IDENTIFICATION

PRODUCT CODE: AC-8194C-MC

PRODUCT NAME: CVKACCO LSI-11 FIS INST

DATE CREATED: AUGUST 22,1975

MAINTAINER: DIAGNOSTIC GROUP

CONTENTS

SEQ 0003

1.0 ABSTRACT

This program tests the LSI-11 floating instruction set <FADD, FSUB, FMUL, and FDIV> option with fixed number patterns, using each register at least once as the stack pointer. It also checks stack overflow and that the floating instructions can be interrupted (by the console teletype). [However, this test will not be executed when bit 5 of $ENVM byte is high]. The program should be run for at least 2 passes with all switches low. The program is designed to run under APT, and ACT, systems. When running under APT, with bit 5 of $ENVM low it will be required to have a SLU with TTY registers having addresses of 176560-66 and interrupt vectors of 70 for receiver and 74 for transmitter. Under such a condition it will also be required to change the run time of first pass from 5 seconds to the time given in Sec. 8.1, and the run time for the longest test from 3 seconds to 30 seconds.

2.0 REQUIREMENTS

LTC SWITCH MUST BE IN OFF POSITION TO RUN DIAGNOSTIC.

2.1 Equipment

LSI-11 standard computer with FIS option and 4K of memory.

2.2 Storage

Program Storage - The routines use memory 0 - 17500.

2.3 Preliminary Programs

None.

3.0 LOADING PROCEDURE

Use standard procedure for ABS Tapes.

4.0 STARTING PROCEDURE

4.1 Control Switch Settings

See 5.1.1 (allow for worst case testing).

4.2 Starting Address

After loading the program it should always be started at 200. If it is desired to save the pass counter then the program should be restarted at location RESTRT (i.e. 222) otherwise the program can be restarted at 200.

4.3 Program And/or Operator Action

4.3.1 Stand Alone -

1. Load program into memory using ABS loader.
2. Set switches (see Sec 5.1.1) allow except bit 7 for worst case.
3. Type 200G.
4. The program will loop and "END PASS" will be typed after completion of every pass. However type out will be suppressed if bit 5 of location $ENVM is high.
5. A minimum of two passes should always be run.

4.3.2 Under Apt - Load the program, set the switches (see Sec. 5.1.1) and start. When under APT, with bit 5 of $ENVM low it will be required to have a SLU with TTY registers having addresses of 176560-66 and interrupt vectors of 70 for receiver and 74 for transmitter. Under such a condition it will also be required to change the run time of first pass from 5 seconds to the time given in Sec. 8.1, and the run time for the longest test from 3 seconds to 30 seconds. The test times and pass times are suggested with bit 7 of $SWREG, low, if it is desired to enable the iterations then the times should be multiplied by a factor of 256.

5.0 OPERATING PROCEDURE

5.1 Operational Switch Settings

All switches low except SW<11> is worst case testing. With bit 11 of the location $SWREG (i.e. location 422), high each subtest will be looped upon until completion of 256 passes of that subtest. "END PASS" will be typed upon completion of a pass of the entire program. Alternate pass will run with the T-bit set.

5.1.1 Switch Settings Are - A 16 bit location called $SWREG (i.e. location 422) has been used to give the following options by inserting a 1 in their respective positions.

BIT #	OCTAL VALUE	FUNCTION
15	100000.....	Halt On Error
14	040000.....	Scope Loop
13	020000.....	Inhibit Printout
12	010000.....	Inhibit Trace Trapping
11	004000.....	Enable Iterations Of Subtest
10	002000.....	Bell On Error
09	001000.....	Loop On Error
08	0004XX.....	Loop On Test In Bits 7 Thru 0

An 8 bit byte $ENVM (i.e. location 421) has been used to define the operating mode. All typeouts can be suppressed by making bit 5 of byte $ENVM high, in other words by placing a 20000 in location 420.

5.2 Subroutine Abstracts

5.2.1 Scope - This subroutine call (via a TRAP instruction) is placed between each subtest in the instruction section. It records the starting address of each subtest as it is being entered in location 'LA $". If a scope loop is requested, the current subtest will be looped upon. SW<11> is a 1 inhibits iteration of subtests. The contents of 'LAD$" may be used to determine the last subtest successfully completed.

5.2.2 HLT - This routine (called by an EMT instruction) prints out an error message (see 6.1). If SW<9> is a 1 and a HLT is executed, the subtest will be looped upon until 256 consecutive good passes are completed. To inhibit typeouts, make SW<13> a 1. To ring the bell on an error, make SW<10> a 1. A high bit 5 in location $ENVM will inhibit any typeouts and ringing of bells.

5.2.3 T Bit Trap - If SW<12> is a 0, the T-Bit will be set on alternate passes. When the T-Bit is set, the processor traps after each instruction. The first instruction executed upon trapping is an "RTT" which returns to the interrupted sequence of instructions. This sequence is continued until the end of the program is reached.

5.2.4 Trap Catcher - A ".+2" - "HALT" sequence is repeated from 0-776 to catch any unexpected traps. Thus any unexpected traps or interrupts will halt at the vector +2.

5.2.5 Floating Error Trap (To 244) - If a floating point error (overflow, underflow, or divide by zero) was expected, the vector will point to a unique ISR within the subtest where the error occurred which checks the data on the stack(s). If an error was not anticipated, an erroneous trap will be detected in traper.

5.2.6 NOP - A NOP is placed just before each FIS instruction. This allows the operator to patch in a halt for debugging purposes.

6.0 ERRORS

6.1 Error Printout

The format is as follows:

ERRNM ADR PS SP ANS1 ANS2 ANS3 ANS4 ANS5 ANS6

Where:

ERRNM - Error Number
ADR - Address of Error HLT
PS - Processor Status
SP - Contents of Stack Pointer Register
ANS1-6 - Error Data Read from the Stack(s). From 0 to 6 of these may be typed depending on the number following the HLT; e.g., HLT+3 would type ANS1 thru ANS3, HLT (by itself) would stop after ERRNM, ADR, PS, and SP.

To find the failing test, look at the listing above the address typed. In most cases the comment beside the HLT tells what was being checked and what was expected. All printouts will be suppressed when bit 5 of location $ENVM is high. While running under APT the diagnostic will not support spooling of console outputs.

6.2 Error Recovery

Restart at 200 or 222 (see Sec. 4.2).

6.3 Error Counter

An error count is kept in location 'ERRORS'. It can only be cleared from the console or by reloading the program.

7.0 RESTRICTIONS

None.

8.0 MISCELLANEOUS

8.1 Execution Time

Due to the random characteristics of the interrupt tests, the execution time can be half a minute or more. However, normally 'END PASS' will be typed within 40 seconds with all switches down. Execution time will increase by a factor of 256 when iterations of each subtest are enabled.

8.2 Stack Pointer

Stack is initially set to 600.

8.3 Pass Count

A 16 bit location '$PASS' (i.e. location 406) is used to keep pass count. It can be cleared by restarting the program at 200.

8.4 Test Number

A 16 bit location '$TESTN' (i.e. locaton 404) is used to keep track of the test number. Upper byte of this location gives the iteration number and the lower byte the test that was being executed.

00008.5 Power Fail

Each test can be power failed with no errors. To use, start the test as usual and power down then up at any time. The program should type 'POWER' and continue to run from where the power fail interrupted with no other error typeouts.

00009.0 PROGRAM DESCRIPTION

This program tests all the FIS instructions of the LSI-11 (FADD, FSUB, FMUL, and FDIV). All registers are checked to see if they function properly as the stack pointer. The program has many subtests (the code between 2 scope statements) which are run once before continuing to the next subtest. SW<11> set to a 1 causes each subtest to be run
00256 times SW<9> set to a 1 enables loop on error. The location $ICNT contains the iteration count and the location $TESTN contains the test number. All the subtests should be run sequentially by starting at
00200 not by starting at the beginning of the subtest. To loop on a particular subtest, put the test number (see listing) in the right byte of the location $SWREG and SW<8> set to a 1. This test will be looped upon until SW<8> is set to a 0 or the right byte is changed. If the test is non-existent, the program will be run as usual.

.ENDR

```
00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28
00200   CVKACC.P11    16-AUG-78 08:41          TABLE OF CONTENTS                    [ 1009
00300
00400       32  55100          SWITCH OPTIONS AND ASSIGNMENTS
00500       81                 ACT11 HOOKS
00600       91  60500          VECTOR AREA, STACKS, ANSWER AREA, AND SETUP ROUTINE
00700       96                 APT MAILBOX-ETABLE
00800      126                 APT PARAMETER BLOCK
00900      193  38300          STARTING OF THE PROGRAM
01000      226  41700          FADD TEST SECTION
01100      879  43500          TEST FLOATING ADD INSTRUCTION WITH UNDERFLOW
01200     1024  44000          TEST FLOATING ADD INSTRUCTION WITH OVERFLOW
01300     1169  44500          FSUB TEST SECTION
01400     1740  46000          TEST FLOATING SUB. INSTRUCTION WITH UNDERFLOW
01500     1813  46400          TEST FLOATING SUB. INSTRUCTION WITH OVERFLOW
01600     1886  46800          FMUL TEST SECTION
01700     2271  48100          TEST FLOATING MUL. INSTRUCTION WITH UNDERFLOW
01800     2344  48500          TEST FLOATING MUL. INSTRUCTION WITH OVERFLOW
01900     2417  48900          FDIV TEST SECTION
02000     2656  49800          TEST FLOATING DIV. INSTRUCTION WITH UNDERFLOW
02100     2729  50200          TEST FLOATING DIV INSTRUCTION WITH OVERFLOW
02200     2802  50600          TEST FLOATING DIV. INSTRUCTION FOR DIVIDE BY ZERO
02300     2953  51200          TEST OF ALL FIS AT ONCE
02400     3016  51700          ADDRESS ERROR TEST
02500     3145  52500          INTERUPT ABORT TEST SECTION
02600     3369                 END OF PASS ROUTINE
02700     3408                 SCOPE ROUTINE
02800     3433  54700          PUSH AND POP SUBROUTINES
02900     3567                 HLT ROUTINE (ERROR TYPEOUT)
03000     3600  72800          USER ERROR ROUTINE
03100     3613                 OCTAL WORD & ADDRESS TYPER
03200     3648                 POWER DOWN AND UP ROUTINES
03300     3686  74400          ASCIZ TYPE OUT ROUTINE
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 2
00200   CVKACC.P11     16-AUG-78 08:41                                  SEQ 0010
00300
00400                                  31700
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 3                                  SEQ 0011
00200   CVKACC.P11    16-AUG-78 08:41
00300
00400                                  31900
00500                                  32000    .ABS
00600                                           .TITLE  CVKACC
00700                                           ;*COPYRIGHT (C) AUGUST 1978
00800                                           ;*DIGITAL EQUIPMENT CORP.
00900                                           ;*MAYNARD, MASS. 01754
01000                                           ;*
01100                                           ;*PROGRAM BY DIAGNOSTIC ENGINERRING
01200                                           ;*
01300                                           ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
01400                                           ;*PACKAGE (MAINDEC-11-DZQAC-B),JULY 11,1975.
01500                                           ;*
01600          000001                           $TN-1
01700          160000                           $SWR-160000     ;;HALT ON ERROR, LOOP ON TEST, INHIBIT ERROR TYPOUT
01800                                  32900
01900                                  33600
02000                                  34000
02100                                  35400
02200                                  35500
02300                                  36900
02400                                  40200
02500                                  40700
02600                                  41200
02700                                  42000
02800                                  45100
02900                                  49600
03000                                  54900
03100                                  55300
03200
03300
03400
03500                                           ;       SWITCH              USE
03600                                           ;       ------              ---
03700                                           ;         8                 LOOP ON TEST IN SW<7:0>
03800                                           ;         9                 LOOP ON ERROR
03900                                           ;         10                1 - BELL ON ERROR
04000                                           ;         11                INHIBIT ITERATIONS
04100                                           ;         12                INHIBIT TRACE TRAP
04200                                           ;         13                INHIBIT ERROR TYPEOUTS
04300                                           ;         14                LOOP ON TEST
04400                                           ;         15                HALT ON ERROR
04500
04600                                  55500    ;ERROR MESSAGE FORMAT:
04700                                  55600    ;  ERRNM   ADR  PSW  SP  ANS1 ANS2 ANS3 ANS4 ANS5 ANS6
04800                                  55700    ;
04900                                  55800    ;WHERE  ERRNM-  ERROR NUMBER
05000                                  55900    ;       ADR -   ADDRESS OF ''HLT'' INSTRUCTION + 2
05100                                  56000    ;       PSW -   PROCESSOR STATUS WORD
05200                                  56100    ;       SP -    STACK POINTER
05300                                  56200    ;       ANS1 THRU ANS6 -        DATA OFF THE STACK(S)
05400                                  56300    ;       NOTE:   ANS1 THRU ANS6 ARE NOT ALWAYS TYPED, DEPENDING ON THE
05500                                  56400    ;               NUMBER ADDED TO THE 'HLT''.  'HLT'' ALONE TYPES NONE,
05600                                  56500    ;               ''HLT+1'' TYPES ANS1, ''HLT+2'' TYPES ANS1 AND ANS2, ETC.
05700                                  56600
05800          104000                  56700    HLT     EMT
05900          000000                  56800    R0-     %0
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 4                                  SEQ 0012
00200   CVKACC.P11    16-AUG-78 08:41          SWITCH OPTIONS AND ASSIGNMENTS
00300
00400       58          000001                56900   R1      %1
00500       59          000002                57000   R2-     %2
00600       60          000003                57100   R3      %3
00700       61          000004                57200   R4      %4
00800       62          000005                57300   R5      %5
00900       63          000005                57400   TTY=    %5
01000       64          000006                57500   SP      %6
01100       65          000007                57600   PC-     %7
01200       66          000024                57700   PWRVEC  24
01300       67          104400                57800   SCOPE=  TRAP
01400       68          100000                57900   SW15=   100000
01500       69          040000                58000   SW14-    40000
01600       70          020000                58100   SW13-    20000
01700       71          010000                58200   SW12=    10000
01800       72          004000                58300   SW11-     4000
01900       73          002000                58400   SW10      2000
02000       74          001000                58500   SW09      1000
02100       75          000400                58600   SW08=      400
02200       76          000004                58700   TYPE-   IOT
02300       77          000001                58800   N=      1
02400       78          000001                58900   $F      1
02500       79                                        ;*****************************************************************
02600       80                                59100
02700       81          000000                59200   .       0                       ;TRAP CATCHER FROM 0 - 776
02800       82                                60000
02900       83                                        ;*****************************************************************
03000       84
03100       85                                        .SBTTL  ACT11 HOOKS
03200       86                                        ;HOOKS REQUIRED BY ACT11
03300       87          001000                        $SVPC-.                 ;SAVE PC
03400       88          000046                        .-46
03500       89  000046  015664                        $ENDAD                  ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
03600       90          000052                        . 52
03700       91  000052  000000                        .WORD   0               ;;2)SET LOC.52 TO ZERO
03800       92          001000                        .-$SVPC                 ;; RESTORE PC
03900       93                                60200
04000       94                                60300
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00300
00400      95                                  60800
00500      96          000400                  60900          .       400
00600      97                                                 ;*****************************************************************
00700      98
00800      99                                                 .SBTTL  APT MAILBOX-ETABLE
00900     100
01000     101
01100     102
01200     103                                                         .EVEN
01300     104  000400                                         $MAIL:                          ;;APT MAILBOX
01400     105  000400  000000                                 $MSGTY: .WORD   AMSGTY  ;;MESSAGE TYPE CODE
01500     106  000402  000000                                 $FATAL: .WORD   AFATAL  ;;FATAL ERROR NUMBER
01600     107  000404  000000                                 $TESTN: .WORD   ATESTN  ;;TEST NUMBER
01700     108  000406  000000                                 $PASS:  .WORD   APASS   ;;PASS COUNT
01800     109  000410  000000                                 $DEVCT: .WORD   ADEVCT  ;;DEVICE COUNT
01900     110  000412  000000                                 $UNIT:  .WORD   AUNIT   ;;I/O UNIT NUMBER
02000     111  000414  000000                                 $MSGAD: .WORD   AMSGAD  ;;MESSAGE ADDRESS
02100     112  000416  000000                                 $MSGLG: .WORD   AMSGLG  ;;MESSAGE LENGTH
02200     113  000420                                         $ETABLE:                        ;;APT ENVIRONMENT TABLE
02300     114  000420     000                                 $ENV:   .BYTE   AENV    ;;ENVIRONMENT BYTE
02400     115  000421     000                                 $ENVM:  .BYTE   AENVM   ;;ENVIRONMENT MODE BITS
02500     116  000422  000000                                 $SWREG: .WORD   ASWREG  ;;APT SWITCH REGISTER
02600     117  000424  000000                                 $USWR:  .WORD   AUSWR   ;;USER SWITCHES
02700     118  000426  000000                                 $CPUOP: .WORD   ACPUOP  ;;CPU TYPE,OPTIONS
02800     119                                                                 BITS 15-11=CPU TYPE
02900     120                                                 ;*                      11/04=01,11/05-02,11/20-03,11/40 04,11/45=05
03000     121                                                 ;*                      11/70=06,PDQ=07,Q-10
03100     122                                                 ;*                  BIT 10=REAL TIME CLOCK
03200     123                                                 ;*                  BIT  9-FLOATING POINT PROCESSOR
03300     124                                                 ;*                  BIT  8=MEMORY MANAGEMENT
03400     125  000430                                         $ETEND:
03500     126                                                         .MEXIT
03600     127                                                 ;*****************************************************************
03700     128
03800     129                                                 .SBTTL  APT PARAMETER BLOCK
03900     130                                                 ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
04000     131                                                 ;*****************************************************************
04100     132          000430                                         .$X=.   ;;SAVE CURRENT LOCATION
04200     133          000024                                         .=24    ;;SET POWER FAIL TO POINT TO START OF PROGRAM
04300     134  000024  000200                                         200     ;;FOR APT START UP
04400     135          000044                                         .=44    ;;POINT TO APT INDIRECT ADDRESS PNTR.
04500     136  000044  000430                                         $APTHDR ;;POINT TO APT HEADER BLOCK
04600     137          000430                                         .=.$X   ;;RESET LOCATION COUNTER
04700     138                                                 ;*****************************************************************
04800     139                                                 ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
04900     140                                                 ;INTERFACE SPEC.
05000     141
05100     142  000430                                         $APTHD:
05200     143  000430  000000                                 $HIBTS: .WORD   0       ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
05300     144  000432  000400                                 $MBADR: .WORD   $MAIL   ;;ADDRESS OF APT MAILBOX (BITS 0-15)
05400     145  000434  000003                                 $TSTM:  .WORD   3       ;;RUN TIM OF LONGEST TEST
05500     146  000436  000005                                 $PASTM: .WORD   5       ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VER
05600     147  000440  000000                                 $UNITM: .WORD           ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDI
05700     148  000442  000014                                         .WORD   $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORD )
05800     149          000430                         61200                   .       $APTHD
05900     150  000430                                 61300   HITAD$:
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 6
00200   CVKACC.P11     16-AUG-78 08:41        APT PARAMETER BLOCK                                    SEQ 0014
00300
00400     154           000432                          61400                   .-      HLTAD$+2
00500     152  000432                                   61500   $PSW:                                  ;PROCESSOR STATUS WORD
00600     153           000434                          61600                   .       $PSW+2
00700     154  000434                                   61700   $SP:                                   ;STACK POINTER
00800     155           000436                          61800                   .       $SP+2
00900     156  000436                                   61900   ANS1:                                  ;FIRST ANSWER (SEE CODE)
01000     157           000440                          62000                   .       ANS1+2
01100     158  000440                                   62100   ANS2:
01200     159           000442                          62200                   .       ANS2+2
01300     160  000442                                   62300   ANS3:
01400     161           000444                          62400                   .-      ANS3+2
01500     162  000444   000000                         62500   ANS4:   0
01600     163  000446   000000                         62600   ANS5:   0
01700     164  000450   000000                         62700   ANS6:   0
01800     165  000452   000000  000000   000000        62800           0,0,0,0                        ;NON-%6 STACK BUFFER
01900     166  000460   000000
02000     167  000462   000000                         62900   ERRORS: 0
02100     168  000464   000244                         63000   FISVEC: 244                            ;FIS TRAP VECTOR ADDRESS
02200     169  000466   000246                         63100   FISLVL: 246
02300     170  000470   000000                         63200   LAD$:   0
02400     171  000472   006412     000                 63300   RETURN: .ASCIZ  <12><15>               ;RETURN AND LINEFEED
02500     172  000475      015  020012   020040        63400   SPACE:  .ASCIZ  <15><12>''   ''        ;RETURN AND 3 SPACES
02600     173  000502      000
02700     174  000503      000                         63500   $ICNT:  .BYTE   0
02800     175                                          63600           .EVEN
02900     176  000504   000007                         63700   $BELL:  .WORD   7                      ;RING A BELL
03000     177  000506   000000                         63800   SAVTPS: 0                              ;LOC TO SAVE TELEPRINTER STATUS
03100     178  000510   000000                         63900   STACK0: 0                              ;NON-%6 STACK NORMAL LIMIT
03200     179  000512   000000                         64000   STACK2: 0                              ;
03300     180  000514   000000                         64100   STACK4: 0                              ;
03400     181  000516   000000                         64200   STACK6: 0                              ;
03500     182  000520   000000  000000   000000        64300   STACK8: 0,0,0,0,0                      ;NON-%6 STACK BUFFER
03600     183  000526   000000  000000
03700     184  000532   000000                         64400   STAK10: 0
03800     185           000511                         64500   STACK1 = STACK0+1
03900     186  000534   000000                         64600   TEMP:   0
04000     187  000536   000000                         64700   TIMES:  0
04100     188  000540   000000                         64800   TYPCNT: 0
04200     189  000542   000006                         64900   YESRT:  RTT                            ;RETURN FROM TRACE TRAP
04300     190  000544   000000                         65000   .PR:    0                              ;COUNT AND SWITCH
04400     191  000546   000064                         65100   TTYOUT: 64
04500     192  000550   177564                         65200   $TPS:   177564                         ;TTY PRINTER STATUS REG.
04600     193  000552   177566                         65300   $TPB:   177566                         ;TTY PRINTER BUFFER REG.
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 7
00200   CVKACC.P11    16-AUG-78 08:41          APT PARAMETER BLOCK                                    SEQ
00300
00400       194                                                 ;*****************************************************************
00500       195                                         38200
00600       196                                         38300   .SBTTL  STARTING OF THE PROGRAM
00700       197                                         38400
00800       198                                         38500
00900       199             000200                      38600   .       200
01000       200  000200     000167  017104             38700           JMP     NOOOP           ;GO TO TYPE HEADING & INITIALIZATION
01100       201  000204     000167  000370             38800   RESTRT: JMP     BEGIN           ;START THE PROGRAM
01200       202                                         38900
01300       203                                         39000
01400       204                                         39100
01500       205                                         39200
01600       206             000600                      39300   .       600
01700       207                                         39400
01800       208  000600     012706  000600             39500   BEGIN:  MOV     #BEGIN, SP      ;INITIALIZE STACK POINTER
01900       209  000604     012737  000542  000014     39600           MOV     #YESRT, @#14    ;SET TRACE TRAP VECTOR
02000       210  000612     012737  017170  000020     39700           MOV     #$TYPE, @#20    ;SET UP VECTOR 20
02100       211  000620     012737  017030  000024     39800           MOV     #$PWRDN ,@#24   ;SERVICE POWER DOWN ROUTINE FOR ANY FUTURE
02200       212                                         39900                                   ;POWER DOWN
02300       213  000626     012700  000030             40000           MOV     #30,    R0      ;SET R0 TO VECTOR 30
02400       214  000632     012720  016464             40100           MOV     #HLT$,  (0)+    ;SET EMT VECTOR
02500       215  000636     012720  000340             40200           MOV     #340,   (0)+
02600       216  000642     012720  015716             40300           MOV     #SCOPE$,(0)+    ;SET TRAP VECTOR
02700       217  000646     012710  000340             40400           MOV     #340,   (0)
02800       218  000652     012737  000006  000004     40500   1$:     MOV     #6,     @#4     ;RESTORE TIME-OUT VECTOR
02900       219  000660     132737  00000*  000420     40600           BITB    #1,@#$ENV       ;ARE WE UNDER APT ?
03000       220  000666     001410                     40700           BEQ     2$              ;IF NOT THEN GO TO 2$
03100       221  000670     012700  000554             40800           MOV     #$TPB+2,R0      ;OTHERWISE SET FOR THE OTHER SLU
03200       222  000674     012740  176566             40900           MOV     #176566,-(R0)
03300       223  000700     012740  176564             41000           MOV     #176564,-(R0)
03400       224  000704     012740  000074             41100           MOV     #74,-(R0)
03500       225  000710     005067  177470             41200   2$:     CLR     $TESTN
03600       226  000714     005067  177550             41300           CLR     LAD$            ;CLEAR LOOP ADDRESS
03700       227                                         41400
03800       228                                         41500
```

```
00100
00200
00300
00400      229
00500      230
00600      231          ;*****************************************************************
00700      232          ;TEST 1:        FADD (LSI-11 FLOATING ADD INSTRUCTION)
00800      233          ;       000000,000000 + 000000,000000 = 000000,000000
00900      234          ;       PS = 004,       STACK POINTER = R0
01000      235          ;*****************************************************************
01100      236  000720  104400                          SCOPE
01200      237  000722  004567  015260          TST1:   JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R0 STACK, SET PRIORITY
01300      238  000726  000000  000000                  .WORD   000000,000000   ;SECOND OPERAND ON TOP
01400      239  000732  000000  000000                  .WORD   000000,000000   ;FIRST OPERAND ON BOTTOM
01500      240  000736  000000                          .WORD   000             ;PROCESSOR PRIORITY LEVEL
01600      241  000740  016456  000340                  .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700      242  000744  012700  000510                  MOV     #STACK0,R0      ;SET UP STACK POINTER
01800      243
01900      244  000750  000240                          NOP
02000      245  000752  075000                          FADD    R0              ;FLOATING ADD ON THE R0 STACK
02100      246
02200      247  000754  004767  015260                  JSR     PC,     POPR    ;POP THE ANSWER
02300      248  000760  010067  177450                  MOV     R0,     $SP     ;SAVE ''STACK POINTER''
02400      249  000764  122767  000004  177440        CMPB    #004,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500      250  000772  001402                          BEQ     .+6             ;BRANCH IF OK
02600      251  000774  104000                          HLT                     ;PS NOT EQUAL TO 004
02700      252  000776  000001                          1                       ;THE ERROR NUMBER IS 1
02800      253
02900      254  001000  022767  000514  177426        CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R0)
03000      255  001006  001402                          BEQ     .+6             ;BRANCH IF OK
03100      256  001010  104000                          HLT                     ;STACK POINTER (R0) NOT EQUAL TO #STACK4
03200      257  001012  000002                          2                       ;THE ERROR NUMBER IS 2
03300      258
03400      259  001014  005767  177416                  TST     ANS1            ;CHECK FIRST HALF OF ANSWER
03500      260  001020  001402                          BEQ     .+6             ;BRANCH IF OK
03600      261  001022  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 000000
03700      262  001024  000003                          3                       ;THE ERROR NUMBER IS 3
03800      263
03900      264  001026  005767  177406                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000      265  001032  001402                          BEQ     .+6             ;BRANCH IF OK
04100      266  001034  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200      267  001036  000004                          4                       ;THE ERROR NUMBER IS 4
04300      268
04400      269  001040  122767  000001  177336        END1:   CMPB    #1,     $TESTN  ;CHECK THE TEST NUMBER
04500      270  001046  001402                          BEQ     .+6             ;BRANCH IF OK
04600      271  001050  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700      272  001052  000005                          5                       ;THE ERROR NUMBER IS 5
04800      273
04900      274
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00100
00200
00300
00400     275
00500     276                    ;*****************************************************************
00600     277                    ;TEST 2:        FADD (LSI-11 FLOATING ADD INSTRUCTION)
00700     278                    ;       000000,000000 + 152525,052524 = 152525,052524
00800     279                    ;       PS = 010,       STACK POINTER = R3
00900     280                    ;*****************************************************************
01000     281
01100     282  001054  104400                        SCOPE
01200     283  001056  004567  015124          TST2: JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R3 STACK, SET PRIORITY
01300     284  001062  152525  052524                .WORD   152525,052524   ;SECOND OPERAND ON TOP
01400     285  001066  000000  000000                .WORD   000000,000000   ;FIRST OPERAND ON BOTTOM
01500     286  001072  000040                        .WORD   040             ;PROCESSOR PRIORITY LEVEL
01600     287  001074  016456  000340                .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700     288  001100  012703  000510                MOV     #STACK0,R3      ;SET UP STACK POINTER
01800     289
01900     290  001104  000240                        NOP
02000     291  001106  075003                        FADD    R3              ;FLOATING ADD ON THE R3 STACK
02100     292
02200     293  001110  004767  015124                JSR     PC,     POPR    ;POP THE ANSWER
02300     294  001114  010367  177314                MOV     R3,     $SP     ;SAVE ''STACK POINTER''
02400     295  001120  122767  000010  177304       CMPB    #010,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500     296  001126  001402                        BEQ     .+6             ;BRANCH IF OK
02600     297  001130  104000                        HLT                     ;PS NOT EQUAL TO 010
02700     298  001132  000006                        6                       ;THE ERROR NUMBER IS 6
02800     299
02900     300  001134  022767  000514  177272       CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R3)
03000     301  001142  001402                        BEQ     .+6             ;BRANCH IF OK
03100     302  001144  104000                        HLT                     ;STACK POINTER (R3) NOT EQUAL TO #STACK4
03200     303  001146  000007                        7                       ;THE ERROR NUMBER IS 7
03300     304
03400     305  001150  022767  152525  177260       CMP     #152525,ANS1    ;CHECK FIRST HALF OF ANSWER
03500     306  001156  001402                        BEQ     .+6             ;BRANCH IF OK
03600     307  001160  104002                        HLT+2                   ;ANS1 NOT EQUAL TO 152525
03700     308  001162  000010                        10                      ;THE ERROR NUMBER IS 10
03800     309
03900     310  001164  022767  052524  177246       CMP     #052524,ANS2    ;CHECK SECOND HALF OF ANSWER
04000     311  001172  001402                        BEQ     .+6             ;BRANCH IF OK
04100     312  001174  104002                        HLT+2                   ;ANS2 NOT EQUAL TO 052524
04200     313  001176  000011                        11                      ;THE ERROR NUMBER IS 11
04300     314
04400     315  001200  122767  000002  177176 END2: CMPB    #2,     $TESTN  ;CHECK THE TEST NUMBER
04500     316  001206  001402                        BEQ     .+6             ;BRANCH IF OK
04600     317  001210  104000                        HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
04700     318  001212  000012                        12                      ;THE ERROR NUMBER IS 12
04800     319
04900     320
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 10
00200   CVKACC.P11    16-AUG-78 08:41          FADD TEST SECTION                                    SEQ 00'8
00300
00400       321
00500       322
00600       323                                 ;*****************************************************************
00700       324                                 ;TEST 3:       FADD (LSI-11 FLOATING ADD INSTRUCTION)
00800       325                                 ;       040200,000000 + 040200,000000 = 040400,000000
00900       326                                 ;       PS = 000,       STACK POINTER   R1
01000       327                                 ;*****************************************************************
01100       328  001214  104400                            SCOPE
01200       329  001216  004567  014764         TST3:      JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R1 STACK, SET PRIORITY
01300       330  001222  040200  000000                    .WORD   040200,000000   ;SECOND OPERAND ON TOP
01400       331  001226  040200  000000                    .WORD   040200,000000   ;FIRST OPERAND ON BOTTOM
01500       332  001232  000040                            .WORD   040             ;PROCESSOR PRIORITY LEVEL
01600       333  001234  016456  000340                    .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700       334  001240  012701  000510                    MOV     #STACK0,R1      ;SET UP STACK POINTER
01800       335
01900       336  001244  000240                            NOP
02000       337  001246  075001                            FADD    R1              ;FLOATING ADD ON THE R1 STACK
02100       338
02200       339  001250  004767  014764                    JSR     PC,     POPR    ;POP THE ANSWER
02300       340  001254  010167  177154                    MOV     R1,     $SP     ;SAVE ''STACK POINTER''
02400       341  001260  105767  177146                    TSTB    $PSW            ;CHECK PS (EXCEPT T BIT)
02500       342  001264  001402                            BEQ     .+6             ;BRANCH IF OK
02600       343  001266  104000                            HLT                     ;PS NOT EQUAL TO 000
02700       344  001270  000013                            13                      ;THE ERROR NUMBER IS 13
02800       345
02900       346  001272  022767  000514  177134           CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R1)
03000       347  001300  001402                            BEQ     .+6             ;BRANCH IF OK
03100       348  001302  104000                            HLT                     ;STACK POINTER (R1) NOT EQUAL TO #STACK4
03200       349  001304  000014                            14                      ;THE ERROR NUMBER IS 14
03300       350
03400       351  001306  022767  040400  177122           CMP     #040400,ANS1    ;CHECK FIRST HALF OF ANSWER
03500       352  001314  001402                            BEQ     .+6             ;BRANCH IF OK
03600       353  001316  104002                            HLT+2                   ;ANS1 NOT EQUAL TO 040400
03700       354  001320  000015                            15                      ;THE ERROR NUMBER IS 15
03800       355
03900       356  001322  005767  177112                    TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000       357  001326  001402                            BEQ     .+6             ;BRANCH IF OK
04100       358  001330  104002                            HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200       359  001332  000016                            16                      ;THE ERROR NUMBER IS 16
04300       360
04400       361  001334  122767  000003  177042  END3:     CMPB    #3,     $TESTN  ;CHECK THE TEST NUMBER
04500       362  001342  001402                            BEQ     .+6             ;BRANCH IF OK
04600       363  001344  104000                            HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700       364  001346  000017                            17                      ;THE ERROR NUMBER IS 17
04800       365
04900       366
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00100  [VKAC[  MA[Y[1 30A(1052)  2[-AUG-78  15:28  PAGE 11
00200  [VKAC[.P[[     16-AUG-78 08:41          FADD TEST SECTION                    SEQ 0019
00300
00400      367
00500      368
00600      369
00700      370
00800      371
00900      372
01000      373
01100      374  001350  104400
01200      375  001352  004567  014630                 TST4:   JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R2 STACK, SET PRIORITY
01300      376  001356  177777  177777                         .WORD   177777,177777   ;SECOND OPERAND ON TOP
01400      377  001362  077777  177777                         .WORD   077777,177777   ;FIRST OPERAND ON BOTTOM
01500      378  001366  000100                               .WORD   100             ;PROCESSOR PRIORITY LEVEL
01600      379  001370  016456  000340                       .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700      380  001374  012702  000510                       MOV     #STACK0,R2      ;SET UP STACK POINTER
01800      381
01900      382  001400  000240                               NOP
02000      383  001402  075002                               FADD    R2              ;FLOATING ADD ON THE R2 STACK
02100      384
02200      385  001404  004767  014630                       JSR     PC,     POPR    ;POP THE ANSWER
02300      386  001410  010267  177020                       MOV     R2,     $SP     ;SAVE "STACK POINTER"
02400      387  001414  122767  000004  177010             CMPB    #004,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500      388  001422  001402                               BEQ     .+6             ;BRANCH IF OK
02600      389  001424  104000                               HLT                     ;PS NOT EQUAL TO 004
02700      390  001426  000020                               20                      ;THE ERROR NUMBER IS 20
02800      391
02900      392  001430  022767  000[[4  176776             CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R2)
03000      393  001436  001402                               BEQ     .+6             ;BRANCH IF OK
03100      394  001440  104000                               HLT                     ;STACK POINTER (R2) NOT EQUAL TO #STACK4
03200      395  001442  000021                               21                      ;THE ERROR NUMBER IS 21
03300      396
03400      397  001444  005767  176766                       TST     ANS1            ;CHECK FIRST HALF OF ANSWER
03500      398  001450  001402                               BEQ     .+6             ;BRANCH IF OK
03600      399  001452  104002                               HLT+2                   ;ANS1 NOT EQUAL TO 000000
03700      400  001454  000022                               22                      ;THE ERROR NUMBER IS 22
03800      401
03900      402  001456  005767  176756                       TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000      403  001462  001402                               BEQ     .+6             ;BRANCH IF OK
04100      404  001464  104002                               HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200      405  001466  000023                               23                      ;THE ERROR NUMBER IS 23
04300      406
04400      407  001470  122767  000004  176706   END4:   CMPB    #4,     $TESTN  ;CHECK THE TEST NUMBER
04500      408  001476  001402                               BEQ     .+6             ;BRANCH IF OK
04600      409  001500  104000                               HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
04700      410  001502  000024                               24                      ;THE ERROR NUMBER IS 24
04800      411
04900      412
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00300
00400     413
00500     414
00600     415
00700     416
00800     417
00900     418
01000     419
01100     420  001504  104400                          SCOPE
01200     421  001506  004567  014322                  TST5:   JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORI
01300     422  001512  152525  052524                  .WORD   152525,052524   ;SECOND OPERAND ON TOP
01400     423  001516  052525  052525                  .WORD   052525,052525   ;FIRST OPERAND ON BOTTOM
01500     424  001522  000217                          .WORD   217             ;PROCESSOR PRIORITY LEVEL
01600     425  001524  016456  000340                  .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700     426
01800     427  001530  000240                          NOP
01900     428  001532  075006                          FADD    SP              ;FLOATING ADD ON THE STACK
02000     429
02100     430  001534  004767  014334                  JSR     PC,     POPS    ;POP THE ANSWER
02200     431  001540  022706  000600                  CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02300     432  001544  001405                          BEQ     TSA5            ;BRANCH IF OK
02400     433  001546  012706  000600                  MOV     #BEGIN, SP      ;RESTORE STACK POINTER
02500     434  001552  104000                          HLT                     ;STACK POINTER FOULED UP
02600     435  001554  000025                          25                      ;THE ERROR NUMBER IS 25
02700     436  001556  000421                          BR      END5            ;SKIP REST OF TEST
02800     437
02900     438  001560  122767  000200  176644  TSA5:   CMPB    #200,   $PSW    ;CHECK PS (EXCEPT T BIT)
03000     439  001566  001402                          BEQ     .+6             ;BRANCH IF OK
03100     440  001570  104000                          HLT                     ;PS NOT EQUAL TO 200
03200     441  001572  000026                          26                      ;THE ERROR NUMBER IS 26
03300     442
03400     443  001574  022767  044600  176634          CMP     #044600,ANS1    ;CHECK FIRST HALF OF ANSWER
03500     444  001602  001402                          BEQ     .+6             ;BRANCH IF OK
03600     445  001604  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 044600
03700     446  001606  000027                          27                      ;THE ERROR NUMBER IS 27
03800     447
03900     448  001610  005767  176624                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000     449  001614  001402                          BEQ     .+6             ;BRANCH IF OK
04100     450  001616  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200     451  001620  000030                          30                      ;THE ERROR NUMBER IS 30
04300     452
04400     453  001622  122767  000005  176554  END5:   CMPB    #5,     $TESTN  ;CHECK THE TEST NUMBER
04500     454  001630  001402                          BEQ     .+6             ;BRANCH IF OK
04600     455  001632  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     456  001634  000031                          31                      ;THE ERROR NUMBER IS 31
04800     457
04900     458
```

