        .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.
                                ;*
051732  042737  000001  177572  FPSPUR: BIC     #BIT00,MMR0     ;MAKE SURE MEMORY MANAGEMENT IS OFF     ;DPM001
051740  011637  001236                  MOV     (SP),$TMP2      ;SAVE PC OF TRAP.
051744  022626                          CMP     (SP)+,(SP)+     ;RESTORE SP.
051746  170200                          STFPS   R0              ;GET FPS
051750  010037  001240                  MOV     R0,$TMP3        ;MOVE IT TO $TMP3
051754  170300                          STST    R0              ;GET FEC
051756  010037  001242                  MOV     R0,$TMP4        ;MOVE IT TO $TMP4
051762  104377                          ERROR   +377            ;CALL ERROR
051764  000041                          .WORD   41              ;ERROR #441
051766  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?).
051770  000137  045420                  JMP     $EOP            ;JUMP TO $EOP
```

```
                                        .SBTTL  CPU SPURIOUS TRAP TO 4 HANDLER
                                ;;**************************************************************
                                ;;**************************************************************
                                ;*THIS ROUTINE REPORTS UNEXPECTED CPU TRAPS TO VECTOR 4.
                                ;*
051774  042737  000001  177572  CPSPUR: BIC     #BIT00,MMR0     ;MAKE SURE MEMORY MANAGEMENT IS OFF     ;DPM001
052002  011637  001236                  MOV     (SP),$TMP2      ;SAVE PC OF TRAP.
052006  022626                        CMP     (SP)+,(SP)+     ;CLEAN STACK
052010  104377                        ERROR   +377            ;CALL ERROR
052012  000042                        .WORD   42              ;ERROR #442
052014  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?).
052016  000137  045420                JMP     $EOP            ;JUMP TO $EOP
```

```
                                        .SBTTL  CPU SPURIOUS TRAP TO 10 HANDLER
                                ;;**************************************************************
                                ;;**************************************************************
                                ;*THIS ROUTINE REPORTS UNEXPECTED CPU TRAPS TO VECTOR 10.
                                ;*
052022  042737  000001  177572 CPTWO:  BIC     #BIT00,MMR0     ;MAKE SURE MEMORY MANAGEMENT IS OFF     ;DPM001
052030  011637  001236                 MOV     (SP),$TMP2      ;SAVE PC OF TRAP.
052034  022626                       CMP     (SP)+,(SP)+     ;CLEAN STACK
052036  104377                 1$:   ERROR   +377            ;CALL ERROR
052040  000043                       .WORD   43              ;ERROR #443
052042  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?).
052044  000137  045420               JMP     $EOP            ;JUMP TO $EOP
```

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.
                                ;*
052050  023727  001140  177570  .RSET:  CMP     SWR,#177570     ;SEE IF THERE IS A PHYSICAL CONSOLE SWITCH REGISTER.
052056  001001                         BNE     1$              ;BRANCH IF NOT
052060  104406                         CKSWR                   ;OTHERWISE TYPE THE CONTENTS OF THE PROGRAM VIRTUAL
                                                                ;SWITCH REGISTER AND GIVE THE USER CHANCE TO MODIFY IT
052062  012737  051732  000244  1$:    MOV     #FPSPUR,FPVECT
052070  012737  051774  000004         MOV     #CPSPUR,ERRVECT
052076  012737  052022  000010         MOV     #CPTWO,10
052104  011600                         MOV     (SP),R0         ;SAVE RETURN ADDRESS.
052106  012706  001100                 MOV     #STACK,SP       ;RESET THE STACK POINTER.
052112  005004                         CLR     R4              ;CLEAR THE FPS.
052114  170104                         LDFPS   R4
052116  000110                         JMP     (R0)            ;RETURN.
```

SPECIAL MESSAGES

```
 8714                                           .SBTTL  SPECIAL MESSAGES
 8715 052120     200     120     117  POWERM:  .ASCIZ  <CRLF>'POWER FAILURE. PROGRAM RESTARTING.'
 8716 052164     040     040     000  SPACE:   .ASCIZ  ' '
 8717 052167     011     000          $TAB:    .ASCIZ  <TAB>
 8718 052171     107     117     124  MS1:     .ASCIZ  'GOT RESULT:'<TAB><TAB>
 8719 052207     105     130     120  MS2:     .ASCIZ  'EXPECTED RESULT:'<TAB>
 8720 052231     101     103     040  MS3:     .ASCIZ  'AC OPERAND:'<TAB><TAB>
 8721 052247     123     117     125  MS4:     .ASCIZ  'SOURCE OPERAND: '<TAB>
 8722         052231                  MS10=MS3
 8723 052271     105     130     120  MS11:    .ASCIZ  'EXPONENT OPERAND:'<TAB>
 8724 052314     114     117     101  MS20:    .ASCIZ  'LOADED:'<TAB><TAB>
 8725 052326     124     122     111  MS21:    .ASCIZ  'TRIED TO LOAD:'<TAB>
```

ERROR MESSAGES

```
                                                .SBTTL  ERROR MESSAGES
052346      123     000             EM1:        .ASCIZ  !S!
052350      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
052352  052362  052373  052412                  .WORD   EM1B,EM1C,EM1D,0
052362      124     106     040 EM1B:           .ASCIZ  !TF A,AC7!
052373      040     104     111 EM1C:           .ASCIZ  ! DID NOT TRAP.!
052412      040     106     111 EM1D:           .ASCIZ  ! FID=0.!
052422      123     000             EM2:        .ASCIZ  !S!
052424      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
052426  052362  052436  052412                  .WORD   EM1B,EM2B,EM1D,0
052436      056     040     106 EM2B:           .ASCIZ  !. FPS BAD. !
052452      123     000             EM3:        .ASCIZ  !S!
052454      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
052456  052362  052466  052412                  .WORD   EM1B,EM3B,EM1D,0
052466      056     040     106 EM3B:           .ASCIZ  !. FEC BAD. !
052502      123     000             EM4:        .ASCIZ  !S!
052504      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
052506  052520  052531  052543                  .WORD   EM4A,EM4B,EM4C,EM4D,0
052520      124     106     040 EM4A:           .ASCIZ  !TF A,(R)!
052531      056     040     122 EM4B:           .ASCIZ  !. R0 BAD.!
052543      056     040     106 EM4C:           .ASCIZ  !. FDST!
052552      040     106     101 EM4D:           .ASCIZ  ! FAILED.!
052563      123     000             EM5:        .ASCIZ  !S!
052565      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
052566  052520  052552  000000                  .WORD   EM4A,EM4D,0
052574      123     000             EM6:        .ASCIZ  !S!
052576      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
052600  052520  052543  052552                  .WORD   EM4A,EM4C,EM4D,EM6C
052610                          EM6C:
052610      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
052612  052653  052650  052662                  .WORD   CRBUT,IFD,PRST,N7,N0,N7,WENTTO,N2,N4,N5,INSTOF,N2,N4,N4,0
052650      106     104     000 IFD:            .ASCIZ  !FD!
052653      200     050     102 CRBUT:          .ASCIZ  <CRLF>!(BUT !
052662      051     040     123 PRST:           .ASCIZ  !) ST !
052670      040     127     105 WENTTO:         .ASCIZ  ! WENT TO !
052702      040     111     116 INSTOF:         .ASCIZ  ! INSTEAD OF !
052717      060     000         N0:             .ASCIZ  !0!
052721      061     000         N1:             .ASCIZ  !1!
052723      062     000         N2:             .ASCIZ  !2!
052725      063     000         N3:             .ASCIZ  !3!
052727      064     000         N4:             .ASCIZ  !4!
052731      065     000         N5:             .ASCIZ  !5!
052733      066     000         N6:             .ASCIZ  !6!
052735      067     000         N7:             .ASCIZ  !7!
052737      123     000             EM7:        .ASCIZ  !S!
052741      377                                 .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
052742  052520  052756  052531                  .WORD   EM4A,EM7B,EM4B,EM4C,EM4D,0
052756      053     056     000 EM7B:           .ASCIZ  !+.!
052761      123     000             EM10:       .ASCIZ  !S!
```

```
8792 052763     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8793 052764  052520  052756  052552             .WORD   EM4A,EM7B,EM4D,0
8794 052774     123     000           EM11:     .ASCIZ  !S!
8795 052776     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8796 053000  053012  052531  052543             .WORD   EM11B,EM4B,EM4C,EM4D,0
8797 053012     124     104     040   EM11B:    .ASCIZ  !TD A,(R)+!
8798 053024     123     000           EM12:     .ASCIZ  !S!
8799 053026     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8800 053030  053012  052552  000000             .WORD   EM11B,EM4D,0
8801 053036     123     000           EM13:     .ASCIZ  !S!
8802 053040     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8803 053042  053050  053060  000000             .WORD   EM13A,EM13B,0
8804 053050     124     104     040   EM13A:    .ASCIZ  !TD A,#N!
8805 053060     040     124     122   EM13B:    .ASCIZ  ! TRAP TO 4 IN FDST.!
8806         053036                 EM14=EM13
8807 053104     123     000           EM15:     .ASCIZ  !S!
8808 053106     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8809 053110  053050  052552  000000             .WORD   EM13A,EM4D,0
8810 053116     120     103     040   EM16:     .ASCIZ  !PC BAD AFTER S!
8811 053135     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8812 053136  053050  000000                     .WORD   EM13A,0
8813 053142     123     000           EM17:     .ASCIZ  !S!
8814 053144     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8815 053146  053154  053060  000000             .WORD   EM17B,EM13B,0
8816 053154     124     104     040   EM17B:    .ASCIZ  !TD A,-(R)!
8817 053166     123     000           EM20:     .ASCIZ  !S!
8818 053170     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8819 053172  053154  052531  052543             .WORD   EM17B,EM4B,EM4C,EM4D,0
8820 053204     123     000           EM21:     .ASCIZ  !S!
8821 053206     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8822 053210  053154  052552  000000             .WORD   EM17B,EM4D,0
8823         053204                 EM22=EM21
8824 053216     123     000           EM23:     .ASCIZ  !S!
8825 053220     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8826 053222  053230  053060  000000             .WORD   EM23B,EM13B,0
8827 053230     124     104     040   EM23B:    .ASCIZ  !TD A,@(R)+!
8828 053243     123     000           EM24:     .ASCIZ  !S!
8829 053245     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8830 053246  053230  052531  052543             .WORD   EM23B,EM4B,EM4C,EM4D,0
8831 053260     123     000           EM25:     .ASCIZ  !S!
8832 053262     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
8833 053264  053230  052552  000000             .WORD   EM23B,EM4D,0
8834 053272     123     000           EM26:     .ASCIZ  !S!
8835 053274     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
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8836 053276  053304  053060  000000            .WORD   EM26B,EM13B,0
8837 053304     124     104     040  EM26B:    .ASCIZ  !TD A,@-(R)!
8838 053317     123     000          EM27:     .ASCIZ  !S!
8839 053321     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
8840 053322  053304  052531  052543            .WORD   EM26B,EM4B,EM4C,EM4D,0
8841 053334     123     000          EM30:     .ASCIZ  !S!
8842 053336     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
8843 053340  053304  052552  000000            .WORD   EM26B,EM4D,0
8844 053346     123     000          EM31:     .ASCIZ  !S!
8845 053350     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
8846 053352  053360  053060  000000            .WORD   EM31B,EM13B,0
8847 053360     124     104     040  EM31B:    .ASCIZ  !TD A,N(R)!
8848 053372     123     000          EM32:     .ASCIZ  !S!
8849 053374     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
8850 053376  053360  052531  052543            .WORD   EM31B,EM4B,EM4C,EM4D,0
8851 053410     123     000          EM33:     .ASCIZ  !S!
8852 053412     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
8853 053414  053360  052552  000000            .WORD   EM31B,EM4D,0
8854 053422     123     000          EM34:     .ASCIZ  !S!
8855 053424     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
8856 053426  053434  053060  000000            .WORD   EM34B,EM13B,0
8857 053434     124     104     040  EM34B:    .ASCIZ  !TD A,@N(R)!
8858 053447     123     000          EM35:     .ASCIZ  !S!
8859 053451     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
8860 053452  053434  052531  052543            .WORD   EM34B,EM4B,EM4C,EM4D,0
8861 053464     123     000          EM36:     .ASCIZ  !S!
8862 053466     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
8863 053470  053434  052552  000000            .WORD   EM34B,EM4D,0
8864 053476     123     124     103  EM37:     .ASCIZ  !STCFD A,(R) FAILED.!
8865 053522     376                            .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                               .EVEN
8866 053524  000037  000042  000044            .WORD   37,42,44,45,47,50,0
8867 053542  000000  053616  053731            .WORD   0,EM42B,EM44B,EM45B,EM47B,EM50B
8868 053556     123     124     103  EM40:     .ASCIZ  !STCFD A,(R)!
8869 053572     376                            .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                               .EVEN
8870 053574  000040  000041  000043            .WORD   40,41,43,46,0
8871 053606  052436  052466  053652            .WORD   EM2B,EM3B,EM43B,EM46B
8872         053556                 EM41=EM40
8873         053476                 EM42=EM37
8874 053616     200     111     116  EM42B:    .ASCIZ  <CRLF>!INVERT FDFL ST 767 FAILED.!
8875         053556                 EM43=EM40
8876 053652     056     040     106  EM43B:    .ASCIZ  !. FPS BAD.!
8877 053665     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
     053666  052653  053724  052662            .WORD   CRBUT,IEZBT,PRST,N5,N6,N0,WENTTO,N0,N6,N1,INSTOF,N2,N6,N1,0
8878 053724     105     132     102  IEZBT:    .ASCIZ  !EZBT!
8879         053476                 EM44=EM37
8880 053731     200     114     117  EM44B:    .ASCIZ  <CRLF>!LOW ORDER BITS OF X11 DID NOT GET 0 ST 766.!
```

ERROR MESSAGES

```
                                        EM45=EM37
8881            053476
8882 054006       200       050       102 EM45B:  .ASCIZ  <CRLF>!(BUT OP1C) ST 251 FAILED.!
8883            053556                    EM46=EM40
8884 054041       056       040       106 EM46B:  .ASCIZ  !. FPS BAD.!
8885 054054       377                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
     054056  052653  053724  052662       .WORD   CRBUT,IEZBT,PRST,N4,N2,N1,WENTTO,N2,N6,N2,INSTOF,N0,N6,N2,0
8886            053476                    EM47=EM37
8887 054114       040       000         EM47B:  .ASCIZ  ! !
8888 054116       377                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
     054120  052653  052650  052662       .WORD   CRBUT,IFD,PRST,N1,N1,N3,WENTTO,N4,N1,N5,INSTOF,N4,N1,N4,0
8889            053476                    EM50=EM37
8890 054156       040       123       111 EM50B:  .ASCIZ  ! SIGN BAD.!
8891 054171       377                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
     054172  052653  054230  052662       .WORD   CRBUT,IENBT,PRST,N5,N6,N7,WENTTO,N0,N6,N0,INSTOF,N4,N6,N0,0
8892 054230       105       116       102 IENBT:  .ASCIZ  !ENBT!
8893 054235       123       124       103 EM51:   .ASCIZ  !STCDF A,(R)!
8894 054251       376                     .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                          .EVEN
8895 054252  000051  000054  000055       .WORD   51,54,55,60,0
8896 054264  052552  054336  054402       .WORD   EM4D,EM54B,EM55B,EM60B
8897 054274       123       124       104 EM52:   .ASCIZ  !STD A,(R)!
8898 054306       376                     .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                          .EVEN
8899 054310  000052  000053  000056       .WORD   52,53,56,57,61,0
8900 054324  052436  052466  054473       .WORD   EM2B,EM3B,EM56B,EM57B,EM61B
8901            054274                    EM53=EM52
8902            054235                    EM54=EM51
8903 054336       040       106       101 EM54B:  .ASCIZ  ! FAILED.!<CRLF>!INVERT FDFL ST 767 FAILED.!
8904            054235                    EM55=EM51
8905 054402       200       122       117 EM55B:  .ASCIZ  <CRLF>!ROUND ERROR, OR!
8906 054423       377                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
     054424  052653  054462  052662       .WORD   CRBUT,IBKOUT,PRST,N4,N0,N0,WENTTO,N7,N6,N6,INSTOF,N7,N6,N7,0
8907 054462       102       122       105 IBKOUT: .ASCIZ  !BREAKOUT!
8908            054274                    EM56=EM52
8909 054473       056       040       106 EM56B:  .ASCIZ  !. FPS BAD.!
8910 054506       377                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
     054510  052653  053724  052662       .WORD   CRBUT,IEZBT,PRST,N4,N2,N1,WENTTO,N0,N6,N2,INSTOF,N2,N6,N2,0
8911            054274                    EM57=EM52
8912 054546       040       106       120 EM57B:  .ASCIZ  ! FPS BAD. FIV=0.!
8913 054567       377                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
     054570  052653  054626  052662       .WORD   CRBUT,IFIV,PRST,N2,N6,N2,WENTTO,N1,N2,N3,INSTOF,N1,N0,N3,0
8914 054626       106       111       126 IFIV:   .ASCIZ  !FIV!
8915            054235                    EM60=EM51
8916 054632       040       106       101 EM60B:  .ASCIZ  ! FAILED. FIV=1.!
8917 054652       377                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
     054654  052653  054626  052662       .WORD   CRBUT,IFIV,PRST,N2,N6,N2,WENTTO,N1,N0,N3,INSTOF,N1,N2,N3,0
8918            054274                    EM61=EM52
8919 054712       056       040       106 EM61B:  .ASCIZ  !. FPS BAD.!
8920 054725       377                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                          .EVEN
```

