SPECIAL FEATURE
EXTENDED PRECISION FLOATING POINT
FOR 709 MACHINE

B/M 580043 EC 298817

INTRODUCTORY WRITE-UP

UNIT TESTED - 709 CPU

A. PURPOSE OF TEST

To give a comprehensive test of all the seven extended precision floating point instructions as provided by this Special Feature

B. METHOD OF TEST

In order to give a comprehensive test of all these extended precision floating point instructions, this diagnostic program is divided into two separate independent sections, as follows:

Section 1 - Tests the extended load (ELD) and extended store (EST) instructions.

Section 2 - Tests the extended precision floating point arithmetic instructions. (EAD, ESB, EUA, EMP, EDP)

The method of test as used in each section is discussed in the write-up for that section.
This program assumes that all of MF is functional except the circuitry required for this special feature.

C. MACHINE UNITS AND STORAGE AREA

1. UNITS REQUIRED

MF, CF, DSU, CR, PR

2. STORAGE LOCATIONS

SECTION 1		00000 - 01073
SECTION 2		00000 - 06435
	9DEPR	06500 - 07713

These sections are sepaarate programs.
In the operation of each section, all of core storage is used.

D. LOADING PROCEDURE

Both sections are loaded into core storage by using the Standard High End Loader. (9LD02A)

E. PROGRAM CONTROL

Program control as used by each section is discussed in write-up for that section.

1. CARD DECK

9EFPA	000	9LD02A - High End Loader
	001 - 026	Section 1 Program
	027	Section 1 Tra Card (TRA 00767)
	028	9LD02A - High End Loader
	029 - 185	Section 2 Program
	186 - 214	9DEPR - Diagnostic Print Routine
	215	Section 2 Tra Card (TRA 05211)
	216 - 217	Two Blank Cards

Operation of each section as separate programs:

Section 1 - Remove 9EFPA 000 to 027 and insetr two blank cards behind 9EFPA 027 and insert this deck into CR.

NOTE: Section 1 does not use the DEPR print routine.

Section 2 - Remove 9EFPA 028 and hight and insert this deck into CR.

As single loads, either section will load under SSW 6 control. This is the same procedure as used in loadng consecutive diagnostic programs.

SPECIAL FEATURE
EXTENDED PRECISION FLOATING POINT
FOR 709 MACHINE

B/M 580043 EC 298817

SECTION 1

A. PURPOSE OF TEST

This section provides a comprehensive test of the EXTENDED LOAD (ELD) and EXTENDED STORE (EST) instructions as provided by this special feature.

B. METHOD OF TEST

This section is divided into two parts:

Part 1 - Cursory check of single addressing controls using the STO instuction.

Part 2 - Checking ELD and EST for function.

The brief description preceding each test routine gives the purpose and method of test of the test routine.

In an effort to keep the number of locations used by this section at a minumum, no error printout is provided in this sections, and, also, the number of subroutines used in this sections are minimized. This allows more storage locations for checking addressing. To further assure that all solid or random addressing errors will be detected, each instruction provides test routines which address all unused portions of storage.

Since no error printout is provided in this section, the machine will halt on all error indications.

C. PROGRAM CONTROL

A Program Sequence Control is provided in this sections. This routine, located at the beginning of the program, checks SSW 1 to determine whether the test routine is to be repeated or whether the program goes to next test routine in sequence.

1. CARD DECK

9EFPA	000	9LD02A - High End Loader
	001 - 026	Section 1 Program
	027	Section TRA Card (TRA 00767)

9DEPR is not used in this section.
See Introductory Write-Up for comments on operating this section either separately or in conjunction with Section 2.

2. SENSE SWITCH CONTROL

Sense Switch 1
- UP - Proceed to next test routine.
- DN - Repeat the test routine.

Sense Switch 2
- UP - Indicate all errors by halting.
- DN - Bypass all error indications.

Sense Switch 3
- UP - Print Program Identification or 100 pass complete.
- DN - Bypass all printing.

Sense Switch 4 Not used.
Sense Switch 5 Not used.
Sense Switch 6
- UP - End Program on completion of all test routines and simulate the load card button to read in next diagnostic program.
- DN - Repeat program upon completion of last test routine.

D. NORMAL STOPS - NONE

E. ERROR STOPS

Since no error printout is provided, the machine will halt on all error indications with SSW 2 UP. See listing for error halt locations.

F. PROGRAM CONTROL PRINTOUTS

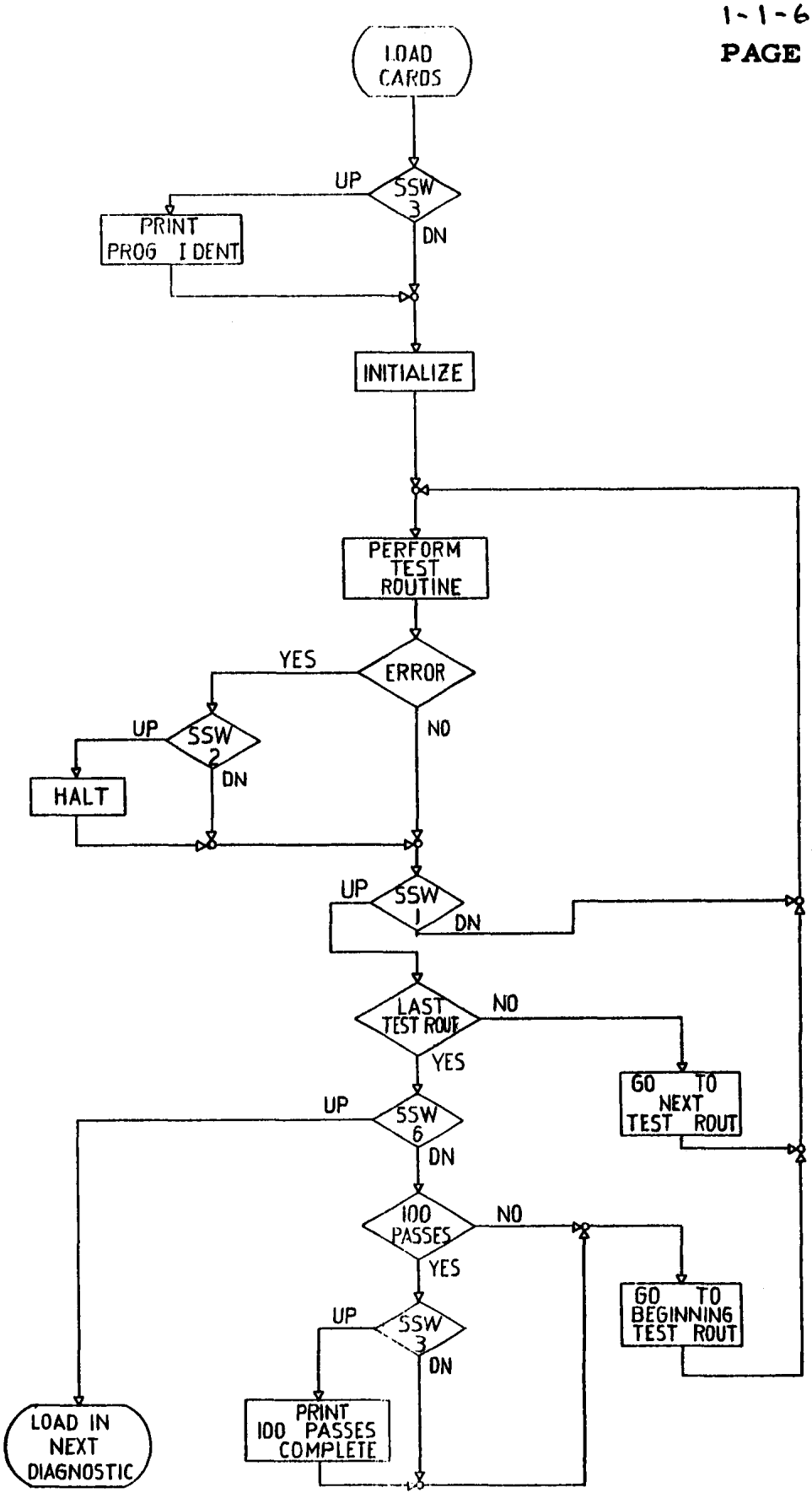
Printouts are under control of SSW 3.