;***
;TEST 5: FADD (LSI-11 FLOATING ADD INSTRUCTION)
; 052525,052525 + 152525,052524 = 044600,000000
; PS 200, STACK POINTER - SP
;***

```
00300
00400     459
00500     460
00600     461
00700     462
00800     463
00900     464
01000     465
01100     466  001636  104400                          SCOPE
01200     467  001640  004567  014170                  TST6:   JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORI
01300     468  001644  025177  177777                  .WORD   025177,177777   ;SECOND OPERAND ON TOP
01400     469  001650  125200  000000                  .WORD   125200,000000   ;FIRST OPERAND ON BOTTOM
01500     470  001654  000307                          .WORD   307             ;PROCESSOR PRIORITY LEVEL
01600     471  001656  016456  000340                  .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700     472
01800     473  001662  000240                          NOP
01900     474  001664  075006                          FADD    SP              ;FLOATING ADD ON THE STACK
02000     475
02100     476  001666  004767  014202                  JSR     PC,     POPS    ;POP THE ANSWER
02200     477  001672  022706  000600                  CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02300     478  001676  001405                          BEQ     TSA6            ;BRANCH IF OK
02400     479  001700  012706  000600                  MOV     #BEGIN, SP      ;RESTORE STACK POINTER
02500     480  001704  104000                          HLT                     ;STACK POINTER FOULED UP
02600     481  001706  000032                          32                      ;THE ERROR NUMBER IS 32
02700     482  001710  000421                          BR      END6            ;SKIP REST OF TEST
02800     483
02900     484  001712  122767  000210  176512  TSA6:   CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
03000     485  001720  001402                          BEQ     .+6             ;BRANCH IF OK
03100     486  001722  104000                          HLT                     ;PS NOT EQUAL TO 210
03200     487  001724  000033                          33                      ;THE ERROR NUMBER IS 33
03300     488
03400     489  001726  022767  117200  176502          CMP     #117200,ANS1    ;CHECK FIRST HALF OF ANSWER
03500     490  001734  001402                          BEQ     .+6             ;BRANCH IF OK
03600     491  001736  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 117200
03700     492  001740  000034                          34                      ;THE ERROR NUMBER IS 34
03800     493
03900     494  001742  005767  176472                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000     495  001746  001402                          BEQ     .+6             ;BRANCH IF OK
04100     496  001750  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200     497  001752  000035                          35                      ;THE ERROR NUMBER IS 35
04300     498
04400     499  001754  122767  000006  176422  END6:   CMPB    #6,     $TESTN  ;CHECK THE TEST NUMBER
04500     500  001762  001402                          BEQ     .+6             ;BRANCH IF OK
04600     501  001764  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     502  001766  000036                          36                      ;THE ERROR NUMBER IS 36
04800     503
04900     504

;*****************************************************************************
;TEST 6:        FADD (LSI-11 FLOATING ADD INSTRUCTION)
;       125200,000000 + 025177,177777 = 117200,000000
;       PS   210.       STACK POINTER   SP
;*****************************************************************************
```

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00300
00400     505
00500     506
00600     507
00700     508
00800     509
00900     510
01000     511
01100     512  001770  104400                          SCOPE
01200     513  001772  004567  014210          TST7:   JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R5 STACK, SET PRIORITY
01300     514  001776  100125  052525                  .WORD   100125,052525   ;SECOND OPERAND ON TOP
01400     515  002002  135753  024642                  .WORD   135753,024642   ;FIRST OPERAND ON BOTTOM
01500     516  002006  000347                          .WORD   347             ;PROCESSOR PRIORITY LEVEL
01600     517  002010  016456  000340                  .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700     518  002014  012705  000510                  MOV     #STACK0,R5      ;SET UP ST  . POINTER
01800     519
01900     520  002020  000240                          NOP
02000     521  002022  075005                          FADD    R5              ;FLOATING ADD ON THE R5 STACK
02100     522
02200     523  002024  004767  014210                  JSR     PC,     POPR    ;POP THE ANSWER
02300     524  002030  010567  176400                  MOV     R5,     $SP     ;SAVE "STACK POINTER"
02400     525  002034  122767  000210  176370        CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500     526  002042  001402                          BEQ     .+6             ;BRANCH IF OK
02600     527  002044  104000                          HLT                     ;PS NOT EQUAL TO 210
02700     528  002046  000037                          37                      ;THE ERROR NUMBER IS 37
02800     529
02900     530  002050  022767  000514  176356        CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R5)
03000     531  002056  001402                          BEQ     .+6             ;BRANCH IF OK
03100     532  002060  104000                          HLT                     ;STACK POINTER (R5) NOT EQUAL TO #STACK4
03200     533  002062  000040                          40                      ;THE ERROR NUMBER IS 40
03300     534
03400     535  002064  022767  135753  176344        CMP     #135753,ANS1    ;CHECK FIRST HALF OF ANSWER
03500     536  002072  001402                          BEQ     .+6             ;BRANCH IF OK
03600     537  002074  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 135753
03700     538  002076  000041                          41                      ;THE ERROR NUMBER IS 41
03800     539
03900     540  002100  022767  024642  176332        CMP     #024642,ANS2    ;CHECK SECOND HALF OF ANSWER
04000     541  002106  001402                          BEQ     .+6             ;BRANCH IF OK
04100     542  002110  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 024642
04200     543  002112  000042                          42                      ;THE ERROR NUMBER IS 42
04300     544
04400     545  002114  122767  000007  176262  END7:   CMPB    #7,     $TESTN  ;CHECK THE TEST NUMBER
04500     546  002122  001402                          BEQ     .+6             ;BRANCH IF OK
04600     547  002124  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     548  002126  000043                          43                      ;THE ERROR NUMBER IS 43
04800     549
04900     550

;*****************************************************************************
;TEST 7:        FADD (LSI-11 FLOATING ADD INSTRUCTION)
;       135753,024642 + 100125,052525 = 135753,024642
;       PS = 210,       STACK POINTER   R5
;*****************************************************************************
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00300
00400      551
00500      552
00600      553
00700      554
00800      555
00900      556
01000      557
01100      558  002130  104400                          SCOPE
01200      559  002132  004567  014050                  TST10:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R1 STACK, SET PRIORITY
01300      560  002136  001357  024642                          .WORD   001357,024642   ;SECOND OPERAND ON TOP
01400      561  002142  000052  125252                          .WORD   000052,125252   ;FIRST OPERAND ON BOTTOM
01500      562  002146  000257                              .WORD   257             ;PROCESSOR PRIORITY LEVEL
01600      563  002150  016456  000340                      .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700      564  002154  012701  000510                      MOV     #STACK0,R1      ;SET UP STACK POINTER
01800      565
01900      566  002160  000240                              NOP
02000      567  002162  075001                              FADD    R1              ;FLOATING ADD ON THE R1 STACK
02100      568
02200      569  002164  004767  014050                      JSR     PC,     POPR    ;POP THE ANSWER
02300      570  002170  010167  176240                      MOV     R1,     $SP     ;SAVE ''STACK POINTER''
02400      571  002174  122767  000200  176230            CMPB    #200,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500      572  002202  001402                              BEQ     .+6             ;BRANCH IF OK
02600      573  002204  104000                              HLT                     ;PS NOT EQUAL TO 200
02700      574  002206  000044                              44                      ;THE ERROR NUMBER IS 44
02800      575
02900      576  002210  022767  000514  176216            CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R1)
03000      577  002216  001402                              BEQ     .+6             ;BRANCH IF OK
03100      578  002220  104000                              HLT                     ;STACK POINTER (R1) NOT EQUAL TO #STACK4
03200      579  002222  000045                              45                      ;THE ERROR NUMBER IS 45
03300      580
03400      581  002224  022767  001357  176204            CMP     #001357,ANS1    ;CHECK FIRST HALF OF ANSWER
03500      582  002232  001402                              BEQ     .+6             ;BRANCH IF OK
03600      583  002234  104002                              HLT+2                   ;ANS1 NOT EQUAL TO 001357
03700      584  002236  000046                              46                      ;THE ERROR NUMBER IS 46
03800      585
03900      586  002240  022767  024642  176172            CMP     #024642,ANS2    ;CHECK SECOND HALF OF ANSWER
04000      587  002246  001402                              BEQ     .+6             ;BRANCH IF OK
04100      588  002250  104002                              HLT+2                   ;ANS2 NOT EQUAL TO 024642
04200      589  002252  000047                              47                      ;THE ERROR NUMBER IS 47
04300      590
04400      591  002254  122767  000010  176122            END10:  CMPB    #10,    $TESTN  ;CHECK THE TEST NUMBER
04500      592  002262  001402                              BEQ     .+6             ;BRANCH IF OK
04600      593  002264  104000                              HLT                     ;WRONG TEST   PC MUST HAVE FOULED UP.
04700      594  002266  000050                              50                      ;THE ERROR NUMBER IS 50
04800      595
04900      596
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00300
00400      597
00500      598
00600      599
00700      600
00800      601
00900      602
01000      603
01100      604   002270  104400                    ;*****************************************************************
01200      605   002272  004567  013710            ;TEST 11:       FADD (LSI-11 FLOATING ADD INSTRUCTION)
01300      606   002276  000200  000000            ;       100400,000000 + 000200,000000 = 100200,000000
01400      607   002302  100400  000000            ;       PS = 010,       STACK POINTER   R5
01500      608   002306  000140                    ;*****************************************************************
01600      609   002310  016456  000340
01700      610   002314  012705  000510  TST11:   SCOPE
01800      611                                     JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R5 STACK, SET PRIORITY
01900      612   002320  000240                    .WORD   000200,000000   ;SECOND OPERAND ON TOP
02000      613   002322  075005                    .WORD   100400,000000   ;FIRST OPERAND ON BOTTOM
02100      614                                     .WORD   140             ;PROCESSOR PRIORITY LEVEL
02200      615   002324  004767  013710            .WORD   TRAPER,340      ;FIS TRAP VECTOR
02300      616   002330  010567  176100            MOV     #STACK0,R5      ;SET UP STACK POINTER
02400      617   002334  122767  000010  176070
02500      618   002342  001402                    NOP
02600      619   002344  104000                    FADD    R5              ;FLOATING ADD ON THE R5 STACK
02700      620   002346  000051
02800      621                                     JSR     PC,     POPR    ;POP THE ANSWER
02900      622   002350  022767  000514  176056    MOV     R5,     $SP     ;SAVE ''STACK POINTER''
03000      623   002356  001402                    CMPB    #010,   $PSW    ;CHECK PS (EXCEPT T BIT)
03100      624   002360  104000                    BEQ     .+6             ;BRANCH IF OK
03200      625   002362  000052                    HLT                     ;PS NOT EQUAL TO 010
03300      626                                     51                      ;THE ERROR NUMBER IS 51
03400      627   002364  022767  100200  176044
03500      628   002372  001402                    CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R5)
03600      629   002374  104002                    BEQ     .+6             ;BRANCH IF OK
03700      630   002376  000053                    HLT                     ;STACK POINTER (R5) NOT EQUAL TO #STACK4
03800      631                                     52                      ;THE ERROR NUMBER IS 52
03900      632   002400  005767  176034
04000      633   002404  001402                    CMP     #100200,ANS1    ;CHECK FIRST HALF OF ANSWER
04100      634   002406  104002                    BEQ     .+6             ;BRANCH IF OK
04200      635   002410  000054                    HLT+2                   ;ANS1 NOT EQUAL TO 100200
04300      636                                     53                      ;THE ERROR NUMBER IS 53
04400      637   002412  122767  000011  175764
04500      638   002420  001402                    TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04600      639   002422  104000                    BEQ     .+6             ;BRANCH IF OK
04700      640   002424  000055                    HLT+2                   ;ANS2 NOT EQUAL TO 000000
04800      641                                     54                      ;THE ERROR NUMBER IS 54
04900      642
                                        END11:  CMPB    #11,    $TESTN  ;CHECK THE TEST NUMBER
                                                BEQ     .+6             ;BRANCH IF OK
                                                HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
                                                55                      ;THE ERROR NUMBER IS 55
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                                ;*****************************************************************
                                ;TEST 12:       FADD (LSI-11 FLOATING ADD INSTRUCTION)
                                ;       000425,052525 + 100252,125252 = 000200,000000
                                ;       PS - 200,       STACK POINTER - R4
                                ;*****************************************************************

002426  104400                          SCOPE
002430  004567  013552          TST12:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R4 STACK, SET PRIORITY
002434  100252  125252                  .WORD   100252,125252   ;SECOND OPERAND ON TOP
002440  000425  052525                  .WORD   000425,052525   ;FIRST OPERAND ON BOTTOM
002444  000217                          .WORD   217             ;PROCESSOR PRIORITY LEVEL
002446  016456  000340                  .WORD   TRAPER,340      ;FIS TRAP VECTOR
002452  012704  000510                  MOV     #STACK0,R4      ;SET UP STACK POINTER

002456  000240                          NOP
002460  075004                          FADD    R4              ;FLOATING ADD ON THE R4 STACK

002462  004767  013552                  JSR     PC,     POPR    ;POP THE ANSWER
002466  010467  175742                  MOV     R4,     $SP     ;SAVE "STACK POINTER"
002472  122767  000200  175732          CMPB    #200,   $PSW    ;CHECK PS (EXCEPT T BIT)
002500  001402                          BEQ     .+6             ;BRANCH IF OK
002502  104000                          HLT                     ;PS NOT EQUAL TO 200
002504  000056                          56                      ;THE ERROR NUMBER IS 56

002506  022767  000514  175720          CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R4)
002514  001402                          BEQ     .+6             ;BRANCH IF OK
002516  104000                          HLT                     ;STACK POINTER (R4) NOT EQUAL TO #STACK4
002520  000057                          57                      ;THE ERROR NUMBER IS 57

002522  022767  000200  175706          CMP     #000200,ANS1    ;CHECK FIRST HALF OF ANSWER
002530  001402                          BEQ     .+6             ;BRANCH IF OK
002532  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 000200
002534  000060                          60                      ;THE ERROR NUMBER IS 60

002536  005767  175676                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
002542  001402                          BEQ     .+6             ;BRANCH IF OK
002544  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
002546  000061                          61                      ;THE ERROR NUMBER IS 61

002550  122767  000012  175626  END12:  CMPB    #12,    $TESTN  ;CHECK THE TEST NUMBER
002556  001402                          BEQ     .+6             ;BRANCH IF OK
002560  104000                          HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
002562  000062                          62                      ;THE ERROR NUMBER IS 62
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 18                                                    SEQ 0026
00200   CVKACC.P11    16-AUG-78 08:41          FADD TEST SECTION
00300
00400       689
00500       690                                 ;*****************************************************************************
00600       691                                 ;TEST 13:       FADD (LSI-11 FLOATING ADD INSTRUCTION)
00700       692                                 ;       100425,052525 + 000252,125252 = 100200,000000
00800       693                                 ;       PS = 210,       STACK POINTER = SP
00900       694                                 ;*****************************************************************************
01000       695
01100       696  002564  104400                          SCOPE
01200       697  002566  004567  013242                  TST13:  JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORI
01300       698  002572  000252  125252                  .WORD   000252,125252   ;SECOND OPERAND ON TOP
01400       699  002576  100425  052525                  .WORD   100425,052525   ;FIRST OPERAND ON BOTTOM
01500       700  002602  000307                          .WORD   307             ;PROCESSOR PRIORITY LEVEL
01600       701  002604  016456  000340                  .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700       702
01800       703  002610  000240                          NOP
01900       704  002612  075006                          FADD    SP              ;FLOATING ADD ON THE STACK
02000       705
02100       706  002614  004767  013254                  JSR     PC,     POPS    ;POP THE ANSWER
02200       707  002620  022706  000600                  CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
0230C       708  002624  001405                          BEQ     TSA13           ;BRANCH IF OK
02400       709  002626  012706  000600                  MOV     #BEGIN, SP      ;RESTORE STACK POINTER
02500       710  002632  104000                          HLT                     ;STACK POINTER FOULED UP
02600       711  002634  000063                          63                      ;THE ERROR NUMBER IS 63
02700       712  002636  000421                          BR      END13           ;SKIP REST OF TEST
02800       713
02900       714  002640  122767  00021C  175564  TSA13:  CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
03000       715  002646  001402                          BEQ     .+6             ;BRANCH IF OK
03100       716  002650  104000                          HLT                     ;PS NOT EQUAL TO 210
03200       717  002652  000064                          64                      ;THE ERROR NUMBER IS 64
03300       718
03400       719  002654  022767  100200  175554          CMP     #100200,ANS1    ;CHECK FIRST HALF OF ANSWER
03500       720  002662  001402                          BEQ     .+6             ;BRANCH IF OK
03600       721  002664  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 100200
03700       722  002666  000065                          65                      ;THE ERROR NUMBER IS 65
03800       723
03900       724  002670  005767  175544                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000       725  002674  001402                          BEQ     .+6             ;BRANCH IF OK
04100       726  002676  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200       727  002700  000066                          66                      ;THE ERROR NUMBER IS 66
04300       728
04400       729  002702  122767  000013  175474  END13:  CMPB    #13,    $TESTN  ;CHECK THE TEST NUMBER
04500       730  002710  001402                          BEQ     .+6             ;BRANCH IF OK
04600       731  002712  104000                          HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
04700       732  002714  000067                          67                      ;THE ERROR NUMBER IS 67.
04800       733
04900       734
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00300
00400      735
00500      736                    ;*****************************************************************************
00600      737                    ;TEST 14:      FADD (LSI-11 FLOATING ADD INSTRUCTION)
00700      738                    ;       077652,125252 + 077452,125252 = 077777,177777
00800      739                    ;       PS   200,      STACK POINTER = SP
00900      740                    ;*****************************************************************************
01000      741
01100      742  002716  104400                        SCOPE
01200      743  002720  004567  013110                TST14:  JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORI
01300      744  002724  077452  125252                .WORD   077452,125252   ;SECOND OPERAND ON TOP
01400      745  002730  077652  125252                .WORD   077652,125252   ;FIRST OPERAND ON BOTTOM
01500      746  002734  000257                        .WORD   257             ;PROCESSOR PRIORITY LEVEL
01600      747  002736  016456  000340                .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700      748
01800      749  002742  000240                        NOP
01900      750  002744  075006                        FADD    SP              ;FLOATING ADD ON THE STACK
02000      751
02100      752  002746  004767  013122                JSR     PC,     POPS    ;POP THE ANSWER
02200      753  002752  022706  000600                CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02300      754  002756  001405                        BEQ     TSA14           ;BRANCH IF OK
02400      755  002760  012706  000600                MOV     #BEGIN, SP      ;RESTORE STACK POINTER
02500      756  002764  104000                        HLT                     ;STACK POINTER FOULED UP
02600      757  002766  000070                        70                      ;THE ERROR NUMBER IS 70
02700      758  002770  000422                        BR      END14           ;SKIP REST OF TEST
02800      759
02900      760  002772  122767  000200  175432        TSA14:  CMPB    #200,   $PSW    ;CHECK PS (EXCEPT T BIT)
03000      761  003000  001402                        BEQ     .+6             ;BRANCH IF OK
03100      762  003002  104000                        HLT                     ;PS NOT EQUAL TO 200
03200      763  003004  000071                        71                      ;THE ERROR NUMBER IS 71
03300      764
03400      765  003006  022767  077777  175422        CMP     #077777,ANS1    ;CHECK FIRST HALF OF ANSWER
03500      766  003014  001402                        BEQ     .+6             ;BRANCH IF OK
03600      767  003016  104002                        HLT+2                   ;ANS1 NOT EQUAL TO 077777
03700      768  003020  000072                        72                      ;THE ERROR NUMBER IS 72
03800      769
03900      770  003022  022767  177777  175410        CMP     #177777,ANS2    ;CHECK SECOND HALF OF ANSWER
04000      771  003030  001402                        BEQ     .+6             ;BRANCH IF OK
04100      772  003032  104002                        HLT+2                   ;ANS2 NOT EQUAL TO 177777
04200      773  003034  000073                        73                      ;THE ERROR NUMBER IS 73
04300      774
04400      775  003036  122767  000014  175340        END14:  CMPB    #14,    $TESTN  ;CHECK THE TEST NUMBER
04500      776  003044  001402                        BEQ     .+6             ;BRANCH IF OK
04600      777  003046  104000                        HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700      778  003050  000074                        74                      ;THE ERROR NUMBER IS 74
04800      779
04900      780
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00100
00200
00300
00400     781
00500     782                ;*****************************************************************************
00600     783                ;TEST 15:      FADD (LSI-11 FLOATING ADD INSTRUCTION)
00700     784                ;       177452,125252 + 177652,125252 = 177777,177777
00800     785                ;       PS = 210,       STACK POINTER   R4
00900     786                ;*****************************************************************************
01000     787
01100     788  003052  104400                    SCOPE
01200     789  003054  004567  013126  TST15:    JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R4 STACK, SET PRIORITY
01300     790  003060  177652  125252            .WORD   177652,125252   ;SECOND OPERAND ON TOP
01400     791  003064  177452  125252            .WORD   177452,125252   ;FIRST OPERAND ON BOTTOM
01500     792  003070  000357                    .WORD   357             ;PROCESSOR PRIORITY LEVEL
01600     793  003072  016456  000340            .WORD   TRAPER,340      ;FIS TRAP VECTOR
01700     794  003076  012704  000510            MOV     #STACK0,R4      ;SET UP STACK POINTER
01800     795
01900     796  003102  000240                    NOP
02000     797  003104  075004                    FADD    R4              ;FLOATING ADD ON THE R4 STACK
02100     798
02200     799  003106  004767  013126            JSR     PC,     POPR    ;POP THE ANSWER
02300     800  003112  010467  175316            MOV     R4,     $SP     ;SAVE ''STACK POINTER''
02400     801  003116  122767  000210  175306    CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500     802  003124  001402                    BEQ     .+6             ;BRANCH IF OK
02600     803  003126  104000                    HLT                     ;PS NOT EQUAL TO 210
02700     804  003130  000075                    75                      ;THE ERROR NUMBER IS 75
02800     805
02900     806  003132  022767  000514  175274    CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R4)
03000     807  003140  001402                    BEQ     .+6             ;BRANCH IF OK
03100     808  003142  104000                    HLT                     ;STACK POINTER (R4) NOT EQUAL TO #STACK4
03200     809  003144  000076                    76                      ;THE ERROR NUMBER IS 76
03300     810
03400     811  003146  022767  177777  175262    CMP     #177777,ANS1    ;CHECK FIRST HALF OF ANSWER
03500     812  003154  001402                    BEQ     .+6             ;BRANCH IF OK
03600     813  003156  104002                    HLT+2                   ;ANS1 NOT EQUAL TO 177777
03700     814  003160  000077                    77                      ;THE ERROR NUMBER IS 77
03800     815
03900     816  003162  022767  177777  175250    CMP     #177777,ANS2    ;CHECK SECOND HALF OF ANSWER
04000     817  003170  001402                    BEQ     .+6             ;BRANCH IF OK
04100     818  003172  104002                    HLT+2                   ;ANS2 NOT EQUAL TO 177777
04200     819  003174  000100                    100                     ;THE ERROR NUMBER IS 100
04300     820
04400     821  003176  122767  000015  175200  END15:  CMPB    #15,    $TESTN  ;CHECK THE TEST NUMBER
04500     822  003204  001402                    BEQ     .+6             ;BRANCH IF OK
04600     823  003206  104000                    HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     824  003210  000101                    101                     ;THE ERROR NUMBER IS 101
04800     825
04900     826
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00100
00200
00300
00400     827
00500     828                    ;*****************************************************************
00600     829                    ;TEST 16:       FADD (LSI-11 FLOATING ADD INSTRUCTION)
00700     830                    ;       004000,105004 + 104000,104000   000401,000000
00800     831                    ;       PS = 000,       STACK POINTER   PC
00900     832                    ;*****************************************************************
01000     833
01100     834  003212  104400                        SCOPE
01200     835  003214  004567  013140      TST16:    JSR     R5,     PUSH7   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300     836  003220  003244                        .WORD   STK16           ;TOP OF STACK
01400     837  003222  104000  104000                .WORD   104000,104000   ;SECOND OPERAND ON TOP
01500     838  003226  004000  105004                .WORD   004000,105004   ;FIRST OPERAND ON BOTTOM
01600     839  003232  000144                        .WORD   144             ;PROCESSOR PRIORITY LEVEL
01700     840  003234  016456  000340                .WORD   TRAPER,340      ;FIS TRAP VECTOR
01800     841
01900     842  003240  000240                        NOP
02000     843  003242  075007                        FADD    PC              ;FLOATING ADD ON FOLLOWING 4 WORDS
02100     844  003244  104000      STK16:    104000                          ;SHOULD CONTAIN 104000
02200     845  003246  104000                104000                          ;SHOULD CONTAIN 104000
02300     846  003250  004000                004000                          ;BEFORE FADD, 004000; AFTER, 000401
02400     847  003252  105004                105004                          ;BEFORE FADD, 105004; AFTER, 000000
02500     848
02600     849  003254  004767  013130                JSR     PC,     POP7    ;POP THE ANSWER
02700     850  003260  105767  175146                TSTB    $PSW            ;CHECK PS (EXCEPT T BIT)
02800     851  003264  001402                        BEQ     .+6             ;BRANCH IF OK
02900     852  003266  104000                        HLT                     ;PS NOT EQUAL TO 000
03000     853  003270  000102                        102                     ;THE ERROR NUMBER IS 102
03100     854
03200     855  003272  022767  104000  175136        CMP     #104000,ANS1    ;CHECK FIRST HALF OF INPUT DATA (STK16)
03300     856  003300  001402                        BEQ     .+6             ;BRANCH IF OK
03400     857  003302  104002                        HLT+2                   ;ANS1 NOT EQUAL TO 104000
03500     858  003304  000103                        103                     ;THE ERROR NUMBER IS 103
03600     859
03700     860  003306  022767  104000  175124        CMP     #104000,ANS2    ;CHECK SECOND HALF OF INPUT DATA (STK16+2)
03800     861  003314  001402                        BEQ     .+6             ;BRANCH IF OK
03900     862  003316  104002                        HLT+2                   ;ANS2 NOT EQUAL TO 104000
04000     863  003320  000104                        104                     ;THE ERROR NUMBER IS 104
04100     864
04200     865  003322  022767  000401  175112        CMP     #000401,ANS3    ;CHECK FIRST HALF OF ANSWER
04300     866  003330  001402                        BEQ     .+6             ;BRANCH IF OK
04400     867  003332  104004                        HLT+4                   ;ANS3 NOT EQUAL TO 000401
04500     868  003334  000105                        105                     ;THE ERROR NUMBER IS 105
04600     869
04700     870  003336  005767  175102                TST     ANS4            ;CHECK SECOND HALF OF ANSWER
04800     871  003342  001402                        BEQ     .+6             ;BRANCH IF OK
04900     872  003344  104004                        HLT+4                   ;ANS4 NOT EQUAL TO 000000
05000     873  003346  000106                        106                     ;THE ERROR NUMBER IS 106
05100     874
05200     875  003350  122767  000016  175026  END16:    CMPB    #16.,   $TESTN  ;CHECK THE TEST NUMBER
05300     876  003356  001402                        BEQ     .+6             ;BRANCH IF OK
05400     877  003360  104000                        HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
05500     878  003362  000107                        107                     ;THE ERROR NUMBER IS 107
05600     879
05700     880
05800     881
05900     882                    ;*****************************************************************
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 22
00200   CVKACC.P11     16-AUG-78 08:41          TEST FLOATING ADD INSTRUCTION WITH UNDERFLOW                    SEQ 0036
00300
00400       883                                 ;TEST 17:       FADD (LSI-11 FLOATING ADD INSTRUCTION)
00500       884                                 ;       100200,000000 + 000377,177777   > UNDERFLOW
00600       885                                 ;       PS(ON STACK)   012,     STACK POINTER = R3
00700       886                                 ;*****************************************************************
00800       887
00900       888  003364  104400                            SCOPE
01000       889  003366  004567  012614          TST17:    JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R3 STACK, SET PRIORITY
01100       890  003372  000377  177777                    .WORD   000377,177777   ;SECOND OPERAND ON TOP
01200       891  003376  100200  000000                    .WORD   100200,000000   ;FIRST OPERAND ON BOTTOM
01300       892  003402  000157                            .WORD   157             ;PROCESSOR PRIORITY LEVEL
01400       893  003404  003436  000000                    .WORD   ISR17,  000     ;FIS TRAP VECTOR
01500       894  003410  012703  000510                    MOV     #STACK0,R3      ;SET UP R3 AS STACK POINTER
01600       895
01700       896  003414  000240                            NOP
01800       897  003416  075003                            FADD    R3              ;FLOATING ADD ON THE R3 STACK
01900       898
02000       899  003420  004767  012614          RTA17:    JSR     PC,     POPR    ;POP THE ''ANSWER''
02100       900  003424  010367  175004                    MOV     R3,     $SP     ;SAVE STACK POINTER (R3)
02200       901  003430  104002                            HLT+2                   ;FIS TRAP DIDN'T OCCURE!
02300       902  003432  000110                            110                     ;THE ERROR NUMBER IS 110
02400       903  003434  000462                            BR      END17
02500       904
02600       905  003436  004767  012626          ISR17:    JSR     PC,     POPER   ;POP ALL DATA OFF THE STACKS
02700       906  003442  010367  174766                    MOV     R3,     $SP     ;SAVE STACK POINTER (R3)
02800       907  003446  105767  174760                    TSTB    $PSW            ;CHECK PS AFTER FIS TRAP
02900       908  003452  001402                            BEQ     .+6             ;BRANCH IF OK
03000       909  003454  104000                            HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 000
03100       910  003456  000111                            111                     ;THE ERROR NUMBER IS 111
03200       911
03300       912  003460  022767  000510  174746          CMP     #STACK0,$SP     ;CHECK THE STACK POINTER (R3)
03400       913  003466  001402                            BEQ     .+6             ;BRANCH IF OK
03500       914  003470  104000                            HLT                     ;STACK POINTER (R3) NOT EQUAL TO #STACK0
03600       915  003472  000112                            112                     ;THE ERROR NUMBER IS 112
03700       916
03800       917  003474  022767  003420  174734          CMP     #RTA17, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
03900       918  003502  001402                            BEQ     .+6             ;BRANCH IF OK
04000       919  003504  104001                            HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04100       920  003506  000113                            113                     ;THE ERROR NUMBER IS 113
04200       921
04300       922  003510  022767  000012  174722          CMP     #012,   ANS2    ;CHECK PS BEFORE FIS TRAP
04400       923  003516  001402                            BEQ     .+6             ;BRANCH IF OK
04500       924  003520  104002                            HLT+2                   ;PS AT FIS TRAP TIME NOT 012
04600       925  003522  000114                            114                     ;THE ERROR NUMBER IS 114
04700       926
04800       927  003524  022767  000377  174710          CMP     #000377,ANS3    ;CHECK DATA FROM THE STACK
04900       928  003532  001402                            BEQ     .+6             ;BRANCH IF OK
05000       929  003534  104004                            HLT+4                   ;DATA ON STACK (000377) CHANGED
05100       930  003536  000115                            115                     ;THE ERROR NUMBER IS 115
05200       931
05300       932  003540  022767  177777  174676          CMP     #177777,ANS4    ;CHECK DATA FROM STACK
05400       933  003546  001402                            BEQ     .+6             ;BRANCH IF OK
05500       934  003550  104004                            HLT+4                   ;DATA ON STACK (177777) CHANGED
05600       935  003552  000116                            116                     ;THE ERROR NUMBER IS 116
05700       936
05800       937  003554  022767  100200  174664          CMP     #100200,ANS5    ;CHECK DATA FROM STACK
05900       938  003562  001402                            BEQ     .+6             ;BRANCH IF OK
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 23
00200   CVKACC.P11     16-AUG-78 08:41          TEST FLOATING ADD INSTRUCTION WITH UNDERFLOW                    SEQ 0031
00300
00400       939  003564  104006                                  HLT+6                   ;DATA ON STACK (100200) CHANGED
00500       940  003566  000117                                  117                     ;THE ERROR NUMBER IS 117
00600       941
00700       942  003570  005767  174654                          TST     ANS6            ;CHECK DATA FROM STACK
00800       943  003574  001402                                  BEQ     .+6             ;BRANCH IF OK
00900       944  003576  104006                                  HLT+6                   ;DATA ON STACK (000000) CHANGED
01000       945  003600  000120                                  120                     ;THE ERROR NUMBER IS 120
01100       946
01200       947  003602  122767  000017  174574          END17:  CMPB    #17,    $TESTN  ;CHECK THE TEST NUMBER
01300       948  003610  001402                                  BEQ     .+6             ;BRANCH IF OK
01400       949  003612  104000                                  HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
01500       950  003614  000121                                  121                     ;THE ERROR NUMBER IS 121
01600       951
01700       952
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00100  CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 24
00200  CVKACC.P11    16-AUG-78 08:41          TEST FLOATING ADD INSTRUCTION WITH UNDERFLOW                    SEQ 0032
00300
00400      953
00500      954
00600      955
00700      956
00800      957
00900      958
01000      959
01100      960  003616  104400                          ;*****************************************************************
01200      961  003620  004567  012210                  ;TEST 20:       FADD (LSI-11 FLOATING ADD INSTRUCTION)
01300      962  003624  100377  177777                  ;       000200,000000 + 100377,177777 ==> UNDERFLOW
01400      963  003630  000200  000000                  ;       PS(ON STACK) - 212,     STACK POINTER = SP
01500      964  003634  000257                          ;*****************************************************************
01600      965  003636  003664  000340
01700      966
01800      967  003642  000240                          TST20:  SCOPE
01900      968  003644  075006                                  JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
02000      969                                                  .WORD   100377,177777   ;SECOND OPERAND ON TOP
02100      970  003646  004767  012222                          .WORD   000200,000000   ;FIRST OPERAND ON BOTTOM
02200      971  003652  104002                                  .WORD   257             ;PROCESSOR PRIORITY LEVEL
02300      972  003654  000122                                  .WORD   ISR20,  340     ;FIS TRAP VECTOR
02400      973  003656  012706  000600
02500      974  003662  000463                                  NOP
02600      975                                                  FADD    SP              ;FLOATING ADD ON THE STACK
02700      976  003664  004767  012236
02800      977  003670  022706  000600                  RTA20:  JSR     PC,     POPS    ;POP THE ''ANSWER''
02900      978  003674  001405                                  HLT+2                   ;FIS TRAP DIDN'T OCCURE!
03000      979  003676  012706  00060C                          122                     ;THE ERROR NUMBER IS 122
03100      980  003702  104000                                  MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
03200      981  003704  000123                                  BR      END20
03300      982  003706  000451
03400      983
03500      984  003710  122767  000340  174514          ISR20:  JSR     PC,     POPES   ;POP ALL DATA OFF THE STACK
03600      985  003716  001402                                  CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
03700      986  003720  104000                                  BEQ     ISA20           ;BRANCH IF OK
03800      987  003722  000124                                  MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
03900      988                                                  HLT                     ;STACK POINTER FOULED UP
04000      989  003724  022767  C03646  174504                  123                     ;THE ERROR NUMBER IS 123
04100      990  003732  001402                                  BR      END20           ;SKIP REST OF TEST
04200      991  003734  104001
04300      992  003736  000125                          ISA20:  CMPB    #340,   $PSW    ;CHECK PS AFTER FIS TRAP
04400      993                                                  BEQ     .+6             ;BRANCH IF OK
04500      994  003740  022767  000212  174472                  HLT                     ;PS AFTER FIS TRAP NOT FQUAL TO 340
04600      995  003746  001402                                  '24                     ;THE ERROR NUMBER IS 124
04700      996  003750  104002
04800      997  003752  000126                                  CMP     #RTA20, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04900      998                                                  BEQ     .+6             ;BRANCH IF OK
05000      999  003754  022767  100377  174460                  HLT+1                   ;FIS TRAP AT WRONG ADDRESS
05100     1000  003762  001402                                  125                     ;THE ERROR NUMBER IS 125
05200     1001  003764  104004
05300     1002  003766  000127                                  CMP     #212,   ANS2    ;CHECK PS BEFORE FIS TRAP
05400     '003                                                 BEQ     .+6             ;BRANCH IF OK
05500     1004  003770  022767  177777  174446                  HLT+2                   ;PS AT FIS TRAP TIME NOT 212
05600     1005  003776  001402                                  126                     ;THE ERROR NUMBER IS 126
05700     1006  004000  104004
05800     1007  004002  000130                                  CMP     #100377,ANS3    ;CHECK DATA FROM THE STACK
05900     1010                                                 BEQ     .+6             ;BRANCH IF OK
                                                               HLT+4                   ;DATA ON STACK (100377) CHANGED
                                                               127                     ;THE ERROR NUMBER IS 127