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                     054726  052653  054764  052662                  .WORD   CRBUT,IFLAG,PRST,N1,N4,N7,WENTTO,N3,N6,N1,INSTOF,N3,N6,N5,0
8921 054764              106     114     101  IFLAG:                  .ASCIZ  !FLAG!
8922 054771              123     124     103  EM62:                   .ASCIZ  !STCF!
8923 054776              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
8924 055000  055010  052436  055020                                  .WORD   EM62A,EM2B,EM62B,0
8925 055010              104     040     101  EM62A:                  .ASCIZ  !D A,AC6!
8926 055020              040     000          EM62B:                  .ASCIZ  ! !
8927 055022              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
                     055024  052653  055062  052662                  .WORD   CRBUT,IFDST,PRST,N7,N6,N7,WENTTO,N5,N6,N7,INSTOF,N5,N7,N7,0
8928 055062              106     104     123  IFDST:                  .ASCIZ  !FDST!
8929 055067              123     124     103  EM63:                   .ASCIZ  !STCF!
8930 055074              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
8931 055076  055010  052466  000000                                  .WORD   EM62A,EM3B,0
8932 055104              103     114     122  EM64:                   .ASCIZ  !CLRD (R) FAILED!<CRLF>!ZERO X11 AT ST 770!
8933 055147              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
8934 055150  052552  000000                                          .WORD   EM4D,0
8938 055154                                   EM65:
                         055154              103     114     122      .ASCIZ  !CLRD (R). FPS BAD.!
8939 055177              000                                          .BYTE   0
8940 055200              103     114     122  EM66:                   .ASCIZ  !CLR!
8941 055204              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
8942 055206  055220  052531  052543                                  .WORD   EM66B,EM4B,EM4C,EM4D,0
8943 055220              104     040     050  EM66B:                  .ASCIZ  !D (R)!
8944 055226                                   EM67:
                         055226              103     114     122      .ASCIZ  !CLRD AC7. FPS BAD.!
8945 055251              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
                     055252  052653  055062  052662                  .WORD   CRBUT,IFDST,PRST,N7,N7,N0,WENTTO,N6,N0,N7,INSTOF,N6,N1,N7,0
8946 055310                                   EM70:
                         055310              103     114     122      .ASCIZ  !CLRD AC7. FEC BAD.!
8947 055333              116     105     107  EM71:                   .ASCIZ  !NEGF A!
8948 055342              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
8949 055344  052552  000000                                          .WORD   EM4D,0
8950 055350              116     105     107  EM72:                   .ASCIZ  !NEGF A!
8951 055357              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
8952 055360  052436  000000                                          .WORD   EM2B,0
8953 055364              116     105     107  EM73:                   .ASCIZ  !NEG!
8954 055370              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
8955 055372  055220  052552  000000                                  .WORD   EM66B,EM4D,0
8956 055400              116     105     107  EM74:                   .ASCIZ  !NEG!
8957 055404              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
8958 055406  055220  052531  000000                                  .WORD   EM66B,EM4B,0
8959 055414              116     105     107  EM75:                   .ASCIZ  !NEG!
8960 055420              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                      .EVEN
8961 055422  055220  052436  000000                                  .WORD   EM66B,EM2B,0
8962 055430              101     102     123  EM76:                   .ASCIZ  !ABS!
8963 055434              377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
```

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                                                        .EVEN
 8964 055436  055444  055453  000000                    .WORD   EM76A,EM76B,0
 8965 055444    104     040     050  EM76A:  .ASCIZ  !D (R)+!
 8966 055453    040     124     122  EM76B:  .ASCIZ  ! TRAP TO 4 IN SRC MODE.!
 8967 055503    101     102     123  EM77:   .ASCIZ  !ABS!
 8968 055507    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8969 055510  055444  052552  000000                    .WORD   EM76A,EM4D,0
 8970 055516    101     102     123  EM100:  .ASCIZ  !ABS!
 8971 055522    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8972 055524  055444  052531  000000                    .WORD   EM76A,EM4B,0
 8973 055532    101     102     123  EM101:  .ASCIZ  !ABS!
 8974 055536    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8975 055540  055444  052436  000000                    .WORD   EM76A,EM2B,0
 8976 055546    101     102     123  EM102:  .ASCIZ  !ABS!
 8977 055552    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8978 055554  055562  055453  000000                    .WORD   EM102B,EM76B,0
 8979 055562    104     040     055  EM102B: .ASCIZ  !D -(R)!
 8980 055571    101     102     123  EM103:  .ASCIZ  !ABS!
 8981 055575    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8982 055576  055562  052552  000000                    .WORD   EM102B,EM4D,0
 8983 055604    101     102     123  EM104:  .ASCIZ  !ABS!
 8984 055610    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8985 055612  055562  052531  000000                    .WORD   EM102B,EM4B,0
 8986 055620    101     102     123  EM105:  .ASCIZ  !ABS!
 8987 055624    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8988 055626  055562  052436  000000                    .WORD   EM102B,EM2B,0
 8989 055634    101     102     123  EM106:  .ASCIZ  !ABS!
 8990 055640    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8991 055642  055650  055453  000000                    .WORD   EM106B,EM76B,0
 8992 055650    104     040     100  EM106B: .ASCIZ  !D @(R)+!
 8993 055660    116     105     107  EM107:  .ASCIZ  !NEG!
 8994 055664    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8995 055666  055220  055453  000000                    .WORD   EM66B,EM76B,0
 8996 055674    101     102     123  EM110:  .ASCIZ  !ABS!
 8997 055700    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 8998 055702  055650  052552  000000                    .WORD   EM106B,EM4D,0
 8999 055710    101     102     123  EM111:  .ASCIZ  !ABS!
 9000 055714    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9001 055716  055650  052531  000000                    .WORD   EM106B,EM4B,0
 9002 055724    101     102     123  EM112:  .ASCIZ  !ABS!
 9003 055730    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9004 055732  055650  052436  000000                    .WORD   EM106B,EM2B,0
 9005 055740    116     105     107  EM113:  .ASCIZ  !NEG!
 9006 055744    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
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9007 055746  055754  055453  000000            .WORD   EM113B,EM76B,0
9008 055754    104     040     100  EM113B:    .ASCIZ  !D @-(R)!
9009 055764    116     105     107  EM114:     .ASCIZ  !NEG!
9010 055770    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9011 055772  055754  052552  000000            .WORD   EM113B,EM4D,0
9012 056000    116     105     107  EM115:     .ASCIZ  !NEG!
9013 056004    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9014 056006  055754  052531  000000            .WORD   EM113B,EM4B,0
9015 056014    116     105     107  EM116:     .ASCIZ  !NEG!
9016 056020    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9017 056022  055754  052436  000000            .WORD   EM113B,EM2B,0
9018 056030    101     102     123  EM117:     .ASCIZ  !ABS!
9019 056034    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9020 056036  056044  055453  000000            .WORD   EM117B,EM76B,0
9021 056044    104     040     116  EM117B:    .ASCIZ  !D N(R)!
9022 056053    101     102     123  EM120:     .ASCIZ  !ABS!
9023 056057    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9024 056060  056044  052552  000000            .WORD   EM117B,EM4D,0
9025 056066    101     102     123  EM121:     .ASCIZ  !ABS!
9026 056072    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9027 056074  056044  052531  000000            .WORD   EM117B,EM4B,0
9028 056102    101     102     123  EM122:     .ASCIZ  !ABS!
9029 056106    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9030 056110  056044  052436  000000            .WORD   EM117B,EM2B,0
9031 056116    116     105     107  EM123:     .ASCIZ  !NEG!
9032 056122    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9033 056124  056132  055453  000000            .WORD   EM123B,EM76B,0
9034 056132    104     040     100  EM123B:    .ASCIZ  !D @N(R)!
9035 056142    116     105     107  EM124:     .ASCIZ  !NEG!
9036 056146    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9037 056150  056132  052552  000000            .WORD   EM123B,EM4D,0
9038 056156    116     105     107  EM125:     .ASCIZ  !NEG!
9039 056162    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9040 056164  056132  052531  000000            .WORD   EM123B,EM4B,0
9041 056172    116     105     107  EM126:     .ASCIZ  !NEG!
9042 056176    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9043 056200  056132  052436  000000            .WORD   EM123B,EM2B,0
9044 056206    116     105     107  EM127:     .ASCIZ  !NEG!
9045 056212    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9046 056214  056222  055453  000000            .WORD   EM127B,EM76B,0
9047 056222    104     040     116  EM127B:    .ASCIZ  !D N(R7)!
9048 056232    116     105     107  EM130:     .ASCIZ  !NEG!
9049 056236    377                              .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9050 056240  056222  052552  000000            .WORD   EM127B,EM4D,0
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ERROR MESSAGES

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9051 056246     116     105     107  EM131:  .ASCIZ  !NEG!
9052 056252     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9053 056254  056222  052436  000000          .WORD   EM127B,EM2B,0
9054 056262     101     102     123  EM132:  .ASCIZ  !ABS!
9055 056266     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9056 056270  056276  055453  000000          .WORD   EM132B,EM76B,0
9057 056276     104     040     100  EM132B: .ASCIZ  !D @N(R7)!
9058 056307     101     102     123  EM133:  .ASCIZ  !ABS!
9059 056313     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9060 056314  056276  052552  000000          .WORD   EM132B,EM4D,0
9061 056322     101     102     123  EM134:  .ASCIZ  !ABS!
9062 056326     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9063 056330  056276  052436  000000          .WORD   EM132B,EM2B,0
9064 056336     116     105     107  EM135:  .ASCIZ  !NEGD A FAILED.!<CRLF>!XOR SIGN BIT ST 336!
9065 056401     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9066 056402  052552  000000                  .WORD   EM4D,0
9067 056406     116     105     107  EM136:  .ASCIZ  !NEGD A!
9068 056415     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9069 056416  052552  000000                  .WORD   EM4D,0
9070 056422     116     105     107  EM137:  .ASCIZ  !NEGD A!
9071 056431     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9072 056432  052436  000000                  .WORD   EM2B,0
9073 056436     116     105     107  EM140:  .ASCIZ  !NEG!
9074 056442     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9075 056444  055220  052552  000000          .WORD   EM66B,EM4D,0
9076 056452     116     105     107  EM141:  .ASCIZ  !NEG!
9077 056456     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9078 056460  055220  052531  056472          .WORD   EM66B,EM4B,EM141C,EM4D,0
9079 056472     040     123     120  EM141C: .ASCIZ  ! SPECIAL DEST!
9080 056510     116     105     107  EM142:  .ASCIZ  !NEG!
9081 056514     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9082 056516  055220  052436  000000          .WORD   EM66B,EM2B,0
9083 056524     116     105     107  EM143:  .ASCIZ  !NEG!
9084 056530     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9085 056532  055444  052552  000000          .WORD   EM76A,EM4D,0
9086 056540     116     105     107  EM144:  .ASCIZ  !NEG!
9087 056544     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9088 056546  055444  052531  056472          .WORD   EM76A,EM4B,EM141C,0
9089 056556     116     105     107  EM145:  .ASCIZ  !NEG!
9090 056562     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                             .EVEN
9091 056564  055444  052436  000000          .WORD   EM76A,EM2B,0
9092 056572     116     105     107  EM146:  .ASCIZ  !NEG!
9093 056576     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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9094 056600  055562  052552  000000            .WORD   EM102B,EM4D,0
9095 056606     116     105     107  EM147:     .ASCIZ  !NEG!
9096 056612     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9097 056614  055562  052531  056472            .WORD   EM102B,EM4B,EM141C,EM4D,0
9098 056626     116     105     107  EM150:     .ASCIZ  !NEG!
9099 056632     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9100 056634  055562  052436  000000            .WORD   EM102B,EM2B,0
9101 056642     116     105     107  EM151:     .ASCIZ  !NEG!
9102 056646     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9103 056650  055650  052552  000000            .WORD   EM106B,EM4D,0
9104 056656     116     105     107  EM152:     .ASCIZ  !NEG!
9105 056662     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9106 056664  055650  052531  056472            .WORD   EM106B,EM4B,EM141C,EM4D,0
9107 056676     116     105     107  EM153:     .ASCIZ  !NEG!
9108 056702     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9109 056704  055650  052436  000000            .WORD   EM106B,EM2B,0
9110 056712     116     105     107  EM154:     .ASCIZ  !NEG!
9111 056716     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9112 056720  055754  052552  000000            .WORD   EM113B,EM4D,0
9113 056726     116     105     107  EM155:     .ASCIZ  !NEG!
9114 056732     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9115 056734  055754  052531  056472            .WORD   EM113B,EM4B,EM141C,EM4D,0
9116 056746     116     105     107  EM156:     .ASCIZ  !NEG!
9117 056752     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9118 056754  055754  052436  000000            .WORD   EM113B,EM2B,0
9119 056762     116     105     107  EM157:     .ASCIZ  !NEG!
9120 056766     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9121 056770  056776  052552  000000            .WORD   EM157B,EM4D,0
9122 056776     106     040     050  EM157B:    .ASCIZ  !F (R)+!
9123 057005     116     105     107  EM160:     .ASCIZ  !NEG!
9124 057011     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9125 057012  056776  052531  057026            .WORD   EM157B,EM4B,EM160B,EM141C,EM4D,0
9126 057026     056     040     102  EM160B:    .ASCIZ  !. BAD CONSTANT USED.!
9127 057053     116     105     107  EM161:     .ASCIZ  !NEG!
9128 057057     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9129 057060  056776  052436  000000            .WORD   EM157B,EM2B,0
9130 057066     116     105     107  EM162:     .ASCIZ  !NEG!
9131 057072     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9132 057074  057102  052552  000000            .WORD   EM162B,EM4D,0
9133 057102     104     040     050  EM162B:    .ASCIZ  !D (R7)+!
9134 057112     116     105     107  EM163:     .ASCIZ  !NEG!
9135 057116     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
9136 057120  057102  052436  000000            .WORD   EM162B,EM2B,0
9137 057126     120     103     040  EM164:     .ASCIZ  !PC BAD AFTER NEG!
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ERROR MESSAGES

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 9138 057147     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9139 057150  057102  057026  000000          .WORD   EM162B,EM160B,0
 9140 057156     116     105     107  EM165:  .ASCIZ  !NEG!
 9141 057162     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9142 057164  055220  052552  000000          .WORD   EM66B,EM4D,0
 9143 057172     101     102     123  EM166:  .ASCIZ  !ABS!
 9144 057176     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9145 057200  055220  052552  000000          .WORD   EM66B,EM4D,0
 9146 057206     124     123     124  EM167:  .ASCIZ  !TST!
 9147 057212     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9148 057214  055220  052552  000000          .WORD   EM66B,EM4D,0
 9149 057222     116     105     107  EM170:  .ASCIZ  !NEG!
 9150 057226     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9151 057230  055220  052436  000000          .WORD   EM66B,EM2B,0
 9152 057236     101     102     123  EM171:  .ASCIZ  !ABS!
 9153 057242     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9154 057244  055220  052436  000000          .WORD   EM66B,EM2B,0
 9155 057252     124     123     124  EM172:  .ASCIZ  !TST!
 9156 057256     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9157 057260  055220  052436  000000          .WORD   EM66B,EM2B,0
 9158 057266     116     105     107  EM173:  .ASCIZ  !NEG!
 9159 057272     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9160 057274  055220  052466  000000          .WORD   EM66B,EM3B,0
 9161 057302     101     102     123  EM174:  .ASCIZ  !ABS!
 9162 057306     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9163 057310  055220  052466  000000          .WORD   EM66B,EM3B,0
 9164 057316     124     123     124  EM175:  .ASCIZ  !TST!
 9165 057322     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9166 057324  055220  052466  000000          .WORD   EM66B,EM3B,0
 9167 057332     116     105     107  EM176:  .ASCIZ  !NEG!
 9168 057336     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9169 057340  057346  052436  000000          .WORD   EM176B,EM2B,0
 9170 057346     106     040     101  EM176B: .ASCIZ  !F AC7!
 9171 057354     120     117     127  EM177:  .ASCIZ  !POWER MONITOR BIT FOUND SET!
 9172 057410     116     105     107  EM200:  .ASCIZ  !NEG!
 9173 057414     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9174 057416  055220  052552  057426          .WORD   EM66B,EM4D,EM200C,0
 9175 057426     200     130     117  EM200C: .ASCIZ  <CRLF>!XOR SIGN BIT FAILED ST 336.!
 9176 057463     116     105     107  EM201:  .ASCIZ  !NEG!
 9177 057467     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9178 057470  055220  052436                  .WORD   EM66B,EM2B
 9179 057474     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      057476  052653  054230  052662          .WORD   CRBUT,IENBT,PRST,N3,N3,N6,WENTTO,N0,N5,N3,INSTOF,N4,N5,N3,0
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ERROR MESSAGES

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 9180 057534     116     105     107  EM202:  .ASCIZ  !NEG!
 9181 057540     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9182 057542  055220  052436                  .WORD   EM66B,EM2B
 9183 057546     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      057550  052653  054230  052662          .WORD   CRBUT,IENBT,PRST,N3,N3,N6,WENTTO,N4,N5,N3,INSTOF,N0,N5,N3,0
 9184 057606     101     102     123  EM203:  .ASCIZ  !ABS!
 9185 057612     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9186 057614  055220  052552                  .WORD   EM66B,EM4D
 9187 057620     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      057622  052653  057723  052662          .WORD   CRBUT,IOP1B,PRST,N0,N5,N5,WENTTO,N3,N3,N6,INSTOF,N3,N3,N5,OR
 9188 057660  052653  054230  052662          .WORD   CRBUT,IENBT,PRST,N3,N3,N5,WENTTO,N4,N5,N2,INSTOF,N0,N5,N2,0
 9189 057716     054     040     117  OR:     .ASCIZ  !, OR!
 9190 057723     117     120     061  IOP1B:  .ASCIZ  !OP1B!
 9191 057730     101     102     123  EM204:  .ASCIZ  !ABS!
 9192 057734     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9193 057736  055220  052552  057746          .WORD   EM66B,EM4D,EM204C,0
 9194 057746     200     130     117  EM204C: .ASCIZ  <CRLF>!XOR SIGN BIT FAILED ST 452.!
 9195 060003     124     123     124  EM205:  .ASCIZ  !TST!
 9196 060007     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9197 060010  055220  052552                  .WORD   EM66B,EM4D
 9198 060014     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      060016  052653  057723  052662          .WORD   CRBUT,IOP1B,PRST,N0,N5,N5,WENTTO,N3,N3,N6,INSTOF,N3,N3,N4,0
 9199 060054     124     123     124  EM206:  .ASCIZ  !TST!
 9200 060060     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9201 060062  055220  052436                  .WORD   EM66B,EM2B
 9202 060066     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      060070  052653  054230  052662          .WORD   CRBUT,IENBT,PRST,N3,N3,N4,WENTTO,N4,N5,N3,INSTOF,N0,N5,N3,0
 9203 060126     124     123     124  EM207:  .ASCIZ  !TST!
 9204 060132     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9205 060134  055220  052552                  .WORD   EM66B,EM4D
 9206 060140     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      060142  052653  057723  052662          .WORD   CRBUT,IOP1B,PRST,N0,N5,N7,WENTTO,N3,N3,N5,INSTOF,N3,N3,N4,0
 9207 060200     124     123     124  EM210:  .ASCIZ  !TST!
 9208 060204     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9209 060206  055220  052552                  .WORD   EM66B,EM4D
 9210 060212     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      060214  052653  054230  052662          .WORD   CRBUT,IENBT,PRST,N3,N3,N4,WENTTO,N0,N5,N3,INSTOF,N4,N5,N3,0
 9211 060252     124     123     124  EM211:  .ASCIZ  !TST!
 9212 060256     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9213 060260  055220  052552  052653          .WORD   EM66B,EM4D,CRBUT,IOP1B,PRST,N2,N5,N5,WENTTO,N3132,INSTOF,N3,N1,N0,0
 9214 060316     063     061     061  N3132:  .ASCIZ  !311 OR 312!
 9215 060331     124     123     124  EM212:  .ASCIZ  !TST!
 9216 060335     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
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ERROR MESSAGES

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                                        .EVEN
 9217 060336  055220  052436             .WORD   EM66B,EM2B
 9218 060342    377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
      060344  052653  054230  052662      .WORD   CRBUT,IENBT,PRST,N3,N1,N0,WENTTO,N4,N0,N2,INSTOF,N0,N0,N2,0
 9219 060402     124     123     124  EM213: .ASCIZ  !TST!
 9220 060406     377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 9221 060410  055220  052436  060460       .WORD   EM66B,EM2B,EM213C,EM213D
 9222 060420    377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
      060422  052653  060506  052662      .WORD   CRBUT,IFIUV,PRST,N2,N5,N7,WENTTO,N3,N5,N5,INSTOF,N2,N5,N5,0
 9223 060460     040     106     111  EM213C: .ASCIZ  ! FIUV=0!
 9224 060470     054     040     117  EM213D: .ASCIZ  !, OPERAND=-0.!
 9225 060506     106     111     125  IFIUV:  .ASCIZ  !FIUV!
 9226 060513     124     123     124  EM214:  .ASCIZ  !TST!
 9227 060517     377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 9228 060520  055220  052436  060570       .WORD   EM66B,EM2B,EM214B,EM213D
 9229 060530    377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
      060532  052653  060506  052662      .WORD   CRBUT,IFIUV,PRST,N2,N5,N7,WENTTO,N2,N5,N5,INSTOF,N3,N5,N5,0
 9230 060570     040     106     111  EM214B: .ASCIZ  ! FIUV=1!
 9236 060600     120     000          EM215:  .ASCIZ  !P!
 9237 060602     377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 9238 060604  060647  060635  060664       .WORD   PCBAD,NEGDNR,BADCON,N746T2,BUTIN,EM141C,EM4D,0
 9239 060624     067     064     066  N746T2: .ASCIZ  !746 746.!
 9240 060635     116     105     107  NEGDNR: .ASCIZ  !NEGD N(R)!
 9241 060647     103     040     102  PCBAD:  .ASCIZ  !C BAD AFTER !
 9242 060664     056     040     102  BADCON: .ASCIZ  !. BAD CONSTANT USED !
 9243 060711     056     000          PERIOD: .ASCIZ  !.!
 9244 060713     200     117     122  BUTIN:  .ASCIZ  <CRLF>!OR (BUT FDST) IN!
 9245 060735     116     105     107  EM216:  .ASCIZ  !NEG!
 9246 060741     377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 9247 060742  056044  052552  000000       .WORD   EM117B,EM4D,0
 9248 060750     116     105     107  EM217:  .ASCIZ  !NEG!
 9249 060754     377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 9250 060756  056044  052531  056472       .WORD   EM117B,EM4B,EM141C,EM4D,0
 9251 060770     116     105     107  EM220:  .ASCIZ  !NEG!
 9252 060774     377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 9253 060776  056044  052436  000000       .WORD   EM117B,EM2B,0
 9254 061004     120     000          EM221:  .ASCIZ  !P!
 9255 061006     377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 9256 061010  060647  061041  060664       .WORD   PCBAD,NEGDAR,BADCON,N747T2,BUTIN,EM141C,EM4D,0
 9257 061030     067     064     067  N747T2: .ASCIZ  !747 747.!
 9258 061041     116     105     107  NEGDAR: .ASCIZ  !NEGD @N(R)!
 9259 061054     116     105     107  EM222:  .ASCIZ  !NEG!
 9260 061060     377                      .BYTE   377     ;FLAGS  ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                        .EVEN
 9261 061062  056132  052552  000000       .WORD   EM123B,EM4D,0
 9262 061070     116     105     107  EM223:  .ASCIZ  !NEG!
 9263 061074     377                      .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
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                                                .EVEN
 9264 061076  056132  052531  056472            .WORD   EM123B,EM4B,EM141C,EM4D,0
 9265 061110     116     105     107  EM224:     .ASCIZ  !NEG!
 9266 061114     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9267 061116  056132  052436  000000            .WORD   EM123B,EM2B,0
 9268 061124     114     000       EM225:       .ASCIZ  !L!
 9269 061126     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9270 061130  061136  052531  000000            .WORD   EM225B,EM4B,0
 9271 061136     104     106     120  EM225B:    .ASCIZ  !DFPS (R)!
 9272 061147     114     000       EM226:       .ASCIZ  !L!
 9273 061151     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9274 061152  061136  052436  000000            .WORD   EM225B,EM2B,0
 9275 061160     114     000       EM227:       .ASCIZ  !L!
 9276 061162     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9277 061164  061136  061172  000000            .WORD   EM225B,EM227B,0
 9278 061172     040     124     122  EM227B:    .ASCIZ  ! TRAPPED TO 4.!
 9279 061211     114     000       EM230:       .ASCIZ  !L!
 9280 061213     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9281 061214  061222  052531  000000            .WORD   EM230B,EM4B,0
 9282 061222     104     106     120  EM230B:    .ASCIZ  !DFPS (R)+!
 9283 061234     114     000       EM231:       .ASCIZ  !L!
 9284 061236     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9285 061240  061222  052436  000000            .WORD   EM230B,EM2B,0
 9286 061246     114     000       EM232:       .ASCIZ  !L!
 9287 061250     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9288 061252  061222  061172  000000            .WORD   EM230B,EM227B,0
 9289 061260     114     000       EM233:       .ASCIZ  !L!