Program Identification
9EFP SECTION 1, EXTENDED PRECISION FLOATING POINT TEST BEGINS.

Program Pass Complete
9EFP SECTION 1 - 100 PASSES COMPLETE.

G. COMMENTS

A delay is provided upon the completion of the test routines to indicate to the operator that a pass of the program has been completed.


LOAD CARDS
UP
SSW 3
DN
PRINT PROG IDENT
INITIALIZE
PERFORM TEST ROUTINE
YES
ERROR
NO
UP
SSW 2
DN
HALT
UP
SSW 1
DN
LAST TEST ROUT
NO
YES
GO TO NEXT TEST ROUT
UP
SSW 6
DN
100 PASSES
NO
YES
GO TO BEGINNING TEST ROUT
UP
SSW 3
DN
PRINT 100 PASSES COMPLETE
LOAD IN NEXT DIAGNOSTIC

```
*****************************************************************
*                                                               *
*                 B/M  580043       EC  298817                  *
*                                                               *
*****************************************************************


*****************************************************************
*                                                               *
*         ******   ******   ******   *******       *********    *
*         *        *        *           *             *        *
*         *        *        *           *             *        *
*         *        *        *           *             *        *
*         ******   ****     *           *             *        *
*              *   *        *           *             *        *
*              *   *        *           *             *        *
*              *   *        *           *      **     *        *
*         ******   ******   ******      *      **  *********    *
*                                                               *
*****************************************************************



*      TESTING -
*          EST        EXTENDED STORE-0673   2.07.90
*          ELD        EXTENDED LOAD   0670   2.07.90


*                     PROGRAM SEQUENCE CONTROL

*      WITH THE USE OF SENSE SWITCH 1 -
*          UP   -ROUTINE JUST COMPLETED IS REPEATED.
*          DOWN -PROGRAM WILL PROCEED TO NEXT TEST ROUTINE IN DEQ.

* THE STL INST IS USED TO GIVE BEGINNING ADDRESSES OF EACH TEST ROUT.
* IND. ADDR. IS USED TO OBTAIN THE BEGINNING ADDR OF NEXT TEST ROUT.



                 00002         ORG 2
00002  0760 00 0 00161  REP    SWT 1          WITH SW 1 --
00003  0020 00 0 00005         TRA *+2        UP- PROCEED TO NEXT TEST.
00004  0020 00 0 00000         TRA **         DN- REPEAT SAME TEST.

                                   OBTAIN ADDR OF NEXT TEST LOCATION
                                   FROM ADDR OF PREV LOCATION.
00005  0500 60 0 00004         CLA* *-1       NEXT ROUTINE ADDRESS
00006  0621 00 0 00007         STA *+1
00007  0020 00 0 00000         TRA **         GO TO NEXT ROUTINE
```

```
*                   PART 1

*      BEFORE PROCEEDING TO TEST ELD OR EST,
*      SINGLE ADDRESSING IS CHECKED FOR FUNCTION.

*      IN THIS TEST--
*          THE ACC WILL CONTAIN A TXI INSTRUCTION.
*          THE MQ WILL CONTAIN ALTERNATE ONES.
*    THE ACC WILL BE STORED IN LOC ZERO. A CHECK IS MADE OF LOC ZERO
*TO SEE IF ACC WAS STORED THERE. IF NOT, ALL OF STORAGE IS SEARCHED.
*WHEN FOUND THE MACHINE HALTS ON A HTR INST WITH ERROR LOC IN XRA.
*IF NOT FOUND, THE MACHINE ALSO HALTS ON A HTR INST.

*    IF ACC WAS STORED SUCCESSFULLY, LOCATION 00001 IS CHECKED
*TO SEE IF MQ WAS STORED THERE. MACHINE WILL HALT ON ERROR.


*      SENSE LITE INDICATIONS-
*          LITE 1 - ERROR IN STORING ACC
*          LITE 2 - MQ STORED IN ERROR.


                 00030         ORG 24
00030 -0625 00 0 00004  GENE   STL 4           FOR AUTO RESTART
00031  0761 00 0 00072         NOP GUS        LOC OF NEXT ROUTINE
00032  0760 00 0 00140         SLF
00033  0560 00 0 00071         LDQ GUS-1      ALTERNATE ONES
00034  0500 00 0 00070         CLA GUS-2      STR-FOR RESTART
00035  0760 00 0 00003         SSP            BECOMES TXI
00036  0601 00 0 00000         STO
00037  0760 00 0 00162         SWT 2          TO CHECK OR NOT
00040  0020 00 0 00042         TRA *+2        YES
00041  0020 00 0 00002         TRA REP        NO, PROCEED

00042  0340 00 0 00000         CAS            CHECK
00043  0020 00 0 00045         TRA *+2
00044  0020 00 0 00060         TRA ANUNZ      OK, SEE IF MQ WAS STORED
00045  0760 00 0 00141         SLN 1          SIGNAL ERR IN STO
```

```
*       ASSUME THAT THE ACC HAS NOT BEEN CHANGED.
00046  0774 00 1 77777          AXT -1,1        SEARCH ALL OF CORE FOR
                                                THE MISSING WORD
00047  0340 00 1 00000          CAS ,1
00050  0020 00 0 00052          TRA *+2
00051  0020 00 0 00054          TRA *+3         GOT IT
00052  2 00001 1 00047          TIX *-3,1,1     TRY NEXT LOC.
00053  0000 00 0 00002          HTR REP         FAILED TO EXECUTE STO
                                                SW 1 DOWN AND START TO TRY AGAIN.
*20
00054  0754 00 1 00000          PXA ,1
00055  0737 00 1 00000          PAC ,1          SET TRUE LOC. IN XRA
00056  0760 00 0 00000          CLM
00057  0000 00 0 00002          HTR REP         WORD WAS STORED IN WRONG PLACE.
                                                XRA HAS THE LOC. SHOULD HAVE
                                                STORED AT ZERO. SW 1 DOWN
                                                AND START TO TRY AGAIN.

00060  0500 00 0 00071  ANUNZ  CLA GUS-1       SEE IF MQ WAS STORED AT 1

00061  0340 00 0 00001          CAS 1
00062  0020 00 0 00064          TRA *+2
00063  0020 00 0 00065          TRA *+2
00064  0020 00 0 00067          TRA GENE+31     OK, PROCEED.

00065  0760 00 0 00142          SLN 2           MQ WAS STORED ALSO, SHOULD NOT
                                                HAVE BEEN ON STO. SW 1 DOWN
                                                AND START TO TRY AGAIN.
*30
00066  0000 00 0 00067          HTR *+1
00067  0020 00 0 00002          TRA REP         PROCEED OR
                                                REPEAT

00070 -1 00000 0 00030          STR GENE        CONSTANTS.
00071 -012525252525             OCT -12525252525
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*      CHECKING SINGLE ADDRESS CONTROL LINES.

*      IN THIS TEST--
*          THE ACC WILL BE ALL ZEROS.
*          THE MQ WILL CONTAIN THE ORIGNAL CONT OR XRA.

*    ALL LOCATIONS IN STORAGE WILL BE ADDRESSED FOR STO EXCEPT
*THE AREA OCCUPIED BY PROGRAM. THE STO INST WILL BE ALTERNATED