                                                               CMP     #177777,ANS4    ;CHECK DATA FROM STACK
                                                               BEQ     .+6             ;BRANCH IF OK
                                                               HLT+4                   ;DATA ON STACK (177777) CHANGED
                                                               130                     ;THE ERROR NUMBER IS 130
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 25
00200   CVKACC.P11    16-AUG-78 08:41          TEST FLOATING ADD INSTRUCTION WITH UNDERFLOW                    SEQ 0033
00300
00400     1009  004004  022767  000200  174434              CMP     #000200,ANS5    ;CHECK DATA FROM STACK
00500     1010  004012  001402                              BEQ     .+6             ;BRANCH IF OK
00600     1011  004014  104006                              HLT+6                   ;DATA ON STACK (000200) CHANGED
00700     1012  004016  000131                              131                     ;THE ERROR NUMBER IS 131
00800     1013
00900     1014  004020  005767  174424                      TST     ANS6            ;CHECK DATA FROM STACK
01000     1015  004024  001402                              BEQ     .+6             ;BRANCH IF OK
01100     1016  004026  104006                              HLT+6                   ;DATA ON STACK (000000) CHANGED
01200     1017  004030  000132                              132                     ;THE ERROR NUMBER IS 132
01300     1018
01400     1019  004032  122767  000020  174344    END20:    CMPB    #20,    $TESTN  ;CHECK THE TEST NUMBER
01500     1020  004040  001402                              BEQ     .+6             ;BRANCH IF OK
01600     1021  004042  104000                              HLT                     ;WRONG TEST   PC MUST HAVE FOULED UP.
01700     1022  004044  000133                              133                     ;THE ERROR NUMBER IS 133
01800     1023
01900     1024
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00100  CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 26
00200  CVKACC.P11    16-AUG-78 08:41          TEST FLOATING ADD INSTRUCTION WITH OVERFLOW                    SEQ 0034
00300
00400   1025
00500   1026
00600   1027
00700   1028
00800   1029
00900   1030
01000   1031
01100   1032  004046  104400                  SCOPE
01200   1033  004050  004567  012132  TST21:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R1 STACK, SET PRIORITY
01300   1034  004054  177652  125252          .WORD   177652,125252   ;SECOND OPERAND ON TOP
01400   1035  004060  177452  125253          .WORD   177452,125253   ;FIRST OPERAND ON BOTTOM
01500   1036  004064  000105                  .WORD   105             ;PROCESSOR PRIORITY LEVEL
01600   1037  004066  004120  000252          .WORD   ISR21,  252     ;FIS TRAP VECTOR
01700   1038  004072  012701  000510          MOV     #STACK0,R1      ;SET UP R1 AS STACK POINTER
01800   1039
01900   1040  004076  000240                  NOP
02000   1041  004100  075001                  FADD    R1              ;FLOATING ADD ON THE R1 STACK
02100   1042
02200   1043  004102  004767  012132  RTA21:  JSR     PC,     POPR    ;POP THE ''ANSWER''
02300   1044  004106  010167  174322          MOV     R1,     $SP     ;SAVE STACK POINTER (R1)
02400   1045  004112  104002                  HLT+2                   ;FIS TRAP DIDN'T OCCURE!
02500   1046  004114  000134                  134                     ;THE ERROR NUMBER IS 134
02600   1047  004116  000464                  BR      END21
02700   1048
02800   1049  004120  004767  012144  ISR21:  JSR     PC,     POPER   ;POP ALL DATA OFF THE STACKS
02900   1050  004124  010167  174304          MOV     R1,     $SP     ;SAVE STACK POINTER (R1)
03000   1051  004130  122767  000252  174274  CMPB    #252,   $PSW    ;CHECK PS AFTER FIS TRAP
03100   1052  004136  001402                  BEQ     .+6             ;BRANCH IF OK
03200   1053  004140  104000                  HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 252
03300   1054  004142  000135                  135                     ;THE ERROR NUMBER IS 135
03400   1055
03500   1056  004144  022767  000510  174262  CMP     #STACK0,$SP     ;CHECK THE STACK POINTER (R1)
03600   1057  004152  001402                  BEQ     .+6             ;BRANCH IF OK
03700   1058  004154  104000                  HLT                     ;STACK POINTER (R1) NOT EQUAL TO #STACK0
03800   1059  004156  000136                  136                     ;THE ERROR NUMBER IS 136
03900   1060
04000   1061  004160  022767  004102  174250  CMP     #RTA21, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04100   1062  004166  001402                  BEQ     .+6             ;BRANCH IF OK
04200   1063  004170  104001                  HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04300   1064  004172  000137                  137                     ;THE ERROR NUMBER IS 137
04400   1065
04500   1066  004174  022767  000002  174236  CMP     #002,   ANS2    ;CHECK PS BEFORE FIS TRAP
04600   1067  004202  001402                  BEQ     .+6             ;BRANCH IF OK
04700   1068  004204  104002                  HLT+2                   ;PS AT FIS TRAP TIME NOT 002
04800   1069  004206  000140                  #140                    ;THE ERROR NUMBER IS 140
04900   1070
05000   1071  004210  022767  177652  174224  CMP     #177652,ANS3    ;CHECK DATA FROM THE STACK
05100   1072  004216  001402                  BEQ     .+6             ;BRANCH IF OK
05200   1073  004220  104004                  HLT+4                   ;DATA ON STACK (177652) CHANGED
05300   1074  004222  000141                  141                     ;THE ERROR NUMBER IS 141
05400   1075
05500   1076  004224  022767  125252  174212  CMP     #125252,ANS4    ;CHECK DATA FROM STACK
05600   1077  004232  001402                  BEQ     .+6             ;BRANCH IF OK
05700   1078  004234  104004                  HLT+4                   ;DATA ON STACK (125252) CHANGED
05800   1079  004236  000142                  142                     ;THE ERROR NUMBER IS 142
05900   1080
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 27
00200   CVKACC.P11     16-AUG-78 08:41          TEST FLOATING ADD INSTRUCTION WITH OVERFLOW                    SEQ 0035
00300
00400     1081  004240  022767  177452  174200                  CMP     #177452,ANS5    ;CHECK DATA FROM STACK
00500     1082  004246  001402                                  BEQ     .+6             ;BRANCH IF OK
00600     1083  004250  104006                                  HLT+6                   ;DATA ON STACK (177452) CHANGED
00700     1084  004252  000143                                  143                     ;THE ERROR NUMBER IS 143
00800     1085
00900     1086  004254  022767  125253  174166                  CMP     #125253,ANS6    ;CHECK,DATA FROM STACK
01000     1087  004262  001402                                  BEQ     .+6             ;BRANCH IF OK
01100     1088  004264  104006                                  HLT+6                   ;DATA ON STACK (125253) CHANGED
01200     1089  004266  000144                                  144                     ;THE ERROR NUMBER IS 144
01300     1090
01400     1091  004270  122767  000021  174106          END21:  CMPB    #21,    $TESTN  ;CHECK THE TEST NUMBER
01500     1092  004276  001402                                  BEQ     .+6             ;BRANCH IF OK
01600     1093  004300  104000                                  HLT                     ;WRONG TEST!  FC MUST HAVE FOULED UP.
01700     1094  004302  000145                                  145                     ;THE ERROR NUMBER IS 145
01800     1095
01900     1096
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 28
00200   CVKACC.P11     16-AUG-78 08:47          TEST FLOATING ADD INSTRUCTION WITH OVERFLOW                    SEQ 0036
00300
00400     1097
00500     1098                          ;*****************************************************************************
00600     1099                          ;TEST 22:       FADD (LSI-11 FLOATING ADD INSTRUCTION)
00700     1100                          ;       077652,125253 + 077452,125252 -=> OVERFLOW
00800     1101                          ;       PS(ON STACK) = 002,     STACK POINTER   SP
00900     1102                          ;*****************************************************************************
01000     1103
01100     1104  004304  104400                        SCOPE
01200     1105  004306  004567  011522   TST22:  JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300     1106  004312  077452  125252            .WORD   077452,125252   ;SECOND OPERAND ON TOP
01400     1107  004316  077652  125253            .WORD   077652,125253   ;FIRST OPERAND ON BOTTOM
01500     1108  004322  000003                    .WORD   003             ;PROCESSOR PRIORITY LEVEL
01600     1109  004324  004352  000344            .WORD   ISR22,  344     ;FIS TRAP VECTOR
01700     1110
01800     1111  004330  000240                    NOP
01900     1112  004332  075006                    FADD    SP              ;FLOATING ADD ON THE STACK
02000     1113
02100     1114  004334  004767  011534   RTA22:  JSR     PC,     POPS    ;POP THE 'ANSWER'
02200     1115  004340  104002                    HLT+2                   ;FIS TRAP DIDN'T OCCURE!
02300     1116  004342  000146                    146                     ;THE ERROR NUMBER IS 146
02400     1117  004344  012706  000600            MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
02500     1118  004350  000464                    BR      END22
02600     1119
02700     1120  004352  004767  011550   ISR22:  JSR     PC,     POPES   ;POP ALL DATA OFF THE STACK
02800     1121  004356  022706  000600            CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02900     1122  004362  001405                    BEQ     ISA22           ;BRANCH IF OK
03000     1123  004364  012706  000600            MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
03100     1124  004370  104000                    HLT                     ;STACK POINTER FOULED UP
03200     1125  004372  000147                    147                     ;THE ERROR NUMBER IS 147
03300     1126  004374  000452                    BR      END22           ;SKIP REST OF TEST
03400     1127
03500     1128  004376  122767  000344  174026   ISA22:  CMPB    #344,   $PSW    ;CHECK PS AFTER FIS TRAP
03600     1129  004404  001402                    BEQ     .+6             ;BRANCH IF OK
03700     1130  004406  104000                    HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 344
03800     1131  004410  000150                    150                     ;THE ERROR NUMBER IS 150
03900     1132
04000     1133  004412  022767  004334  174016           CMP     #RTA22, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04100     1134  004420  001402                    BEQ     .+6             ;BRANCH IF OK
04200     1135  004422  104001                    HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04300     1136  004424  000151                    151                     ;THE ERROR NUMBER IS 151
04400     1137
04500     1138  004426  022767  000002  174004           CMP     #002,   ANS2    ;CHECK PS BEFORE FIS TRAP
04600     1139  004434  001402                    BEQ     .+6             ;BRANCH IF OK
04700     1140  004436  104002                    HLT+2                   ;PS AT FIS TRAP TIME NOT 002
04800     1141  004440  000152                    152                     ;THE ERROR NUMBER IS 152
04900     1142
05000     1143  004442  022767  077452  173772           CMP     #077452,ANS3    ;CHECK DATA FROM THE STACK
05100     1144  004450  001402                    BEQ     .+6             ;BRANCH IF OK
05200     1145  004452  104004                    HLT+4                   ;DATA ON STACK (077452) CHANGED
05300     1146  004454  000153                    153                     ;THE ERROR NUMBER IS 153
05400     1147
05500     1148  004456  022767  125252  173760           CMP     #125252,ANS4    ;CHECK DATA FROM STACK
05600     1149  004464  001402                    BEQ     .+6             ;BRANCH IF OK
05700     1150  004466  104004                    HLT+4                   ;DATA ON STACK (125252) CHANGED
05800     1151  004470  000154                    154                     ;THE ERROR NUMBER IS 154
05900     1152
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00100   CVKA2C  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 29
00200   CVKA2C.P11     16-AUG-78 08:41          TEST FLOATING ADD INSTRUCTION WITH OVERFLOW                    SEQ 0037
00300
00400     1153  004472  022767  077652  173746              CMP     #077652,ANS5    ;CHECK DATA FROM STACK
00500     1154  004500  001402                              BEQ     .+6             ;BRANCH IS OK
00600     1155  004502  104006                              HLT+6                   ;DATA ON STACK (077652) CHANGED
00700     1156  004504  000155                              155                     ;THE ERROR NUMBER IS 155
00800     1157
00900     1158  004506  022767  125253  173734              CMP     #125253,ANS6    ;CHECK DATA FROM STACK
01000     1159  004514  001402                              BEQ     .+6             ;BRANCH IF OK
01100     1160  004516  104006                              HLT+6                   ;DATA ON STACK (125253) CHANGED
01200     1161  004520  000156                              156                     ;THE ERROR NUMBER IS 156
01300     1162
01400     1163  004522  122767  000022  173654  END22:     CMPB    #22.    $TEST#  ;CHECK THE TEST NUMBER
01500     1164  004530  001402                              BEQ     .+6             ;BRANCH IF OK
01600     1165  004532  104000                              HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
01700     1166  004534  000157                              157                     ;THE ERROR NUMBER IS 157
01800     1167
01900     1168
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00300
00400    1169
00500    1170
00600    1171                    ;**********************************************************************
00700    1172                    ;TEST 23:      FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00800    1173                    ;       177520,017552 - 135352,051107 = 177520,017552
00900    1174                    ;       PS = 010,      STACK POINTER - R1
01000    1175                    ;**********************************************************************
01100    1176  004536  104400                      .
01200    1177  004540  004567  011442              SCOPE                   .
01300    1178  004544  135352  051107    TST23:    JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R1 STACK, SET PRIORITY
01400    1179  004550  177520  017552              .WORD   135352,051107   ;SECOND OPERAND ON TOP
01500    1180  004554  000040                      .WORD   177520,017552   ;FIRST OPERAND ON BOTTOM
01600    1181  004556  016456  000340              .WORD   040             ;PROCESSOR PRIORITY LEVEL
01700    1182  004562  012701  000510              .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01800    1183                                      MOV     #STACK0,R1      ;SET UP STACK POINTER
01900    1184  004566  000240                      NOP
02000    1185  004570  075011                      FSUB    R1              ;FLOATING SUBTRACT ON THE R1 STACK
02100    1186
02200    1187  004572  004767  011442              JSR     PC,     POPR    ;POP THE ANSWER
02300    1188  004576  010167  173632              MOV     R1,     $SP     ;SAVE "STACK POINTER"
02400    1189  004602  122767  000010  173622      CMPB    #010,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500    1190  004610  001402                      BEQ     .+6             ;BRANCH IF OK
02600    1191  004612  104000                      HLT                     ;PS NOT EQUAL TO 010
02700    1192  004614  000160                      160                     ;THE ERROR NUMBER IS 160
02800    1193
02900    1194  004616  022767  000514  173610      CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R1)
03000    1195  004624  001402                      BEQ     .+6             ;BRANCH IF OK
03100    1196  004626  104000                      HLT                     ;STACK POINTER (R1) NOT EQUAL TO #STACK4
03200    1197  004630  000161                      161                     ;THE ERROR NUMBER IS 161
03300    1198
03400    1199  004632  022767  177520  173576      CMP     #177520,ANS1    ;CHECK FIRST HALF OF ANSWER
03500    1200  004640  001402                      BEQ     .+6             ;BRANCH IF OK
03600    1201  004642  104002                      HLT+2                   ;ANS1 NOT EQUAL TO 177520
03700    1202  004644  000162                      162                     ;THE ERROR NUMBER IS 162
03800    1203
03900    1204  004646  022767  017552  173564      CMP     #017552,ANS2    ;CHECK SECOND HALF OF ANSWER
04000    1205  004654  001402                      BEQ     .+6             ;BRANCH IF OK
04100    1206  004656  104002                      HLT+2                   ;ANS2 NOT EQUAL TO 017552
04200    1207  004660  000163                      163                     ;THE ERROR NUMBER IS 163
04300    1208
04400    1209  004662  122767  000023  173514  END23:  CMPB    #23.    $TESTN  ;CHECK THE TEST NUMBER
04500    1210  004670  001402                      BEQ     .+6             ;BRANCH IF OK
04600    1211  004672  104000                      HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
04700    1212  004674  000164                      164                     ;THE ERROR NUMBER IS 164
04800    1213
04900    1214
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 31
00200   CVKACC.P11    16-AUG-78 08:41          FSUB TEST SECTION                                SEQ 0039
00300
00400     1215
00500     1216
00600     1217                                 ;*****************************************************************
00700     1218                                 ;TEST 24:       FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00800     1219                                 ;       125252,125252 - 125252,125253 = 017400,000000
00900     1220                                 ;       PS = 000,       STACK POINTER   R0
01000     1221                                 ;*****************************************************************
01100     1222  004676  104400                          SCOPE
01200     1223  004700  004567  011302         TST24:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R0 STACK, SET PRIORITY
01300     1224  004704  125252  125253                 .WORD   125252,125253   ;SECOND OPERAND ON TOP
01400     1225  004710  125252  125252                 .WORD   125252,125252   ;FIRST OPERAND ON BOTTOM
01500     1226  004714  000047                         .WORD   047             ;PROCESSOR PRIORITY LEVEL
01600     1227  004716  016456  000340                 .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700     1228  004722  012700  000510                 MOV     #STACK0,R0      ;SET UP STACK POINTER
01800     1229
01900     1230  004726  000240                         NOP
02000     1231  004730  075010                         FSUB    R0              ;FLOATING SUBTRACT ON THE R0 STACK
02100     1232
02200     1233  004732  004767  011302                 JSR     PC,     POPR    ;POP THE ANSWER
02300     1234  004736  010067  173472                 MOV     R0,     $SP     ;SAVE 'STACK POINTER'
02400     1235  004742  105767  173464                 TSTB    $PSW            ;CHECK PS (EXCEPT T BIT)
02500     1236  004746  001402                         BEQ     .+6             ;BRANCH IF OK
02600     1237  004750  104000                         HLT                     ;PS NOT EQUAL TO 000
02700     1238  004752  000165                         165                     ;THE ERROR NUMBER IS 165
02800     1239
02900     1240  004754  022767  000514  173452       CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R0)
03000     1241  004762  001402                         BEQ     .+6             ;BRANCH IF OK
03100     1242  004764  104000                         HLT                     ;STACK POINTER (R0) NOT EQUAL TO #STACK4
03200     1243  004766  000166                         166                     ;THE ERROR NUMBER IS 166
03300     1244
03400     1245  004770  022767  017400  173440       CMP     #017400,ANS1    ;CHECK FIRST HALF OF ANSWER
03500     1246  004776  001402                         BEQ     .+6             ;BRANCH IF OK
03600     1247  005000  104002                         HLT+2                   ;ANS1 NOT EQUAL TO 017400
03700     1248  005002  000167                         167                     ;THE ERROR NUMBER IS 167
03800     1249
03900     1250  005004  005767  173430                 TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000     1251  005010  001402                         BEQ     .+6             ;BRANCH IF OK
04100     1252  005012  104002                         HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200     1253  005014  000170                         170                     ;THE ERROR NUMBER IS 170
04300     1254
04400     1255  005016  122767  000024  173360 END24:  CMPB    #24,    $TESTN  ;CHECK THE TEST NUMBER
04500     1256  005024  001402                         BEQ     .+6             ;BRANCH IF OK
04600     1257  005026  104000                         HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     1258  005030  000171                         171                     ;THE ERROR NUMBER IS 171
04800     1259
04900     1260
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00100   CVKACC  MA(V11 30A(1052)  21-AUG-78  15:28  PAGE 32
00200   CVKACC.P11    16-AUG-78 08:41          FSUB TEST SECTION
00300
00400     1261
00500     1262
00600     1263                          ;*****************************************************************
00700     1264                          ;TEST 25:      FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00800     1265                          ;       002460,123456 - 100177,177777 = 002460,123456
00900     1266                          ;       PS   000,      STACK POINTER   SP
01000     1267                          ;*****************************************************************
01100     1268  005032  104400                      SCOPE
01200     1269  005034  004567  010774  TST25:  JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300     1270  005040  100177  177777          .WORD   100177,177777   ;SECOND OPERAND ON TOP
01400     1271  005044  002460  123456          .WORD   002460,123456   ;FIRST OPERAND ON BOTTOM
01500     1272  005050  000015                  .WORD   015             ;PROCESSOR PRIORITY LEVEL
01600     1273  005052  016456  000340          .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700     1274
01800     1275  005056  000240                  NOP
01900     1276  005060  075016                  FSUB    SP              ;FLOATING SUBTRACT ON THE STACK
02000     1277
02100     1278  005062  004767  011006          JSR     PC,     POPS    ;POP THE ANSWER
02200     1279  005066  022706  000600          CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02300     1280  005072  001405                  BEQ     TSA25           ;BRANCH IF OK
02400     1281  005074  012706  000600          MOV     #BEGIN, SP      ;RESTORE STACK POINTER
02500     1282
02600     1283
02700     1284
02800     1285
02900     1286
03000     1287
03100     1288  005100  104000                  HLT                     ;STACK POINTER FOULED UP
03200     1289  005102  000172                  172                     ;THE ERROR NUMBER IS 172
03300     1290  005104  000422                  BR      END25           ;SKIP REST OF TEST
03400     1291
03500     1292  005106  122767  000000  173316  TSA25:  CMPB    #000,   $PSW    ;CHECK PS (EXCEPT T BIT)
03600     1293  005114  001402                  BEQ     .+6             ;BRANCH IF OK
03700     1294  005116  104000                  HLT                     ;PS NOT EQUAL TO 000
03800     1295  005120  000173                  173                     ;THE ERROR NUMBER IS 173
03900     1296
04000     1297  005122  022767  002460  173306          CMP     #002460,ANS1    ;CHECK FIRST HALF OF ANSWER
04100     1298  005130  001402                  BEQ     .+6             ;BRANCH IF OK
04200     1299  005132  104002                  HLT+2                   ;ANS1 NOT EQUAL TO 002460
04300     1300  005134  000174                  174                     ;THE ERROR NUMBER IS 174
04400     1301
04500     1302  005136  022767  123456  173274          CMP     #123456,ANS2    ;CHECK SECOND HALF OF ANSWER
04600     1303  005144  001402                  BEQ     .+6             ;BRANCH IF OK
04700     1304  005146  104002                  HLT+2                   ;ANS2 NOT EQUAL TO 123456
04800     1305  005150  000175                  175                     ;THE ERROR NUMBER IS 175
04900     1306
05000     1307  005152  122767  000025  173224  END25:  CMPB    #25,    $TESTN  ;CHECK THE TEST NUMBER
05100     1308  005160  001402                  BEQ     .+6             ;BRANCH IF OK
05200     1309  005162  104000                  HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
05300     1310  005164  000176                  176                     ;THE ERROR NUMBER IS 176
05400     1311
05500     1312
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00300
00400    1313
00500    1314                    ;*****************************************************************************
00600    1315                    ;TEST 26:       FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00700    1316                    ;       000425,052525 - 000252,125252 = 000200,000000
00800    1317                    ;       PS - 200,       STACK POINTER = R4
00900    1318                    ;*****************************************************************************
01000    1319
01100    1320  005166  104400                      SCOPE
01200    1321  005170  004567  011012      TST26:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R4 STACK, SET PRIORITY
01300    1322  005174  000252  125252              .WORD   000252,125252   ;SECOND OPERAND ON TOP
01400    1323  005200  000425  052525              .WORD   000425,052525   ;FIRST OPERAND ON BOTTOM
01500    1324  005204  000217                      .WORD   217             ;PROCESSOR PRIORITY LEVEL
01600    1325  005206  016456  000340              .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700    1326  005212  012704  000510              MOV     #STACK0,R4      ;SET UP STACK POINTER
01800    1327
01900    1328  005216  000240                      NOP
02000    1329  005220  075014                      FSUB    R4              ;FLOATING SUBTRACT ON THE R4 STACK
02100    1330
02200    1331  005222  004767  011012              JSR     PC,     POPR    ;POP THE ANSWER
02300    1332  005226  010467  173202              MOV     R4,     $SP     ;SAVE ''STACK POINTER''
02400    1333  005232  122767  000200  173172      CMPB    #200,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500    1334  005240  001402                      BEQ     .+6             ;BRANCH IF OK
02600    1335  005242  104000                      HLT                     ;PS NOT EQUAL TO 200
02700    1336  005244  000177                      177                     ;THE ERROR NUMBER IS 177
02800    1337
02900    1338  005246  022767  000514  173160      CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R4)
03000    1339  005254  001402                      BEQ     .+6             ;BRANCH IF OK
03100    1340  005256  104000                      HLT                     ;STACK POINTER (R4) NOT EQUAL TO #STACK4
03200    1341  005260  000200                      200                     ;THE ERROR NUMBER IS 200
03300    1342
03400    1343  005262  022767  000200  173146      CMP     #000200,ANS1    ;CHECK FIRST HALF OF ANSWER
03500    1344  005270  001402                      BEQ     .+6             ;BRANCH IF OK
03600    1345  005272  104002                      HLT+2                   ;ANS1 NOT EQUAL TO 000200
03700    1346  005274  000201                      201                     ;THE ERROR NUMBER IS 201
03800    1347
03900    1348  005276  005767  173136              TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000    1349  005302  001402                      BEQ     .+6             ;BRANCH IF OK
04100    1350  005304  104002                      HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200    1351  005306  000202                      202                     ;THE ERROR NUMBER IS 202
04300    1352
04400    1353  005310  122767  000026  173066      CMPB    #26,    $TESTN  ;CHECK THE TEST NUMBER
04500    1354  005316  001402                      BEQ     .+6             ;BRANCH IF OK
04600    1355  005320  104000                      HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700    1356  005322  000203                      203                     ;THE ERROR NUMBER IS 203
04800    1357
04900    1358
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 34
00200   CVKACC.P11    16-AUG-78 08:41          FSUB TEST SECTION
00300
00400     1359
00500     1360                          ;*****************************************************************************
00600     1361                          ;TEST 27:       FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00700     1362                          ;       177452,125252 - 077652,125252 = 177777,177777
00800     1363                          ;       PS = 210,       STACK POINTER   SP
00900     1364                          ;*****************************************************************************
01000     1365
01100     1366  005324  104400                          SCOPE
01200     1367  005326  004567  010502          TST27:  JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300     1368  005332  077652  125252                  .WORD   077652,125252   ;SECOND OPERAND ON TOP
01400     1369  005336  177452  125252                  .WORD   177452,125252   ;FIRST OPERAND ON BOTTOM
01500     1370  005342  000357                          .WORD   357             ;PROCESSOR PRIORITY LEVEL
01600     1371  005344  016456  000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700     1372
01800     1373  005350  000240                          NOP
01900     1374  005352  075016                          FSUB    SP              ;FLOATING SUBTRACT ON THE STACK
02000     1375
02100     1376  005354  004767  010514                  JSR     PC,     POPS    ;POP THE ANSWER
02200     1377  005360  022706  000600                  CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02300     1378  005364  001405                          BEQ     TSA27           ;BRANCH IF OK
02400     1379  005366  012706  000600                  MOV     #BEGIN, SP      ;RESTORE STACK POINTER
02500     1380
02600     1381
02700     1382
02800     1383
02900     1384
03000     1385
03100     1386  005372  104000                          HLT                     ;STACK POINTER FOULED UP
03200     1387  005374  000204                          204                     ;THE ERROR NUMBER IS 204
03300     1388  005376  000422                          BR      END27           ;SKIP REST OF TEST
03400     1389
03500     1390  005400  122767  000210  173024  TSA27:  CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
03600     1391  005406  001402                          BEQ     .+6             ;BRANCH IF OK
03700     1392  005410  104000                          HLT                     ;PS NOT EQUAL TO 210
03800     1393  005412  000205                          205                     ;THE ERROR NUMBER IS 205
03900     1394
04000     1395  005414  022767  177777  173014          CMP     #177777,ANS1    ;CHECK FIRST HALF OF ANSWER
04100     1396  005422  001402                          BEQ     .+6             ;BRANCH IF OK
04200     1397  005424  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 177777
04300     1398  005426  000206                          206                     ;THE ERROR NUMBER IS 206
04400     1399
04500     1400  005430  022767  177777  173002          CMP     #177777,ANS2    ;CHECK SECOND HALF OF ANSWER
04600     1401  005436  001402                          BEQ     .+6             ;BRANCH IF OK
04700     1402  005440  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 177777
04800     1403  005442  000207                          207                     ;THE ERROR NUMBER IS 207
04900     1404
05000     1405  005444  122767  000027  172732  END27:  CMPB    #27.    $TESTN  ;CHECK THE TEST NUMBER
05100     1406  005452  001402                          BEQ     .+6             ;BRANCH IF OK
05200     1407  005454  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
05300     1408  005456  000210                          210                     ;THE ERROR NUMBER IS 210
05400     1409
05500     1410
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 35
00200   CVKACC.P11    16-AUG-78 08:41          FSUB TEST SECTION                                SEQ 0043
00300
00400     1411
00500     1412                                  ;*****************************************************************************
00600     1413                                  ;TEST 30:       FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00700     1414                                  ;       035152,125252 - 043125,052525 = 143125,052524
00800     1415                                  ;       PS - 010,       STACK POINTER = R3
00900     1416                                  ;*****************************************************************************
01000     1417
01100     1418  005460  104400                                SCOPE
01200     1419  005462  004567  010520          TST30:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R3 STACK, SET PRIORITY
01300     1420  005466  043125  052525                  .WORD   043125,052525   ;SECOND OPERAND ON TOP
01400     1421  005472  035152  125252                  .WORD   035152,125252   ;FIRST OPERAND ON BOTTOM
01500     1422  005476  000147                          .WORD   147             ;PROCESSOR PRIORITY LEVEL
01600     1423  005500  016456  000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700     1424  005504  012703  000510                  MOV     #STACK0,R3      ;SET UP STACK POINTER
01800     1425
01900     1426  005510  000240                          NOP
02000     1427  005512  075013                          FSUB    R3              ;FLOATING SUBTRACT ON THE R3 STACK
02100     1428
02200     1429  005514  004767  010520                  JSR     PC,     POPR    ;POP THE ANSWER
02300     1430  005520  010367  172710                  MOV     R3,     $SP     ;SAVE "STACK POINTER"
02400     1431  005524  122767  000010  172700        CMPB    #010,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500     1432  005532  001402                          BEQ     .+6             ;BRANCH IF OK
02600     1433  005534  104000                          HLT                     ;PS NOT EQUAL TO 010
02700     1434  005536  000211                          211                     ;THE ERROR NUMBER IS 211
02800     1435
02900     1436  005540  022767  000514  172666        CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R3)
03000     1437  005546  001402                          BEQ     .+6             ;BRANCH IF OK
03100     1438  005550  104000                          HLT                     ;STACK POINTER (R3) NOT EQUAL TO #STACK4
03200     1439  005552  000212                          212                     ;THE ERROR NUMBER IS 212
03300     1440
03400     1441  005554  022767  143125  172654        CMP     #143125,ANS1    ;CHECK FIRST HALF OF ANSWER
03500     1442  005562  001402                          BEQ     .+6             ;BRANCH IF OK
03600     1443  005564  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 143125
03700     1444  005566  000213                          213                     ;THE ERROR NUMBER IS 213
03800     1445
03900     1446  005570  022767  052524  172642        CMP     #052524,ANS2    ;CHECK SECOND HALF OF ANSWER
04000     1447  005576  001402                          BEQ     .+6             ;BRANCH IF OK
04100     1448  005600  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 052524
04200     1449  005602  000214                          214                     ;THE ERROR NUMBER IS 214
04300     1450
04400     1451  005604  122767  000030  172572  END30:  CMPB    #30,    $TESTN  ;CHECK THE TEST NUMBER
04500     1452  005612  001402                          BEQ     .+6             ;BRANCH IF OK
04600     1453  005614  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     1454  005616  000215                          215                     ;THE ERROR NUMBER IS 215
04800     1455
04900     1456
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00100
00200
00300
00400
00500
00600
00700
00800
00900
01000
01100   1464  005620  104400                          SCOPE
01200   1465  005622  004567  010360          TST31:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R0 STACK, SET PRIORITY
01300   1466  005626  135152  125252                  .WORD   135152,125252   ;SECOND OPERAND ON TOP
01400   1467  005632  143325  052525                  .WORD   143325,052525   ;FIRST OPERAND ON BOTTOM
01500   1468  005636  000243                          .WORD   243             ;PROCESSOR PRIORITY LEVEL
01600   1469  005640  016456  000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700   1470  005644  012700  000510                  MOV     #STACK0,R0      ;SET UP STACK POINTER
01800   1471
01900   1472  005650  000240                          NOP
02000   1473  005652  075010                          FSUB    R0              ;FLOATING SUBTRACT ON THE R0 STACK
02100   1474
02200   1475  005654  004767  010360                  JSR     PC,     POPR    ;POP THE ANSWER
02300   1476  005660  010067  172550                  MOV     R0,     $SP     ;SAVE ''STACK POINTER''
02400   1477  005664  122767  000210  172540          CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500   1478  005672  001402                          BEQ     .+6             ;BRANCH IF OK
02600   1479  005674  104000                          HLT                     ;PS NOT EQUAL TO 210
02700   1480  005676  000216                          216                     ;THE ERROR NUMBER IS 216
02800   1481
02900   1482  005700  022767  000514  172526          CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R0)
03000   1483  005706  001402                          BEQ     .+6             ;BRANCH IF OK
03100   1484  005710  104000                          HLT                     ;STACK POINTER (R0) NOT EQUAL TO #STACK4
03200   1485  005712  000217                          217                     ;THE ERROR NUMBER IS 217
03300   1486
03400   1487  005714  022767  143325  172514          CMP     #143325,ANS1    ;CHECK FIRST HALF OF ANSWER
03500   1488  005722  001402                          BEQ     .+6             ;BRANCH IF OK
03600   1489  005724  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 143325
03700   1490  005726  000220                          220                     ;THE ERROR NUMBER IS 220
03800   1491
03900   1492  005730  022767  052525  172502          CMP     #052525,ANS2    ;CHECK SECOND HALF OF ANSWER
04000   1493  005736  001402                          BEQ     .+6             ;BRANCH IF OK
04100   1494  005740  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 052525
04200   1495  005742  000221                          221                     ;THE ERROR NUMBER IS 221
04300   1496
04400   1497  005744  122767  000031  172432  END31:  CMPB    #31,    $TESTN  ;CHECK THE TEST NUMBER
04500   1498  005752  001402                          BEQ     .+6             ;BRANCH IF OK
04600   1499  005754  104000                          HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
04700   1500  005756  000222                          222                     ;THE ERROR NUMBER IS 222
04800   1501
04900   1502
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00100    CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 37
00200    CVKACC.P11     16-AUG-78 08:41          FSUB TEST SECTION                                                    SEQ 0045
00300
00400     1503
00500     1504
00600     1505
00700     1506
00800     1507
00900     1508
01000     1509
01100     1510  005760  104400                                ;*****************************************************************************
01200     1511  005762  004567  010220                        ;TEST 32:       FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
01300     1512  005766  143325  052525                        ;       135152,125252 - 143325,052525 - 043325,052525
01400     1513  005772  135152  125252                        ;       PS = 200,       STACK POINTER   R5
01500     1514  005776  000357                                ;*****************************************************************************
01600     1515  006000  016456  000340                                SCOPE
01700     1516  006004  012705  000510        TST32:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R5 STACK, SET PRIORITY
01800     1517                                        .WORD   143325,052525   ;SECOND OPERAND ON TOP
01900     1518  006010  000240                        .WORD   135152,125252   ;FIRST OPERAND ON BOTTOM
02000     1519  006012  075015                        .WORD   357             ;PROCESSOR PRIORITY LEVEL
02100     1520                                        .WORD   TRAPER, 340     ;FIS TRAP VECTOR
02200     1521  006014  004767  010220                MOV     #STACK0,R5      ;SET UP STACK POINTER
02300     1522  006020  010567  172410
02400     1523  006024  122767  000200  172400        NOP
02500     1524  006032  001402                        FSUB    R5              ;FLOATING SUBTRACT ON THE R5 STACK
02600     1525  006034  104000
02700     1526  006036  000223                        JSR     PC,     POPR    ;POP THE ANSWER
02800     1527                                        MOV     R5,     $SP     ;SAVE ''STACK POINTER''
02900     1528  006040  022767  000514  172366        CMPB    #200,   $PSW    ;CHECK PS (EXCEPT T BIT)
03000     1529  006046  001402                        BEQ     .+6             ;BRANCH IF OK
03100     1530  006050  104000                        HLT                     ;PS NOT EQUAL TO 200
03200     1531  006052  000224                        223                     ;THE ERROR NUMBER IS 223
03300     1532
03400     1533  006054  022767  043325  172354        CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R5)
03500     1534  006062  001402                        BEQ     .+6             ;BRANCH IF OK
03600     1535  006064  104002                        HLT                     ;STACK POINTER (R5) NOT EQUAL TO #STACK4
03700     1536  006066  000225                        224                     ;THE ERROR NUMBER IS 224
03800     1537
03900     1538  006070  022767  052525  172342        CMP     #043325,ANS1    ;CHECK FIRST HALF OF ANSWER
04000     1539  006076  001402                        BEQ     .+6             ;BRANCH IF OK
04100     1540  006100  104002                        HLT+2                   ;ANS1 NOT EQUAL TO 043325
04200     1541  006102  000226                        225                     ;THE ERROR NUMBER IS 225
04300     1542
04400     1543  006104  122767  000032  172272        CMP     #052525,ANS2    ;CHECK SECOND HALF OF ANSWER
04500     1544  006112  001402                        BEQ     .+6             ;BRANCH IF OK
04600     1545  006114  104000                        HLT+2                   ;ANS2 NOT EQUAL TO 052525
04700     1546  006116  000227                        226                     ;THE ERROR NUMBER IS 226
04800     1547
04900     1548  006120  122767  000032  172256        CMPB    #32.    $TESTN  ;CHECK THE TEST NUMBER
05000     1549  006126  001402                        BEQ     .+6             ;BRANCH IF OK
05100     1550  006130  104000                        HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
05200     1551  006132  000227                        227                     ;THE ERROR NUMBER IS 227
05300     1552
05400     1553
05500     1554
05600     1555
05700     1556
05800     1557
05900     1558
06000     1559
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06300     1562
06400     1563
06500     1564
06600     1565
06700     1566
06800     1567
06900     1568
07000     1569
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07300     1572
07400     1573
07500     1574
07600     1575
07700     1576
07800     1577
07900     1578
08000     1579
08100     1580
08200     1581
08300     1582
08400     1583
08500     1584
08600     1585
08700     1586
08800     1587
08900     1588
09000     1589
09100     1590
09200     1591
09300     1592
09400     1593
09500     1594
09600     1595
09700     1596
09800     1597
09900     1598
10000     1599
10100     1600
10200     1601
10300     1602
10400     1603
10500     1604
10600     1605
10700     1606
10800     1607
10900     1608
11000     1609
11100     1610
11200     1611
11300     1612
11400     1613
11500     1614
11600     1615
11700     1616
11800     1617
11900     1618
12000     1619
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12200     1621
12300     1622
12400     1623
12500     1624
12600     1625
12700     1626
12800     1627
12900     1628
13000     1629
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13200     1631
13300     1632
13400     1633
13500     1634
13600     1635
13700     1636
13800     1637
13900     1638
14000     1639
14100     1640
14200     1641
14300     1642
14400     1643
14500     1644
14600     1645
14700     1646
14800     1647
14900     1648
15000     1649
15100     1650
15200     1651
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15600     1655
15700     1656
15800     1657
15900     1658
16000     1659
16100     1660
16200     1661
16300     1662
16400     1663
16500     1664
16600     1665
16700     1666
16800     1667
16900     1668
17000     1669
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17300     1672
17400     1673
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17700     1676
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18300     1682
18400     1683
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20000     1699
20100     1700
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20400     1703
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20900     1708
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21200     1711
21300     1712
21400     1713
21500     1714
21600     1715
21700     1716
21800     1717
21900     1718
22000     1719
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22500     1724
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22700     1726
22800     1727
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23000     1729
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23700     1736
23800     1737
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24400     1743
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24700     1746
24800     1747
24900     1748
25000     1749
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66900     2168
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70500     2204
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70700     2206
70800     2207
70900     2208
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72200     2221
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74200     2241
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75700     2256
75800     2257
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77700     2276
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79100     2290
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79300     2292
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79500     2294
79600     2295
79700     2296
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79900     2298
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80300     2302
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80700     2306
80800     2307
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82100     2320
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82300     2322
82400     2323
82500     2324
82600     2325
82700     2326
82800     2327
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104800    2547
104900    2548
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00100
00200
00300
00400    1549
00500    1550                    ;*****************************************************************
00600    1551                    ;TEST 33:      FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00700    1552                    ;       043125,052525 - 035152,125252 = 043125,052524
00800    1553                    ;       PS   000,      STACK POINTER = R2
00900    1554                    ;*****************************************************************
01000    1555
01100    1556  006120  104400                      SCOPE
01200    1557  006122  004567  010060      TST33:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R2 STACK, SET PRIORITY
01300    1558  006126  035152  125252              .WORD   035152,125252   ;SECOND OPERAND ON TOP
01400    1559  006132  043125  052525              .WORD   043125,052525   ;FIRST OPERAND ON BOTTOM
01500    1560  006136  000040                      .WORD   040             ;PROCESSOR PRIORITY LEVEL
01600    1561  006140  016456  000340              .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700    1562  006144  012702  000510              MOV     #STACK0,R2      ;SET UP STACK POINTER
01800    1563
01900    1564  006150  000240                      NOP
02000    1565  006152  075012                      FSUB    R2              ;FLOATING SUBTRACT ON THE R2 STACK
02100    1566
02200    1567  006154  004767  010060              JSR     PC,     POPR    ;POP THE ANSWER
02300    1568  006160  010267  172250              MOV     R2,     $SP     ;SAVE ''STACK POINTER''
02400    1569  006164  105767  172242              TSTB    $PSW            ;CHECK PS (EXCEPT T BIT)
02500    1570  006170  001402                      BEQ     .+6             ;BRANCH IF OK
02600    1571  006172  104000                      HLT                     ;PS NOT EQUAL TO 000
02700    1572  006174  000230                      230                     ;THE ERROR NUMBER IS 230
02800    1573
02900    1574  006176  022767  000514  172230    CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R2)
03000    1575  006204  001402                      BEQ     .+6             ;BRANCH IF OK
03100    1576  006206  104000                      HLT                     ;STACK POINTER (R2) NOT EQUAL TO #STACK4
03200    1577  006210  000231                      231                     ;THE ERROR NUMBER IS 231
03300    1578
03400    1579  006212  022767  043125  172216    CMP     #043125,ANS1    ;CHECK FIRST HALF OF ANSWER
03500    1580  006220  001402                      BEQ     .+6             ;BRANCH IF OK
03600    1581  006222  104002                      HLT+2                   ;ANS1 NOT EQUAL TO 043125
03700    1582  006224  000232                      232                     ;THE ERROR NUMBER IS 232
03800    1583
03900    1584  006226  022767  052524  172204    CMP     #052524,ANS2    ;CHECK SECOND HALF OF ANSWER
04000    1585  006234  001402                      BEQ     .+6             ;BRANCH IF OK
04100    1586  006236  104002                      HLT+2                   ;ANS2 NOT EQUAL TO 052524
04200    1587  006240  000233                      233                     ;THE ERROR NUMBER IS 233
04300    1588
04400    1589  006242  122767  000033  172134    END33:  CMPB    #33,    $TESTN  ;CHECK THE TEST NUMBER
04500    1590  006250  001402                      BEQ     .+6             ;BRANCH IF OK
04600    1591  006252  104000                      HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700    1592  006254  000234                      234                     ;THE ERROR NUMBER IS 234
04800    1593
04900    1594
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CK100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 39
00200   CVKACC.P11     16-AUG-78 08:41          FSUB TEST SECTION                                SEQ 0047
00300
00400     1595
00500     1596
00600     1597
00700     1598
00800     1599
00900     1600
01000     1601
01100     1602  006256  104400                          SCOPE
01200     1603  006260  004567  007722          TST34:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R0 STACK, SET PRIORITY
01300     1604  006264  000000  000000                  .WORD   000000,000000   ;SECOND OPERAND ON TOP
01400     1605  006270  000000  000000                  .WORD   000000,000000   ;FIRST OPERAND ON BOTTOM
01500     1606  006274  000217                          .WORD   217             ;PROCESSOR PRIORITY LEVEL
01600     1607  006276  016456  000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700     1608  006302  012700  000510                  MOV     #STACK0,R0      ;SET UP STACK POINTER
01800     1609
01900     1610  006306  000240                          NOP
02000     1611  006310  075010                          FSUB    R0              ;FLOATING SUBTRACT ON THE R0 STACK
02100     1612
02200     1613  006312  004767  007722                  JSR     PC,     POPR    ;POP THE ANSWER
02300     1614  006316  010067  172112                  MOV     R0,     $SP     ;SAVE ''STACK POINTER''
02400     1615  006322  122767  000204  172102          CMPB    #204,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500     1616  006330  001402                          BEQ     .+6             ;BRANCH IF OK
02600     1617  006332  104000                          HLT                     ;PS NOT EQUAL TO 204
02700     1618  006334  000235                          235                     ;THE ERROR NUMBER IS 235
02800     1619
02900     1620  006336  022767  000514  172070          CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R0)
03000     1621  006344  001402                          BEQ     .+6             ;BRANCH IF OK
03100     1622  006346  104000                          HLT                     ;STACK POINTER (R0) NOT EQUAL TO #STACK4
03200     1623  006350  000236                          236                     ;THE ERROR NUMBER IS 236
03300     1624
03400     1625  006352  005767  172060                  TST     ANS1            ;CHECK FIRST HALF OF ANSWER
03500     1626  006356  001402                          BEQ     .+6             ;BRANCH IF OK
03600     1627  006360  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 000000
03700     1628  006362  000237                          237                     ;THE ERROR NUMBER IS 237
03800     1629
03900     1630  006364  005767  172050                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000     1631  006370  001402                          BEQ     .+6             ;BRANCH IF OK
04100     1632  006372  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200     1633  006374  000240                          240                     ;THE ERROR NUMBER IS 240
04300     1634
04400     1635  006376  122767  000034  172000  END34:  CMPB    #34,    $TESTN  ;CHECK THE TEST NUMBER
04500     1636  006404  001402                          BEQ     .+6             ;BRANCH IF OK
04600     1637  006406  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     1638  006410  000241                          241                     ;THE ERROR NUMBER IS 241
04800     1639
04900     1640
```

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00100
00200
00300
00400    1641
00500    1642
00600    1643                    ;**********************************************************************
00700    1644                    ;TEST 35:      FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00800    1645                    ;      000000,000000 - 177777,177777 = 077777,177777
00900    1646                    ;      PS = 000,      STACK POINTER = R2
01000    1647                    ;**********************************************************************
01100    1648 006412 104400                         SCOPE
01200    1649 006414 004567 007566          TST35:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R2 STACK, SET PRIORITY
01300    1650 006420 177777 177777                 .WORD   177777,177777   ;SECOND OPERAND ON TOP
01400    1651 006424 000000 000000                 .WORD   000000,000000   ;FIRST OPERAND ON BOTTOM
01500    1652 006430 000100                         .WORD   100             ;PROCESSOR PRIORITY LEVEL
01600    1653 006432 016456 000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700    1654 006436 012702 000510                  MOV     #STACK0,R2      ;SET UP STACK POINTER
01800    1655
01900    1656 006442 000240                         NOP
02000    1657 006444 075012                         FSUB    R2              ;FLOATING SUBTRACT ON THE R2 STACK
02100    1658
02200    1659 006446 004767 007566                  JSR     PC,     POPR    ;POP THE ANSWER
02300    1660 006452 010267 171756                  MOV     R2,     $SP     ;SAVE "STACK POINTER"
02400    1661 006456 105767 171750                  TSTB    $PSW            ;CHECK PS (EXCEPT T BIT)
02500    1662 006462 001402                         BEQ     .+6             ;BRANCH IF OK
02600    1663 006464 104000                         HLT                     ;PS NOT EQUAL TO 000
02700    1664 006466 000242                         242                     ;THE ERROR NUMBER IS 242
02800    1665
02900    1666 006470 022767 000514 171736           CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R2)
03000    1667 006476 001402                         BEQ     .+6             ;BRANCH IF OK
03100    1668 006500 104000                         HLT                     ;STACK POINTER (R2) NOT EQUAL TO #STACK4
03200    1669 006502 000243                         243                     ;THE ERROR NUMBER IS 243
03300    1670
03400    1671 006504 022767 077777 171724           CMP     #077777,ANS1    ;CHECK FIRST HALF OF ANSWER
03500    1672 006512 001402                         BEQ     .+6             ;BRANCH IF OK
03600    1673 006514 104002                         HLT+2                   ;ANS1 NOT EQUAL TO 077777
03700    1674 006516 000244                         244                     ;THE ERROR NUMBER IS 244
03800    1675
03900    1676 006520 022767 177777 171712           CMP     #177777,ANS2    ;CHECK SECOND HALF OF ANSWER
04000    1677 006526 001402                         BEQ     .+6             ;BRANCH IF OK
04100    1678 006530 104002                         HLT+2                   ;ANS2 NOT EQUAL TO 177777
04200    1679 006532 000245                         245                     ;THE ERROR NUMBER IS 245
04300    1680
04400    1681 006534 122767 000035 171642   END35:  CMPB    #35,    $TESTN  ;CHECK THE TEST NUMBER
04500    1682 006542 001402                         BEQ     .+6             ;BRANCH IF OK
04600    1683 006544 104000                         HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
04700    1684 006546 000246                         246                     ;THE ERROR NUMBER IS 246
04800    1685
04900    1686
```