 9290 061262     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9291 061264  061272  052531  000000            .WORD   EM233B,EM4B,0
 9292 061272     104     106     120  EM233B:    .ASCIZ  !DFPS -(R)!
 9293 061304     114     000       EM234:       .ASCIZ  !L!
 9294 061306     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9295 061310  061272  052436  000000            .WORD   EM233B,EM2B,0
 9296 061316     114     000       EM235:       .ASCIZ  !L!
 9297 061320     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9298 061322  061272  061172  000000            .WORD   EM233B,EM227B,0
 9299 061330     114     000       EM236:       .ASCIZ  !L!
 9300 061332     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9301 061334  061342  052531  000000            .WORD   EM236B,EM4B,0
 9302 061342     104     106     120  EM236B:    .ASCIZ  !DFPS @(R)+!
 9303 061355     114     000       EM237:       .ASCIZ  !L!
 9304 061357     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9305 061360  061342  052436  000000            .WORD   EM236B,EM2B,0
 9306 061366     114     000       EM240:       .ASCIZ  !L!
 9307 061370     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
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                                                .EVEN
 9308 061372  061342  061172  000000           .WORD   EM236B,EM227B,0
 9309 061400     114     000          EM241:    .ASCIZ  !L!
 9310 061402     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9311 061404  061412  052531  000000           .WORD   EM241B,EM4B,0
 9312 061412     104     106     120  EM241B:   .ASCIZ  !DFPS @-(R)!
 9313 061425     114     000          EM242:    .ASCIZ  !L!
 9314 061427     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9315 061430  061412  052436  000000           .WORD   EM241B,EM2B,0
 9316 061436     114     000          EM243:    .ASCIZ  !L!
 9317 061440     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9318 061442  061412  061172  000000           .WORD   EM241B,EM227B,0
 9319 061450     114     000          EM244:    .ASCIZ  !L!
 9320 061452     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9321 061454  061462  052531  000000           .WORD   EM244B,EM4B,0
 9322 061462     104     106     120  EM244B:   .ASCIZ  !DFPS N(R)!
 9323 061474     114     000          EM245:    .ASCIZ  !L!
 9324 061476     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9325 061500  061462  052436  000000           .WORD   EM244B,EM2B,0
 9326 061506     120     103     040  EM246:    .ASCIZ  !PC BAD AFTER !
 9327 061524     376                            .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                                .EVEN
 9328 061526  000246  000252  000254           .WORD   246,252,254,0
 9329 061536  061544  061626  061654           .WORD   EM246B,EM252B,EM254B
 9330 061544     114     104     106  EM246B:   .ASCIZ  !LDFPS N(R)!
 9331 061557     114     000          EM247:    .ASCIZ  !L!
 9332 061561     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9333 061562  061462  061172  000000           .WORD   EM244B,EM227B,0
 9334 061570     114     000          EM250:    .ASCIZ  !L!
 9335 061572     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9336 061574  061602  052531  000000           .WORD   EM250B,EM4B,0
 9337 061602     104     106     120  EM250B:   .ASCIZ  !DFPS @N(R)!
 9338 061615     114     000          EM251:    .ASCIZ  !L!
 9339 061617     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9340 061620  061602  052436  000000           .WORD   EM250B,EM2B,0
 9341         061506          EM252=EM246
 9342 061626     114     104     106  EM252B:   .ASCIZ  !LDFPS @N(R)!
 9343 061642     114     000          EM253:    .ASCIZ  !L!
 9344 061644     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9345 061646  061602  061172  000000           .WORD   EM250B,EM227B,0
 9346         061506          EM254=EM246
 9347 061654     114     104     103  EM254B:   .ASCIZ  !LDCLD (R7)+,A!
 9348 061672     114     104     103  EM255:    .ASCIZ  !LDCLD (R7)+,A!
 9349 061710     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9350 061712  061172  000000                    .WORD   EM227B,0
 9351 061716     114     000          EM256:    .ASCIZ  !L!
 9352 061720     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
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                                                                .EVEN
 9353 061722  061730  052531  000000                           .WORD   EM256B,EM4B,0
 9354 061730     104     103     114  EM256B:                  .ASCIZ  !DCLD (R)+,A!
 9355 061744     114     000          EM257:                   .ASCIZ  !L!
 9356 061746     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9357 061750  061730  052436  000000                           .WORD   EM256B,EM2B,0
 9358 061756     114     000          EM260:                   .ASCIZ  !L!
 9359 061760     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9360 061762  061770  052552  000000                           .WORD   EM260B,EM4D,0
 9361 061770     104     103     111  EM260B:                  .ASCIZ  !DCIF OR LDCLF (R),A!
 9362 062014     114     000          EM261:                   .ASCIZ  !L!
 9363 062016     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9364 062020  061770  052436  000000                           .WORD   EM260B,EM2B,0
 9365 062026     114     000          EM262:                   .ASCIZ  !L!
 9366 062030     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9367 062032  062101  052552                                  .WORD   EM262B,EM4D
 9368 062036     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
      062040  052653  062076  052662                           .WORD   CRBUT,IFL,PRST,N2,N7,N7,WENTTO,N3,N0,N0,INSTOF,N3,N0,N1,0
 9369 062076     106     114     000  IFL:                     .ASCIZ  !FL!
 9370 062101     104     103     111  EM262B:                  .ASCIZ  !DCIF (R),A!
 9371 062114     114     000          EM263:                   .ASCIZ  !L!
 9372 062116     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9373 062120  062126  052436  000000                           .WORD   EM263B,EM2B,0
 9374 062126     104     103     114  EM263B:                  .ASCIZ  !DCLF (R),A!
 9375 062141     114     000          EM264:                   .ASCIZ  !L!
 9376 062143     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9377 062144  062101  052552  062154                           .WORD   EM262B,EM4D,EM264C,0
 9378 062154     200     125     123  EM264C:                  .ASCIZ  <CRLF>!USED CONSTANT 237 INSTEAD OF 217 ST 107.!
 9379 062226     114     000          EM265:                   .ASCIZ  !L!
 9380 062230     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9381 062232  061770  052552  062242                           .WORD   EM260B,EM4D,EM265C,0
 9382 062242     200     123     105  EM265C:                  .ASCIZ  <CRLF>!SET SIGN BIT FAILED ST 146.!
 9383 062277     114     000          EM266:                   .ASCIZ  !L!
 9384 062301     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9385 062302  061770  052552                                  .WORD   EM260B,EM4D
 9386 062306     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
      062310  052653  062346  052662                           .WORD   CRBUT,IXNBT,PRST,N3,N7,N2,WENTTO,N1,N5,N2,INSTOF,N1,N1,N2,0
 9387 062346     130     116     102  IXNBT:                   .ASCIZ  !XNBT!
 9388 062353     114     000          EM267:                   .ASCIZ  !L!
 9389 062355     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9390 062356  062126  052552  062366                           .WORD   EM263B,EM4D,EM267C,0
 9391 062366     200     125     123  EM267C:                  .ASCIZ  <CRLF>!USED CONSTANT 217 INSTEAD OF 237 ST 107.!
 9392 062440     114     000          EM270:                   .ASCIZ  !L!
 9393 062442     377                                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                                .EVEN
 9394 062444  062126  052552  062454                           .WORD   EM263B,EM4D,EM270C,0
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ERROR MESSAGES

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 9395 062454      040      122      117  EM270C: .ASCIZ  ! ROUND ERROR.!
 9396 062472      114      000           EM271:  .ASCIZ  !L!
 9397 062474      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9398 062476   062126   052552   062506         .WORD   EM263B,EM4D,EM271C,0
 9399 062506      040      124      122  EM271C: .ASCIZ  ! TRUNCATION ERROR.!
 9400 062531      114      000           EM272:  .ASCIZ  !L!
 9401 062533      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9402 062534   061770   052552   062544         .WORD   EM260B,EM4D,EM272C,0
 9403 062544      200      122       061  EM272C: .ASCIZ  <CRLF>!R14 NOT INCREMENTED ST 630.!
 9404 062601      114      000           EM273:  .ASCIZ  !L!
 9405 062603      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9406 062604   062612   052552   000000         .WORD   EM273B,EM4D,0
 9407 062612      104      103       111  EM273B: .ASCIZ  !DCID OR LDCLD (R),A!
 9408 062636      114      000           EM274:  .ASCIZ  !L!
 9409 062640      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9410 062642   062612   052436   000000         .WORD   EM273B,EM2B,0
 9411 062650      114      000           EM275:  .ASCIZ  !L!
 9412 062652      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9413 062654   062720   052552                  .WORD   EM275B,EM4D
 9414 062660      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
      062662   052653   062076   052662         .WORD   CRBUT,IFL,PRST,N2,N7,N7,WENTTO,N3,N0,N0,INSTOF,N3,N0,N1,0
 9415 062720      104      103       111  EM275B: .ASCIZ  !DCID (R),A!
 9416 062733      114      000           EM276:  .ASCIZ  !L!
 9417 062735      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9418 062736   062720   052552   062746         .WORD   EM275B,EM4D,EM276C,0
 9419 062746      200      125       123  EM276C: .ASCIZ  <CRLF>!USED CONSTANT 237 INSTEAD OF 217 ST 107.!
 9420 063020      114      000           EM277:  .ASCIZ  !L!
 9421 063022      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9422 063024   062720   052552   063034         .WORD   EM275B,EM4D,EM277C,0
 9423 063034      200      123       105  EM277C: .ASCIZ  <CRLF>!SET SIGN FAILED ST 146.!
 9424 063065      114      104       103  EM300:  .ASCIZ  !LDCLD (R),A!
 9425 063101      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9426 063102   052552   063110   000000         .WORD   EM4D,EM300C,0
 9427 063110      200      125       123  EM300C: .ASCIZ  <CRLF>!USED CONSTANT 217 INSTEAD OF 237 ST 107.!
 9428 063162      114      000           EM301:  .ASCIZ  !L!
 9429 063164      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9430 063166   063174   052552   000000         .WORD   EM301B,EM4D,0
 9431 063174      104      105       130  EM301B: .ASCIZ  !DEXP (R),A!
 9432 063207      114      000           EM302:  .ASCIZ  !L!
 9433 063211      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9434 063212   063174   052436   000000         .WORD   EM301B,EM2B,0
 9435 063220      114      000           EM303:  .ASCIZ  !L!
 9436 063222      377                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                         .EVEN
 9437 063224   063174   052466   000000         .WORD   EM301B,EM3B,0
 9438 063232      114      000           EM304:  .ASCIZ  !L!
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                                                .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9440 063236  063174  052552  063246           .WORD   EM301B,EM4D,EM304C,0
 9441 063246     200     105     130  EM304C:   .ASCIZ  <CRLF>!EXCESS 200 CALCULATION ST 624 BAD.!
 9442 063312     114     000          EM305:    .ASCIZ  !L!
 9443 063314     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9444 063316  063174  052436  063326           .WORD   EM301B,EM2B,EM305C,0
 9445 063326     200     050     102  EM305C:   .ASCIZ  <CRLF>!(BUT ENBT,EZBT,XNBT) ST 625 DID NOT GO TO 304.!
 9446 063406     114     000          EM306:    .ASCIZ  !L!
 9447 063410     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9448 063412  063174  052436                     .WORD   EM301B,EM2B
 9449 063416     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      063420  052653  053724  052662             .WORD   CRBUT,IEZBT,PRST,N5,N4,N4,WENTTO,N5,N0,N4,INSTOF,N7,N0,N4,OR
 9450 063456  052653  053724  052662             .WORD   CRBUT,IEZBT,PRST,N7,N0,N4,WENTTO,N2,N6,N4,INSTOF,N0,N6,N4,0
 9451 063514     114     000          EM307:    .ASCIZ  !L!
 9452 063516     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9453 063520  063174  052552                     .WORD   EM301B,EM4D
 9454 063524     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      063526  052653  053724  052662             .WORD   CRBUT,IEZBT,PRST,N7,N0,N4,WENTTO,N0,N6,N4,INSTOF,N2,N6,N4,0
 9455 063564     114     000          EM310:    .ASCIZ  !L!
 9456 063566     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9457 063570  063174  052436                     .WORD   EM301B,EM2B
 9458 063574     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      063576  052653  063634  052662             .WORD   CRBUT,IFIU,PRST,N2,N6,N4,WENTTO,N1,N1,N5,INSTOF,N1,N5,N5,0
 9459 063634     106     111     125  IFIU:     .ASCIZ  !FIU!
 9460 063640     114     000          EM311:    .ASCIZ  !L!
 9461 063642     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9462 063644  063174  052552                     .WORD   EM301B,EM4D
 9463 063650     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      063652  052653  063634  052662             .WORD   CRBUT,IFIU,PRST,N2,N6,N4,WENTTO,N1,N5,N5,INSTOF,N1,N1,N5,0
 9464 063710     114     000          EM312:    .ASCIZ  !L!
 9465 063712     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9466 063714  063174  052552                     .WORD   EM301B,EM4D
 9467 063720     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      063722  052653  053724  052662             .WORD   CRBUT,IEZBT,PRST,N5,N4,N4,WENTTO,N7,N0,N4,INSTOF,N5,N0,N4,0
 9468 063760     114     000          EM313:    .ASCIZ  !L!
 9469 063762     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9470 063764  063174  052552                     .WORD   EM301B,EM4D
 9471 063770     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      063772  052653  063634  052662             .WORD   CRBUT,IFIU,PRST,N5,N0,N4,WENTTO,N1,N5,N5,INSTOF,N1,N1,N5,0
 9472 064030     114     000          EM314:    .ASCIZ  !L!
 9473 064032     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9474 064034  063174  052552                     .WORD   EM301B,EM4D
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ERROR MESSAGES

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 9475 064040      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
      064042  052653  054626  052662           .WORD   CRBUT,IFIV,PRST,N1,N0,N4,WENTTO,N1,N1,N6,INSTOF,N1,N3,N6,0
 9476 064100      114      000          EM315:  .ASCIZ  !L!
 9477 064102      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9478 064104  063174  052552                   .WORD   EM301B,EM4D
 9479 064110      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
      064112  052653  054626  052662           .WORD   CRBUT,IFIV,PRST,N1,N0,N4,WENTTO,N1,N3,N6,INSTOF,N1,N1,N6,0
 9480 064150      114      000          EM316:  .ASCIZ  !L!
 9481 064152      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9482 064154  063174  052552                   .WORD   EM301B,EM4D
 9483 064160      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
      064162  052653  054626  052662           .WORD   CRBUT,IFIV,PRST,N1,N4,N4,WENTTO,N1,N1,N6,INSTOF,N1,N3,N6,0
 9484 064220      114      000          EM317:  .ASCIZ  !L!
 9485 064222      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9486 064224  063174  052552                   .WORD   EM301B,EM4D
 9487 064230      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
      064232  052653  054626  052662           .WORD   CRBUT,IFIV,PRST,N1,N4,N4,WENTTO,N1,N3,N6,INSTOF,N1,N1,N6,0
 9488 064270      114      000          EM320:  .ASCIZ  !L!
 9489 064272      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9490 064274  063174  052552                   .WORD   EM301B,EM4D
 9491 064300      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
      064302  052653  054626  052662           .WORD   CRBUT,IFIV,PRST,N3,N4,N4,WENTTO,N1,N1,N6,INSTOF,N1,N3,N6,0
 9492 064340      114      000          EM321:  .ASCIZ  !L!
 9493 064342      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9494 064344  063174  052552                   .WORD   EM301B,EM4D
 9495 064350      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
      064352  052653  054626  052662           .WORD   CRBUT,IFIV,PRST,N3,N4,N4,WENTTO,N1,N3,N6,INSTOF,N1,N1,N6,0
 9496 064410      123      000          EM322:  .ASCIZ  !S!
 9497 064412      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9498 064414  064422  052552  000000           .WORD   EM322B,EM4D,0
 9499 064422      124      103      104  EM322B: .ASCIZ  !TCDI OR STCDL (R),A!
 9500 064446      123      000          EM323:  .ASCIZ  !S!
 9501 064450      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9502 064452  064422  052436  000000           .WORD   EM322B,EM2B,0
 9503 064460      123      000          EM324:  .ASCIZ  !S!
 9504 064462      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9505 064464  064422  052466  000000           .WORD   EM322B,EM3B,0
 9506 064472      123      000          EM325:  .ASCIZ  !S!
 9507 064474      377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9508 064476  064506  052436  064521           .WORD   EM325B,EM2B,EM325C,0
 9509 064506      124      103      104  EM325B: .ASCIZ  !TCDL (R),A!
 9510 064521      200      103      114  EM325C: .ASCIZ  <CRLF>!CLEAR FLAG ST 774 FAILED, OR!
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ERROR MESSAGES

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 9511 064557     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      064560  052653  054764  052662            .WORD   CRBUT,IFLAG,PRST,N6,N6,N2,WENTTO,N3,N6,N5,INSTOF,N3,N6,N1,0
 9512         064472                     EM326=EM325
 9513 064616     123     000            EM327:  .ASCIZ  !S!
 9514 064620     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9515 064622  064506  052552                    .WORD   EM325B,EM4D
 9516 064626     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      064630  052653  054230  052662            .WORD   CRBUT,IENBT,PRST,N6,N3,N2,WENTTO,N4,N7,N3,INSTOF,N0,N7,N3,0
 9517 064666     123     000            EM330:  .ASCIZ  !S!
 9518 064670     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9519 064672  064506  052436                    .WORD   EM325B,EM2B
 9520 064676     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      064700  052653  064736  052662            .WORD   CRBUT,IFIC,PRST,N0,N0,N4,WENTTO,N3,N0,N5,INSTOF,N3,N1,N5,0
 9521 064736     106     111     103    IFIC:   .ASCIZ  !FIC!
 9522 064742     123     000            EM331:  .ASCIZ  !S!
 9523 064744     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9524 064746  064506  052436                    .WORD   EM325B,EM2B
 9525 064752     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      064754  052653  064736  052662            .WORD   CRBUT,IFIC,PRST,N0,N0,N4,WENTTO,N3,N1,N5,INSTOF,N3,N0,N5,0
 9526 065012     123     000            EM332:  .ASCIZ  !S!
 9527 065014     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9528 065016  065026  052552  065041            .WORD   EM332B,EM4D,EM332C,0
 9529 065026     124     103     104    EM332B: .ASCIZ  !TCDI (R),A!
 9530 065041     200     125     123    EM332C: .ASCIZ  <CRLF>!USED CONSTANT 37 INSTEAD OF 17 ST 66.!
 9531         064446                     EM333=EM323
 9532 065110     123     000            EM334:  .ASCIZ  !S!
 9533 065112     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9534 065114  065026  052436  065124            .WORD   EM332B,EM2B,EM334C,0
 9535 065124     200     125     123    EM334C: .ASCIZ  <CRLF>!USED CONSTANT 37 INSTEAD OF 17 ST 66.!
 9536 065173     123     000            EM335:  .ASCIZ  !S!
 9537 065175     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9538 065176  065026  052552                    .WORD   EM332B,EM4D
 9539 065202     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      065204  052653  054230  052662            .WORD   CRBUT,IENBT,PRST,N6,N3,N2,WENTTO,N0,N7,N3,INSTOF,N4,N7,N3,0
 9540 065242     123     000            EM336:  .ASCIZ  !S!
 9541 065244     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9542 065246  065026  052436  065260            .WORD   EM332B,EM2B,EM336C,EM4D,0
 9543 065260     200     123     105    EM336C: .ASCIZ  <CRLF>!SET FN ST 473!
 9544 065277     123     000            EM337:  .ASCIZ  !S!
 9545 065301     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9546 065302  064506  052552                    .WORD   EM325B,EM4D
 9547 065306     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
      065310  052653  065346  052662            .WORD   CRBUT,ICOUT,PRST,N2,N7,N5,WENTTO,N0,N7,N4,INSTOF,N2,N7,N4,0
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ERROR MESSAGES

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                                                ICOUT:  .ASCIZ  !COUT!
                                                EM340:  .ASCIZ  !S!
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   EM325B,EM4D
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   CRBUT,ICOUT,PRST,N2,N7,N5,WENTTO,N2,N7,N4,INSTOF,N0,N7,N4,0
                                                EM341:  .ASCIZ  !S!
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   EM325B,EM2B
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   CRBUT,IEZBT,PRST,N3,N7,N7,WENTTO,N6,N3,N3,INSTOF,N4,N3,N3,0
                                                EM342:  .ASCIZ  !S!
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   EM325B,EM4D
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   CRBUT,ICOUT,PRST,N3,N6,N0,WENTTO,N6,N5,N4,INSTOF,N4,N5,N4,0
                                                EM343:  .ASCIZ  !S!
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   EM325B,EM4D
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   CRBUT,INBIT,PRST,N6,N5,N4,WENTTO,N5,N3,N1,INSTOF,N4,N3,N1,0
                                                INBIT:  .ASCIZ  !NBIT!
                                                EM344:  .ASCIZ  !S!
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   EM325B,EM4D
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   CRBUT,ICOUT,PRST,N3,N6,N0,WENTTO,N4,N5,N4,INSTOF,N6,N5,N4,OR
                                                        .WORD   CRBUT,INBIT,PRST,N6,N5,N4,WENTTO,N4,N3,N1,INSTOF,N5,N3,N1,0
                                                EM345:  .ASCIZ  !S!
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   EM332B,EM4D
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   CRBUT,IFL,PRST,N6,N3,N3,WENTTO,N6,N5,N5,INSTOF,N6,N5,N4,0
                                                EM346:  .ASCIZ  !STCFL (R),A!
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   EM4D,EM346C,0
                                                EM346C: .ASCIZ  <CRLF>!ZERO LOW ORDER PART OF X11 FAILED ST 773.!
                                                EM347:  .ASCIZ  !S!
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
                                                        .WORD   EM347B,EM4D,0
                                                EM347B: .ASCIZ  !TEXP A,(R)!
                                                EM350:  .ASCIZ  !S!
                                                        .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
```

```
                                                        .EVEN
 9585 066122  066104  052436  000000                    .WORD   EM347B,EM2B,0
 9586 066130     115     117     122  EM351:             .ASCII  !MORE THAN ONE WORD !
 9587 066153     127     122     111                     .ASCIZ  !WRITTEN BY STEXP A,(R).!<CRLF>!ZERO FDFL ST 347!
 9588 066224     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9589 066226  052552  000000                            .WORD   EM4D,0
 9590 066232     123     000          EM352:             .ASCIZ  !S!
 9591 066234     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9592 066236  066104  052436                            .WORD   EM347B,EM2B
 9593 066242     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
      066244  052653  054230  052662                    .WORD   CRBUT,IENBT,PRST,N3,N7,N6,WENTTO,N0,N7,N1,INSTOF,N4,N7,N1,0
 9594 066302     123     000          EM353:             .ASCIZ  !S!
 9595 066304     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9596 066306  066104  052436                            .WORD   EM347B,EM2B
 9597 066312     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
      066314  052653  053724  052662                    .WORD   CRBUT,IEZBT,PRST,N0,N7,N1,WENTTO,N0,N7,N2,INSTOF,N2,N7,N2,0
 9598 066352     123     000          EM354:             .ASCIZ  !S!
 9599 066354     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9600 066356  066104  052436                            .WORD   EM347B,EM2B
 9601 066362     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
      066364  052653  053724  052662                    .WORD   CRBUT,IEZBT,PRST,N0,N7,N1,WENTTO,N2,N7,N2,INSTOF,N0,N7,N2,0
 9602 066422     123     000          EM355:             .ASCIZ  !S!
 9603 066424     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9604 066426  066104  052436                            .WORD   EM347B,EM2B
 9605 066432     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
      066434  052653  054230  052662                    .WORD   CRBUT,IENBT,PRST,N3,N7,N6,WENTTO,N4,N7,N1,INSTOF,N0,N7,N1,0
 9606 066472     123     124     123  EM356:             .ASCIZ  !STST (R) GOT BAD FEC.!<CRLF>
 9607 066521     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9608 066522  066526  000000                            .WORD   EM356B,0
 9609 066526     101     106     124  EM356B:            .ASCIZ  !AFTER EXECUTING AN ILLEGAL FPP OP CODE.!
 9610 066576     123     124     123  EM357:             .ASCIZ  !STST (R) GOT BAD FEA.!<CRLF>
 9611 066625     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9612 066626  066526  000000                            .WORD   EM356B,0
 9613 066632     117     116     114  EM360:             .ASCII  !ONLY ONE WORD WRITTEN BY STST (R). !
 9614 066675     123     105     124                     .ASCIZ  !SET FDFL ST 636!
 9615 066715     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9616 066716  052552  000000                            .WORD   EM4D,0
 9617 066722     123     124     123  EM361:             .ASCIZ  !STST (R)!
 9618 066733     377                                     .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9619 066734  052436  000000                            .WORD   EM2B,0
 9620 066740     116     117     116  EM362:             .ASCII  !NON-RESIDENT MEMORY MANAGEMENT TRAP - !
 9621 067006     111     115     120                     .ASCIZ  !IMPROPER D-SPACE ACCESS ATTEMPTED!
 9622 067050     104     111     106  EM363:             .ASCIZ  !DIFFERENCE BETWEEN SR1 AND CALCULATED!
 9623 067116     106     120     120  EM364:             .ASCII  !FPP INSTRUCTION FAILED TO ABORT, NOT !
```