*SO THAT IF THE MQ IS BEING STORED ALL LOCATIONS WILL NOT BE ZERO
*WHEN STORAGE IS CHECKED.

*      SENSE LITE INDICATION-
*          LITE 3 - ERROR IN STO INST.


00072 -0625 00 0 00004  GUS    STL 4          FOR AUTO REPEAT.
00073  0761 00 0 00122         NOP ESTSC      LOCATION OF NEXT TEST.
00074  0760 00 0 00140         SLF
00075  0774 00 3 76734         AXT 32767-LAST,3 FAILL XRA AND XRB
00076 -0754 00 1 00000         PXD ,1
00077  0131 00 0 00000         XCA            NOT ZERO TO MQ
00100 -0754 00 0 00000         PXD            CLEAR ACC
00101  0601 00 1 00001         STO 1,1        STORE ZERO ALTERNATLY THROUGH
00102  0601 00 1 00000         STO ,1         STORAGE SO WE CAN CHECK ON MQ.
00103  2 00002 1 00101         TIX *-2,1,2    PROCEED UNTIL ALL LOC ARE FILLED
*10
00104  0760 00 0 00162         SWT 2
00105  0020 00 0 00107         TRA *+2        CHECK
00106  0020 00 0 00117         TRA GUS+21     DONT CHECK IF SW2 IS DOWN.
00107 -0500 00 2 00000         CAL ,2         CHECK SIGN BIT ALSO.
00110 -0100 00 0 00113         TNZ *+3        WRONG IF NOT ZERO.
00111  2 00001 2 00107         TIX *-2,2,1    CHECK ALL LOCATIONS
00112  0020 00 0 00117         TRA GUS+21     OK, PROCEED

00113  0760 00 0 00143         SLN 3          SIGNAL STO ERROR
00114  0634 00 2 00115         SXA *+1,2
00115 -0774 00 1 00000         AXC **,1       GET TRUE ERR LOC TO XRA.
*20
00116  0000 00 0 00111         HTR *-5        THE WORD AT THE LOC SHOWN
*      IN XRA WAS NOT ZERO AFTER ZERO WAS STORED BY STO.
*      THE WORD IN ERROR IS IN THE ACC. IF ACC IS SAME AS MQ,
*      THEN STO STORED THE MQ ALSO.
*      PRESS START TO CONTINUE SEARCH AT NEXT LOCATION.


00117  0500 00 0 00070         CLA GUS-2
00120  0602 00 0 00000         SLW            RESTORE ZERO IN CASE.
00121  0020 00 0 00002         TRA REP        GO ON


*                   PART 2


*****************BEGIN CHECKING EST-   EXTENDED STORE -0673************
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*EST EXECUTION IS ON SYSTEMS 2.07.90.



*      CLOSED ROUTINE FOR SCOPING EST.


00122 -0625 00 0 00004  ESTSC  STL 4          FOR AUTO RESTART
00123  0761 00 0 00134         NOP MY         LOC OF NEXT ROUTINE

00124  0500 00 0 00132         CLA YOUR
00125  0560 00 0 00133         LDQ CHOIS
00126 -0673 00 0 77776         EST 32766      THIS IS IT

00127  0760 00 0 00161         SWT 1          WANT A CLOSED LOOP
00130  0020 00 0 00134         TRA MY         UN- NO-GO ON.
00131  0020 00 0 00126         TRA *-3        DN- YES-REPEAT.


00132 +000000000000     YOUR   OCT +0         TEMP STOR FOR THIS
00133 +000000000000     CHOIS  OCT +0            ROUTINE ONLY.



*      CHECKING EST FOR EXECUTION.

*      STO INST IS ASSUMED FUNCTIONAL.
*      EST IS ASSUMED TO EXECUTE WITHOUT HANGING-UP.
***THE SEQUENTIAL ADDRESS OF THE EST INST WILL BE SET IN THE ACC
*AND MQ. A CHECK WILL BE MADE TO SEE IF BOTH WORDS WERE STORED
*CORRECTLY. IF EITHER WORD WAS NOT STORED CORRECTLY, STORAGE IS
*SEARCHED AND ERROR LOCATION PUT IN XRA IN TRUE FROM. A HTR
*TO -REP- IS GIVEN.
***MQ IS CHECKED ONLY IF ACC WAS OK.
***IF WORDS CANNOT BE FOUND, THE MACHINE WILL HALT ON HPR 77777.

*      SENSE LITE INDICATIONS-
*          LITE 1 -ERROR IN STORING THE ACC.
*          LITE 2 -ERROR IN STORING THE MQ.


00134 -0625 00 0 00004  MY     STL 4          FOR AUTO REPEAT
00135  0761 00 0 00210         NOP MAMA       LOC FOR NEXT ROUTINE
00136  0760 00 0 00140         SLF
00137  0600 00 0 01044         STZ LAST+1     CLEAR
00140  0600 00 0 01045         STZ LAST+2     RECEIVERS
00141  0774 00 1 01044         AXT LAST+1,1   ACC ADDRESS, IN XRA
00142 -0754 00 1 00000         PXD ,1         TO ACC DECREMENT.
00143  0131 00 0 00000         XCA
00144  1 00001 1 00145         TXI *+1,1,1    MQ ADDRESS
00145 -0754 00 1 00000         PXD ,1
*10
00146  0131 00 0 00000         XCA            PROPER ADDRESSES IN PROPER DECS.
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00147 -0673 00 0 01044         EST LAST+1     OK, TRY IT
00150  0760 00 0 00162         SWT 2
00151  0020 00 0 00153         TRA *+2
00152  0020 00 0 00154         TRA *+REP      DONT CHECK IF 2 IS DOWN
00153  0340 00 0 01044         CAS LAST+1     CHECK ACC WORD
00154  0020 00 0 00156         TRA *+2
00155  0020 00 0 00171         TRA MY+29      OK, NOW CHECK MQ WORD
00156  0760 00 0 00141         SLN 1          SIGNAL ERR IN ACC WORD
00157  0774 00 2 77777         AXT 32767,2    PREPARE TO SEARCH STORAGE
*20
00160  0340 00 2 00000         CAS ,2         DIVE, DIVE.
00161  1 00000 0 00163         TXI *+2
00162  1 00000 0 00166         TXI *+4        FOUND IT, GET LOC AND STOP

00163  2 00001 1 00160         TIX *-3,1,1    NO LUCK, TRY NEXT LOC.
00164  0420 00 0 77777         HPR 32767      ACC WAS NOT CORRECTLY STORED
*      ANYWHERE IN STORAGE. CHECK THAT WORD IN ACC HAS NOT
*      BEEN CHANGED BY EST. THE ACC DECR SHOULD HAVE THE
*      ORIGINAL VALUE PLACED IN IT AT THE BEGINNING OF ROUTINE.
*      THE ACC SHOULD CONTAIN NO OTHER BITS.

                                       SW1 DOWN AND PRESS START
                                       TO TRY AGAIN
00165  0021 00 0 00002         TTR REP        GO
00166 -0634 00 2 00162         SXD *-4,2      GET TRUE LOC.
00167 -0535 00 1 00162         LDC *-5,1      TO XRA
00170  0000 00 0 00002         HTR REP        ACC WAS STORED AT LOC SHOWN
*      IN XRA. THE CORRECT LOCATION IS IN DECR OF ACC.
*      SW 1 DOWN AND PRESS START TO TRY AGAIN.



00171  0131 00 0 00000         XCA            ACC OK, TRY MQ.
*30
00172  0340 00 0 01045         CAS LAST+2     MQ WORD HAS BEEN PUT INTO THE ACC
00173  0020 00 0 00175         TRA *+2
00174  0020 00 0 00002         TRA REP        MQ OK, GO ON
00175  0760 00 0 00142         SLN 2          SIGNAL MQ ERROR
00176  0774 00 2 77777         AXT 32767,2
00177  0340 00 2 00000         CAS ,2         HAVE AT IT
00200  1 00000 0 00202         TXI *+2        SEARCH
00201  1 00000 0 00205         TXI *+4
00202  2 00001 2 00177         TIX *-3,2,1    SEATCH ALL LOC. EXCEPT ZERO
00203  0000 00 0 77777         HTR 32767      CANT FIND WORD THAT SHOULD HAVE
                                       BEEN STORED FROM MQ

*                    SW 1 DOWN AND PRESS START TO TRY AGAIN.

*      CHECK THAT WORD IN ACC HAS NOT BEEN CHANGED BY EST.
*      THE MQ AND ACC HAVE BEEN EXCHANGED DURING TEST.
*      DECR OF ACC SHOULD HAVE THE ORIGINAL VALUE OF SYMBOLIC
*      LOCATION  -LAST+2-  . THE ACC SHOULD CONTAIN NO OTHER BITS.
*40