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00300
00400    1687
00500    1688                    ;*****************************************************************
00600    1689                    ;TEST 36:      FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00700    1690                    ;       000000,000000 - 077777,177777 = 177777,177777
00800    1691                    ;       PS - 210,       STACK POINTER - SP
00900    1692                    ;*****************************************************************
01000    1693
01100    1694 006550 104400                          SCOPE
01200    1695 006552 004567 007256          TST36:   JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300    1696 006556 077777 177777                   .WORD   077777,177777   ;SECOND OPERAND ON TOP
01400    1697 006562 000000 000000                   .WORD   000000,000000   ;FIRST OPERAND ON BOTTOM
01500    1698 006566 000217                          .WORD   217             ;PROCESSOR PRIORITY LEVEL
01600    1699 006570 016456 000340                   .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700    1700
01800    1701 006574 000240                          NOP
01900    1702 006576 075016                          FSUB    SP              ;FLOATING SUBTRACT ON THE STACK
02000    1703
02100    1704 006600 004767 007270                   JSR     PC,     POPS    ;POP THE ANSWER
02200    1705 006604 022706 000600                   CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02300    1706 006610 001405                          BEQ     TSA36           ;BRANCH IF OK
02400    1707 006612 012706 000600                   MOV     #BEGIN, SP      ;RESTORE STACK POINTER
02500    1708
02600    1709
02700    1710
02800    1711
02900    1712
03000    1713
03100    1714 006616 104000                          HLT                     ;STACK POINTER FOULED UP
03200    1715 006620 000247                          247                     ;THE ERROR NUMBER IS 247
03300    1716 006622 000422                          BR      END36           ;SKIP REST OF TEST
03400    1717
03500    1718 006624 122767 000210 171600    TSA36:  CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
03600    1719 006632 001402                          BEQ     .+6             ;BRANCH IF OK
03700    1720 006634 104000                          HLT                     ;PS NOT EQUAL TO 210
03800    1721 006636 000250                          250                     ;THE ERROR NUMBER IS 250
03900    1722
04000    1723 006640 022767 177777 171570            CMP     #177777,ANS1    ;CHECK FIRST HALF OF ANSWER
04100    1724 006646 001402                          BEQ     .+6             ;BRANCH IF OK
04200    1725 006650 104002                          HLT+2                   ;ANS1 NOT EQUAL TO 177777
04300    1726 006652 000251                          251                     ;THE ERROR NUMBER IS 251
04400    1727
04500    1728 006654 022767 177777 171556            CMP     #177777,ANS2    ;CHECK SECOND HALF OF ANSWER
04600    1729 006662 001402                          BEQ     .+6             ;BRANCH IF OK
04700    1730 006664 104002                          HLT+2                   ;ANS2 NOT EQUAL TO 177777
04800    1731 006666 000252                          252                     ;THE ERROR NUMBER IS 252
04900    1732
05000    1733 006670 122767 000036 171506    END36:  CMPB    #36,    $TESTN  ;CHECK THE TEST NUMBER
05100    1734 006676 001402                          BEQ     .+6             ;BRANCH IF OK
05200    1735 006700 104000                          HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
05300    1736 006702 000253                          253                     ;THE ERROR NUMBER IS 253
05400    1737
05500    1738
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00100
00200
00300
00400    1739
00500    1740                    ;*************************************************************************
00600    1741                    ;TEST 37:      FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
00700    1742                    ;       000425,052525 - 000252,125253 ==> UNDERFLOW
00800    1743                    ;       PS(ON STACK) = 212,     STACK POINTER = SP
00900    1744                    ;*************************************************************************
01000    1745
01100    1746  006704  104400                      SCOPE
01200    1747  006706  004567  007122    TST37:    JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300    1748  006712  000252  125253              .WORD   000252,125253   ;SECOND OPERAND ON TOP
01400    1749  006716  000425  052525              .WORD   000425,052525   ;FIRST OPERAND ON BOTTOM
01500    1750  006722  000257                      .WORD   257             ;PROCESSOR PRIORITY LEVEL
01600    1751  006724  006752  000340              .WORD   ISR37,  340     ;FIS TRAP VECTOR
01700    1752
01800    1753  006730  000240                      NOP
01900    1754  006732  075016                      FSUB    SP              ;FLOATING SUBTRACT ON THE STACK
02000    1755
02100    1756  006734  004767  007134    RTA37:    JSR     PC,     POPS    ;POP THE ''ANSWER''
02200    1757  006740  104002                      HLT+2                   ;FIS TRAP DIDN'T OCCURE!
02300    1758  006742  000254                      254                     ;THE ERROR NUMBER IS 254
02400    1759  006744  012706  000600              MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
02500    1760  006750  000464                      BR      END37
02600    1761
02700    1762  006752  004767  007150    ISR37:    JSR     PC,     POPES   ;POP ALL DATA OFF THE STACK
02800    1763  006756  022706  000600              CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02900    1764  006762  001405                      BEQ     ISA37           ;BRANCH IF OK
03000    1765  006764  012706  000600              MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
03100    1766  006770  104000                      HLT                     ;STACK POINTER FOULED UP
03200    1767  006772  000255                      255                     ;THE ERROR NUMBER IS 255
03300    1768  006774  000452                      BR      END37           ;SKIP REST OF TEST
03400    1769
03500    1770  006776  122767  000340  171426    ISA37:    CMPB    #340,   $PSW    ;CHECK PS AFTER FIS TRAP
03600    1771  007004  001402                      BEQ     .+6             ;BRANCH IF OK
03700    1772  007006  104000                      HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 340
03800    1773  007010  000256                      256                     ;THE ERROR NUMBER IS 256
03900    1774
04000    1775  007012  022767  006734  171416              CMP     #RTA37, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04100    1776  007020  001402                      BEQ     .+6             ;BRANCH IF OK
04200    1777  007022  104001                      HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04300    1778  007024  000257                      257                     ;THE ERROR NUMBER IS 257
04400    1779
04500    1780  007026  022767  000212  171404              CMP     #212,   ANS2    ;CHECK PS BEFORE FIS TRAP
04600    1781  007034  001402                      BEQ     .+6             ;BRANCH IF OK
04700    1782  007036  104002                      HLT+2                   ;PS AT FIS TRAP TIME NOT 212
04800    1783  007040  000260                      260                     ;THE ERROR NUMBER IS 260
04900    1784
05000    1785  007042  022767  000252  171372              CMP     #000252,ANS3    ;CHECK DATA FROM THE STACK
05100    1786  007050  001402                      BEQ     .+6             ;BRANCH IF OK
05200    1787  007052  104004                      HLT+4                   ;DATA ON STACK (000252) CHANGED
05300    1788  007054  000261                      261                     ;THE ERROR NUMBER IS 261
05400    1789
05500    1790  007056  022767  125253  171360              CMP     #125253,ANS4    ;CHECK DATA FROM STACK
05600    1791  007064  001402                      BEQ     .+6             ;BRANCH IF OK
05700    1792  007066  104004                      HLT+4                   ;DATA ON STACK (125253) CHANGED
05800    1793  007070  000262                      262                     ;THE ERROR NUMBER IS 262
05900    1794
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00300
00400     1795  007072  022767  000425  171346                CMP     #000425,ANS5    ;CHECK DATA FROM STACK
00500     1796  007100  001402                                BEQ     .+6             ;BRANCH IF OK
00600     1797  007102  104006                                HLT+6                   ;DATA ON STACK (000425) CHANGED
00700     1798  007104  000263                                263                     ;THE ERROR NUMBER IS 263
00800     1799
00900     1800  007106  022767  052525  171334                CMP     #052525,ANS6    ;CHECK DATA FROM STACK
01000     1801  007114  001402                                BEQ     .+6             ;BRANCH IF OK
01100     1802  007116  104006                                HLT+6                   ;DATA ON STACK (052525) CHANGED
01200     1803  007120  000264                                264                     ;THE ERROR NUMBER IS 264
01300     1804
01400     1805  007122  122767  000037  171254      END37:    CMPB    #37,    $TESTN  ;CHECK THE TEST NUMBER
01500     1806  007130  001402                                BEQ     .+6             ;BRANCH IF OK
01600     1807  007132  104000                                HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
01700     1808  007134  000265                                265                     ;THE ERROR NUMBER IS 265
01800     1809
01900     1810
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                                ;*****************************************************************************
                                ;TEST 40:       FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
                                ;       077652,125253 - 177452,125252 ==> OVERFLOW
                                ;       PS(ON STACK) = 002,     STACK POINTER = R3
                                ;*****************************************************************************

                                        SCOPE
                                TST40:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R3 STACK, SET PRIORITY
                                        .WORD   177452,125252   ;SECOND OPERAND ON TOP
                                        .WORD   077652,125253   ;FIRST OPERAND ON BOTTOM
                                        .WORD   015             ;PROCESSOR PRIORITY LEVEL
                                        .WORD   ISR40,  344     ;FIS TRAP VECTOR
                                        MOV     #STACK0,R3      ;SET UP R3 AS STACK POINTER

                                        NOP
                                        FSUB    R3              ;FLOATING SUBTRACT ON THE R3 STACK

                                RTA40:  JSR     PC,     POPR    ;POP THE ''ANSWER''
                                        MOV     R3,     $SP     ;SAVE STACK POINTER (R3)
                                        HLT+2                   ;FIS TRAP DIDN'T OCCURE'
                                        266                     ;THE ERROR NUMBER IS 266
                                        BR      END40

                                ISR40:  JSR     PC,     POPER   ;POP ALL DATA OFF THE STACKS
                                        MOV     R3,     $SP     ;SAVE STACK POINTER (R3)
                                        CMPB    #344,   $PSW    ;CHECK PS AFTER FIS TRAP
                                        BEQ     .+6             ;BRANCH IF OK
                                        HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 344
                                        267                     ;THE ERROR NUMBER IS 267

                                        CMP     #STACK0,$SP     ;CHECK THE STACK POINTER (R3)
                                        BEQ     .+6             ;BRANCH IF OK
                                        HLT                     ;STACK POINTER (R3) NOT EQUAL TO #STACK0
                                        270                     ;THE ERROR NUMBER IS 270

                                        CMP     #RTA40, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
                                        BEQ     .+6             ;BRANCH IF OK
                                        HLT+1                   ;FIS TRAP AT WRONG ADDRESS
                                        271                     ;THE ERROR NUMBER IS 271

                                        CMP     #002,   ANS2    ;CHECK PS BEFORE FIS TRAP
                                        BEQ     .+6             ;BRANCH IF OK
                                        HLT+2                   ;PS AT FIS TRAP TIME NOT 002
                                        272                     ;THE ERROR NUMBER IS 272

                                        CMP     #177452,ANS3    ;CHECK DATA FROM THE STACK
                                        BEQ     .+6             ;BRANCH IF OK
                                        HLT+4                   ;DATA ON STACK (177452) CHANGED
                                        273                     ;THE ERROR NUMBER IS 273

                                        CMP     #125252,ANS4    ;CHECK DATA FROM STACK
                                        BEQ     .+6             ;BRANCH IF OK
                                        HLT+4                   ;DATA ON STACK (125252) CHANGED
                                        274                     ;THE ERROR NUMBER IS 274
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 45
00200   CVKACC.P11    16-AUG-78 08:41          TEST FLOATING SUB. INSTRUCTION WITH OVERFLOW                    SEQ 0053
00300
00400     1867  007330  022767  077652  171110              CMP     #077652,ANS5    ;CHECK DATA FROM STACK
00500     1868  007336  001402                              BEQ     .+6             ;BRANCH IF OK
00600     1869  007340  104006                              HLT+6                   ;DATA ON STACK (077652) CHANGED
00700     1870  007342  000275                              275                     ;THE ERROR NUMBER IS 275
00800     1871
00900     1872  007344  022767  125253  171076              CMP     #125253,ANS6    ;CHECK DATA FROM STACK
01000     1873  007352  001402                              BEQ     .+6             ;BRANCH IF OK
01100     1874  007354  104006                              HLT+6                   ;DATA ON STACK (125253) CHANGED
01200     1875  007356  000276                              276                     ;THE ERROR NUMBER IS 276
01300     1876
01400     1877  007360  122767  000040  171016    END40.    CMPB    #40.    $TESTN  ;CHECK THE TEST NUMBER
01500     1878  007366  001402                              BEQ     .+6             ;BRANCH IF OK
01600     1879  007370  104000                              HLT                     ;WRONG TES    PC MUST HAVE FOULED UP.
01700     1880  007372  000277                              277                     ;THE ERROR   MBER IS 277
01800     1881
01900     1882
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 46                                                    SEQ 0054
00200   CVKACC.P11    16-AUG-78 08:41          FMUL TEST SECTION
00300
00400     1883
00500     1884                                  ;*****************************************************************************
00600     1885                                  ;TEST 41:       FMUL (LSI-11 FLOATING MULTIPLY INSTRUCTION)
00700     1886                                  ;       000000,000000 * 000000,000000 = 000000,000000
00800     1887                                  ;       PS = 004,       STACK POINTER = R4
00900     1888                                  ;*****************************************************************************
01000     1889
01100     1890  007374  104400                                SCOPE
01200     1891  007376  004567  006604          TST41:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R4 STACK, SET PRIORITY
01300     1892  007402  000000  000000                  .WORD   000000,000000   ;SECOND OPERAND ON TOP
01400     1893  007406  000000  000000                  .WORD   000000,000000   ;FIRST OPERAND ON BOTOM
01500     1894  007412  000111                          .WORD   111             ;PROCESSOR PRIORITY LEVEL
01600     1895  007414  016456  000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700     1896  007420  012704  000510                  MOV     #STACK0,R4      ;SET UP STACK POINTER
01800     1897
01900     1898  007424  000240                          NOP
02000     1899  007426  075024                          FMUL    R4              ;FLOATING MULTIPLY ON THE R4 STACK
02100     1900
02200     1901  007430  004767  006604                  JSR     PC,     POPR    ;POP THE ANSWER
02300     1902  007434  010467  170774                  MOV     R4,     $SP     ;SAVE ''STACK POINTER''
02400     1903  007440  122767  000004  170764          CMPB    #004,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500     1904  007446  001402                          BEQ     .+6             ;BRANCH IF OK
02600     1905  007450  104000                          HLT                     ;PS NOT EQUAL TO 004
02700     1906  007452  000300                          300                     ;THE ERROR NUMBER IS 300
02800     1907
02900     1908  007454  022767  000514  170752          CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R4)
03000     1909  007462  001402                          BEQ     .+6             ;BRANCH IF OK
03100     1910  007464  104000                          HLT                     ;STACK POINTER (R4) NOT EQUAL TO #STACK4
03200     1911  007466  000301                          301                     ;THE ERROR NUMBER IS 301
03300     1912
03400     1913  007470  005767  170742                  TST     ANS1            ;CHECK FIRST HALF OF ANSWER
03500     1914  007474  001402                          BEQ     .+6             ;BRANCH IF OK
03600     1915  007476  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 000000
03700     1916  007500  000302                          302                     ;THE ERROR NUMBER IS 302
03800     1917
03900     1918  007502  005767  170732                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000     1919  007506  001402                          BEQ     .+6             ;BRANCH IF OK
04100     1920  007510  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200     1921  007512  000303                          303                     ;THE ERROR NUMBER IS 303
04300     1922
04400     1923  007514  122767  000041  170662  END41:  CMPB    #41,    $TESTN  ;CHECK THE TEST NUMBER
04500     1924  007522  001402                          BEQ     .+6             ;BRANCH IF OK
04600     1925  007524  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     1926  007526  000304                          304                     ;THE ERROR NUMBER IS 304
04800     1927
04900     1928
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00100
00200
00300
00400      1929
00500      1930
00600      1931
00700      1932
00800      1933
00900      1934
01000      1935
01100      1936  007530  104400                          ;*****************************************************************************
01200      1937  007532  004567  006450                  ;TEST 42:       FMUL (LSI-11 FLOATING MULTIPLY INSTRUCTION)
01300      1938  007536  052345  123456                  ;       140200,000000 * 052345,123456 = 152345,123456
01400      1939  007542  140200  000000                  ;       PS   210,       STACK POINTER   R2
01500      1940  007546  000343                          ;*****************************************************************************
01600      1941  007550  016456  000340
01700      1942  007554  012702  0005*0
01800      1943
01900      1944  007560  000240
02000      1945  007562  075022
02100      1946
02200      1947  007564  004767  006450
02300      1948  007570  010267  170640
02400      1949  007574  122767  000210  170630
02500      1950  007602  001402
02600      1951  007604  104000
02700      1952  007606  000305
02800      1953
02900      1954  007610  022767  000514  170616
03000      1955  007616  001402
03100      1956  007620  104000
03200      1957  007622  000306
03300      1958
03400      1959  007624  022767  152345  170604
03500      1960  007632  001402
03600      1961  007634  104002
03700      1962  007636  000307
03800      1963
03900      1964  007640  022767  123456  170572
04000      1965  007646  001402
04100      1966  007650  104002
04200      1967  007652  000310
04300      1968
04400      1969  007654  122767  000042  170522
04500      1970  007662  001402
04600      1971  007664  104000
04700      1972  007666  000311
04800      1973
04900      1974

                        SCOPE
TST42:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R2 STACK, SET PRIORITY
        .WORD   052345,123456   ;SECOND OPERAND ON TOP
        .WORD   140200,000000   ;FIRST OPERAND ON BOTOM
        .WORD   343             ;PROCESSOR PRIORITY LEVEL
        .WORD   TRAPER, 340     ;FIS TRAP VECTOR
        MOV     #STACK0,R2      ;SET UP STACK POINTER

        NOP
        FMUL    R2              ;FLOATING MULTIPLY ON THE R2 STACK

        JSR     PC,     POPR    ;POP THE ANSWER
        MOV     R2,     $SP     ;SAVE ''STACK POINTER''
        CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
        BEQ     .+6             ;BRANCH IF OK
        HLT                     ;PS NOT EQUAL TO 210
        305                     ;THE ERROR NUMBER IS 305

        CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R2)
        BEQ     .+6             ;BRANCH IF OK
        HLT                     ;STACK POINTER (R2) NOT EQLAL TO #STACK4
        306                     ;THE ERROR NUMBER IS 306

        CMP     #152345,ANS1    ;CHECK FIRST HALF OF ANSWER
        BEQ     .+6             ;BRANCH IF OK
        HLT+2                   ;ANS1 NOT EQUAL TO 152345
        307                     ;THE ERROR NUMBER IS 307

        CMP     #123456,ANS2    ;CHECK SECOND HALF OF ANSWER
        BEQ     .+6             ;BRANCH IF OK
        HLT+2                   ;ANS2 NOT EQUAL TO 123456
        310                     ;THE ERROR NUMBER IS 310