ERROR MESSAGES

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 9624 067163     101     114     114                .ASCIZ  !ALLOWNG EXAMINATION OF SR1!
 9625 067216     115     117     104  EM365:        .ASCIZ  !MODE 0 INSTRUCTION ABORTED WHEN IT SHOULD NOT HAVE!
 9626 067301     106     120     120  EM366:        .ASCIZ  !FPP ACCUMULATOR WAS CHANGED IN THE EXPECTED ABORT.!
 9627 067364     107     105     116  EM367:        .ASCIZ  !GENERAL REGISTER WAS CHANGED IN THE EXPECTED ABORT!
 9628 067447     106     120     120  EM370:        .ASCIZ  !FPP UNABLE TO RESTORE AN AC!
 9629 067503     123     124     105  EM371:        .ASCII  !STEXP AUTO INCREMENTED/DECREMENTED R0 INCORRECTLY!<CRLF>
 9630 067565     115     067     060                .ASCIZ  !M7095 ECO # 10 MIGHT NOT BE INSTALLED!
 9631          000000                 EM372=0
 9632          000000                 EM373=0
 9633          000000                 EM374=0
 9634          000000                 EM375=0
 9635          000000                 EM376=0
 9636          000000                 EM377=0
 9637          000000                 EM400=0
 9638 067633     123     000         EM401:        .ASCIZ  !S!
 9639 067635     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9640 067636 067644  052531  000000            .WORD   EM401B,EM4B,0
 9641 067644     124     106     120  EM401B:       .ASCIZ  !TFPS (R)!
 9642 067655     123     000         EM402:        .ASCIZ  !S!
 9643 067657     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9644 067660 067644  052552  000000            .WORD   EM401B,EM4D,0
 9645 067666     115     000         EM403:        .ASCIZ  !M!
 9646 067670     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9647 067672 067746  070005  060711            .WORD   EM403B,EM403C,PERIOD
 9648 067700 052653  067736  052662            .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
 9649 067736     107     122     067  IGR7FL:       .ASCIZ  !GR7,-FL!
 9650 067746     117     122     105  EM403B:       .ASCIZ  !ORE THAN ONE WORD WRITTEN BY S!
 9651 070005     124     106     120  EM403C:       .ASCIZ  !TFPS (R)!
 9652 070016     123     000         EM404:        .ASCIZ  !S!
 9653 070020     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9654 070022 067644  061172  000000            .WORD   EM401B,EM227B,0
 9655 070030     123     000         EM405:        .ASCIZ  !S!
 9656 070032     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9657 070034 070005  052756  052531            .WORD   EM403C,EM7B,EM4B,0
 9658 070044     123     000         EM406:        .ASCIZ  !S!
 9659 070046     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9660 070050 070005  052756  052552            .WORD   EM403C,EM7B,EM4D,0
 9661 070060     115     000         EM407:        .ASCIZ  !M!
 9662 070062     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9663 070064 067746  070005  052756            .WORD   EM403B,EM403C,EM7B
 9664 070072 052653  067736  052662            .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
 9665 070130     123     000         EM410:        .ASCIZ  !S!
 9666 070132     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9667 070134 070005  052756  061172            .WORD   EM403C,EM7B,EM227B,0
 9668 070144     123     000         EM411:        .ASCIZ  !S!
 9669 070146     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
 9670 070150 070156  052531  000000            .WORD   EM411B,EM4B,0
 9671 070156     124     106     120  EM411B:       .ASCIZ  !TFPS -(R)!
```

ERROR MESSAGES

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 9672 070170     123     000          EM412:  .ASCIZ  !S!
 9673 070172     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9674 070174  070156  052552  000000          .WORD   EM411B,EM4D,0
 9675 070202     115     000          EM413:  .ASCIZ  !M!
 9676 070204     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9677 070206  067746  070156  060711          .WORD   EM403B,EM411B,PERIOD
 9678 070214  052653  067736  052662          .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
 9679 070252     123     000          EM414:  .ASCIZ  !S!
 9680 070254     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9681 070256  070156  061172  000000          .WORD   EM411B,EM227B,0
 9682 070264     123     000          EM415:  .ASCIZ  !S!
 9683 070266     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9684 070270  070276  052531  000000          .WORD   EM415B,EM4B,0
 9685 070276     124     106     120  EM415B: .ASCIZ  !TFPS @(R)+!
 9686 070311     123     000          EM416:  .ASCIZ  !S!
 9687 070313     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9688 070314  070276  052552  000000          .WORD   EM415B,EM4D,0
 9689 070322     123     000          EM417:  .ASCIZ  !S!
 9690 070324     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9691 070326  070276  070334  000000          .WORD   EM415B,EM417B,0
 9692 070334     040     104     111  EM417B: .ASCIZ  ! DID NOT DEFER THE WRITE.!
 9693 070366     123     000          EM420:  .ASCIZ  !S!
 9694 070370     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9695 070372  070276  061172  000000          .WORD   EM415B,EM227B,0
 9696 070400     123     000          EM421:  .ASCIZ  !S!
 9697 070402     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9698 070404  070412  052531  000000          .WORD   EM421B,EM4B,0
 9699 070412     124     106     120  EM421B: .ASCIZ  !TFPS @-(R)!
 9700 070425     123     000          EM422:  .ASCIZ  !S!
 9701 070427     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9702 070430  070412  052552  000000          .WORD   EM421B,EM4D,0
 9703 070436     123     000          EM423:  .ASCIZ  !S!
 9704 070440     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9705 070442  070412  070334  000000          .WORD   EM421B,EM417B,0
 9706 070450     123     000          EM424:  .ASCIZ  !S!
 9707 070452     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9708 070454  070412  061172  000000          .WORD   EM421B,EM227B,0
 9709 070462     123     000          EM425:  .ASCIZ  !S!
 9710 070464     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9711 070466  070474  052531  000000          .WORD   EM425B,EM4B,0
 9712 070474     124     106     120  EM425B: .ASCIZ  !TFPS N(R)!
 9713 070506     123     000          EM426:  .ASCIZ  !S!
 9714 070510     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9715 070512  070474  052552  000000          .WORD   EM425B,EM4D,0
```

ERROR MESSAGES

```
 9716 070520     115     000          EM427:  .ASCIZ  !M!
 9717 070522     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9718 070524  067746  070474  060711          .WORD   EM403B,EM425B,PERIOD
 9719 070532     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
      070534  052653  067736  052662          .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
 9720 070572     123     000          EM430:  .ASCIZ  !S!
 9721 070574     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9722 070576  070474  061172  000000          .WORD   EM425B,EM227B,0
 9723 070604     120     103     040  EM431:  .ASCIZ  !PC BAD AFTER S!
 9724 070623     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9725 070624  070474  057026  000000          .WORD   EM425B,EM160B,0
 9726 070632     123     000          EM432:  .ASCIZ  !S!
 9727 070634     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9728 070636  070644  052531  000000          .WORD   EM432B,EM4B,0
 9729 070644     124     106     120  EM432B: .ASCIZ  !TFPS @N(R)!
 9730 070657     123     000          EM433:  .ASCIZ  !S!
 9731 070661     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9732 070662  070644  052552  000000          .WORD   EM432B,EM4D,0
 9733 070670     115     000          EM434:  .ASCIZ  !M!
 9734 070672     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9735 070674  067746  070644  060711          .WORD   EM403B,EM432B,PERIOD
 9736 070702  052653  067736  052662          .WORD   CRBUT,IGR7FL,PRST,N3,N5,N7,WENTTO,N4,N1,N6,INSTOF,N4,N1,N7,0
 9737 070740     123     000          EM435:  .ASCIZ  !S!
 9738 070742     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9739 070744  070644  061172  000000          .WORD   EM432B,EM227B,0
 9740 070752     120     103     040  EM436:  .ASCIZ  !PC BAD AFTER S!
 9741 070771     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9742 070772  070644  057026  000000          .WORD   EM432B,EM160B,0
 9743 071000     123     124     103  EM437:  .ASCIZ  !STCDL A,(R)+!
 9744 071015     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9745 071016  052531  000000                  .WORD   EM4B,0
 9746 071022     123     124     103  EM440:  .ASCIZ  !STCDL A,-(R)!
 9747 071037     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9748 071040  052531  000000                  .WORD   EM4B,0
 9749 071044     125     116     105  EM441:  .ASCIZ  !UNEXPECTED !
 9750 071060     376                          .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                              .EVEN
 9751 071062  000441  000442  000443          .WORD   441,442,443,0
 9752 071072  071100  071147  071147          .WORD   EM441B,EM442B,EM442B
 9753 071100     106     120     120  EM441B: .ASCIZ  !FPP !
 9754 071105     377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                              .EVEN
 9755 071106  071112  000000                  .WORD   TRAPTO,0
 9756 071112     124     122     101  TRAPTO: .ASCIZ  !TRAP TO !
 9757 071123     376                          .BYTE   376     ;FLAGS 'ERTYPE' TO PRINT ERR # SPECIFIC ASCIZ MSGS, ADRS 3 LINES DOW
                                              .EVEN
```