00204  0021 00 0 00002         TTR REP
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00205  0634 00 2 00206         SXA *+1,2      TRUE LOC OF XRA
00206 -0774 00 1 00000         AXC **,1
00207  0000 00 0 00002         HTR REP        THE WORD THAT WAS IN MQ ON EST WAS
*      STORED AT LOC SHOWN IN XRA. CORRECT LOCATION IN DECR
*      OF THE ACC. SW 1 DOWN AND PRESS START TO TRY AGAIN.



*      CHECKING EST FOR STORING ALL BITS FROM AC AND MQ.
*      ASSUME THE EST WILL STORE AT DESIGNATED ADDRESSES,
*      AND WILL NOT ALTER THE CONTENTS OF ACC OR MQ.
*      ONLY ACC S-17 AND MQ S-35 IS STORED BY EST.


*      SENSE LITE INDICATIONS-
*          LITE 1 - ERROR IN STORING THE ACC.
*          LITE 2 - ERROR IN STORING THE MQ.


00210 -0625 00 0 00004  MAMA   STL 4          FOR AUTO REPEAT
00211  0761 00 0 00243         NOP DONE       LOC OF NEXT ROUTINE.
00212  0760 00 0 00140         SLF
00213  0600 00 0 01044         STZ LAST+1     CLEAR
00214  0600 00 0 01045         STZ LAST+2     RECEIVERS.
00215 -0754 00 0 00000         PXD            CLEAR ACC
00216  0760 00 0 00006         COM            ALL ONES
00217 -0765 00 0 00044         LGR 36         TO MQ S,1-35
00220 -0754 00 0 00000         PXD            CLEAR ACC
00221  0760 00 0 00006         COM            ALL ONES, Q-35.
*10
00222  0771 00 0 00002         ARS 2          LOSE Q,P
00223  0763 00 0 00000         LLS            ACC SIGN MINUS TOO.
00224 -0673 00 0 01044         EST LAST+1
00225  0760 00 0 00162         SWT 2
00226  0020 00 0 00230         TRA *+2
00227  0020 00 0 00002         TRA REP        DONT CHECK IF 2 IS DOWN

00230  0340 00 0 01044         CAS LAST+1     CHECK ACC
00231  0020 00 0 00233         TRA *+2
00232  0020 00 0 00235         TRA *+3        OK, CHECK MQ
00233  0760 00 0 00141         SLN 1          SIGNAL ACC ERR
*20
00234  0000 00 0 00002         HTR REP        ACC WORD NOT STORED
*      CORRECTLY. ONLY ACC S-17 SHOULD HAVE BEEN STORED.
*      ACC 18-35 IS CLEARED DURING EST OPERATION.
*      SW 1 DOWN AND PRESS START TO TRY AGAIN.



00235  0131 00 0 00000         XCA            MQ TO ACC  *******
00236  0340 00 0 01045         CAS LAST+2                      *
00237  0020 00 0 00241         TRA *+2                         *
00240  0020 00 0 00002         TRA REP        OK, PROCEED      *
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00241  0760 00 0 00142         SLN 2          SIGNAL MQ ERR
00242  0000 00 0 00002         HTR REP        MQ STORED INCORRECTLY.
*      FOR TEST CHECK, MQ AND ACC HAVE BEEN EXCHANGED.
*      MQ SHOULD HAVE STORED ALL ONES S,1-35.

*      SW 1 DOWN AND PRESS START TO TRY AGAIN.

*      CHECK EST FOR CLEARING ACC Q AND P.

*      SENSE LITE INDICATIONS-
*          LITE 1 - ERROR IN STORING ACC.
*          LITE 2 - ERROR IN STORING MQ.
*          LITE 3 - ERROR IN ACC Q,P.



00243 -0625 00 0 00004  DONE   STL 4          FOR AUTO REPEAT
00244  0761 00 0 00276         NOP TOLE       LOC OF NEXT ROUTINE
00245  0760 00 0 00140         SLF
00246 -0754 00 0 00000         PXD            CLEAR ACC
00247  0131 00 0 00000         XCA            CLEAR MQ
00250 -0754 00 0 00000         PXD            CLEAR AGAIN
00251  0760 00 0 00006         COM            ALL ONES
00252  0602 00 0 01044         SLW LAST+1     TO STORAGE
00253  0602 00 0 01045         SLW LAST+2        LOCATIONS.
00254  0771 00 0 00002         ARS 2
*10
00255  0760 00 0 00006         COM            ONES TO Q AND P ONLY.
00256 -0673 00 0 01044         EST LAST+1
00257  0760 00 0 00162         SWT 2
00260  0020 00 0 00262         TRA *+2
00261  0020 00 0 00002         TRA REP        DON'T CHECK IF 2 IS DOWN
00262  0100 00 0 00265         TZE DONE1      Q AND P SHOULD BE CLEARED.
00263  0760 00 0 00143         SLN 3          INIDCATE ERROR IN ACC QP.
00264  0000 00 0 00002         HTR REP        WITH SW 1 DN- PRESS
                                   RESET AND START TO TRY AGAIN.


*20
00265 -0500 00 0 01044  DONE1  CAL LAST+1
00266  0771 00 0 00022         ARS 18         DROP 18-35
00267  0100 00 0 00272         TZE *+3
00270  0760 00 0 00141         SLN 1          SIGNAL ACC ERR
00271  0000 00 0 00002         HTR REP        STOR S-17 SHOULD HAVE
                                   BEEN CLEARED BY EST. ERR BITS IN
                                   ACC 18-35.
                                   SW 1 DN-PRESS START TO TRY AGAIN


00272 -0500 00 0 01045         CAL LAST+2     CHECK SIGN TOO.
00273  0100 00 0 00002         TZE REP        OK, PROCEED.
00274  0760 00 0 00142         SLN 2          SIGNAL MQ ERROR.
00275  0000 00 0 00002         HTR REP        STOR S-35 SHOULD HAVE
                                   BEEN CLEARED FROM MQ ON EST
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                                ERROR BITS IN ACC.
                                SW1 DN-PRESS START TO TRY AGAIN.

*      CHECKING EST WITH INDEXING.

****AS BEFORE, ON ERROR THE CORE IS SEARCHED UNTIL WORDS ARE FOUND.

*      SENSE LITE INDICATIONS-
*          LITE 1 - ERROR IN STORING ACC.
*          LITE 2 - ERROR IN STORING MQ.



00276 -0625 00 0 00004  TOLE   STL 4          FOR AUTO REPEAT
00277  0761 00 0 00355         NOP ME         LOC OF NEXT ROUTINE.
00300  0760 00 0 00140         SLF
00301  0600 00 0 01044         STZ LAST+1     CLEAR RECIEVERS
00302  0600 00 0 01045         STZ LAST+2
00303  0774 00 1 01044         AXT LAST+1,1   ADDRESS TO ACC DEC
00304 -0754 00 1 00000         PXD ,1
00305  0131 00 0 00000         XCA
00306  1 00001 1 00307         TXI *+1,1,1    +1 YIELDS
00307 -0754 00 1 00000         PXD ,1         MQ ADDRESS
*10
00310  0131 00 0 00000         XCA            RIGHT ADDS TO RIGHT DECS.
00311  0774 00 1 77775         AXT -3,1       XRA GETS 77775 OCTLA
00312 -0673 00 1 01041         EST LAST-2,1   INDEX BY COLS 16 AND 17
                                              SHOULD ADD 3 TO ADDR.
00313  0760 00 0 00162         SWT 2
00314  0020 00 0 00316         TRA *+2
00315  0020 00 0 00002         TRA REP        DONT CHECK IF 2 IS DOWN.

00316  0340 00 0 01044         CAS LAST+1     CHECK ACC
00317  0020 00 0 00321         TRA *+2
00320  0020 00 0 00335         TRA TOLE+31    OK, CHECK MQ
00321  0760 00 0 00141         SLN 1          SIGNAL ACC ERROR.
*20
00322  0774 00 2 00000         AXT 0,2        PREPARE TO SEARCH
00323  0340 00 2 00000         CAS ,2         SEARCH CORE 00000 TO 77777
00324  0020 00 0 00326         TRA *+2
00325  1 00000 0 00332         TXI *+5        GOT IT.