END42:  CMPB    #42.    $TESTN  ;CHECK THE TEST NUMBER
        BEQ     .+6             ;BRANCH IF OK
        HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
        311                     ;THE ERROR NUMBER IS 311
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 48
00200   CVKACC.P11    16-AUG-78 08:41          FMUL TEST SECTION                                SEQ 0056
00300
00400     1975
00500     1976                          ;*****************************************************************
00600     1977                          ;TEST 43:       FMUL (LSI-11 FLOATING MULTIPLY INSTRUCTION)
00700     1978                          ;       100125,052525 * 135753,024642 = 000000,000000
00800     1979                          ;       PS = 004,       STACK POINTER = R5
00900     1980                          ;*****************************************************************
01000     1981
01100     1982  007670  104400                          SCOPE
01200     1983  007672  004567  006310          TST43:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R5 STACK, SET PRIORITY
01300     1984  007676  135753  024642                  .WORD   135753,024642   ;SECOND OPERAND ON TOP
01400     1985  007702  100125  052525                  .WORD   100125,052525   ;FIRST OPERAND ON BOTOM
01500     1986  007706  000117                          .WORD   117             ;PROCESSOR PRIORITY LEVEL
01600     1987  007710  016456  000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700     1988  007714  012705  000510                  MOV     #STACK0,R5      ;SET UP STACK POINTER
01800     1989
01900     1990  007720  000240                          NOP
02000     1991  007722  075025                          FMUL    R5              ;FLOATING MULTIPLY ON THE R5 STACK
02100     1992
02200     1993  007724  004767  006310                  JSR     PC,     POPR    ;POP THE ANSWER
02300     1994  007730  010567  170500                  MOV     R5,     $SP     ;SAVE ''STACK POINTER''
02400     1995  007734  122767  000004  170470          CMPB    #004,   $PSW    ;CHECK PS (EXCEPT T BIT) .
02500     1996  007742  001402                          BEQ     .+6             ;BRANCH IF OK
02600     1997  007744  104000                          HLT                     ;PS NOT EQUAL TO 004
02700     1998  007746  000312                          312                     ;THE ERROR NUMBER IS 312
02800     1999
02900     2000  007750  022767  000514  170456          CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R5)
03000     2001  007756  001402                          BEQ     .+6             ;BRANCH IF OK
03100     2002  007760  104000                          HLT                     ;STACK POINTER (R5) NOT EQUAL TO #STACK4
03200     2003  007762  000313                          313                     ;THE ERROR NUMBER IS 313
03300     2004
03400     2005  007764  005767  170446                  TST     ANS1            ;CHECK FIRST HALF OF ANSWER
03500     2006  007770  001402                          BEQ     .+6             ;BRANCH IF OK
03600     2007  007772  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 000000
03700     2008  007774  000314                          314                     ;THE ERROR NUMBER IS 314
03800     2009
03900     2010  007776  005767  170436                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000     2011  010002  001402                          BEQ     .+6             ;BRANCH IF OK
04100     2012  010004  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200     2013  010006  000315                          315                     ;THE ERROR NUMBER IS 315
04300     2014
04400     2015  010010  122767  000043  170366  END43:  CMPB    #43,    $TESTN  ;CHECK THE TEST NUMBER
04500     2016  010016  001402                          BEQ     .+6             ;BRANCH IF OK
04600     2017  010020  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     2018  010022  000316                          316                     ;THE ERROR NUMBER IS 316
04800     2019
04900     2020
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00300
00400     2021
00500     2022
00600     2023
00700     2024
00800     2025
00900     2026
01000     2027
01100     2028  010024  104400                          SCOPE
01200     2029  010026  004567  006154          TST44:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R3 STACK, SET PRIORITY
01300     2030  010032  000052  125252                  .WORD   000052,125252   ;SECOND OPERAND ON TOP
01400     2031  010036  161616  161616                  .WORD   161616,161616   ;FIRST OPERAND ON BOTOM
01500     2032  010042  000217                          .WORD   217             ;PROCESSOR PRIORITY LEVEL
01600     2033  010044  016456  000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700     2034  010050  012703  000510                  MOV     #STACK0,R3      ;SET UP STACK POINTER
01800     2035
01900     2036  010054  000240                          NOP
02000     2037  010056  075023                          FMUL    R3              ;FLOATING MULTIPLY ON THE R3 STACK
02100     2038
02200     2039  010060  004767  006154                  JSR     PC,     POPR    ;POP THE ANSWER
02300     2040  010064  010367  170344                  MOV     R3,     $SP     ;SAVE 'STACK POINTER'
02400     2041  010070  122767  000204  170334          CMPB    #204,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500     2042  010076  001402                          BEQ     .+6             ;BRANCH IF OK
02600     2043  010100  104000                          HLT                     ;PS NOT EQUAL TO 204
02700     2044  010102  000317                          317                     ;THE ERROR NUMBER IS 317
02800     2045
02900     2046  010104  022767  000514  170322          CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R3)
03000     2047  010112  001402                          BEQ     .+6             ;BRANCH IF OK
03100     2048  010114  104000                          HLT                     ;STACK POINTER (R3) NOT EQUAL TO #STACK4
03200     2049  010116  000320                          320                     ;THE ERROR NUMBER IS 320
03300     2050
03400     2051  010120  005767  170312                  TST     ANS1            ;CHECK FIRST HALF OF ANSWER
03500     2052  010124  001402                          BEQ     .+6             ;BRANCH IF OK
03600     2053  010126  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 000000
03700     2054  010130  000321                          321                     ;THE ERROR NUMBER IS 321
03800     2055
03900     2056  010132  005767  170302                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000     2057  010136  001402                          BEQ     .+6             ;BRANCH IF OK
04100     2058  010140  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200     2059  010142  000322                          322                     ;THE ERROR NUMBER IS 322
04300     2060
04400     2061  010144  122767  000044  170232  END44:  CMPB    #44,    $TESTN  ;CHECK THE TEST NUMBER
04500     2062  010152  001402                          BEQ     .+6             ;BRANCH IF OK
04600     2063  010154  104000                          HLT                     ;WRONG TEST'  PC MUST HAVE FOULED UP.
04700     2064  010156  000323                          323                     ;THE ERROR NUMBER IS 323
04800     2065
04900     2066
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00300
00400    2067
00500    2068                    ;*****************************************************************
00600    2069                    ;TEST 45:       FMUL (LSI-11 FLOATING MULTIPLY INSTRUCTION)
00700    2070                    ;       176452,125252 * 041500,000000 = 177777,177777
00800    2071                    ;       PS = 210,       STACK POINTER   SP
00900    2072                    ;*****************************************************************
01000    2073
01100    2074  010160  104400                      SCOPE
01200    2075  010162  004567  005646    TST45:    JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300    2076  010166  041500  000000              .WORD   041500,000000   ;SECOND OPERAND ON TOP
01400    2077  010172  176452  125252              .WORD   176452,125252   ;FIRST OPERAND ON BOTTOM
01500    2078  010176  000357                      .WORD   357             ;PROCESSOR PRIORITY LEVEL
01600    2079  010200  016456  000340              .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700    2080
01800    2081  010204  000240                      NOP
01900    2082  010206  075026                      FMUL    SP              ;FLOATING MULTIPLY ON THE STACK
02000    2083
02100    2084  010210  004767  005660            JSR     PC,     POPS    ;POP THE ANSWER
02200    2085  010214  022706  000600            CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02300    2086  010220  001405                    BEQ     TSA45           ;BRANCH IF OK
02400    2087  010222  012706  000600            MOV     #BEGIN, SP      ;RESTORE STACK POINTER
02500    2088  010226  104000                    HLT                     ;STACK POINTER FOULED UP
02600    2089  010230  000324                    324                     ;THE ERROR NUMBER IS 324
02700    2090  010232  000422                    BR      END45           ;SKIP REST OF TEST
02800    2091
02900    2092  010234  122767  000210  170170  TSA45:    CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
03000    2093  010242  001402                    BEQ     .+6             ;BRANCH IF OK
03100    2094  010244  104000                    HLT                     ;PS NOT EQUAL TO 210
03200    2095  010246  000325                    325                     ;THE ERROR NUMBER IS 325
03300    2096
03400    2097  010250  022767  177777  170160            CMP     #177777,ANS1    ;CHECK FIRST HALF OF ANSWER
03500    2098  010256  001402                    BEQ     .+6             ;BRANCH IF OK
03600    2099  010260  104002                    HLT+2                   ;ANS1 NOT EQUAL TO 177777
03700    2100  010262  000326                    326                     ;THE ERROR NUMBER IS 326
03800    2101
03900    2102  010264  022767  177777  170146            CMP     #177777,ANS2    ;CHECK SECOND HALF OF ANSWER
04000    2103  010272  001402                    BEQ     .+6             ;BRANCH IF OK
04100    2104  010274  104002                    HLT+2                   ;ANS2 NOT EQUAL TO 177777
04200    2105  010276  000327                    327                     ;THE ERROR NUMBER IS 327
04300    2106
04400    2107  010300  122767  000045  170076  END45:    CMPB    #45,    $TESTN  ;CHECK THE TEST NUMBER
04500    2108  010306  001402                    BEQ     .+6             ;BRANCH IF OK
04600    2109  010310  104000                    HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700    2110  010312  000330                    330                     ;THE ERROR NUMBER IS 330
04800    2111
04900    2112
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00300
00400
00500
00600
00700
00800
00900
01000
01100  2120  010314  104400                    SCOPE
01200  2121  010316  004567  005664  TST46:   JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R1 STACK, SET PRIORITY
01300  2122  010322  114100  000001           .WORD   114100,000001   ;SECOND OPERAND ON TOP
01400  2123  010326  124252  125252           .WORD   124252,125252   ;FIRST OPERAND ON BOTOM
01500  2124  010332  000200                    .WORD   200             ;PROCESSOR PRIORITY LEVEL
01600  2125  010334  016456  000340           .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700  2126  010340  012701  000510           MOV     #STACK0,R1      ;SET UP STACK POINTER
01800  2127
01900  2128  010344  000240                    NOP
02000  2129  010346  075021                    FMUL    R1              ;FLOATING MULTIPLY ON THE R1 STACK
02100  2130
02200  2131  010350  004767  005664           JSR     PC,     POPR    ;POP THE ANSWER
02300  2132  010354  010167  170054           MOV     R1,     $SP     ;SAVE "STACK POINTER"
02400  2133  010360  122767  000200  170044   CMPB    #200,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500  2134  010366  001402                    BEQ     .+6             ;BRANCH IF OK
02600  2135  010370  104000                    HLT                     ;PS NOT EQUAL TO 200
02700  2136  010372  000331                    331                     ;THE ERROR NUMBER IS 331
02800  2137
02900  2138  010374  022767  000514  170032   CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R1)
03000  2139  010402  001402                    BEQ     .+6             ;BRANCH IF OK
03100  2140  010404  104000                    HLT                     ;STACK POINTER (R1) NOT EQUAL TO #STACK4
03200  2141  010406  000332                    332                     ;THE ERROR NUMBER IS 332
03300  2142
03400  2143  010410  022767  000200  170020   CMP     #000200,ANS1    ;CHECK FIRST HALF OF ANSWER
03500  2144  010416  001402                    BEQ     .+6             ;BRANCH IF OK
03600  2145  010420  104002                    HLT+2                   ;ANS1 NOT EQUAL TO 000200
03700  2146  010422  000333                    333                     ;THE ERROR NUMBER IS 333
03800  2147
03900  2148  010424  005767  170010           TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000  2149  010430  001402                    BEQ     .+6             ;BRANCH IF OK
04100  2150  010432  104002                    HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200  2151  010434  000334                    334                     ;THE ERROR NUMBER IS 334
04300  2152
04400  2153  010436  122767  000046  167740   END46:  CMPB    #46,    $TESTN  ;CHECK THE TEST NUMBER
04500  2154  010444  001402                    BEQ     .+6             ;BRANCH IF OK
04600  2155  010446  104000                    HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700  2156  010450  000335                    335                     ;THE ERROR NUMBER IS 335
04800  2157
04900  2158
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00100  (VKACC  MA(V11 30A(1052)  21-AUG-78  15:28  PAGE 52
00200  (VKAC .P11    16-AUG-78 08:41          FMUL TEST SECTION                                    SEQ 0060
00300
00400     2159
00500     2160
00600     2161
00700     2162
00800     2163
00900     2164
01000     2165
01100     2166  010452  104400                ;*****************************************************************
01200     2167  010454  004567  005700        ;TEST 47:       FSUB (LSI-11 FLOATING SUBTRACT INSTRUCTION)
01300     2168  010460  010504                ;       104000,105004 - 104000,104000 = 100401,000000
01400     2169  010462  104000  104000        ;       PS - 210,       STACK POINTER - PC
01500     2170  010466  104000  105004        ;*****************************************************************
01600     2171  010472  000252
01700     2172  010474  016456  000340        TST47:  SCOPE
01800     2173                                        JSR     R5,     PUSH7   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01900     2174  010500  000240                        .WORD   STK47           ;TOP OF STACK
02000     2175  010502  075017                        .WORD   104000,104000   ;SECOND OPERAND ON TOP
02100     2176  010504  104000                        .WORD   104000,105004   ;FIRST OPERAND ON BOTTOM
02200     2177  010506  104000                        .WORD   252             ;PROCESSOR PRIORITY LEVEL
02300     2178  010510  104000                        .WORD   TRAPER,340      ;FIS TRAP VECTOR
02400     2179  010512  105004
02500     2180                                        NOP
02600     2181  010514  004767  005670              FSUB    PC              ;FLOATING SUBTRACT ON FOLLOWING 4 WORDS
02700     2182  010520  122767  000210  167704  STK47:  104000          ;SHOULD CONTAIN 104000
02800     2183  010526  001402                        104000          ;SHOULD CONTAIN 104000
02900     2184  010530  104000                        104000          ;BEFORE FSUB, 104000; AFTER, 100401
03000     2185  010532  000336                        105004          ;BEFORE FSUB, 105004; AFTER, 000000
03100     2186
03200     2187  010534  022767  104000  167674        JSR     PC,     POP7    ;POP THE ANSWER
03300     2188  010542  001402                        CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
03400     2189  010544  104002                        BEQ     .+6             ;BRANCH IF OK
03500     2190  010546  000337                        HLT                     ;PS NOT EQUAL TO 210
03600     2191                                        336                     ;THE ERROR NUMBER IS 336
03700     2192  010550  022767  104000  167662
03800     2193  010556  001402                        CMP     #104000,ANS1    ;CHECK FIRST HALF OF INPUT DATA (STK47)
03900     2194  010560  104002                        BEQ     .+6             ;BRANCH IF OK
04000     2195  010562  000340                        HLT+2                   ;ANS1 NOT EQUAL TO 104000
04100     2196                                        337                     ;THE ERROR NUMBER IS 337
04200     2197  010564  022767  100401  167650
04300     2198  010572  001402                        CMP     #104000,ANS2    ;CHECK SECOND HALF OF INPUT DATA (STK47+2)
04400     2199  010574  104004                        BEQ     .+6             ;BRANCH IF OK
04500     2200  010576  000341                        HLT+2                   ;ANS2 NOT EQUAL TO 104000
04600     2201                                        340                     ;THE ERROR NUMBER IS 340
04700     2202  010600  005767  167640
04800     2203  010604  001402                        CMP     #100401,ANS3    ;CHECK FIRST HALF OF ANSWER
04900     2204  010606  104004                        BEQ     .+6             ;BRANCH IF OK
05000     2205  010610  000342                        HLT+4                   ;ANS3 NOT EQUAL TO 100401
05100     2206                                        341                     ;THE ERROR NUMBER IS 341
05200     2207  010612  122767  000047  167564
05300     2208  010620  001402                        TST     ANS4            ;CHECK SECOND HALF OF ANSWER
05400     2209  010622  104000                        BEQ     .+6             ;BRANCH IF OK
05500     2210  010624  000343                        HLT+4                   ;ANS4 NOT EQUAL TO 000000
05600     2211                                        342                     ;THE ERROR NUMBER IS 342
05700     2212
                                  END47:  CMPB    #47.    $TESTN  ;CHECK THE TEST NUMBER
                                          BEQ     .+6             ;BRANCH IF OK
                                          HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
                                          343                     ;THE ERROR NUMBER IS 343
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00300
00400   2213
00500   2214
00600   2215
00700   2216
00800   2217
00900   2218
01000   2219
01100   2220  010626  104400                ;*****************************************************************
01200   2221  010630  004567  005524        ;TEST 50:       FMUL (LSI-11 FLOATING MULTIPLY INSTRUCTION)
01300   2222  010634  010660                ;       134600,073601 * 104000,104000 = 000401,000000
01400   2223  010636  104000  104000        ;       PS = 200,       STACK POINTER   PC
01500   2224  010642  134600  073601        ;*****************************************************************
01600   2225  010646  000246
01700   2226  010650  016456  000340                SCOPE
01800   2227                        TST50:  JSR     R5,     PUSH7   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01900   2228  010654  000240                .WORD   STK50           ;TOP OF STACK
02000   2229  010656  075027                .WORD   104000,104000   ;SECOND OPERAND ON TOP
02100   2230  010660  104000                .WORD   134600,073601   ;FIRST OPERAND ON BOTTOM
02200   2231  010662  104000                .WORD   246             ;PROCESSOR PRIORITY LEVEL
02300   2232  010664  134600                .WORD   TRAPER,340      ;FIS TRAP VECTOR
02400   2233  010666  073601
02500   2234                                NOP
02600   2235  010670  004767  005514        FMUL    PC              ;FLOATING MULTIPLY ON FOLLOWING 4 WORDS
02700   2236  010674  122767  000200  167530 STK50:  104000          ;SHOULD CONTAIN 104000
02800   2237  010702  001402                104000                  ;SHOULD CONTAIN 104000
02900   2238  010704  104000                134600                  ;BEFORE FMUL, 134600; AFTER, 000401
03000   2239  010706  000344                073601                  ;BEFORE FMUL, 073601; AFTER, 000000
03100   2240
03200   2241  010710  022767  104000  167520        JSR     PC,     POP7    ;POP THE ANSWER
03300   2242  010716  001402                CMPB    #200,   $PSW    ;CHECK PS (EXCEPT T BIT)
03400   2243  010720  104002                BEQ     .+6             ;BRANCH IF OK
03500   2244  010722  000345                HLT                     ;PS NOT EQUAL TO 200
03600   2245                                344                     ;THE ERROR NUMBER IS 344
03700   2246  010724  022767  104000  167506
03800   2247  010732  001402                CMP     #104000,ANS1    ;CHECK FIRST HALF OF INPUT DATA (STK50)
03900   2248  010734  104002                BEQ     .+6             ;BRANCH IF OK
04000   2249  010736  000346                HLT+2                   ;ANS1 NOT EQUAL TO 104000
04100   2250                                345                     ;THE ERROR NUMBER IS 345
04200   2251  010740  022767  000401  167474
04300   2252  010746  001402                CMP     #104000,ANS2    ;CHECK SECOND HALF OF INPUT DATA (STK50+2)
04400   2253  010750  104004                BEQ     .+6             ;BRANCH IF OK
04500   2254  010752  000347                HLT+2                   ;ANS2 NOT EQUAL TO 104000
04600   2255                                346                     ;THE ERROR NUMBER IS 346
04700   2256  010754  005767  167464
04800   2257  010760  001402                CMP     #000401,ANS3    ;CHECK FIRST HALF OF ANSWER
04900   2258  010762  104004                BEQ     .+6             ;BRANCH IF OK
05000   2259  010764  000350                HLT+4                   ;ANS3 NOT EQUAL TO 000401
05100   2260                                347                     ;THE ERROR NUMBER IS 347
05200   2261  010766  122767  000050  167470
05300   2262  010774  001402                TST     ANS4            ;CHECK SECOND HALF OF ANSWER
05400   2263  010776  104000                BEQ     .+6             ;BRANCH IF OK
05500   2264  011000  000351                HLT+4                   ;ANS4 NOT EQUAL TO 000000
05600   2265                                350                     ;THE ERROR NUMBER IS 350
05700   2266
05800   2267                        END50:  CMPB    #50.,   $TESTN  ;CHECK THE TEST NUMBER
05900   2268                                BEQ     .+6             ;BRANCH IF OK
                                            HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
                                            351                     ;THE ERROR NUMBER IS 351