ERROR MESSAGES

```
9758 071124  000441  000442  000443          .WORD   441,442,443,0
9759 071134  071142  071162  071165          .WORD   N244,N04,N10
9760 071142    062     064     064  N244:     .ASCIZ  !244.!
9761           071044               EM442=EM441
9762 071147    103     120     125  EM442B:   .ASCIZ  !CPU !
9763 071154    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
9764 071156  071112  000000                  .WORD   TRAPTO,0
9765 071162    064     056     000  N04:      .ASCIZ  !4.!
9766           071044               EM443=EM441
9767 071165    061     060     056  N10:      .ASCIZ  !10.!
9768 071171    116     105     107  EM444:    .ASCIZ  !NEG!
9769 071175    377                          .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                            .EVEN
9770 071176  057346  052466  000000          .WORD   EM176B,EM3B,0
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DATA TABLE HEADERS

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                                                        .SBTTL  DATA TABLE HEADERS
 9772 071204     040     000            DH1:            .ASCIZ  ! !
 9773 071206     377                                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9774 071210  071220  071252  071261                     .WORD   DH1B,DH1C,DH1D,0
 9775 071220     040     124     105  DH1B:              .ASCIZ  ! TEST.!<TAB>!PC OF CALL.!<TAB>!PC OF !
 9776 071252     105     122     122  DH1C:              .ASCIZ  !ERROR.!
 9777 071261     011     106     120  DH1D:              .ASCIZ  <TAB>!FPS.!<TAB>!FEC.!
 9778 071274     040     000            DH2:            .ASCIZ  ! !
 9779 071276     377                                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9780 071300  071220  071252  071310                     .WORD   DH1B,DH1C,DH2B,0
 9781 071310     011     107     117  DH2B:              .ASCIZ  <TAB>!GOT FPS.!<TAB>!EXPECTED FPS.!
 9782 071340     040     000            DH3:            .ASCIZ  ! !
 9783 071342     377                                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9784 071344  071220  071252  071354                     .WORD   DH1B,DH1C,DH3B,0
 9785 071354     011     107     117  DH3B:              .ASCIZ  <TAB>!GOT FEC.!<TAB>!EXPECTED FEC.!
 9786 071404     040     000            DH4:            .ASCIZ  ! !
 9787 071406     377                                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9788 071410  071220  071252  071420                     .WORD   DH1B,DH1C,DH4B,0
 9789 071420     011     107     117  DH4B:              .ASCIZ  <TAB>!GOT R0. !<TAB>!EXPECTED R0.!
 9790 071447     040     000            DH5:            .ASCIZ  ! !
 9791 071451     377                                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9792 071452  071220  071252  000000                     .WORD   DH1B,DH1C,0
 9793         071447                     DH6=DH5
 9794         071404                     DH7=DH4
 9795         071447                     DH10=DH5
 9796         071404                     DH11=DH4
 9797         071447                     DH12=DH5
 9798 071460     040     040     124  DH13:              .ASCIZ  !  TEST.!<TAB>!PC OF CALL.!<TAB>!PC OF TRAP.!
 9799         071460                     DH14=DH13
 9800         071447                     DH15=DH5
 9801 071520     040     000            DH16:           .ASCIZ  ! !
 9802 071522     377                                    .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                        .EVEN
 9803 071524  071220  071252  071534                     .WORD   DH1B,DH1C,DH16B,0
 9804 071534     011     107     117  DH16B:             .ASCIZ  <TAB>!GOT PC. !<TAB>!EXPECTED PC.!
 9805         071460                     DH17=DH13
 9806         071404                     DH20=DH4
 9807         071447                     DH21=DH5
 9808         071447                     DH22=DH5
 9809         071460                     DH23=DH13
 9810         071404                     DH24=DH4
 9811         071447                     DH25=DH5
 9812         071460                     DH26=DH13
 9813         071404                     DH27=DH4
 9814         071447                     DH30=DH5
 9815         071460                     DH31=DH13
 9816         071404                     DH32=DH4
 9817         071447                     DH33=DH5
 9818         071460                     DH34=DH13
 9819         071404                     DH35=DH4
 9820         071447                     DH36=DH5
 9821 071563     040     000            DH37:           .ASCIZ  ! !
```

```
 9822 071565     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9823 071566  071220  071252  071576            .WORD   DH1B,DH1C,DH37B,0
 9824 071576     011     107     117  DH37B:    .ASCIZ  <TAB>!GOT FPS.!<TAB>!EXPECTED FPS.!
 9825         071563                  DH40=DH37
 9826 071626     040     000          DH41:     .ASCIZ  ! !
 9827 071630     377                            .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
 9828 071632  071220  071252  071642            .WORD   DH1B,DH1C,DH41B,0
 9829 071642     011     106     120  DH41B:    .ASCIZ  <TAB>!FPS.!<TAB>!GOT FEC. EXPECTED FEC.!
 9830         071563                  DH42=DH37
 9831         071563                  DH43=DH37
 9832         071563                  DH44=DH37
 9833         071563                  DH45=DH37
 9834         071563                  DH46=DH37
 9835         071563                  DH47=DH37
 9836         071563                  DH50=DH37
 9837         071563                  DH51=DH37
 9838         071563                  DH52=DH37
 9839         071626                  DH53=DH41
 9840         071563                  DH54=DH37
 9841         071563                  DH55=DH37
 9842         071563                  DH56=DH37
 9843         071563                  DH57=DH37
 9844         071563                  DH60=DH37
 9845         071563                  DH61=DH37
 9846         071274                  DH62=DH2
 9847         071340                  DH63=DH3
 9848         071447                  DH64=DH5
 9849         071274                  DH65=DH2
 9850         071404                  DH66=DH4
 9851         071274                  DH67=DH2
 9852         071340                  DH70=DH3
 9853         071274                  DH176=DH2
 9854 071677     124     105     123  DH177:    .ASCIZ  !TESTNO  ERR PC  CPUERR!
 9855         071447                  DH71=DH5
 9856         071274                  DH72=DH2
 9857         071460                  DH107=DH13
 9858         071447                  DH73=DH5
 9859         071404                  DH74=DH4
 9860         071274                  DH75=DH2
 9861         071460                  DH76=DH107
 9862         071447                  DH77=DH5
 9863         071404                  DH100=DH4
 9864         071274                  DH101=DH2
 9865         071460                  DH102=DH107
 9866         071447                  DH103=DH5
 9867         071404                  DH104=DH4
 9868         071274                  DH105=DH2
 9869         071460                  DH106=DH107
 9870         071447                  DH110=DH5
 9871         071404                  DH111=DH4
 9872         071274                  DH112=DH2
 9873         071460                  DH113=DH107
 9874         071447                  DH114=DH5
 9875         071404                  DH115=DH4
 9876         071274                  DH116=DH2
```

DATA TABLE HEADERS

```
 9877        071460              DH117=DH107
 9878        071447              DH120=DH5
 9879        071404              DH121=DH4
 9880        071274              DH122=DH2
 9881        071460              DH123=DH107
 9882        071447              DH124=DH5
 9883        071404              DH125=DH4
 9884        071274              DH126=DH2
 9885        071460              DH127=DH107
 9886        071447              DH130=DH5
 9887        071274              DH131=DH2
 9888        071460              DH132=DH107
 9889        071447              DH133=DH5
 9890        071274              DH134=DH2
 9891        071447              DH135=DH5
 9892        071447              DH136=DH5
 9893        071274              DH137=DH2
 9894        071447              DH140=DH5
 9895        071404              DH141=DH4
 9896        071274              DH142=DH2
 9897        071447              DH143=DH5
 9898        071404              DH144=DH4
 9899        071274              DH145=DH2
 9900        071447              DH146=DH5
 9901        071404              DH147=DH4
 9902        071274              DH150=DH2
 9903        071447              DH151=DH5
 9904        071404              DH152=DH4
 9905        071274              DH153=DH2
 9906        071447              DH154=DH5
 9907        071404              DH155=DH4
 9908        071274              DH156=DH2
 9909        071447              DH157=DH5
 9910        071404              DH160=DH4
 9911        071274              DH161=DH2
 9912        071447              DH162=DH5
 9913        071274              DH163=DH2
 9914        071520              DH164=DH16
 9915        071563              DH165=DH37
 9916        071563              DH166=DH37
 9917        071563              DH167=DH37
 9918        071563              DH170=DH37
 9919        071563              DH171=DH37
 9920        071563              DH172=DH37
 9921        071626              DH173=DH41
 9922        071626              DH174=DH41
 9923        071626              DH175=DH41
 9924        071563              DH200=DH37
 9925        071563              DH201=DH37
 9926        071563              DH202=DH37
 9927        071563              DH203=DH37
 9928        071563              DH204=DH37
 9929        071563              DH205=DH37
 9930        071563              DH206=DH37
 9931        071563              DH207=DH37
 9932        071563              DH210=DH37
 9933        071563              DH211=DH37
```

DATA TABLE HEADERS

```
 9934            071563                          DH212=DH37
 9935            071563                          DH213=DH37
 9936            071563                          DH214=DH37
 9937            071520                          DH215=DH16
 9938            071447                          DH216=DH5
 9939            071404                          DH217=DH4
 9940            071274                          DH220=DH2
 9941            071520                          DH221=DH16
 9942            071447                          DH222=DH5
 9943            071404                          DH223=DH4
 9944            071274                          DH224=DH2
 9945            071404                          DH225=DH4
 9946            071274                          DH226=DH2
 9947 071726       040      000                  DH227:  .ASCIZ  ! !
 9948 071730       377                                   .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                         .EVEN
 9949 071732  071220  071740  000000                     .WORD   DH1B,DH227B,0
 9950 071740       124      122      101  DH227B: .ASCIZ  !TRAP.!
 9951            071404                          DH230=DH4
 9952            071274                          DH231=DH2
 9953            071726                          DH232=DH227
 9954            071404                          DH233=DH4
 9955            071274                          DH234=DH2
 9956            071726                          DH235=DH227
 9957            071404                          DH236=DH4
 9958            071274                          DH237=DH2
 9959            071726                          DH240=DH227
 9960            071404                          DH241=DH4
 9961            071274                          DH242=DH2
 9962            071726                          DH243=DH227
 9963            071404                          DH244=DH4
 9964            071274                          DH245=DH2
 9965            071520                          DH246=DH16
 9966            071726                          DH247=DH227
 9967            071404                          DH250=DH4
 9968            071274                          DH251=DH2
 9969            071520                          DH252=DH16
 9970            071726                          DH253=DH227
 9971            071520                          DH254=DH16
 9972            071726                          DH255=DH227
 9973            071404                          DH256=DH4
 9974            071274                          DH257=DH2
 9975            071563                          DH260=DH37
 9976            071563                          DH261=DH37
 9977            071563                          DH262=DH37
 9978            071563                          DH263=DH37
 9979            071563                          DH264=DH37
 9980            071563                          DH265=DH37
 9981            071563                          DH266=DH37
 9982            071563                          DH267=DH37
 9983            071563                          DH270=DH37
 9984            071563                          DH271=DH37
 9985            071563                          DH272=DH37
 9986            071563                          DH273=DH37
 9987            071563                          DH274=DH37
 9988            071563                          DH275=DH37
 9989            071563                          DH276=DH37
```

DATA TABLE HEADERS

```
 9990          071563                  DH277=DH37
 9991          071563                  DH300=DH37
 9992          071563                  DH301=DH37
 9993          071563                  DH302=DH37
 9994          071626                  DH303=DH41
 9995          071563                  DH304=DH37
 9996          071563                  DH305=DH37
 9997          071563                  DH306=DH37
 9998          071563                  DH307=DH37
 9999          071563                  DH310=DH37
10000          071563                  DH311=DH37
10001          071563                  DH312=DH37
10002          071563                  DH313=DH37
10003          071563                  DH314=DH37
10004          071563                  DH315=DH37
10005          071563                  DH316=DH37
10006          071563                  DH317=DH37
10007          071563                  DH320=DH37
10008          071563                  DH321=DH37
10009          071563                  DH322=DH37
10010          071563                  DH323=DH37
10011          071626                  DH324=DH41
10012          071563                  DH325=DH37
10013          071563                  DH326=DH37
10014          071563                  DH327=DH37
10015          071563                  DH330=DH37
10016          071563                  DH331=DH37
10017          071563                  DH332=DH37
10018          071563                  DH333=DH37
10019          071563                  DH334=DH37
10020          071563                  DH335=DH37
10021          071563                  DH336=DH37
10022          071563                  DH337=DH37
10023          071563                  DH340=DH37
10024          071563                  DH341=DH37
10025          071563                  DH342=DH37
10026          071563                  DH343=DH37
10027          071563                  DH344=DH37
10028          071563                  DH345=DH37
10029          071563                  DH346=DH37
10030          071563                  DH347=DH37
10031          071563                  DH350=DH37
10032          071460                  DH351=DH13
10033          071563                  DH352=DH37
10034          071563                  DH353=DH37
10035          071563                  DH354=DH37
10036          071563                  DH355=DH37
10037          071404                  DH356=DH11
10038 071746     040      000          DH357:  .ASCIZ  ! !
10039 071750     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                               .EVEN
10040 071752  071220  071252  071762           .WORD   DH1B,DH1C,DH357B,0
10041 071762     011      107      117  DH357B: .ASCIZ  <TAB>!GOT FEA.!<TAB>!EXPECTED FEA.!
10042          071460                  DH360=DH13
10043          071274                  DH361=DH2
10044 072012     040      000          DH362:  .ASCIZ  ! !
10045 072014     377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
```

DATA TABLE HEADERS

```
                                                .EVEN
10046 072016  071220  071252  072026            .WORD   DH1B,DH1C,DH362B,0
10047 072026     011     115     115  DH362B:    .ASCIZ  <TAB>!MMR0!
10048 072034     040     000          DH363:     .ASCIZ  ! !
10049 072036     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
10050 072040  071220  071252  072050            .WORD   DH1B,DH1C,DH363B,0
10051 072050     011     123     122  DH363B:    .ASCIZ  <TAB>!SR1!<TAB>!CALCD!<TAB>!EXPECTED!
10052 072074     040     000          DH364:     .ASCIZ  ! !
10053 072076     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
10054 072100  071220  072106  000000            .WORD   DH1B,DH364B,0
10055 072106     111     116     123  DH364B:    .ASCIZ  !INSTRUCTION FAILING TO ABORT!
10056 072143     040     000          DH365:     .ASCIZ  ! !
10057 072145     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
10058 072146  071220  071252  000000            .WORD   DH1B,DH1C,0
10059 072154     040     000          DH366:     .ASCIZ  ! !
10060 072156     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
10061 072160  071220  071252  072170            .WORD   DH1B,DH1C,DH366B,0
10062 072170     011     101     103  DH366B:    .ASCIZ  <TAB>!AC # CHANGED!
10063 072206     040     000          DH367:     .ASCIZ  ! !
10064 072210     377                             .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
10065 072212  071220  071252  072222            .WORD   DH1B,DH1C,DH367B,0
10066 072222     011     122     105  DH367B:    .ASCIZ  <TAB>!REG #!<TAB>!RECEIVED!<TAB>!EXPECTED!
10067 072253     040     040     124  DH370:     .ASCIZ  !  TEST!<TAB>!PC OF CALL!<TAB>!AC #!<TAB>!PC OF ERROR!
10068 072316     040     040     124  DH371:     .ASCII  !  TEST!<TAB>!PC OF CALL!<TAB>!STEXP OP CODE!<TAB>
10069 072356     105     130     120             .ASCIZ  !EXPCTD  RECVED  PC OF ERROR!
10070          000000                  DH372=0
10071          000000                  DH373=0
10072          000000                  DH374=0
10073          000000                  DH375=0
10074          000000                  DH376=0
10075          000000                  DH377=0
10076          000000                  DH400=0
10077          071404                  DH401=DH4
10078          071274                  DH402=DH2
10079          071460                  DH403=DH13
10080          071726                  DH404=DH227
10081          071404                  DH405=DH4
10082          071274                  DH406=DH2
10083          071460                  DH407=DH13
10084          071726                  DH410=DH227
10085          071404                  DH411=DH4
10086          071274                  DH412=DH2
10087          071460                  DH413=DH13
10088          071726                  DH414=DH227
10089          071404                  DH415=DH4
10090          071274                  DH416=DH2
10091          071460                  DH417=DH13
10092          071726                  DH420=DH227
10093          071404                  DH421=DH4
10094          071274                  DH422=DH2
10095          071460                  DH423=DH13
10096          071726                  DH424=DH227
```

DATA TABLE HEADERS

```
10097           071404                  DH425=DH4
10098           071274                  DH426=DH2
10099           071460                  DH427=DH13
10100           071726                  DH430=DH227
10101           071460                  DH431=DH13
10102           071404                  DH432=DH4
10103           071274                  DH433=DH2
10104           071460                  DH434=DH13
10105           071726                  DH435=DH227
10106           071460                  DH436=DH13
10107           071404                  DH437=DH4
10108           071404                  DH440=DH4
10109 072412      040     000           DH441:  .ASCIZ  ! !
10110 072414      377                           .BYTE   377     ;FLAGS 'ERTYPE' TO PRINT ADDT'L ASCIZ MSGS, ADDRESSES 2 LINES DOWN
                                                .EVEN
10111 072416  071220  071252  072426            .WORD   DH1B,DH1C,DH441B,0
10112 072426      011     106     105   DH441B: .ASCIZ  <TAB>!FEC.!
10113           072143                  DH442=DH365
10114           072143                  DH443=DH442
10115           071340                  DH444=DH3
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
10116                                           .SBTTL  FORMAT SPECIFICATIONS FOR THE DATA TABLES
10117 072434     004     000     005  DF1:      .BYTE   4,0,5,0,5,0,0
10118 072443     004     000     005  DF2:      .BYTE   4,0,5,0,5,0,5,0
10119          072443                DF3=DF2
10120          072443                DF4=DF2
10121 072453     004     000     005  DF5:      .BYTE   4,0,5,0,5,5,2,5,5,2
10122 072465     004     000     005  DF6:      .BYTE   4,0,5,0
10123          072443                DF7=DF4
10124          072453                DF10=DF5
10125          072443                DF11=DF4
10126 072471     004     000     005  DF12:     .BYTE   4,0,5,0,5,5,3,5,5,3
10127          072465                DF13=DF6
10128          072465                DF14=DF6
10129          072471                DF15=DF12
10130          072443                DF16=DF2
10131          072465                DF17=DF6
10132          072443                DF20=DF2
10133          072471                DF21=DF12
10134          072471                DF22=DF12
10135          072465                DF23=DF6
10136          072443                DF24=DF2
10137          072471                DF25=DF12
10138          072465                DF26=DF6
10139          072443                DF27=DF2
10140          072471                DF30=DF12
10141          072465                DF31=DF6
10142          072443                DF32=DF2
10143          072471                DF33=DF12
10144          072465                DF34=DF6
10145          072443                DF35=DF2
10146          072471                DF36=DF12
10147 072503     004     000     005  DF37:     .BYTE   4,0,5,0,5,0,5,0,5,5,3,5,5,3,5,5,3
10148          072503                DF40=DF37
10149 072524     004     000     005  DF41:     .BYTE   4,0,5,0,5,0,0,0,5,5,3,5,5,3,5,5,3
10150          072503                DF42=DF37
10151          072503                DF43=DF37
10152          072503                DF44=DF37
10153          072503                DF45=DF37
10154          072503                DF46=DF37
10155          072503                DF47=DF37
10156          072503                DF50=DF37
10157          072503                DF51=DF37
10158          072503                DF52=DF37
10159          072503                DF53=DF37
10160          072503                DF54=DF37
10161          072503                DF55=DF37
10162          072503                DF56=DF37
10163          072503                DF57=DF37
10164          072503                DF60=DF37
10165          072503                DF61=DF37
10166          072443                DF62=DF2
10167          072443                DF63=DF2
10168          072453                DF64=DF5
10169          072443                DF65=DF2
10170          072443                DF66=DF2
10171          072443                DF67=DF2
10172          072443                DF70=DF2
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
10173            072443                    DF176=DF2
10174 072545       004       000     000  DF177:   .BYTE   4,0,0
10175 072550       004       000     005  DF71:    .BYTE   4,0,5,0,5,5,3,5,5,3,5,5,3
10176            072443                    DF72=DF2
10177            072465                    DF107=DF6
10178            072550                    DF73=DF71
10179            072443                    DF74=DF2
10180            072443                    DF75=DF2
10181            072465                    DF76=DF6
10182            072550                    DF77=DF71
10183            072443                    DF100=DF2
10184            072443                    DF101=DF2
10185            072465                    DF102=DF6
10186            072550                    DF103=DF71
10187            072443                    DF104=DF2
10188            072443                    DF105=DF2
10189            072465                    DF106=DF6
10190            072550                    DF110=DF71
10191            072443                    DF111=DF2
10192            072443                    DF112=DF2
10193            072465                    DF113=DF6
10194            072550                    DF114=DF71
10195            072443                    DF115=DF2
10196            072443                    DF116=DF2
10197            072465                    DF117=DF6
10198            072550                    DF120=DF71
10199            072443                    DF121=DF2
10200            072443                    DF122=DF2
10201            072465                    DF123=DF6
10202            072550                    DF124=DF71
10203            072443                    DF125=DF2
10204            072443                    DF126=DF2
10205            072465                    DF127=DF6
10206            072550                    DF130=DF71
10207            072443                    DF131=DF2
10208            072465                    DF132=DF6
10209            072550                    DF133=DF71
10210            072443                    DF134=DF2
10211            072471                    DF135=DF12
10212            072471                    DF136=DF12
10213            072443                    DF137=DF2
10214            072471                    DF140=DF12
10215            072443                    DF141=DF2
10216            072443                    DF142=DF2
10217            072471                    DF143=DF12
10218            072443                    DF144=DF2
10219            072443                    DF145=DF2
10220            072471                    DF146=DF12
10221            072443                    DF147=DF2
10222            072443                    DF150=DF2
10223            072471                    DF151=DF12
10224            072443                    DF152=DF2
10225            072443                    DF153=DF2
10226            072471                    DF154=DF12
10227            072443                    DF155=DF2
10228            072443                    DF156=DF2
10229            072471                    DF157=DF12
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FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
10230           072443                  DF160=DF2
10231           072443                  DF161=DF2
10232           072471                  DF162=DF12
10233           072443                  DF163=DF2
10234           072443                  DF164=DF2
10235           072443                  DF215=DF2
10236           072471                  DF216=DF12
10237           072443                  DF217=DF2
10238           072443                  DF220=DF2
10239           072443                  DF221=DF2
10240           072471                  DF222=DF12
10241           072443                  DF223=DF2
10242           072443                  DF224=DF2
10243           072503                  DF165=DF37
10244           072503                  DF166=DF37
10245           072503                  DF167=DF37
10246           072503                  DF170=DF37
10247           072503                  DF171=DF37
10248           072503                  DF172=DF37
10249           072524                  DF173=DF41
10250           072524                  DF174=DF41
10251           072524                  DF175=DF41
10252           072503                  DF200=DF37
10253           072503                  DF201=DF37
10254           072503                  DF202=DF37
10255           072503                  DF203=DF37
10256           072503                  DF204=DF37
10257           072503                  DF205=DF37
10258           072503                  DF206=DF37
10259           072503                  DF207=DF37
10260           072503                  DF210=DF37
10261           072503                  DF211=DF37
10262           072503                  DF212=DF37
10263           072503                  DF213=DF37
10264           072503                  DF214=DF37
10265 072565      004       000   005   DF225:  .BYTE   4,0,5,0,5,0,5,0
10266           072565                  DF226=DF225
10267 072575      004       000   005   DF227:  .BYTE   4,0,5,0
10268           072565                  DF230=DF225
10269           072565                  DF231=DF225
10270           072575                  DF232=DF227
10271           072565                  DF233=DF225
10272           072565                  DF234=DF225
10273           072575                  DF235=DF227
10274           072565                  DF236=DF225
10275           072565                  DF237=DF225
10276           072575                  DF240=DF227
10277           072565                  DF241=DF225
10278           072565                  DF242=DF225
10279           072575                  DF243=DF227
10280           072565                  DF244=DF225
10281           072565                  DF245=DF225
10282           072565                  DF246=DF225
10283           072575                  DF247=DF227
10284           072565                  DF250=DF225
10285           072565                  DF251=DF225
10286           072565                  DF252=DF225
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
10287           072575                  DF253=DF227
10288           072565                  DF254=DF225
10289           072575                  DF255=DF227
10290           072565                  DF256=DF225
10291           072565                  DF257=DF225
10292 072601      004       000   005   DF260:  .BYTE   4,0,5,0,5,0,5,0,5,5,2,5,5,2,5,5,2
10293           072601                  DF261=DF260
10294           072601                  DF262=DF260
10295           072601                  DF263=DF260
10296           072601                  DF264=DF260
10297           072601                  DF265=DF260
10298           072601                  DF266=DF260
10299           072601                  DF267=DF260
10300           072601                  DF270=DF260
10301           072601                  DF271=DF260
10302           072601                  DF272=DF260
10303 072622      004       000   005   DF273:  .BYTE   4,0,5,0,5,0,5,0,5,5,2,5,5,3,5,5,3
10304           072622                  DF274=DF273
10305           072622                  DF275=DF273
10306           072622                  DF276=DF273
10307           072622                  DF277=DF273
10308           072622                  DF300=DF273
10309 072643      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
10310           072643                  DF302=DF301
10311 072667      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
10312           072643                  DF304=DF301
10313           072643                  DF305=DF301
10314           072643                  DF306=DF301
10315           072643                  DF307=DF301
10316           072643                  DF310=DF301
10317           072643                  DF311=DF301
10318           072643                  DF312=DF301
10319           072643                  DF313=DF301
10320           072643                  DF314=DF301
10321           072643                  DF315=DF301
10322           072643                  DF316=DF301
10323           072643                  DF317=DF301
10324           072643                  DF320=DF301
10325           072643                  DF321=DF301
10326 072713      004       000   005   DF322:  .BYTE   4,0,5,0,5,0,5,0,5,5,3,5,5,2,5,5,2
10327           072713                  DF323=DF322
10328 072734      004       000   005   DF324:  .BYTE   4,0,5,0,5,0,0,0,5,5,3,5,5,2,5,5,2
10329           072713                  DF325=DF322
10330           072713                  DF326=DF322
10331           072713                  DF327=DF322
10332           072713                  DF330=DF322
10333           072713                  DF331=DF322
10334           072713                  DF332=DF322
10335           072713                  DF333=DF322
10336           072713                  DF334=DF322
10337           072713                  DF335=DF322
10338           072713                  DF336=DF322
10339           072713                  DF337=DF322
10340           072713                  DF340=DF322
10341           072713                  DF341=DF322
10342           072713                  DF342=DF322
10343           072713                  DF343=DF322
```