00326  1 77777 2 00327         TXI *+1,2,-1   NO GOT--STOP TO NEXT ADDR.
00327  3 00000 2 00323         TXH *-4,2,0    SEARCH ALL LOCATIONS.

00330  0000 00 0 77777         HTR 32767      WORD NOT FOUND THAT SHOULD
00331  0021 00 0 00002         TTR REP        HAVE BEEN STORED FROM MQ.
*      CHECK TO SEE IF ACC HAS BEEN ALTERED.
*      WITH SW 1 DOWN, PRESS START TO TRY AGAIN.

00332  0634 00 2 00333         SXA *+1,2
00333 -0774 00 1 00000         AXC **,1       TRUE LOC TO XRA
*30
00334  0000 00 0 00002         HTR REP        ACC WAS STORED AT LOCATION
*      SHOWN IN XRA. CORRECT LOCATION IN DECREMTN
*      OF ACC. WITH SW 1 DN, PRESS START TO TRY AGAIN.
```

```
00335  0131 00 0 00000         XCA             IF ACC OK, CHECK MQ.-******
00336  0340 00 0 01045         CAS LAST+2                                 *
00337  0020 00 0 00341         TRA *+2                                    *
00340  0020 00 0 00002         TRA REP         OK, PROCEED                *
00341  0760 00 0 00142         SLN 2           SIGNAL MQ ERROR            *
00342  0774 00 2 00000         AXT 0,2                                    *
00343  0340 00 2 00000         CAS ,2          SEARCH                     *
00344  0020 00 0 00346         TRA *+2                                    *
00345  1 00000 0 00352         TXI *+5         GOT IT, GET LOC IN XRA     *
*10                                              *
00346  1 77777 2 00347         TXI *+1,2,-1    SEARCH ALL LOCATIONS       *
00347  3 00000 2 00343         TXH *-4,2,0     EVEN UNTO THE LAST.        *
00350  0420 00 0 77777         HPR 32767       WORD NOT FOUND THAT SHOULD
00351  0021 00 0 00002         TTR REP         HAVE BEEN STORED FROM MQ.
*       CHECK ACC TO SEE IF WORD FROM MQ HAS BEEN ALTERD.

*       DOWN SW 1 DOWN, PRESS START TO TRY AGAIN.
                                                                           *
                                                                           *
                                                                           *
00352  0634 00 2 00353         SXA *+1,2                                  *
00353 -0774 00 1 00000         AXC **,1        TRUE LOC TO XRA            *
00354  0000 00 0 00002         HTR REP         MQ WAS STORED AT LOCATION
*       SHOWN IN XRA. CORRECT LOCATION IN DECREMENT
*       OF ACC. WITH SW 1 DN, PRESS START TO TRY AGAIN.



*       CHECKING EST WITH INDIRECT ADDRESSING.

*AS BEFORE, ON ERROR THE CORE IS SEARCHED UNTIL WORDS ARE FOUND.

*       SENSE LITE INDICATIONS-
*           LITE 1 - ERROR IN STORING ACC.
*           LITE 2 - ERROR IN STORING MQ.



00355 -0625 00 0 00004  ME      STL 4           AUTO REPEAT
00356  0761 00 0 00434          NOP WHEN        LOC OF NEXT ROUTINE
00357  0760 00 0 00140          SLF
00360  0600 00 0 01044          STZ LAST+1      CLEAR RECIEVERS
00361  0600 00 0 01045          STZ LAST+2
00362  0774 00 1 01044          AXT LAST+1,1
00363 -0754 00 1 00000          PXD ,1          GENERATE WORDS TO BE STORED
00364  0131 00 0 00000          XCA
00365  1 00001 1 00366          TXI *+1,1,1
00366 -0754 00 1 00000          PXD ,1
*10
00367  0131 00 0 00000          XCA             ACC AND MQ DECREMENTS
00370  0020 00 0 00372          TRA *+2           WITH PROPER LOCATIONS.
```

```
00371  0761 00 0 01044         NOP LAST+1     ADDRESS FOR EST WITH IA
00372 -0673 60 0 00371         EST* *-1       EST IN*LAST+1*
00373  0760 00 0 00162         SWT 2
00374  0020 00 0 00002         TRA REP        DONE CHECK IF 2 DOWN
00375  0340 00 0 01044         CAS LAST+1     CHECK ACC WORD.
00376  0020 00 0 00400         TRA *+2
00377  0020 00 0 00415         TRA ME+32      OK, CHECK MQ
*20
00400  0760 00 0 00141         SLN 1          SIGNAL ACC ERROR
00401  0774 00 2 00000         AXT 0,2
00402  0340 00 2 00000         CAS 0,2        SEARCH STORAGE FROM
00403  0020 00 0 00405         TRA *+2                00000 TO 77777.
00404  1 00000 0 00411         TXI *+5
00405  1 77777 2 00406         TXI *+1,2,-1
00406  3 00000 2 00402         TXH *-4,2,0    SEARCH ALL LOCATIONS.
00407  0420 00 0 77777         HPR 32767      CANT FINDF WORD THAT SHOULD
00410  0021 00 0 00002         TTR REP        HAVE BEEN STORED FROM ACC.
                                   SWT 1 DN- PUSH START TO TRY AGAIN.


00411 -0634 00 2 00404         SXD *-5,2
*30
00412 -0535 00 1 00404         LDC *-6,1      TRUE LOC TO XRA
00413  0000 00 0 00002         HTR REP        ACC STOR AT LOC SHOWN
*      IN XRA. CORR LOC IN DECREMTN OF ACC.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.

00414  0131 00 0 00000         XCA            IF ACC OK, CHECK MQ.
00415  0340 00 0 01045         CAS LAST+2
00416  0020 00 0 00420         TRA *+2
00417  0020 00 0 00002         TRA REP        OK, PROCEED
00420  0760 00 0 00142         SLN 2          SIGNAL MQ ERROR.
00421  0774 00 2 00000         AXT 0,2
00422  0340 00 2 00000         CAS ,2         SEARCH
00423  0020 00 0 00425         TRA *+2
*40
00424  1 00000 0 00431         TXI *+5
00425  1 77777 2 00426         TXI *+1,2,-1
00426  3 00000 2 00422         TXH *-4,2,0    SEARCH ALL LOCS.
00427  0420 00 0 77777         HPR 32767      CANT FIND WORH THAT SHOULD
00430  0021 00 0 00002         TTR REP        HAVE BEEN STORED FROM MQ.
                                   SW 1 DN- PUSH START TO TRY AGAIN.


00431 -0634 00 2 00424         SXD *-5,2
00432 -0535 00 1 00424         LDC *-6,1      TRUE LOC TO XRA
00433  0000 00 0 00002         HTR REP        MQ STORED AT LOCA SHOWN
*      IN XRA. CORR LOC IN DECREMTN OF MQ.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.


*      CHECKING EST FOR ADDRESSING TO ALL OF STORAGE.

*ALL STORED LOCATIONS WILL BE CHECKED.
*STORING WILL INCLUDE LOCATION 77777 AND 00000.
*      ACC STORED IN ODD LOCATIONS.
```

```
*      MQ STORED IN EVEN LOCATIONS.

*      SENSE LITE INDICATIONS-
*          LITE 2 - ERROR IN STORING MQ AT LOC ZERO.
*          LITE 3 -  ERROR IN STORING ACC OR MQ.


00434 -0625 00 0 00004  WHEN   STL 4          FOR AUTO RESTART.
00435  0761 00 0 00511         NOP ELDSC
00436  0760 00 0 00140         SLF
00437  0774 00 6 76734         AXT 32767-LAST,6 GET NO. OF REMAINING LOCS.
00440  0754 00 6 00000         PXA ,6
00441  0760 00 0 00001         LBT            START WITH ODD ADDRESS
00442  1 00001 6 00443         TXI *+1,6,1    IF EVEN, MAKE ODD
00443  0754 00 6 00000         PXA ,6         IF OK, OK