                                    ;*****************************************************************
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```
00300
00400   2269                                    ;TEST 51:     FMUL (LSI-11 FLOATING MULTIPLY INSTRUCTION)
00500   2270                                    ;       024252,125252 * 114100,000000 ==> UNDERFLOW
00600   2271                                    ;       PS(ON STACK) = 212,     STACK POINTER = R0
00700   2272                                    ;*****************************************************************
00800   2273
00900   2274  011002  104400                              SCOPE
01000   2275  011004  004567  005176             TST51:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R0 STACK, SET PRIORITY
01100   2276  011010  114100  000000                      .WORD   114100,000000   ;SECOND OPERAND ON TOP
01200   2277  011014  024252  125252                      .WORD   024252,125252   ;FIRST OPERAND ON BOTTOM
01300   2278  011020  000305                              .WORD   305             ;PROCESSOR PRIORITY LEVEL
01400   2279  011022  011054  000057                      .WORD   ISR51,  057     ;FIS TRAP VECTOR
01500   2280  011026  012700  000510                      MOV     #STACK0,R0      ;SET UP R0 AS STACK POINTER
01600   2281
01700   2282  011032  000240                              NOP
01800   2283  011034  075020                              FMUL    R0              ;FLOATING MULTIPLY ON THE R0 STACK
01900   2284
02000   2285  011036  004767  005176             RTA51:  JSR     PC,     POPR    ;POP THE ''ANSWER''
02100   2286  011042  010067  167366                      MOV     R0,     $SP     ;SAVE STACK POINTER (R0)
02200   2287  011046  104002                              HLT+2                   ;FIS TRAP DIDN'T OCCURE.
02300   2288  011050  000352                              352                     ;THE ERROR NUMBER IS 352
02400   2289  011052  000463                              BR      END51
02500   2290
02600   2291  011054  004767  005210             ISR51:  JSR     PC,     POPER   ;POP ALL DATA OFF THE STACKS
02700   2292  011060  010067  167350                      MOV     R0,     $SP     ;SAVE STACK POINTER (R0)
02800   2293  011064  122767  000057  167340             CMPB    #057,   $PSW    ;CHECK PS AFTER FIS TRAP
02900   2294  011072  001402                              BEQ     .+6             ;BRANCH IF OK
03000   2295  011074  104000                              HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 057
03100   2296  011076  000353                              353                     ;THE ERROR NUMBER IS 353
03200   2297
03300   2298  011100  022767  000510  167326             CMP     #STACK0,$SP     ;CHECK THE STACK POINTER (R0)
03400   2299  011106  001402                              BEQ     .+6             ;BRANCH IF OK
03500   2300  011110  104000                              HLT                     ;STACK POINTER (R0) NOT EQUAL TO #STACK0
03600   2301  011112  000354                              354                     ;THE ERROR NUMBER IS 354
03700   2302
03800   2303  011114  022767  011036  167314             CMP     #RTA5 , ANS1    ;CHECK FIS TRAP RETURN ADDRESS
03900   2304  011122  001402                              BEQ     .+6             ;BRANCH IF OK
04000   2305  011124  104001                              HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04100   2306  011126  000355                              355                     ;THE ERROR NUMBER IS 355
04200   2307
04300   2308  011130  022767  000212  167302             CMP     #212,   ANS2    ;CHECK PS BEFORE FIS TRAP
04400   2309  011136  001402                              BEQ     .+6             ;BRANCH IF OK
04500   2310  011140  104002                              HLT+2                   ;PS AT FIS TRAP TIME NOT 212
04600   2311  011142  000356                              356                     ;THE ERROR NUMBER IS 356
04700   2312
04800   2313  011144  022767  114100  167270             CMP     #114100,ANS3    ;CHECK DATA FROM THE STACK
04900   2314  011152  001402                              BEQ     .+6             ;BRANCH IF OK
05000   2315  011154  104004                              HLT+4                   ;DATA ON STACK (114100) CHANGED
05100   2316  011156  000357                              357                     ;THE ERROR NUMBER IS 357
05200   2317
05300   2318  011160  005767  167260                      TST     ANS4            ;CHECK DATA FROM STACK
05400   2319  011164  001402                              BEQ     .+6             ;BRANCH IF OK
05500   2320  011166  104004                              HLT+4                   ;DATA ON STACK (000000) CHANGED
05600   2321  011170  000360                              360                     ;THE ERROR NUMBER IS 360
05700   2322
05800   2323  011172  022767  024252  167246             CMP     #024252,ANS5    ;CHECK DATA FROM STACK
05900   2324  011200  001402                              BEQ     .+6             ;BRANCH IF OK
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 55
00200   CVKACC.P11    16-AUG-78 08:41          TEST FLOATING MUL. INSTRUCTION WITH UNDERFLOW                    SEQ 0063
00300
00400     2325  011202  104006                                  HLT+6                   ;DATA ON STACK (024252) CHANGED
00500     2326  011204  000361                                  361                     ;THE ERROR NUMBER IS 361
00600     2327
00700     2328  011206  022767  125252  167234                  CMP     #125252,ANS6    ;CHECK DATA FROM STACK
00800     2329  011214  001402                                  BEQ     .+6             ;BRANCH IF OK
00900     2330  011216  104006                                  HLT+6                   ;DATA ON STACK (125252) CHANGED
01000     2331  011220  000362                                  362                     ;THE ERROR NUMBER IS 362
01100     2332
01200     2333  011222  122767  000051  167154          END51:  CMPB    #51,    $TESTN  ;CHECK THE TEST NUMBER
01300     2334  011230  001402                                  BEQ     .+6             ;BRANCH IF OK
01400     2335  011232  104000                                  HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
01500     2336  011234  000363                                  363                     ;THE ERROR NUMBER IS 363
01600     2337
01700     2338
```

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00100
00200
00300
00400    2339
00500    2340
00600    2341
00700    2342
00800    2343
00900    2344
01000    2345
01100    2346  011236  104400                        SCOPE
01200    2347  011240  004567  004570        TST52:  JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300    2348  011244  041500  000001                .WORD   041500,000001   ;SECOND OPERAND ON TOP
01400    2349  011250  076452  125252                .WORD   076452,125252   ;FIRST OPERAND ON BOTTOM
01500    2350  011254  000105                        .WORD   105             ;PROCESSOR PRIORITY LEVEL
01600    2351  011256  011304  000357                .WORD   ISR52,  357     ;FIS TRAP VECTOR
01700    2352
01800    2353  011262  000240                        NOP
01900    2354  011264  075026                        FMUL    SP              ;FLOATING MULTIPLY ON THE STACK
02000    2355
02100    2356  011266  004767  004602        RTA52:  JSR     PC,     POPS    ;POP THE ''ANSWER''
02200    2357  011272  104002                        HLT+2                   ;FIS TRAP DIDN'T OCCURE!
02300    2358  011274  000364                        364                     ;THE ERROR NUMBER IS 364
02400    2359  011276  012706  000600                MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
02500    2360  011302  000464                        BR      END52
02600    2361
02700    2362  011304  004767  004616        ISR52:  JSR     PC,     POPES   ;POP ALL DATA OFF THE STACK
02800    2363  011310  022706  000600                CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02900    2364  011314  001405                        BEQ     ISA52           ;BRANCH IF OK
03000    2365  011316  012706  000600                MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
03100    2366  011322  104000                        HLT                     ;STACK POINTER FOULED UP
03200    2367  011324  000365                        365                     ;THE ERROR NUMBER IS 365
03300    2368  011326  000452                        BR      END52           ;SKIP REST OF TEST
03400    2369
03500    2370  011330  122767  000357  167074  ISA52:  CMPB    #357,   $PSW    ;CHECK PS AFTER FIS TRAP
03600    2371  011336  001402                        BEQ     .+6             ;BRANCH IF OK
03700    2372  011340  104000                        HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 357
03800    2373  011342  000366                        366                     ;THE ERROR NUMBER IS 366
03900    2374
04000    2375  011344  022767  011266  167064        CMP     #RTA52, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04100    2376  011352  001402                        BEQ     .+6             ;BRANCH IF OK
04200    2377  011354  104001                        HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04300    2378  011356  000367                        367                     ;THE ERROR NUMBER IS 367
04400    2379
04500    2380  011360  022767  000002  167052        CMP     #002,   ANS2    ;CHECK PS BEFORE FIS TRAP
04600    2381  011366  001402                        BEQ     .+6             ;BRANCH IF OK
04700    2382  011370  104002                        HLT+2                   ;PS AT FIS TRAP TIME NOT 002
04800    2383  011372  000370                        370                     ;THE ERROR NUMBER IS 370
04900    2384
05000    2385  011374  022767  041500  167040        CMP     #041500,ANS3    ;CHECK DATA FROM THE STACK
05100    2386  011402  001402                        BEQ     .+6             ;BRANCH IF OK
05200    2387  011404  104004                        HLT+4                   ;DATA ON STACK (041500) CHANGED
05300    2388  011406  000371                        371                     ;THE ERROR NUMBER IS 371
05400    2389
05500    2390  011410  022767  000001  167026        CMP     #000001,ANS4    ;CHECK DATA FROM STACK
05600    2391  011416  001402                        BEQ     .+6             ;BRANCH IF OK
05700    2392  011420  104004                        HLT+4                   ;DATA ON STACK (000001) CHANGED
05800    2393  011422  000372                        372                     ;THE ERROR NUMBER IS 372
05900    2394
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00300
00400    2395  011424  022767  076452  167014                CMP     #076452,ANS5    ;CHECK DATA FROM STACK
00500    2396  011432  001402                                BEQ     .+6             ;BRANCH IF OK
00600    2397  011434  104006                                HLT+6                   ;DATA ON STACK (076452) CHANGED
00700    2398  011436  000373                                373                     ;THE ERROR NUMBER IS 373
00800    2399
00900    2400  011440  022767  125252  167002                CMP     #125252,ANS6    ;CHECK DATA FROM STACK
01000    2401  011446  001402                                BEQ     .+6             ;BRANCH IF OK
01100    2402  011450  104006                                HLT+6                   ;DATA ON STACK (125252) CHANGED
01200    2403  011452  000374                                374                     ;THE ERROR NUMBER IS 374
01300    2404
01400    2405  011454  122767  000052  166722    END52:      CMPB    #52,    $TESTN  ;CHECK THE TEST NUMBER
01500    2406  011462  001402                                BEQ     .+6             ;BRANCH IF OK
01600    2407  011464  104000                                HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
01700    2408  011466  000375                                375                     ;THE ERROR NUMBER IS 375
01800    2409
01900    2410
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 58
00200   CVKACC.P**     16-AUG-78 08:41          FDIV TEST SECTION                                SEQ 0066
00300
00400     2411
00500     2412
00600     2413
00700     2414
00800     2415
00900     2416
01000     2417
01100     2418  011470  104400                          ;*****************************************************************************
01200     2419  011472  004567  004510                  ;TEST 53:       FDIV (LSI-11 FLOATING DIVIDE INSTRUCTION)
01300     2420  011476  127652  125252                  ;       167452,125251 / 127652,125252 = 077777,177776
01400     2421  011502  167452  125251                  ;       PS - 000,       STACK POINTER = R0
01500     2422  011506  000111                          ;*****************************************************************************
01600     2423  011510  016456  000340
01700     2424  011514  012700  000510
01800     2425
01900     2426  011520  000240
02000     2427  011522  075030
02100     2428
02200     2429  011524  004767  004510
02300     2430  011530  010067  166700
02400     2431  011534  105767  166672
02500     2432  011540  001402
02600     2433  011542  104000
02700     2434  011544  000376
02800     2435
02900     2436  011546  022767  000514  166660
03000     2437  011554  001402
03100     2438  011556  104000
03200     2439  011560  000377
03300     2440
03400     2441  011562  022767  077777  166646
03500     2442  011570  001402
03600     2443  011572  104002
03700     2444  011574  000400
03800     2445
03900     2446  011576  022767  177776  166634
04000     2447  011604  001402
04100     2448  011606  104002
04200     2449  011610  000401
04300     2450
04400     2451  011612  122767  000053  166564
04500     2452  011620  001402
04600     2453  011622  104000
04700     2454  011624  000402
04800     2455
04900     2456
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                SCOPE
TST53:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R0 STACK, SET PRIORITY
        .WORD   127652,125252   ;SECOND OPERAND ON TOP
        .WORD   167452,125251   ;FIRST OPERAND ON BOTTOM
        .WORD   111             ;PROCESSOR PRIORITY LEVEL
        .WORD   TRAPER, 340     ;FIS TRAP VECTOR
        MOV     #STACK0,R0      ;SHECK  STACK POINTER

        NOP
        FDIV    R0              ;FLOATING DIVIDE ON THE R0 STACK

        JSR     PC,     POPR    ;POP THE ANSWER
        MOV     R0,     $SP     ;SAVE ''STACK POINTER''
        TSTB    $PSW            ;CHECK PS (EXCEPT T BIT)
        BEQ     .+6             ;BRANCH IF OK
        HLT                     ;PS NOT EQUAL TO 000
        376                     ;THE ERROR NUMBER IS 376

        CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R0)
        BEQ     .+6             ;BRANCH IF OK
        HLT                     ;STACK POINTER (R0) NOT EQUAL TO #STACK4
        377                     ;THE ERROR NUMBER IS 377

        CMP     #077777,ANS1    ;CHECK FIRST HALF OF ANSWER
        BEQ     .+6             ;BRANCH IF OK
        HLT+2                   ;ANS1 NOT EQUAL TO 077777
        400                     ;THE ERROR NUMBER IS 400

        CMP     #177776,ANS2    ;CHECK SECOND HALF OF ANSWER
        BEQ     .+6             ;BRANCH IF OK
        HLT+2                   ;ANS2 NOT EQUAL TO 177776
        401                     ;THE ERROR NUMBER IS 401

END53:  CMPB    #53,    $TESTN  ;CHECK THE TEST NUMBER
        BEQ     .+6             ;BRANCH IF OK
        HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
        402                     ;THE ERROR NUMBER IS 402
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00300
00400    2457
00500    2458                    ;*****************************************************************************
00600    2459                    ;TEST 54:       FDIV (LSI-11 FLOATING DIVIDE INSTRUCTION)
00700    2460                    ;       167452,125252 / 027652,125253 = 177777,177777
00800    2461                    ;       PS   210,       STACK POINTER = SP
00900    2462                    ;*****************************************************************************
01000    2463
01100    2464  011626  104400                      SCOPE
01200    2465  011630  004567  004200    TST54:    JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300    2466  011634  027652  125253              .WORD   027652,125253   ;SECOND OPERAND ON TOP
01400    2467  011640  167452  125252              .WORD   167452,125252   ;FIRST OPERAND ON BOTTOM
01500    2468  011644  000300                      .WORD   300             ;PROCESSOR PRIORITY LEVEL
01600    2469  011646  016456  000340              .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700    2470
01800    2471  011652  000240                      NOP
01900    2472  011654  075036                      FDIV    SP              ;FLOATING DIVIDE ON THE STACK
02000    2473
02100    2474  011656  004767  004212            JSR     PC,     POPS    ;POP THE ANSWER
02200    2475  011662  022706  000600            CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02300    2476  011666  001405                    BEQ     TSA54           ;BRANCH IF OK
02400    2477  011670  012706  000600            MOV     #BEGIN, SP      ;RESTORE STACK POINTER
02500    2478  011674  104000                    HLT                     ;STACK POINTER FOULED UP
02600    2479  011676  000403                    403                     ;THE ERROR NUMBER IS 403
02700    2480  011700  000422                    BR      END54           ;SKIP REST OF TEST
02800    2481
02900    2482  011702  122767  000210  166522  TSA54:  CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
03000    2483  011710  001402                    BEQ     .+6             ;BRANCH IF OK
03100    2484  011712  104000                    HLT                     ;PS NOT EQUAL TO 210
03200    2485  011714  000404                    404                     ;THE ERROR NUMBER IS 404
03300    2486
03400    2487  011716  022767  177777  166512            CMP     #177777,ANS1    ;CHECK FIRST HALF OF ANSWER
03500    2488  011724  001402                    BEQ     .+6             ;BRANCH IF OK
03600    2489  011726  104002                    HLT+2                   ;ANS1 NOT EQUAL TO 177777
03700    2490  011730  000405                    405                     ;THE ERROR NUMBER IS 405
03800    2491
03900    2492  011732  022767  177777  166500            CMP     #177777,ANS2    ;CHECK SECOND HALF OF ANSWER
04000    2493  011740  001402                    BEQ     .+6             ;BRANCH IF OK
04100    2494  011742  104002                    HLT+2                   ;ANS2 NOT EQUAL TO 177777
04200    2495  011744  000406                    406                     ;THE ERROR NUMBER IS 406
04300    2496
04400    2497  011746  122767  000054  166430  END54:  CMPB    #54,    $TESTN  ;CHECK THE TEST NUMBER
04500    2498  011754  001402                    BEQ     .+6             ;BRANCH IF OK
04600    2499  011756  104000                    HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
04700    2500  011760  000407                    407                     ;THE ERROR NUMBER IS 407
04800    2501
04900    2502
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 60
00200   CVKACC.P11    16-AUG-78 08:41          FDIV TEST SECTION                                                    SEQ 0068
00300
00400     2503
00500     2504                                          ;*****************************************************************************
00600     2505                                          ;TEST 55:       FDIV (LSI-11 FLOATING DIVIDE INSTRUCTION)
00700     2506                                          ;       125252,125252 / 065252,125252 = 100200,000000
00800     2507                                          ;       PS   210,       STACK POINTER = R2
00900     2508                                          ;*****************************************************************************
01000     2509
01100     2510  011762  104400                                  SCOPE
01200     2511  011764  004567  004216          TST55:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R2 STACK, SET PRIORITY
01300     2512  011770  065252  125252                  .WORD   065252,125252   ;SECOND OPERAND ON TOP
01400     2513  011774  125252  125252                  .WORD   125252,125252   ;FIRST OPERAND ON BOTTOM
01500     2514  012000  000217                          .WORD   217             ;PROCESSOR PRIORITY LEVEL
01600     2515  012002  016456  000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01700     2516  012006  012702  000510                  MOV     #STACK0,R2      ;SHECK  STACK POINTER
01800     2517
01900     2518  012012  000240                          NOP
02000     2519  012014  075032                          FDIV    R2              ;FLOATING DIVIDE ON THE R2 STACK
02100     2520
02200     2521  012016  004767  004216                  JSR     PC,     POPR    ;POP THE ANSWER
02300     2522  012022  010267  166406                  MOV     R2,     $SP     ;SAVE ''STACK POINTER''
02400     2523  012026  122767  000210  166376          CMPB    #210,   $PSW    ;CHECK PS (EXCEPT T BIT)
02500     2524  012034  001402                          BEQ     .+6             ;BRANCH IF OK
02600     2525  012036  104000                          HLT                     ;PS NOT EQUAL TO 210
02700     2526  012040  000410                          410                     ;THE ERROR NUMBER IS 410
02800     2527
02900     2528  012042  022767  000514  166364          CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R2)
03000     2529  012050  001402                          BEQ     .+6             ;BRANCH IF OK
03100     2530  012052  104000                          HLT                     ;STACK POINTER (R2) NOT EQUAL TO #STACK4
03200     2531  012054  000411                          411                     ;THE ERROR NUMBER IS 411
03300     2532
03400     2533  012056  022767  100200  166352          CMP     #100200,ANS1    ;CHECK FIRST HALF OF ANSWER
03500     2534  012064  001402                          BEQ     .+6             ;BRANCH IF OK
03600     2535  012066  104002                          HLT+2                   ;ANS1 NOT EQUAL TO 100200
03700     2536  012070  000412                          412                     ;THE ERROR NUMBER IS 412
03800     2537
03900     2538  012072  005767  166342                  TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04000     2539  012076  001402                          BEQ     .+6             ;BRANCH IF OK
04100     2540  012100  104002                          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04200     2541  012102  000413                          413                     ;THE ERROR NUMBER IS 413
04300     2542
04400     2543  012104  122767  000055  166272  END55:  CMPB    #55,    $TESTN  ;CHECK THE TEST NUMBER
04500     2544  012112  001402                          BEQ     .+6             ;BRANCH IF OK
04600     2545  012114  104000                          HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
04700     2546  012116  000414                          414                     ;THE ERROR NUMBER IS 414
04800     2547
04900     2548
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00100
00200
00300
00400    2549
00500    2550
00600    2551
00700    2552
00800    2553
00900    2554
01000    2555
01100    2556  012120  104400                          ;*****************************************************************************
01200    2557  012122  004567  004060                  ;TEST 56:       FDIV (LSI-11 FLOATING DIVIDE INSTRUCTION)
01300    2558  012126  140670  123456                  ;       000000,000000 / 140670,123456 = 000000,000000
01400    2559  012132  000000  000000                  ;       PS   004,       STACK POINTER = R3
01500    2560  012136  000105                          ;*****************************************************************************
01600    2561  012140  016456  000340
01700    2562  012144  012703  000510  TST56:  SCOPE
01800    2563                          JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R3 STACK, SET PRIORITY
01900    2564  012150  000240          .WORD   140670,123456   ;SECOND OPERAND ON TOP
02000    2565  012152  075033          .WORD   000000,000000   ;FIRST OPERAND ON BOTTOM
02100    2566                          .WORD   105             ;PROCESSOR PRIORITY LEVEL
02200    2567  012154  004767  004060  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
02300    2568  012160  010367  166250  MOV     #STACK0,R3      ;SHECK  STACK POINTER
02400    2569  012164  122767  000004  166240
02500    2570  012172  001402          NOP
02600    2571  012174  104000          FDIV    R3              ;FLOATING DIVIDE ON THE R3 STACK
02700    2572  012176  000415
02800    2573                          JSR     PC,     POPR    ;POP THE ANSWER
02900    2574  012200  022767  000514  166226  MOV     R3,     $SP     ;SAVE ''STACK POINTER''
03000    2575  012206  001402          CMPB    #004,   $PSW    ;CHECK PS (EXCEPT T BIT)
03100    2576  012210  104000          BEQ     .+6             ;BRANCH IF OK
03200    2577  012212  000416          HLT                     ;PS NOT EQUAL TO 004
03300    2578                          415                     ;THE ERROR NUMBER IS 415
03400    2579  012214  005767  166216
03500    2580  012220  001402          CMP     #STACK4,$SP     ;CHECK THE STACK POINTER (R3)
03600    2581  012222  104002          BEQ     .+6             ;BRANCH IF OK
03700    2582  012224  000417          HLT                     ;STACK POINTER (R3) NOT EQUAL TO #STACK4
03800    2583                          416                     ;THE ERROR NUMBER IS 416
03900    2584  012226  005767  166206
04000    2585  012232  001402          TST     ANS1            ;CHECK FIRST HALF OF ANSWER
04100    2586  012234  104002          BEQ     .+6             ;BRANCH IF OK
04200    2587  012236  000420          HLT+2                   ;ANS1 NOT EQUAL TO 000000
04300    2588                          417                     ;THE ERROR NUMBER IS 417
04400    2589  012240  122767  000056  166136
04500    2590  012246  001402          TST     ANS2            ;CHECK SECOND HALF OF ANSWER
04600    2591  012250  104000          BEQ     .+6             ;BRANCH IF OK
04700    2592  012252  000421          HLT+2                   ;ANS2 NOT EQUAL TO 000000
04800    2593                          420                     ;THE ERROR NUMBER IS 420
04900    2594
                         END56:  CMPB    #56,    $TESTN  ;CHECK THE TEST NUMBER
                                 BEQ     .+6             ;BRANCH IF OK
                                 HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
                                 421                     ;THE ERROR NUMBER IS 421
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 62
00200   CVKACC.P11    16-AUG-78 08:41          FDIV TEST SECTION                                SEQ 0070
00300
00400     2595
00500     2596                          ;*****************************************************************************
00600     2597                          ;TEST 57:       FDIV (LSI-11 FLOATING DIVIDE INSTRUCTION)
00700     2598                          ;       102500,146000 / 104000,104000 = 036700,000000
00800     2599                          ;       PS = 200,       STACK POINTER = PC
00900     2600                          ;*****************************************************************************
01000     2601
01100     2602  012254  104400                        SCOPE
01200     2603  012256  004567  004076        TST57:  JSR     R5,     PUSH7   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300     2604  012262  012306                        .WORD   STK57           ;TOP OF STACK
01400     2605  012264  104000  104000                .WORD   104000,104000   ;SECOND OPERAND ON TOP
01500     2606  012270  102500  146000                .WORD   102500,146000   ;FIRST OPERAND ON BOTTOM
01600     2607  012274  000357                        .WORD   357             ;PROCESSOR PRIORITY LEVEL
01700     2608  012276  016456  000340                .WORD   TRAPER,340      ;FIS TRAP VECTOR
01800     2609
01900     2610  012302  000240                        NOP
02000     2611  012304  075037                        FDIV    PC              ;FLOATING DIVIDE ON FOLLOWING 4 WORDS
02100     2612  012306  104000        STK57:  104000                          ;SHOULD CONTAIN 104000
02200     2613  012310  104000                104000                          ;SHOULD CONTAIN 104000
02300     2614  012312  102500                102500                          ;BEFORE FDIV, 102500; AFTER, 036700
02400     2615  012314  146000                146000                          ;BEFORE FDIV, 146000; AFTER, 000000
02500     2616
02600     2617  012316  004767  004066                JSR     PC,     POP7    ;POP THE ANSWER
02700     2618  012322  122767  000200  166102        CMPB    #200,   $PSW    ;CHECK PS (EXCEPT T BIT)
02800     2619  012330  001402                        BEQ     .+6             ;BRANCH IF OK
02900     2620  012332  104000                        HLT                     ;PS NOT EQUAL TO 200
03000     2621  012334  000422                        422                     ;THE ERROR NUMBER IS 422
03100     2622
03200     2623  012336  022767  104000  166072        CMP     #104000,ANS1    ;CHECK FIRST HALF OF INPUT DATA (STK57)
03300     2624  012344  001402                        BEQ     .+6             ;BRANCH IF OK
03400     2625  012346  104002                        HLT+2                   ;ANS1 NOT EQUAL TO 104000
03500     2626  012350  000423                        423                     ;THE ERROR NUMBER IS 423
03600     2627
03700     2628  012352  022767  104000  166060        CMP     #104000,ANS2    ;CHECK SECOND HALF OF INPUT DATA (STK57+2)
03800     2629  012360  001402                        BEQ     .+6             ;BRANCH IF OK
03900     2630  012362  104002                        HLT+2                   ;ANS2 NOT EQUAL TO 104000
04000     2631  012364  000424                        424                     ;THE ERROR NUMBER IS 424
04100     2632
04200     2633  012366  022767  036700  166046        CMP     #036700,ANS3    ;CHECK FIRST HALF OF ANSWER
04300     2634  012374  001402                        BEQ     .+6             ;BRANCH IF OK
04400     2635  012376  104004                        HLT+4                   ;ANS3 NOT EQUAL TO 036700
04500     2636  012400  000425                        425                     ;THE ERROR NUMBER IS 425
04600     2637
04700     2638  012402  005767  166046                TST     ANS4            ;CHECK SECOND HALF OF ANSWER
04800     2639  012406  001402                        BEQ     .+6             ;BRANCH IF OK
04900     2640  012410  104004                        HLT+4                   ;ANS4 NOT EQUAL TO 000000
05000     2641  012412  000426                        426                     ;THE ERROR NUMBER IS 426
05100     2642
05200     2643  012414  122767  000057  165762        END57:  CMPB    #57,    $TESTN  ;CHECK THE TEST NUMBER
05300     2644  012422  001402                        BEQ     .+6             ;BRANCH IF OK
05400     2645  012424  104000                        HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
05500     2646  012426  000427                        427                     ;THE ERROR NUMBER IS 427
05600     2647
05700     2648
05800     2649
05900     2650                          ;*****************************************************************************
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 63
00200   CVKACC.P11     16-AUG-78 08:41          TEST FLOATING DIV. INSTRUCTION WITH UNDERFLOW                    SEQ 0071
00300
00400     2651                                  ;TEST 60:       FDIV (LSI-11 FLOATING DIVIDE INSTRUCTION)
00500     2652                                  ;       025252,125251 / 065252,125252 ==> UNDERFLOW
00600     2653                                  ;       PS(ON STACK) = 012,     STACK POINTER = R1
00700     2654                                  ;*****************************************************************
00800     2655
00900     2656  012430  104400                          SCOPE
01000     2657  012432  004567  003550        TST60:  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R1 STACK, SET PRIORITY
01100     2658  012436  065252  125252                .WORD   065252,125252   ;SECOND OPERAND ON TOP
01200     2659  012442  025252  125251                .WORD   025252,125251   ;FIRST OPERAND ON BOTTOM
01300     2660  012446  000015                        .WORD   015             ;PROCESSOR PRIORITY LEVEL
01400     2661  012450  012502  000300                .WORD   ISR60,  300     ;FIS TRAP VECTOR
01500     2662  012454  012701  000510                MOV     #STACK0,R1      ;SET UP R1 AS STACK POINTER
01600     2663
01700     2664  012460  000240                        NOP
01800     2665  012462  075031                        FDIV    R1              ;FLOATING DIVIDE ON THE R1 STACK
01900     2666
02000     2667  012464  004767  003550        RTA60:  JSR     PC,     POPR    ;POP THE ''ANSWER''
02100     2668  012470  010167  165740                MOV     R1,     $SP     ;SAVE STACK POINTER (R1)
02200     2669  012474  104002                        HLT+2                   ;FIS TRAP DIDN'T OCCURE!
02300     2670  012476  000430                        430                     ;THE ERROR NUMBER IS 430
02400     2671  012500  000464                        BR      END60
02500     2672
02600     2673  012502  004767  003562        ISR60:  JSR     PC,     POPER   ;POP ALL DATA OFF THE STACKS
02700     2674  012506  010167  165722                MOV     R1,     $SP     ;SAVE STACK POINTER (R1)
02800     2675  012512  122767  000300  165712        CMPB    #300,   $PSW    ;CHECK PS AFTER FIS TRAP
02900     2676  012520  001402                        BEQ     .+6             ;BRANCH IF OK
03000     2677  012522  104000                        HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 300
03100     2678  012524  000431                        431                     ;THE ERROR NUMBER IS 431
03200     2679
03300     2680  012526  022767  000510  165700        CMP     #STACK0,$SP     ;CHECK THE STACK POINTER (R1)
03400     2681  012534  001402                        BEQ     .+6             ;BRANCH IF OK
03500     2682  012536  104000                        HLT                     ;STACK POINTER (R1) NOT EQUAL TO #STACK0
03600     2683  012540  000432                        432                     ;THE ERROR NUMBER IS 432
03700     2684
03800     2685  012542  022767  012464  165666        CMP     #RTA60, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
03900     2686  012550  001402                        BEQ     .+6             ;BRANCH IF OK
04000     2687  012552  104001                        HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04100     2688  012554  000433                        433                     ;THE ERROR NUMBER IS 433
04200     2689
04300     2690  012556  022767  000012  165654        CMP     #012,   ANS2    ;CHECK PS BEFORE FIS TRAP
04400     2691  012564  001402                        BEQ     .+6             ;BRANCH IF OK
04500     2692  012566  104002                        HLT+2                   ;PS AT FIS TRAP TIME NOT 012
04600     2693  012570  000434                        434                     ;THE ERROR NUMBER IS 434
04700     2694
04800     2695  012572  022767  065252  165642        CMP     #065252,ANS3    ;CHECK DATA FROM THE STACK
04900     2696  012600  001402                        BEQ     .+6             ;BRANCH IF OK
05000     2697  012602  104004                        HLT+4                   ;DATA ON STACK (065252) CHANGED
05100     2698  012604  000435                        435                     ;THE ERROR NUMBER IS 435
05200     2699
05300     2700  012606  022767  125252  165630        CMP     #125252,ANS4    ;CHECK DATA FROM STACK
05400     2701  012614  001402                        BEQ     .+6             ;BRANCH IF OK
05500     2702  012616  104004                        HLT+4                   ;DATA ON STACK (125252) CHANGED
05600     2703  012620  000436                        436                     ;THE ERROR NUMBER IS 436
05700     2704
05800     2705  012622  022767  025252  165616        CMP     #025252,ANS5    ;CHECK DATA FROM STACK
05900     2706  012630  001402                        BEQ     .+6             ;BRANCH IF OK
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 64
00200   CVKACC.P11    16-AUG-78 08:41          TEST FLOATING DIV. INSTRUCTION WITH UNDERFLOW                    SEQ 007
00300
00400     2707  012632  104006                                  HLT+6                   ;DATA ON STACK (025252) CHANGED
00500     2708  012634  000437                                  437                     ;THE ERROR NUMBER IS 437
00600     2709
00700     2710  012636  022767  125251  165604                  CMP     #125251,ANS6    ;CHECK DATA FROM STACK
00800     2711  012644  001402                                  BEQ     .+6             ;BRANCH IF OK
00900     2712  012646  104006                                  HLT+6                   ;DATA ON STACK (125251) CHANGED
01000     2713  012650  000440                                  440                     ;THE ERROR NUMBER IS 440
01100     2714
01200     2715  012652  122767  000060  165524          END60:  CMPB    #60,    $TESTN  ;CHECK THE TEST NUMBER
01300     2716  012660  001402                                  BEQ     .+6             ;BRANCH IF OK
01400     2717  012662  104000                                  HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
01500     2718  012664  000441                                  441                     ;THE ERROR NUMBER IS 441
01600     2719
01700     2720
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00100  CVKAGC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 65
00200  CVKAGC.P11     16-AUG-78 08:41          TEST FLOATING DIV INSTRUCTION WITH OVERFLOW                    SEQ 0072
00300
00400     2721
00500     2722                    ;**********************************************************************
00600     2723                    ;TEST 61:       FDIV (LSI-11 FLOATING DIVIDE INSTRUCTION)
00700     2724                    ;       067452,125252 / 127652,125252 -=> OVERFLOW
00800     2725                    ;       PS(ON STACK) - 202,     STACK POINTER - R4
00900     2726                    ;**********************************************************************
01000     2727
01100     2728  012666  104400                      SCOPE
01200     2729  012670  004567  003312    TST61:    JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R4 STACK, SET PRIORITY
01300     2730  012674  127652  125252              .WORD   127652,125252   ;SECOND OPERAND ON TOP
01400     2731  012700  067452  125252              .WORD   067452,125252   ;FIRST OPERAND ON BOTTOM
01500     2732  012704  000242                      .WORD   242             ;PROCESSOR PRIORITY LEVEL
01600     2733  012706  012740  000357              .WORD   ISR61,  357     ;FIS TRAP VECTOR
01700     2734  012712  012704  000510              MOV     #STACK0,R4      ;SET UP R4 AS STACK POINTER
01800     2735
01900     2736  012716  000240                      NOP
02000     2737  012720  075034                      FDIV    R4              ;FLOATING DIVIDE ON THE R4 STACK
02100     2738
02200     2739  012722  004767  003312    RTA61:    JSR     PC,     POPR    ;POP THE ''ANSWER''
02300     2740  012726  010467  165502              MOV     R4,     $SP     ;SAVE STACK POINTER (R4)
02400     2741  012732  104002                      HLT+2                   ;FIS TRAP DIDN'T OCCURE.
02500     2742  012734  000442                      442                     ;THE ERROR NUMBER IS 442
02600     2743  012736  000464                      BR      END61
02700     2744
02800     2745  012740  004767  003324    ISR61:    JSR     PC,     POPER   ;POP ALL DATA OFF THE STACKS
02900     2746  012744  010467  165464              MOV     R4,     $SP     ;SAVE STACK POINTER (R4)
03000     2747  012750  122767  000357  165454      CMPB    #357,   $PSW    ;CHECK PS AFTER FIS TRAP
03100     2748  012756  001402                      BEQ     .+6             ;BRANCH IF OK
03200     2749  012760  104000                      HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 357
03300     2750  012762  000443                      443                     ;THE ERROR NUMBER IS 443
03400     2751
03500     2752  012764  022767  000510  165442      CMP     #STACK0,$SP     ;CHECK THE STACK POINTER (R4)
03600     2753  012772  001402                      BEQ     .+6             ;BRANCH IF OK
03700     2754  012774  104000                      HLT                     ;STACK POINTER (R4) NOT EQUAL TO #STACK0
03800     2755  012776  000444                      444                     ;THE ERROR NUMBER IS 444
03900     2756
04000     2757  013000  022767  012722  165430      CMP     #RTA61, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04100     2758  013006  001402                      BEQ     .+6             ;BRANCH IF OK
04200     2759  013010  104001                      HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04300     2760  013012  000445                      445                     ;THE ERROR NUMBER IS 445
04400     2761
04500     2762  013014  022767  000202  165416      CMP     #202,   ANS2    ;CHECK PS BEFORE FIS TRAP
04600     2763  013022  001402                      BEQ     .+6             ;BRANCH IF OK
04700     2764  013024  104002                      HLT+2                   ;PS AT FIS TRAP TIME NOT 202
04800     2765  013026  000446                      446                     ;THE ERROR NUMBER IS 446
04900     2766
05000     2767  013030  022767  127652  165404      CMP     #127652,ANS3    ;CHECK DATA FROM THE STACK
05100     2768  013036  001402                      BEQ     .+6             ;BRANCH IF OK
05200     2769  013040  104004                      HLT+4                   ;DATA ON STACK (127652) CHANGED
05300     2770  013042  000447                      447                     ;THE ERROR NUMBER IS 447
05400     2771
05500     2772  013044  022767  125252  165372      CMP     #125252,ANS4    ;CHECK DATA FROM STACK
05600     2773  013052  001402                      BEQ     .+6             ;BRANCH IF OK
05700     2774  013054  104004                      HLT+4                   ;DATA ON STACK (125252) CHANGED
05800     2775  013056  000450                      450                     ;THE ERROR NUMBER IS 450
05900     2776
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 66
00200   CVKACC.P11    16-AUG-78 08:41          TEST FLOATING DIV INSTRUCTION WITH OVERFLOW                    SEQ 00
00300
00400     2777  013060  022767  067452  165360                  CMP     #067452,ANS5    ;CHECK DATA FROM STACK
00500     2778  013066  001402                                  BEQ     .+6             ;BRANCH IF OK
00600     2779  013070  104006                                  HLT+6                   ;DATA ON STACK (067452) CHANGED
00700     2780  013072  000451                                  451                     ;THE ERROR NUMBER IS 451
00800     2781
00900     2782  013074  022767  125252  165346                  CMP     #125252,ANS6    ;CHECK DATA FROM STACK
01000     2783  013102  001402                                  BEQ     .+6             ;BRANCH IF OK
01100     2784  013104  104006                                  HLT+6                   ;DATA ON STACK (125252) CHANGED
01200     2785  013106  000452                                  452                     ;THE ERROR NUMBER IS 452
01300     2786
01400     2787  013110  122767  000061  165266          END61:  CMPB    #61,    $TESTN  ;CHECK THE TEST NUMBER
01500     2788  013116  001402                                  BEQ     .+6             ;BRANCH IF OK
01600     2789  013120  104000                                  HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
01700     2790  013122  000453                                  453                     ;THE ERROR NUMBER IS 453
01800     2791
01900     2792
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00300
00400    2793
00500    2794
00600    2795
00700    2796
00800    2797
00900    2798
01000    2799
01100    2800  013124  104400                    ;*****************************************************************************
01200    2801  013126  004567  003054            ;TEST 62:      FDIV (LSI-11 FLOATING DIVIDE INSTRUCTION)
01300    2802  013132  100125  125252            ;      052525,052525 / 100125,125252 ==> DIVIDE BY ZERO
01400    2803  013136  052525  052525            ;      PS(ON STACK) - 013,     STACK POINTER = R5
01500    2804  013142  000047                    ;*****************************************************************************
01600    2805  013144  013176  000113
01700    2806  013150  012705  000510            TST62:  SCOPE
01800    2807                                            JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R5 STACK, SET PRIORITY
01900    2808  013154  000240                            .WORD   100125,125252   ;SECOND OPERAND ON TOP
02000    2809  013156  075035                            .WORD   052525,052525   ;FIRST OPERAND ON BOTTOM
02100    2810                                            .WORD   047             ;PROCESSOR PRIORITY LEVEL
02200    2811  013160  004767  003054                    .WORD   ISR62,  113     ;FIS TRAP VECTOR
02300    2812  013164  010567  165244                    MOV     #STACK0,R5      ;SET UP R5 AS STACK POINTER
02400    2813  013170  104002
02500    2814  013172  000454                    RTA62:  JSR     PC,     POPR    ;POP THE ''ANSWER''
02600    2815  013174  000464                            MOV     R5,     $SP     ;SAVE STACK POINTER (R5)
02700    2816                                            HLT+2                   ;FIS TRAP DIDN'T OCCURE!
02800    2817  013176  004767  003066                    454                     ;THE ERROR NUMBER IS 454
02900    2818  013202  010567  165226                    BR      END62
03000    2819  013206  122767  000113  165216
03100    2820  013214  001402                    ISR62:  JSR     PC,     POPER   ;POP ALL DATA OFF THE STACKS
03200    2821  013216  104000                            MOV     R5,     $SP     ;SAVE STACK POINTER (R5)
03300    2822  013220  000455                            CMPB    #113,   $PSW    ;CHECK PS AFTER FIS TRAP
03400    2823                                            BEQ     .+6             ;BRANCH IF OK
03500    2824  013222  022767  000510  165204          HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 113
03600    2825  013230  001402                          455                     ;THE ERROR NUMBER IS 455
03700    2826  013232  104000
03800    2827  013234  000456                          CMP     #STACK0,$SP     ;CHECK THE STACK POINTER (R5)
03900    2828                                          BEQ     .+6             ;BRANCH IF OK
04000    2829  013236  022767  013160  165172        HLT                     ;STACK POINTER (R5) NOT EQUAL TO #STACK0
04100    2830  013244  001402                        456                     ;THE ERROR NUMBER IS 456
04200    2831  013246  104001
04300    2832  013250  000457                        CMP     #RTA62, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04400    2833                                        BEQ     .+6             ;BRANCH IF OK
04500    2834  013252  022767  000013  165160      HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04600    2835  013260  001402                      457                     ;THE ERROR NUMBER IS 457
04700    2836  013262  104002
04800    2837  013264  000460                      CMP     #013,   ANS2    ;CHECK PS BEFORE FIS TRAP
04900    2838                                      BEQ     .+6             ;BRANCH IF OK
05000    2839  013266  022767  100125  165146      HLT+2                   ;PS AT FIS TRAP TIME NOT 013
05100    2840  013274  001402                      460                     ;THE ERROR NUMBER IS 460
05200    2841  013276  104004
05300    2842  013300  000461                      CMP     #100125,ANS3    ;CHECK DATA FROM THE STACK
05400    2843                                      BEQ     .+6             ;BRANCH IF OK
05500    2844  013302  022767  125252  165134      HLT+4                   ;DATA ON STACK (100125) CHANGED
05600    2845  013310  001402                      461                     ;THE ERROR NUMBER IS 461
05700    2846  013312  104004
05800    2847  013314  000462                      CMP     #125252,ANS4    ;CHECK DATA FROM STACK
05900    2848                                      BEQ     .+6             ;BRANCH IF OK
                                                   HLT+4                   ;DATA ON STACK (125252) CHANGED
                                                   462                     ;THE ERROR NUMBER IS 462
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00300
00400    2849  013316  022767  052525  165122                  CMP     #052525,ANS5    ;CHECK DATA FROM STACK
00500    2850  013324  001402                                  BEQ     .+6             ;BRANCH IF OK
00600    2851  013326  104006                                  HLT+6                   ;DATA ON STACK (052525) CHANGED
00700    2852  013330  000463                                  463                     ;THE ERROR NUMBER IS 463
00800    2853
00900    2854  013332  022767  052525  165110                  CMP     #052525,ANS6    ;CHECK DATA FROM STACK
01000    2855  013340  001402                                  BEQ     .+6             ;BRANCH IF OK
01100    2856  013342  104006                                  HLT+6                   ;DATA ON STACK (052525) CHANGED
01200    2857  013344  000464                                  464                     ;THE ERROR NUMBER IS 464
01300    2858
01400    2859  013346  122767  000062  165030          END62:  CMPB    #62.    $TESTN  ;CHECK THE TEST NUMBER
01500    2860  013354  001402                                  BEQ     .+6             ;BRANCH IF OK
01600    2861  013356  104000                                  HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
01700    2862  013360  000465                                  465                     ;THE ERROR NUMBER IS 465
01800    2863
01900    2864
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00100
00200
00300
00400    2865
00500    2866                    ;*****************************************************************************
00600    2867                    ;TEST 63:      FDIV (LSI-11 FLOATING DIVIDE INSTRUCTION)
00700    2868                    ;      100052,052525 / 000006,123456 ==> DIVIDE BY ZERO
00800    2869                    ;      PS(ON STACK) = 213,     STACK POINTER = SP
00900    2870                    ;*****************************************************************************
01000    2871
01100    2872  013362  104400                      SCOPE
01200    2873  013364  004567  002444    TST63:    JSR     R5,     PUSHS   ;PUSH 4 WORDS ONTO STACK, SET PRIORITY
01300    2874  013370  000006  123456              .WORD   000006,123456   ;SECOND OPERAND ON TOP
01400    2875  013374  100052  052525              .WORD   100052,052525   ;FIRST OPERAND ON BOTTOM
01500 ** 2876  013400  000357                      .WORD   357             ;PROCESSOR PRIORITY LEVEL
01600    2877  013402  013430  000311              .WORD   ISR63,  311     ;FIS TRAP VECTOR
01700    2878
01800    2879  013406  000240                      NOP
01900    2880  013410  075036                      FDIV    SP              ;FLOATING DIVIDE ON THE STACK
02000    2881
02100    2882  013412  004767  002456    RTA63:    JSR     PC,     POPS    ;POP THE ''ANSWER''
02200    2883  013416  104002                      HLT+2                   ;FIS TRAP DIDN'T OCCURE!
02300    2884  013420  000466                      466                     ;THE ERROR NUMBER IS 466
02400    2885  013422  012706  000600              MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
02500    2886  013426  000464                      BR      END63
02600    2887
02700    2888  013430  004767  002472    ISR63:    JSR     PC,     POPES   ;POP ALL DATA OFF THE STACK
02800    2889  013434  022706  000600              CMP     #BEGIN, SP      ;CHECK THE STACK POINTER