FORMAT SPECIFICATIONS FOR THE DATA TABLES

```
10344           072713                  DF344=DF322
10345           072713                  DF345=DF322
10346           072713                  DF346=DF322
10347 072755      004     000     005   DF347:  .BYTE   4,0,5,0,5,0,5,0,5,5,3,5,5,0,5,5,0
10348           072755                  DF350=DF347
10349           072575                  DF351=DF227
10350           072755                  DF352=DF347
10351           072755                  DF353=DF347
10352           072755                  DF354=DF347
10353           072755                  DF355=DF347
10354           072565                  DF356=DF225
10355           072565                  DF357=DF225
10356           072575                  DF360=DF227
10357 072776      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
10358 073022      004     000     005   DF362:  .BYTE   4,0,5,0,5,0
10359 073030      004     000     005   DF363:  .BYTE   4,0,5,0,5,0,0,0
10360           072465                  DF364=DF6
10361           072465                  DF365=DF6
10362 073040      004     000     005   DF366:  .BYTE   4,0,5,0,5,0,5,5,0,0,0,0,5,5,0,0,0,0
10363 073062      004     000     005   DF367:  .BYTE   4,0,5,0,5,0,0,0
10364 073072      004     000     005   DF370:  .BYTE   4,0,5,0,0,5,5,0,0,0,0,5,5,0,0,0,0
10365           073062                  DF371=DF367
10366           000000                  DF372=0
10367           000000                  DF373=0
10368           000000                  DF374=0
10369           000000                  DF375=0
10370           000000                  DF376=0
10371           000000                  DF377=0
10372           000000                  DF400=0
10373           072565                  DF401=DF225
10374           072565                  DF402=DF225
10375           072575                  DF403=DF227
10376           072575                  DF404=DF227
10377           072565                  DF405=DF225
10378           072565                  DF406=DF225
10379           072575                  DF407=DF227
10380           072575                  DF410=DF227
10381           072565                  DF411=DF225
10382           072565                  DF412=DF225
10383           072575                  DF413=DF227
10384           072575                  DF414=DF227
10385           072565                  DF415=DF225
10386           072565                  DF416=DF225
10387           072575                  DF417=DF227
10388           072575                  DF420=DF227
10389           072565                  DF421=DF225
10390           072565                  DF422=DF225
10391           072575                  DF423=DF227
10392           072575                  DF424=DF227
10393           072565                  DF425=DF225
10394           072565                  DF426=DF225
10395           072575                  DF427=DF227
10396           072575                  DF430=DF227
10397           072575                  DF431=DF227
10398           072565                  DF432=DF225
10399           072565                  DF433=DF225
10400           072575                  DF434=DF227
```

```
10401           072575                  DF435=DF227
10402           072575                  DF436=DF227
10403           072565                  DF437=DF225
10404           072565                  DF440=DF225
10405 073113      004     000     005   DF441:  .BYTE   4,0,5,0,5,0
10406           073113                  DF442=DF441
10407           073113                  DF443=DF441
10408           072443                  DF444=DF2
10409                                           .EVEN
```

ERROR MESSAGE DATA TABLES

```
10410                                                   .SBTTL  ERROR MESSAGE DATA TABLES
10411 073122  001232  001234  052167  DT1:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP3,$TMP4,0
10412 073142  001232  001234  052167  DT2:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP3,$TAB,$TMP5,0
10413 073164  001232  001234  052167  DT3:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP4,$TAB,$TMP6,0
10414 073206  001232  001234  052167  DT4:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP4,$TAB,$TMP3,0
10415 073230  001232  001234  052167  DT5:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,$CRLF,MS1,$TMP3
10416 073246  001313  052207  001242          .WORD   $CRLF,MS2,$TMP4,0
10417 073256  001232  001234  052167  DT6:    .WORD   $TMP0,$TMP1,$TAB,$TMP2,0
10418         073206                  DT7=DT4
10419         073230                  DT10=DT5
10420         073206                  DT11=DT4
10421         073230                  DT12=DT5
10422         073256                  DT13=DT6
10423         073256                  DT14=DT6
10424         073230                  DT15=DT5
10425 073270  001232  001234  052167  DT16:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP4,$TAB,$TMP3,0
10426         073256                  DT17=DT6
10427         073270                  DT20=DT16
10428         073230                  DT21=DT5
10429         073230                  DT22=DT5
10430         073256                  DT23=DT6
10431         073270                  DT24=DT16
10432         073230                  DT25=DT5
10433         073256                  DT26=DT6
10434         073270                  DT27=DT16
10435         073230                  DT30=DT5
10436         073256                  DT31=DT6
10437         073270                  DT32=DT16
10438         073230                  DT33=DT5
10439         073256                  DT34=DT6
10440         073270                  DT35=DT16
10441         073230                  DT36=DT5
10442 073312  001232  001234  052167  DT37:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TAB,$TMP10,$CRLF
10443 073334  052247  001240  001313          .WORD   MS4,$TMP3,$CRLF,MS1,$TMP4,$CRLF,MS2,$TMP5,0
10444         073312                  DT40=DT37
10445 073356  001232  001234  052167  DT41:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TMP11,$TMP12
10446 073376  001313  052247  001240          .WORD   $CRLF,MS4,$TMP3,$CRLF,MS1,$TMP4,$CRLF,MS2,$TMP5,0
10447         073312                  DT42=DT37
10448         073312                  DT43=DT37
10449         073312                  DT44=DT37
10450         073312                  DT45=DT37
10451         073312                  DT46=DT37
10452         073312                  DT47=DT37
10453         073312                  DT50=DT37
10454         073312                  DT51=DT37
10455         073312                  DT52=DT37
10456         073356                  DT53=DT41
10457         073312                  DT54=DT37
10458         073312                  DT55=DT37
10459         073312                  DT56=DT37
10460         073312                  DT57=DT37
10461         073312                  DT60=DT37
10462         073312                  DT61=DT37
10463         073270                  DT62=DT16
10464         073270                  DT63=DT16
10465         073230                  DT64=DT5
10466         073270                  DT65=DT16
```

ERROR MESSAGE DATA TABLES

```
10467           073206                          DT66=DT4
10468           073206                          DT67=DT4
10469           073206                          DT70=DT4
10470           073206                          DT176=DT4
10471 073422    001232  001116  046506  DT177:  .WORD   $TMP0,$ERRPC,CPSAVE,0
10472 073432    001232  001234  052167  DT71:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$CRLF,MS3,$TMP3,$CRLF,MS1
10473 073454    001244  001313  052207          .WORD   $TMP5,$CRLF,MS2,$TMP4,0
10474           073206                          DT72=DT4
10475           073256                          DT107=DT6
10476 073466    001232  001234  052167  DT73:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$CRLF,MS4,$TMP4
10477 073504    001313  052171  001244          .WORD   $CRLF,MS1,$TMP5,$CRLF,MS2,$TMP3,0
10478           073206                          DT74=DT4
10479           073142                          DT75=DT2
10480           073256                          DT76=DT6
10481           073466                          DT77=DT73
10482           073206                          DT100=DT4
10483           073142                          DT101=DT2
10484           073256                          DT102=DT6
10485           073466                          DT103=DT73
10486           073206                          DT104=DT4
10487           073142                          DT105=DT2
10488           073256                          DT106=DT6
10489           073466                          DT110=DT73
10490           073206                          DT111=DT4
10491           073142                          DT112=DT2
10492           073256                          DT113=DT6
10493           073466                          DT114=DT73
10494           073206                          DT115=DT4
10495           073142                          DT116=DT2
10496           073256                          DT117=DT6
10497           073466                          DT120=DT73
10498           073206                          DT121=DT4
10499           073142                          DT122=DT2
10500           073256                          DT123=DT6
10501           073466                          DT124=DT73
10502           073206                          DT125=DT4
10503           073142                          DT126=DT2
10504           073256                          DT127=DT6
10505           073466                          DT130=DT73
10506           073142                          DT131=DT2
10507           073256                          DT132=DT6
10508           073466                          DT133=DT73
10509           073142                          DT134=DT2
10510           073230                          DT135=DT5
10511           073230                          DT136=DT5
10512           073270                          DT137=DT16
10513           073230                          DT140=DT5
10514           073206                          DT141=DT4
10515           073206                          DT142=DT4
10516           073230                          DT143=DT5
10517           073206                          DT144=DT4
10518           073206                          DT145=DT4
10519           073230                          DT146=DT5
10520           073206                          DT147=DT4
10521           073206                          DT150=DT4
10522           073230                          DT151=DT5
10523           073206                          DT152=DT4
```

ERROR MESSAGE DATA TABLES

```
10524   073206          DT153=DT4
10525   073230          DT154=DT5
10526   073206          DT155=DT4
10527   073206          DT156=DT4
10528   073230          DT157=DT5
10529   073206          DT160=DT4
10530   073206          DT161=DT4
10531   073230          DT162=DT5
10532   073206          DT163=DT4
10533   073206          DT164=DT4
10534   073206          DT215=DT4
10535   073230          DT216=DT5
10536   073206          DT217=DT4
10537   073206          DT220=DT4
10538   073206          DT221=DT4
10539   073230          DT222=DT5
10540   073206          DT223=DT4
10541   073206          DT224=DT4
10542   073312          DT165=DT37
10543   073312          DT166=DT37
10544   073312          DT167=DT37
10545   073312          DT170=DT37
10546   073312          DT171=DT37
10547   073312          DT172=DT37
10548   073356          DT173=DT41
10549   073356          DT174=DT41
10550   073356          DT175=DT41
10551   073312          DT200=DT37
10552   073312          DT201=DT37
10553   073312          DT202=DT37
10554   073312          DT203=DT37
10555   073312          DT204=DT37
10556   073312          DT205=DT37
10557   073312          DT206=DT37
10558   073312          DT207=DT37
10559   073312          DT210=DT37
10560   073312          DT211=DT37
10561   073312          DT212=DT37
10562   073312          DT213=DT37
10563   073312          DT214=DT37
10564   073206          DT225=DT4
10565   073206          DT226=DT4
10566   073256          DT227=DT6
10567   073206          DT230=DT4
10568   073206          DT231=DT4
10569   073256          DT232=DT6
10570   073206          DT233=DT4
10571   073206          DT234=DT4
10572   073256          DT235=DT6
10573   073206          DT236=DT4
10574   073206          DT237=DT4
10575   073256          DT240=DT6
10576   073206          DT241=DT4
10577   073206          DT242=DT4
10578   073256          DT243=DT6
10579   073206          DT244=DT4
10580   073206          DT245=DT4
```

ERROR MESSAGE DATA TABLES

```
10581           073206                  DT246=DT4
10582           073256                  DT247=DT6
10583           073206                  DT250=DT4
10584           073206                  DT251=DT4
10585           073206                  DT252=DT4
10586           073256                  DT253=DT6
10587           073206                  DT254=DT4
10588           073256                  DT255=DT6
10589           073206                  DT256=DT4
10590           073206                  DT257=DT4
10591           073312                  DT260=DT37
10592           073312                  DT261=DT37
10593           073312                  DT262=DT37
10594           073312                  DT263=DT37
10595           073312                  DT264=DT37
10596           073312                  DT265=DT37
10597           073312                  DT266=DT37
10598           073312                  DT267=DT37
10599           073312                  DT270=DT37
10600           073312                  DT271=DT37
10601           073312                  DT272=DT37
10602           073312                  DT273=DT37
10603           073312                  DT274=DT37
10604           073312                  DT275=DT37
10605           073312                  DT276=DT37
10606           073312                  DT277=DT37
10607           073312                  DT300=DT37
10608 073522  001232  001234  052167    DT301:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TAB,$TMP10
10609 073542  001313  052231  001240            .WORD   $CRLF,MS10,$TMP3,$CRLF,MS11,$TMP4
10610 073556  001313  052171  001246            .WORD   $CRLF,MS1,$TMP6,$CRLF,MS2,$TMP5,0
10611           073522                  DT302=DT301
10612 073574  001232  001234  052167    DT303:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TMP11,$TMP12
10613 073614  001313  052231  001240            .WORD   $CRLF,MS10,$TMP3,$CRLF,MS11,$TMP4
10614 073630  001313  052171  001246            .WORD   $CRLF,MS1,$TMP6,$CRLF,MS2,$TMP5,0
10615           073522                  DT304=DT301
10616           073522                  DT305=DT301
10617           073522                  DT306=DT301
10618           073522                  DT307=DT301
10619           073522                  DT310=DT301
10620           073522                  DT311=DT301
10621           073522                  DT312=DT301
10622           073522                  DT313=DT301
10623           073522                  DT314=DT301
10624           073522                  DT315=DT301
10625           073522                  DT316=DT301
10626           073522                  DT317=DT301-
10627           073522                  DT320=DT301
10628           073522                  DT321=DT301
10629 073646  001232  001234  052167    DT322:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TAB,$TMP10
10630 073666  001313  052231  001240            .WORD   $CRLF,MS10,$TMP3,$CRLF,MS1,$TMP4,$CRLF,MS2,$TMP5,0
10631           073646                  DT323=DT322
10632 073712  001232  001234  052167    DT324:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP7,$TMP11,$TMP12
10633 073732  001313  052231  001240            .WORD   $CRLF,MS10,$TMP3,$CRLF,MS1,$TMP4,$CRLF,MS2,$TMP5,0
10634           073646                  DT325=DT322
10635           073646                  DT326=DT322
10636           073646                  DT327=DT322
10637           073646                  DT330=DT322
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```
10638           073646                  DT331=DT322
10639           073646                  DT332=DT322
10640           073646                  DT333=DT322
10641           073646                  DT334=DT322
10642           073646                  DT335=DT322
10643           073646                  DT336=DT322
10644           073646                  DT337=DT322
10645           073646                  DT340=DT322
10646           073646                  DT341=DT322
10647           073646                  DT342=DT322
10648           073646                  DT343=DT322
10649           073646                  DT344=DT322
10650           073646                  DT345=DT322
10651           073646                  DT346=DT322
10652           073646                  DT347=DT322
10653           073646                  DT350=DT322
10654           073256                  DT351=DT6
10655           073646                  DT352=DT322
10656           073646                  DT353=DT322
10657           073646                  DT354=DT322
10658           073646                  DT355=DT322
10659           073142                  DT356=DT2
10660           073164                  DT357=DT3
10661           073256                  DT360=DT6
10662           073522                  DT361=DT302
10663 073756  001232  001234  052167   DT362:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP3,0
10664 073774  001232  001234  052167   DT363:  .WORD   $TMP0,$TMP1,$TAB,$TMP13,$TAB,$TMP2,$TMP3,EXPCTD,0
10665 074016  001232  001234  052167   DT364:  .WORD   $TMP0,$TMP1,$TAB,$TMP13,0
10666           073256                  DT365=DT6
10667 074030  001232  001234  052167   DT366:  .WORD   $TMP0,$TMP1,$TAB,$TMP13,$TAB,$TMP2
10668 074044  001313  052207  001240           .WORD   $CRLF,MS2,$TMP3,$TMP4,$TMP6,$TMP7
10669 074060  001313  052171  001252           .WORD   $CRLF,MS1,$TMP10,$TMP11,$TMP12,$TMP21,0
10670 074076  001232  001234  052167   DT367:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TMP13,$TAB,$TMP6,$TAB,$TMP3,0
10671 074122  001232  001234  052167   DT370:  .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TMP13
10672 074134  001313  052326  001240           .WORD   $CRLF,MS21,$TMP3,$TMP4,$TMP6,$TMP7
10673 074150  001313  052314  001252           .WORD   $CRLF,MS20,$TMP10,$TMP11,$TMP12,$TMP21,0
10674 074166  001232  001234  052167   DT371:  .WORD   $TMP0,$TMP1,$TAB,$TMP13,$TAB,$TMP3,$TMP4,$TMP2,0
10675           000000                  DT372=0
10676           000000                  DT373=0
10677           000000                  DT374=0
10678           000000                  DT375=0
10679           000000                  DT376=0
10680           000000                  DT377=0
10681           000000                  DT400=0
10682           073206                  DT401=DT4
10683           073206                  DT402=DT4
10684           073256                  DT403=DT6
10685           073256                  DT404=DT6
10686           073206                  DT405=DT4
10687           073206                  DT406=DT4
10688           073256                  DT407=DT6
10689           073256                  DT410=DT6
10690           073206                  DT411=DT4
10691           073206                  DT412=DT4
10692           073256                  DT413=DT6
10693           073256                  DT414=DT6
10694           073206                  DT415=DT4
```