00444  0737 00 1 00000         PAC ,1         TRUE LOC TO XRA
00445 -0754 00 1 00000         PXD 0,1        GENERATE ADDRESSES.
*10
00446  0131 00 0 00000         XCA
00447  1 00001 1 00450         TXI *+1,1,1
00450  0754 00 1 00000         PXA ,1
00451  0131 00 0 00000         XCA            ACC ODD, MQ EVEN
00452 -0673 00 2 00000         EST 0,2        FILL CORE WITH ADDRESSES
00453  1 00001 1 00454         TXI *+1,1,1    NEXT LOC.   AT ADDRESSES.
00454  2 00002 2 00445         TIX *-7,2,2    STORE AROUND THE CORNER.

00455  0760 00 0 00162         SWT 2
00456  0020 00 0 00460         TRA *+2
00457  0020 00 0 00002         TRA REP        DONT CHECK IF 2 IS DOWN.
*20
00460 -0500 00 0 00000         CAL            CHECK LOC ZERO FIRST
00461  0100 00 0 00464         TZE *+3        SHOULD BE ZERO, INCL SIGN.
00462  0760 00 0 00142         SLN 2          ERROR IN MQ STORE ON EST
00463  0000 00 0 00002         HTR REP        LOC ZERO WAS NOT MADE ZERO,
                                   WHEN EST STORED AROUND THE CORNER.
                                   SW 1 DN- PUSH START TO TRY AGAIN.


00464  0500 00 0 00070         CLA GUS-2      RESTORE
00465  0602 00 0 00000         SLW            POST RESTART
00466  0600 00 0 00001         STZ REP-1      AT LOC 1.



00467  0754 00 4 00000         PXA ,4         NEW, SEARCH REST OF CORE
00470  0737 00 1 00000         PAC ,1         FIRST LOC TRUE
00471 -0754 00 1 00000  EXTRA  PXD 0,1        TO ACC
*30
00472  0340 00 4 00000         CAS ,4         CHECK EACH LOC
00473  0020 00 0 00475         TRA *+2
00474  0020 00 0 00476         TRA *+2        OK
00475  0020 00 0 00505         TRA XTRA
00476  1 00001 1 00477         TXI *+1,1,1    GET NEXT LOC IN XRA
00477 -2 00001 4 00002         TNX REP,4,1    TO STOP CKING AT ZERO.
00500  0502 00 0 00001         CLS REP-1      ALTERNATE THE
00501  0601 00 0 00001         STO REP-1        SIGN CONDITION.
```

```
00502  0120 00 0 00471         TPL EXTRA      ALTERNATLY CHECKING
*40
00503  0754 00 1 00000         PXA 0,1        THE CONT STORED BY
00504  0020 00 0 00472         TRA EXTRA+1    ACC AND MQ
00505  0760 00 0 00143  XTRA   SLN 3          ACC OR MQ ERROR
00506  0131 00 0 00000         XCA            PUT CORRECT CONTENTS TO MQ
00507  0500 00 4 00000         CLA ,4         ERROR WORD TO ACC
00510  0000 00 0 00002         HTR REP        THE LOCATION SHOWN
*      IN XRA WAS NOT STORED CORRECTLY ON EST.
*      THE ERROR WORD IS IN THE ACCUMULATOR.
*      THE CORRECT WORD IS IN THE MQ.
*      IF WORDS IN-  ADDR- MQ STORING ERROR.
*                    DECR- ACC STORING ERROR.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.



**********BEGIN CHECKING ELD-   EXTENDED LOAD 0670**********



*      CLOED LOOP FOR SCOPING ELD


00511 -0625 00 0 00004  ELDSC  STL 4          FOR AUTO REPEAT
00512  0761 00 0 00523         NOP I
00513 -0754 00 0 00000         PXD            CLEAR ACC
00514  0765 00 0 00043         LRS 35         CLEAR MQ
00515  0670 00 0 00521         ELD *+4        SPECIAL DUMP.

00516  0760 00 0 00161         SWT 1          WANT A CLOSED LOOP
00517  0020 00 0 00523         TRA I          UP- NO -GO ON.
00520  0020 00 0 00515         TRA *-3        DN- YES- REPEAT.

00521 +000000000000            OCT +0         ANY DATA DESIRED CAN BE
00522 +000000000000            OCT +0           STORED FOR SCOPING.


*      CHECKING ELD TO LAOD FROM SEQUENTIAL LOCATIONS.

*      SENSE LITE INDICATIONS-
*          LITE 1 - ERROR IN LOADING ACC.
*          LITE 2 - ERROR IN LOADING MQ.



00523 -0625 00 0 00004  I      STL 4          FOR AUTO REPEAT
00524  0761 00 0 00555         NOP WAS
00525  0760 00 0 00140         SLF
00526  0774 00 1 01043         AXT LAST,1     MAKE SURE WE HAVE
00527 -0754 00 1 00000         PXD ,1         ADDRESS AT ADDRESS.
00530  0602 00 0 01043         SLW LAST       ACC NORM GETS DECR ON ELD.
00531  1 00001 1 00532         TXI *+1,1,1    WHEN DOING EXTENDED FL. PT.
00532  0754 00 1 00000         PXA ,1         IN ADDRESS FIELD FOR
00533  0602 00 0 01044         SLW LAST+1     MQ WORD.
```

```
00534 -0754 00 0 00000         PXD            CLEAR ACC
*10
00535  0765 00 0 00043         LRS 35         CLEAR MQ
00536  0670 00 0 01043         ELD LAST       LOAD ACC DECR, MQ ADDR...
00537  0760 00 0 00162         SWT 2
00540  0020 00 0 00542         TRA *+2
00541  0020 00 0 00002         TRA REP        DONT TEST IF 2 DOWN
00542  0340 00 0 01043         CAS LAST       CHECK ACC
00543  0020 00 0 00545         TRA *+2
00544  0020 00 0 00547         TRA *+3        OK, CHECK MQ
00545  0760 00 0 00141         SLN 1          SIGNAL ACC WRONG
00546  0000 00 0 00002         HTR REP        ERROR IN LOADING ACC ON
*      ELD. SHOULD HAVE LOC -LAST- STORED IN DECREMENT.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.


*20
00547  0131 00 0 00000         XCA            IF ACC OK, CHECK MQ.******
00550  0340 00 0 01044         CAS LAST+1                              *
00551  0020 00 0 00553         TRA *+2                                 *
00552  0020 00 0 00002         TRA REP        OK, PROCEED              *
00553  0760 00 0 00142         SLN 2          SIGNAL MQ ERROR          *
00554  0000 00 0 00002         HTR REP        ERROR IN LOADING MQ ON
*      ELD. SHOULD HAVE LOC -LAST+1- IN ADDRESS.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.


*      CHECKING ELD TO LOAD ALL 36 BITS.

*      SENSE LITES INDICATIONS-
*          LITE 1 - ERROR IN LOADING ACC.
*          LITE 2 - ERROR IN LOADING MQ.



00555 -0625 00 0 00004  WAS    STL 4          FOR AUTO RESTART.
00556  0761 00 0 00605         NOP IN
00557  0760 00 0 00140         SLF            LIGHTS OUT
00560 -0754 00 0 00000         PXD            CLEAR ACC
00561  0760 00 0 00006         COM            ALL ONES
00562  0602 00 0 01043         SLW LAST       FILL S,1-35
00563  0602 00 0 01044         SLW LAST+1
00564 -0754 00 0 00000         PXD            CLEAR ACC
00565  0765 00 0 00043         LRS 35         CLEAR MQ
00566  0670 00 0 01043         ELD LAST       LOAD ALL ONES- MQ AND ACC.
*10
00567  0760 00 0 00162         SWT 2
00570  0020 00 0 00572         TRA *+2
00571  0020 00 0 00002         TRA REP        DONT CHECK IF 2 DOWN.

00572  0340 00 0 01043         CAS LAST       CHECK ACC
00573  0020 00 0 00575         TRA *+2
00574  0020 00 0 00577         TRA *+3        OK, CHECK MQ.
00575  0760 00 0 00141         SLN 1          SIGNAL ACC ERROR
00576  0000 00 0 00002         HTR REP        ERROR IN LOADING ALL ONES