02900    2890  013440  001405                      BEQ     ISA63           ;BRANCH IF OK
03000    2891  013442  012706  000600              MOV     #BEGIN, SP      ;RESTORE THE STACK POINTER
03100    2892  013446  104000                      HLT                     ;STACK POINTER FOULED UP
03200    2893  013450  000467                      467                     ;THE ERROR NUMBER IS 467
03300    2894  013452  000452                      BR      END63           ;SKIP REST OF TEST
03400    2895
03500    2896  013454  122767  000311  164750    ISA63:    CMPB    #311,   $PSW    ;CHECK PS AFTER FIS TRAP
03600    2897  013462  001402                      BEQ     .+6             ;BRANCH IF OK
03700    2898  013464  104000                      HLT                     ;PS AFTER FIS TRAP NOT EQUAL TO 311
03800    2899  013466  000470                      470                     ;THE ERROR NUMBER IS 470
03900    2900
04000    2901  013470  022767  013412  164740              CMP     #RTA63, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04100    2902  013476  001402                      BEQ     .+6             ;BRANCH IF OK
04200    2903  013500  104001                      HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04300    2904  013502  000471                      471                     ;THE ERROR NUMBER IS 471
04400    2905
04500    2906  013504  022767  000213  164726              CMP     #213,   ANS2    ;CHECK PS BEFORE FIS TRAP
04600    2907
04700    2908
04800    2909
04900    2910
05000    2911
05100    2912
05200    2913  013512  001402                      BEQ     .+6             ;BRANCH IF OK
05300    2914  013514  104002                      HLT+2                   ;PS AT FIS TRAP TIME NOT 213
05400    2915  013516  000472                      472                     ;THE ERROR NUMBER IS 472
05500    2916
05600    2917  013520  022767  000006  164714              CMP     #000006,ANS3    ;CHECK DATA FROM THE STACK
05700    2918  013526  001402                      BEQ     .+6             ;BRANCH IF OK
05800    2919  013530  104004                      HLT+4                   ;DATA ON STACK (000006) CHANGED
05900    2920  013532  000473                      473                     ;THE ERROR NUMBER IS 473
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 70
00200   CVKACC.P11    16-AUG-78 08:41          TEST FLOATING DIV. INSTRUCTION FOR DIVIDE BY ZERO                    SEQ 0078
00300
00400     2921
00500     2922  013534  022767  123456  164702              CMP     #123456,ANS4    ;CHECK DATA FROM STACK
00600     2923  013542  001402                              BEQ     .+6             ;BRANCH IF OK
00700     2924  013544  104004                              HLT+4                   ;DATA ON STACK (123456) CHANGED
00800     2925  013546  000474                              474                     ;THE ERROR NUMBER IS 474
00900     2926
01000     2927  013550  022767  100052  164670              CMP     #100052,ANS5    ;CHECK DATA FROMONG TK
01100     2928  013556  001402                              BEQ     .+6             ;BRANCH IF OK
01200     2929  013560  104006                              HLT+6                   ;DATA ON STACK (100052) CHANGED
01300     2930  013562  000475                              475                     ;THE ERROR NUMBER IS 475
01400     2931
01500     2932  013564  022767  052525  164656              CMP     #052525,ANS6    ;CHECK DATA FROM STACK
01600     2933  013572  001402                              BEQ     .+6             ;BRANCH IF OK
01700     2934  013574  104006                              HLT+6                   ;DATA ON STACK (052525) CHANGED
01800     2935  013576  000476                              476                     ;THE ERROR NUMBER IS 476
01900     2936
02000     2937  013600  122767  000063   64576  ENDG3:     CMPB    #63,    $TESTN  ;CHECK THE TEST NUMBER
02100     2938  013606  001402                              BEQ     .+6             ;BRANCH IF OK
02200     2939  013610  104000                              HLT                     ;WREST!  PC MUST HAVE FOULED UP.
02300     2940  013612  000477                              477                     ;THE ERROR NUMBER IS 477
02400     2941
02500     2942
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00100
00200
00300
00400     2943
00500     2944
00600     2945
00700     2946
00800     2947
00900     2948
01000     2949
01100     2950
01200     2951
01300     2952  013614  104400                ;*****************************************************************
01400     2953  013616  012704  000532        ;TEST 64:       TEST ALL INSTRUCTION TOGETHER
01500     2954  013622  012744  107070        ;                        032107,065432 * 045670,123456
01600     2955  013626  012744  134343        ;       134343,107070 + ------------------------------ - 137201,115230
01700     2956  013632  012744  065432        ;                        (135252,125252 - 040616,016161)
01800     2957  013636  012744  032107        ;       PS=010, STACK POINTER=R4
01900     2958  013642  012744  123456        ;*****************************************************************
02000     2959  013646  012744  045670
02100     2960  013652  012744  125252            SCOPE
02200     2961  013656  012744  135252    TST64:  MOV     #STAK10,R4      ;SET STACK POINTER
02300     2962  013662  012744  016161            MOV     #107070,-(R4)   ;LOAD DATA ONTO STACK
02400     2963  013666  012744  040616            MOV     #134343,-(R4)
02500     2964  013672                            MOV     #065432,-(R4)
02600     2965  013672  106427                    MOV     #032107,-(R4)
02700     2966                                    MOV     #123456,-(R4)
02800     2967  013676  000240                    MOV     #045670,-(R4)
02900     2968  013700  075014                    MOV     #125252,-(R4)
03000     2969  013702  075034                    MOV     #135252,-(R4)
03100     2970  013704  075024                    MOV     #016161,-(R4)
03200     2971  013706  075004                    MOV     #040616,-(R4)
03300     2972                                    MTPS    #144            ;SET PROCESSOR STATUS
03400     2973  013710                            .WORD   ^106400...C
03500     2974  013710  106767
03600     2975  013714  042767  000020  164510  BIC     #20,    $PSW    ;CLR T-BIT
03700     2976  013722  012467  164510          MOV     (R4)+,  ANS1    ;SAVE FIRST HALF OF ANSWER
03800     2977  013726  012467  164506          MOV     (R4)+,  ANS2    ;SAVE SECOND HALF OF ANSWER
03900     2978  013732  010467  164476          MOV     R4,     $SP     ;SAVE STACK POINTER
04000     2979  013736  122767  000010  164466  CMPB    #010,   $PSW    ;CHECK PS (EXCEPT T BIT)
04100     2980  013744  001402                  BEQ     .+6             ;BRANCH IF OK
04200     2981  013746  104000                  HLT                     ;PS NOT EQUAL TO 010
04300     2982  013750  000500                  500                     ;THE ERROR NUMBER IS 500
04400     2983
04500     2984  013752  022767  000532  164454  CMP     #STAK10,$SP     ;CHECK THE STACK POINTER (R4)
04600     2985  013760  001402                  BEQ     .+6             ;BRANCH IF OK
04700     2986  013762  104000                  HLT                     ;STACK POINTER (R4) NOT EQUAL TO THE
04800     2987  013764  000501                  501                     ;THE ERROR NUMBER IS 501
04900     2988                                                          ;ADDRESS OF STAK10
05000     2989
05100     2990  013766  022767  137201  164442  CMP     #137201,ANS1    ;CHECK FIRST HALF OF ANSWER
05200     2991  013774  001402                  BEQ     .+6             ;BRANCH IF OK
05300     2992  013776  104002                  HLT+2                   ;ANS1 NOT EQUAL TO 137201
05400     2993  014000  000502                  502                     ;THE ERROR NUMBER IS 502
05500     2994
05600     2995  014002  022767  115230  164430  CMP     #115230,ANS2    ;CHECK SECOND HALF OF ANSWER
05700     2996  014010  001402                  BEQ     .+6             ;BRANCH IF OK
05800     2997  014012  104002                  HLT+2                   ;ANS2 NOT EQUAL TO 115230
05900     2998  014014  000503                  503                     ;THE ERROR NUMBER IS 503
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 72
00200   CVK4CC.P11    16-AUG-78 08:41          TEST OF ALL FIS AT ONCE                                    SEQ 0080
00300
00400     2999
00500     3000  014016  122767  000064  164360          END64:  CMPB    #64,    $TESTN  ;CHECK THE TEST NUMBER
00600     3001  014024  001402                                  BEQ     .+6             ;BRANCH IF OK
00700     3002  014026  104000                                  HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
00800     3003  014030  000504                                  504                     ;THE ERROR NUMBER IS 504
00900     3004
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00300
00400    3005
00500    3006
00600    3007
00700    3008
00800    3009
00900    3010
01000    3011  014032  104400                          ;*****************************************************************************
01100    3012  014034  012737  014124  000004         ;TEST 65:       TEST THAT STACK POINTER ADDRESS ERROR CAUSES ABORT
01200    3013  014042  012737  000340  000006         ;       INSTRUCTION = FADD,     STACK POINTER = R2
01300    3014  014050  004567  002132                  ;*****************************************************************************
01400    3015  014054  070707  016161
01500    3016  014060  146314  143434          TST65:  SCOPE
01600    3017  014064  000143                          MOV     #ISR65, @#4     ;SET UP ADDRESS TRAP VECTOR
01700    3018  014066  016456  000340                  MOV     #340,   @#6
01800    3019  014072                                  JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R2 STACK, SET PRIORITY
01900    3020  014072  106427                          .WORD   070707,016161   ;SECOND OPERAND ON TOP
02000    3021  014076  012702  177777                  .WORD   146314,143434   ;FIRST OPERAND ON BOTTOM
02100    3022                                          .WORD   143             ;PROCESSOR PRIORITY LEVEL
02200    3023  014102  000240                          .WORD   TRAPER, 340     ;FIS TRAP VECTOR
02300    3024  014104  075002                          MTPS    #143            ;SET PROCESSOR STATUS
02400    3025                                          .WORD   106400...C
02500    3026  014106  004767  002126                  MOV     #177777,R2      ;SET UP R2 AS STACK POINTER
02600    3027  014112  010267  164316
02700    3028  014116  104002                  RTA65:  JSR     PC,     POPR    ;POP THE ''ANSWER''
02800    3029  014120  000505                          MOV     R2,     $SP     ;SAVE STACK POINTER (R2)
02900    3030  014122  000464                          HLT+2                   ;FIS TRAP DIDN'T OCCURE.
03000    3031                                          505                     ;THE ERROR NUMBER IS 505
03100    3032  014124  004767  002140                  BR      END65
03200    3033  014130  010267  16 300
03300    3034  014134  122767  000340  164270  ISR65:  JSR     PC,     POPER   ;POP ALL DATA OFF THE STACKS
03400    3035  014142  001402                          MOV     R2,     $SP     ;SAVE STACK POINTER (R2)
03500    3036  014144  104000                          CMPB    #340,   $PSW    ;CHECK PS AFTER ADR. ERR. TRAP
03600    3037  014146  000506                          BEQ     .+6             ;BRANCH IF OK
03700    3038                                          HLT                     ;PS AFTER TRAP NOT EQUAL TO 340
03800    3039  014150  022767  177777  164256          506                     ;THE ERROR NUMBER IS 506
03900    3040  014156  001402
04000    3041  014160  104000                          CMP     #177777,$SP     ;CHECK THE STACK POINTER (R2)
04100    3042  014162  000507                          BEQ     .+6             ;BRANCH IF OK
04200    3043                                          HLT                     ;STACK POINTER (R2) NOT EQUAL TO #177777
04300    3044  014164  022767  014106  164244          507                     ;THE ERROR NUMBER IS 507
04400    3045  014172  001402
04500    3046  014174  104001                          CMP     #RTA65, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04600    3047  014176  000510                          BEQ     .+6             ;BRANCH IF OK
04700    3048                                          HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04800    3049  014200  022767  000151  164232          510                     ;THE ERROR NUMBER IS 510
04900    3050  014206  001402
05000    3051  014210  104002                          CMP     #151,   ANS2    ;CHECK PS BEFORE FIS TRAP
05100    3052  014212  000511                          BEQ     .+6             ;BRANCH IF OK
05200    3053                                          HLT+2                   ;PS AT FIS TRAP TIME NOT 151
05300    3054  014214  022767  070707  164220          511                     ;THE ERROR NUMBER IS 511
05400    3055  014222  001402
05500    3056  014224  104004                          CMP     #070707,ANS3    ;CHECK DATA FROM THE STACK
05600    3057  014226  000512                          BEQ     .+6             ;BRANCH IF OK
05700    3058                                          HLT+4                   ;DATA ON STACK (070707) CHANGED
05800    3059  014230  022767  016161  164206          512                     ;THE ERROR NUMBER IS 512
05900    3060  014236  001402
                                               CMP     #016161,ANS4    ;CHECK DATA FROM STACK
                                               BEQ     .+6             ;BRANCH IF OK
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 74
00200   CVKACC.P11  16-AUG-78 08:41          ADDRESS ERROR TEST                                    SEQ 0082
00300
00400     3061  014240  104004                          HLT+4                ;DATA ON STACK (016161) CHANGED
00500     3062  014242  000513                          513                  ;THE ERROR NUMBER IS 513
00600     3063
00700     3064  014244  022767  146314  164174          CMP     #146314,ANS5 ;CHECK DATA FROM STACK
00800     3065  014252  001402                          BEQ     .+6          ;BRANCH IF OK
00900     3066  014254  104006                          HLT+6                ;DATA ON STACK (146314) CHANGED
01000     3067  014256  000514                          514                  ;THE ERROR NUMBER IS 514
01100     3068
01200     3069  014260  022767  143434  164162          CMP     #143434,ANS6 ;CHECK DATA FROM STACK
01300     3070  014266  001402                          BEQ     .+6          ;BRANCH IF OK
01400     3071  014270  104006                          HLT+6                ;DATA ON STACK (143434) CHANGED
01500     3072  014272  000515                          515                  ;THE ERROR NUMBER IS 515
01600     3073  014274  122767  000065  164102  END65:  CMPB    #65,    $TESTN ;CHECK THE TEST NUMBER
01700     3074  014302  001402                          BEQ     .+6          ;BRANCH IF OK
01800     3075  014304  104000                          HLT                  ;WRONG TEST.  PC MUST HAVE FOULED UP.
01900     3076  014306  000516                          516                  ;THE ERROR NUMBER IS 516
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00100
00200
00300
00400     3077
00500     3078
00600     3079                    ;*****************************************************************************
00700     3080                    ;TEST 66:       TEST THAT STACK POINTER ADDRESS ERROR CAUSES ABORT
00800     3081                    ;       INSTRUCTION - FMUL,     STACK POINTER = R5
00900     3082                    ;*****************************************************************************
01000     3083  014310  104400                      SCOPE
01100     3084  014312  012737  014402  000004  TST66: MOV     #ISR66, @#4     ;SET UP ADDRESS TRAP VECTOR
01200     3085  014320  012737  000340  000006        MOV     #340,   @#6
01300     3086  014326  004567  001654                JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R5 STACK, SET PRIORITY
01400     3087  014332  065432  123456                .WORD   065432,123456   ;SECOND OPERAND ON TOP
01500     3088  014336  037654  032107                .WORD   037654,032107   ;FIRST OPERAND ON BOTTOM
01600     3089  014342  000202                        .WORD   202             ;PROCESSOR PRIORITY LEVEL
01700     3090  014344  016456  000340                .WORD   TRAPER, 340     ;FIS TRAP VECTOR
01800     3091  014350                                MTPS    #202            ;SET PROCESSOR STATUS
01900     3092  014350  106427                        .WORD   106400...C
02000     3093  014354  012705  160000                MOV     #160000,R5      ;SET UP R5 AS STACK POINTER
02100     3094
02200     3095  014360  000240                        NOP
02300     3096  014362  075025                        FMUL    R5              ;FLOATING MULTIPLY ON THE R5 STACK
02400     3097
02500     3098  014364                          RTA66: MFPS    $PSW            ;SAVE THE PSW
02600     3099  014364  106767                        .WORD   ^O106700...C
02700     3100  014370  010567  164040                MOV     R5,     $SP     ;SAVE STACK POINTER (R5)
02800     3101  014374  104000                        HLT                     ;FIS TRAP DIDN'T OCCURE.
02900     3102  014376  000517                        517                     ;THE ERROR NUMBER IS 517
03000     3103  014400  000434                        BR      END66
03100     3104
03200     3105  014402  004767  001662          ISR66: JSR     PC,     POPER   ;POP ALL DATA OFF THE STACKS
03300     3106  014406  010567  164022                MOV     R5,     $SP     ;SAVE STACK POINTER (R5)
03400     3107  014412  122767  000340  164012        CMPB    #340,   $PSW    ;CHECK PS AFTER ADR. ERR. TRAP
03500     3108  014420  001402                        BEQ     .+6             ;BRANCH IF OK
03600     3109  014422  104000                        HLT                     ;PS AFTER TRAP NOT EQUAL TO 340
03700     3110  014424  000520                        520                     ;THE ERROR NUMBER IS 520
03800     3111
03900     3112  014426  022767  160000  164000        CMP     #160000,$SP     ;CHECK THE STACK POINTER (R5)
04000     3113  014434  001402                        BEQ     .+6             ;BRANCH IF OK
04100     3114  014436  104000                        HLT                     ;STACK POINTER (R5) NOT EQUAL TO #160000
04200     3115  014440  000521                        521                     ;THE ERROR NUMBER IS 521
04300     3116
04400     3117  014442  022767  014364  163766        CMP     #RTA66, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
04500     3118  014450  001402                        BEQ     .+6             ;BRANCH IF OK
04600     3119  014452  104001                        HLT+1                   ;FIS TRAP AT WRONG ADDRESS
04700     3120  014454  000522                        522                     ;THE ERROR NUMBER IS 522
04800     3121
04900     3122  014456  022767  000210  163754        CMP     #210,   ANS2    ;CHECK PS BEFORE FIS TRAP
05000     3123  014464  001402                        BEQ     .+6             ;BRANCH IF OK
05100     3124  014466  104002                        HLT+2                   ;PS AT FIS TRAP TIME NOT 210
05200     3125  014470  000523                        523                     ;THE ERROR NUMBER IS 523
05300     3126
05400     3127  014472  122767  000066  163754  END66: CMPB    #66,    $TESTN  ;CHECK THE TEST NUMBER
05500     3128  014500  001402                        BEQ     .+6             ;BRANCH IF OK
05600     3129  014502  104000                        HLT                     ;WRONG TEST!  PC MUST HAVE FOULED UP.
05700     3130  014504  000524                        524                     ;THE ERROR NUMBER IS 524
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00100  CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 76
00200  CVKACC.P11    16-AUG-78 08:41          ADDRESS ERROR TEST                                                    SEQ 0084
00300
00400     3131  014506  012737  000006  000004  52200          MOV     #6,     @#4     ;RESTORE TIME-OUT VECTOR
00500     3132  014514  005037  000006          52300          CLR     @#6
00600     3133  014520  012767  000003  164010  52700          MOV     #3.     TIMES   ;REDUCE NUMBER OF ITTERATIONS
00700     3134
00800     3135                                                ;*************************************************************************
00900     3136                                                ;TEST 67:       TEST THAT FIS ABORTS PROPERLY WHEN INTERUPTED
01000     3137                                                ;       035700,143235 + 000177,134543 = 035700,143235
01100     3138                                                ;       PS - .PS,       STACK POINTER = R1
01200     3139                                                ;*************************************************************************
01300     3140
01400     3141  014526  104400                                      SCOPE
01500     3142  014530  132737  000040  000421          TST67:  BITB    #40,@#$ENVM
01600     3143  014536  001177                                  BNE     END67+2         ;EXIT THIS TEST IF BIT 5 OF $ENVM IS HIGH
01700     3144  014540  013704  000546                          MOV     @#TTYOUT,R4
01800     3145  014544  012724  014646                          MOV     #ISR67, (R4)+   ;SET UP TELEPRINTER INTERUPT VECTOR
01900     3146  014550  012714  000340                          MOV     #340,   (R4)
02000     3147  014554  032737  004000  000422                  BIT     #SW11,@#$SWREG  ;TEST FOR ITERATIONS
02100     3148  014562  001005                                  BNE     1$              ;BRANCH TO AVOID HANG UP
02200     3149  014564  000004  000473                          TYPE,   RETURN+1        ;RETURN+1 CAN BE REPLACED WITH THE ADDRESS O
02300     3150                                                                          ;TO TYPE CARRIAGE RETURN, LINE FEED
02400     3151  014570  012767  014576  163672                  MOV     #.+6,   LAD$    ;RESET LOOP ADDRESS
02500     3152  014576  004567  001404                  1$:     JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R1 STACK, SET PRIORITY
02600     3153  014602  000177  134543                          .WORD   000177,134543   ;SECOND OPERAND ON TOP
02700     3154  014606  035700  143235                          .WORD   035700,143235   ;FIRST OPERAND ON BOTTOM
02800     3155  014612  000143                                  .WORD   143             ;PROCESSOR PRIORITY LEVEL
02900     3156  014614  016456  000340                          .WORD   TRAPER, 340     ;FIS TRAP VECTOR
03000     3157  014620  012701  000510                          MOV     #STACK0,R1      ;SET UP STACK POINTER
03100     3158  014624  012767  000060  163702                  MOV     #60,TEMP        ;INITIALIZE COUNTER FOR FIS INTERRUPTS
03200     3159  014632  112777  000100  163710                  MOVB    #100,   @$TPS   ;SET TTY INTERUPT ENABLE
03300     3160
03400     3161  014640  075001                          RTA67:  FADD    R1              ;FLOATING ADD ON THE STACK
03500     3162  014642  024141                                  CMP     -(R1),  -(R1)   ;RESET THE STACK POINTER FOR NEXT PASS
03600     3163  014644  000775                                  BR      RTA67           ;REPEAT UNTIL INTERUPTED
03700     3164
03800     3165  014646  105077  163676                  ISR67:  CLRB    @$TPS           ;CLEAR THE INTERUPT ENABLE
03900     3166  014652  022716  014640                          CMP     #RTA67, (SP)    ;CHECK IF INTERUPT AT FIS INSTR.
04000     3167  014656  001424                                  BEQ     3$              ;BRANCH IF IT DID
04100     3168  014660  022766  014640  000004                  CMP     #RTA67, 4(SP)   ;CHECK FOR INTERUPT WITH T-BIT SET
04200     3169  014666  001423                                  BEQ     4$              ;BRANCH IF IT DID
04300     3170  014670  005337  000534                          DEC     @#TEMP          ;DID INTERRUPTS OCCUR TEMP # OF TIMES
04400     3171  014674  001517                                  BEQ     END67           ;IF YES THEN SKIP TO END OF THIS TEST
04500     3172  014676  112777  000015  163646          1$:     MOVB    #15,    @$TPB   ;CONTINUE TO TYPE "CR"
04600     3173  014704  105777  163640                  2$:     TSTB    @$TPS           ;LOOP HERE UNTILL DONE BIT COMES ON
04700     3174  014710  100375                                  BPL     2$
04800     3175  014712  112777  000015  163636                  MOVB    #15,    @$TPB   ;TYPE ANOTHER "CR"
04900     3176  014720  012777  000100  163622                  MOV     #100,   @$TPS   ;SET TTY INTERUPT ENABLE
05000     3177  014726  000002                                  RTI
05100     3178
05200     3179  014730  004767  001334                  3$.     JSR     PC,     POPER   ;SAVE ALL THE STUFF ON THE STACK
05300     3180  014734  000403                                  BR      5$
05400     3181
05500     3182  014736  022626                          4$:     CMP     (SP)+,  (SP)+   ;RESET THE STACK TO IGNORE THE TRACE TRAP
05600     3183  014740  004767  001330                          JSR     PC,     POPER1  ;POP ALL THE STUFF OFF THE STACK
05700     3184  014744  005746                          5$:     TST     -(SP)           ;SAVE PSW FOR FUTURE RTI
05800     3185  014746  012746  014640                          MOV     #RTA67,-(SP)    ;PLACE THE RTI ADDRESS BACK IN SP
05900     3186  014752  022706  000574                          CMP     #BEGIN-4,SP     ;CHECK THE STACK POINTER
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(0100    CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 77
00200    CVKACC.P11    16-AUG-78 08:41          INTERUPT ABORT TEST SECTION                                    SEQ 0085
00300
00400     3187  014756  001407                              BEQ     6$              ;BRANCH IF OK
00500     3188  014760  010667  163450                      MOV     SP,     $SP     ;SAVE FOR TYPING
00600     3189  014764  012706  000574                      MOV     #BEGIN-4,SP     ;RESTORE THE STACK POINTER
00700     3190  014770  104000                              HLT                     ;STACK POINTER FOULED UP
00800     3191  014772  000525                              525                     ;THE ERROR NUMBER IS 525
00900     3192  014774  000457                              BR      END67           ;SKIP REST OF TEST
01000     3193
01100     3194  014776  010167  163432              6$.     MOV     R1,     $SP     ;SAVE STACK POINTER
01200     3195  015002  122767  000344  163422              CMPB    #344,   $PSW    ;CHECK PS AFTER INTERUPT
01300     3196  015010  001402                              BEQ     .+6             ;BRANCH IF OK
01400     3197  015012  104000                              HLT                     ;PS AFTER INTERUPT NOT EQUAL TO LVLA
01500     3198  015014  000526                              526                     ;THE ERROR NUMBER IS 526
01600     3199
01700     3200  015016  022767  000510  163410              CMP     #STACK0,$SP     ;CHECK THE STACK POINTER (R1)
01800     3201  015024  001402                              BEQ     .+6             ;BRANCH IF OK
01900     3202  015026  104000                              HLT                     ;STACK POINTER (R1) NOT EQUAL TO #STACK0
02000     3203  015030  000527                              527                     ;THE ERROR NUMBER IS 527
02100     3204
02200     3205  015032  022767  014640  163376              CMP     #RTA67, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
02300     3206  015040  001402                              BEQ     .+6             ;BRANCH IF OK
02400     3207  015042  104001                              HLT+1                   ;FIS TRAP AT WRONG ADDRESS
02500     3208  015044  000530                              530                     ;THE ERROR NUMBER IS 530
02600     3209
02700     3210
02800     3211  015046  022767  000177  163366              CMP     #000177,ANS3    ;CHECK DATA FROM THE STACK
02900     3212  015054  001402                              BEQ     .+6             ;BRANCH IF OK
03000     3213  015056  104004                              HLT+4                   ;DATA ON STACK (000177) CHANGED
03100     3214  015060  000531                              531                     ;THE ERROR NUMBER IS 531
03200     3215
03300     3216  015062  022767  134543  163354              CMP     #134543,ANS4    ;CHECK DATA FROM STACK
03400     3217  015070  001402                              BEQ     .+6             ;BRANCH IF OK
03500     3218  015072  104004                              HLT+4                   ;DATA ON STACK (134543) CHANGED
03600     3219  015074  000532                              532                     ;THE ERROR NUMBER IS 532
03700     3220
03800     3221  015076  022767  035700  163342              CMP     #035700,ANS5    ;CHECK DATA FROM STACK
03900     3222  015104  001402                              BEQ     .+6             ;BRANCH IF OK
04000     3223  015106  104006                              HLT+6                   ;DATA ON STACK (035700) CHANGED
04100     3224  015110  000533                              533                     ;THE ERROR NUMBER IS 533
04200     3225
04300     3226  015112  022767  143235  163330              CMP     #143235,ANS6    ;CHECK DATA FROM STACK
04400     3227  015120  001402                              BEQ     .+6             ;BRANCH IF OK
04500     3228  015122  104006                              HLT+6                   ;DATA ON STACK (143235) CHANGED
04600     3229  015124  000534                              534                     ;THE ERROR NUMBER IS 534
04700     3230
04800     3231  015126  005367  163402                      DEC     TEMP            ;STAY IN THE LOOP FOR 30 TIMES
04900     3232  015132  001261                              BNE     1$
05000     3233
05100     3234  015134  022626                      END67:  CMP     (SP)+,  (SP)+   ;RESTORE STACK POINTER TO 500
05200     3235  015136  122767  000067  163240              CMPB    #67,    $TESTN  ;CHECK THE TEST NUMBER
05300     3236  015144  001402                              BEQ     .+6             ;BRANCH IF OK
05400     3237  015146  104000                              HLT                     ;WRONG TEST.  PC MUST HAVE FOULED UP.
05500     3238  015150  000535                              535                     ;THE ERROR NUMBER IS 535
05600     3239  015152                                      MTPS    #340
05700     3240  015154  106427                              .WORD   ^O6400...
05800     3241
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 78
00200   CVKACC.P11    16-AUG-78 08:41          INTERUPT ABORT TEST SECTION                                    SEQ 0086
00300
00400     3242
00500     3243
00600     3244                                ;*****************************************************************
00700     3245                                ;TEST 70:       TEST THAT FIS ABORTS PROPERLY WHEN INTERUPTED
00800     3246                                ;       107070,070707 * 040200,000000   107070,070707
00900     3247                                ;       PS - .PS,       STACK POINTER   R0
01000     3248                                ;*****************************************************************
01100     3249  015156  104400                          SCOPE
01200     3250  015160  132737  000040  000421  TST70:  BITB    #40,@#$ENVM
01300     3251  015166  001176                          BNE     END70+2         ;EXIT THIS TEST IF BIT 5 OF $ENVM IS HIGH
01400     3252  015170  013704  000546                  MOV     @#TTYOUT,R4
01500     3253  015174  012724  015276                  MOV     #ISR70, (R4)+   ;SET UP TELEPRINTER INTERUPT VECTOR
01600     3254  015200  012714  000340                  MOV     #340,   (R4)
01700     3255  015204  032737  004000  000422          BIT     #SW11,@#$SWREG  ;TEST FOR ITERATIONS
01800     3256  015212  001005                          BNE     1$              ;BRANCH TO AVOID HANG UP
01900     3257  015214  000004  000473                  TYPE,   RETURN+1        ;RETURN+1 CAN BE REPLACED WITH THE ADDRESS O
02000     3258                                                                  ;TO TYPE CARRIAGE RETURN, LINE FEED
02100     3259  015220  012767  015226  163242          MOV     #.+6,   LAD$    ;RESET LOOP ADDRESS
02200     3260  015226  004567  000754  1$.     JSR     R5,     PUSHR   ;PUSH 4 WORDS ONTO R0 STACK, SET PRIORITY
02300     3261  015232  040200  000000                  .WORD   040200,000000   ;SECOND OPERAND ON TOP
02400     3262  015236  107070  070707                  .WORD   107070,070707   ;FIRST OPERAND ON BOTTOM
02500     3263  015242  000100                          .WORD   100             ;PROCESSOR PRIORITY LEVEL
02600     3264  015244  016456  000340                  .WORD   TRAPER, 340     ;FIS TRAP VECTOR
02700     3265  015250  012700  000510                  MOV     #STACK0,R0      ;SET UP STACK POINTER
02800     3266  015254  012767  000060  163252          MOV     #60,TEMP        ;INITIALIZE COUNTER FOR FIS INTERRUPTS
02900     3267  015262  112777  000100  163260          MOVB    #100,   @$TPS   ;SET TTY INTERUPT ENABLE
03000     3268
03100     3269  015270  075020                  RTA70:  FMUL    R0              ;FLOATING MULTIPLY ON THE STACK
03200     3270  015272  024040                          CMP     -(R0),  -(R0)   ;RESET THE STACK POINTER FOR NEXT PASS
03300     3271  015274  000775                          BR      RTA70           ;REPEAT UNTIL INTERUPTED
03400     3272
03500     3273  015276  105077  163246          ISR70:  CLRB    @$TPS           ;CLEAR THE INTERUPT ENABLE
03600     3274  015302  022716  015270                  CMP     #RTA70, (SP)    ;CHECK IF INTERUPT AT FIS INSTR.
03700     3275  015306  001424                          BEQ     3$              ;BRANCH IF IT DID
03800     3276  015310  022766  015270  000004          CMP     #RTA70, 4(SP)   ;CHECK FOR INTERUPT WITH T-BIT SET
03900     3277  015316  001423                          BEQ     4$              ;BRANCH IF IT DID
04000     3278  015320  005337  000534                  DEC     @#TEMP          ;DID INTERRUPTS OCCUR TEMP # OF TIMES
04100     3279  015324  001516                          BEQ     END70           ;IF YES THEN SKIP TO END OF THIS TEST
04200     3280  015326  112777  000015  163216  1$:     MOVB    #15,    @$TPB   ;CONTINUE TO TYPE "CR"
04300     3281  015334  105777  163210          2$:     TSTB    @$TPS           ;LOOP HERE UNTILL DONE BIT COMES ON
04400     3282  015340  100375                          BPL     2$
04500     3283  015342  112777  000015  163202          MOVB    #15,    @$TPB   ;TYPE ANOTHER "CR"
04600     3284  015350  012777  000100  163172          MOV     #100,   @$TPS   ;SET TTY INTERUPT ENABLE
04700     3285  015356  000002                          RTI
04800     3286
04900     3287  015360  004767  000704          3$:     JSR     PC,     POPER   ;SAVE ALL THE STUFF ON THE STACK
05000     3288  015364  000403                          BR      5$
05100     3289
05200     3290  015366  022626                  4$.     CMP     (SP)+,  (SP)+   ;RESET THE STACK TO IGNORE THE TRACE TRAP
05300     3291  015370  004767  000700                  JSR     PC,     POPER1  ;POP ALL THE STUFF OFF THE STACK
05400     3292  015374  005746                  5$:     TST     -(SP)           ;SAVE PSW FOR FUTURE RTI
05500     3293  015376  012746  015270                  MOV     #RTA70,-(SP)    ;PLACE THE RTI ADDRESS BACK IN SP
05600     3294  015402  022706  000574                  CMP     #BEGIN-4,SP     ;CHECK THE STACK POINTER
05700     3295  015406  001407                          BEQ     6$              ;BRANCH IF OK
05800     3296  015410  010667  163020                  MOV     SP,     $SP     ;SAVE FOR TYPING
05900     3297  015414  012706  000574                  MOV     #BEGIN-4,SP     ;RESTORE THE STACK POINTER
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00300
00400     3298  015420  104000                          HLT                     ;STACK POINTER FOULED UP
00500     3299  015422  000536                          536                     ;THE ERROR NUMBER IS 536
00600     3300  015424  000456                          BR      END70           ;SKIP REST OF TEST
00700     3301
00800     3302  015426  010067  163002          6$:     MOV     R0,     $SP     ;SAVE STACK POINTER
00900     3303  015432  122767  000344  162772          CMPB    #344,   $PSW    ;CHECK PS AFTER INTERUPT
01000     3304  015440  001402                          BEQ     .+6             ;BRANCH IF OK
01100     3305  015442  104000                          HLT                     ;PS AFTER INTERUPT NOT EQUAL TO LVLA
01200     3306  015444  000537                          537                     ;THE ERROR NUMBER IS 537
01300     3307
01400     3308  015446  022767  000510  162760          CMP     #STACK0,$SP     ;CHECK THE STACK POINTER (R0)
01500     3309  015454  001402                          BEQ     .+6             ;BRANCH IF OK
01600     3310  015456  104000                          HLT                     ;STACK POINTER (R0) NOT EQUAL TO #STACK0
01700     3311  015460  000540                          540                     ;THE ERROR NUMBER IS 540
01800     3312
01900     3313  015462  022767  015270  162746          CMP     #RTA70, ANS1    ;CHECK FIS TRAP RETURN ADDRESS
02000     3314  015470  001402                          BEQ     .+6             ;BRANCH IF OK
02100     3315  015472  104001                          HLT+1                   ;FIS TRAP AT WRONG ADDRESS
02200     3316  015474  000541                          541                     ;THE ERROR NUMBER IS 541
02300     3317
02400     3318
02500     3319  015476  022767  040200  162736          CMP     #040200,ANS3    ;CHECK DATA FROM THE STACK
02600     3320  015504  001402                          BEQ     .+6             ;BRANCH IF OK
02700     3321  015506  104004                          HLT+4                   ;DATA ON STACK (040200) CHANGED
02800     3322  015510  000542                          542                     ;THE ERROR NUMBER IS 542
02900     3323
03000     3324  015512  005767  162726                  TST     ANS4            ;CHECK DATA FROM STACK
03100     3325  015516  001402                          BEQ     .+6             ;BRANCH IF OK
03200     3326  015520  104004                          HLT+4                   ;DATA ON STACK (000000) CHANGED
03300     3327  015522  000543                          543                     ;THE ERROR NUMBER IS 543
03400     3328
03500     3329  015524  022767  107070  162714          CMP     #107070,ANS5    ;CHECK DATA FROM STACK
03600     3330  015532  001402                          BEQ     .+6             ;BRANCH IF OK
03700     3331  015534  104006                          HLT+6                   ;DATA ON STACK (107070) CHANGED
03800     3332  015536  000544                          544                     ;THE ERROR NUMBER IS 544
03900     3333
04000     3334  015540  022767  070707  162702          CMP     #070707,ANS6    ;CHECK DATA FROM STACK
04100     3335  015546  001402                          BEQ     .+6             ;BRANCH IF OK
04200     3336  015550  104006                          HLT+6                   ;DATA ON STACK (070707) CHANGED
04300     3337  015552  000545                          545                     ;THE ERROR NUMBER IS 545
04400     3338
04500     3339  015554  005367  162754                  DEC     TEMP            ;STAY IN THE LOOP FOR 30 TIMES
04600     3340  015560  001262                          BNE     1$
04700     3341
04800     3342  015562  022626                  END70:  CMP     (SP)+,  (SP)+   ;RESTORE STACK POINTER TO 500
04900     3343  015564  122767  000070  162712          CMPB    #70,    $TESTN  ;CHECK THE TEST NUMBER
05000     3344  015572  001402                          BEQ     .+6             ;BRANCH IF OK
05100     3345  015574  104000                          HLT                     ;WRONG TEST  PC MUST HAVE FOULED UP.
05200     3346  015576  000546                          546                     ;THE ERROR NUMBER IS 546
05300     3347  015600                                  MTPS    #340
05400     3348  015600  106427                          .WORD   106400 ..
05500     3349
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 80
00200   CVKACC.P11    16-AUG-78 08:41          INTERUPT ABORT TEST SECTION                                    SEQ 0088
00300
00400     3350  015604  012767  000377  162724  53000          MOV     #377,   TIMES   ;SET NUMBER OF ITERATIONS TO 377
00500     3351  015612  010477  162730          53100          MOV     R4,     @TTYOUT ;RESTORE TTY INTERUPT VECTOR
00600     3352  015616  005014                  53200          CLR     (R4)
00700     3353                                  53300
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 81
00200   CVKACC.P11    16-AUG-78 08:41          INTERUPT ABORT TEST SECTION                                    SEQ 0089
00300
00400     3354                                ;*****************************************************************
00500     3355
00600     3356                                .SBTTL  END OF PASS ROUTINE
00700     3357
00800     3358                                ;*INCREMENT THE PASS NUMBER ($PASS)
00900     3359                                ;*TYPE 'END PASS'
01000     3360                                ;*IF THERES A MONITOR GO TO IT
01100     3361                                ;*IF THERE ISN'T JUMP TO BEGIN
01200     3362                                ;*IF IT IS DESIRED TO HAVE A BELL INDICATE THE 'END OF PASS' LOCATION
01300     3363                                ;*$ENDMG CAN BE CHANGED TO 7.
01400     3364
01500     3365  015620                        $EOP:
01600     3366  015620  104400                        SCOPE
01700     3367  015622  005267  162560                INC     $PASS           ;;INCREMENT THE PASS NUMBER
01800     3368  015626  042767  100000  162552      BIC     #100000,$PASS   ;;DON'T ALLOW A NEG. NUMBER
01900     3369  015634  005327                      DEC     (PC)+           ;;LOOP?
02000     3370  015636  000001              $EOPCT: .WORD   1
02100     3371  015640  003015                      BGT     $DOAGN          ;;YES
02200     3372  015642  012737                      MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
02300     3373  015644  000001              $ENDCT: .WORD   1
02400     3374  015646  015636                      $EOPCT
02500     3375  015650  000004  015700              TYPE    ,$ENDMG         ;;TYPE 'END PASS'
02600     3376  015654                        $GET42:
02700     3377
02800     3378  015654  013700  000042              MOV     @#42,R0         ;;GET MONITOR ADDRESS
02900     3379  015660  001405                      BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
03000     3380  015662  000005                      RESET                   ;;CLEAR THE WORLD
03100     3381  015664  004710              $ENDAD: JSR     PC,(R0)         ;;GO TO MONITOR
03200     3382  015666  000240                      NOP                     ;;SAVE ROOM
03300     3383  015670  000240                      NOP                     ;;FOR
03400     3384  015672  000240                      NOP                     ;;ACT11
03500     3385  015674                        $DOAGN:
03600     3386  015674  000137  000600              JMP     @#BEGIN         ;;RETURN
03700     3387  015700  005015  047105  020104  $ENDMG: .ASCII  <15><12>/END PASS/
03800     3388  015706  040520  051523
03900     3389  015712     377     377     000  $ENULL: .BYTE   -1,-1,0         ;;NULL CHARACTER STRING
04000     3390           015716                      .EVEN
04100     3391                                                53600
04200     3392  015644  000001                        54100   ENDCT:
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00300
00400    3393                                   ;*****************************************************************
00500    3394
00600    3395                                   .SBTTL  SCOPE ROUTINE
00700    3396
00800    3397  015716  032737  000400  000422  SCOPE$: BIT     #SW08,@#$SWREG  ;KILL LDUB OR LOOP ON SPEC. TEST
00900    3398  015724  001404                          BEQ     1$
01000    3399  015726  123767  000422  162450          CMPB    @#$SWREG,$TESTN ;ON RIGHT TEST?   *SW7-0*
01100    3400  015734  001431                          BEQ     OVER$
01200    3401  015736  032737  040000  000422  1$:     BIT     #SW14,@#$SWREG  ;LOOP ON TEST
01300    3402  015744  001023                          BNE     KIT$
01400    3403  015746  032737  004000  000422          BIT     #SW11,@#$SWREG  ;KILL ITERATIONS
01500    3404  015754  001412                          BEQ     SVLAD$
01600    3405  015756  105767  162521                  TSTB    $ICNT
01700    3406  015762  001404                          BEQ     2$              ;BRANCH IF FIRST
01800    3407  015764  126767  162546  162511          CMPB    TIMES,$ICNT     ;DONE?
01900    3408  015772  001010                          BNE     KIT$            ;BRANCH IF NOT
02000    3409  015774  112767  000001   62501  2$:     MOVB    #1,$ICNT        ;FIRST ITERATION
02100    3410  016002  105267  162376          SVLAD$: INCB    $TESTN          ;COUNT TEST NUMBERS
02200    3411  016006  011667  162456                  MOV     (6),LAD$        ;SAVE LOOP ADDRESS
02300    3412  016012  000002                          RTI                     ;RETURN
02400    3413
02500    3414  016014  105267  162463          KIT$:   INCB    $ICNT
02600    3415  016020  005767  162444          OVER$:  TST     LAD$            ;FIRST ONE?
02700    3416  016024  001766                          BEQ     SVLAD$
02800    3417  016026  016716  162436                  MOV     LAD$,(6)        ;FUDGE RETURN ADDRESS
02900    3418  016032  000002                          RTI                     ;FIXES PS
03000    3419
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00100    CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 83
00200    CVKACC.P11    16-AUG-78 08:41          PUSH AND POP SUBROUTINES                    SEQ 009
00300
00400     3420                                  55000
00500     3421                                  55100  ;SUBROUTINE TO PUSH 4 WORDS ONTO THE STACK
00600     3422                                  55200
00700     3423  016034  005726                 55300  PUSHS:  TST     (SP)+           ;POP STACK BY 1
00800     3424  016036  062705  000010         55400          ADD     #10,    R5      ;POINT TO END OF DATA
00900     3425  016042  014546                 55500          MOV     -(R5),  -(SP)   ;PUSH DATA ONTO THE STACK
01000     3426  016044  014546                 55600          MOV     -(R5),  -(SP)   ;PUSH DATA ONTO THE STACK
01100     3427  016046  014546                 55700          MOV     -(R5),  -(SP)   ;PUSH DATA ONTO THE STACK
01200     3428  016050  014546                 55800          MOV     -(R5),  -(SP)   ;PUSH DATA ONTO THE STACK
01300     3429  016052  062705  000010         55900          ADD     #10,    R5      ;POINT TO END OF DATA
01400     3430  016056                         56300          MTPS    (R5)+           ;SET THE PROCESSOR STATUS
01500     3431  016056  106425                                 .WORD   106400...C
01600     3432  016060  005205                 56700          INC     R5
01700     3433  016062  012577  162376         56800          MOV     (R5)+,  @FISVEC ;SET UP FIS ERROR TRAP VECTOR
01800     3434  016066  012577  162374         56900          MOV     (R5)+,  @FISLVL ;TRAP STATUS
01900     3435  016072  000115                 57000          JMP     (R5)            ;RETURN
02000     3436                                  57100
02100     3437                                  57200
02200     3438                                  57300  ;SUBROUTINE TO POP 2 WORDS OFF THE STACK
02300     3439                                  57400  ;ALSO SAVES THE PROCESSOR STATUS WORD (EXCEPT T BIT)
02400     3440                                  57500
02500     3441  016074                         57900  POPS:   MFPS    $PSW            ;SAVE PROCESSOR STATUS WORD
02600     3442  016074  106767                         .WORD   106700...C
02700     3443  016100  042767  000020  162324 58300          BIC     #20,    $PSW    ;CLEAR T-BIT
02800     3444  016106  012604                 58400          MOV     (SP)+,  R4      ;SAVE RTS ADDRESS
02900     3445  016110  012667  162322         58500          MOV     (SP)+,  ANS1    ;SAVE THE ANSWER
03000     3446  016114  012667  162320         58600          MOV     (SP)+,  ANS2    ;
03100     3447  016120  010667  162310         58700          MOV     SP,     $SP     ;SAVE THE STACK POINTER
03200     3448  016124  000114                 58800          JMP     (R4)            ;RETURN
03300     3449                                  58900
03400     3450                                  59000
03500     3451                                  59100  ;SUBROUTNE TO POP 6 WORDS OFF THE STACK.
03600     3452                                  59200  ;THE FIRST TWO WERE PUT ON BY THE ERROR TRAP,
03700     3453                                  59300  ;THE LAST FOUR WERE THE ORIGINAL INPUT DATA.
03800     3454                                  59400  ;ALSO SAVES THE PS AND STACK POINTER.
03900     3455                                  59500
04000     3456  016126                         59900  POPES:  MFPS    $PSW            ;SAVE PROCESSOR STATUS WORD
04100     3457  016126  106767                         .WORD   106700...C
04200     3458  016132  012604                 60300          MOV     (SP)+,  R4      ;SAVE RTS ADDRESS
04300     3459  016134  012667  162276         60400          MOV     (SP)+,  ANS1    ;SAVE RTI ADDRESS
04400     3460  016140  011667  162274         60500          MOV     (SP),   ANS2    ;SAVE RTI STATUS
04500     3461  016144  042767  000020  162266 60600          BIC     #20,    ANS2    ;CLEAR THE T-BIT
04600     3462  016152  012746  016160         60700          MOV     #1$,    -(SP)
04700     3463  016156  000002                 60800          RTI                     ;RESTORE THE PROCESSOR STATUS
04800     3464  016160  012667  162256         60900  1$:     MOV     (SP)+,  ANS3    ;SAVE DATA
04900     3465  016164  012667  162254         61000          MOV     (SP)+,  ANS4    ;
05000     3466  016170  012667  162252         61100          MOV     (SP)+,  ANS5    ;
05100     3467  016174  012667  162250         61200          MOV     (SP)+,  ANS6    ;
05200     3468  016200  010667  162230         61300          MOV     SP,     $SP     ;SAVE SP
05300     3469  016204  000114                 61400          JMP     (R4)            ;RTS
05400     3470                                  61500
05500     3471                                  61600  ;SUBROUTINE TO PUSH 4 WORDS ONTO THE STACK
05600     3472                                  61700
05700     3473  016206  012704  000510         61800  PUSHR:  MOV     #STACK0,R4      ;SET R4 TO STACK
05800     3474  016212  012524                 61900          MOV     (R5)+,  (R4)+   ;PUT DATA ON STACK
05900     3475  016214  012524                 62000          MOV     (R5)+,  (R4)+   ;
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00100    CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 84
00200    CVKACC.P11    16-AUG-78 08:41          PUSH AND POP SUBROUTINES                                SEQ 0092
00300
00400     3476  016216  012524                  62100          MOV     (R5)+,  (R4)+   ;
00500     3477  016220  012524                  62200          MOV     (R5)+,  (R4)+   ;
00600     3478  016222                          62300          MTPS    (R5)+           ;SET THE PROCESSOR STATUS
00700     3479  016222  106425                                 .WORD   106400...C
00800     3480  016224  005205                  63000          INC     R5
00900     3481  016226  012577  162232          63100          MOV     (R5)+,  @FISVEC ;SET UP FIS ERROR TRAP VECTOR
01000     3482  016232  012577  162230          63200          MOV     (R5)+,  @FISLVL ;TRAP STATUS
01100     3483  016236  000205                  63300          RTS     R5              ;RETURN