ERROR MESSAGE DATA TABLES

```
10695           073206                          DT416=DT4
10696           073256                          DT417=DT6
10697           073256                          DT420=DT6
10698           073206                          DT421=DT4
10699           073206                          DT422=DT4
10700           073256                          DT423=DT6
10701           073256                          DT424=DT6
10702           073206                          DT425=DT4
10703           073206                          DT426=DT4
10704           073256                          DT427=DT6
10705           073256                          DT430=DT6
10706           073256                          DT431=DT6
10707           073206                          DT432=DT4
10708           073206                          DT433=DT4
10709           073256                          DT434=DT6
10710           073256                          DT435=DT6
10711           073256                          DT436=DT6
10712           073206                          DT437=DT4
10713           073206                          DT440=DT4
10714 074210  001232  001234  052167  DT441:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,$TAB,$TMP3,0
10715 074226  001232  001234  052167  DT442:   .WORD   $TMP0,$TMP1,$TAB,$TMP2,0
10716           074226                          DT443=DT442
10717           073206                          DT444=DT4
10718           000001                                .END
```

SYMBOL TABLE

```
ABASE = 000000
ACDW1 = 000000
ACDW2 = 000000
ACPUOP= 000000
AC0   =%000000
AC1   =%000001
AC2   =%000002
AC3   =%000003
AC4   =%000004
AC5   =%000005
AC6   =%000006
AC7   =%000007
ADDW0 = 000000
ADDW1 = 000000
ADDW10= 000000
ADDW11= 000000
ADDW12= 000000
ADDW13= 000000
ADDW14= 000000
ADDW15= 000000
ADDW2 = 000000
ADDW3 = 000000
ADDW4 = 000000
ADDW5 = 000000
ADDW6 = 000000
ADDW7 = 000000
ADDW8 = 000000
ADDW9 = 000000
ADEVCT= 000000
ADEVM = 000000
AENV  = 000000
AENVM = 000000
AFATAL= 000000
AMADR1= 000000
AMADR2= 000000
AMADR3= 000000
AMADR4= 000000
AMAMS1= 000000
AMAMS2= 000000
AMAMS3= 000000
AMAMS4= 000000
AMSGAD= 000000
AMSGLG= 000000
AMSGTY= 000000
AMTYP1= 000000
AMTYP2= 000000
AMTYP3= 000000
AMTYP4= 000000
APASS = 000000
APRIOR= 000000
APTCSU= 000040
APTENV= 000001
APTSIZ= 000200
APTSPO= 000100
ASWREG= 000000
ATESTN= 000000
AUNIT = 000000
AUSWR = 000000
AVECT1= 000000
AVECT2= 000000
BADCON  060664
BIT0  = 000001
BIT00 = 000001
BIT01 = 000002
BIT02 = 000004
BIT03 = 000010
BIT04 = 000020
BIT05 = 000040
BIT06 = 000100
BIT07 = 000200
BIT08 = 000400
BIT09 = 001000
BIT1  = 000002
BIT10 = 002000
BIT11 = 004000
BIT12 = 010000
BIT13 = 020000
BIT14 = 040000
BIT15 = 100000
BIT2  = 000004
BIT3  = 000010
BIT4  = 000020
BIT5  = 000040
BIT6  = 000100
BIT7  = 000200
BIT8  = 000400
BIT9  = 001000
BPTVEC= 000014
BUTIN   060713
BYTABL  045312
CKSWR = 104406
CNT   = 000445
CPSAVE  046506
CPSPUR  051774
CPTWO   052022
CR    = 000015
CRBUT   052653
CRLF  = 000200
DATA  = 117760
DDISP = 177570
DF1     072434
DF10  = 072453
DF100 = 072443
DF101 = 072443
DF102 = 072465
DF103 = 072550
DF104 = 072443
DF105 = 072443
DF106 = 072465
DF107 = 072465
DF11  = 072443
DF110 = 072550
DF111 = 072443
DF112 = 072443
DF113 = 072465
DF114 = 072550
DF115 = 072443
DF116 = 072443
DF117 = 072465
DF12    072471
DF120 = 072550
DF121 = 072443
DF122 = 072443
DF123 = 072465
DF124 = 072550
DF125 = 072443
DF126 = 072443
DF127 = 072465
DF13  = 072465
DF130 = 072550
DF131 = 072443
DF132 = 072465
DF133 = 072550
DF134 = 072443
DF135 = 072471
DF136 = 072471
DF137 = 072443
DF14  = 072465
DF140 = 072471
DF141 = 072443
DF142 = 072443
DF143 = 072471
DF144 = 072443
DF145 = 072443
DF146 = 072471
DF147 = 072443
DF15  = 072471
DF150 = 072443
DF151 = 072471
DF152 = 072443
DF153 = 072443
DF154 = 072471
DF155 = 072443
DF156 = 072443
DF157 = 072471
DF16  = 072443
DF160 = 072443
DF161 = 072443
DF162 = 072471
DF163 = 072443
DF164 = 072443
DF165 = 072503
DF166 = 072503
DF167 = 072503
DF17  = 072465
DF170 = 072503
DF171 = 072503
DF172 = 072503
DF173 = 072524
DF174 = 072524
DF175 = 072524
DF176 = 072443
DF177   072545
DF2     072443
DF20  = 072443
DF200 = 072503
DF201 = 072503
DF202 = 072503
DF203 = 072503
DF204 = 072503
DF205 = 072503
DF206 = 072503
DF207 = 072503
DF21  = 072471
DF210 = 072503
DF211 = 072503
DF212 = 072503
DF213 = 072503
DF214 = 072503
DF215 = 072443
DF216 = 072471
DF217 = 072443
DF22  = 072471
DF220 = 072443
DF221 = 072443
DF222 = 072471
DF223 = 072443
DF224 = 072443
DF225   072565
DF226 = 072565
DF227   072575
DF23  = 072465
DF230 = 072565
DF231 = 072565
DF232 = 072575
DF233 = 072565
DF234 = 072565
DF235 = 072575
DF236 = 072565
DF237 = 072565
DF24  = 072443
DF240 = 072575
DF241 = 072565
DF242 = 072565
DF243 = 072575
DF244 = 072565
DF245 = 072565
DF246 = 072565
DF247 = 072575
DF25  = 072471
DF250 = 072565
DF251 = 072565
DF252 = 072565
DF253 = 072575
DF254 = 072565
DF255 = 072575
DF256 = 072565
DF257 = 072565
DF26  = 072465
DF260   072601
DF261 = 072601
DF262 = 072601
DF263 = 072601
DF264 = 072601
DF265 = 072601
DF266 = 072601
DF267 = 072601
DF27  = 072443
DF270 = 072601
DF271 = 072601
DF272 = 072601
DF273   072622
DF274 = 072622
DF275 = 072622
DF276 = 072622
DF277 = 072622
DF3   = 072443
DF30  = 072471
DF300 = 072622
DF301   072643
DF302 = 072643
DF303   072667
DF304 = 072643
DF305 = 072643
DF306 = 072643
DF307 = 072643
DF31  = 072465
DF310 = 072643
DF311 = 072643
DF312 = 072643
DF313 = 072643
DF314 = 072643
DF315 = 072643
DF316 = 072643
DF317 = 072643
DF32  = 072443
DF320 = 072643
DF321 = 072643
DF322   072713
DF323 = 072713
DF324   072734
DF325 = 072713
DF326 = 072713
DF327 = 072713
DF33  = 072471
DF330 = 072713
DF331 = 072713
DF332 = 072713
DF333 = 072713
DF334 = 072713
DF335 = 072713
DF336 = 072713
DF337 = 072713
DF34  = 072465
DF340 = 072713
```

SYMBOL TABLE

```
DF341 = 072713   DF423 = 072575   DH102 = 071460   DH164 = 071520   DH244 = 071404
DF342 = 072713   DF424 = 072575   DH103 = 071447   DH165 = 071563   DH245 = 071274
DF343 = 072713   DF425 = 072565   DH104 = 071404   DH166 = 071563   DH246 = 071520
DF344 = 072713   DF426 = 072565   DH105 = 071274   DH167 = 071563   DH247 = 071726
DF345 = 072713   DF427 = 072575   DH106 = 071460   DH17  = 071460   DH25  = 071447
DF346 = 072713   DF43  = 072503   DH107 = 071460   DH170 = 071563   DH250 = 071404
DF347   072755   DF430 = 072575   DH11  = 071404   DH171 = 071563   DH251 = 071274
DF35  = 072443   DF431 = 072575   DH110 = 071447   DH172 = 071563   DH252 = 071520
DF350 = 072755   DF432 = 072565   DH111 = 071404   DH173 = 071626   DH253 = 071726
DF351 = 072575   DF433 = 072565   DH112 = 071274   DH174 = 071626   DH254 = 071520
DF352 = 072755   DF434 = 072575   DH113 = 071460   DH175 = 071626   DH255 = 071726
DF353 = 072755   DF435 = 072575   DH114 = 071447   DH176 = 071274   DH256 = 071404
DF354 = 072755   DF436 = 072575   DH115 = 071404   DH177   071677   DH257 = 071274
DF355 = 072755   DF437 = 072565   DH116 = 071274   DH2     071274   DH26  = 071460
DF356 = 072565   DF44  = 072503   DH117 = 071460   DH28    071310   DH260 = 071563
DF357 = 072565   DF440 = 072565   DH12  = 071447   DH20  = 071404   DH261 = 071563
DF36  = 072471   DF441   073113   DH120 = 071447   DH200 = 071563   DH262 = 071563
DF360 = 072575   DF442 = 073113   DH121 = 071404   DH201 = 071563   DH263 = 071563
DF361   072776   DF443 = 073113   DH122 = 071274   DH202 = 071563   DH264 = 071563
DF362   073022   DF444 = 072443   DH123 = 071460   DH203 = 071563   DH265 = 071563
DF363   073030   DF45  = 072503   DH124 = 071447   DH204 = 071563   DH266 = 071563
DF364 = 072465   DF46  = 072503   DH125 = 071404   DH205 = 071563   DH267 = 071563
DF365 = 072465   DF47  = 072503   DH126 = 071274   DH206 = 071563   DH27  = 071404
DF366   073040   DF5     072453   DH127 = 071460   DH207 = 071563   DH270 = 071563
DF367   073062   DF50  = 072503   DH13    071460   DH21  = 071447   DH271 = 071563
DF37    072503   DF51  = 072503   DH130 = 071447   DH210 = 071563   DH272 = 071563
DF370   073072   DF52  = 072503   DH131 = 071274   DH211 = 071563   DH273 = 071563
DF371 = 073062   DF53  = 072503   DH132 = 071460   DH212 = 071563   DH274 = 071563
DF372 = 000000   DF54  = 072503   DH133 = 071447   DH213 = 071563   DH275 = 071563
DF373 = 000000   DF55  = 072503   DH134 = 071274   DH214 = 071563   DH276 = 071563
DF374 = 000000   DF56  = 072503   DH135 = 071447   DH215 = 071520   DH277 = 071563
DF375 = 000000   DF57  = 072503   DH136 = 071447   DH216 = 071447   DH3     071340
DF376 = 000000   DF6     072465   DH137 = 071274   DH217 = 071404   DH38    071354
DF377 = 000000   DF60  = 072503   DH14  = 071460   DH22  = 071447   DH30  = 071447
DF4   = 072443   DF61  = 072503   DH140 = 071447   DH220 = 071274   DH300 = 071563
DF40  = 072503   DF62  = 072443   DH141 = 071404   DH221 = 071520   DH301 = 071563
DF400 = 000000   DF63  = 072443   DH142 = 071274   DH222 = 071447   DH302 = 071563
DF401 = 072565   DF64  = 072453   DH143 = 071447   DH223 = 071404   DH303 = 071626
DF402 = 072565   DF65  = 072443   DH144 = 071404   DH224 = 071274   DH304 = 071563
DF403 = 072575   DF66  = 072443   DH145 = 071274   DH225 = 071404   DH305 = 071563
DF404 = 072575   DF67  = 072443   DH146 = 071447   DH226 = 071274   DH306 = 071563
DF405 = 072565   DF7   = 072443   DH147 = 071404   DH227   071726   DH307 = 071563
DF406 = 072565   DF70  = 072443   DH15  = 071447   DH227B  071740   DH31  = 071460
DF407 = 072575   DF71    072550   DH150 = 071274   DH23  = 071460   DH310 = 071563
DF41    072524   DF72  = 072443   DH151 = 071447   DH230 = 071404   DH311 = 071563
DF410 = 072575   DF73  = 072550   DH152 = 071404   DH231 = 071274   DH312 = 071563
DF411 = 072565   DF74  = 072443   DH153 = 071274   DH232 = 071726   DH313 = 071563
DF412 = 072565   DF75  = 072443   DH154 = 071447   DH233 = 071404   DH314 = 071563
DF413 = 072575   DF76  = 072465   DH155 = 071404   DH234 = 071274   DH315 = 071563
DF414 = 072575   DF77  = 072550   DH156 = 071274   DH235 = 071726   DH316 = 071563
DF415 = 072565   DH1     071204   DH157 = 071447   DH236 = 071404   DH317 = 071563
DF416 = 072565   DH1B    071220   DH16    071520   DH237 = 071274   DH32  = 071404
DF417 = 072575   DH1C    071252   DH16B   071534   DH24  = 071404   DH320 = 071563
DF42  = 072503   DH1D    071261   DH160 = 071404   DH240 = 071726   DH321 = 071563
DF420 = 072575   DH10  = 071447   DH161 = 071274   DH241 = 071404   DH322 = 071563
DF421 = 072565   DH100 = 071404   DH162 = 071447   DH242 = 071274   DH323 = 071563
DF422 = 072565   DH101 = 071274   DH163 = 071274   DH243 = 071726   DH324 = 071626
```

SYMBOL TABLE

```
DH325 = 071563
DH326 = 071563
DH327 = 071563
DH33  = 071447
DH330 = 071563
DH331 = 071563
DH332 = 071563
DH333 = 071563
DH334 = 071563
DH335 = 071563
DH336 = 071563
DH337 = 071563
DH34  = 071460
DH340 = 071563
DH341 = 071563
DH342 = 071563
DH343 = 071563
DH344 = 071563
DH345 = 071563
DH346 = 071563
DH347 = 071563
DH35  = 071404
DH350 = 071563
DH351 = 071460
DH352 = 071563
DH353 = 071563
DH354 = 071563
DH355 = 071563
DH356 = 071404
DH357  071746
DH357B 071762
DH36  = 071447
DH360 = 071460
DH361 = 071274
DH362  072012
DH362B 072026
DH363  072034
DH363B 072050
DH364  072074
DH364B 072106
DH365  072143
DH366  072154
DH366B 072170
DH367  072206
DH367B 072222
DH37   071563
DH37B  071576
DH370  072253
DH371  072316
DH372 = 000000
DH373 = 000000
DH374 = 000000
DH375 = 000000
DH376 = 000000
DH377 = 000000
DH4    071404
DH4B   071420
DH40  = 071563
DH400 = 000000
DH401 = 071404
DH402 = 071274
DH403 = 071460
DH404 = 071726
DH405 = 071404
DH406 = 071274
DH407 = 071460
DH41   071626
DH41B  071642
DH410 = 071726
DH411 = 071404
DH412 = 071274
DH413 = 071460
DH414 = 071726
DH415 = 071404
DH416 = 071274
DH417 = 071460
DH42  = 071563
DH420 = 071726
DH421 = 071404
DH422 = 071274
DH423 = 071460
DH424 = 071726
DH425 = 071404
DH426 = 071274
DH427 = 071460
DH43  = 071563
DH430 = 071726
DH431 = 071460
DH432 = 071404
DH433 = 071274
DH434 = 071460
DH435 = 071726
DH436 = 071460
DH437 = 071404
DH44  = 071563
DH440 = 071404
DH441  072412
DH441B 072426
DH442 = 072143
DH443 = 072143
DH444 = 071340
DH45  = 071563
DH46  = 071563
DH47  = 071563
DH5    071447
DH50  = 071563
DH51  = 071563
DH52  = 071563
DH53  = 071626
DH54  = 071563
DH55  = 071563
DH56  = 071563
DH57  = 071563
DH6   = 071447
DH60  = 071563
DH61  = 071563
DH62  = 071274
DH63  = 071340
DH64  = 071447
DH65  = 071274
DH66  = 071404
DH67  = 071274
DH7   = 071404
DH70  = 071340
DH71  = 071447
DH72  = 071274
DH73  = 071447
DH74  = 071404
DH75  = 071274
DH76  = 071460
DH77  = 071447
DIDONE 045416
DISPLA 001142
DISPRE 000174
DSWR  = 177570
DT1    073122
DT10  = 073230
DT100 = 073206
DT101 = 073142
DT102 = 073256
DT103 = 073466
DT104 = 073206
DT105 = 073142
DT106 = 073256
DT107 = 073256
DT11  = 073206
DT110 = 073466
DT111 = 073206
DT112 = 073142
DT113 = 073256
DT114 = 073466
DT115 = 073206
DT116 = 073142
DT117 = 073256
DT12  = 073230
DT120 = 073466
DT121 = 073206
DT122 = 073142
DT123 = 073256
DT124 = 073466
DT125 = 073206
DT126 = 073142
DT127 = 073256
DT13  = 073256
DT130 = 073466
DT131 = 073142
DT132 = 073256
DT133 = 073466
DT134 = 073142
DT135 = 073230
DT136 = 073230
DT137 = 073270
DT14  = 073256
DT140 = 073230
DT141 = 073206
DT142 = 073206
DT143 = 073230
DT144 = 073206
DT145 = 073206
DT146 = 073230
DT147 = 073206
DT15  = 073230
DT150 = 073206
DT151 = 073230
DT152 = 073206
DT153 = 073206
DT154 = 073230
DT155 = 073206
DT156 = 073206
DT157 = 073230
DT16   073270
DT160 = 073206
DT161 = 073206
DT162 = 073230
DT163 = 073206
DT164 = 073206
DT165 = 073312
DT166 = 073312
DT167 = 073312
DT17  = 073256
DT170 = 073312
DT171 = 073312
DT172 = 073312
DT173 = 073356
DT174 = 073356
DT175 = 073356
DT176 = 073206
DT177  073422
DT2    073142
DT20  = 073270
DT200 = 073312
DT201 = 073312
DT202 = 073312
DT203 = 073312
DT204 = 073312
DT205 = 073312
DT206 = 073312
DT207 = 073312
DT21  = 073230
DT210 = 073312
DT211 = 073312
DT212 = 073312
DT213 = 073312
DT214 = 073312
DT215 = 073206
DT216 = 073230
DT217 = 073206
DT22  = 073230
DT220 = 073206
DT221 = 073206
DT222 = 073230
DT223 = 073206
DT224 = 073206
DT225 = 073206
DT226 = 073206
DT227 = 073256
DT23  = 073256
DT230 = 073206
DT231 = 073206
DT232 = 073256
DT233 = 073206
DT234 = 073206
DT235 = 073256
DT236 = 073206
DT237 = 073206
DT24  = 073270
DT240 = 073256
DT241 = 073206
DT242 = 073206
DT243 = 073256
DT244 = 073206
DT245 = 073206
DT246 = 073206
DT247 = 073256
DT25  = 073230
DT250 = 073206
DT251 = 073206
DT252 = 073206
DT253 = 073256
DT254 = 073206
DT255 = 073256
DT256 = 073206
DT257 = 073206
DT26  = 073256
DT260 = 073312
DT261 = 073312
DT262 = 073312
DT263 = 073312
DT264 = 073312
DT265 = 073312
DT266 = 073312
DT267 = 073312
DT27  = 073270
DT270 = 073312
DT271 = 073312
DT272 = 073312
DT273 = 073312
DT274 = 073312
DT275 = 073312
DT276 = 073312
DT277 = 073312
DT3    073164
DT30  = 073230
DT300 = 073312
DT301  073522
```