                                    TO ACC ON ELD.
```

```
*      WITH SW 1 DOWN- PUSH START AND TRY AGIAN.


00577  0131 00 0 00000         XCA             IF ACC OK, CHECK MQ********
00600  0340 00 0 01044         CAS LAST+1      SHOULD HAVE ALL ONES.     *
*20
00601  0020 00 0 00603         TRA *+2         NG                        *
00602  0020 00 0 00002         TRA REP         OK, PROCEED               *
00603  0760 00 0 00142         SLN 2           SIGNAL MQ ERROR           *
00604  0000 00 0 00002         HTR REP         ERROR IN LOADING ALL ONES
                                    TO MQ ON ELD.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.


*      CHECKING ELD WITH INDEXING

                                    SIGNS UNLIKE ACC S- S+

*      SENSE LITE INDICATIONS-
*          LITE 1 - ERROR IN LOADING ACC.
*          LITE 2 - ERROR IN LOADING MQ.



00605 -0625 00 0 00004  IN      STL 4           FOR AUTO RESTART
00606  0761 00 0 00637         NOP KNEE
00607  0760 00 0 00140         SLF
00610  0774 00 1 01043         AXT LAST,1
00611 -0754 00 1 00000         PXD ,1          GENERATE ACC WORD.
00612 -0760 00 0 00003         SSM             ACC WORD MINUS
00613  0601 00 0 01043         STO LAST
00614 -0754 00 0 00000         PXD             CLEAR ACC
00615  0760 00 0 00006         COM             ALL ONES, SIGN PLUS
00616  0601 00 0 01044         STO LAST+1      MQ WORD- ONES 1-35, S+.
*10
00617  0774 00 1 77775         AXT -3,1        XRA GETS 77775. INDEX BY
                                    COLS 16 AND 17 TO ADD 3.
00620  0670 00 1 01040         ELD LAST-3,1    LOAD FROM -LAST-.
00621  0760 00 0 00162         SWT 2
00622  0020 00 0 00624         TRA *+2
00623  0020 00 0 00002         TRA REP         DONT CHECK IF 2 IS DOWN
00624  0340 00 0 01043         CAS LAST        CHECK ACC
00625  0020 00 0 00627         TRA *+2
00626  0020 00 0 00631         TRA *+3         OK, CHECK MQ

00627  0760 00 0 00141         SLN 1           SIGNAL ACC ERR
00630  0000 00 0 00002         HTR REP         ERROR IN LOADING ACC ON
*      ELD INDEXED. SHOULD HAVE LOC -LAST- STORED IN DECR.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.

*20

00631  0131 00 0 00000         XCA             IF AC OK, CHECK MQ.******
00632  0340 00 0 01044         CAS LAST+1                                *
00633  0020 00 0 00635         TRA *+2
00634  0020 00 0 00002         TRA REP         OK, PROCEED               *
```

```
00635  0760 00 0 00142         SLN 2          SIGNASL MQ ERROR        *
00636  0000 00 0 00002         HTR REP        ERROR IN LOADING ONES TO
                                   MQ 1-35 ON ELD.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.


*      CHECKING ELD WITH INDIRECT ADDRESSING.

*      SENSE LITE INDICATIONS-
*          LITE 1 - ERROR IN LOADING ACC.
*          LITE 2 - ERROR IN LOADING MQ.


00637 -0625 00 0 00004  KNEE   STL 4          FOR AUTO REPEAT.
00640  0761 00 0 00666         NOP PANTS
00641  0760 00 0 00140         SLF
00642 -0754 00 0 00000         PXD            CLEAR ACC
00643  0601 00 0 01043         STO LAST       ACC WORD ZERO
00644  0760 00 0 00006         COM
00645  0602 00 0 01044         SLW LAST+1     MQ WORD ALL ONES.
00646  0020 00 0 00650         TRA *+2
00647  0761 00 0 01043         NOP LAST
00650  0670 60 0 00647         ELD* *-1       LOAD FROM -LAST-
*10
00651  0760 00 0 00162         SWT 2
00652  0020 00 0 00654         TRA *+2
00653  0020 00 0 00002         TRA REP        DONT CHECK IF 2 IS DOWN
00654 -0100 00 0 00656         TNZ *+2        SHOULD BE ZERO
00655  0120 00 0 00660         TPL *+3        SHOULD BE PLUS
00656  0760 00 0 00141         SLN 1          SIGNAL ACC ERROR.
00657  0000 00 0 00002         HTR REP        ERROR IN LOADING ALL
                                   ZEROSS TO ACC ON ELD IA.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.


00660  0131 00 0 00000         XCA            IF ACC OK, CHECK MQ.********
00661  0340 00 0 01044         CAS LAST+1     SHOULD HAVE ALL ONES       *
00662  0020 00 0 00664         TRA *+2
*20
00663  0020 00 0 00002         TRA REP        OK, PROCEED.               *
00664  0760 00 0 00142         SLN 2          SIGNAL MQ ERROR            *
00665  0000 00 0 00002         HTR REP        ERROR IN LOADING ALL ONES
                                   TO MQ ON ELD IA.
*      WITH SW 1 DOWN- PUSH START TO TRY AGAIN.



*      CHECKING ELD FOR LOADING FROM ALL UNUSED PORTIONS OF STOR.

*      SENSE LITE INDICATIONS-
*          LITE 1 - ERROR IN LOADING ACC.
*          LITE 2 - ERROR IN LOADING MQ.


00666 -0625 00 0 00004  PANTS  STL 4          FOR AUTO RESTART
00667  0761 00 0 00724         NOP GET
```

```
00670  0760 00 0 00140         SLF
00671  0774 00 6 76734         AXT 32767-LAST,6 LOAD XRB AND XRC.
00672  0754 00 2 00000         PXA ,2          GENERATE ADDRESSES.
00673  0737 00 1 00000         PAC ,1          GET TRUE FORM
00674  0754 00 1 00000         PXA ,1          FIRST ADDRESS
00675  0601 00 2 00000         STO 0,2         FILLING UP UNUSED STOR.
                                               LOC ADDR IN WORD ADDR.
00676  0361 00 0 00723         ACL PANTS+29    ADD 1 FOR NEXT LOC
00677  2 00001 2 00675         TIX *-2,2,1     STEP XRB TO NEXT LOC
*10
00700  0670 00 4 00000         ELD 0,4         NOW RD BACK BYT ELD AND CK.
00701  0760 00 0 00162         SWT 2           THAT ELD GETS CORRECT WORDS.
00702  0020 00 0 00704         TRA *+2
00703  0020 00 0 00716         TRA PANTS+24    DONT CHECK IF 2 IS DOWN
00704  0340 00 4 00000         CAS ,4          CHECK ACC
00705  0020 00 0 00707         TRA *+2         ERR
00706  0020 00 0 00711         TRA *+3         OK, CHECK MQ
00707  0760 00 0 00141         SLN 1           SIGNAL ACC ERROR.
00710  0000 00 0 00002         HTR REP         ERROR IN LOADING ADDR
*      TO ACC ON ELD. CORR ADDR IN XR.
*               WITH SW 1 DOWN- PUSH START TO TRY AGAIN.

00711  1 00001 1 00712         TXI *+1,1,1     STEP TO MQ ADDRESS
*20
00712 -2 00001 4 00002         TNX REP,4,1     NEXT LOC, OR FINISHED

00713  0131 00 0 00000         XCA             **CHECK MQ
00714  0340 00 4 00000         CAS ,4          *
00715  0020 00 0 00717         TRA *+2         *
00716  1 00001 1 00721         TXI *+3,1,1     *    OK, PROCEED
00717  0760 00 0 00142         SLN 2           *   SIGNAL MQ ERROR.
00720  0000 00 0 00002         HTR REP          ERROR IN LOADING ADDR
*      TO MQ ON ELD. CORR ADDR IN XRA.