01200     3484                                  63400
01300     3485                                  63500
01400     3486                                  63600    ;SUBROUTINE TO POP 2 WORDS OFF THE STACK
01500     3487                                  63700    ;ALSO SAVES THE PROCESSOR STATUS WORD (EXCEPT T BIT)
01600     3488                                  63800
01700     3489  016240                          64200    POPR:  MFPS    $PSW            ;SAVE PROCESSOR STATUS WORD
01800     3490  016240  106767                            .WORD  106700!..C
01900     3491  016244  042767  000020  162160  64600          BIC     #20,    $PSW    ;CLEAR T-BIT
02000     3492  016252  016767  162236   62156  64700          MOV     STACK4, ANS1    ;SAVE THE ANSWER
02100     3493  016260  016767  162232  162152  64800          MOV     STACK6, ANS2    ;
02200     3494  016266  000207                  64900          RTS     PC
02300     3495                                  65000
02400     3496                                  65100
02500     3497                                  65200    ;SUBROUTNE TO POP 6 WORDS OFF THE STACKS.
02600     3498                                  65300    ;THE TWO OFF THE R6 STACK WERE PUT ON BY THE ERROR TRAP,
02700     3499                                  65400    ;THE FOUR OFF THE SOFTWARE STACK WERE THE ORIGINAL INPUT DATA.
02800     3500                                  65500    ;ALSO SAVES THE PS AND STACK POINTER AFTER THE FIS TRAP.
02900     3501                                  65600
03000     3502  016270                          66000    POPER: MFPS    $PSW            ;SAVE PROCESSOR STATUS WORD
03100     3503  016270  106767                            .WORD  106700!..C
03200     3504  016274  012667  000056          66400    POPER1: MOV    (SP)+,  SAVRTS  ;SAVE RTS ADDRESS
03300     3505  016300  012667  162132          66500          MOV     (SP)+,  ANS1    ;SAVE RTI ADDRESS
03400     3506  016304  011667  162130          66600          MOV     (SP),   ANS2    ;SAVE RTI STATUS
03500     3507  016310  042767  000020  162122  66700          BIC     #20,    ANS2    ;CLEAR THE T-BIT
03600     3508  016316  012746  016324          66800          MOV     #1$,    -(SP)
03700     3509  016322  000002                  66900          RTI                     ;RESTORE PROCESSOR STATUS
03800     3510  016324  016767  162160  162110  67000    1$:    MOV     STACK0, ANS3    ;SAVE DATA
03900     3511  016332  016767  162154  162104  67100          MOV     STACK2, ANS4    ;
04000     3512  016340  016767  162150  162100  67200          MOV     STACK4, ANS5    ;
04100     3513  016346  016767  162144  162074  67300          MOV     STACK6, ANS6    ;
04200     3514  016354  000137                  67400          JMP     @(PC)+          ;SIMULATED RTS
04300     3515  016356  000000                  67500    SAVRTS: 0
04400     3516                                  67600
04500     3517                                  67700    ;SUBROUTINE TO PUSH 4 WORDS ONTO THE PC STACK
04600     3518                                  67800
04700     3519  016360  012504                  67900    PUSH7: MOV     (R5)+,  R4      ;SET R4 TO STACK
04800     3520  016362  012524                  68000          MOV     (R5)+,  (R4)+   ;PUT DATA ON STACK
04900     3521  016364  012524                  68100          MOV     (R5)+,  (R4)+   ;
05000     3522  016366  012524                  68200          MOV     (R5)+,  (R4)+   ;
05100     3523  016370  012524                  68300          MOV     (R5)+,  (R4)+   ;
05200     3524  016372                          68700          MTPS    (R5)+           ;SET THE PROCESSOR STATUS
05300     3525  016372  106425                            .WORD  106400!..C
05400     3526  016374  005205                  69100          INC     R5
05500     3527  016376  012577  162062          69200          MOV     (R5)+,  @FISVEC ;SET UP FIS ERROR TRAP VECTOR
05600     3528  016402  012577  162060          69300          MOV     (R5)+,  @FISLVL ;TRAP STATUS
05700     3529  016406  000205                  69400          RTS     R5              ;RETURN
05800     3530                                  69500
05900     3531                                  69600    ;SUBROUTINE TO POP 4 WORDS OFF THE PC "STACK"
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 85
00200   CVKACC.P11    16-AUG-78 08:41          PUSH AND POP SUBROUTINES                                    SEQ 0093
00300
00400     3532                                          69700   ;ALSO SAVES THE PROCESSOR STATUS WORD (EXCEPT T BIT)
00500     3533                                          69800
00600     3534  016410                                  70200   POP7:   MFPS    $PSW            ;SAVE PROCESSOR STATUS WORD
00700     3535  016410  106767                                          .WORD   106700...C
00800     3536  016414  042767  000020  162010          70600           BIC     #20,    $PSW    ;CLEAR T-BIT
00900     3537  016422  011600                          70700           MOV     (SP),   R0      ;GET RETURN ADDRESS
01000     3538  016424  162700  000014                  70800           SUB     #14,    R0      ;POINT TO TOP OF "PC STACK"
01100     3539  016430  012067  162002                  70900           MOV     (R0)+,  ANS1    ;SAVE 1ST HALF INPUT DATA
01200     3540  016434  012067  162000                  71000           MOV     (R0)+,  ANS2    ;SAVE 2ND HALF INPUT DATA
01300     3541  016440  010067  161770                  71100           MOV     R0,     $SP     ;SAVE ASSUMED END PC "STACK POINTER"
01400     3542  016444  012067  161772                  71200           MOV     (R0)+,  ANS3    ;SAVE 1ST HALF OF ANSWER
01500     3543  016450  012067  161770                  71300           MOV     (R0)+,  ANS4    ;SAVE 2ND HALF OF ANSWER
01600     3544  016454  000207                          71400           RTS     PC
01700     3545                                          71500
01800     3546                                          71600   ;ERRONIOUS TRAP SERVICE ROUTINE
01900     3547                                          71700
02000     3548  016456  104000                          71800   TRAPER: HLT                     ;FIS SHOULDN'T HAVE TRAPED
02100     3549  016460  000547                                          547                     ;THE ERROR NUMBER IS 547
02200     3550  016462  000002                          72000           RTI
02300     3551                                          72100
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00100    CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 86
00200    CVKACC.P11    16-AUG-78 08:41          PUSH AND POP SUBROUTINES                                    SEQ 0094
00300
00400     3552                                          ;*****************************************************************
00500     3553                                          .SBTTL  HLT ROUTINE (ERROR TYPEOUT)
00600     3554  016464  032737  002000  000422          HLT$:   BIT     #SW10,@#$SWREG  ;SHOULD IT RING THE BELL ON ERROR?
00700     3555  016472  001402                                  BEQ     1$              ;NO - SKIP
00800     3556  016474  000004  000504                          TYPE    ,$BELL          ;RING BELL
00900     3557  016500  005267  161756                  1$:     INC     ERRORS          ;COUNT THE NUMBER OF ERRORS
01000     3558  016504  032737  020000  000422                  BIT     #SW13,@#$SWREG  ;SKIP TYPEOUT IF SET
01100     3559  016512  001023                                  BNE     2$              ;SKIP TYPEOUTS
01200     3560  016514  000004  000472                          TYPE    ,RETURN
01300     3561  016520  013637  000402                          MOV     @(6)+,@#$FATAL  ;PLACE THE ERROR NUMBER IN LOCATION $FATAL
01400     3562  016524  014667  161700                          MOV     -(6),HLTAD$     ;PUT ADDRESS OF INSTRUCTION ON STACK
01500     3563  016530  162767  000002  161672                  SUB     #2,HLTAD$
01600     3564  016536  017605  000000                          MOV     @(6),TTY        ;TYPE @(6) IN OCTAL
01700     3565  016542  004767  000124                          JSR     %7,PRINTR       ;TYPE LEADING ZERO'S
01800     3566  016546  062716  000002                          ADD     #2,(6)          ;ADJUST THE RETURN ADDRESS
01900     3567  016552  000004  000500                          TYPE    ,SPACE+3
02000     3568  016556  004767  000046                          JSR     PC,ERROR$       ;GO TO USER ERROR ROUTINE
02100     3569  016562  105767  161632                  2$:     TSTB    $ENV            ;ARE WE RUNNING UNDER APT?
02200     3570  016566  001403                                  BEQ     4$              ;IF NOT THEN GO TO 4$
02300     3571  016570  005237  000400                          INC     @#$MSGTY        ;OTHERWISE INFORM APT
02400     3572  016574  000777                                  BR      .               ;AND LOOP
02500     3573  016576  005737  000422                  4$:     TST     @#$SWREG        ;HALT ON ERROR
02600     3574  016602  100001                                  BPL     .+4             ;SKIP IF CONTINUE
02700     3575  016604  000000                                  HALT                    ;HALT ON ERROR!
02800     3576  016606  032737  001000  000422                  BIT     #SW09,@#$SWREG  ;CHECK FOR INHIBIT LOOP ON ERROR
02900     3577  016614  001001                                  BNE     .+4             ;SKIP IF LOOP ON ERROR
03000     3578  016616  000002                                  RTI
03100     3579  016620  105067  161657                          CLRB    $ICNT
03200     3580  016624  000167  177164                          JMP     <IT$            ;LOOP ON TEST UNTIL NO ERRORS
03300     3581
03400     3582                                  72300
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00100
00200
00300
00400     3583                                  72500
00500     3584
00600     3585                                  72700
00700     3586                                  72800  .SBTTL  USER ERROR ROUTINE
00800     3587                                  72900
00900     3588  016630  117767  161574  161702  73000  ERROR$: MOVB    @HLTAD$,TYPCNT  ;TYPE COUNT IS LOW BYTE OF HLT
01000     3589  016636  062767  000002  161674  73100          ADD     #2,     TYPCNT  ;TYPE COUNT - X+2
01100     3590  016644  012703  000430          73200          MOV     #HLTAD$,R3      ;TOP OF DATA TO BE TYPED
01200     3591  016650                          73300  ERR1$:
01300     3592  016650  012305                          MOV     (R3)+,TTY       ;TYPE (R3)+ IN OCTAL
01400     3593  016652  004767  000014                  JSR     %7,PRINTR       ;TYPE LEADING ZERO'S
01500     3594  016656  000004  000501          73400          TYPE,   SPACE+4         ;SPACE
01600     3595  016662  105367  161652          73500          DECB    TYPCNT          ;CHECK FOR DONE
01700     3596  016666  100370                  73600          BPL     ERR1$           ;BRANCH IF NOT DONE
01800     3597  016670  000207                  73700          RTS     PC
01900     3598                                  73800
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 88
00200   CVKACC.P11    16-AUG-78 08:41          OCTAL WORD & ADDRESS TYPER                                    SEQ 009
00300
00400     3599  016672  112767  000001  161644          PRINTR: MOVB    #1,.PR          ;SET ZERO FILL SWITCH
00500     3600  016700  000402                                  BR      .+6             ;SKIP
00600     3601  016702  005067  161636                  PRINTS: CLR     .PR             ;SUPRESS LEADING ZERO'S
00700     3602  016706  112767  177772  161631                  MOVB    #-6,.PR+1       ;SET COUNT
00800     3603  016714  010446                                  MOV     R4,-(6)         ;SAVE R4
00900     3604  016716  012704  017020                          MOV     #.PRBUF,R4      ;SET POINTER TO FIRST ASCII CHAR.
01000     3605  016722  105014                                  CLRB    (4)             ;CLEAR FIRST BYTE
01100     3606  016724  000405                                  BR      .PRF            ;ROTATE FIRST BIT
01200     3607  016726  105014                          .PRL:   CLRB    (4)             ;CLEAR BYTE OF CHARACTER
01300     3608  016730  006105                                  ROL     TTY             ;ROTATE BIT INTO C
01400     3609  016732  106114                                  ROLB    (4)             ;PACK IT
01500     3610  016734  006105                                  ROL     TTY             ;ROTATE BIT INTO C
01600     3611  016736  106114                                  ROLB    (4)             ;PACK IT
01700     3612  016740  006105                          .PRF:   ROL     TTY             ;ROTATE BIT INTO C
01800     3613  016742  106114                                  ROLB    (4)             ;PACK IT
01900     3614  016744  105714                                  TSTB    (4)             ;IS IT ZERO?
02000     3615  016746  001402                                  BEQ     .+6             ;SKIP INC
02100     3616  016750  105267  161570                          INCB    .PR             ;SET FILL SWITCH
02200     3617  016754  105767  161564                          TSTB    .PR             ;CHECK FILL SWITCH
02300     3618  016760  001402                                  BEQ     .+6             ;SKIP BITSET
02400     3619  016762  152724  000060                          BISB    #'0,(4)+        ;MAKE INTO ASCII CHAR
02500     3620  016766  105267  161553                          INCB    .PR+            ;INC COUNT
02600     3621  016772  001355                                  BNE     .PRL            ;REPEAT
02700     3622  016774  022704  017020                          CMP     #.PRBUF,R4      ;EMPTY BUFFER?
02800     3623  017000  001002                                  BNE     .+6             ;SKIP IF NOT
02900     3624  017002  112724  000060                          MOVB    #'0,(4)+        ;LOAD 1 ZERO
03000     3625  017006  105014                                  CLRB    (4)             ;NULL TERMINATOR
03100     3626  017010  000004  017020                          TYPE    ..PRBUF         ;TYPE IT
03200     3627  017014  012604                                  MOV     (6)+,R4         ;RESTORE R4
03300     3628  017016  000207                                  RTS     PC              ;RETURN
03400     3629
03500     3630  017020  000004                          .PRBUF: .BLKW   4               ;OUTPUT BUFFER
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00100
00200
00300
00400     3631
00500     3632
00600     3633
00700     3634
00800     3635
00900     3636  017030  012737  017152  000024    ;**********************************************************
01000     3637  017036  012737  000340  000026
01100     3638  017044  010046
01200     3639  017046  010146    .SBTTL  POWER DOWN AND UP ROUTINES
01300     3640  017050  010246
01400     3641  017052  010346    ;POWER DOWN ROUTINE
01500     3642  017054  010446
01600     3643  017056  010546    $PWRDN: MOV     #$ILLUP,@#PWRVEC ;;SET FOR FAST UP
01700     3644  017060  010667  000072        MOV     #340,@#PWRVEC+2 ;;PRIO:7
01800     3645  017064  012737  017076  000024        MOV     R0,-(SP)        ;;PUSH R0 ON STACK
01900     3646  017072  000000        MOV     R1,-(SP)        ;;PUSH R1 ON STACK
02000     3647  017074  000776        MOV     R2,-(SP)        ;;PUSH R2 ON STACK
02100     3648                      MOV     R3,-(SP)        ;;PUSH R3 ON STACK
02200     3649                      MOV     R4,-(SP)        ;;PUSH R4 ON STACK
02300     3650  017076  016706  000054        MOV     R5,-(SP)        ;;PUSH R5 ON STACK
02400     3651  017102  005067  000050        MOV     SP,$SAVR6       ;;SAVE SP
02500     3652  017106  005267  000044        MOV     #$PWRUP,@#PWRVEC ;;SET UP VECTOR
02600     3653  017112  001375        HALT
02700     3654  017114  012605        BR      .-2             ;;HANG UP
02800     3655  017116  012604
02900     3656  017120  012603    ;POWER UP ROUTINE
03000     3657  017122  012602    $PWRUP: MOV     $SAVR6,SP       ;;GET SP
03100     3658  017124  012601        CLR     $SAVR6          ;;WAIT LOOP FOR THE TTY
03200     3659  017126  012600    1$:     INC     $SAVR6          ;;WAIT FOR THE INC
03300     3660  017130  012737  017030  000024        BNE     1$              ;;OF  WORD
03400     3661  017136  012737  000340  000026        MOV     (SP)+,R5        ;;POP STACK INTO R5
03500     3662  017144  000004        MOV     (SP)+,R4        ;;POP STACK INTO R4
03600     3663  017146  017160        MOV     (SP)+,R3        ;;POP STACK INTO R3
03700     3664  017150  000002        MOV     (SP)+,R2        ;;POP STACK INTO R2
03800     3665  017152  000000        MOV     (SP)+,R1        ;;POP STACK INTO R1
03900     3666  017154  000776        MOV     (SP)+,R0        ;;POP STACK INTO R0
04000     3667  017156  000000        MOV     #$PWRDN,@#PWRVEC ;;SET UP THE POWER DOWN VECTOR
04100     3668  017160  005015  047520  042527        MOV     #340,@#PWRVEC+2 ;;PRIO:7
04200     3669  017166  000122        TYPE                    ;REPORT THE POWER FAILURE
04300     3670                      $PWRMG: .WORD   $POWER          ;;POWER FAIL MESSAGE POINTER
                                    RTI
                                    $ILLUP: HALT                    ;;THE POWER UP SEQUENCE WAS STARTED
                                    BR      .-2             ;; BEFORE THE POWER DOWN WAS COMPLETE
                                    $SAVR6: 0                       ;;PUT THE SP HERE
                                    $POWER: .ASCIZ  <15><12>'POWER'

                                    .EVEN
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00100   CVKACC  MA ** 30A(1052)  21-AUG-78  15:28  PAGE 90
00200   CVKACC.P**    16-AUG-78 08:41          ASCIZ TYPE OUT ROUTINE                                    SEQ 0098
00300
00400     3671                                          74700
00500     3672                                          74800  ;*      TYPE OUT ROUTINE
00600     3673                                          74900  ;*      ----------------
00700     3674                                          75000  ;*
00800     3675                                          75100  ;*
00900     3676                                          75200  ;*      THIS ROUTINE IS USED TO TYPE ASCIZ MESSAGES
01000     3677                                          75300  ;*
01100     3678                                          75400
01200     3679  017170  132737  000040  000421        75500  $TYPE:  BITB    #40,@#$ENVM     ;HAS THE CONSOLE OUTPUTS BEEN SUPPRESSED?
01300     3680  017176  001007                        75600          BNE     3$              ;IF SO THEN RETURN FROM THE SUBROUTINE VIA 3
01400     3681  017200  010046                        75700          MOV     R0,-(SP)        ;OTHERWISE SAVE R0
01500     3682  017202  017600  000002                75800          MOV     @2(SP),R0       ;GET THE ADDRESS OF THE ASSCIZ STRING
01600     3683  017206  112046                        75900  2$:     MOVB    (R0)+,-(SP)     ;PUSH THE CHARACTER TO BE TYPED ONTO STACK
01700     3684  017210  001005                        76000          BNE     4$              ;BRANCH IF IT IS NOT THE TERMINATOR
01800     3685  017212  005726                        76100          TST     (SP)+
01900     3686  017214  012600                        76200          MOV     (SP)+,R0        ;OTHERWISE RESTORE THE STACK AND R0
02000     3687  017216  062716  000002                76300  3$:     ADD     #2,(SP)         ;ADJUST THE RETURN PC
02100     3688  017222  000002                        76400          RTI                     ;AND RETURN
02200     3689                                          76500
02300     3690  017224  105777  161320                76600  4$:     TSTB    @$TPS           ;IS THE PRINTER AVAILABLE?
02400     3691  017230  100375                        76700          BPL     4$              ;IF NOT THEN LOOP HERE
02500     3692  017232  112677  161314                76800          MOVB    (SP)+,@$TPB     ;OUT PUT THE CHARACTER
02600     3693  017236  000763                        76900          BR      2$              ;AND GO BACK
02700     3694  017240  005015  053104  040513        77000  $TTTLE: .ASCIZ  <15><12>/DVKACC - LSI-11 FIS  INSTRUCTION TEST/
02800     3695  017246  041503  026440  046040
02900     3696  017254  044523  030455  020061
03000     3697  017262  044506  020123  044440
03100     3698  017270  051516  051124  041525
03200     3699  017276  044524  047117  052040
03300     3700  017304  051505  000124
03400     3701                                          77100  .EVEN                           ;THAT WAS THE HEADING FOR THE DIAGNOSTIC
03500     3702  017310  012706  000600                77200  NOOOP:  MOV     #BEGIN,SP       ;INITIALIZE STACK POINTER TO 600
03600     3703  017314  132737  000001  000420        77300          BITB    #1,@#$ENV       ;ARE WE UNDER APT
03700     3704  017322  001011                        77400          BNE     22$             ;IF SO THEN DO NOT TYPE HEADING
03800     3705  017324  132737  000040  000421        77450          BITB    #40,@#$ENVM     ;HAVE THE CONSOLE OUTPUTS BEEN SUPPRESSED
03900     3706  017332  001005                        77460          BNE     22$             ;IF SO THEN DO NOT PRINT HEADING
04000     3707  017334  012737  017170  000020        77500          MOV     #$TYPF,@#20     ;SET UP VECTOR 20 TO PRINT HEADING
04100     3708  017342  000004  017240                77600          TYPE    ,$TTTLE         ;TYPE HEADING 'VKACC -LSI-11 ...'
04200     3709  017346  012767  000001  161162        77700  22$:    MOV     #1,TIMES        ; # OF ITERATIONS IN THE FIRST PASS
04300     3710  017354  012700  000410                77800          MOV     #$DEVCT,R0      ;PREPARE TO INITIALIZE THE PROGRAM
04400     3711  017360  005040                        77900  2$:     CLR     -(R0)
04500     3712  017362  022700  000400                78000          CMP     #$MAIL,R0
04600     3713  017366  001374                        78100          BNE     2$
04700     3714  017370  000167  160610                78200          JMP     RESTRT          ;START THE PROGRAM
04800     3715        000001                          78300  .END
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 92                                  SEQ 0099
00200   CVKACC.P11    16-AUG-78 08:41          CROSS REFERENCE TABLE -- USER SYMBOLS
00300
00400   A         015716          3392#  3393
00500   ABASE   - 000000           100
00600   ACDW1     000000           100
00700   ACDW2   = 000000           100
00800   ACPUOP    000000           100    118
00900   ADDW0   - 000000           100
01000   ADDW1   = 000000           100
01100   ADDW10= 000000             100
01200   ADDW11- 000000             100
01300   ADDW12    000000           100
01400   ADDW13- 000000             100
01500   ADDW14= 000000             100
01600   ADDW15= 000000             100
01700   ADDW2   = 000000           100
01800   ADDW3   - 000000           100
01900   ADDW4     000000           100
02000   ADDW5   - 000000           100
02100   ADDW6   - 000000           100
02200   ADDW7   = 000000           100
02300   ADDW8   - 000000           100
02400   ADDW9   = 000000           100
02500   ADEVCT= 000000             100    109
02600   ADEVM   = 000000           100
02700   AENV      000000           100    114
02800   AENVM   = 000000           100    115
02900   AFATAL= 000000             100    106
03000   AMADR1- 000000             100
03100   AMADR2= 000000             100
03200   AMADR3    000000           100
03300   AMADR4- 000000             100
03400   AMAMS1    000000           100
03500   AMAMS2= 000000             100
03600   AMAMS3= 000000             100
03700   AMAMS4    000000           100
03800   AMSGAD- 000000             100    111
03900   AMSGLG- 000000             100    112
04000   AMSGTY- 000000             100    105
04100   AMTYP1= 000000             100
04200   AMTYP2= 000000             100
04300   AMTYP3- 000000             100
04400   AMTYP4- 000000             100
04500   ANS1      000436           156#   157   259   305   351   397   443   489   535   581   627   673    71
04600                              765    811   855   917   989  1061  1133  1199  1245  1297  1343  1395   144
04700                             1487   1533  1579  1625  1671  1723  1775  1847  1913  1959  2005  2051   209
04800                             2143   2187  2241  2303  2375  2441  2487  2533  2579  2623  2685  2757   282
04900                             2901   2976* 2990  3044  3117  3205  3313  3445* 3459* 3492* 3505* 3539*
05000   ANS2      000440           158#   159   264   310   356   402   448   494   540   586   632   678    72
05100                              770    816   860   922   994  1066  1138  1204  1250  1302  1348  1400   144
05200                             1492   1538  1584  1630  1676  1728  1780  1852  1918  1964  2010  2056   210
05300                             2148   2192  2246  2308  2380  2446  2492  2538  2584  2628  2690  2762   283
05400                             2906   2977* 2995  3049  3122  3446* 3460* 3461* 3493* 3506* 3507* 3540*
05500   ANS3      000442           160#   161   865   927   999  1071  1143  1785  1857  2197  2251  2313   238
05600                             2633   2695  2767  2839  2917  3054  3211  3319  3464* 3510* 3542*
05700   ANS4      000444           162#   870   932  1004  1076  1148  1790  1862  2202  2256  2318  2390   263
05800                             2700   2772  2844  2922  3059  3216  3324  3465* 3511* 3543*
05900   ANS5      000446           163#   937  1009  1081  1153  1795  1867  2323  2395  2705  2777  2849   292
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00100  CVKACC  MAC V11 30A(1052)  21-AUG-78  15:28  PAGE 93
00200  CVKACC.P11    16-AUG-78 08:41          CROSS REFERENCE TABLE -- USER SYMBOLS                    SEQ 0100
00300
00400                                3064    3221    3329    3466*   3512*
00500  ANS6     000450               164#     942    1014    1086    1158    1800    1872    2328    2400    2710    2782    2854    293
00600                                3069    3226    3334    3467*   3513*
00700  APASS =  000000                100     108
00800  APRIOR-  000000                100
00900  ASWREG-  000000                100     116
01000  ATESTN=  000000                100     107
01100  AUNIT =  000000                100     110
01200  AUSWR =  000000                100     117
01300  AVECT1=  000000                100
01400  AVECT2=  000000                100
01500  BEGIN    000600                201     208#    431     433     477     479     707     709     753     755     973     977     97
01600                                1117    1121    1123    1279    1281    1377    1379    1705    1707    1759    1763    1765    208
01700                                2087    2359    2363    2365    2475    2477    2885    2889    2891    3186    3189    3294    329
01800                                3386    3702
01900  ENDCT    015644                3392#
02000  END1     001040                269#
02100  END10    002254                591#
02200  END11    002412                637#
02300  END12    002550                683#
02400  END13    002702                712     729#
02500  END14    003036                758     775#
02600  END15    003176                821#
02700  END16    003350                875#
02800  END17    003602                903     947#
02900  END2     001200                315#
03000  END20    004032                974     982     1019#
03100  END21    004270                1047    1091#
03200  END22    004522                1118    1126    1163#
03300  END23    004662                1209#
03400  END24    005016                1255#
03500  END25    005152                1290    1307#
03600  END26    005310                1353#
03700  END27    005444                1388    1405#
03800  END3     001334                 361#
03900  END30    005604                1451#
04000  END31    005744                1497#
04100  END32    006104                1543#
04200  END33    006242                1589#
04300  END34    006376                1635#
04400  END35    006534                1681#
04500  END36    006670                1716    1733#
04600  END37    007122                1760    1768    1805#
04700  END4     001470                 407#
04800  END40    007360                1833    1877#
04900  END41    007514                1923#
05000  END42    007654                1969#
05100  END43    010010                2015#
05200  END44    010144                2061#
05300  END45    010300                2090    2107#
05400  END46    010436                2153#
05500  END47    010612                2207#
05600  END5     001622                 436     453#
05700  END50    010766                2261#
05800  END51    011222                2289    2333#
05900  END52    011454                2360    2368    2405#
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 C100    CVKACC  MA(V11 30A(1052)  21-AUG-78  15:28  PAGE 94
00200    CVKACC.P11    16-AUG-78 08:41          CROSS REFERENCE TABLE -- USER SYMBOLS                    SEQ 0101
00300
00400    END53   011612          2451#
00500    END54   011746          2480    2497#
00600    END55   012104          2543#
00700    END56   012240          2589#
00800    END57   012414          2643#
00900    END6    001754           482     499#
01000    END60   012652          2671    2715#
01100    END61   013110          2743    2787#
01200    END62   013346          2815    2859#
01300    END63   013600          2886    2894    2937#
01400    END64   014016          3000#
01500    END65   014274          3030    3073#
01600    END66   014472          3103    3127#
01700    END67   015134          3143    3171    3192    3234#
01800    END7    002114           545#
01900    END70   015562          3251    3279    3300    3342#
02000    ERRORS  000462           167#    3557*
02100    ERROR$  016630          3568    3588#
02200    ERR1$   016650          3591#   3596
02300    FISLVL  000466           169#    3434*   3482*   3528*
02400    FISVEC  000464           168#    3433*   3481*   3527*
02500    HLT     = 104000          56#     251     256     261     266     271     297     302     307     312     317     343     34
02600                              353     358     363     389     394     399     404     409     434     440     445     450     45
02700                              480     486     491     496     501     527     532     537     542     547     573     578     58
02800                              588     593     619     624     629     634     639     665     670     675     680     685     71
02900                              716     72'     726     731     756     762     767     772     777     803     808     813     81
03000                              823     852     857     862     867     872     877     901     909     914     919     924     92
03100                              934     939     944     949     971     980     986     991     996    1001    1006    1011    101
03200                             1021    1045    1053    1058    1063    1068    1073    1078    1083    1088    1093    1115    112
03300                             1130    1135    1140    1145    1150    1155    1160    1165    1191    1196    1201    1206    121
03400                             1237    1242    1247    1252    1257    1288    1294    1299    1304    1309    1335    1340    134
03500                             1350    1355    1386    1392    1397    1402    1407    1433    1438    1443    1448    1453    147
03600                             1484    1489    1494    1499    1525    1530    1535    1540    1545    1571    1576    1581    158
03700                             1591    1617    1622    1627    1632    1637    1663    1668    1673    1678    1683    1714    172
03800                             1725    1730    1735    1757    1766    1772    1777    1782    1787    1792    1797    1802    180
03900                             1831    1839    1844    1849    1854    1859    1864    1869    1874    1879    1905    1910    191
04000                             1920    1925    1951    1956    1961    1966    1971    1997    2002    2007    2012    2017    204
04100                             2048    2053    2058    2063    2088    2094    2099    2104    2109    2135    2140    2145    215
04200                             2155    2184    2189    2194    2199    2204    2209    2238    2243    2248    2253    2258    226
04300                             2287    2295    2300    2305    2310    2315    2320    2325    2330    2335    2357    2366    237
04400                             2377    2382    2387    2392    2397    2402    2407    2433    2438    2443    2448    2453    247
04500                             2484    2489    2494    2499    2525    2530    2535    2540    2545    2571    2576    2581    258
04600                             2591    2620    2625    2630    2635    2640    2645    2669    2677    2682    2687    2692    269
04700                             2702    2707    2712    2717    2741    2749    2754    2759    2764    2769    2774    2779    278
04800                             2789    2813    2821    2826    2831    2836    2841    2846    2851    2856    2861    2883    289
04900                             2898    2903    2914    2919    2924    2929    2934    2939    2981    2986    2992    2997    300
05000                             3028    3036    3041    3046    3051    3056    3061    3066    3071    3075    3101    3109    311
05100                             3119    3124    3129    3190    3197    3202    3207    3213    3218    3223    3228    3237    329
05200                             3305    3310    3315    3321    3326    3331    3336    3345    3548
05300    HLTAD$  000430           150#     151    3562*   3563*   3588    3590
05400    HLT$    016464           214    3554#
05500    ISA20   003710           978     984#
05600    ISA22   004376          1122    1128#
05700    ISA37   006776          1764    1770#
05800    ISA52   011330          2364    2370#
05900    ISA63   013454          2890    2896#
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00300
00400 ISR17   003436   893   905#
00500 ISR20   003664   965   976#
00600 ISR21   004120  1037  1049#
00700 ISR22   004352  1109  1120#
00800 ISR37   006752  1751  1762#
00900 ISR40   007210  1823  1835#
01000 ISR51   011054  2279  2291#
01100 ISR52   011304  2351  2362#
01200 ISR60   012502  2661  2673#
01300 ISR61   012740  2733  2745#
01400 ISR62   013176  2805  2817#
01500 ISR63   013430  2877  2888#
01600 ISR65   014124  3012  3032#
01700 ISR66   014402  3084  3105#
01800 ISR67   014646  3145  3165#
01900 ISR70   015276  3253  3273#
02000 KIT$    016014  3402  3408  3414#  3580
02100 LAD$    000470   170#   226*  3151*  3259*  3411*  3415  3417
02200 N       000071    77#   229   275#   321#   367#   413#   459#   505#   551#   597#   643#   689#   73
02300            781#  827#  881#  953#  1025#  1097#  1169#  1215#  1261#  1313#  1359#  1411#  145
02400           1503#  1549#  1595#  1641#  1687#  1739#  1811#  1883#  1929#  1975#  2021#  2067#  211
02500           2159#  2213#  2267#  2339#  2411#  2457#  2503#  2549#  2595#  2649#  2721#  2793#  286
02600           2943#  2969  3005#  3077#  3131#  3134  3242#  3350#
02700 NOOOP   017310   200  3702#
02800 OVER$   016020  3400  3415#
02900 POPER   016270   905  1049  1835  2291  2673  2745  2817  3032  3105  3179  3287  3502#
03000 POPER1  016274  3183  3291  3504#
03100 POPES   016126   976  1120  1762  2362  2888  3456#
03200 POPR    016240   247   293   339   385   523   569   615   661   799   899  1043  1187  123
03300           1331  1429  1475  1521  1567  1613  1659  1829  1901  1947  1993  2039  213
03400           2285  2429  2521  2567  2667  2739  2811  3026  3489#
03500 POPS    016074   430   476   706   752   970  1114  1278  1376  1704  1756  2084  2356  247
03600           2882  3441#
03700 POP7    016410   849  2181  2235  2617  3534#
03800 PRINTR  016672  3565  3593  3599#
03900 PRINTS  016702  3601#
04000 PUSHR   016206   237   283   329   375   513   559   605   651   789   889  1033  1177  122
04100           1327  1419  1465  1511  1557  1603  1649  1819  1891  1937  1983  2029  212
04200           2275  2419  2511  2557  2657  2729  2807  3014  3086  3152  3260  3473#
04300 PUSHS   016034   421   467   697   743   961  1105  1269  1367  1695  1747  2075  2347  246
04400           2873  3423#
04500 PUSH7   016360   835  2167  2221  2603  3519#
04600 PWRVEC= 000024    66#  3636*  3637*  3645*  3660*  3661*
04700 RESTRT  000204   201#  3714
04800 RETURN  000472   171#  3149  3257  3560
04900 RTA17   003420   899#   917
05000 RTA20   003646   970#   989
05100 RTA21   004102  1043#  1061
05200 RTA22   004334  1114#  1133
05300 RTA37   006734  1756#  1775
05400 RTA40   007172  1829#  1847
05500 RTA51   011036  2285#  2303
05600 RTA52   011266  2356#  2375
05700 RTA60   012464  2667#  2685
05800 RTA61   012722  2739#  2757
05900 RTA62   013160  2811#  2829
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00100   CVKACC  MAC V11 30A(1052)  21-AUG-78  15:28  PAGE 96
00200   CVKACC.P11    16-AUG-78 08:41          CROSS REFERENCE TABLE -- USER SYMBOLS                    SEQ 0103
00300
00400   RTA63   013412          2882#   2901
00500   RTA65   014106          3026#   3044
00600   RTA66   014364          3098#   3117
00700   RTA67   014640          3161#   3163    3166    3168    3185    3205
00800   RTA70   015270          3269#   3271    3274    3276    3293    3313
00900   SAVRTS  016356          3504*   3515#
01000   SAVTPS  000506           177#
01100   SCOPE   104400            67#    236     282     328     374     420     466     512     558     604     650     696     74
01200                             788     834     888     960    1032    1104    1176    1222    1268    1320    1366    1418    146
01300                            1510    1556    1602    1648    1694    1746    1818    1890    1936    1982    2028    2074    212
01400                            2166    2220    2274    2346    2418    2464    2510    2556    2602    2656    2728    2800    287
01500                            2952    3011    3083    3141    3249    3366
01600   SCOPE$  015716            216    3397#
01700   SPACE   000475           172#    3567    3594
01800   STACK0  000510           178#     185     242     288     334     380     518     564     610     656     794     894     91
01900                            1038    1056    1182    1228    1326    1424    1470    1516    1562    1608    1654    1824    184
02000                            1896    1942    1988    2034    2126    2280    2298    2424    2516    2562    2662    2680    273
02100                            2752    2806    2824    3157    3200    3265    3308    3473    3510
02200   STACK1  000511           185#
02300   STACK2  000512           179#    3511
02400   STACK4  000514           180#     254     300     346     392     530     576     622     668     806    1194    1240    133
02500                            1436    1482    1528    1574    1620    1666    1908    1954    2000    2046    2138    2436    252
02600                            2574    3492    3512
02700   STACK6  000516           181#    3493    3513
02800   STACK8  000520           182#
02900   STAK10  000532           184#    2953    2984
03000   STK16   003244            836     844#
03100   STK47   010504           2168    2176#
03200   STK50   010660           2222    2230#
03300   STK57   012306           2604    2612#
03400   SVLAD$  016002           3404    3410#   3416
03500   SW08    000400             35      75#   3397
03600   SW09    001000             36      74#   3576
03700   SW10    002000             37      73#   3554
03800   SW11    004000             38      72#   3147    3255    3403
03900   SW12    010000             39      71#
04000   SW13    020000             40      70#   3558
04100   SW14    040000             41      69#   3401
04200   SW15    100000             42      68#
04300   TEMP    000534           186#    3158*   3170*   3231*   3266*   3278*   3339*
04400   TIMES   000536           187#    3133*   3350*   3407    3709*
04500   TRAPER  016456            241     287     333     379     425     471     517     563     609     655     701     747     79
04600                             840    1181    1227    1273    1325    1371    1423    1469    1515    1561    1607    1653    169
04700                            1895    1941    1987    2033    2079    2125    2172    2226    2423    2469    2515    2561    260
04800                            3018    3090    3156    3264    3548#
04900   TSA13   002640            708     714#
05000   TSA14   002772            754     760#
05100   TSA25   005106           1280    1292#
05200   TSA27   005400           1378    1390#
05300   TSA36   006624           1706    1718#
05400   TSA45   010234           2086    2092#
05500   TSA5    001560            432     438#
05600   TSA54   011702           2476    2482#
05700   TSA6    001712            478     484#
05800   TST1    000722           237#
05900   TST10   002132           559#
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 97
00200   CVKACC.P11    16-AUG-78 08:41          CROSS REFERENCE TABLE -- USER SYMBOLS                    SEQ 0104
00300
00400   TST11   002272              605#
00500   TST12   002430              651#
00600   TST13   002566              697#
00700   TST14   002720              743#
00800   TST15   003054              789#
00900   TST16   003214              835#
01000   TST17   003366              889#
01100   TST2    001056              283#
01200   TST20   003620              961#
01300   TST21   004050             1033#
01400   TST22   004306             1105#
01500   TST23   004540             1177#
01600   TST24   004700             1223#
01700   TST25   005034             1269#
01800   TST26   005170             1321#
01900   TST27   005326             1367#
02000   TST3    001216              329#
02100   TST30   005462             1419#
02200   TST31   005622             1465#
02300   TST32   005762             1511#
02400   TST33   006122             1557#
02500   TST34   006260             1603#
02600   TST35   006414             1649#
02700   TST36   006552             1695#
02800   TST37   006706             1747#
02900   TST4    001352              375#
03000   TST40   007140             1819#
03100   TST41   007376             1891#
03200   TST42   007532             1937#
03300   TST43   007672             1983#
03400   TST44   010026             2029#
03500   TST45   010162             2075#
03600   TST46   010316             2121#
03700   TST47   010454             2167#
03800   TST5    001506              421#
03900   TST50   010630             2221#
04000   TST51   011004             2275#
04100   TST52   011240             2347#
04200   TST53   011472             2419#
04300   TST54   011630             2465#
04400   TST55   011764             2511#
04500   TST56   012122             2557#
04600   TST57   012256             2603#
04700   TST6    001640              467#
04800   TST60   012432             2657#
04900   TST61   012670             2729#
05000   TST62   013126             2801#
05100   TST63   013364             2873#
05200   TST64   013616             2953#
05300   TST65   014034             3012#
05400   TST66   014312             3084#
05500   TST67   014530             3142#
05600   TST7    001772              513#
05700   TST70   015160             3250#
05800   TTYOUT  000546              191#   3144    3252    3351*
05900   TYPCNT  000540              188#   3588*   3589*   3595*
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00100   CVKACC  MACY11 30A(1052)  21-AUG-78  15:28  PAGE 98
00200   CVKACC.P11    16-AUG-78 08:41          CROSS REFERENCE TABLE -- USER SYMBOLS                                  SEQ 0105
00300
00400   TYPE   = 000004              76#  3149  3257  3375  3556  3560  3567  3594  3626  3662  3708
00500   YESRT    000542             189#   209
00600   $APTHD   000430             136    142#   149
00700   $BELL    000504             176#  3556
00800   $CPUOP   000426             118#
00900   $DEVCT   000410             109#  3710
01000   $DOAGN   015674            3371   3379  3385#
01100   $ENDAD   015664              89   3381#
01200   $ENDCT   015644            3373#  3392
01300   $ENDMG   015700            3375   3387#
01400   $ENULL   015712            3389#
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04400                              1541   1542#  1546  1547#  1572  1573#  1577  1578#  1582  1583#  1587  1588#  159
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04700                              1727#  1731  1732#  1736  1737#  1758  1759#  1767  1768#  1773  1774#  1778   177
04800                              1783   1784#  1788  1789#  1793  1794#  1798  1799#  1803  1804#  1808  1809#  183
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05600                              2239   2240#  2244  2245#  2249  2250#  2254  2255#  2259  2260#  2264  2265#  228
05700                              2289#  2296  2297#  2301  2302#  2306  2307#  2311  2312#  2316  2317#  2321   232
05800                              2326   2327#  2331  2332#  2336  2337#  2358  2359#  2367  2368#  2373  2374#  237
05900                              2379#  2383  2384#  2388  2389#  2393  2394#  2398  2399#  2403  2404#  2408   240
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$ILLUP  017152                  3636    3665#
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$MBADR  000432                   144#
$MSGAD  000414                   111#
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                                2574    2668*   2674*   2680    2740*   2746*   2752    2812*   2818*   2824    2978*   2984     302
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                                3541*
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02100                           674     679     684     715     720     725     730     761     766     771     776     802     80
02200                           812     817     822     851     856     861     866     871     876     908     913     918     92
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03900                          2835    2840    2845    2850    2855    2860    2897    2902    2913    2918    2923    2928    293
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04200                          3113    3118    3123    3128    3151    3196    3201    3206    3212    3217    3222    3227    323
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03300  $ALL      194#  2943
03400  $ALL2     194#  2969
03500  $DIVER    194#  2649    2721    2793
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04200              640   666     671     676     681     686     711     717     722     727     732     757     763     768     77
04300              778   804     809     814     819     824     853     858     863     868     873     878     902     910     91
04400              920   925     930     935     940     945     950     972     981     987     992     997    1002    1007    101
04500             1017  1022    1046    1054    1059    1064    1069    1074    1079    1084    1089    1094    1116    1125    113
04600             1136  1141    1146    1151    1156    1161    1166    1192    1197    1202    1207    1212    1238    1243    124
04700             1253  1258    1289    1295    1300    1305    1310    1336    1341    1346    1351    1356    1387    1393    139
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05800             2698  2703    2708    2713    2718    2742    2750    2755    2760    2765    2770    2775    2780    2785    279
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02400              502     528     533     538     543     548     574     579     584     589     594     620     625     630     63
02500              640     666     671     676     681     686     711     717     722     727     732     757     763     768     77
02600              778     804     809     814     819     824     853     858     863     868     873     878     902     910     91
02700              920     925     930     935     940     945     950     972     981     987     992     997    1002    1007    101
02800             1017    1022    1046    1054    1059    1064    1069    1074    1079    1084    1089    1094    1116    1125    113
02900             1136    1141    1146    1151    1156    1161    1166    1192    1197    1202    1207    1212    1238    1243    124
03000             1253    1258    1289    1295    1300    1305    1310    1336    1341    1346    1351    1356    1387    1393    139
03100             1403    1408    1434    1439    1444    1449    1454    1480    1485    1490    1495    1500    1526    1531    153
03200             1541    1546    1572    1577    1582    1587    1592    1618    1623    1628    1633    1638    1664    1669    167
03300             1679    1684    1715    1721    1726    1731    1736    1758    1767    1773    1778    1783    1788    1793    179
03400             1803    1808    1832    1840    1845    1850    1855    1860    1865    1870    1875    1880    1906    1911    191
03500             1921    1926    1952    1957    1962    1967    1972    1998    2003    2008    2013    2018    2044    2049    205
03600             2059    2064    2089    2095    2100    2105    2110    2136    2141    2146    2151    2156    2185    2190    219
03700             2200    2205    2210    2239    2244    2249    2254    2259    2264    2288    2296    2301    2306    2311    231
03800             2321    2326    2331    2336    2358    2367    2373    2378    2383    2388    2393    2398    2403    2408    243
03900             2439    2444    2449    2454    2479    2485    2490    2495    2500    2526    2531    2536    2541    2546    257
04000             2577    2582    2587    2592    2621    2626    2631    2636    2641    2646    2670    2678    2683    2688    269
04100             2698    2703    2708    2713    2718    2742    2750    2755    2760    2765    2770    2775    2780    2785    279
04200             2814    2822    2827    2832    2837    2842    2847    2852    2857    2862    2884    2893    2899    2904    291
04300             2920    2925    2930    2935    2940    2982    2987    2993    2998    3003    3029    3037    3042    3047    305
04400             3057    3062    3067    3072    3076    3102    3110    3115    3120    3125    3130    3191    3198    3203    320
04500             3214    3219    3224    3229    3238    3299    3306    3311    3316    3322    3327    3332    3337    3346    354
04600   $$NEWT      1#
04700   $$SKIP      1#
04800   .EQUAT      1#
04900   .HEADE      1#      4#
05000   .KT11       1#
05100   .SETUP      1#      4#      82
05200   .SWRHI      1#
05300   .$ACTI      1#      4#      83
05400   .$APTB      1#      4#      97
05500   .$APTH      1#      4#     127
05600   .$APTV      1#
05700   .$ASTA      1#
05800   .$CAT       1#
05900   .$ MTA      1#
```

```
00100   CVKAC   MACRO 30A(1052)  21-AUG-78  15:28  PAGE 104
00200   CVKACC.P11    16-AUG-78 08:41          CROSS REFERENCE TABLE -- MACRO NAMES                    SEQ 0110
00300
00400   .$DB2D          1#
00500   .$DB2I          1#
00600   .$DIV           1#
00700   .$EOP           1#        4#    3354
00800   .$ERR           1#
00900   .$ERRT          1#
01000   .$MULT          1#
01100   .$POWE          1#        4#    3631
01200   .$RAND          1#
01300   .$RDDE          1#
01400   .$RDOC          1#
01500   .$READ          1#
01600   .$R2AZ          1#
01700   .$SAVE          1#
01800   .$SB2D          1#
01900   .$SB2O          1#
02000   .$SCOP          1#
02100   .$SIZE          1#
02200   .$SUPR          1#
02300   .$TRAP          1#
02400   .$TYPB          1#
02500   .$TYPD          1#
02600   .$TYPE          1#
02700   .$TYPO          1#
02800   .$40CA          1#
02900
03000
03100   . ABS.  017374      000
03200
03300
03400    ERRORS DETECTED:  0
03500
03600    CVKACC.BIN,CVKACC.LST/CRF/SOL=CVKACC.SML,CVKACC.P11
03700    RUN-TIME: 17 23 1 SECONDS
03800    RUN-TIME RATIO: 575/42 13.4
03900    CORE USED:  41K  (81 PAGES)
04000
04100
```