SYMBOL TABLE

```
DT302 = 073522   DT365 = 073256   DT47  = 073312   EM120  056053   EM172  057252
DT303   073574   DT366   074030   DT5     073230   EM121  056066   EM173  057266
DT304 = 073522   DT367   074076   DT50  = 073312   EM122  056102   EM174  057302
DT305 = 073522   DT37    073312   DT51  = 073312   EM123  056116   EM175  057316
DT306 = 073522   DT370   074122   DT52  = 073312   EM123B 056132   EM176  057332
DT307 = 073522   DT371   074166   DT53  = 073356   EM124  056142   EM176B 057346
DT31  = 073256   DT372 = 000000   DT54  = 073312   EM125  056156   EM177  057354
DT310 = 073522   DT373 = 000000   DT55  = 073312   EM126  056172   EM2    052422
DT311 = 073522   DT374 = 000000   DT56  = 073312   EM127  056206   EM2B   052436
DT312 = 073522   DT375 = 000000   DT57  = 073312   EM127B 056222   EM20   053166
DT313 = 073522   DT376 = 000000   DT6     073256   EM13   053036   EM200  057410
DT314 = 073522   DT377 = 000000   DT60  = 073312   EM13A  053050   EM200C 057426
DT315 = 073522   DT4     073206   DT61  = 073312   EM13B  053060   EM201  057463
DT316 = 073522   DT40  = 073312   DT62  = 073270   EM130  056232   EM202  057534
DT317 = 073522   DT400 = 000000   DT63  = 073270   EM131  056246   EM203  057606
DT32  = 073270   DT401 = 073206   DT64  = 073230   EM132  056262   EM204  057730
DT320 = 073522   DT402 = 073206   DT65  = 073270   EM132B 056276   EM204C 057746
DT321 = 073522   DT403 = 073256   DT66  = 073206   EM133  056307   EM205  060003
DT322   073646   DT404 = 073256   DT67  = 073206   EM134  056322   EM206  060054
DT323 = 073646   DT405 = 073206   DT7   = 073206   EM135  056336   EM207  060126
DT324   073712   DT406 = 073206   DT70  = 073206   EM136  056406   EM21   053204
DT325 = 073646   DT407 = 073256   DT71    073432   EM137  056422   EM210  060200
DT326 = 073646   DT41    073356   DT72  = 073206   EM14  = 053036   EM211  060252
DT327 = 073646   DT410 = 073256   DT73    073466   EM140  056436   EM212  060331
DT33  = 073230   DT411 = 073206   DT74  = 073206   EM141  056452   EM213  060402
DT330 = 073646   DT412 = 073206   DT75  = 073142   EM141C 056472   EM213C 060460
DT331 = 073646   DT413 = 073256   DT76  = 073256   EM142  056510   EM213D 060470
DT332 = 073646   DT414 = 073256   DT77  = 073466   EM143  056524   EM214  060513
DT333 = 073646   DT415 = 073206   EMTVEC= 000030   EM144  056540   EM214B 060570
DT334 = 073646   DT416 = 073206   EM1     052346   EM145  056556   EM215  060600
DT335 = 073646   DT417 = 073256   EM1B    052362   EM146  056572   EM216  060735
DT336 = 073646   DT42  = 073312   EM1C    052373   EM147  056606   EM217  060750
DT337 = 073646   DT420 = 073256   EM1D    052412   EM15   053104   EM22  = 053204
DT34  = 073256   DT421 = 073206   EM10    052761   EM150  056626   EM220  060770
DT340 = 073646   DT422 = 073206   EM100   055516   EM151  056642   EM221  061004
DT341 = 073646   DT423 = 073256   EM101   055532   EM152  056656   EM222  061054
DT342 = 073646   DT424 = 073256   EM102   055546   EM153  056676   EM223  061070
DT343 = 073646   DT425 = 073206   EM102B  055562   EM154  056712   EM224  061110
DT344 = 073646   DT426 = 073206   EM103   055571   EM155  056726   EM225  061124
DT345 = 073646   DT427 = 073256   EM104   055604   EM156  056746   EM225B 061136
DT346 = 073646   DT43  = 073312   EM105   055620   EM157  056762   EM226  061147
DT347 = 073646   DT430 = 073256   EM106   055634   EM157B 056776   EM227  061160
DT35  = 073270   DT431 = 073256   EM106B  055650   EM16   053116   EM227B 061172
DT350 = 073646   DT432 = 073206   EM107   055660   EM160  057005   EM23   053216
DT351 = 073256   DT433 = 073206   EM11    052774   EM160B 057026   EM23B  053230
DT352 = 073646   DT434 = 073256   EM11B   053012   EM161  057053   EM230  061211
DT353 = 073646   DT435 = 073256   EM110   055674   EM162  057066   EM230B 061222
DT354 = 073646   DT436 = 073256   EM111   055710   EM162B 057102   EM231  061234
DT355 = 073646   DT437 = 073206   EM112   055724   EM163  057112   EM232  061246
DT356 = 073142   DT44  = 073312   EM113   055740   EM164  057126   EM233  061260
DT357 = 073164   DT440 = 073206   EM113B  055754   EM165  057156   EM233B 061272
DT36  = 073230   DT441   074210   EM114   055764   EM166  057172   EM234  061304
DT360 = 073256   DT442   074226   EM115   056000   EM167  057206   EM235  061316
DT361 = 073522   DT443 = 074226   EM116   056014   EM17   053142   EM236  061330
DT362   073756   DT444 = 073206   EM117   056030   EM17B  053154   EM236B 061342
DT363   073774   DT45  = 073312   EM117B  056044   EM170  057222   EM237  061355
DT364   074016   DT46  = 073312   EM12    053024   EM171  057236   EM24   053243
```

SYMBOL TABLE

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EM240   061366
EM241   061400
EM241B  061412
EM242   061425
EM243   061436
EM244   061450
EM244B  061462
EM245   061474
EM246   061506
EM246B  061544
EM247   061557
EM25    053260
EM250   061570
EM250B  061602
EM251   061615
EM252 = 061506
EM252B  061626
EM253   061642
EM254 = 061506
EM254B  061654
EM255   061672
EM256   061716
EM256B  061730
EM257   061744
EM26    053272
EM268   053304
EM260   061756
EM260B  061770
EM261   062014
EM262   062026
EM262B  062101
EM263   062114
EM263B  062126
EM264   062141
EM264C  062154
EM265   062226
EM265C  062242
EM266   062277
EM267   062353
EM267C  062366
EM27    053317
EM270   062440
EM270C  062454
EM271   062472
EM271C  062506
EM272   062531
EM272C  062544
EM273   062601
EM273B  062612
EM274   062636
EM275   062650
EM275B  062720
EM276   062733
EM276C  062746
EM277   063020
EM277C  063034
EM3     052452
EM38    052466
EM30    053334
EM300   063065
EM300C  063110
EM301   063162
EM301B  063174
EM302   063207
EM303   063220
EM304   063232
EM304C  063246
EM305   063312
EM305C  063326
EM306   063406
EM307   063514
EM31    053346
EM31B   053360
EM310   063564
EM311   063640
EM312   063710
EM313   063760
EM314   064030
EM315   064100
EM316   064150
EM317   064220
EM32    053372
EM320   064270
EM321   064340
EM322   064410
EM322B  064422
EM323   064446
EM324   064460
EM325   064472
EM325B  064506
EM325C  064521
EM326 = 064472
EM327   064616
EM33    053410
EM330   064666
EM331   064742
EM332   065012
EM332B  065026
EM332C  065041
EM333 = 064446
EM334   065110
EM334C  065124
EM335   065173
EM336   065242
EM336C  065260
EM337   065277
EM34    053422
EM34B   053434
EM340   065353
EM341   065422
EM342   065472
EM343   065542
EM344   065617
EM345   065724
EM346   065774
EM346C  066020
EM347   066073
EM347B  066104
EM35    053447
EM350   066117
EM351   066130
EM352   066232
EM353   066302
EM354   066352
EM355   066422
EM356   066472
EM356B  066526
EM357   066576
EM36    053464
EM360   066632
EM361   066722
EM362   066740
EM363   067050
EM364   067116
EM365   067216
EM366   067301
EM367   067364
EM37    053476
EM370   067447
EM371   067503
EM372 = 000000
EM373 = 000000
EM374 = 000000
EM375 = 000000
EM376 = 000000
EM377 = 000000
EM4     052502
EM4A    052520
EM4B    052531
EM4C    052543
EM4D    052552
EM40    053556
EM400 = 000000
EM401   067633
EM401B  067644
EM402   067655
EM403   067666
EM403B  067746
EM403C  070005
EM404   070016
EM405   070030
EM406   070044
EM407   070060
EM41  = 053556
EM410   070130
EM411   070144
EM411B  070156
EM412   070170
EM413   070202
EM414   070252
EM415   070264
EM415B  070276
EM416   070311
EM417   070322
EM417B  070334
EM42  = 053476
EM42B   053616
EM420   070366
EM421   070400
EM421B  070412
EM422   070425
EM423   070436
EM424   070450
EM425   070462
EM425B  070474
EM426   070506
EM427   070520
EM43  = 053556
EM43B   053652
EM430   070572
EM431   070604
EM432   070632
EM432B  070644
EM433   070657
EM434   070670
EM435   070740
EM436   070752
EM437   071000
EM44  = 053476
EM44B   053731
EM440   071022
EM441   071044
EM441B  071100
EM442 = 071044
EM442B  071147
EM443 = 071044
EM444   071171
EM45  = 053476
EM45B   054006
EM46  = 053556
EM46B   054041
EM47  = 053476
EM47B   054114
EM5     052563
EM50  = 053476
EM50B   054156
EM51    054235
EM52    054274
EM53  = 054274
EM54  = 054235
EM54B   054336
EM55  = 054235
EM55B   054402
EM56  = 054274
EM56B   054473
EM57  = 054274
EM57B   054546
EM6     052574
EM6C    052610
EM60  = 054235
EM60B   054632
EM61  = 054274
EM61B   054712
EM62    054771
EM62A   055010
EM62B   055020
EM63    055067
EM64    055104
EM65    055154
EM66    055200
EM66B   055220
EM67    055226
EM7     052737
EM7B    052756
EM70    055310
EM71    055333
EM72    055350
EM73    055364
EM74    055400
EM75    055414
EM76    055430
EM76A   055444
EM76B   055453
EM77    055503
ENDTES  045376
ENDTST  041776
EOASCI  047172
EPENDS  046164
ERM10   047074
ERRNUM  051576
ERROR = 104000
ERRVEC= 000004
ERTYPE  051152
ERT1    051346
ERT2    051546
ERT3    051552
ERT4    051560
ERT5    051572
EXPCTD  045374
FALTRP  044006
FPSPUR  051732
FPVECT= 000244
GTSWR = 104405
HT    = 000011
IBKOUT  054462
IBSAVE  046512
ICOUT   065346
IDONE   042010
IENBT   054230
IEZBT   053724
IFD     052650
IFDST   055062
IFIC    064736
IFIU    063634
IFIUV   060506
```

SYMBOL TABLE

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IFIV    054626          N1      052721          SW03  = 000010          TST22   015110          $APTHD  006102
IFL     062076          N10     071165          SW04  = 000020          TST23   015404          $ATYC   050014
IFLAG   054764          N2      052723          SW05  = 000040          TST24   015700          $ATY1   047770
IGR7FL  067736          N244    071142          SW06  = 000100          TST25   016204          $ATY3   047776
INBIT   065612          N3      052725          SW07  = 000200          TST26   016510          $ATY4   050006
INSTOF  052702          N3132   060316          SW08  = 000400          TST27   017010          $AUTOB  001134
IOP1B   057723          N4      052727          SW09  = 001000          TST3    007374          $BASE   001372
IOTRAP= 000020          N5      052731          SW1   = 000002          TST30   017316          $BDADR  001122
IOTVEC= 000020          N6      052733          SW10  = 002000          TST31   017564          $BDDAT  001126
IXNBT   062346          N7      052735          SW11  = 004000          TST32   020042          $BELL   001306
KDPAR0= 172360          N746T2  060624          SW12  = 010000          TST33   020250          $CDW1   001376
KDPAR1= 172362          N747T2  061030          SW13  = 020000          TST34   020464          $CDW2   001400
KDPAR2= 172364          OR      057716          SW14  = 040000          TST35   020700          $CHARC  047530
KDPAR3= 172366          PASCIZ  051600          SW15  = 100000          TST36   021126          $CKSWR  050236
KDPAR4= 172370          PCBAD   060647          SW2   = 000004          TST37   021352          $CLR.T  046074
KDPAR7= 172376          PERIOD  060711          SW3   = 000010          TST4    007766          $CMTAG  001100
KDPDR0= 172320          PIRQ  = 177772          SW4   = 000020          TST40   021600          $CM1  = 000024
KDPDR1= 172322          PIRQVE= 000240          SW5   = 000040          TST41   022014          $CM2  = 000050
KDPDR2= 172324          POWERM  052120          SW6   = 000100          TST42   022246          $CM3  = 000024
KDPDR3= 172326          PROGNU= 000003          SW7   = 000200          TST43   022514          $CM4  = 000024
KDPDR4= 172330          PRST    052662          SW8   = 000400          TST44   022772          $CNTLG  050655
KDPDR7= 172336          PR0   = 000000          SW9   = 001000          TST45   024320          $CNTLU  050650
KIPAR0= 172340          PR1   = 000040          TAB   = 000011          TST46   024502          $CPUOP  001344
KIPAR1= 172342          PR2   = 000100          TBITVE= 000014          TST47   024664          $CRLF   001313
KIPAR2= 172344          PR3   = 000140          TKVEC = 000060          TST5    010314          $DDW0   001402
KIPAR3= 172346          PR4   = 000200          TPVEC = 000064          TST50   025064          $DDW1   001404
KIPAR4= 172350          PR5   = 000240          TRAPTO  071112          TST51   025300          $DDW10  001426
KIPAR7= 172356          PR6   = 000300          TRAPV   041714          TST52   025506          $DDW11  001430
KIPDR0= 172300          PR7   = 000340          TRAPVE= 000034          TST53   025730          $DDW12  001432
KIPDR1= 172302          PS    = 177776          TRPV    044054          TST54   026166          $DDW13  001434
KIPDR2= 172304          PSW   = 177776          TRTVEC= 000014          TST55   026306          $DDW14  001436
KIPDR3= 172306          PWRVEC= 000024          TST1    006764          TST56   026450          $DDW15  001440
KIPDR4= 172310          RDCHR = 104407          TST10   011360          TST57   030142          $DDW2   001406
KIPDR7= 172316          RESREG= 104411          TST100  041302          TST6    010630          $DDW3   001410
LABEL1  042674          RESVEC= 000010          TST101  041430          TST60   031230          $DDW4   001412
LF    = 000012          RETURN  045166          TST102  041446          TST61   033176          $DDW5   001414
LOOP    006764          RSETUP= 104412          TST103  041524          TST62   033434          $DDW6   001416
MMR0  = 177572          RTI     045210          TST104  041602          TST63   033672          $DDW7   001420
MMR2  = 177576          R6    =%000006          TST105  042446          TST64   034130          $DDW8   001422
MMR3  = 172516          R7    =%000007          TST106  042542          TST65   034376          $DDW9   001424
MMVECT= 000250          SAVIOT  042426          TST107  042650          TST66   034646          $DEVCT  001326
MNUMBE= 000444          SAVREG= 104410          TST11   011620          TST67   035124          $DEVM   001374
MODE1   042556          SCOPE = 000004          TST110  042764          TST7    011104          $DISAB  046024
MS1     052171          SETERL  042430          TST111  043164          TST70   035414          $DOAGN  046114
MS10  = 052231          SPACE   052164          TST112  043300          TST71   035524          $ENDAD  046104
MS11    052271          SR1   = 177574          TST113  043412          TST72   035634          $ENDCT  045464
MS2     052207          STACK = 001100          TST114  043606          TST73   037402          $ENULL  046160
MS20    052314          START   006116          TST115  045420          TST74   037456          $ENV    001336
MS21    052326          STCSUB  037110          TST12   012076          TST75   040416          $ENVM   001337
MS3     052231          STKLMT= 177774          TST13   012756          TST76   041104          $EOP    045420
MS4     052247          STORE   045232          TST14   013636          TST77   041160          $EOPCT  045452
MULTER  045104          SWR     001140          TST15   013742          TYPE  = 104401          $ERFLG  001103
NEGDAR  061041          SWREG   000176          TST16   014160          TYPOC = 104402          $ERMAX  001115
NEGDNR  060635          SW0   = 000001          TST17   014264          TYPON = 104404          $ERROR  046514
NODAT   045216          SW00  = 000001          TST2    007130          TYPOS = 104403          $ERRPC  001116
NO      052717          SW01  = 000002          TST20   014372          WENTTO  052670          $ERRTB  001442
NO4     071162          SW02  = 000004          TST21   014614          WWCDON  037400          $ERTTL  001112
```

SYMBOL TABLE

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$ESCAP  001304        $MAMS3  001356        $REG0   001162        $SWR   = 177400        $TMP7   001250
$ETABL  001336        $MAMS4  001362        $REG1   001164        $SWREG  001340        $TN    = 000115
$ETEND  001442        $MBADR  006104        $REG10  001202        $SWRMK= 000000        $TPB    001152
$FATAL  001320        $MFLG   050232        $REG11  001204        $SWRMS= 000200        $TPFLG  001157
$FFLG   050234        $MNEW   050673        $REG12  001206        $TAB    052167        $TPS    001150
$FILLC  001156        $MSGAD  001332        $REG13  001210        $TBIT   046156        $TRAP   050704
$FILLS  001155        $MSGLG  001334        $REG14  001212        $TERM  = 000026        $TRAP2  050726
$GDADR  001120        $MSGTY  001316        $REG15  001214        $TESTN  001322        $TRP   = 000013
$GDDAT  001124        $MSWR   050662        $REG16  001216        $TIMES  001302        $TRPAD  050740
$GET42  045744        $MTYP1  001347        $REG17  001220        $TKB    001146        $TSTM   006106
$GTSWR  050306        $MTYP2  001353        $REG2   001166        $TKS    001144        $TSTNM  001102
$GT42C  046056        $MTYP3  001357        $REG20  001222        $TMP0   001232        $TYPE   047174
$HD    = 000003        $MTYP4  001363        $REG21  001224        $TMP1   001234        $TYPEC  047412
$HIBTS  006102        $MXCNT  046510        $REG22  001226        $TMP10  001252        $TYPEX  047532
$ICNT   001104        $NULL   001154        $REG23  001230        $TMP11  001254        $TYPOC  047560
$ILLUP  051144        $NWTST= 000001        $REG3   001170        $TMP12  001256        $TYPON  047574
$INTAG  001135        $OCNT   047764        $REG4   001172        $TMP13  001260        $TYPOS  047534
$ITEMB  001114        $OMODE  047766        $REG5   001174        $TMP14  001262        $UNIT   001330
$LF     001314        $OVER   046472        $REG6   001176        $TMP15  001264        $UNITM  006112
$LFLG   050233        $PASS   001324        $REG7   001200        $TMP16  001266        $USWR   001342
$LOOP   046152        $PASS2  046166        $RESRE  047134        $TMP17  001270        $VECT1  001366
$LPADR  001106        $PASTM  006110        $RTNAD  046154        $TMP2   001236        $VECT2  001370
$LPERR  001110        $PWRAD  051126        $RTRN   046150        $TMP20  001272        $XOFF  = 000023
$MADR1  001350        $PWRDN  050766        $SAVRE  047076        $TMP21  001274        $XON   = 000021
$MADR2  001354        $PWRMG  051122        $SAVR6  051150        $TMP22  001276        $XTSTR  046202
$MADR3  001360        $PWRUP  051040        $SCOPE  046170        $TMP23  001300        $$GET4= 000001
$MADR4  001364        $QUES   001312        $SETUP= 000137        $TMP3   001240        $OFILL  047765
$MAIL   001316        $RDCHR  050520        $STUP  = 177777        $TMP4   001242        .RSET   052050
$MAMS1  001346        $RDSZ  = 000001        $SVLAD  046436        $TMP5   001244        .$X    = 006102
$MAMS2  001352        $REGAD  001160        $SVPC  = 006102        $TMP6   001246

. ABS.  074240      000
        000000      001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  60768 WORDS  ( 238 PAGES)
DYNAMIC MEMORY:  20034 WORDS  ( 77 PAGES)
ELAPSED TIME:  00:17:12
CKFPCD.BIN,CKFPCD/CR/-SP/NL:TOC=CKFPCD.MLB/ML,CKFPCD.P11
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