*                WITH SW 1 DOWN- PUSH START TO TRY AGAIN.

00721  2 00001 4 00700         TIX PANTS+10,4,1 NEXT LOC.
00722  0020 00 0 00002         TRA REP         OK, PROCEED
00723 +000000000001           OCT 1


******************PROGRAM COMPLETE AND STOP ROUTINE**************

                                   REPEAT PROGRAM IF SW 6 DOWN

00724 -0625 00 0 00004  GET    STL 4           FORCE OF HABIT.
00725  0761 00 0 00736         NOP LOST

00726  0760 00 0 00166         SWT 6
00727  0020 00 0 00731         TRA *+2         FINISHED IF SW 6 IS UP
00730  0020 00 0 00736         TRA LOST        REPEAT PROG. IF 6 IS DOWN

00731  0762 00 0 01321         RCDA            PUSH
00732  0540 00 0 00735         RCHA *+3          LOAD
00733  0544 00 0 00000         LCHA                CARDS
00734  0021 00 0 00001         TTR 1                 BUTTON.
00735 -1 00003 0 00000         IOCT 0,,3
```

```
*      REPEAT PROGRAM AFTER PROG COMPLETE SIGNAL GIVEN.
00736 -0625 00 0 00004  LOST   STL 4
00737  0761 00 0 00030         NOP GENE
00740  0140 00 0 00741         TOV *+1        SHOULD BE OFF, BUT MAKE SURE
00741 -0754 00 0 00000         PXD            CLEAR
00742  0760 00 0 00006         COM            ALL ONES
00743  0767 00 0 00001         ALS 1          ACC OV TURNED ON AND MQ
00744  0765 00 0 00026         LRS 22         LOADED TO SIGNAL PASS COMP
00745  0760 00 0 00144         SLN 4          SAME SPEACH.
00746  0402 00 0 00723         SUB GET-1      MINUS ONE
00747  0120 00 0 00746         TPL *-1        DELAY FOR VISUAL SIGNALS.
*10
00750  0140 00 0 00751         TOV *+1        TURN OFF
00751 -0754 00 0 00000         PXD            CLEAR AC
00752  0131 00 0 00000         XCA            AND
00753 -0754 00 0 00000         PXD              MQ
00754  0760 00 0 00140         SLF            LIGHTS OUT.


00755  0760 00 0 00166         SWT 6          STILL DOWN
00756  0020 00 0 00731         TRA GET+5      CHANGED YOU MIND.
00757  0534 00 1 01010         LXA PSCTR,1    STEP PASS
00760  1 00001 1 00761         TXI *+1,1,1        COUNTER.
00761  0634 00 1 01010         SXA PSCTR,1

*      PRINT ON EVERY 100 PASSES.
00762 -3 00143 1 00767         TXL BEGIN,1,99 SIGNAL FOR 100 PASSES.


*      ADJUSTING THE CONTROL FOR PRINTING 100 PASSES COMPLETE.
00763  0774 00 1 01011         AXT PI2,1      TO ADJUST THE I/O
00764  0634 00 1 01007         SXA CTWD,1         COMMAND WORD.
00765  0600 00 0 01010         STZ PSCTR      CLEAR PASS CTR ON
00766  0020 00 0 00777         TRA PRNT       EACH 100 PASSES.


00767  0500 00 0 00772  BEGIN  CLA *+3        INITIALIZEING
00770  0601 00 0 00000         STO            LOCATION ZERO.
00771  0020 00 0 00773         TRA *+2
00772  0020 00 0 00030         TRA GENE
00773  0500 00 0 00774         CLA *+1        ALTERING THE TRA INST
00774  0761 00 0 00000         NOP            TO A NOP AFTER
00775  0601 00 0 00771         STO *-4          INITIAL PASS.
00776  0766 00 0 01361         WPRA           SPACE PRINTER.



00777  0760 00 0 00163  PRNT   SWT 3          WANT TO PRINT...
01000  0020 00 0 01002         TRA *+2        UP  - YES - PRINT.
01001  0020 00 0 00767         TRA BEGIN      DN  -NO -START PROGRAM
                                                  AFTER INITIALIZING..

01002  0766 00 0 01361         WPRA
01003  0540 00 0 01007         RCHA CTWD
01004  0060 00 0 01004         TCOA *
```

```
01005  0020 00 0 00767         TRA BEGIN      TO INITIALIZE
01006  0000 00 0 00000         HTR
01007  0000 30 0 01044  CTWD   IOCD PI1,0,24
01010 +000000000000     PSCTR  OCT +0


*      9EFP SECTION 1-  100 PASSES COMPLETE.
01011 +010010000000     PI2    OCT 010010000000   9 ROW LEFT
01012 +000000000000            OCT 000000000000   9 ROW RIGHT
01013 +000000000000            OCT 000000000000   8 L
01014 +010000000000            OCT 010000000000   8 R
01015 +001000001000            OCT 001000001000   7 L
01016 -000000000000            OCT 400000000000   7 R
01017 +002004000002            OCT 002004000002   6 L
01020 +000000000000            OCT 000000000000   6 R
01021 +004102000040            OCT 004102000040   5 L
01022 +120000000000            OCT 120000000000   5 R
01023 +000000000001            OCT 000000000001   4 L
01024 +000000000000            OCT 000000000000   4 R
01025 +000060000004            OCT 000060000004   3 L
01026 +250000000000            OCT 250000000000   3 R
01027 +000200000320            OCT 000200000320   2 L
01030 +000000000000            OCT 000000000000   2 R
01031 +000000420400            OCT 000000420400   1 L
01032 +000000000000            OCT 000000000000   1 R
01033 +000220014320            OCT 000220014320   0 L
01034 +040000000000            OCT 040000000000   0 R
01035 +001006201003            OCT 001006201003   11 L
01036 -200000000000            OCT 600000000000   11 R
01037 +006150000444            OCT 006150000444   12 L
01040 +130000000000            OCT 130000000000   12 R
01041  0761 00 0 00000         NOP
01042  0761 00 0 00000         NOP
01043  0000 00 0 00000  LAST   HTR

*      9EFP SECTION 1, EXTENDED PRECISION FLOATING POINT TEST BEGINS.
01044 +010010000011     PI1    OCT 010010000011   9 ROW LEFT
01045 +200202000200            OCT 200202000200   9 ROW RIGHT
01046 +000000200000            OCT 000000200000   8 L
01047 +000000000020            OCT 000000000020   8 R
01050 +001000010020            OCT 001000010020   7 L
01051 +000050000400            OCT 000050000400   7 R
01052 +002004000000            OCT 002004000000   6 L
01053 +112004000000            OCT 112004000000   6 R
01054 +004102023204            OCT 004102023204   5 L
01055 +040101041100            OCT 040101041100   5 R
01056 +000000000500            OCT 000000000500   4 L
01057 +000000000000            OCT 000000000000   4 R
01060 +000060204002            OCT 000060204002   3 L
01061 +004400510020            OCT 004400510020   3 R
01062 +000200000000            OCT 000200000000   2 L
01063 -000000022040            OCT 400000022040   2 R
01064 +000000400000            OCT 000000400000   1 L
01065 +001000000000            OCT 001000000000   1 R
01066 +000220214000            OCT 000220214000   0 L
```

```
01067 -000400530040           OCT 400400530040   0 R
01070 +001006001030           OCT 001006001030   11 L
01071 +146115000100           OCT 146115000100   11 R
01072 +006150022707           OCT 006150022707   12 L
01073 +211242043620           OCT 211242043620   12 R

                00767         END BEGIN
```